SWITCHES AND SENSORS

FROM MARQUARDT

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MARQUARDT

APPROVAL MARKS

	ENEC 05 (KEMA)		UL (USA)
	ENEC 10 (VDE)		UL (USA + Canada)
	VDE		CSA (Canada)
			CSA (Canada + USA)

TERMINAL SYMBOLS

	Quick-connect terminal		Cable
	Solder terminal		Terminal strip
	Short solder terminal		Push-in terminal
	PCB terminal		Snap-in terminal
	PCB terminal angled to left		Cut terminal
	PCB terminal angled to right		Screw terminal
	Socket terminal		

ACTUATOR SYMBOLS

	Straight lever		Lever simulated roller with adjusting screw
	Lever simulated roller		Lever with adjusting screw and roller
	Lever with roller		Lever with cams
	Differential lever		Housing cams
	Spring lever		Pushbutton
	Spring lever bent		Rotary shaft
	Spring lever with molded spring cam		Standard actuator
	Lever with adjusting screw		Mushroom-shaped actuator

ABBREVIATIONS TECHNICAL DRAWINGS

ad	Adjustable	**OP**	Operating position
AN	Anode	**OP NC**	Operating position normally closed contact
BL	Block	**OP NO**	Operating position normally open contact
FH	Fixing hole, locating hole fixing pin	**OR**	On request
FI	Fields for function indicator	**RC**	Recommended cut-out
FP	Free position	**RL**	Reference level
FX	Fixing pin	**SH**	Snap-in hole
ju	Adjusted	**SL**	Symbol limit
MC	Marking cathode	**SP**	Solder pads
MF	Mounting frame	**ST**	Slide travel
MP	Measuring point	**SW**	Switching position
OFF	Off	**TH**	Terminal hole
off-range	Zero position	**tk**	Thick
OG	Operating range	**to**	Top
ON	On	**TP**	Total travel position

SWITCHING FREQUENCY (ABBREVIATIONS)

e.g. 5E4 switching cycles ≙ **50 000** switching cycles

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SWITCHES AND SENSORS

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MARQUARDT

CHOOSE THE BRAND OF THE BRANDS

SETTING STANDARDS

Switches and systems come into play wherever man encounters technology. They form an important bridge between the user and the appliance.

Functional safety, shape, operating logic and comfort as well as eayse of installation, life endurance, reliability and price create the environment in which the requirements for a switch or a system evolve.

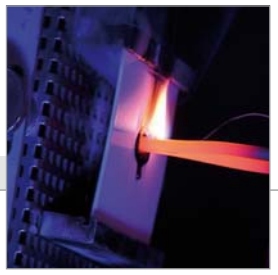
The very first switch made by Marquardt in 1925 set a new standard in its area of application. Between then and now lie hundreds of innovations and technological quantum leaps.

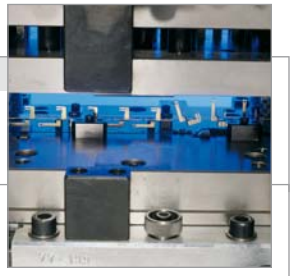
SOLID FOUNDATION

- An independent familiy business for more than 80 years
- About 7 % of the turnover annually for R&D
- The latest in development tools
- Extensive test departments
- 11 production and sales locations worldwide
- Presence on the most important markets in Europe, America and Asia

TWO SUPPORTING PILLARS

By the two business units Automotive and Switches, Sensors & Controls Marquardt sets the benchmark for the most different applications.





BUSINESS UNIT SWITCHES, SENSORS & CONTROLS

A WIDE BASE FOR INTELLIGENT SOLUTIONS

LONG EXPERIENCE

Since the beginning the name Marquardt has stood for a brand which unites consistency with a pioneering spirit. A brand which is constantly exploring new territory in the switching world, taking new roads and opening up great potential benefits for its customers in marketable switching solutions.

WIDE PRODUCT RANGE

No matter whether they are looking for sensors and switches for all kinds of household appliances, for cleaning and drive technology, for heating and air conditioning technology or for standard switches which are turned out in their millions on large automatic production lines, the electrical appliance industry finds a partner here who offers much to many.

The focus is on the individual adjustment of standard products on customer requirements as well as the new development of innovative switches, sensors and systems. Our spectrum ranges from cable assembly and the production of special subassemblies to the complete mechatronic system.

KEY COMPETENCIES

- Development and design of switches and systems for large series production
- Development and manufacture of product and system-specific electronics for switching systems
- High integration of different techniques such as electronics and mechanics
- Design and production of customized switches and switching systems

GREAT PRODUCTION DEPTH

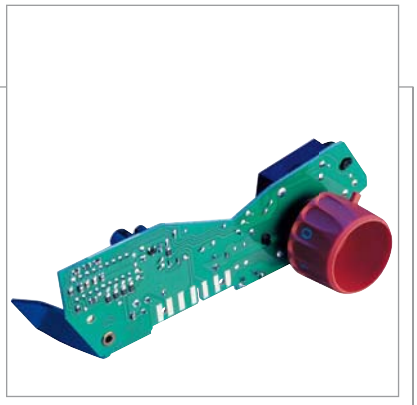
- Injection molding, varnishing and laser processing of plastic parts, multi-component injection, spraying of metal parts
- High-speed punching technology with integrated laser welding and cleaning
- SMD and THT assembly, laser soldering and welding of plastics
- Highly integrated automatic production and assembly systems

REFERENCE PRODUCTS

SWITCHES, SENSORS, LOCKS, LIGHTINGS

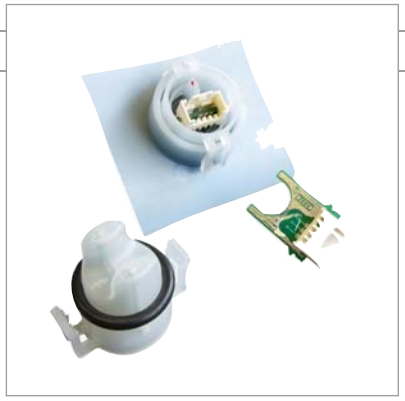
3D - imbalance sensor

Pressure sensor

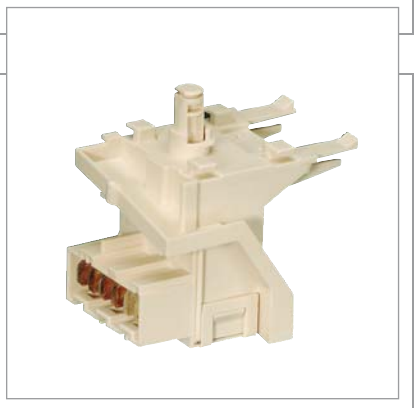


Automatic control systems

Rotary switch

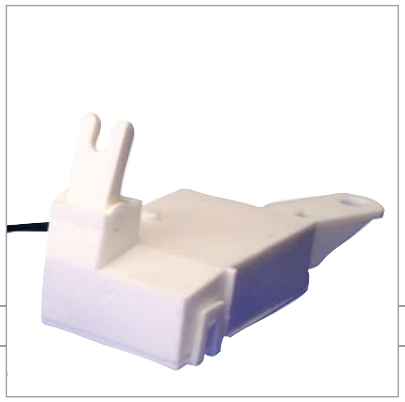


Turbidity sensor



Power switch

Door lock



Subassembly with snap-action switch

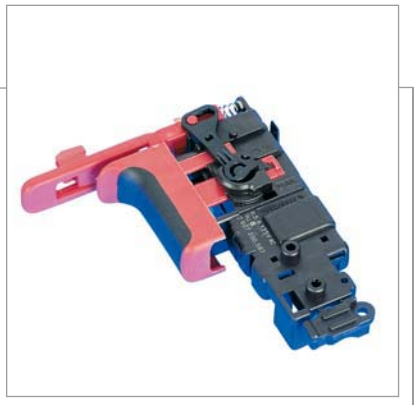
Lighting

REFERENCE PRODUCTS

SWITCHES, CONTROL SYSTEMS FOR ELECTRIC POWER TOOLS

EC-electronics

Electronic switch for AC electric power tools



Electronic switch for AC electric power tools

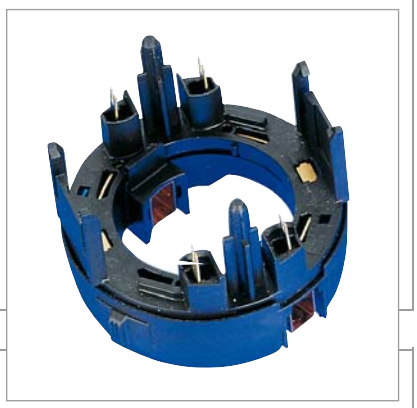
Electronic switch for AC electric power tools

Electronic switch for DC electric power tools

Electronic switch for DC electric power tools

ON/OFF trigger switch with time-delayed contact and suppression capacitor

ON/OFF switch for AC and DC electric power tools



Brushring with DT switch

REFERENCE PRODUCTS

DRIVER AUTHORIZATION SYSTEMS, ASSEMBLIES, CONTROL PANELS FOR AUTOMOBILES

Electronic key

Electronic ignition starter switch

Electronic steering lock

Keyless antennas and control devices

Gear selection switch

Central control unit

Seat control panel

Roof control panel

Rotary light switch

GENERAL TECHNICAL INFORMATION

ABOUT THE CATALOG

This catalog provides you with an overview of the wide range of Marquardt standard switches. The portfolio includes rocker switches, pushbutton switches, toggle switches, slide switches, rotary switches, foot switches, power tool switches, keys, snap-action switches, micro-signal switches and sensors.

Basic types are distinguished within a series to group products with identical properties, e.g. the design.

In addition to the standard program, a number of modified, customized variants and special products and modules are available on request.

All standard versions are listed with their order numbers.

- The order numbers of other versions and further information are available on request.
- Sample switches, approvals and installation drawings with tolerance data can be provided.

The high quality, long-life switches from Marquardt are used in many different applications. We are constantly working on new developments and customized versions. Please ask.

All the products in our entire delivery program have one common feature: The consistently high quality level which has made us the favorite supplier of leading manufacturers worldwide. We are certified in accordance with ISO TS 16949: 2002, the latest QM standard of the automotive industry. Quality is a premium for us.

APPROVALS

Almost all Marquardt switches have been tested in accordance with EN 61058-1 or IEC 61058-1 and designed for the application conditions specified therein unless specified otherwise. They carry the uniform European approval mark ENEC. The approvals for the USA and Canada are granted in accordance with UL 1054, on request also already in accordance with UL 61058 3rd ed. or CSA 61058. Please see the catalog for the respective granted approvals. A list of the approved Marquardt products can be found on the Internet pages of the respective test bodies (e.g. VDE, KEMA, UL and CSA). We will provide the appropriate certificate on request.

APPROVAL MARKS

	ENEC	– Europe
	VDE	– Germany
	UL	– USA
	CSA	– Canada
	cCSAus	– Canada with confirmation of the national US requirements
	cULus	– USA with confirmation of the national Canadian requirements

Approval marks specified in the series overview are product-dependent. That means that the products are assignable in the tables based on the rating specifications (black print – Europe / blue print – North America).

ROHS (RESTRICTION OF THE USE OF CERTAIN HAZARDOUS SUBSTANCES)

From July 1, 2006 no more new electrical and electronic products may be offered in the EU which do not comply with the RoHS directive. The use of lead, mercury, hexavalent chromium, cadmium and the flame inhibitors containing bromide PBB and PBDE is prohibited for the protection of man and the environment.

Compliance with the legal regulations is a matter of principle for Marquardt.

As far as we know and based on the information available to us from our suppliers, the products presented in this catalog meet the requirements of the EU Directive 2002/95/EU (Edition 1.12.2007).

HOUSEHOLD APPLIANCES STANDARD IEC/EN 60335

Various switches in the Marquardt product portfolio are conformant with the Household Appliance Standard IEC/EN 60335-1:2001/2002, chapter 30. These switches are identified by a „G“ in the specification or drawing and on the label of the smallest packing unit. Materials are used here which comply with the values for the glow-wire-flammability index (GWFI) and the (glow-wire-ignition-temperature (GWIT) demanded by the standard. The appropriate switches are labeled in the catalog in the product tables of the individual series. The appropriate certificate with the confirmation of conformity is available on request.

RATING FOR ALTERNATING CURRENT VOLTAGE (AC)

The electrical reference values, i.e. the maximum permissible electrical loads in continuous operation, are specified for the respective switch series. Most Marquardt switches are suitable for ohmic resistance load and motor load.
In the specification of the reference power using the bracket notation, e.g. 16 (4) A 250 V AC, the value in front of the brackets indicates the switch-off current and the value in brackets the nominal motor current. In switches which are additionally approved by test bodies in the USA (UL) and Canada (CSA) the corresponding ratings according to North American standards are listed additionally in blue. The motor loads may also be shown as HP (Horse Power) values according to North American conventions.

RATING FOR DIRECT CURRENT VOLTAGE (DC)

Since the range of DC loads is very wide and extensive and also depends very greatly on the application, no DC values are specified for the majority of the series in this catalog. Explicit tests are recommended for this. Tests which have already been carried out are available on request and the results can be used as references. As a rule of thumb it can be assumed at low currents that the specified alternating current values (AC) correspond to the direct current values when the life is reduced to about one third. In series with DC voltage specifications the specified current always refers to an ohmic load. If inductive or capacitive loads are available, the application must be checked by tests with the original load.

LIFE ENDURANCE

The mechanical life endurance is the number of possible switching cycles *without* electrical loading of the contacts whilst the electrical life endurance is determined *with* the permissible rated electrical power for the contacts. The lower the electrical load is, the closer the electrical life is to the mechanical life when using the switch in the appliance.

GOLD-PLATED CONTACTS

For applications with a rating of ≤ 300 mW or ≤ 12 V we recommend switches with gold-plated contacts, also for applications with rare actuation or in a sulfurous atmosphere or other corrosive environments.

SWITCHING FREQUENCY

For switches which are expected to be actuated more than 2 000 times a year, the test bodies prescribe an electrical life endurance of ≥ 50 000 switching cycles. The majority of our switches meets these requirements and is marked by the 5E4 symbol (50 000 switching cycles) as an additional specification in the rating data. Switches without specification of the switching cycles in the rating data are approved for a switching frequency of 10 000 cycles. These data refer to the load which is typical for and described in the IEC 61058-1 standard. For greatly differing, e.g. slower or faster actuations, we will be glad to advise you!

CONTACT DISTANCE

The majority of our appliance switches and some of our snap-action switches have a contact distance which enables full disconnection from the mains. The opening distances are even more than 3 mm in most cases. Switches which are not suitable for full disconnection are marked with the μ symbol.

The switch standard IEC 61058-1 demands a contact distance of > 1.5 mm, the Household Appliances Standard EN60335 ≤ 3 mm depending on the application for full mains disconnection. In switch variants with < 3 mm the test bodies usually acknowledge the mains plug or a disconnection device in the installation as a disconnection from the mains. Ask your test body if in doubt.

PROOF TRACKING

The proof tracking (PTI/CTI value) indicates at what voltage the proof tracking test is passed. The tracking distance is the shortest distance along the surface of the insulating material between two conductive parts. The values specified in the catalogue correspond to the division according to EN 61058-1 or IEC 61058-1.

INRUSH CURRENT

Short capacitive peak currents occur when switching on mainly in devices with power supply units (e.g. computers, printers, fax machines, etc.). The duration of these currents is typically < 10 ms. The test conditions with a special test circuit are defined in EN 61058-1 or IEC 61058-1.

Values above the possible capacitive inrush currents are available for most of our appliance switches. They are labeled with the specification of the continuous current and the maximum inrush current as well as the voltage, e.g. 5/100 A 250 V AC.

AMBIENT TEMPERATURE

The designation of the permissible ambient temperature with e.g. T 85 means that the switch can be used for a maximum ambient temperature of 85 °C according to the test criteria of the European safety standards (EN 61058 or IEC 61058-1). The identification T85/55 indicates that the connection side of the switch is suitable for an ambient temperature of 85 °C, whilst the actuating part (e.g. rocker) is subject to the room temperature of 55 °C demanded by the standard. Using the switches outside the permissible temperature range and in a very humid or corrosive atmosphere can impair the functional capability.

For UL-approved switches, the ambient temperature is determined by the RTI (Relative Temperature Index) of the used materials. Generally, the permissible ambient temperature of polyamides is 65 °C. Switches for higher ambient temperatures are available on request.

STORAGE CONDITIONS

The delivered products must be stored in the original Marquardt packaging in a temperature range between 5 and 45 °C and 30 to 75 % relative humidity. The storage time of 12 months may not be exceeded. Storage in different containers and different climates may impair the properties of the product.
Products with solder terminals can be stored under the following conditions:

- Temperatures between 5 °C and 40 °C
- Mean relative humidity below 50 % (relative humidity max. 85 %)
- No condensation and sulfurous environments

We recommend you to examine the processing results in the case of different storage conditions or on exceeding a storage time of more than 6 months.

SOLDERING CONDITIONS

1. Recommended handling instructions for lead-free hand soldering
The basis for the solderability of the products in this catalog in the as-delivered state is DIN IEC 60068-2-20.

We recommend:

Soldering devices	electronically controlled soldering station with the typical power consumption of 50 - 80 VA
Solder	flux-filled solder wire, flux type 1.2.2
Solder temperature	350 °C ±10 °C (setting on the appliance)
Soldering time	2 to 3 s

Notes:
No force may be applied to the switch terminals during soldering, otherwise the switch properties (operating position etc.) could be changed. Longer soldering times and multiple soldering can impair the mechanical properties of the solder point and adjacent areas.

When using flux, make sure that no flux gets inside the switch via the terminals. In such cases, the switch may not be soldered “upside down”, i.e. with the terminals on top.

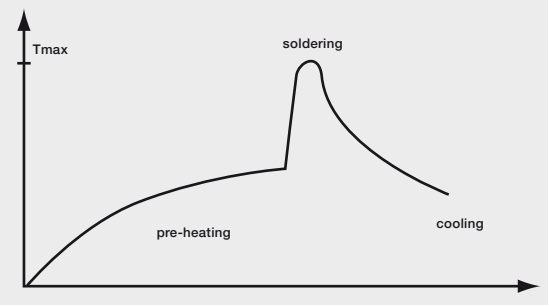
In open switching systems the soldering fumes must be kept away from the switch by suitable means.

2. Recommended handling instructions for lead-free wave soldering

Soldering profiles are published in DIN IEC 61670 which must be adapted to the respective modules and the production conditions.

Typical and maximum values:

Pre-heating	duration 80 s typical at 110 °C, max. 125 °C
Wave soldering	duration 2 - 7 s at 235 °C, Tmax. 245 °C
Gradient pre-heating	max. 2 °C/s
Gradient cooling	max. -4 °C/s



These notes are guidelines which must be adapted respectively to the concrete process.

IP TYPE OF PROTECTION

The IP types of protection according to DIN EN 61058-1 and IEC 60529 specified in our documents refer to the actuating side of the switch unless stated otherwise. The customer must provide the seal between the switch and customer appliance and test for leaks at this point.

EMC (ELECTROMAGNETIC COMPATIBILITY)

Marquardt switches for use in appliances meet the requirements for interference emissions in accordance with EN 61058-1 when they are used according to our specifications. Requirements for interference suppression in the appliances can be found in the appliance or EMC specifications.

APPLIANCE SAFETY LAW

If you need to observe the valid German appliance safety law, we recommend you to use switches which have been tested and approved according to the specifications EN 61058-1 or VDE 0630. Switches without approval marks must be tested by the approval body in connection with your appliance.

CE MARK

The CE mark is an identification according to EU law for certain products with regard to the product safety. It is not a seal of quality (quality mark). By attaching the CE mark, the manufacturer confirms that the product complies with valid European regulations. The CE mark does not mean that the product has been checked for compliance with regulations by an independent body.

Following revisions of the EU regulations in 2007 some of our switches have no labeling obligation, some are subject to the low voltage directive and some are subject to the machine directive. The CE mark and the issuing of the declaration of conformity depend on the respective situation.

A CE mark is not prescribed for the components but for the smallest packing unit.

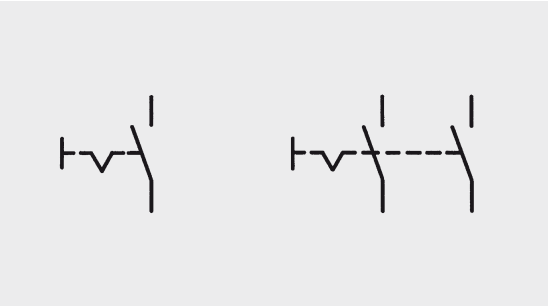
TERMINAL SYMBOLS

- Quick-connect terminal
- Solder terminal
- Short solder terminal
- PCB terminal
- PCB terminal angled to left
- PCB terminal angled to right
- Socket terminal
- Cable
- Terminal strip
- Push-in terminal
- Snap-in terminal
- Cut terminal
- Screw terminal

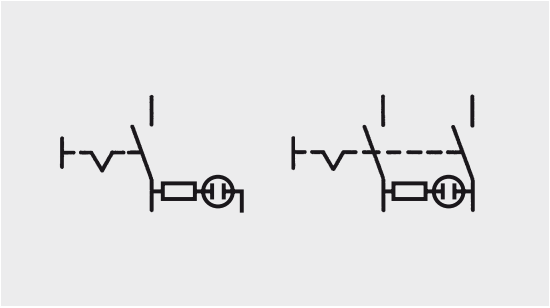
CONTACT RESISTANCE

The contact resistance is the electrical resistance which can be measured at the switch terminals with closed contacts. The data refer to unwired contacts in the new condition with a typical measuring current of greater than 100 mA. For silver-based contact materials this value is below 100 mΩ (measuring current 1 A at 12 V DC), for gold-based contact materials below 50 mΩ.

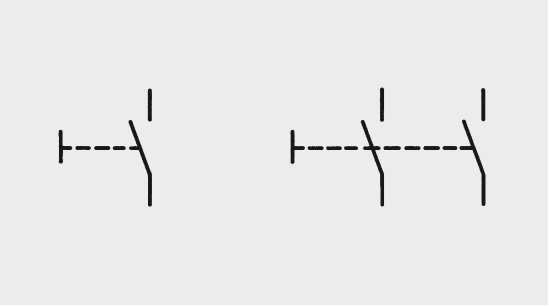
SWITCHING FUNCTIONS



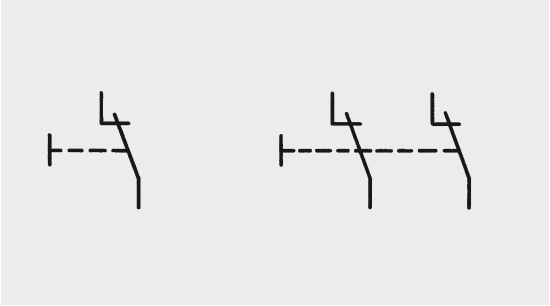
ON/OFF switch
(SPST, DPST)



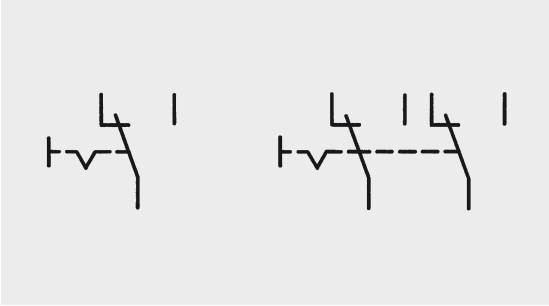
ON/OFF switch with signal lamp
(SPST-Illuminated, DPST-Illuminated)



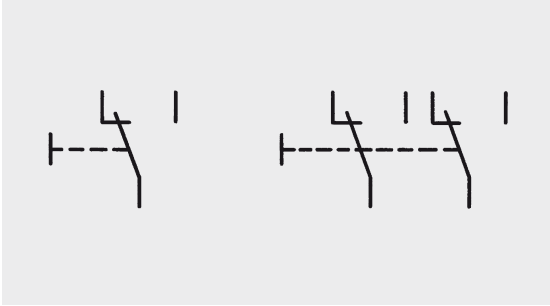
Normally open contact / pushbutton
(SPNO, DPNO)



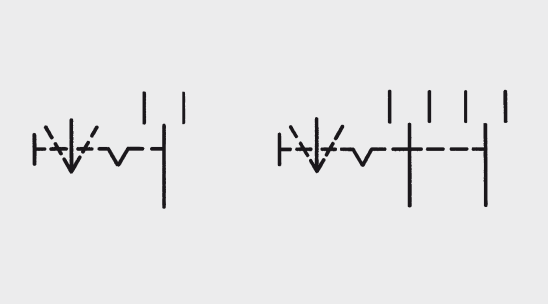
Normally closed contact / pushbutton
(SPNC, DPNC)



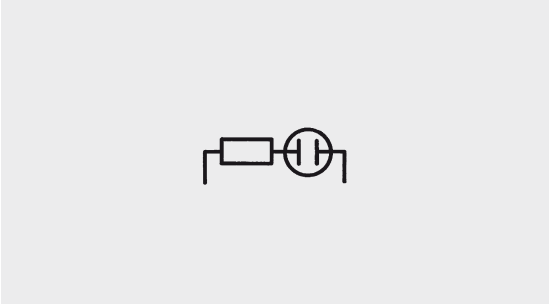
Changeover switch
(SPDT, DPDT)



Changeover switch / pushbutton
(SPDT, DPDT) momentary



Changeover switch with OFF position in center
(SPDT-Center OFF, DPDT-Center OFF)



Lamp

SPECIAL INFORMATION ABOUT SNAP-ACTION SWITCHES

SWITCHING RELIABILITY

Optimum switching reliability is achieved when the pretravel and overtravel are fully exploited so that these should be fully exploited in the concrete application. Another criterion is the contact force which depends in turn on the operating force. Switches with high contact forces should be chosen if possible.

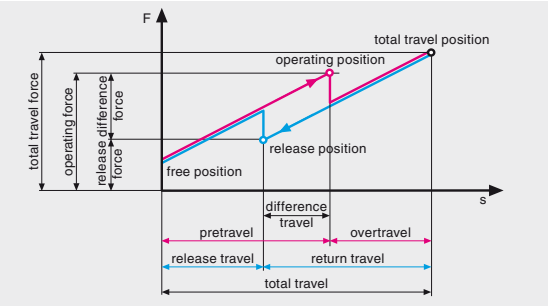
BOUNCE TIME

The bounce time is the time between the first closing of the contacts (switch-on signal) and the last time the contact resistance drops below a given threshold value. The values are typically below 5 ms at typical actuation speeds of approximately 10 mm/s.

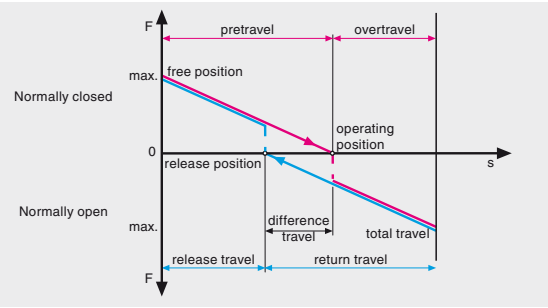
SWITCHING TIME / SWITCHING TRAVEL

Switching time/travel is the time or distance which the switching system requires to get from the first opening of the previously closed contacts to the first flow of current through the contacts closed after the snap-action. The respective operating position or release position must be exceeded reliably. Please ask about applications with very slow actuating speeds or applications in which the actuation of the switch is controlled by its switching process.

OPERATING FORCE-TRAVEL DIAGRAM



CONTACT FORCE-TRAVEL DIAGRAM



POSITIONS-FORCES-TRAVELS

Free position	Position of the actuator in which no external force is applied.
Operating position	Point on the actuator travel at which the snap mechanism is irreversibly set in operation.
Total travel position	Position of the actuator at the end of the permissible travel.
Release position	Point on the actuator travel at which the snap mechanism returns to its initial position.
Operating force	Force necessary on the actuator to move this from the free position over the operating position.
Release force	Force to which the operating force must be reduced for the snap mechanism to return to the initial position.
Difference force	Difference between operating force and release force.
Total travel force	Force necessary to keep the actuator in the permissible total travel position.
Pretravel	Distance between free position and operating position.
Overtravel	Distance between operating position and total travel position.
Return travel	Distance between total travel position and release position.
Release travel	Distance between release position and free position.
Difference travel	Distance between operating position and release position.
Total travel	Total of pretravel and overtravel or return and release travel.

The application conditions must be checked in advance for continuously actuated snap-action switches.

FURTHER INFORMATION

ORDER NUMBERS

The standard products in every series are shown in table form with their most important technical characteristics and their 8-digit order numbers. The accessories have a nine-digit order number.

CUSTOMIZED SOLUTIONS

The series and products shown in this catalog are only an excerpt from the complete Marquardt product range. One of Marquardt's strengths is the implementation of customer-specific requirements. This includes services such as cable assembly, extended or modified functions, other colors, labelings and designs as well as the integration into complete modules and systems. We offer you worldwide contacts for these services.

STOCK VERSIONS / MINIMUM ORDER QUANTITIES

Many of our standard switches are usually available immediately ex-stock in quantities of at least one packing unit (PU). These versions are marked accordingly as a stock version in the tables of the individual series. Please ask about delivery times for the unmarked versions.

A list of all switches can be found on page 232. The stock versions are marked by a dot and the respective packing unit is also listed.

APPLICATION AND AMBIENT CONDITIONS

Substances penetrating inside the switch such as greases, oils or moisture can impair the function.

MODIFICATIONS / CATALOG DATA

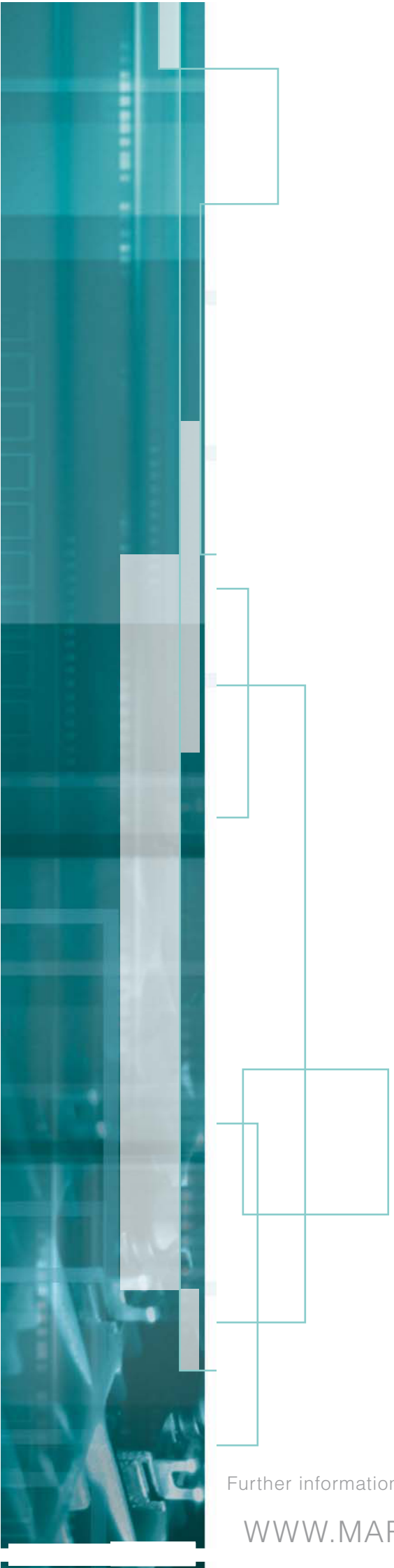
We reserve the right to make technical modifications and improvements to our products. Data in the catalog (e.g. dimensions, photos, diagrams) are not binding. Specifications, samples and installation drawings with tolerance data will gladly be provided on request.

APPLICATION NOTE / LIABILITY

Since all the data in this catalog refer exclusively to the products delivered by us, you must check whether our products are suitable for your intended application yourselves. We will be glad to help you with advice and information.
Our liability is governed exclusively by our Terms of Delivery and Payment which we will gladly send you on request.

Further information under

WWW.MARQUARDT.DE



Further information under

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SWITCHES AND SENSORS TAB OVERVIEW

ROCKER SWITCHES

PUSHBUTTON SWITCHES

TOGGLE SWITCHES

SLIDE SWITCHES

ROTARY SWITCHES

FOOT SWITCHES

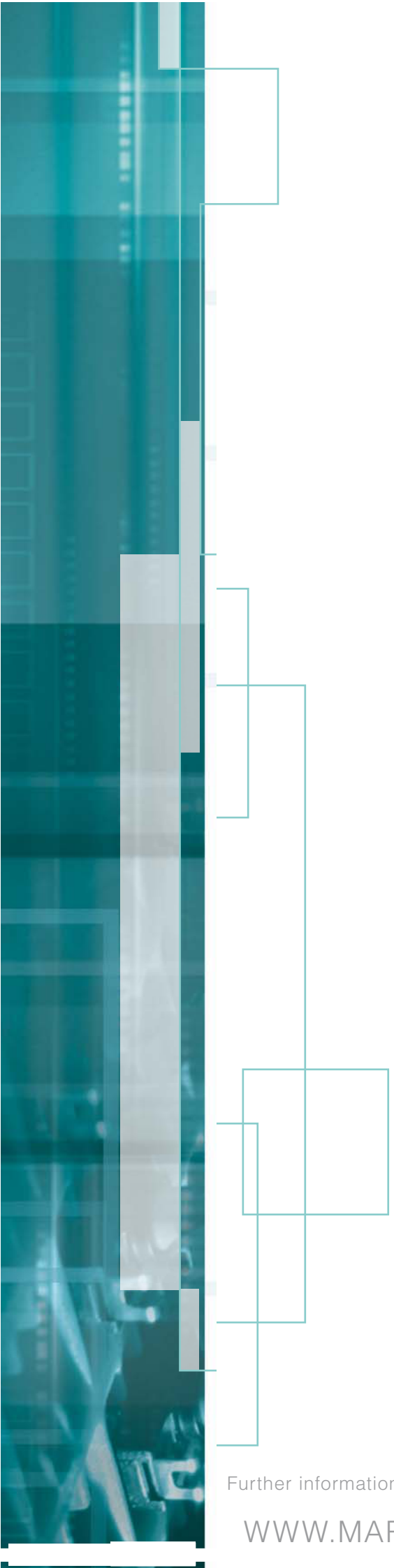
POWER TOOL SWITCHES

TACT AND KEY SWITCHES

SNAP-ACTION SWITCHES

MICRO-SIGNAL SWITCHES

SENSORS



Further information under

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ROCKER SWITCHES

ROCKER SWITCHES

ROCKER SWITCHES

SERIES 1830
Single and double-pole rocker switches / lamps
to 20 (4) A 250 V AC

Appliance cut-out: 30.0 x 11.0 mm
30.0 x 22.0 mm

PAGE 58 - 71

SERIES 1930
Double-pole rocker switches IP 65
to 20 (4) A 250 V AC

Appliance cut-out: 30.0 x 22.0 mm

PAGE 72 - 76

SERIES 1656
Single-pole rocker switches
to 10 A 250 V AC

Appliance cut-out: 28.0 x 13.0 mm

PAGE 77 - 78

SERIES 3201
Single-pole 3-step rocker switches
to 0.5 A 12 V DC

PAGE 79

SERIES 3230
Single and double-pole rocker switches / lamps
to 10 (5) A 24 V DC

Appliance cut-out: 38.4 x 19.8 mm

PAGE 80 - 84

SERIES 1257
Double-pole rocker switches
to 8 (8) A 250 V AC

PAGE 85

SERIES 0344
Three-pole rocker switches
to 16 (6) A 400 V AC

PAGE 86

SERIES 1900 - SMALLEST SINGLE-POLE ROCKER SWITCHES

TO 6 (2) A 250 V

PRODUCT FEATURES

- Reliable leaf spring contact system with contact spacing ≥ 3 mm
- Attractive, slim design
- Three sizes
- Low space requirement due to small sizes
- Variable connection technique (plug or solder)

ON REQUEST

- Other colors
- Other printing variants
- Cable assembly

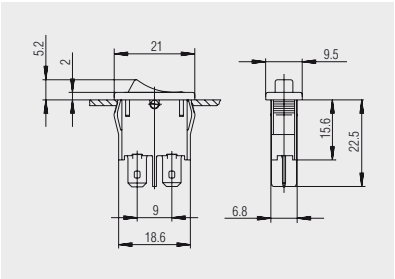
Mechanical life endurance		75E3
Operating force		2 - 5 N
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		connection side -20 °C ... +85 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA PA silver-plated
Plug force of the terminals		≤ 80 N
Approval marks		/ /
Suitable for appliances of protection class II		

SERIES 1900 - SMALLEST SINGLE-POLE ROCKER SWITCHES

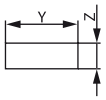
TO 6 (2) A 250 V

 single-pole	Actuator color / printing	Housing color	6 (2) A 250 V AC 1E4	4 (1) A 250 V AC 5E4	30 mA 12 V DC 5E4	6 A 125 - 250 V AC 1/8 HP	Connection type	Connection description	Contact distance in mm	Inrush current in A (capacitive)	Contact material	Miscellaneous	Stock version
ON/OFF switch (SPST)													
1901.1102			●	●		●		4.8	≥ 3	50	Ag		●
1901.1103			●	●		●		4.8	≥ 3	50	Ag		●
1901.1106			●	●		●		4.8	≥ 3	50	Ag		
1911.1102			●	●		●		4.8	≥ 3	50	Ag		●
1911.1104			●	●		●		4.8	≥ 3	50	Ag		
1921.1101			●	●		●		4.8	≥ 3	50	Ag		
1921.1102			●	●		●		4.8	≥ 3	50	Ag		●
1901.1152					●			4.8	≥ 3	50	Au		

Basic type 1901
single-pole



Quick-connect terminal 4.8

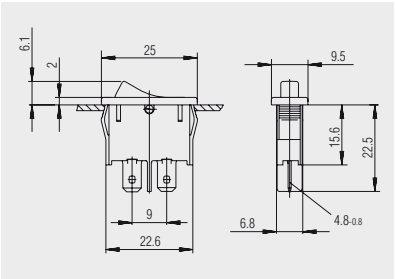


X = Wall thickness

X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	6.8 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	6.8 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	6.8 $^{+0.1}$

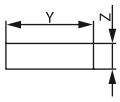
SERIES 1900 - SMALLEST SINGLE-POLE ROCKER SWITCHES

TO 6 (2) A 250 V



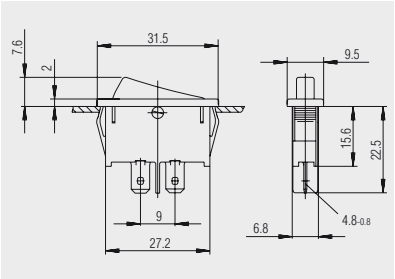
Quick-connect terminal 4.8

Basic type 1911
single-pole



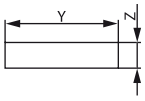
X = Wall thickness

X	Y	Z
0.75 ... 1.25	23.2 $^{-0.1}$	6.8 $^{+0.1}$
1.25 ... 2	23.4 $^{-0.1}$	6.8 $^{+0.1}$
2 ... 3	23.8 $^{-0.1}$	6.8 $^{+0.1}$



Quick-connect terminal 4.8

Basic type 1921
single-pole



X = Wall thickness

X	Y	Z
0.75 ... 1.25	30 $^{-0.1}$	6.8 $^{+0.1}$
1.25 ... 2	30.2 $^{-0.1}$	6.8 $^{+0.1}$
2 ... 3	30.6 $^{-0.1}$	6.8 $^{+0.1}$

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

PRODUCT FEATURES

- 100 million times proven switching principle
- High, flexible design variety
- Excellent actuating characteristic
- Illuminated and non-illuminated variants

ON REQUEST

- Other colors
- Other printing variants
- Other lamp variants
- Snap-on, customized actuators
- Cable assembly

Mechanical life endurance	10E4 5E4 (basic types 1808 and 1809)
Inrush current (capacitive)	50 A 70 A (contact pairing Ag / Ag, product-dependent)
Contact resistance (new condition)	< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)	> 100 MOhm (500 V DC)
Voltage strength at 250 V	1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking	250 PTI
Insulation spacing	acc. to EN 61058 for reinforced or double insulation
Protection type	IP 40
Ambient temperature	connection side -20 °C ... +100 °C ... +85 °C (product-dependent) actuating side -20 °C ... +55 °C
Flammability	UL 94 V-2 UL 94 V-0 (product-dependent)
Heat and fire resistance	850 °C (category D)
Material actuator housing connections	PA / PC PA silver-plated / tinned / gold-plated
Plug force of the terminals	≤ 80 N
Approval marks	/ /
Suitable for appliances of protection class II	

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

single-pole 	ON/OFF switch (SPST)	1800.0102	1800.0108	1800.1102	1800.1104	1800.1108	1801.1121	1801.1148	1801.1520	1801.1908	1801.5122	1801.5524	1801.6122	1801.6123	1801.6130	1802.1425	1801.1101
Voltage lamp in V		230	230	230	230	230											
Actuator color / printing																	
Housing color																	
12 (4) A 250 V AC 1E4							●	●	●	●	●	●	●	●	●	●	
10 (4) A 250 V AC 1E4		●	●	●	●	●											●
8 (8) A 250 V AC 5E4							●	●	●	●	●	●	●	●	●	●	
6 (4) A 250 V AC 5E4		●	●	●	●	●											●
6 (2) A 250 V AC 1E4																	
4 (3) A 250 V AC 6E3																	
4 (2) A 250 V AC 1E4																	
30 mA 12 V 5E4																	
30 mA 12 V DC 5E4																	
15 A 250 V AC 1 1/2 HP							●	●	●	●	●	●	●	●	●	●	
15 A 125 V AC 3/4 HP							●	●	●	●	●	●	●	●	●	●	
10 A 250 V AC 1/2 HP																	
10 A 125 V AC 1/3 HP																	
6 A 250 V AC 1/2 HP		●	●	●	●	●											●
6 A 125 V AC 1/4 HP																	●
6 A 125 - 250 V AC 1/8 HP																	
6 A 125 V AC 1/10 HP																	
4 A 250 V AC 1/10 HP																	
Connection type																	
Connection description				4.8	4.8	4.8	4.8	4.8	4.8	4.8		6.5 long				4.8	4.8
Inrush current in A (capacitive)							70	70	70	70	50	70	70	70	70	70	50
Contact distance in mm		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag
EN 60335 cap. 30 conform “G”													●			●	
Miscellaneous		sealing plate	sealing plate						snap-on rocker							two-pole housing form	
Stock version		●	●	●	●	●	●	●		●			●		●		●

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

single-pole 	ON/OFF switch (SPST)	1801.1102	1801.1119	1801.1146	1801.1403	1801.1601	1801.1912	1801.2106	1801.2402	1801.2702	1801.5429	1801.6101	1801.6102	1801.6109	1801.6115	1801.6158
Voltage lamp in V																
Actuator color / printing																
Housing color																
12 (4) A 250 V AC 1E4																
10 (4) A 250 V AC 1E4		●	●	●	●	●	●	●	●	●	●	●	●	●	●	
8 (8) A 250 V AC 5E4																
6 (4) A 250 V AC 5E4		●	●	●	●	●	●	●	●	●	●	●	●	●	●	
6 (2) A 250 V AC 1E4																
4 (3) A 250 V AC 6E3																
4 (2) A 250 V AC 1E4																
30 mA 12 V 5E4																
30 mA 12 V DC 5E4																●
15 A 250 V AC 1 1/2 HP																
15 A 125 V AC 3/4 HP																
10 A 250 V AC 1/2 HP																
10 A 125 V AC 1/3 HP																
6 A 250 V AC 1/2 HP		●	●	●	●	●	●	●	●	●	●	●	●	●	●	
6 A 125 V AC 1/4 HP		●	●	●	●	●	●	●	●	●	●	●	●	●	●	
6 A 125 - 250 V AC 1/8 HP																
6 A 125 V AC 1/10 HP																
4 A 250 V AC 1/10 HP																
Connection type																
Connection description		4.8	4.8	4.8	4.8	4.8	4.8									
Inrush current in A (capacitive)		50	50	50	50	50	50	50	50	50	50	50	50	50	50	
Contact distance in mm		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Au
EN 60335 cap. 30 conform “G”							●									●
Miscellaneous					with dust cap black	connections 30° angled			installation depth 13.2	installation depth 28.1						
Stock version		●	●	●	●			●				●	●	●	●	

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

single-pole 	Normally closed contact (SPNC)	1801.6325	1801.1302	1801.1303	Normally open contact (SPNO)	1801.6222	1801.1202	1801.2202	Switch (SPDT)	1803.1121	1803.2102	1803.2402	1803.2503	1803.5102	1803.6121	1803.6152
Voltage lamp in V																
Actuator color / printing																
Housing color																
12 (4) A 250 V AC 1E4																
10 (4) A 250 V AC 1E4		●				●				●	●	●	●	●	●	
8 (8) A 250 V AC 5E4																
6 (4) A 250 V AC 5E4		●				●				●	●	●	●	●	●	
6 (2) A 250 V AC 1E4																
4 (3) A 250 V AC 6E3																
4 (2) A 250 V AC 1E4			●	●			●	●								
30 mA 12 V 5E4																
30 mA 12 V DC 5E4																●
15 A 250 V AC 1 1/2 HP																
15 A 125 V AC 3/4 HP																
10 A 250 V AC 1/2 HP		●				●				●					●	
10 A 125 V AC 1/3 HP		●				●				●					●	
6 A 250 V AC 1/2 HP											●	●	●	●		
6 A 125 V AC 1/4 HP											●	●	●	●		
6 A 125 - 250 V AC 1/8 HP																
6 A 125 V AC 1/10 HP			●	●			●	●								
4 A 250 V AC 1/10 HP			●	●			●	●								
Connection type																
Connection description			4.8	4.8			4.8			4.8						
Inrush current in A (capacitive)																
Contact distance in mm		≥ 3	≥ 3	≥ 3		≥ 3	≥ 3	≥ 3		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3
Contact material		Ag	Ag	Ag		Ag	Ag	Ag		Ag	Ag	Ag	Ag	Ag	Ag	Au
EN 60335 cap. 30 conform “G”																
Miscellaneous												installation depth 13.2	installation depth 16.2			
Stock version			●			●	●	●		●	●	●		●	●	●

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

single-pole	Switch with OFF position in the center (SPDT - Center OFF)	1808.1101	1808.1102	1808.1103	1808.1112	1808.1113	1808.1202	1808.1302	1808.2102	1808.2302	1808.2704	1808.6102	1808.6103	1808.6202	1808.6302	1808.6303	1808.1152
Voltage lamp in V																	
Actuator color / printing																	
Housing color																	
12 (4) A 250 V AC 1E4																	
10 (4) A 250 V AC 1E4																	
8 (8) A 250 V AC 5E4																	
6 (4) A 250 V AC 5E4																	
6 (2) A 250 V AC 1E4		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
4 (3) A 250 V AC 6E3																	
4 (2) A 250 V AC 1E4																	
30 mA 12 V 5E4																	
30 mA 12 V DC 5E4																	●
15 A 250 V AC 1 1/2 HP																	
15 A 125 V AC 3/4 HP																	
10 A 250 V AC 1/2 HP																	
10 A 125 V AC 1/3 HP																	
6 A 250 V AC 1/2 HP																	
6 A 125 V AC 1/4 HP																	
6 A 125 - 250 V AC 1/8 HP		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
6 A 125 V AC 1/10 HP																	
4 A 250 V AC 1/10 HP																	
Connection type																	
Connection description		4.8	4.8	4.8	4.8	4.8	4.8	4.8									4.8
Inrush current in A (capacitive)																	
Contact distance in mm		< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Au
EN 60335 cap. 30 conform “G”					●											●	
Miscellaneous							momentary function one side	momentary function both sides	PCB tinned	PCB tinned momentary function both sides	installation depth 29.6			momentary function one side	momentary function both sides	momentary function both sides	
Stock version		●	●	●			●	●	●	●		●		●	●		

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

single-pole	Switch with OFF position in the center (SPDT - Center OFF)			Changeover switch (SPDT momentary)		
	1808.1353	1808.6352		1803.6222	1803.1202	1803.1252
Voltage lamp in V						
Actuator color / printing						
Housing color						
12 (4) A 250 V AC 1E4						
10 (4) A 250 V AC 1E4				●		
8 (8) A 250 V AC 5E4						
6 (4) A 250 V AC 5E4				●		
6 (2) A 250 V AC 1E4						
4 (3) A 250 V AC 6E3						
4 (2) A 250 V AC 1E4					●	
30 mA 12 V 5E4						
30 mA 12 V DC 5E4	●	●				●
15 A 250 V AC 1 1/2 HP						
15 A 125 V AC 3/4 HP						
10 A 250 V AC 1/2 HP				●		
10 A 125 V AC 1/3 HP				●		
6 A 250 V AC 1/2 HP						
6 A 125 V AC 1/4 HP						
6 A 125 - 250 V AC 1/8 HP						
6 A 125 V AC 1/10 HP					●	
4 A 250 V AC 1/10 HP					●	
Connection type	4.8				4.8	4.8
Connection description						
Inrush current in A (capacitive)						
Contact distance in mm	< 3	< 3		≥ 3	≥ 3	≥ 3
Contact material	Au	Au		Ag	Ag	Au
EN 60335 cap. 30 conform “G”						
Miscellaneous	momentary function both sides	momentary function both sides				
Stock version				●	●	●

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

double-pole 	ON/OFF switch (DPST)	1805.6102	1805.6108	1805.7104	1805.7109	1805.7110	1805.7112	1805.7118	1802.1120	1802.1121	1802.1123	1802.1136	1802.2112	1802.2504	1802.3311	1802.6123	1802.1101
Voltage lamp in V		230	230	230	230	230	110 - 230	110 - 230									
Actuator color / printing																	
Housing color																	
12 (4) A 250 V AC 1E4							●	●	●	●	●	●	●	●	●	●	
10 (4) A 250 V AC 1E4		●	●	●	●	●											●
8 (8) A 250 V AC 5E4							●	●	●	●	●	●	●	●	●	●	
6 (4) A 250 V AC 5E4		●	●	●	●	●											●
6 (2) A 250 V AC 1E4																	
4 (3) A 250 V AC 6E3																	
4 (2) A 250 V AC 1E4																	
30 mA 12 V 5E4																	
30 mA 12 V DC 5E4																	
15 A 250 V AC 1 1/2 HP							●	●	●	●	●	●	●	●	●	●	
15 A 125 V AC 3/4 HP							●	●	●	●	●	●	●	●	●	●	
10 A 250 V AC 1/2 HP																	
10 A 125 V AC 1/3 HP																	
6 A 250 V AC 1/2 HP		●	●	●	●	●											●
6 A 125 V AC 1/4 HP																	●
6 A 125 - 250 V AC 1/8 HP																	
6 A 125 V AC 1/10 HP																	
4 A 250 V AC 1/10 HP																	
Connection type																	
Connection description				4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8		4.3 long	4.8 75° angled M3		4.8
Inrush current in A (capacitive)		50	50	50	50	50	70	70	70	70	70	70	70	70	70	70	50
Contact distance in mm		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag
EN 60335 cap. 30 conform “G”							●										
Miscellaneous		installation depth 17.5	installation depth 17.5	installation depth 19.5	installation depth 19.5	installation depth 19.5	installation depth 20.5 ignition voltage < 100 V	installation depth 20.5 ignition voltage < 100 V						installation depth 16.2	shortened gate		
Stock version		●	●	●	●	●		●		●	●					●	●

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

double-pole 	ON/OFF switch (DPST)								Normally open contact (DPNO)			Switch (DPDT)					
		1802.1102	1802.1108	1802.2104	1802.3102	1802.5103	1802.6103	1802.6152		1802.1222	1802.1221		1804.1121	1804.1125	1804.2102	1804.2402	1804.6121
Voltage lamp in V																	
Actuator color / printing																	
Housing color																	
12 (4) A 250 V AC 1E4																	
10 (4) A 250 V AC 1E4		●	●	●	●	●	●			●			●	●	●	●	●
8 (8) A 250 V AC 5E4																	
6 (4) A 250 V AC 5E4		●	●	●	●	●	●			●			●	●	●	●	●
6 (2) A 250 V AC 1E4																	
4 (3) A 250 V AC 6E3																	
4 (2) A 250 V AC 1E4											●						
30 mA 12 V 5E4																	
30 mA 12 V DC 5E4								●									
15 A 250 V AC 1 1/2 HP																	
15 A 125 V AC 3/4 HP																	
10 A 250 V AC 1/2 HP													●	●			●
10 A 125 V AC 1/3 HP													●	●			●
6 A 250 V AC 1/2 HP		●	●	●	●	●	●			●					●	●	
6 A 125 V AC 1/4 HP		●	●	●	●	●	●			●					●	●	
6 A 125 - 250 V AC 1/8 HP																	
6 A 125 V AC 1/10 HP											●						
4 A 250 V AC 1/10 HP											●						
Connection type																	
Connection description		4.8	4.8		4.8 M3					4.8	4.8		4.8	1 mm longer 4.8			
Inrush current in A (capacitive)		50	50	50	50	50	50										
Contact distance in mm		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3		≥ 3	≥ 3		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Au		Ag	Ag		Ag	Ag	Ag	Ag	Ag
EN 60335 cap. 30 conform “G”																	
Miscellaneous																installation depth 13.2	
Stock version			●	●	●	●	●				●				●	●	

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

double-pole 	Switch (DPDT)	1804.6124	Switch with OFF position in the center (DPDT - Center OFF)	1809.1102	1809.1202	1809.1302	1809.2101	1809.2102	Changeover switch (DPDT momentary)	1804.1204	1804.1225	1804.2202
Voltage lamp in V												
Actuator color / printing		max min										
Housing color												
12 (4) A 250 V AC 1E4												
10 (4) A 250 V AC 1E4		●										
8 (8) A 250 V AC 5E4												
6 (4) A 250 V AC 5E4		●										
6 (2) A 250 V AC 1E4				●	●	●	●	●				
4 (3) A 250 V AC 6E3										●	●	●
4 (2) A 250 V AC 1E4												
30 mA 12 V 5E4												
30 mA 12 V DC 5E4												
15 A 250 V AC 1 1/2 HP												
15 A 125 V AC 3/4 HP												
10 A 250 V AC 1/2 HP		●										
10 A 125 V AC 1/3 HP		●										
6 A 250 V AC 1/2 HP												
6 A 125 V AC 1/4 HP												
6 A 125 - 250 V AC 1/8 HP				●	●	●	●	●				
6 A 125 V AC 1/10 HP										●	●	●
4 A 250 V AC 1/10 HP										●	●	●
Connection type												
Connection description				4.8	4.8	4.8				4.8	1 mm longer 4.8	
Inrush current in A (capacitive)												
Contact distance in mm		≥ 3		< 3	< 3	< 3	< 3	< 3		≥ 3	≥ 3	≥ 3
Contact material		Ag		Ag	Ag	Ag	Ag	Ag		Ag	Ag	Ag
EN 60335 cap. 30 conform “G”										●		
Miscellaneous					momentary function one side	momentary function both sides	PCB tinned	PCB tinned				
Stock version				●	●	●		●				

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

Combination 	ON/OFF switch (SPST) / Lamp	Normally open contact (SPNO) / Switch (SPDT)	Lamp / Changeover switch (SPDT momentary)	ON/OFF switch (SPST)	Switch with OFF position in the center (SPDT - Center OFF)			
	1806.1402	1806.2054	1806.1909		1806.1102	1806.6108		1806.1602
Voltage lamp in V	230	28	28					
Actuator color / printing								
Housing color								
12 (4) A 250 V AC 1E4								
10 (4) A 250 V AC 1E4	●		●		●	●		
8 (8) A 250 V AC 5E4								
6 (4) A 250 V AC 5E4	●		●		●	●		
6 (2) A 250 V AC 1E4								●
4 (3) A 250 V AC 6E3								
4 (2) A 250 V AC 1E4								
30 mA 12 V 5E4		●						
30 mA 12 V DC 5E4								
15 A 250 V AC 1 1/2 HP								
15 A 125 V AC 3/4 HP								
10 A 250 V AC 1/2 HP								
10 A 125 V AC 1/3 HP								
6 A 250 V AC 1/2 HP	●		●		●	●		
6 A 125 V AC 1/4 HP	●		●		●	●		
6 A 125 - 250 V AC 1/8 HP								
6 A 125 V AC 1/10 HP								
4 A 250 V AC 1/10 HP								
Connection type								
Connection description	4.8	4.8	4.8		4.8			4.8
Inrush current in A (capacitive)								
Contact distance in mm	≥ 3	≥ 3	≥ 3		≥ 3	≥ 3		< 3
Contact material	Ag	Ag	Ag		Ag	Ag		Ag
EN 60335 cap. 30 conform “G”								
Miscellaneous						without separating gate		life endurance 50 000 cycles
Stock version	●				●			

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

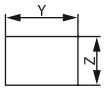
TO 12 (4) A 250 V AC

Lamp 	Lamp	1806.1508	1807.1102	1807.1108	1807.1116	1807.1126	1807.6103	1807.1115	1807.1111
Voltage lamp in V		230 230	230	230	230	230	230	28	18
Actuator color / printing									
Housing color									
12 (4) A 250 V AC 1E4									
10 (4) A 250 V AC 1E4									
8 (8) A 250 V AC 5E4									
6 (4) A 250 V AC 5E4									
6 (2) A 250 V AC 1E4									
4 (3) A 250 V AC 6E3									
4 (2) A 250 V AC 1E4									
30 mA 12 V 5E4									
30 mA 12 V DC 5E4									
15 A 250 V AC 1 1/2 HP									
15 A 125 V AC 3/4 HP									
10 A 250 V AC 1/2 HP									
10 A 125 V AC 1/3 HP									
6 A 250 V AC 1/2 HP									
6 A 125 V AC 1/4 HP									
6 A 125 - 250 V AC 1/8 HP									
6 A 125 V AC 1/10 HP									
4 A 250 V AC 1/10 HP									
Connection type									
Connection description		4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Inrush current in A (capacitive)									
Contact distance in mm									
Contact material									
EN 60335 cap. 30 conform “G”									
Miscellaneous							size basic type 1805	40 mA	40 mA
Stock version			●	●					

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

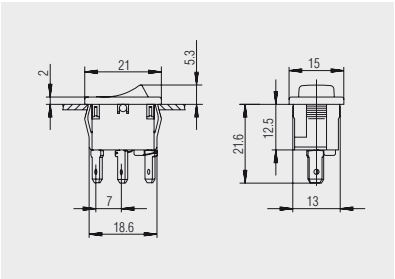
TO 12 (4) A 250 V AC

Basic types 1800, 1801, 1803 and 1808
single-pole
illuminated / non-illuminated

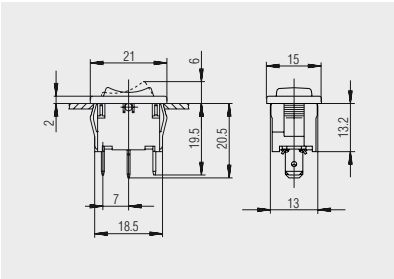


X = Wall thickness

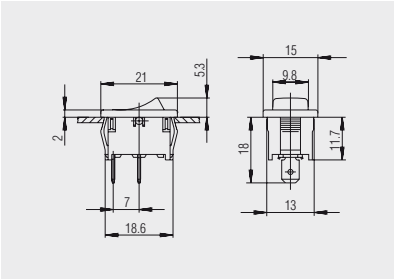
X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	12.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	12.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	12.9 $^{+0.1}$



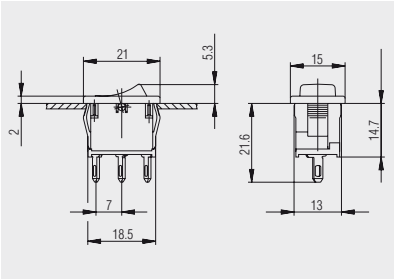
Quick-connect terminal 4.8
basic type 1800



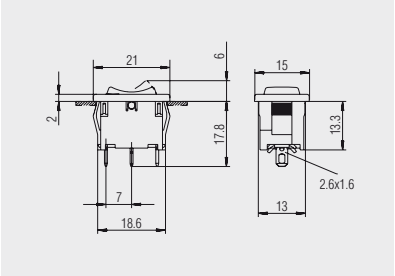
Quick-connect terminal 4.8
basic type 1808



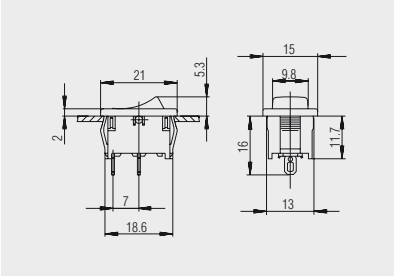
Quick-connect terminal 4.8
basic types 1801 and 1803



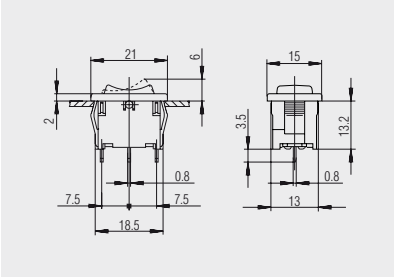
Solder terminal
basic type 1800



Solder terminal
basic type 1808



Solder terminal
basic types 1801 and 1803

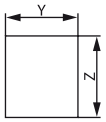


PCB terminal
basic type 1808

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

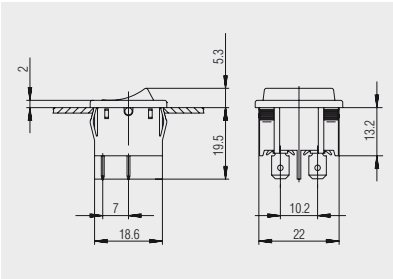
TO 12 (4) A 250 V AC

Basic types 1802, 1804 and 1805
double-pole
illuminated / non-illuminated

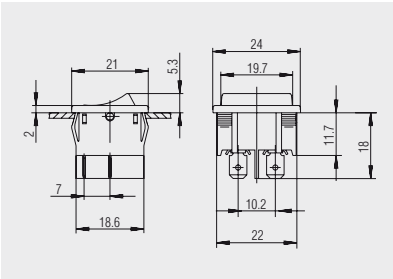


X = Wall thickness

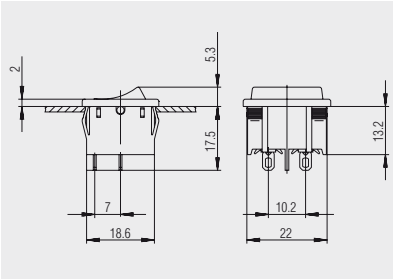
X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	21.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	21.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	21.9 $^{+0.1}$



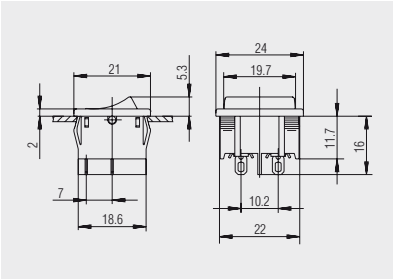
Quick-connect terminal 4.8
basic type 1805



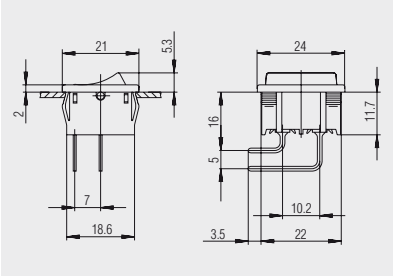
Quick-connect terminal 4.8
basic types 1802 and 1804



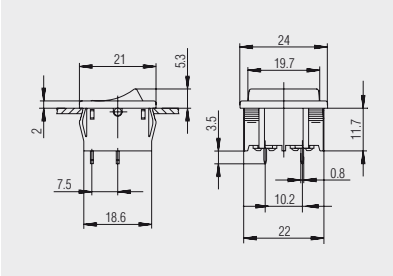
Solder terminal
basic type 1805



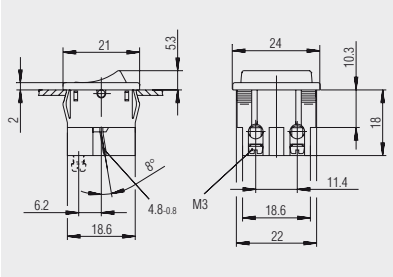
Solder terminal
basic types 1802 and 1804



PCB terminal angled



PCB terminal
basic types 1802 and 1804

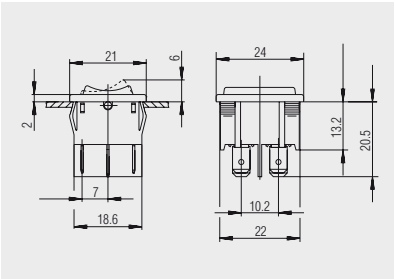


Quick-connect terminal 4.8,
socket terminal M3
1802.3102

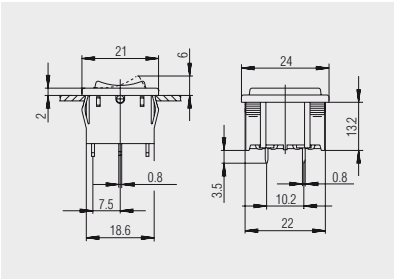
SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

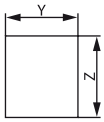
Basic type 1809
double-pole
non-illuminated



Quick-connect terminal 4.8



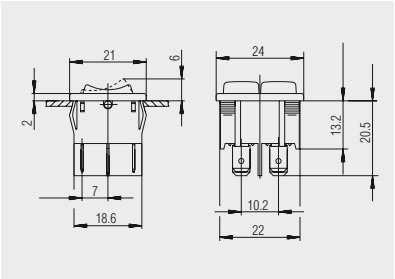
PCB terminal



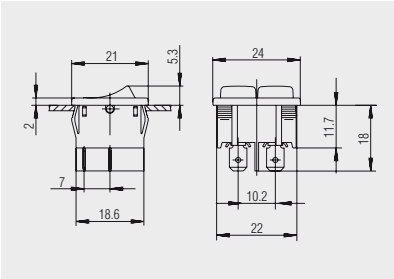
X = Wall thickness

X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	21.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	21.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	21.9 $^{+0.1}$

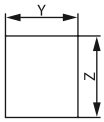
Basic type 1806
Combination



Quick-connect terminal 4.8
1806.1602

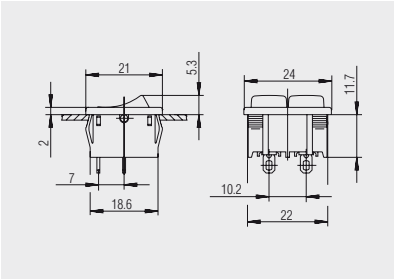


Quick-connect terminal 4.8
1806.2054 and 1806.1102



X = Wall thickness

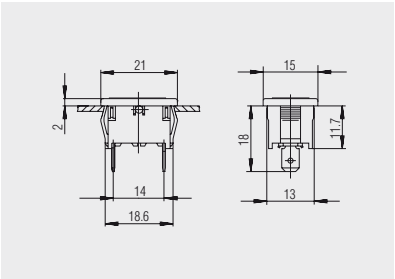
X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	21.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	21.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	21.9 $^{+0.1}$



Solder terminal
1806.6108

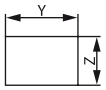
SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC



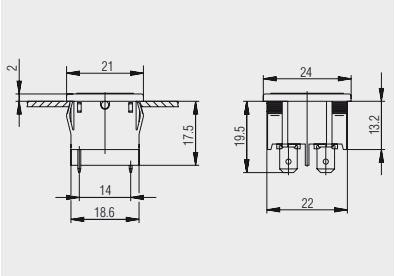
Basic type 1807
Lamp

Quick-connect terminal 4.8



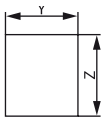
X = Wall thickness

X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	12.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	12.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	12.9 $^{+0.1}$



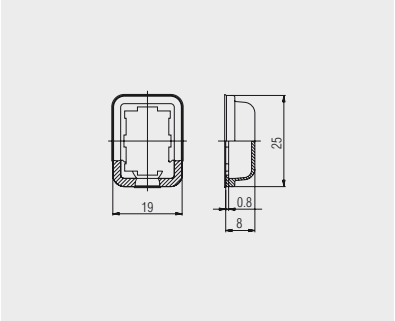
Basic type 1807
Lamp

Quick-connect terminal 4.8



X = Wall thickness

X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	21.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	21.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	21.9 $^{+0.1}$



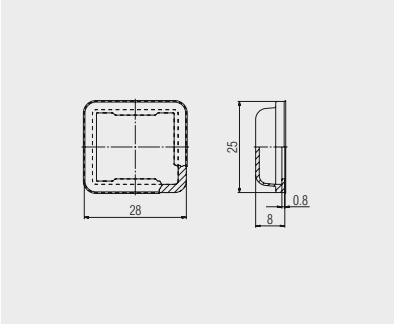
Transparent PVC-protection cap for single-pole switches of basic types 1800, 1801, 1803 and 1808. Serves as dust and water protection of the actuation side.

Protection cap
203.089.011

SERIES 1800 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

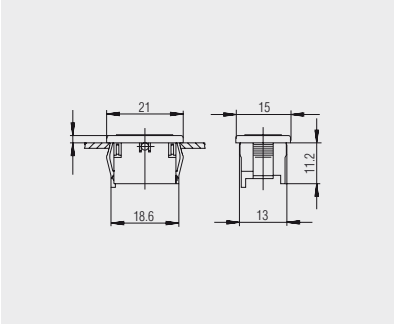
TO 12 (4) A 250 V AC

Protection cap
203.090.011



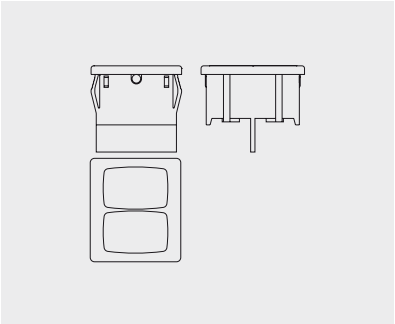
Transparent PVC-protection cap for double-pole switches of basic types 1802, 1804, 1805 and 1809. Serves as dust and water protection of the actuation side.

Dummy piece
203.007.013 - black
203.007.023 - blue gray



Dummy piece for size of basic type 1807 of PA

Dummy piece
203.086.013



Dummy piece for size of basic type 1806 of PA with window and housing in black

Further information under

WWW.MARQUARDT.DE

SERIES 1890 - SINGLE-POLE ROCKER SWITCHES ILLUMINATED WITH LED

TO 6 A 24 V DC

PRODUCT FEATURES

- Illuminated with LED
- High mechanical life endurance

ON REQUEST

- Other colors
- Printing
- Other connection types
- Variant for mains application

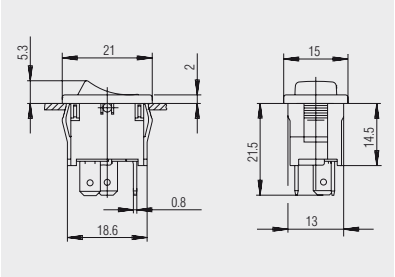
Mechanical life endurance		75E3
Operating force		3 N
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		connection side -20 °C ... +100 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 (actuator: V-2, housing: V-0)
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA PA silver-plated
Plug force of the terminals		≤ 80 N
Suitable for appliances of protection class II		

SERIES 1890 - SINGLE-POLE ROCKER SWITCHES ILLUMINATED WITH LED

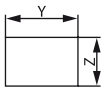
TO 6 A 24 V DC

	Voltage lamp in V	Actuator color / printing	Housing color	6 A 24 V DC	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (SPST)										
1890.1104	24			●		4.8	≥ 3	Ag		

Basic type 1890



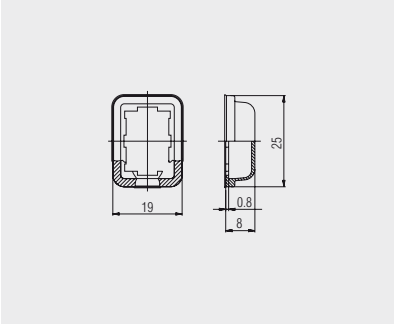
Quick-connect terminal 4.8



X = Wall thickness

X	Y	Z
0.75 ... 1.25	$19.2^{-0.1}$	$12.9^{+0.1}$
1.25 ... 2	$19.4^{-0.1}$	$12.9^{+0.1}$
2 ... 3	$19.8^{-0.1}$	$12.9^{+0.1}$

Protection cap
203.089.011



Transparent PVC-protection cap. Serves as dust and water protection of the actuation side.

SERIES 1881 - SINGLE-POLE ROUND ROCKER SWITCHES

TO 12 (4) A 250 V AC

PRODUCT FEATURES

- Attractive round rocker switch
- High mechanical rating with at least 100 000 switching cycles
- Variants with IP 51
- Low depth with 18.7 mm
- Appliance cut-out with 20 mm

ON REQUEST

- Other colors
- Other printing variants
- Other connection variants (e.g. PCB)
- Cable assembly
- Gold-plated contacts for low voltages
- Changeover switch
- Painted variants

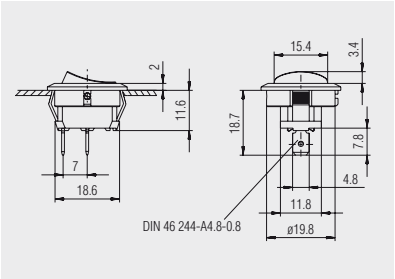
Mechanical life endurance		10E4
Operating force		3 N
Inrush current (capacitive)		70 A
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40 and IP 51 (product-dependent)
Ambient temperature		connection side -20 °C ... +100 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-0 (product-dependent) UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA PA silver-plated
Plug force of the terminals		≤ 80 N
Approval marks		/
Suitable for appliances of protection class II		

SERIES 1881 - SINGLE-POLE ROUND ROCKER SWITCHES

TO 12 (4) A 250 V AC

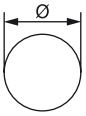
single-pole

	Actuator color / printing	Housing color	12 (4) A 250 V AC 1E4	8 (8) A 250 V AC 5E4	15 A 250 V AC 1 1/2 HP	15 A 125 V AC 3/4 HP	Connection type	Connection description	Contact distance in mm	Contact material	Actuator	EN 60335 cap. 30 conform "G"	Miscellaneous	Stock version
ON/OFF switch (SPST)														
1881.1103			●	●	●	●		4.8	≥ 3	Ag	IP 40			●
1881.1104			●	●	●	●		4.8	≥ 3	Ag	IP 40			●
1881.1105			●	●	●	●		4.8	≥ 3	Ag	IP 40			●
1881.1106			●	●	●	●		4.8	≥ 3	Ag	IP 40	●		
1881.1108			●	●	●	●		4.8	≥ 3	Ag	IP 51	●	with swtiching system cover	●
Normally open contact (SPNO)														
1881.1209			●	●	●	●		4.8	≥ 3	Ag	IP 51		opening connection 1b closed with swtiching system cover	



Quick-connect terminal 4.8

Basic type 1881

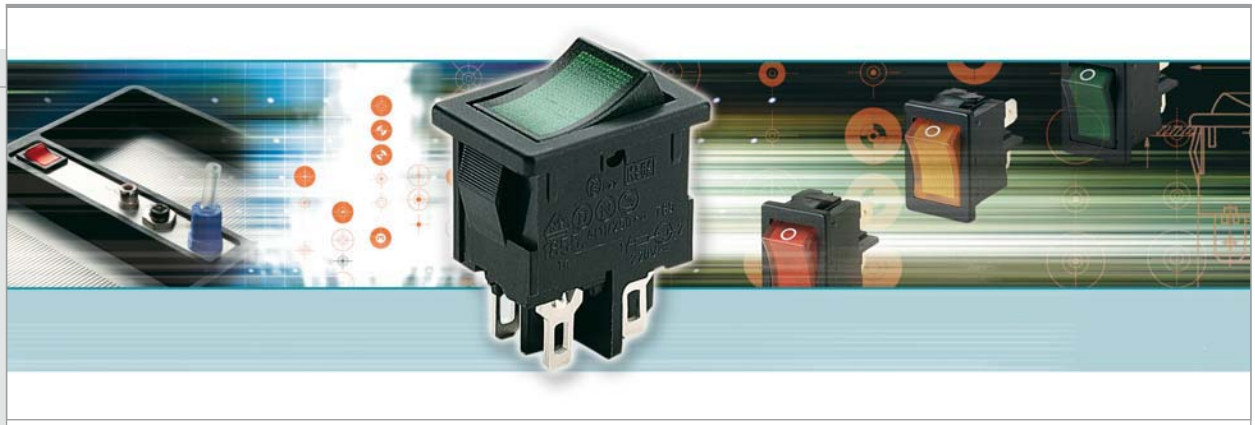


X = Wall thickness

X	Ø
0.75 ... 1.25	20.3
1.25 ... 2	20.8
2 ... 3	21.1

SERIES 1855 - SMALLEST DOUBLE-POLE ROCKER SWITCHES

TO 4 (1) A 250 V AC



PRODUCT FEATURES

- Illuminated rocker switch
- Different lamp variants
- Powerful with 50 000 mechanical switching cycles
- Caulked terminals for reliable plugging of the receptacles

ON REQUEST

- Other colors
- Other printing variants
- Other connection types
- Other lamp variants
- Cable assembly

Mechanical life endurance		5E4
Inrush current (capacitive)		50 A
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		connection side -20 °C ... +85 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA PA silver-plated
Plug force of the terminals		≤ 80 N
Approval marks		/ /
Suitable for appliances of protection class II		

SERIES 1855 - SMALLEST DOUBLE-POLE ROCKER SWITCHES

TO 4 (1) A 250 V AC

double-pole	Voltage lamp in V	Actuator color / printing	Housing color	4 (1) A 250 V AC 1E4	6 A 125 V AC 1/10 HP	4 A 125 V AC 1/10 HP	Connection type	Connection description	Contact distance in mm	Contact material	EN 60335 cap. 30 conform "G"	Stock version
ON/OFF switch (DPST)												
1855.0102	230			●		●			≥ 3	Ag		●
1855.0108	230			●		●			≥ 3	Ag		●
1855.1102	230			●		●		4.8	≥ 3	Ag		●
1855.1104	230			●		●		4.8	≥ 3	Ag		●
1855.1108	230			●		●		4.8	≥ 3	Ag		●
1855.1115	230			●		●		4.8	≥ 3	Ag	●	
1855.1118	230			●		●		4.8	≥ 3	Ag	●	●
1855.1121	110				●			4.8	≥ 3	Ag		
1855.1122	110				●			4.8	≥ 3	Ag		●
1855.1124	110				●			4.8	≥ 3	Ag		

Further information under

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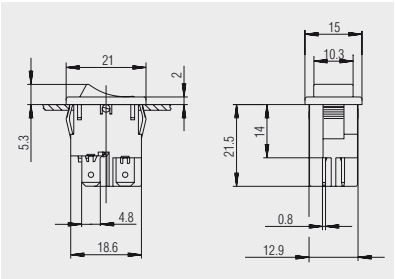
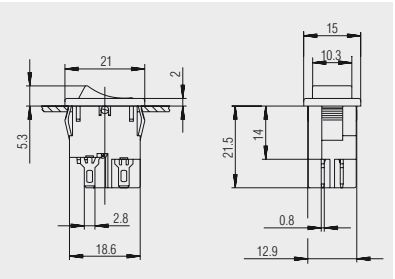
SERIES 1855 - SMALLEST DOUBLE-POLE ROCKER SWITCHES

TO 4 (1) A 250 V AC

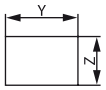
Basic type 1855



Quick-connect terminal 4.8



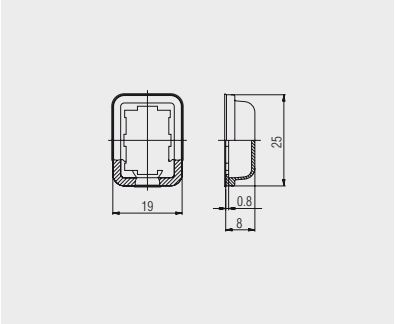
Solder terminal



X = Wall thickness

X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	12.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	12.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	12.9 $^{+0.1}$

Protection cap
203.089.011



Transparent PVC-protection cap. Serves as dust and water protection for the actuating side.

SERIES 1858 - SMALLEST DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

PRODUCT FEATURES

- Non-illuminated rocker switch
- Powerful with inrush currents (capacitive) up to 100 A
- Immediately self-extinguishing due to UL 94 V-0 material
- Conformant acc. to EN 60065 par. 14.6

ON REQUEST

- Other colors
- Other printing variants
- Single-pole assembled
- Cable assembly

Mechanical life endurance		10E4
Operating force		≤ 5 N
Inrush current (capacitive)		100 A
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		connection side -20 °C ... +100 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-0 UL 94 V-2 (in the versions in white)
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA PA silver-plated
Plug force of the terminals		≤ 80 N
Approval marks		/ /
Suitable for appliances of protection class II		

SERIES 1858 - SMALLEST DOUBLE-POLE ROCKER SWITCHES

TO 12 (4) A 250 V AC

double-pole

	Actuator color / printing	Housing color	10 (4) A 250 V AC 1E4	6 (4) A 250 V AC 5E4	12 A 250 V AC 1/2 HP	12 A 125 V AC 1/3 HP	Connection type	Connection description	Contact distance in mm	Contact material	EN 60335 cap. 30 conform "G"	Miscellaneous	Stock version
ON/OFF switch (DPST)													
1858.0103			●	●	●	●			≥ 3	Ag	●		●
1858.0104			●	●	●	●			≥ 3	Ag	●		●
1858.1102			●	●	●	●		4.8	≥ 3	Ag	●		●
1858.1103			●	●	●	●		4.8	≥ 3	Ag	●		●
1858.1104			●	●	●	●		4.8	≥ 3	Ag	●		
1858.1105			●	●	●	●		4.8	≥ 3	Ag		connection spacing 10	
1858.2202			●	●	●	●			≥ 3	Ag	●		●
1858.2204			●	●	●	●			≥ 3	Ag	●		
1858.4202			●	●	●	●			≥ 3	Ag	●		●
1858.4205			●	●	●	●			≥ 3	Ag	●		●
1858.5104			●	●	●	●			≥ 3	Ag	●	single-pole occupied	
1858.7204			●	●	●	●			≥ 3	Ag	●	single-pole occupied	
1858.9202			●	●	●	●			≥ 3	Ag	●	single-pole occupied	

Further information under

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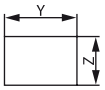
SERIES 1858 - SMALLEST DOUBLE-POLE ROCKER SWITCHES

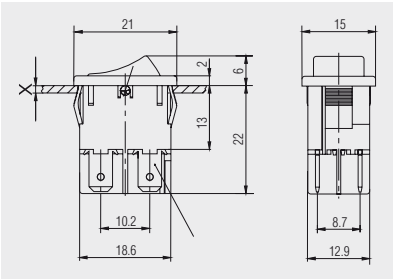
TO 12 (4) A 250 V AC

Basic type 1858
double-pole

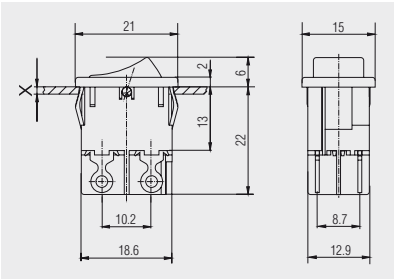


X = Wall thickness

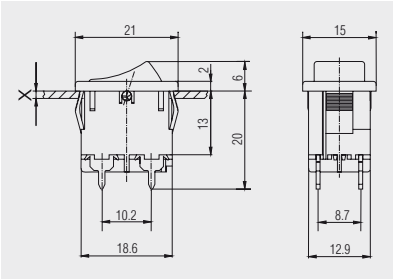
X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	12.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	12.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	12.9 $^{+0.1}$



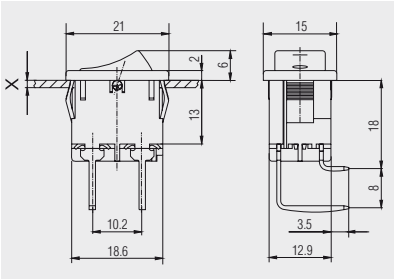
Quick-connect terminal 4.8



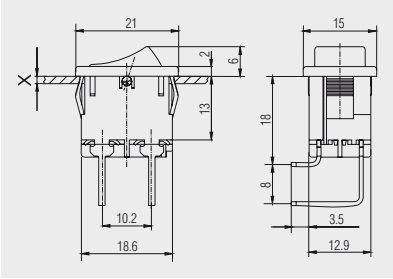
Solder terminal



PCB terminal

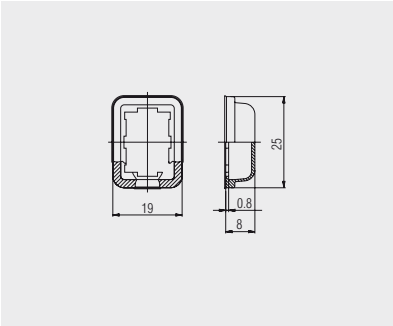


PCB terminal angled to
terminal side 1



PCB terminal angled to
terminal side 2

Protection cap
203.089.011



Transparent PVC-protection cap.
Serves as dust and water protection
of the actuation side.

SERIES 1941 - SINGLE-POLE ROCKER SWITCHES IP 50

TO 6 (2) A 250 V AC

PRODUCT FEATURES

- Single-pole rocker switch
- High dust protection with IP 50
- 100 million times proven switching principle
- Appliance cut-out same as basic type 1801

ON REQUEST

- Other colors
- Other printing variants
- Other connection variants
- PVC-protection cap
- Higher rating (e.g. 8 A) and inrush current (70 A)
- With approval mark

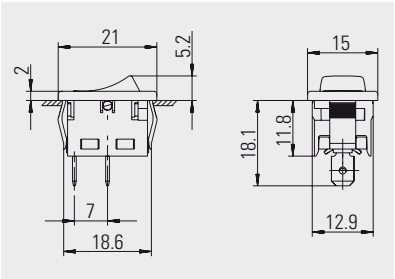
Mechanical life endurance		1E5
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 50
Ambient temperature		connection side -20 °C ... +100 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator	PA
	housing	PA / PA glass fiber-reinforced
Plug force of the terminals		≤ 80 N
Suitable for appliances of protection class II		

SERIES 1941 - SINGLE-POLE ROCKER SWITCHES IP 50

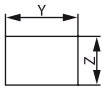
TO 6 (2) A 250 V AC

single-pole	Actuator color / printing	6 (2) A 250 V AC 5E4	Connection type	Connection description	Contact distance in mm	Contact material	Inrush current in A (capacitive)	Miscellaneous	Stock version
ON/OFF switch (SPST)									
1941.1103		●		4.8	≥ 3	Ag	50		
Normally open contact (SPNO)									
1941.1203		●		4.8	≥ 3	Ag			

Basic type 1941
single-pole



Quick-connect terminal 4.8



X = Wall thickness

X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	12.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	12.9 $^{+0.1}$

SERIES 1550 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 16 (4) A 250 V AC

PRODUCT FEATURES

- Inrush currents (capacitive) up to 100 A
- Two housing variants (with flange or lower lying)
- With mechanical forced opening
- Illuminated window with lens effect

ON REQUEST

- Other colors
- Other rocker labelings
- Other lamp variants
- Conformity IEC 60065 chap. 14.6
- Special rockers
- Cable assembly

Mechanical life endurance	5E4
Inrush current (capacitive)	100 A
Contact distance	≥ 3 mm
Contact resistance (new condition)	< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)	> 100 MOhm (500 V DC)
Voltage strength at 250 V	1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking	250 PTI
Insulation spacing	acc. to EN 61058 for reinforced or double insulation
Protection type	IP 40
Ambient temperature	connection side -20 °C ... +100 °C actuating side -20 °C ... +55 °C
Flammability	UL 94 V-2 and UL 94 V-0 (product-dependent)
Heat and fire resistance	850 °C (category D)
Material actuator housing	PA PA
Plug force of the terminals	≤ 80 N
Approval marks	/ /
Suitable for appliances of protection class II	

SERIES 1550 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 16 (4) A 250 V AC

single-pole

	Voltage lamp in V	Actuator color / printing	Housing color	16 (4) A 250 V AC 5E4	16 (4) A 250 V AC 1E4	10 (4) A 250 V AC 5E4	20 mA 250 V AC 5E4	20 A 250 V AC 2 HP	20 A 125 V AC 1 HP	16 A 250 V AC 2 HP	16 A 125 V AC 1 HP	Connection type	Connection description	Contact material	EN 60335 cap. 30 conform "G"	Miscellaneous	Stock version
ON/OFF switch (SPST)																	
1550.3102	230				●	●				●			6.3	Ag			●
1550.3105	12												6.3	Ag		12 V 10 A DC	
1550.3609	12												6.3	Ag		12 V 10 A DC low lying flange	
1551.2602					●	●				●	●			Ag		low lying flange	
1551.3102					●	●				●	●		6.3	Ag	●		●
1551.3103					●	●				●	●		6.3	Ag			
1551.3105					●	●				●	●		6.3	Ag			
1551.3106					●	●				●	●		6.3	Ag			
1551.4803					●	●				●	●			Ag		2 PCB holders low lying flange	
1551.2654							●							Au		low lying flange	
Normally closed contact (SPNC)																	
1581.1303				●						●	●		6.3	Ag		special, robust switching system	
1551.1303					●	●				●	●		6.3	Ag			
Normally open contact (SPNO)																	
1551.1203					●	●				●	●		4.8	Ag	●		
1551.3202					●	●				●	●		6.3	Ag			●
1551.3702					●	●				●	●		6.3	Ag		low lying flange	

SERIES 1550 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

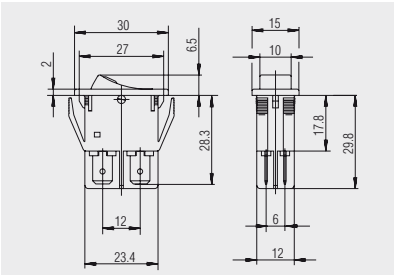
TO 16 (4) A 250 V AC

double-pole

	Voltage lamp in V	Actuator color / printing	Housing color	16 (4) A 250 V AC 5E4	16 (4) A 250 V AC 1E4	10 (4) A 250 V AC 5E4	20 mA 250 V AC 5E4	20 A 250 V AC 2 HP	20 A 125 V AC 1 HP	16 A 250 V AC 2 HP	16 A 125 V AC 1 HP	Connection type	Connection description	Contact material	EN 60335 cap. 30 conform "G"	Miscellaneous	Stock version
ON/OFF switch (SPST)																	
1555.0604	230				●	●				●				Ag		low lying flange	
1555.3102	230				●	●		●	●	●			6.3	Ag	●		●
1555.3104	230				●	●				●			6.3	Ag			●
1555.3108	230				●	●				●			6.3	Ag			●
1555.3604	230				●	●				●			6.3	Ag		low lying flange	●
1555.4608	230				●	●				●				Ag		low lying flange	
1555.8104	230				●	●				●			6.3	Ag		flange dimension 31.5 x 17 mm	●
1555.3125	115				●	●		●	●	●			6.3	Ag			
1555.4628	115										●			Ag		low lying flange	
1555.3120	110				●	●					●		6.3	Ag			
1555.3109	110										●		6.3	Ag			
1555.3111	12												6.3	Ag		12 V 10 A DC	
1552.0103					●	●				●	●			Ag			
1552.0605					●	●				●	●			Ag		low lying flange	
1552.2601					●	●				●	●			Ag		low lying flange	
1552.2602					●	●				●	●			Ag		low lying flange	●
1552.3102					●	●				●	●		6.3	Ag			●
1552.3104					●	●				●	●		6.3	Ag			
1552.3111					●	●				●	●		6.3	Ag			
1552.3112					●	●				●	●		6.3	Ag	●	conformant with EN 60065 par. 14.6	●
1552.3117					●	●		●	●	●	●		6.3	Ag	●		
1552.3120					●	●				●	●		6.3	Ag			
1552.3602					●	●				●	●		6.3	Ag		low lying flange	●
1552.4602					●	●				●	●			Ag		low lying flange	●
1552.4604					●	●				●	●			Ag		low lying flange	
1552.4606					●	●				●	●			Ag		low lying flange	
1552.4702					●	●				●	●			Ag		2 PCB holders low lying flange	
1552.4802					●	●				●	●			Ag		low lying flange	

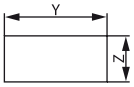
SERIES 1550 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 16 (4) A 250 V AC



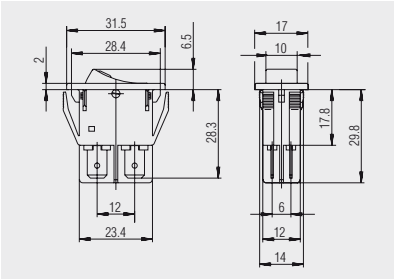
Basic types 1550 and 1555
single and double-pole

Quick-connect terminal 6.3



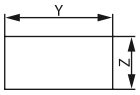
X = Wall thickness

X	Y	Z
0.8 ... 5.0	27.2 ±0.1	12.2 +0.2



1555.8104
double-pole

Quick-connect terminal 6.3



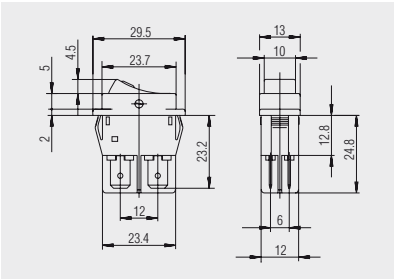
X = Wall thickness

X	Y	Z
0.8 ... 5.0	28.6 ±0.1	14 +0.2

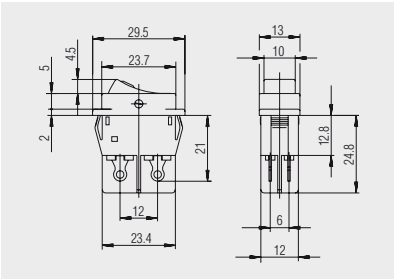
SERIES 1550 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 16 (4) A 250 V AC

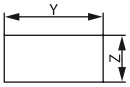
Basic types 1550 and 1555
lower lying flange
single and double-pole



Quick-connect terminal 6.3



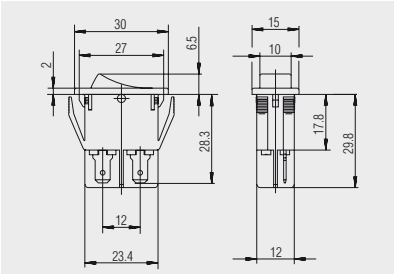
Solder terminal



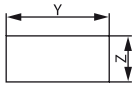
X = Wall thickness

X	Y	Z
0.75 ... 1.25	26.2 $^{-0.1}$	12.4 $^{+0.1}$
1.25 ... 2	26.4 $^{-0.1}$	12.4 $^{+0.1}$
2 ... 3	26.8 $^{-0.1}$	12.4 $^{+0.1}$

Basic type 1551
single-pole



Quick-connect terminal 4.8



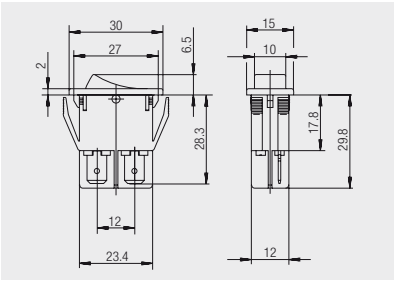
X = Wall thickness

X	Y	Z
0.8 ... 5.0	27.3 $^{\pm 0.1}$	12.2 $^{+0.2}$

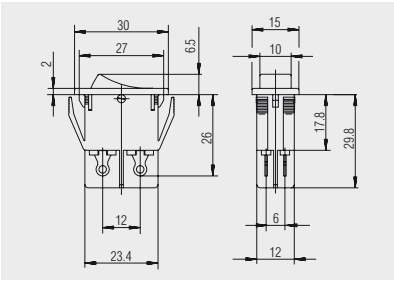
SERIES 1550 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 16 (4) A 250 V AC

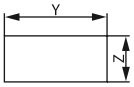
Basic types 1551 and 1552
single and double-pole



Quick-connect terminal 6.3



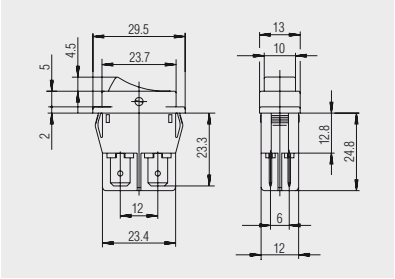
Solder terminal



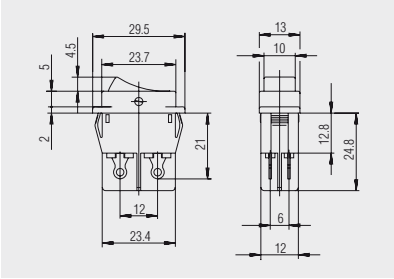
X = Wall thickness

X	Y	Z
0.8 ... 5.0	27.2 $^{\pm 0.1}$	12.2 $^{+0.2}$

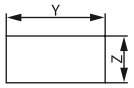
Basic types 1551 and 1552
lower lying flange
single and double-pole



Quick-connect terminal 6.3

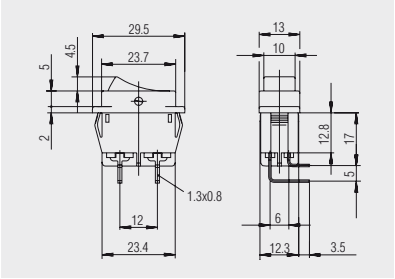


Solder terminal

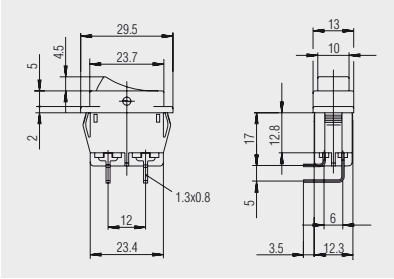


X = Wall thickness

X	Y	Z
0.75 ... 1.25	26.2 $^{-0.1}$	12.4 $^{+0.1}$
1.25 ... 2	26.4 $^{-0.1}$	12.4 $^{+0.1}$
2 ... 3	26.8 $^{-0.1}$	12.4 $^{+0.1}$



PCB terminal angled

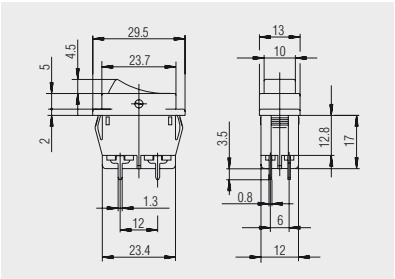


PCB terminal angled
mirror-inverted

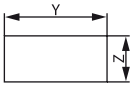
SERIES 1550 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 16 (4) A 250 V AC

Basic type 1552
lower lying flange
single and double-pole



PCB terminal



X = Wall thickness

X	Y	Z
0.8 ... 5.0	27.2 ±0.1	12.2 +0.2

Further information under

WWW.MARQUARDT.DE

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 20 (4) A 250 V AC

PRODUCT FEATURES

- 100 million times proven switching principle
- Mechanical life endurance up to 1 million switching cycles
- Wide variety
- Variants with IP 67 or dust protection insert
- Two housing variants
- Excellent actuating characteristic
- Illuminated and non-illuminated variants
- Approval for 400 V (product-dependent)

ON REQUEST

- Other colors
- Other rocker printings
- Other lamp variants
- Snap-on customized actuators
- Cable assembly

Mechanical life endurance		10E4 5E4 (basic type 1839) 1E6 (product-dependent)
Inrush current (capacitive)		120 A / 50 A (contact pair Ag / Cu)
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40 / IP 67 (product-dependent)
Ambient temperature		connection side -20 °C ... +105 °C / ... +85 °C / ... +100 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2 and UL 94 V-0 (product-dependent)
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA / PC PA silver-plated / tinned
Plug force of the terminals		≤ 80 N
Approval marks		/ /
Suitable for appliances of protection class II		

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 20 (4) A 250 V AC

single-pole	ON/OFF switch (SPST)	1830.3111	1830.3112	1830.3118	1830.3119	1830.8112	1830.0102	1830.6103	Changeover switch (SPDT momentary)	1835.3902	ON/OFF switch (SPST)	1831.0112	1831.0114	1831.0115	1831.3312	1831.3313	1831.3317
Voltage lamp in V		230	230	230	230	230	230	230		230							
Actuator color / printing																	
Housing color																	
20 (4) A 250 V AC 1E4		●	●	●	●	●						●	●	●	●	●	●
16 (4) A 250 V AC 1E4																	
10 (8) A 250 V AC 5E4		●	●	●	●	●						●	●	●	●	●	●
10 (4) A 250 V AC 1E4							●	●									
10 A 12 V DC																	
6 (4) A 250 V AC 5E4							●	●									
6 (4) A 250 V AC 1E4																	
6 (4) A 250 V AC																	
4 (2) A 250 V AC 1E4										●							
30 mA 12 V DC																	
16 A 250 V AC 1 HP		●	●	●	●	●						●	●	●	●	●	●
16 A 125 V AC 1 HP																	
16 A 250 V AC 1/2 HP																	
16 A 125 V AC 1/3 HP												●	●	●	●	●	●
16 A 125 V AC 1/4 HP																	
6 A 250 V AC 1/2 HP							●	●									
6 A 125 V AC 1/4 HP																	
6 A 125 - 250 V AC 1/8 HP																	
6 A 125 V AC 1/10 HP										●							
4 A 250 V AC 1/10 HP										●							
Connection type																	
Connection description		6.3	6.3	6.3	6.3	6.3		4.8		6.3					6.3	6.3	6.3
Contact distance in mm		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3		≥ 3		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag		Ag		Ag	Ag	Ag	Ag	Ag	Ag
EN 60335 cap. 30 conform "G"					●												●
Miscellaneous						low lying flange		low lying flange		external lamp connection two-pole size							
Stock version		●	●	●	●	●	●					●			●	●	

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 20 (4) A 250 V AC

single-pole 	ON/OFF switch (SPST)	1831.3606	1831.3607	1831.3815	1831.3933	1831.8112	1831.1107	1831.7102	1831.8102	Normally open contact (SPNO)	1831.1202	1831.3402	1831.8202	1831.1253	Switch (SPDT)	1833.3312	1833.1102
Voltage lamp in V																	
Actuator color / printing																	
Housing color																	
20 (4) A 250 V AC 1E4		●	●	●	●	●											
16 (4) A 250 V AC 1E4																●	
10 (8) A 250 V AC 5E4		●	●	●	●	●											
10 (4) A 250 V AC 1E4							●	●	●								●
10 A 12 V DC																	
6 (4) A 250 V AC 5E4							●	●	●								●
6 (4) A 250 V AC 1E4																	
6 (4) A 250 V AC																	
4 (2) A 250 V AC 1E4											●	●	●				
30 mA 12 V DC														●			
16 A 250 V AC 1 HP		●	●	●	●	●											
16 A 125 V AC 1 HP																	
16 A 250 V AC 1/2 HP																●	
16 A 125 V AC 1/3 HP		●	●	●	●	●											
16 A 125 V AC 1/4 HP																●	
6 A 250 V AC 1/2 HP							●	●	●								●
6 A 125 V AC 1/4 HP							●	●	●								●
6 A 125 - 250 V AC 1/8 HP																	
6 A 125 V AC 1/10 HP											●	●	●				
4 A 250 V AC 1/10 HP											●	●	●				
Connection type																	
Connection description		6.3	6.3	6.3	6.3	6.3	4.8		6.3		4.8	6.3	6.3	4.8		6.3	4.8
Contact distance in mm		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3		≥ 3	≥ 3	≥ 3	≥ 3		≥ 3	≥ 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag		Ag	Ag	Ag	Au		Ag	Ag
EN 60335 cap. 30 conform “G”		●	●														
Miscellaneous		housing with 2 separating gates	housing with 2 separating gates	IP 67 1E6 mechanical life endurance		low lying flange		low lying flange	low lying flange				low lying flange				
Stock version					●	●	●				●	●	●				●

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 20 (4) A 250 V AC

single-pole	Switch (SPDT)	1833.3307	1833.7102	1833.8102	Switch with OFF position in the center (SPDT - Center OFF)	1838.0305	1838.3412	1838.3512	1838.3901	1838.1402	1838.1502	1838.1509	1838.1602	1838.4307	1838.7203	1838.8302	1838.3402
Voltage lamp in V																	
Actuator color / printing																	
Housing color																	
20 (4) A 250 V AC 1E4																	
16 (4) A 250 V AC 1E4						●	●	●	●								
10 (8) A 250 V AC 5E4																	
10 (4) A 250 V AC 1E4		●	●	●													
10 A 12 V DC																	
6 (4) A 250 V AC 5E4		●	●	●													
6 (4) A 250 V AC 1E4										●	●	●	●	●	●	●	
6 (4) A 250 V AC																	●
4 (2) A 250 V AC 1E4																	
30 mA 12 V DC																	
16 A 250 V AC 1 HP																	
16 A 125 V AC 1 HP																	
16 A 250 V AC 1/2 HP						●	●	●	●								
16 A 125 V AC 1/3 HP						●	●	●	●								
16 A 125 V AC 1/4 HP																	
6 A 250 V AC 1/2 HP		●	●	●													
6 A 125 V AC 1/4 HP		●	●	●													
6 A 125 - 250 V AC 1/8 HP										●	●	●	●	●	●	●	●
6 A 125 V AC 1/10 HP																	
4 A 250 V AC 1/10 HP																	
Connection type																	
Connection description		6.3		6.3			6.3	6.3	6.3	4.8	4.8	4.8	4.8	2.8		6.3	6.3
Contact distance in mm		≥ 3	≥ 3	≥ 3		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3
Contact material		Ag	Ag	Ag		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag
EN 60335 cap. 30 conform “G”		●															
Miscellaneous			low lying flange	low lying flange		momentary function both sides	momentary function both sides		IP 67 1E6 mechanical life endurance	momentary function both sides			momentary function one side	momentary function one side	momentary function one side low lying flange	momentary function both sides low lying flange	momentary function both sides
Stock version		●		●				●	●	●	●		●			●	●

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 20 (4) A 250 V AC

single-pole	Switch with OFF position in the center (SPDT - Center OFF)	Changeover switch (SPDT momentary)			
	1838.3502	1833.1202	1833.3402	1833.6206
Voltage lamp in V				
Actuator color / printing				
Housing color				
20 (4) A 250 V AC 1E4				
16 (4) A 250 V AC 1E4				
10 (8) A 250 V AC 5E4				
10 (4) A 250 V AC 1E4				
10 A 12 V DC				
6 (4) A 250 V AC 5E4				
6 (4) A 250 V AC 1E4				
6 (4) A 250 V AC	●			
4 (2) A 250 V AC 1E4		●	●	●
30 mA 12 V DC				
16 A 250 V AC 1 HP				
16 A 125 V AC 1 HP				
16 A 250 V AC 1/2 HP				
16 A 125 V AC 1/3 HP				
16 A 125 V AC 1/4 HP				
6 A 250 V AC 1/2 HP				
6 A 125 V AC 1/4 HP				
6 A 125 - 250 V AC 1/8 HP	●			
6 A 125 V AC 1/10 HP		●	●	●
4 A 250 V AC 1/10 HP		●	●	●
Connection type				
Connection description	6.3	4.8	6.3	4.8
Contact distance in mm	≥ 3	≥ 3	≥ 3	≥ 3
Contact material	Ag	Ag	Ag	Ag
EN 60335 cap. 30 conform “G”				
Miscellaneous				low lying flange
Stock version	●		●	

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 20 (4) A 250 V AC

double-pole 	ON/OFF switch (DPST)	1835.3419	1835.3111	1835.3112	1835.3114	1835.3118	1835.3418	1835.9413	1835.1115	1835.7108	Switch (DPDT)	1835.3802	ON/OFF switch (DPST)	1835.3116	1835.3107	1832.1612	1832.3311
Voltage lamp in V		400	230	230	230	230	230	230	230	230		230		115 - 230	12		
Actuator color / printing																	
Housing color																	
20 (4) A 250 V AC 1E4		●	●	●	●	●	●	●						●		●	●
16 (4) A 250 V AC 1E4																	
10 (8) A 250 V AC 5E4		●	●	●	●	●	●	●						●		●	●
10 (4) A 250 V AC 1E4									●	●		●					
10 A 12 V DC															●		
6 (4) A 250 V AC 5E4									●	●		●					
6 (4) A 250 V AC 1E4																	
6 (4) A 250 V AC																	
4 (2) A 250 V AC 1E4																	
30 mA 12 V DC																	
16 A 250 V AC 1 HP		●	●	●	●	●	●	●						●		●	●
16 A 125 V AC 1 HP																	
16 A 250 V AC 1/2 HP																	
16 A 125 V AC 1/3 HP																●	●
16 A 125 V AC 1/4 HP																	
6 A 250 V AC 1/2 HP									●	●		●					
6 A 125 V AC 1/4 HP																	
6 A 125 - 250 V AC 1/8 HP																	
6 A 125 V AC 1/10 HP																	
4 A 250 V AC 1/10 HP																	
Connection type																	
Connection description		6.3	6.3	6.3	6.3	6.3	6.3		4.8			6.3		6.3	6.3	4.8	6.3
Contact distance in mm		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3		≥ 3		≥ 3	≥ 3	≥ 3	≥ 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag		Ag		Ag	Ag	Ag	Ag
EN 60335 cap. 30 conform “G”																	
Miscellaneous		10 (8) 400 V AC 5E4 cover frame 33.2 long					cover frame 33.2 long	PCB holder 248.103.011 mounted low lying flange		low lying flange						cover frame 33.2 long	
Stock version			●	●	●	●			●						●		●

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 20 (4) A 250 V AC

double-pole 	ON/OFF switch (DPST)	1832.3312	1832.3313	1832.3508	1832.3602	1832.6112	1832.7103	1832.8112	1832.9103	1832.0113	1832.1102	1832.9101	Normally open contact (DPNO)	1832.3407	1832.8204	Switch (DPDT)	1834.3311
Voltage lamp in V																	
Actuator color / printing																	
Housing color																	
20 (4) A 250 V AC 1E4		●	●	●	●	●	●	●	●								
16 (4) A 250 V AC 1E4										●							●
10 (8) A 250 V AC 5E4		●	●	●	●	●	●	●	●								
10 (4) A 250 V AC 1E4											●	●					
10 A 12 V DC																	
6 (4) A 250 V AC 5E4											●	●					
6 (4) A 250 V AC 1E4																	
6 (4) A 250 V AC																	
4 (2) A 250 V AC 1E4														●	●		
30 mA 12 V DC																	
16 A 250 V AC 1 HP		●	●	●	●	●	●	●	●								
16 A 125 V AC 1 HP									●								
16 A 250 V AC 1/2 HP										●							●
16 A 125 V AC 1/3 HP		●	●	●	●	●	●	●									
16 A 125 V AC 1/4 HP										●							●
6 A 250 V AC 1/2 HP											●	●					
6 A 125 V AC 1/4 HP											●	●					
6 A 125 - 250 V AC 1/8 HP																	
6 A 125 V AC 1/10 HP														●	●		
4 A 250 V AC 1/10 HP														●	●		
Connection type																	
Connection description		6.3	6.3	6.3	6.3	4.8		6.3			4.8			6.3	6.3		6.3
Contact distance in mm		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3		≥ 3	≥ 3		≥ 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag		Ag	Ag		Ag
EN 60335 cap. 30 conform “G”			●														
Miscellaneous				single-pole occupied	cover frame 33.2 long	low lying flange	low lying flange	low lying flange	low lying flange	dust protection inlay		low lying flange			low lying flange		
Stock version		●			●			●			●			●			

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 20 (4) A 250 V AC

double-pole 	Switch (DPDT)	1834.3312	1834.1102	1834.1103	1834.3309	1834.3603	1834.6103	1839.1402	1839.1407	1839.1410	1839.1502	1839.1509	1839.1518	1839.1602	1839.2203	1839.3502	1839.3503
Voltage lamp in V																	
Actuator color / printing																	
Housing color																	
20 (4) A 250 V AC 1E4																	
16 (4) A 250 V AC 1E4		●															
10 (8) A 250 V AC 5E4																	
10 (4) A 250 V AC 1E4			●	●	●	●	●										
10 A 12 V DC																	
6 (4) A 250 V AC 5E4			●	●	●	●	●										
6 (4) A 250 V AC 1E4								●	●	●	●	●	●	●	●	●	●
6 (4) A 250 V AC																	
4 (2) A 250 V AC 1E4																	
30 mA 12 V DC																	
16 A 250 V AC 1 HP																	
16 A 125 V AC 1 HP																	
16 A 250 V AC 1/2 HP		●															
16 A 125 V AC 1/3 HP																	
16 A 125 V AC 1/4 HP		●															
6 A 250 V AC 1/2 HP			●	●	●	●	●										
6 A 125 V AC 1/4 HP			●	●	●	●	●										
6 A 125 - 250 V AC 1/8 HP								●	●	●	●	●	●	●	●	●	●
6 A 125 V AC 1/10 HP																	
4 A 250 V AC 1/10 HP																	
Connection type																	
Connection description		6.3	4.8	4.8	6.3	6.3	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8		6.3	6.3
Contact distance in mm		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag
EN 60335 cap. 30 conform “G”						●											
Miscellaneous						cover frame 33.2 long	low lying flange	momentary function both sides	momentary function both sides	momentary function both sides dust protection inlay			dust protection inlay	momentary function one side	momentary function one side		
Stock version		●	●		●			●	●		●	●				●	

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 20 (4) A 250 V AC

double-pole 	Switch (DPDT)					Switch with OFF position in the center (DPDT - Center OFF)			Changeover switch (DPDT momentary)		
		1839.3602	1839.7304	1839.3352	1839.0105		1839.3412	1839.3512		1834.3402	1834.3504
Voltage lamp in V											
Actuator color / printing			I O R		I O II						
Housing color											
20 (4) A 250 V AC 1E4											
16 (4) A 250 V AC 1E4							●	●			
10 (8) A 250 V AC 5E4											
10 (4) A 250 V AC 1E4											
10 A 12 V DC											
6 (4) A 250 V AC 5E4											
6 (4) A 250 V AC 1E4		●	●								
6 (4) A 250 V AC											
4 (2) A 250 V AC 1E4										●	●
30 mA 12 V DC				●							
16 A 250 V AC 1 HP											
16 A 125 V AC 1 HP											
16 A 250 V AC 1/2 HP							●	●			
16 A 125 V AC 1/3 HP							●	●			
16 A 125 V AC 1/4 HP											
6 A 250 V AC 1/2 HP											
6 A 125 V AC 1/4 HP											
6 A 125 - 250 V AC 1/8 HP		●	●								
6 A 125 V AC 1/10 HP										●	●
4 A 250 V AC 1/10 HP										●	●
Connection type											
Connection description		6.3		6.3			6.3	6.3		6.3	6.3
Contact distance in mm		≥ 3	≥ 3	≥ 3	≥ 3		≥ 3	≥ 3		≥ 3	≥ 3
Contact material		Ag	Ag	Au	Ag		Ag	Ag		Ag	Ag
EN 60335 cap. 30 conform “G”											
Miscellaneous		momentary function one side	momentary function one side dust protection inlay, low lying flange	cover frame 33.2 long	dust protection inlay		momentary function both sides				single-pole occupied
Stock version		●					●	●		●	

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

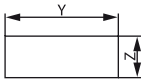
TO 20 (4) A 250 V AC

Lamp 	Lamp	1837.1118	1837.2504	1837.3102	1837.8102	1837.8108
Voltage lamp in V		230	230	230	230	230
Actuator color / printing						
Housing color						
20 (4) A 250 V AC 1E4						
16 (4) A 250 V AC 1E4						
10 (8) A 250 V AC 5E4						
10 (4) A 250 V AC 1E4						
10 A 12 V DC						
6 (4) A 250 V AC 5E4						
6 (4) A 250 V AC 1E4						
6 (4) A 250 V AC						
4 (2) A 250 V AC 1E4						
30 mA 12 V DC						
16 A 250 V AC 1 HP						
16 A 125 V AC 1 HP						
16 A 250 V AC 1/2 HP						
16 A 125 V AC 1/3 HP						
16 A 125 V AC 1/4 HP						
6 A 250 V AC 1/2 HP						
6 A 125 V AC 1/4 HP						
6 A 125 - 250 V AC 1/8 HP						
6 A 125 V AC 1/10 HP						
4 A 250 V AC 1/10 HP						
Connection type						
Connection description		4.8		6.3	6.3	6.3
Contact distance in mm						
Contact material						
EN 60335 cap. 30 conform “G”						
Miscellaneous			low lying flange		size basic type 1835	size basic type 1835
Stock version		●		●	●	●

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

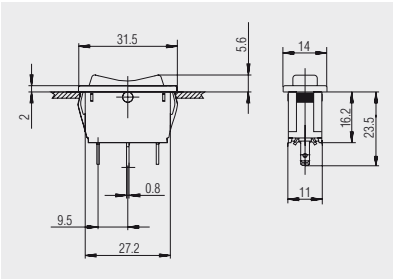
TO 20 (4) A 250 V AC

Basic types 1830, 1831, 1833 and 1838
single-pole
illuminated / non-illuminated

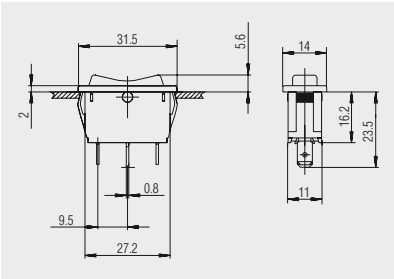


X = Wall thickness

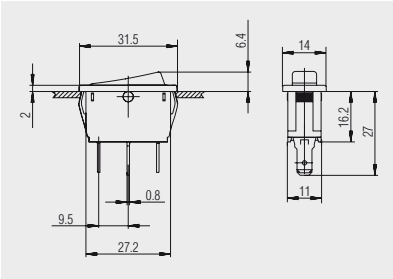
X	Y	Z
0.75 ... 1.25	30 $^{-0.1}$	11 $^{+0.1}$
1.25 ... 2	30.2 $^{-0.1}$	11 $^{+0.1}$
2 ... 3	30.6 $^{-0.1}$	11 $^{+0.1}$



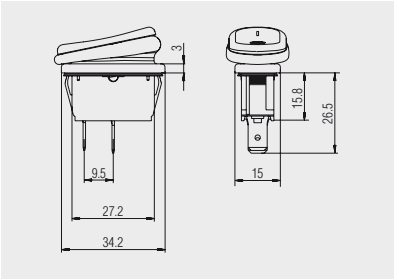
Quick-connect terminal 2.8
1838.4307



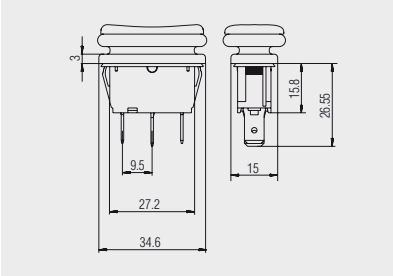
Quick-connect terminal 4.8
basic type 1838



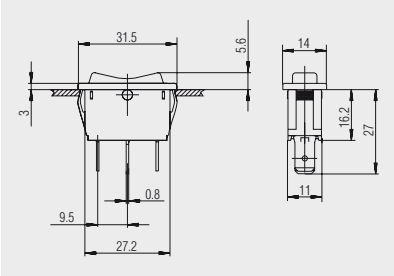
Quick-connect terminal 4.8
basic types 1830, 1831 and 1833



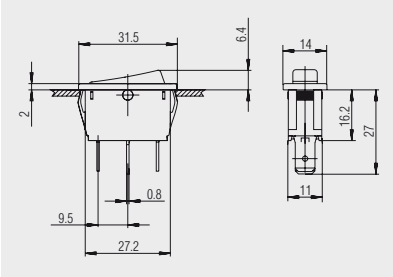
Quick-connect terminal 6.3
1831.3815



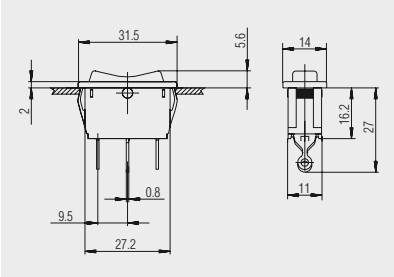
Quick-connect terminal 6.3
1838.3901



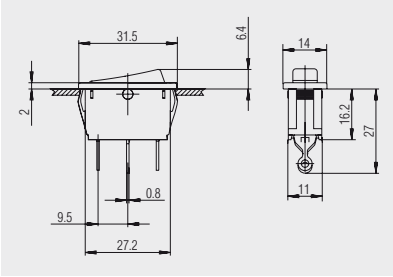
Quick-connect terminal 6.3
basic type 1838



Quick-connect terminal 6.3
basic types 1831 and 1833



Solder terminal
basic type 1838

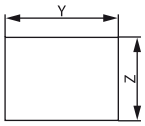


Solder terminal
basic types 1830 and 1831

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

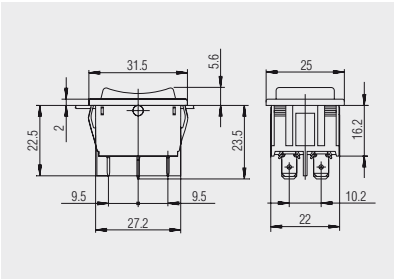
TO 20 (4) A 250 V AC

Basic types 1832, 1834, 1835 and 1839
double-pole
illuminated / non-illuminated

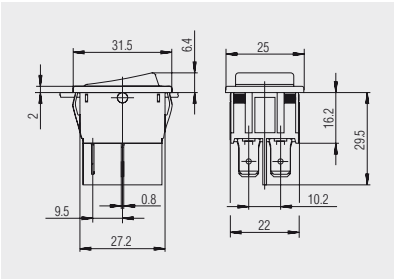


X = Wall thickness

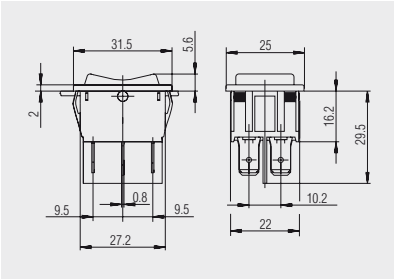
X	Y	Z
0.75 ... 1.25	30 $^{-0.1}$	22 $^{+0.2}$
1.25 ... 2	30.2 $^{-0.1}$	22 $^{+0.2}$
2 ... 3	30.6 $^{-0.1}$	22 $^{+0.2}$



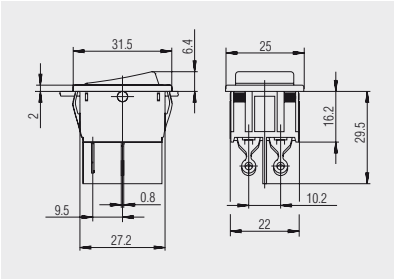
Quick-connect terminal 4.8
basic type 1839



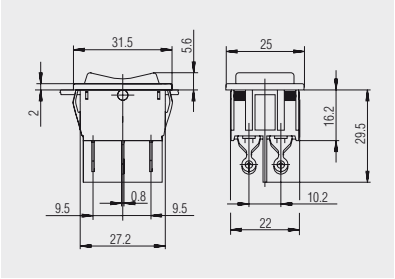
Quick-connect terminal 6.3 / 4.8
basic types 1832, 1834 and 1835



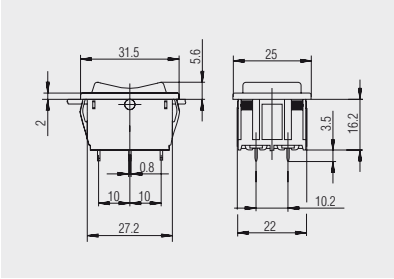
Quick-connect terminal 6.3
basic type 1839



Solder terminal
basic type 1832

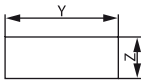


Solder terminal
basic type 1839



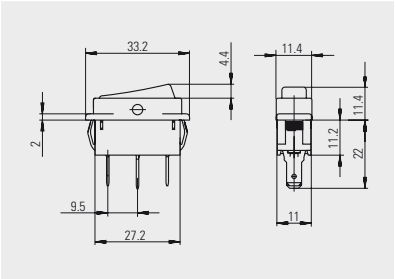
PCB terminal
basic type 1839

Basic types 1830, 1831, 1833 and 1838
single-pole, lower lying flange
illuminated / non-illuminated

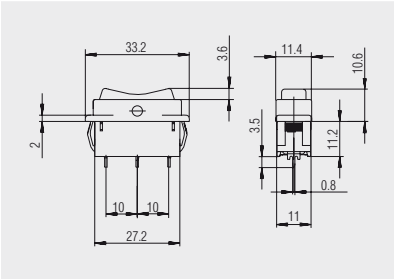


X = Wall thickness

X	Y	Z
0.75 ... 1.25	30 $^{-0.1}$	11 $^{+0.1}$
1.25 ... 2	30.2 $^{-0.1}$	11 $^{+0.1}$
2 ... 3	30.6 $^{-0.1}$	11 $^{+0.1}$



Quick-connect terminal 4.8
basic types 1830, 1831 and 1833

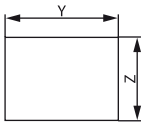


PCB terminal
basic type 1838

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

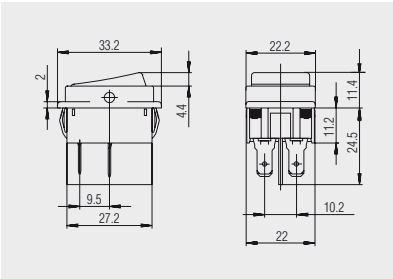
TO 20 (4) A 250 V AC

Basic types 1832, 1834, 1835 and 1839
double-pole, lower lying flange
illuminated / non-illuminated

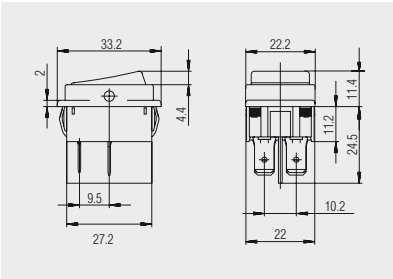


X = Wall thickness

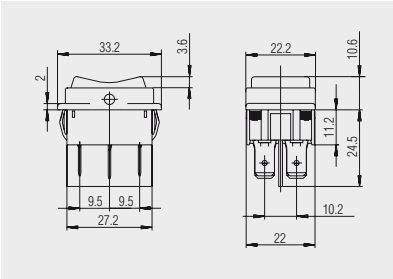
X	Y	Z
0.75 ... 1.25	30 $^{-0.1}$	22 $^{+0.2}$
1.25 ... 2	30.2 $^{-0.1}$	22 $^{+0.2}$
2 ... 3	30.6 $^{-0.1}$	22 $^{+0.2}$



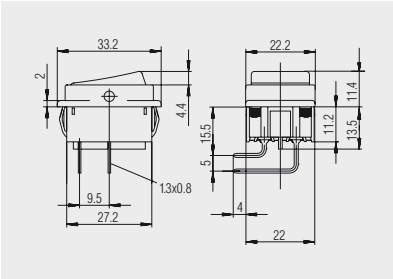
Quick-connect terminal 4.8
basic types 1832 and 1834



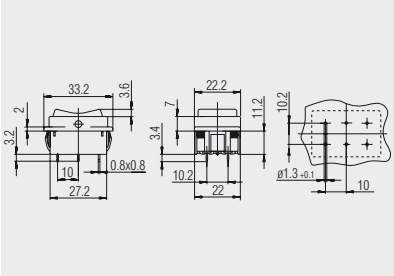
Quick-connect terminal 6.3
basic type 1832



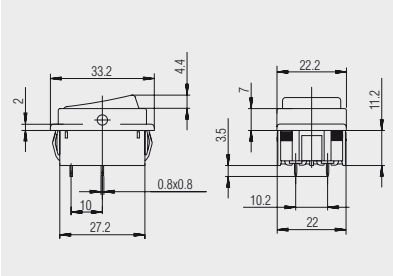
Quick-connect terminal 6.3
basic type 1839



PCB terminal angled
basic types 1832 and 1835

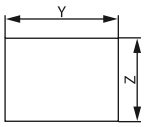


PCB terminal
basic type 1839



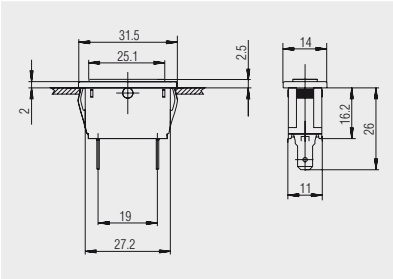
PCB terminal
basic types 1832 and 1835

Basic type 1837
Lamp
single and double-pole

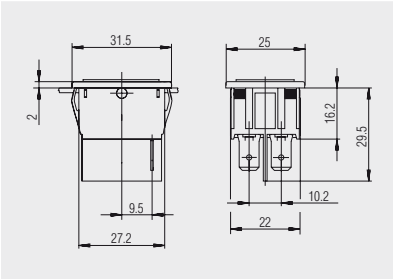


X = Wall thickness

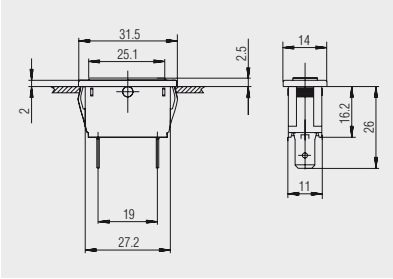
X	Y	Z
0.75 ... 1.25	30 $^{-0.1}$	22 $^{+0.1}$
1.25 ... 2	30.2 $^{-0.1}$	22 $^{+0.1}$
2 ... 3	30.6 $^{-0.1}$	22 $^{+0.1}$



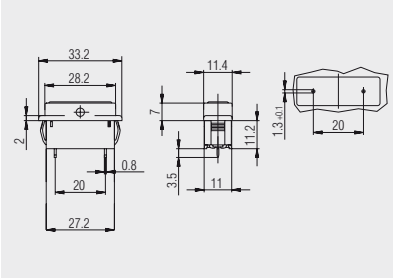
Quick-connect terminal 4.8
single-pole size



Quick-connect terminal 6.3
double-pole size



Quick-connect terminal 6.3
single-pole size

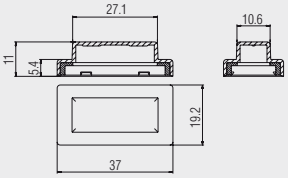


PCB terminal, lower lying
flange, 1837.2504

SERIES 1830 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

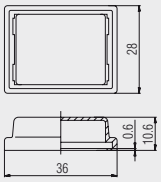
TO 20 (4) A 250 V AC

Protection cap
203.731.011



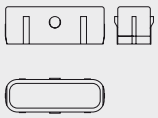
Transparent PVC-protection cap for single-pole switches of basic types 1830, 1831, 1833 and 1838. Serves as dust and water protection of the actuation side.

Protection cap
203.201.011



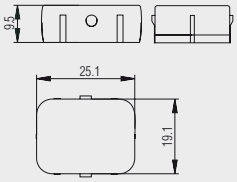
Transparent PVC-protection cap for double-pole switches of basic types 1832, 1834, 1835 and 1839 with frame length 33.2 mm. Serves as dust and water protection of the actuation side.

Dummy cap
203.146.051



Dummy cap for single-pole size of basic types 1830, 1831, 1833, 1837 and 1838 of PA black

Dummy cap
203.145.051



Dummy cap for double-pole size of basic types 1832, 1834, 1835, 1837 and 1839 of PA black

SERIES 1930 - DOUBLE-POLE ROCKER SWITCHES IP 65

TO 20 (4) A 250 V AC

PRODUCT FEATURES

- Illuminated and non-illuminated variants with various switching functions
- IP 65 with integrated gasket for high dust and water protection
- Inrush currents (capacitive) up to 120 A
- Approval for 400 V
- 100 million times proven switching principle
- Modern rocker design
- High, flexible variety

ON REQUEST

- Other connection types
- Other colors
- Other printing variants
- Other lamp variants
- With V-0 material
- Cable assembly

Mechanical life endurance		5E4
Operating force		3 - 8 N
Inrush current (capacitive)		120 A 100 A (basic types 1934 and 1939)
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 65 (recessed installation)
Ambient temperature		connection side -20 °C ... +105 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2 and UL 94 V-0 (product-dependent)
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	hard components of PC / soft components of TPE (bellows) PA silver-plated
Plug force of the terminals		≤ 80 N
Approval marks		VDE / cULus
Suitable for appliances of protection class II		

SERIES 1930 - DOUBLE-POLE ROCKER SWITCHES IP 65

TO 20 (4) A 250 V AC

double-pole	ON/OFF switch (DPST)	1935.3135	1935.3137	1935.3112	1935.3113	1935.3114	1935.3118	1935.3119	1935.3129	Normally open contact (DPNO)	1935.3218	ON/OFF switch (DPST)	1935.3134	1935.3128	1935.3131	1935.3133	1932.1112
Voltage lamp in V		400	400	250	250	250	250	250	250		250		125 - 250	125	125	24	
Actuator color / printing																	
Housing color																	
20 (4) A 250 V AC 1E4		●	●	●	●	●	●	●	●				●	●	●		●
12 (4) A 250 V AC 1E4																	
10 (8) A 400 V AC 5E4		●	●														
10 (8) A 250 V AC 5E4		●	●	●	●	●	●	●	●				●	●	●		●
10 A 24 V DC																●	
6 (4) A 250 V AC 5E4																	
16 A 250 V AC 1 HP		●	●	●	●	●	●	●	●				●	●	●		●
16 A 125 V AC 3/4 HP		●	●	●	●	●	●	●	●				●	●	●		●
16 A 125 V AC 1/3 HP															●		
15 A 125 V AC 3/4 HP																	
14 A 250 V AC 1 HP																	
14 A 250 V AC 3/4 HP																	
14 A 250 V AC 1/2 HP																	
14 A 125 V AC 1/3 HP																	
14 A 125 V AC 1/4 HP																	
12 A 250 V AC 1 HP																	
12 A 125 V AC 1/2 HP																	
Connection type																	
Connection description		6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		6.3		6.3	6.3	6.3	6.3	4.8
Contact distance in mm		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3		≥ 3		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag		Ag		Ag	Ag	Ag	Ag	Ag
Miscellaneous								bellows anthracite									
Stock version				●	●	●	●							●			

SERIES 1930 - DOUBLE-POLE ROCKER SWITCHES IP 65

TO 20 (4) A 250 V AC

double-pole 	ON/OFF switch (DPST)									Normally closed contact (DPNC)		Normally open contact (DPNO)		Switch (DPDT)			
		1932.1113	1932.1114	1932.3112	1932.3113	1932.3114	1932.3118	1932.3412	1932.3418		1932.3312		1932.3413		1934.3112	1934.3113	1934.3114
Voltage lamp in V																	
Actuator color / printing				o –			o –	o –	o –							Hi Lo	o –
Housing color																	
20 (4) A 250 V AC 1E4		●	●	●	●	●	●	●	●								
12 (4) A 250 V AC 1E4																	
10 (8) A 400 V AC 5E4																	
10 (8) A 250 V AC 5E4		●	●	●	●	●	●	●	●						●	●	●
10 A 24 V DC																	
6 (4) A 250 V AC 5E4																	
16 A 250 V AC 1 HP		●	●	●	●	●	●	●	●								
16 A 125 V AC 3/4 HP		●	●	●	●	●	●	●									
16 A 125 V AC 1/3 HP																	
15 A 125 V AC 3/4 HP									●								
14 A 250 V AC 1 HP																	
14 A 250 V AC 3/4 HP																	
14 A 250 V AC 1/2 HP																	
14 A 125 V AC 1/3 HP																	
14 A 125 V AC 1/4 HP																	
12 A 250 V AC 1 HP															●	●	●
12 A 125 V AC 1/2 HP															●	●	●
Connection type																	
Connection description		4.8	4.8	6.3	6.3	6.3	6.3	6.3	6.3		6.3		6.3		6.3	6.3	6.3
Contact distance in mm		≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3		≥ 3		≥ 3		≥ 3	≥ 3	≥ 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag		Ag		Ag		Ag	Ag	Ag
Miscellaneous								single-pole occupied	single-pole occupied								
Stock version				●									●				

SERIES 1930 - DOUBLE-POLE ROCKER SWITCHES IP 65

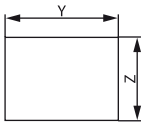
TO 20 (4) A 250 V AC

double-pole	Switch (DPDT)		Switch with OFF position in the center (DPDT - Center OFF)						Changeover switch (DPDT momentary)	
	1934.2114		1939.3119	1939.3312	1939.3314	1939.3318	1939.0454		1934.3213
Voltage lamp in V									
Actuator color / printing									
Housing color									
20 (4) A 250 V AC 1E4									
12 (4) A 250 V AC 1E4			●	●	●	●			
10 (8) A 400 V AC 5E4									
10 (8) A 250 V AC 5E4									
10 A 24 V DC									
6 (4) A 250 V AC 5E4		●							
16 A 250 V AC 1 HP									
16 A 125 V AC 3/4 HP									
16 A 125 V AC 1/3 HP									
15 A 125 V AC 3/4 HP									
14 A 250 V AC 1 HP									●
14 A 250 V AC 3/4 HP			●						
14 A 250 V AC 1/2 HP				●	●	●			
14 A 125 V AC 1/3 HP			●						●
14 A 125 V AC 1/4 HP				●	●	●			
12 A 250 V AC 1 HP		●							
12 A 125 V AC 1/2 HP		●							
Connection type									
Connection description			6.3	6.3	6.3	6.3			6.3
Contact distance in mm		≥ 3	≥ 3	< 3	< 3	< 3	< 3		≥ 3
Contact material		Ag	Ag	Ag	Ag	Ag	Au		Ag
Miscellaneous				momentary function both sides	momentary function both sides	momentary function both sides	single-pole occupied momentary function both sides		
Stock version			●	●					

SERIES 1930 - DOUBLE-POLE ROCKER SWITCHES IP 65

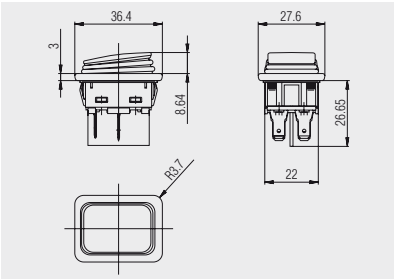
TO 20 (4) A 250 V AC

Basic types 1932, 1934, 1935 and 1939
double-pole

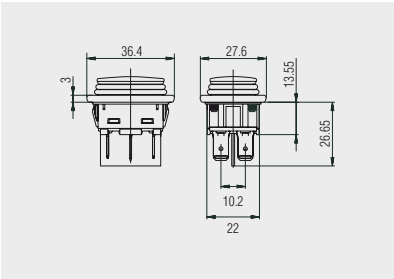


X = Wall thickness

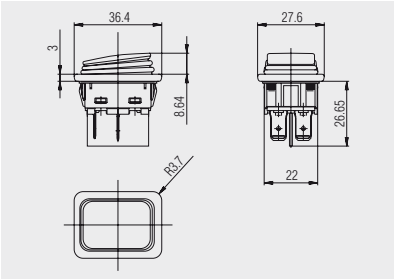
X	Y	Z
0.75 ... 1.25	30 $^{-0.1}$	22 $^{+0.2}$
1.25 ... 3.0	30.2 $^{-0.1}$	22 $^{+0.2}$



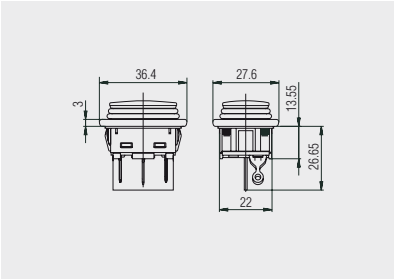
Quick-connect terminal 4.8
basic type 1932



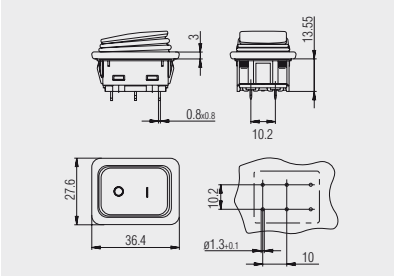
Quick-connect terminal 6.3
basic type 1939



Quick-connect terminal 6.3
basic types 1932, 1934 and 1935



Solder terminal
basic type 1939



PCB terminal
basic type 1934

Further information under

WWW.MARQUARDT.DE

SERIES 1656 - SINGLE-POLE ROCKER SWITCHES

TO 10 A 250 V AC

PRODUCT FEATURES

- Powerful, illuminated rocker switch with plate spring switching system
- Silk matt printable surface
- Can be mounted from rear (alternatively with frame)
- Switching system sealed from rocker to protect against overflowing water (VDE 700 part 15)
- Snap fastening for wall thicknesses > 2 mm

ON REQUEST

- Other actuator forms (e.g. oval)
- As a double switch
- Other colors
- Other printing variants
- Other connection types
- Other lamp variants
- Variant without illumination
- Cable assembly

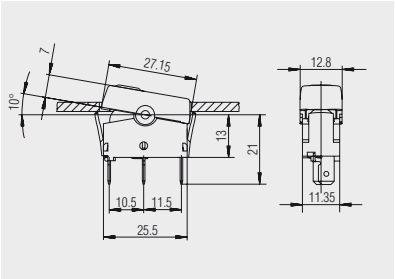
Mechanical life endurance		2E4
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Ambient temperature		connection side -20 °C ... +100 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA PA Cu and CuZn bare (terminal outlet silver-plated)
Plug force of the terminals		≤ 80 N
Approval marks		/ /
Suitable for appliances of protection class II		

SERIES 1656 - SINGLE-POLE ROCKER SWITCHES

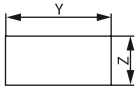
TO 10 A 250 V AC

single-pole	Voltage lamp in V	Actuator color / printing	10 A 250 V AC 1E4	10 A 250 V AC 1E4 1/2 HP	10 A 125 V AC 1/3 HP	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (SPST)											
1656.1702	230		●	●			4.8	≥ 3	Ag		
1656.1703	230		●	●			4.8	≥ 3	Ag		
1656.1722	110				●		4.8	≥ 3	Ag		
1656.1723	90				●		4.8	≥ 3	Ag	glow lamp with ignition voltage < 90 V	

Basic type 1656



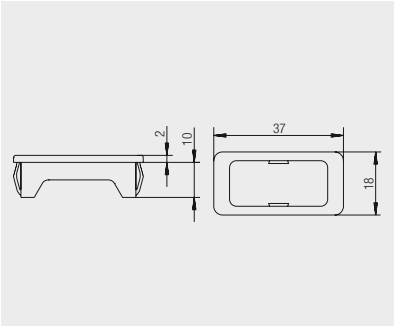
Quick-connect terminal 4.8



X = Wall thickness

X	Y	Z
≥ 2	28 $^{\pm 0.1}$	13 $^{\pm 0.1}$

Additional parts



Mounting frame of polyamide
217.313.011 - black
217.313.041 - anthracite metallic

SERIES 3201 - SINGLE-POLE 3-STEP ROCKER SWITCHES

TO 0.5 A 12 V DC

PRODUCT FEATURES

- Step rocker switch with switching function 0 - I - II
- Attractive rocker design
- Can be mounted from rear
- Mechanical rating at least 20 000 switching cycles

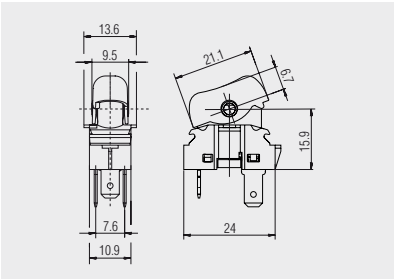
ON REQUEST

- Other rocker colors
- Printing
- Other connection variants

Mechanical life endurance		2E4
Ambient temperature		connection side -40 °C ... +100 °C
Material	actuator	PA
	housing	PBTP
	connections	silver-plated / bare

single-pole	Actuator color / printing	Housing color	0.5 A 12 V 15E3	Connection type	Connection description	Contact material	Miscellaneous	Stock version
Step switch								
3201.1121			●		4.8	Ag	switching function 0 - I - II	

Basic type 3201



Quick-connect terminal 4.8

SERIES 3230 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 10 (5) A 24 V DC

PRODUCT FEATURES

- Attractive rocker switch (rocker separate)
- Million times proven, friction snap-action contact system
- Powerful with 100 000 switching cycles electrically and mechanically for DC voltage applications
- Indicator lamp identical
- Dust and water protected
- High variety
- With or without function lighting (LED)
- Installation from the front directly or with assembly frame
- Block plug connection

ON REQUEST

- Other colors
- Other rocker symbols (lasered)
- Other switching functions
- Other lamp variants
- With mounted rocker

Mechanical life endurance		10E4
Ambient temperature		-40 °C ... +85 °C
Material	actuator housing connections	PA glass fiber-reinforced PA silver-plated
Miscellaneous		illumination with mounted rocker: day design = light gray / night design = green

SERIES 3230 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 10 (5) A 24 V DC

 single-pole (rocker separate)	Voltage lamp in V	Housing color	10 (5) A 24 V 10E4	10 (5) A 12 V 10E4	Connection type	Connection description	Miscellaneous	Stock version
Normally open contact snapping 1-step (SPST)								
3230.0102			●			3.0 x 0.8	circuit symbol: 3.01	
3230.0101				●		3.0 x 0.8	circuit symbol: 3.01	
Normally open contact snapping 1-step with function indicator (SPST)								
3230.0202			●			3.0 x 0.8	circuit symbol: 3.03	
3230.0201				●		3.0 x 0.8	with function indicator circuit symbol: 3.03	
Normally open contact momentary 1-step (SPNO)								
3230.0302			●			3.0 x 0.8	circuit symbol: 3.02	
3230.0301				●		3.0 x 0.8	circuit symbol: 3.02	

 double-pole (rocker separate)	Voltage lamp in V	Housing color	10 (5) A 24 V 10E4	10 (5) A 12 V 10E4	Connection type	Connection description	Miscellaneous	Stock version
Changeover switch snapping 1-step (DPDT)								
3230.1902			●			3.0 x 0.8	circuit symbol: 3.09	

Further information under

WWW.MARQUARDT.DE

SERIES 3230 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 10 (5) A 24 V DC

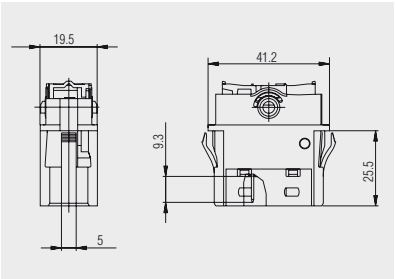
 Combination (rocker separate)	Voltage lamp in V	Housing color	10 (5) A 24 V 10E4	10 (5) A 12 V 10E4	Connection type	Connection description	Miscellaneous	Stock version
Changeover switch snapping 2-step (SPDT)								
3230.0502			●			3.0 x 0.8	2 x single-pole changeover switch circuit symbol: 3.31	
3230.0501				●		3.0 x 0.8	2 x single-pole changeover switch circuit symbol: 3.31	
Changeover switch snapping 2-step with function indicator (SPDT)								
3230.0602			●			3.0 x 0.8	2 x single-pole changeover switch circuit symbol: 3.33	
3230.0601				●		3.0 x 0.8	2 x single-pole changeover switch circuit symbol: 3.33	
Changeover switch momentary 2-step (SPDT)								
3230.0702			●			3.0 x 0.8	2 x single-pole changeover switch circuit symbol: 3.32	
3230.0701				●		3.0 x 0.8	2 x single-pole changeover switch circuit symbol: 3.32	

Lamp (cap separate)	Voltage lamp in V	Housing color	10 (5) A 24 V 10E4	10 (5) A 12 V 10E4	Connection type	Connection description	Miscellaneous	Stock version
Lamp								
3237.0102	24 24					3.0 x 0.8	LED red / red	
3237.0104	24 24					3.0 x 0.8	LED red / green	
3237.0106	24 24					3.0 x 0.8	LED green / green	
3237.0108	24 24					3.0 x 0.8	LED yellow / green	

SERIES 3230 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 10 (5) A 24 V DC

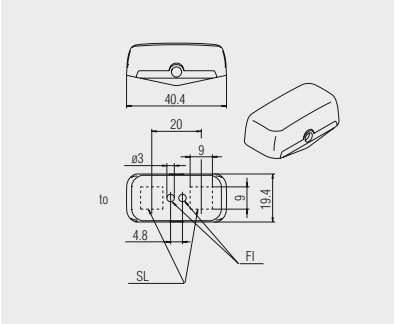
Basic types 3230 and 3237



Quick-connect terminal 3.0 x 0.8

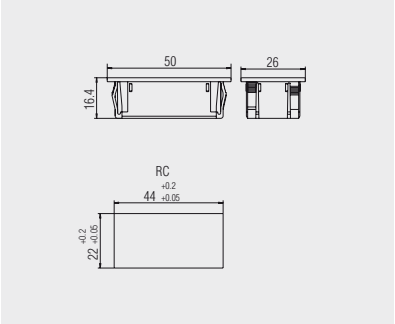
Rocker
190.389.011 - without stop (switching function both sides)
190.389.021 - with stop (switching function one side)

Cap
203.442.011 - with stop both sides (for lamp 3237)



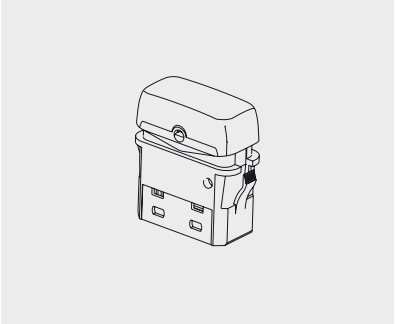
Snap-on rocker for basic type 3230 and cap for basic type 3237 (without switching function) painted black with or without stop for both or one-sided switching function. Laser inscription by customer or on request.

Installation frame
217.353.021

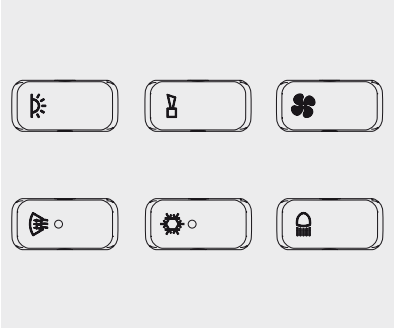


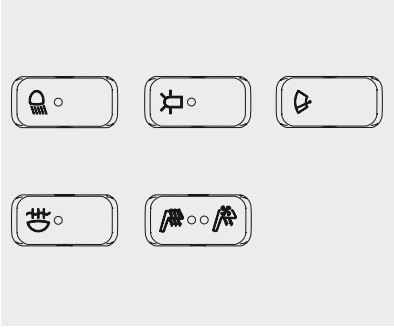
Installation frame for basic types 3230 and 3237 in black

Dummy piece
203.069.013



Dummy piece for the basic types 3230 and 3237 with mounted black cap



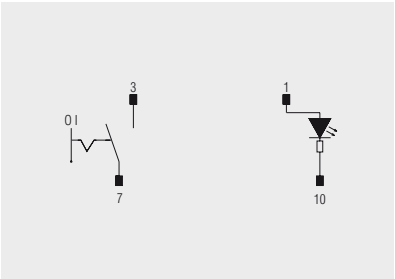


Lasered rocker symbols

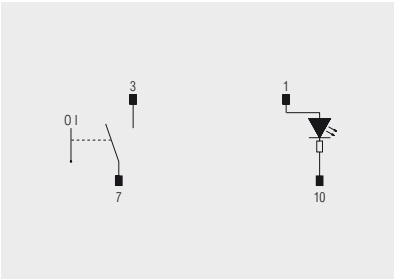
SERIES 3230 - SINGLE AND DOUBLE-POLE ROCKER SWITCHES

TO 10 (5) A 24 V DC

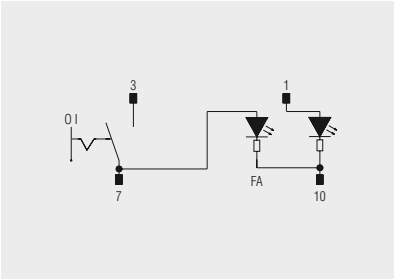
Circuit symbols



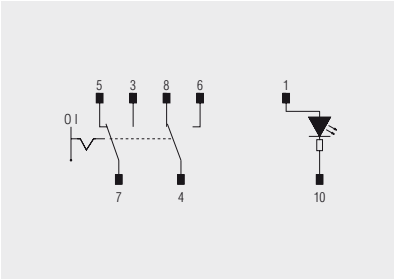
Circuit symbol: 3.01



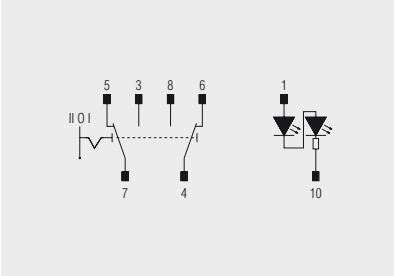
Circuit symbol: 3.02



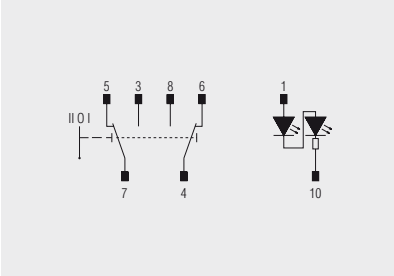
Circuit symbol: 3.03



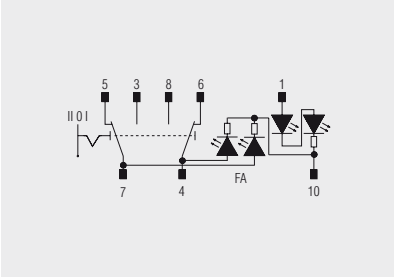
Circuit symbol: 3.09



Circuit symbol: 3.31



Circuit symbol: 3.32



Circuit symbol: 3.33

SERIES 1257 - DOUBLE-POLE ROCKER SWITCHES

TO 8 (8) A 250 V AC

PRODUCT FEATURES

- Double-pole OFF switch
- Powerful up to 14 A (UL) and 100 000 mechanical switching cycles
- Dust protected

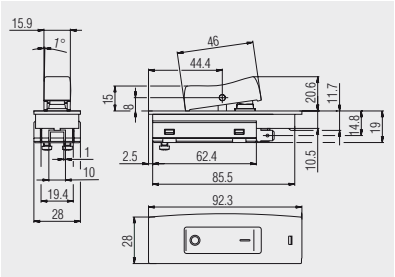
ON REQUEST

- Other colors
- Other connection variants
- Without interference suppression capacitor
- Higher ratings up to 12 (12) A

Mechanical life endurance		10E4
Actuator		IP 40
Material	actuator	PA glass fiber-reinforced
	housing	PA glass fiber-reinforced
Interference suppressor		C = 0.22 µF 275 V AC
Approval marks		/ /

double-pole	Actuator color / printing	Housing color	8 (8) A 250 V AC 5E4	16 A 125 - 250 V AC	14 A 125 - 250 V AC	250 V AC 1 1/2 HP	125 V AC 3/4 HP	Connection type	Connection description	Contact distance in mm	Contact material	Stock version
ON/OFF switch (DPST)												
1257.0101			●	●	●	●	●		2 x 6.3 x 0.8 2 x M4 Torx	≥ 3	Ag	

Basic type 1257



Quick-connect terminal motor side, socket terminal mains side

SERIES 0344 - THREE-POLE ROCKER SWITCHES

TO 16 (6) A 400 V AC

PRODUCT FEATURES

- Robust and powerful rocker switch
- Dust protected
- Approval for 400 V

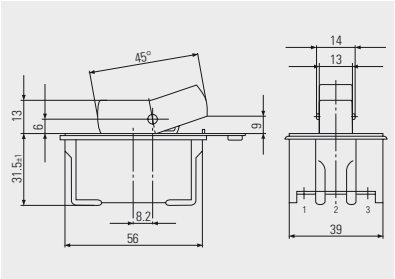
ON REQUEST

- Other connection variants

Material	actuator	PA
	housing	Duroplast / chromated galvanized steel
	connections	chromated
Approval marks		

three-pole	Actuator color / printing	Housing color	16 (6) A 400 V AC 5E4	25 A 400 V AC	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (TPST)										
0344.0102	I 0		●	●		M4	≥ 3	Ag		
0344.0201	I 0		●	●		M4	≥ 3	Ag		●

Basic type 0344



Screw connection M4

PUSHBUTTON SWITCHES

PUSHBUTTON SWITCHES

SERIES 1680

Single and double-pole pushbutton switches

to 16 (4) A / 12 (12) A 250 V AC



PAGE
90 - 95

SERIES 1683

Single and double-pole pushbutton switches

to 16 A 250 V AC

Appliance cut-out: 19.2 x 12.9 mm


PAGE
96 - 98

SERIES 1691

Smallest single-pole pushbutton switches

for low voltages

PAGE
99

SERIES 1246

Double-pole pushbutton switches

to 8 (8) A 250 V AC

PAGE
100 - 101

SERIES 1247

Double-pole pushbutton switches

to 7 A 250 V AC

PAGE
102 - 104

SERIES 5000

Round pushbutton switches

for at least 200 000 mechanical switching cycles

Appliance cut-out: Ø 16,0 mm

PAGE
105 - 106

SERIES 1846

Single-pole pushbutton switches

to 2 (1) A 250 V AC

Appliance cut-out: 19.2 x 12.9 mm

PAGE
107 - 108

PUSHBUTTON SWITCHES

SERIES 1840

Single and double-pole pushbutton switches

to 6 (4) A 250 V AC

Appliance cut-out: Ø 12,0 mm

PAGE
109 - 112

SERIES 1660

Single and double-pole pushbutton switches / lamps

to 16 (4) A 250 V AC

Appliance cut-out: 30.0 x 22.2 mm

PAGE
113 - 117

SERIES 1670

Single and double-pole pushbutton switches / lamps

to 16 (4) A 250 V AC

Appliance cut-out: 30.0 x 22.2 mm

PAGE
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Further information under

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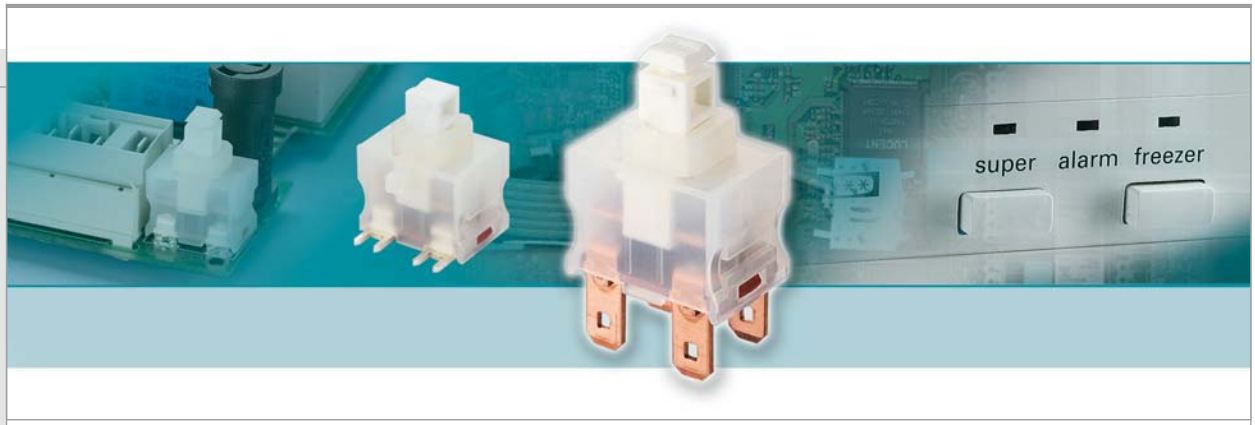
SERIES 1680 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A / 12 (12) A 250 V AC



PRODUCT FEATURES

- Million times proven double lifting contact system with at least 100 000 mechanical switching cycles
- High electrical rating up to 16 A
- High mechanical load capacity up to 750 N (for foot actuation)
- Great variety
- Variable housing and pushbutton form with holders
- With pole separating wall (basic type 1689)

ON REQUEST

- Special plastics
- Other connection variants
- Customized actuators and housing contours
- Cable assembly
- Behind PCB mountable variants

Mechanical life endurance		10E4
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		connection side -20 °C ... +100 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 (actuator: V-0, socket: V-1, housing: V-2) UL 94 V-0 (product-dependent)
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PBTP / PA / PA glass fiber-reinforced (product-dependent) PA / PA glass fiber-reinforced (product-dependent) silver-plated / galvanically nickel-plated in plug area / tinned (product-dependent)
Plug force of the terminals		≤ 80 N
Approval marks		/ / (product-dependent)
Suitable for appliances of protection class II		

SERIES 1680 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A / 12 (12) A 250 V AC

single-pole	16 (4) A 250 V AC 1E4	12 (12) A 250 V AC 5E4	12 (12) A 250 V AC 1E4	12 (8) A 250 V AC 1E4	10 (8) A 250 V AC 5E4	16 A 125 - 250 V AC	12 A 125 - 250 V AC 1/2 HP	5 A 125 V AC L	Connection type	Connection description	Contact distance in mm	Contact material	Operating force in N	Free position (FP) max. in mm	Operating position (OP) in mm	Permissible total travel position (TP) in mm	EN 60335 cap. 30 conform "G"	Miscellaneous	Actuator description	Stock version
ON/OFF switch (SPST)																				
1681.2102		●					●			vertical	≥ 3	Ag	7.0 ±2.5	26.5	23.8	22.2	●	resting pin		
1681.3104		●					●			4.8 horizontal	≥ 3	Ag	7.0 ±2.5	26.5	23.8	22.2	●			
1681.4403		●					●			horizontal	≥ 3	Ag	7.0 ±2.5	24	21.3	19.7	●	rest pin		
1681.4431		●			●		●			5.3 horizontal	≥ 3	Ag	7.0 ±2.5	24	21.3	19.8		flange on the end faces		
1681.1101				●	●		●			4.8 vertical	≥ 3	Ag	7.0 ±2.5	26.5	23.8	22.2				●
1681.1702				●	●		●			4.8 vertical	≥ 3	Ag	7.0 ±2.5	24	21.3	19.7	●			
1681.3101				●	●		●			4.8 horizontal	≥ 3	Ag	7.0 ±2.5	26.5	23.8	22.2				●
1681.3701				●	●		●			4.8 horizontal	≥ 3	Ag	7.0 ±2.5	24	21.3	19.7				
1681.4402				●	●		●			horizontal	≥ 3	Ag	7.0 ±2.5	24	21.3	19.7		rest pin		●
1681.4701				●	●		●			horizontal	≥ 3	Ag	7.0 ±2.5	24	21.3	19.7		resting pin		
1681.5701											≥ 3	Ag	7.0 ±2.5	24	21.3	19.7				
Normally closed contact (SPNC)																				
1681.9408			●		●					horizontal	≥ 3	Ag	6.5 ±1.5	26.85	29.4	22.8		resting pin		
Normally open contact (SPNO)																				
1681.1202		●					●			4.8 vertical	≥ 3	Ag	7.0 ±2.5	26.5	23.8	22.2	●			
1681.1304		●					●			4.8 vertical	≥ 3	Ag	7.0 ±2.5	24	≤ 21.3	19.8	●			
1681.1354		●					●			4.8 vertical	≥ 3	Au	7.0 ±2.5	24	≤ 21.3	19.7	●			
1681.3501				●	●		●			4.8 horizontal	≥ 3	Ag	7.0 ±2.5	24	21.3	19.7				

SERIES 1680 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

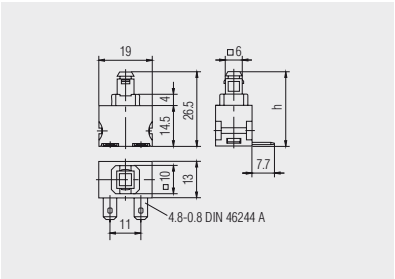
TO 16 (4) A / 12 (12) A 250 V AC

 double-pole	16 (4) A 250 V AC 1E4	12 (12) A 250 V AC 5E4	12 (12) A 250 V AC 1E4	12 (8) A 250 V AC 1E4	10 (8) A 250 V AC 5E4	16 A 125 - 250 V AC	12 A 125 - 250 V AC 1/2 HP	5 A 125 V AC L	Connection type	Connection description	Contact distance in mm	Contact material	Operating force in N	Free position (FP) max. in mm	Operating position (OP) in mm	Permissible total travel position (TP) in mm	EN 60335 cap. 30 conform "G"	Miscellaneous	Actuator description	Stock version
ON/OFF switch (DPST)																				
1682.7704	●					●				6.3 vertical	≥ 3	Ag	9.0 ±3	24	21.3	19.7	●			
1689.1302	●			●	●		●			4.8 vertical	≥ 3	Ag	9.0 ±3	24	≤ 20.95	19.7	●			
1689.3803	●		●		●		●			4.8 horizontal	≥ 3	Ag	9.0 ±3	24	20.95	19.7	●	special housing contour		
1682.1101				●	●		●			4.8 vertical	≥ 3	Ag	9.0 ±3	26.5	23.8	22.2				●
1682.1702				●	●		●			4.8 vertical	≥ 3	Ag	9.0 ±3	24	21.3	19.7	●			
1682.1802				●	●		●			4.8 vertical	≥ 3	Ag	7.0 ±2.5	24	21.3	19.7				
1682.2701				●	●		●			vertical	≥ 3	Ag	9.0 ±3	24	21.3	19.7				
1682.3101				●	●		●			4.8 horizontal	≥ 3	Ag	9.0 ±3	26.5	23.8	22.2				●
1682.6101				●	●		●			180° angled	≥ 3	Ag	9.0 ±3	24	21.3	19.8				
Normally open contact (DPNO)																				
1689.4202	●			●	●		●			horizontal	≥ 3	Ag	9.0 ±3	24	≤ 20.95	19.7	●	rest pin		
1682.1201				●	●		●			4.8 vertical	≥ 3	Ag	9.0 ±3	26.5	23.8	22.2				
1682.1902				●	●		●	●		4.8 vertical	≥ 3	Ag	9.0 ±3	28.8	26.1	24.5		with cap 205.021.011		
1682.3201				●	●		●			4.8 horizontal	≥ 3	Ag	9.0 ±3	26.5	23.8	22.2				
1682.3702				●	●		●			4.8 horizontal	≥ 3	Ag	7.0 ±2.5	26.5	23.8	22.2	●			

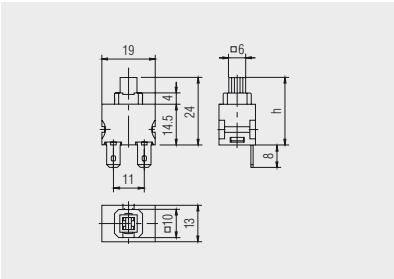
SERIES 1680 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A / 12 (12) A 250 V AC

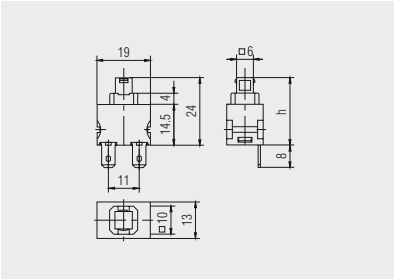
Basic type 1681
single-pole



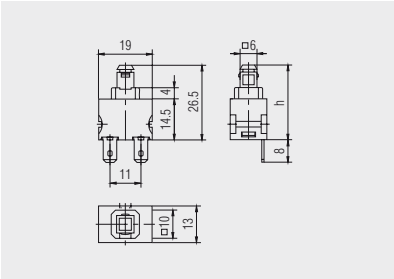
Quick-connect terminal 4.8 horizontal
(standard actuator)



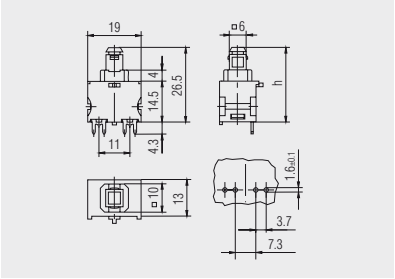
Quick-connect terminal 4.8 vertical
(actuator with holder for
different caps)



Quick-connect terminal 4.8 vertical
(shortened actuator)



Quick-connect terminal 4.8 vertical
(standard actuator)



PCB terminal vertical
(standard actuator)

Further information under

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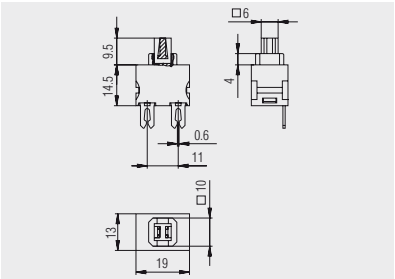
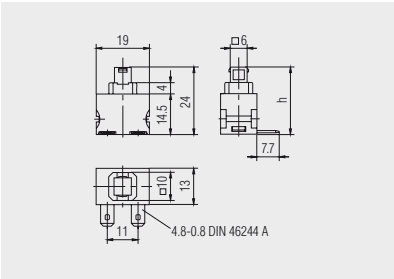
SERIES 1680 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A / 12 (12) A 250 V AC

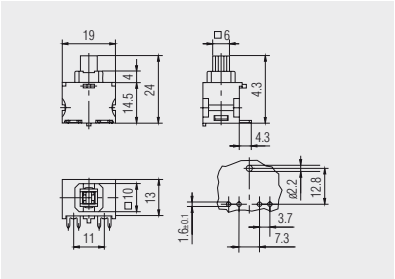
Basic type 1681
single-pole



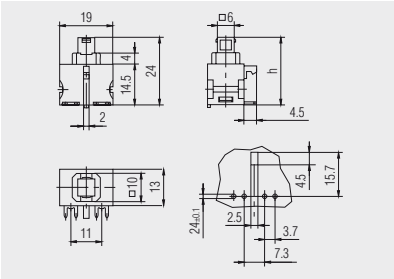
Cut terminal
(actuator with holder for different caps)



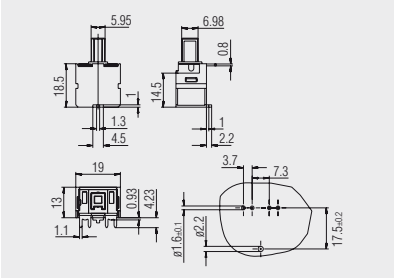
Quick-connect terminal 4.8 horizontal
(shortened actuator)



PCB terminal horizontal
(actuator with holder for different caps)



PCB terminal horizontal
(shortened actuator)

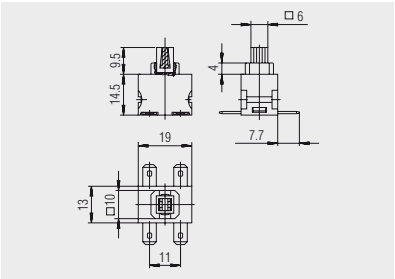


PCB terminal horizontal
1681.9408 normally closed contact SPNC (actuator with holder for different caps)

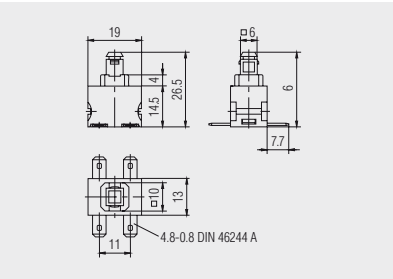
SERIES 1680 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A / 12 (12) A 250 V AC

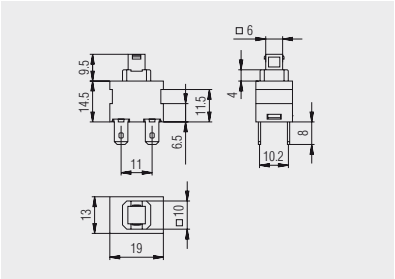
Basic types 1682 and 1689 double-pole



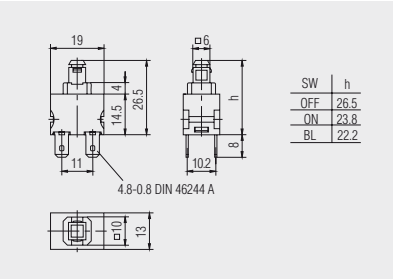
Quick-connect terminal 4.8 horizontal (actuator with holder for different caps)



Quick-connect terminal 4.8 horizontal (standard actuator)

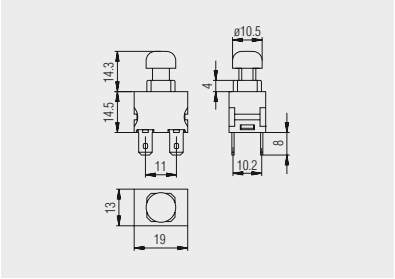


Quick-connect terminal 4.8 vertical (shortened actuator)

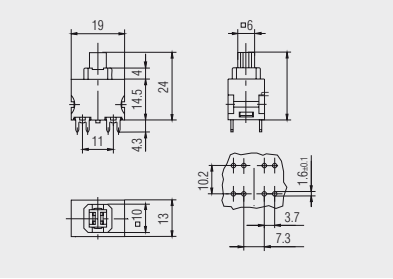


SW	h
OFF	26.5
ON	23.8
BL	22.2

Quick-connect terminal 4.8 vertical (standard actuator)

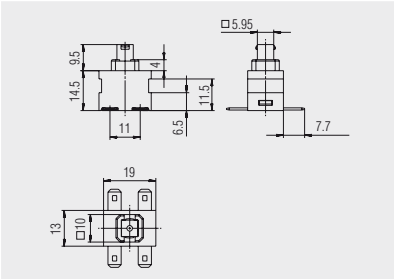


Quick-connect terminal 4.8 vertical (with mounted cap)

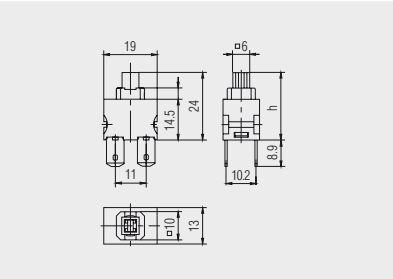


PCB terminal vertical (actuator with holder for different caps)

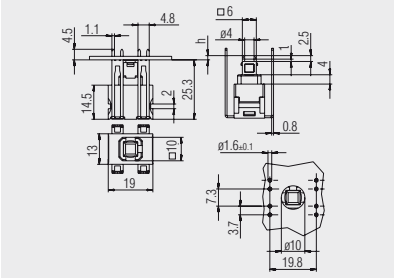
Basic types 1682 and 1689 double-pole



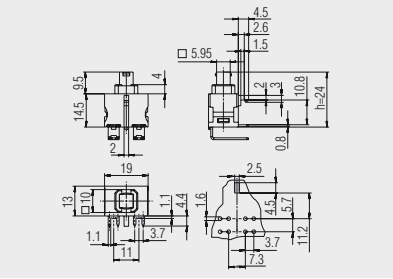
Quick-connect terminal 4.8 horizontal (shortened actuator without cut-out)



Quick-connect terminal 6.3 vertical (actuator with holder for different caps)



PCB terminal 180° angled (shortened actuator)



PCB terminal horizontal (shortened actuator without cout-out)

SERIES 1683 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 A 250 V AC

PRODUCT FEATURES

- Million times proven, double lifting contact system
- High electrical rating up to 16 A
- High rating with 100 000 mechanical switching cycles
- Illuminated and non-illuminated variants

ON REQUEST

- Other colors
- Printing
- Other lamp variants
- Snap-on customized actuators
- Other connection variants (e.g. 6.3 x 0.8 mm)
- Cable assembly
- Variant with dust and water protection

Mechanical life endurance		10E4
Operating force		ca. 12 N ca. 8 N (basic type 1683)
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Ambient temperature		connection side -20 °C ... +100 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 (actuator: V-0, socket: V-1, housing: V-2)
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PC PA / PA glass fiber-reinforced silver-plated
Plug force of the terminals		≤ 80 N
Approval marks		/ /
Suitable for appliances of protection class II		

SERIES 1683 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 A 250 V AC

single-pole

	Voltage lamp in V	Actuator color / printing	16 (4) A 250 V AC 1E4	12 (8) A 250 V AC 1E4	10 (8) A 250 V AC 5E4	12 A 125 - 250 V AC 1/2 HP	Connection type	Connection description	Contact distance mm	Contact material	Free position (FP) max. in mm	Operating position (OP) in mm	Permissible total travel position (TP) in mm	Miscellaneous	Actuator description	Stock version
ON/OFF switch (SPST)																
1686.1101	230		●	●	●	●		4.8	≥ 3	Ag	23.9	20.85	19.7			●
1686.1304	230		●	●	●	●		4.8	≥ 3	Ag	23.9	20.85	19.7			
1683.1101			●	●	●	●		4.8	≥ 3	Ag	23.9	20.85	19.7			
1683.1701			●	●	●	●		4.8	≥ 3	Ag	23.5	20.45	19.3	snap-on actuator		
1683.1801			●	●	●	●		4.8	≥ 3	Ag	23.5	20.45	19.3			
1683.3101			●	●	●	●		4.8 horizontal	≥ 3	Ag	23.5	20.45	19.3			
Normally open contact (SPNO)																
1683.1201			●	●	●	●		4.8	≥ 3	Ag	23.9	20.85	19.7			●
1683.1802			●	●	●	●		4.8	≥ 3	Ag	23.5	20.45	19.3			
1683.3601			●	●	●	●		4.8 horizontal	≥ 3	Ag	23.5	20.45	19.3	snap-on actuator		

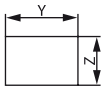
double-pole

	Voltage lamp in V	Actuator color / printing	16 (4) A 250 V AC 1E4	12 (8) A 250 V AC 1E4	10 (8) A 250 V AC 5E4	12 A 125 - 250 V AC 1/2 HP	Connection type	Connection description	Contact distance mm	Contact material	Free position (FP) max. in mm	Operating position (OP) in mm	Permissible total travel position (TP) in mm	Miscellaneous	Actuator description	Stock version
ON/OFF switch (DPST)																
1687.1104	230		●	●	●	●		4.8	≥ 3	Ag	23.9	20.85	19.7			●
1684.1101			●	●	●	●		4.8	≥ 3	Ag	23.9	20.85	19.7			●
1684.1104			●	●	●	●		4.8	≥ 3	Ag	23.9	20.85	19.7			
1684.1701			●	●	●	●		4.8	≥ 3	Ag	23.5	20.45	19.3	snap-on actuator		
1684.1801			●	●	●	●		4.8	≥ 3	Ag	23.5	20.45	19.3			
1684.2701			●	●	●	●		vertical	≥ 3	Ag	23.5	20.45	19.3	snap-on actuator		
Normally open contact (DPNO)																
1684.1201			●	●	●	●		4.8	≥ 3	Ag	23.9	20.85	19.7			●
1684.1802			●	●	●	●		4.8	≥ 3	Ag	23.5	≤ 20.45	19.3			

SERIES 1683 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

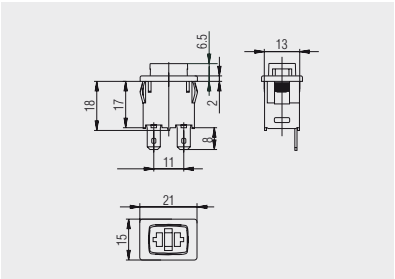
TO 16 A 250 V AC

Basic type 1683
single-pole
non-illuminated

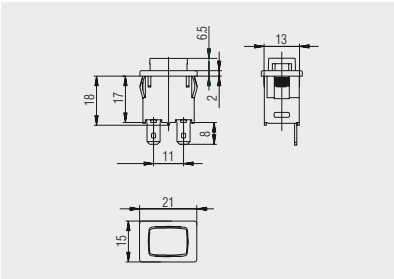


X = Wall thickness

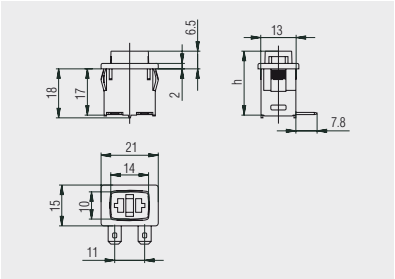
X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	12.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	12.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	12.9 $^{+0.1}$



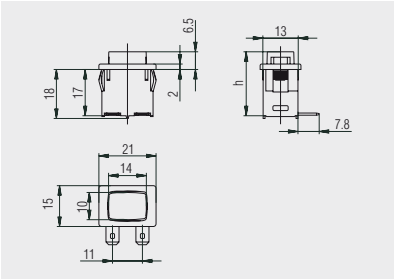
Quick-connect terminal 4.8



Quick-connect terminal 4.8

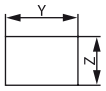


Quick-connect terminal 4.8
horizontal



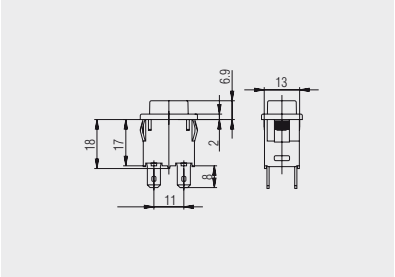
Quick-connect terminal 4.8
horizontal

Basic types 1684,1686 and 1687
single and double-pole
illuminated / non-illuminated

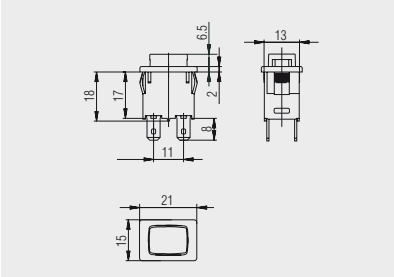


X = Wall thickness

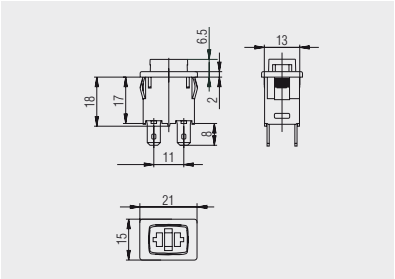
X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	12.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	12.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	12.9 $^{+0.1}$



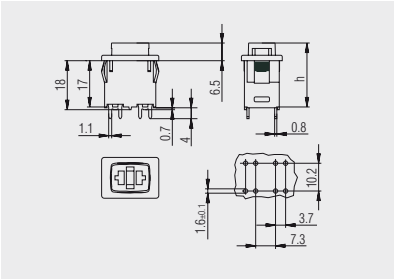
Quick-connect terminal 4.8
1684.1101, 1684.1104, 1684.1201,
basic types 1687 and 1686



Quick-connect terminal 4.8
basic type 1684

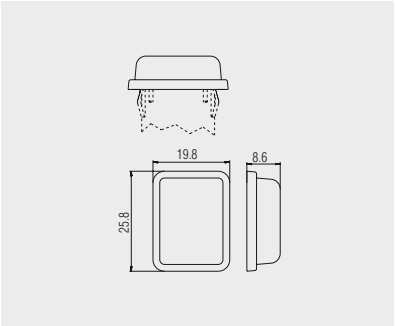


Quick-connect terminal 4.8
basic type 1684



PCB terminal vertical
1684.2701

Protection cap
203.701.011



Transparent PVC-protection cap for dust and water protection from the actuation side

SERIES 1691 - SMALLEST SINGLE-POLE PUSHBUTTON SWITCHES

FOR LOW VOLTAGES

PRODUCT FEATURES

- Small compact pushbutton switch for indirect actuation
- High rating with 100 000 mechanical cycles
- Pushbutton snapping on customized actuators

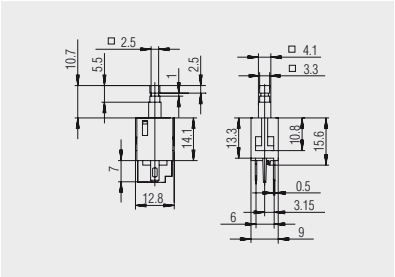
ON REQUEST

- For network applications
- Customized actuators
- Different operating force

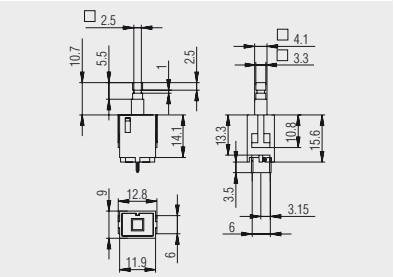
Mechanical life endurance		10E4
Operating force		6.0 ±1.0 N
Ambient temperature		connection side -25 °C ... +70 °C
Material	actuator	PA
	housing	PA
	connections	silver-plated

	Actuator color / printing	Housing color	5 mA 30 V	Connection type	Connection description	Contact distance in mm	Contact material	Free position (FP) max. in mm	Operating position (OP) in mm	Permissible total travel position (TP) in mm	Miscellaneous	Stock version
ON/OFF switch (SPST)												
1691.2101	■	■	●			< 3	Au	26.3	≤ 23.9	22.5		
Normally open contact (SPNO)												
1691.3201	■	■	●		2.8 x 0.5	< 3	Au	24.8	≤ 22.4	21		

Basic type 1691



Quick-connect terminal 2.8 x 0.5



PCB terminal

SERIES 1246 - DOUBLE-POLE PUSHBUTTON SWITCHES

TO 8 (8) A 250 V AC

PRODUCT FEATURES

- Powerful, double-pole pushbutton switch up to 14 A 125 V AC
- Alternatively with fastening strip and interference suppression capacitor
- Dust-protected

ON REQUEST

- Other connection variants

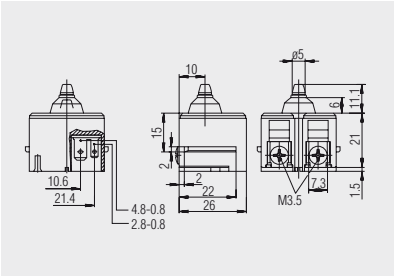
Mechanical life endurance		1E5
Operating force		15 ±2 N
Actuator		IP 40
Material	actuator housing	PA glass fiber-reinforced Desmopan / PA glass fiber-reinforced
Interference suppressor		C = 0.22 µF 275 V AC (product-dependent)
Approval marks		VDE / UL / CSA
Suitable for appliances of protection class II		

SERIES 1246 - DOUBLE-POLE PUSHBUTTON SWITCHES

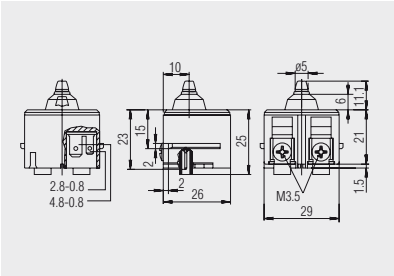
TO 8 (8) A 250 V AC

double-pole	8 (8) A 250 V AC 5E4	6 (6) A 250 V AC 5E4	14 A 125 V AC	8 A 250 V AC	8 A 125 V DC	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
Normally open contact (DPNO)											
1246.3101	●		●	●	●		2 x 4.8 x 0.8 2 x M3.5	≥ 3	Ag	with strip and interference suppression capacitor	
1246.3201	●		●	●	●		2 x 4.8 x 0.8 2 x 2.8 x 0.8 2 x M3.5	≥ 3	Ag	with strip without interference suppression capacitor	
Changeover switch (DPDT momentary)											
1246.6201		●					2 x 4.8 x 0.8 2 x 2.8 x 0.8 2 x M3.5	≥ 3	Ag	with strip without interference suppression capacitor without approval mark	

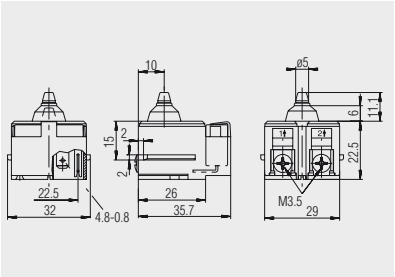
Basic type 1246



Quick-connect terminal motor side, quick-connect terminal additional connection, screw connection mains side, 1246.3201



Quick-connect terminal motor side, quick-connect terminal additional connection, screw connection mains side, 1246.6201



Quick-connect terminal motor side, screw connection mains side with interference suppression capacitor 1246.3101

SERIES 1247 - DOUBLE-POLE PUSHBUTTON SWITCHES

TO 7 A 250 V AC

PRODUCT FEATURES

- Powerful single and double-pole pushbutton switch up to 10 A 125 V AC
- Optionally with fastening strip and interference suppression capacitor
- Support point terminal (single-pole normally open contact)
- Dust-protected

ON REQUEST

- Other connection types

Mechanical life endurance		1E5
Actuator		IP 40
Material	actuator	PA glass fiber-reinforced
	housing	Desmopan / PA glass fiber-reinforced
Interference suppressor		C = 0.22 µF 275 V AC (product-dependent)
Approval marks		VDE / UL / CSA
Suitable for appliances of protection class II		

SERIES 1247 - DOUBLE-POLE PUSHBUTTON SWITCHES

TO 7 A 250 V AC

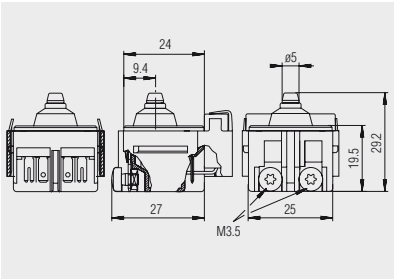
 single-pole	7 (7) A 250 V AC 5E4	10 A 125 V AC	5 A 250 V AC	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
Normally open contact (SPNO)									
1247.0102	●	●	●		4 x 2.8 x 0.8 2 x M3.5	≥ 3	Ag	without strip	
1247.0301	●	●	●		4 x 2.8 x 0.8 2 x M3.5	≥ 3	Ag	with strip	

 double-pole	7 (7) A 250 V AC 5E4	10 A 125 V AC	5 A 250 V AC	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
Normally open contact (DPNO)									
1247.2102	●	●	●		4 x 2.8 x 0.8 2 x M3.5	≥ 3	Ag	without strip	
1247.2301	●	●	●		4 x 2.8 x 0.8 2 x M3.5	≥ 3	Ag	with strip	
1247.2501	●	●	●		2 x 2.8 x 0.8 2 x M3.5 Torx 2 x cut terminal	≥ 3	Ag	with strip and interference suppression capacitor	

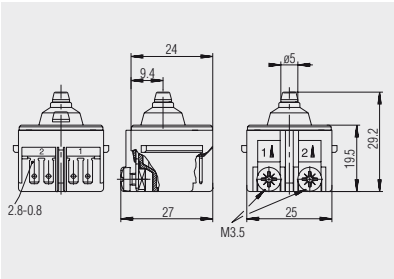
SERIES 1247 - DOUBLE-POLE PUSHBUTTON SWITCHES

TO 7 A 250 V AC

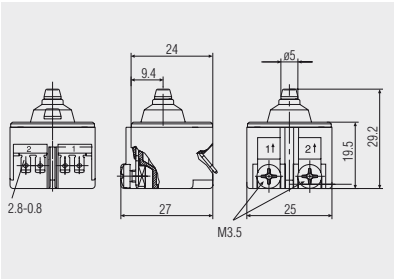
Basic type 1247



Quick-connect terminal motor side, screw connection mains side (Torx), cut terminal additional connection for capacitor, 1247.2501



Quick-connect terminal motor side, screw connection mains side with strip
1247.0301 and 1247.2301



Quick-connect terminal motor side, screw connection mains side without strip
1247.2102 and 1247.0102

Further information under

WWW.MARQUARDT.DE

SERIES 5000 - ROUND PUSHBUTTON SWITCHES

FOR AT LEAST 200 000 MECHANICAL SWITCHING CYCLES

PRODUCT FEATURES

- Attractive, round pushbutton switch
- Efficient contact system at least 200 000 mechanical switching cycles
- Variants with sealing cap for IP 54 dust and water protection
- Appliance cut-out with diameter 16 mm, alternatively with fixing pin

ON REQUEST

- Other colors
- Actuator printing
- Snap fastening for greater wall thickness
- Cable assembly

Mechanical life endurance		20E4
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40 IP 54 (in variants with sealing cap)
Ambient temperature		connection side -20 °C ... +85 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA glass fiber-reinforced PA glass fiber-reinforced silver-plated
Type of fastening		snap fastening material thickness 1.4 - 1.7
Plug force of the terminals		≤ 64 N
Approval marks		/ /
Suitable for appliances of protection class II		

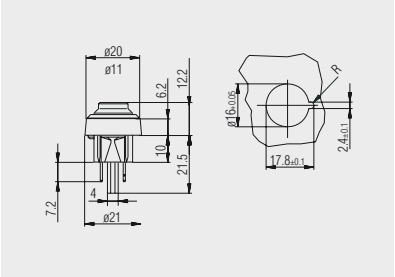
SERIES 5000 - ROUND PUSHBUTTON SWITCHES

FOR AT LEAST 200 000 MECHANICAL SWITCHING CYCLES

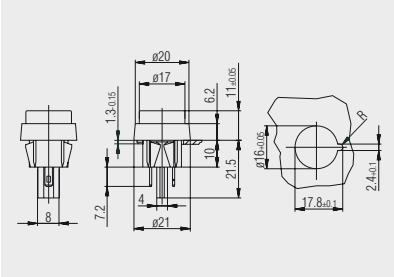
single-pole

	Actuator color / printing	Housing color	4 (2) A 250 V AC 5E4	4 A 125 V AC 1/10 HP	2 A 250 V AC 1/10 HP	Connection type	Connection description	Contact distance in mm	Contact material	Pretravel max. in mm	Total travel / stroke in mm	Miscellaneous	Stock version
Normally open contact (SPNO)													
5000.0101			●	●	●		2.8	≥ 3	Ag	2.0 ±0.4	4.0		●
5000.0103			●	●	●		2.8	≥ 3	Ag	2.0 ±0.4	4.0		●
5000.0104			●	●	●		2.8	≥ 3	Ag	2.0 ±0.4	4.0		●
5000.0212			●	●	●		2.8	≥ 3	Ag	2.0 ±0.4	4.0		
5000.0501			●	●	●		2.8	≥ 3	Ag	2.0 ±0.4	4.0	with IP 54 sealing cap	

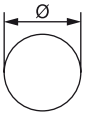
Basic type 5000



Quick-connect terminal 2.8 (with fixing pin and IP 54 sealing cap), 5000.0501

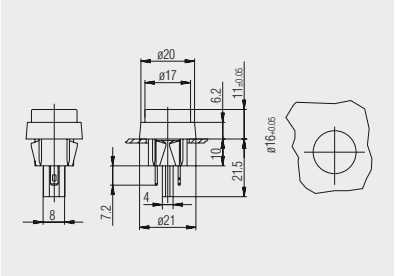


Quick-connect terminal 2.8 (with fixing pin) 5000.0212



X = Wall thickness

X	Ø
1.4 ... 1.7	$16.0^{+0.05}$



Quick-connect terminal 2.8 5000.0101, 5000.0103 and 5000.0104

SERIES 1846 - SINGLE-POLE PUSHBUTTON SWITCHES

TO 2 (1) A 250 V AC

PRODUCT FEATURES

- Small, compact pushbutton switch
- Long life endurance with 500 000 mechanical switching cycles
- Special design for dust and water protection

ON REQUEST

- Other colors
- With printing
- Other connection variants
- Cable assembly

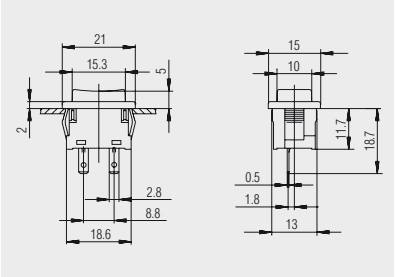
Mechanical life endurance		50E4
Operating force		ca. 1 N ≤ 4.0 N (1846.0204)
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		connection side -20 °C ... +85 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA PA silver-plated
Surface terminal outlet		silver-plated
Plug force of the terminals		≤ 80 N
Approval marks		
Suitable for appliances of protection class II		

SERIES 1846 - SINGLE-POLE PUSHBUTTON SWITCHES

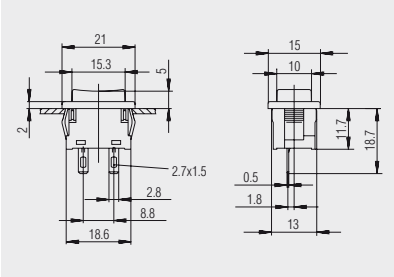
TO 2 (1) A 250 V AC

 single-pole	Actuator color / printing	Housing color	2 (1) A 250 V AC 5E4	30 mA 12 V DC 5E4	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
Normally open contact (SPNO)										
1846.0201			●				< 3	Ag		●
1846.2201			●				< 3	Ag		●
1846.3201			●			2.8 x 0.5	< 3	Ag		●
1846.3204			●			2.8 x 0.5	< 3	Ag		
1846.2251				●			< 3	Au	electrical life endurance: 500 000	
1846.0204							< 3	Ag	switch operating force 4 N	

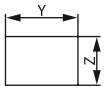
Basic type 1846



Quick-connect terminal 2.8 x 0.5

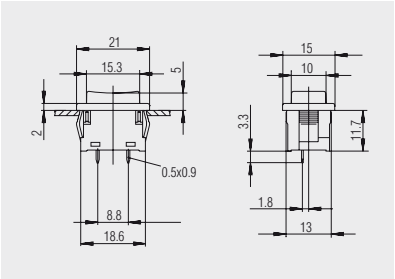


Solder terminal



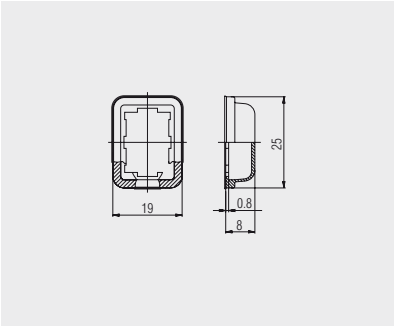
X = Wall thickness

X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	12.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	12.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	12.9 $^{+0.1}$



PCB terminal

Protection cap
203.089.011



Transparent PVC-protection cap. Serves as dust and water protection of the actuation side.

SERIES 1840 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 6 (4) A 250 V AC

PRODUCT FEATURES

- 100 million times proven switching principle with longer life endurance with 100 000 mechanical switching cycles
- Fastening by round nut M12
- Excellent actuating characteristic
- Variant for snapping on customized pushbuttons

ON REQUEST

- Higher power with 6 (6) A 250 V AC
- Other connection types
- Cable assembly

Mechanical life endurance		10E4
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		connection side -20 °C ... +100 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA PA glass fiber-reinforced / PA silver-plated
Plug force of the terminals		≤ 80 N
Approval marks		/ /
Suitable for appliances of protection class II		

SERIES 1840 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 6 (4) A 250 V AC

single-pole

	Actuator color / printing	Housing color	6 (4) A 250 V AC 5E4	6 (2) A 250 V AC 5E4	6 A 250 V AC 1/2 HP	6 A 125 V AC 1/4 HP	6 A 125 - 250 V AC 1/8 HP	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (SPST)													
1841.1101			●		●	●			4.8	≥ 3	Ag		●
1841.6101			●		●	●			4.8	≥ 3	Ag	snap-on actuator (caps see page 112)	●
Normally closed contact (SPNC)													
1841.1301				●			●		4.8	≥ 3	Ag		●
Normally open contact (SPNO)													
1841.1201				●			●		4.8	≥ 3	Ag		●
Switch (SPDT)													
1843.1101			●		●	●			4.8	≥ 3	Ag		●
Changeover switch (SPDT momentary)													
1843.1201				●			●		4.8	≥ 3	Ag		●

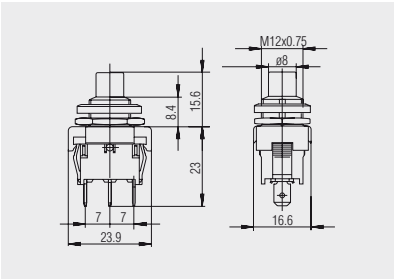
double-pole

	Actuator color / printing	Housing color	6 (4) A 250 V AC 5E4	6 (2) A 250 V AC 5E4	6 A 250 V AC 1/2 HP	6 A 125 V AC 1/4 HP	6 A 125 - 250 V AC 1/8 HP	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (DPST)													
1842.1101			●		●	●			4.8	≥ 3	Ag		●
1842.6101			●		●	●			4.8	≥ 3	Ag	snap-on actuator (caps see page 112)	●

SERIES 1840 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

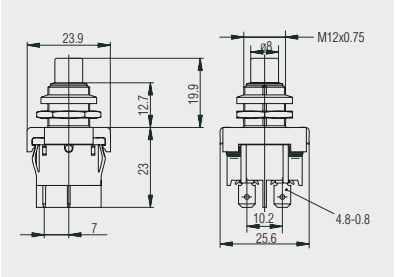
TO 6 (4) A 250 V AC

Basic types 1841 and 1843
single-pole



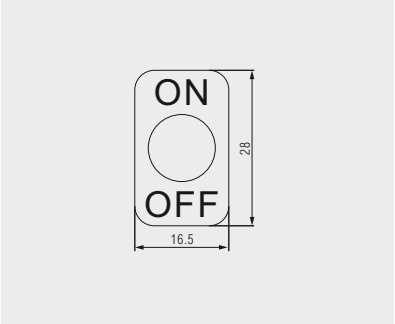
Quick-connect terminal 4.8

Basic type 1842
double-pole



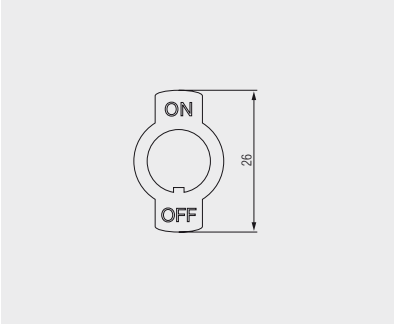
Quick-connect terminal 4.8

Identification plate
240.001.011



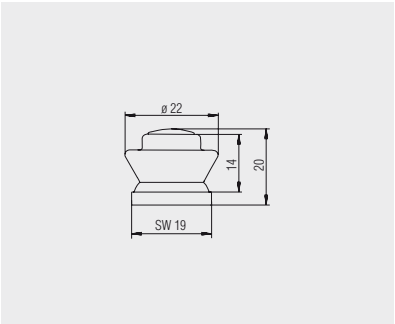
Identification plate of aluminum for plugging on with black inscription “ON” and “OFF”

Identification plate
240.002.011



Identification plate of CuZn nickel-plated for plugging on as well as with twist protection and stamped inscription “ON” and “OFF”

Protection cap
343.002.023

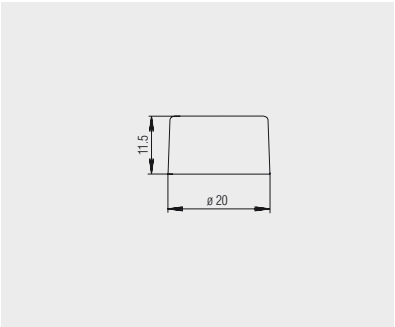


Neopren® - cap for pushbutton (M12 x 0.75) basic type 1840 as dust and water protection. Pushbutton plate on top of cap is CuZn nickel-plated.

SERIES 1840 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

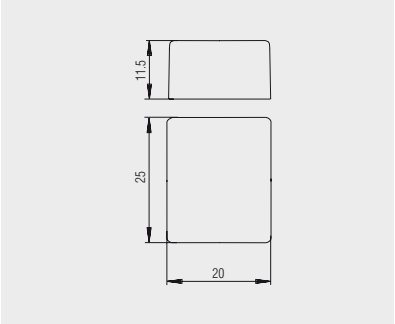
TO 6 (4) A 250 V AC

Pushbutton
205.008.011



Pushbutton of PA black, with diameter 20 mm for assembly by customer on 1841.6101 and 1842.6101

Pushbutton
203.106.011



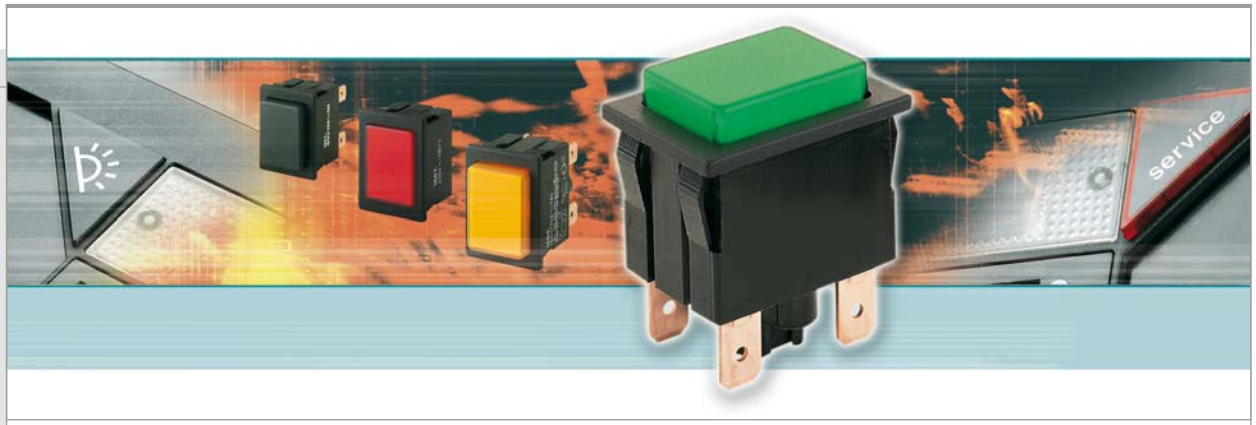
Pushbutton of PA black, rectangular 20 x 25 mm for assembly by customer on 1841.6101 and 1842.6101

Further information under

WWW.MARQUARDT.DE

SERIES 1660 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A 250 V AC



PRODUCT FEATURES

- Illuminated and non-illuminated pushbutton switch
- Proven jump contact switching system (double interrupting)
- Opening and closing speed independent of the actuating speed
- Product-dependent with external lamp connection

ON REQUEST

- Other colors
- Other printing variants
- Other connection types
- Other lamp variants
- Cable assembly

Mechanical life endurance		5E4
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		connection side -20 °C ... +85 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA / PC (product-dependent) PA / PA glass fiber-reinforced (product-dependent) Cu / silver-plated
Plug force of the terminals		≤ 80 N
Approval marks		/ /
Suitable for appliances of protection class II		

SERIES 1660 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A 250 V AC

single-pole

	Voltage lamp in V	Actuator color / printing	Housing color	16 (4) A 250 V AC 1E4	16 (4) A 250 V AC	12 (4) A 250 V AC 1E4	12 A 250 V AC 1/2 HP	12 A 125 V AC 1/6 HP	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
Normally open contact (SPNO)														
1665.3101	230			●						6.3 / 2 x 4.8	≥ 3	Ag	external lamp connection	
1665.3102	230			●						6.3 / 2 x 4.8	≥ 3	Ag	external lamp connection	●
ON/OFF switch (SPST)														
1662.0201				●						6.3	≥ 3	Ag		●
1662.0203				●						6.3	≥ 3	Ag		
Normally open contact (SPNO)														
1662.0101				●						6.3	≥ 3	Ag		●
1662.0102				●						6.3	≥ 3	Ag		
Changeover switch (SPDT momentary)														
1664.0101						●				4.8	< 3	Ag		●

double-pole

	Voltage lamp in V	Actuator color / printing	Housing color	16 (4) A 250 V AC 1E4	16 (4) A 250 V AC	12 (4) A 250 V AC 1E4	12 A 250 V AC 1/2 HP	12 A 125 V AC 1/6 HP	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (SPST)														
1660.0201	230			●						6.3	≥ 3	Ag		●
1660.0202	230			●						6.3	≥ 3	Ag		●
1660.0203	230			●						6.3	≥ 3	Ag		
1660.3202	230			●						6.3 / 2 x 4.8	≥ 3	Ag	external lamp connection	●
1660.0222	110							●		6.3	≥ 3	Ag		
1661.0201				●						6.3	≥ 3	Ag		●
1661.0220					●		●	●		6.3	≥ 3	Ag		

TO 16 (4) A 250 V AC

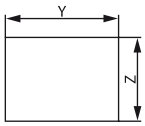
 double-pole	Voltage lamp in V	Actuator color / printing	Housing color	16 (4) A 250 V AC 1E4	16 (4) A 250 V AC	12 (4) A 250 V AC 1E4	12 A 250 V AC 1/2 HP	12 A 125 V AC 1/6 HP	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
Normally open contact (SPNO)														
1661.0101				●						6.3	≥ 3	Ag		●
Switch (SPDT)														
1663.0201						●				4.8	< 3	Ag		●
Changeover switch (SPDT momentary)														
1663.0101						●				4.8	< 3	Ag		●

 Lamp	Voltage lamp in V	Actuator color / printing	Housing color	16 (4) A 250 V AC 1E4	16 (4) A 250 V AC	12 (4) A 250 V AC 1E4	12 A 250 V AC 1/2 HP	12 A 125 V AC 1/6 HP	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
Lamp														
1667.0101	230									6.3				●
1667.0102	230									6.3				●
1667.0104	230									6.3				●

SERIES 1660 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

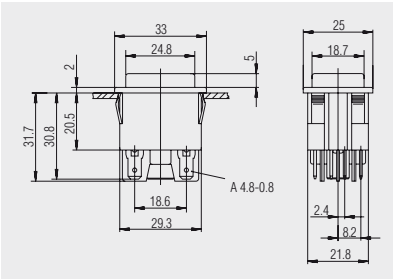
TO 16 (4) A 250 V AC

Basic types 1660, 1661, 1662, 1663 and 1665
double-pole
illuminated / non-illuminated

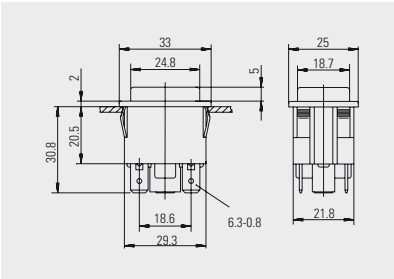


X = Wall thickness

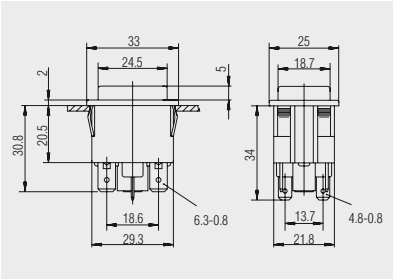
X	Y	Z
0.75 ... 1.0	30 $^{+0.1}$	22.2 $^{+0.2}$
1.0 ... 1.5	30.2 $^{+0.1}$	22.2 $^{+0.2}$
1.5 ... 3.0	30.4 $^{+0.1}$	22.2 $^{+0.2}$



Quick-connect terminal 4.8

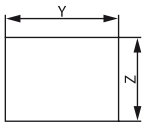


Quick-connect terminal 6.3



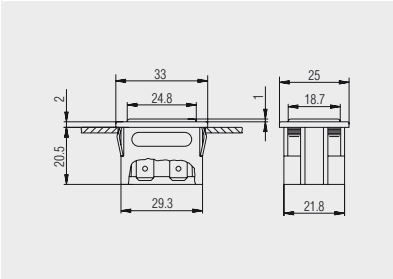
Quick-connect terminal 6.3 / 2 x 4.8
with external lamp connection

Basic type 1667
Lamp



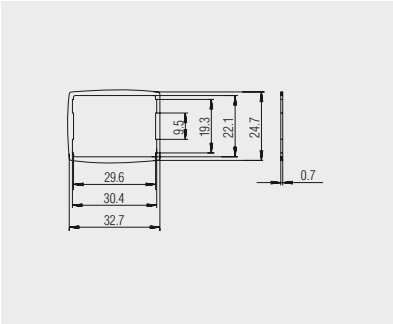
X = Wall thickness

X	Y	Z
0.75 ... 1.0	30 $^{+0.1}$	22.2 $^{+0.2}$
1.0 ... 1.5	30.2 $^{+0.1}$	22.2 $^{+0.2}$
1.5 ... 3.0	30.4 $^{+0.1}$	22.2 $^{+0.2}$



Quick-connect terminal 6.3

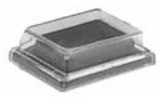
Gasket
340.040.011



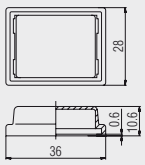
Gasket of EPDM black for sealing between switch and appliance for increased dust and water protection

SERIES 1660 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A 250 V AC

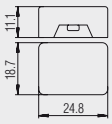


Protection cap
203.201.011



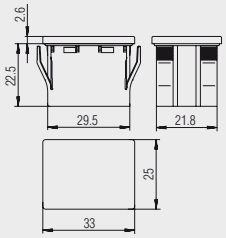
Transparent PVC-protection cap for switches of the basic types 1660, 1662, 1663, 1664, 1665 and 1667. Serves as dust and water protection of the actuation side.

Window
203.107.011 - orange
203.107.031 - green



Transparent window for assembly by customer. Switches and lamps without mounted cap are available on request.

Dummy piece
203.028.013



Dummy piece for size of basic type 1667 of PA with housing and cover in black and with mounted gasket (340.040.011) for dust and water protection

SERIES 1670 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A 250 V AC

PRODUCT FEATURES

- Illuminated and non-illuminated pushbutton switch
- Internal gasket for IP 54
- Proven jump contact switching system (double interrupting)
- Opening and closing speed independent of the actuating speed
- Product-dependent with external lamp connection

ON REQUEST

- Other colors
- Other printing variants
- Other connection types
- Other lamp variants
- Cable assembly

Mechanical life endurance		5E4
Operating force		ca. 8 N
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 54
Ambient temperature		connection side -20 °C ... +85 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA / PC (product-dependent) PA / PA glass fiber-reinforced (product-dependent) Cu
Plug force of the terminals		≤ 80 N
Approval marks		
Suitable for appliances of protection class II		

SERIES 1670 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A 250 V AC

single-pole

	Voltage lamp in V	Actuator description	Housing color	16 (4) A 250 V AC 1E4	12 (4) A 250 V AC 1E4	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
Normally open contact (SPNO)											
1675.5315	230			●			6.3 / 2 x 4.8	≥ 3	Ag	external lamp connection	
1672.5101				●			6.3	≥ 3	Ag		
Switch (SPDT)											
1673.5501					●		4.8	< 3	Ag		

double-pole

	Voltage lamp in V	Actuator description	Housing color	16 (4) A 250 V AC 1E4	12 (4) A 250 V AC 1E4	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (SPST)											
1670.5201	230			●			6.3	≥ 3	Ag		●
1670.5202	230			●			6.3	≥ 3	Ag		●
1670.5204	230			●			6.3	≥ 3	Ag		
1670.5304	230			●			6.3 / 2 x 4.8	≥ 3	Ag	external lamp connection	
1670.5203	115 - 230			●			6.3	≥ 3	Ag		
1671.5201				●			6.3	≥ 3	Ag		●
1671.5203				●			6.3	≥ 3	Ag	cover gray	
Normally open contact (SPNO)											
1671.5101				●			6.3	≥ 3	Ag		
1671.5104				●			6.3	≥ 3	Ag		

SERIES 1670 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A 250 V AC

 Lamp	Voltage lamp in V	Actuator description	Housing color	16 (4) A 250 V AC 1E4	12 (4) A 250 V AC 1E4	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
Lamp											
1677.5306	230						6.3				
1677.5307	115 - 230						6.3				
1677.5308	115 - 230						6.3				

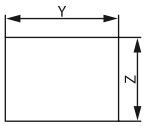
Further information under

WWW.MARQUARDT.DE

SERIES 1670 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

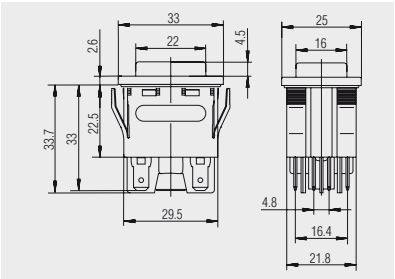
TO 16 (4) A 250 V AC

Basic types 1672, 1673 and 1675
single-pole
illuminated / non-illuminated

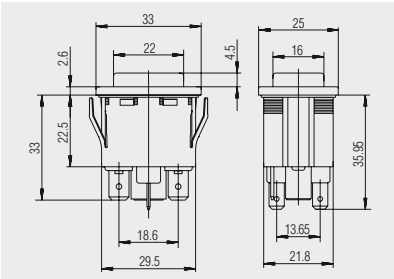


X = Wall thickness

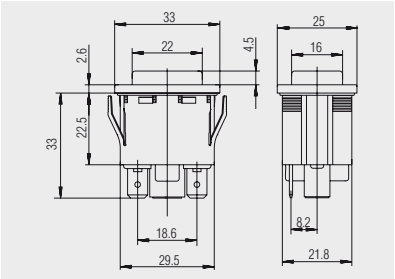
X	Y	Z
0.8 ... 5.0	30.0 +0.15	22.2 +0.15



Quick-connect terminal 4.8
1673.5501

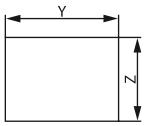


Quick-connect terminal 6.3 / 2 x 4.8
external lamp connection
basic type 1675



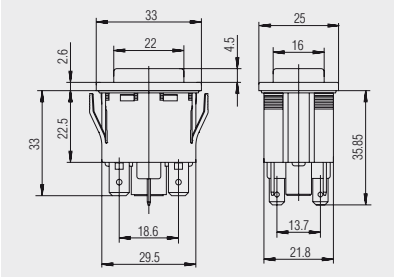
Quick-connect terminal 6.3
basic type 1672

Basic types 1670 and 1671
double-pole
illuminated / non-illuminated

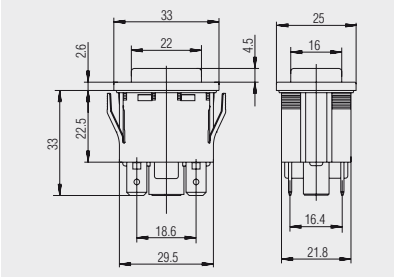


X = Wall thickness

X	Y	Z
0.8 ... 5.0	30.0 +0.15	22.2 +0.15



Quick-connect terminal 6.3 / 2 x 4.8
chromated external lamp
connection
1670.5304

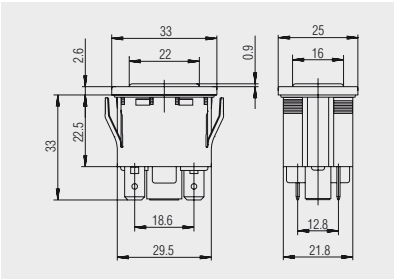


Quick-connect terminal 6.3
basic types 1670 and 1671

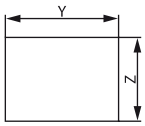
SERIES 1670 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A 250 V AC

Basic type 1677
Lamp



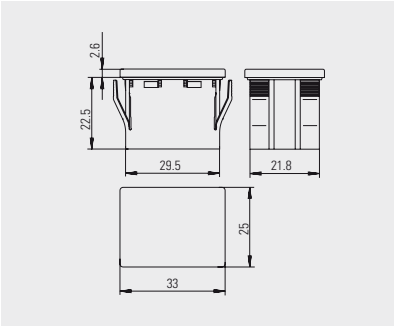
Quick-connect terminal 6.3



X = Wall thickness

X	Y	Z
0.8 ... 5.0	30 $^{+0.15}$	22.2 $^{+0.15}$

Dummy piece
203.020.013



Dummy piece for size of basic type 1677 of PA with housing in black and cover in blue

Further information under

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TOGGLE SWITCHES

TOGGLE SWITCHES

SERIES 0350

Three-pole toggle switches

to 10 (4) A 400 V AC

PAGE
125

SERIES 1810

Single and double-pole toggle switches

to 10 (4) A 250 V AC

Appliance cut-out: Ø 12 mm or
19.2 x 12.9 mm
19.2 x 21.9 mm

PAGE
126 - 128

SERIES 1820

Single and double-pole toggle switches

to 6 (4) A 250 V AC

Appliance cut-out: Ø 12 mm or
19.2 x 12.9 mm
19.2 x 21.9 mm

PAGE
129 - 132

SERIES 0100

Single-pole toggle switches

to 2 A 250 V AC

Appliance cut-out: Ø 12 mm

PAGE
133 - 134

Further information under

WWW.MARQUARDT.DE

SERIES 0350 - THREE-POLE TOGGLE SWITCHES

TO 10 (4) A 400 V AC

PRODUCT FEATURES

- Robust and efficient toggle switch with 100 000 mechanical switching cycles
- With dust seal
- Approval for 400 V

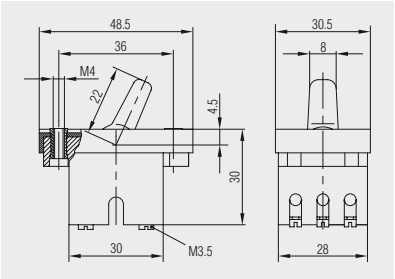
ON REQUEST

- Other connection types

Mechanical life endurance		10E4
Material	actuator	Duroplast
	housing	Duroplast / PA glass fiber-reinforced
	connections	chromated
Approval marks		
Suitable for appliances of protection class II		

three-pole	Actuator color / printing	Housing color	10 (4) A 400 V AC 5E4	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (TPST)									
0350.0101			●		M3.5	≥ 3	Ag	lever with red dot	●
0350.2101			●		M3.5	≥ 3	Ag	lever with red dot 3 auxiliary terminals	

Basic type 0350



Socket terminal M3.5

SERIES 1810 - SINGLE AND DOUBLE-POLE TOGGLE SWITCHES

TO 10 (4) A 250 V AC

PRODUCT FEATURES

- Attractive toggle switches
- 100 million times proven switching principle
- Long life endurance with 100 000 mechanical switching cycles
- Excellent actuating characteristic

ON REQUEST

- Other colors
- Other printing variants
- Other switching functions
- Other connection variants
- Cable assembly

Mechanical life endurance		5E4 (changeover switch with OFF position in center) 10E4
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		connection side -20 °C ... +100 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA PA silver-plated
Plug force of the terminals		≤ 80 N
Approval marks		/ /
Suitable for appliances of protection class II		

SERIES 1810 - SINGLE AND DOUBLE-POLE TOGGLE SWITCHES

TO 10 (4) A 250 V AC

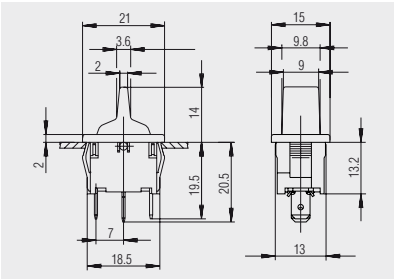
 single-pole	Actuator color / printing	Housing color	10 (4) A 250 V AC 1E4	6 (4) A 250 V AC 5E4	6 (2) A 250 V AC 1E4	4 (2) A 250 V AC 1E4	6 A 250 V AC 1/2 HP	6 A 125 V AC 1/4 HP	6 A 125 - 250 V AC 1/8 HP	6 A 125 V AC 1/10 HP	4 A 250 V AC 1/10 HP	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (SPST)																	
1811.1102			●	●			●	●					4.8	≥ 3	Ag		●
Normally open contact (SPNO)																	
1811.1202						●				●	●		4.8	≥ 3	Ag		
Switch (SPDT)																	
1813.1102			●	●			●	●					4.8	≥ 3	Ag		●
Switch with OFF position in the center (SPDT - Center OFF)																	
1818.1102					●				●				4.8	< 3	Ag		●
1818.1202					●				●				4.8	< 3	Ag	momentary function one side	●
1818.1302					●				●				4.8	< 3	Ag	momentary function both sides	●
1818.2302					●				●					< 3	Ag	momentary function both sides	

 double-pole	Actuator color / printing	Housing color	10 (4) A 250 V AC 1E4	6 (4) A 250 V AC 5E4	6 (2) A 250 V AC 1E4	4 (2) A 250 V AC 1E4	6 A 250 V AC 1/2 HP	6 A 125 V AC 1/4 HP	6 A 125 - 250 V AC 1/8 HP	6 A 125 V AC 1/10 HP	4 A 250 V AC 1/10 HP	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (DPST)																	
1812.1102			●	●			●	●					4.8	≥ 3	Ag		●
Switch (DPDT)																	
1814.2102			●	●			●	●						≥ 3	Ag		
Switch with OFF position in the center (DPDT - Center OFF)																	
1819.1102					●				●				4.8	< 3	Ag		●
1819.1302					●				●				4.8	< 3	Ag	momentary function both sides	●

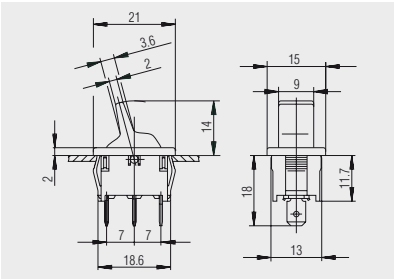
SERIES 1810 - SINGLE AND DOUBLE-POLE TOGGLE SWITCHES

TO 10 (4) A 250 V AC

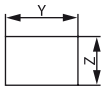
Basic types 1811, 1813 and 1818
single-pole



Quick-connect terminal 4.8
basic type 1818

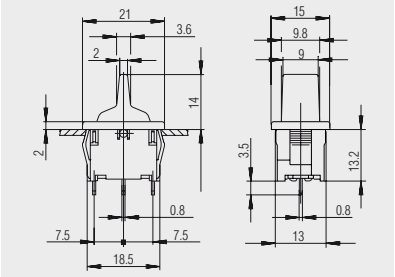


Quick-connect terminal 4.8
basic types 1813 and 1811
without third connection



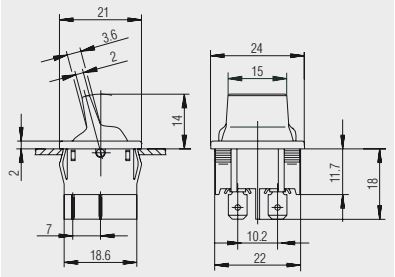
X = Wall thickness

X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	12.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	12.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	12.9 $^{+0.1}$

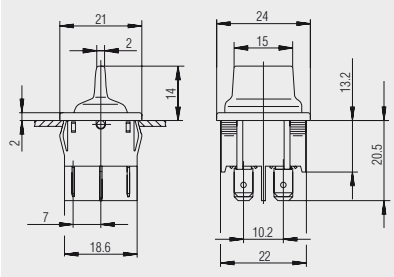


PCB terminal
basic type 1818

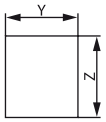
Basic types 1812, 1814 and 1819
double-pole



Quick-connect terminal 4.8
basic type 1812

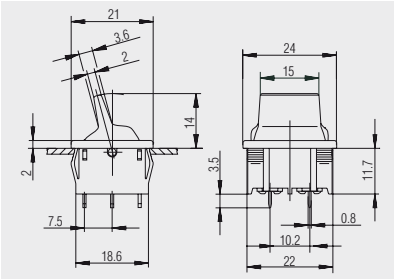


Quick-connect terminal 4.8
basic type 1819



X = Wall thickness

X	Y	Z
0.75 ... 1.25	19.2 $^{-0.1}$	21.9 $^{+0.1}$
1.25 ... 2	19.4 $^{-0.1}$	21.9 $^{+0.1}$
2 ... 3	19.8 $^{-0.1}$	21.9 $^{+0.1}$



PCB terminal
basic type 1814

SERIES 1820 - SINGLE AND DOUBLE-POLE TOGGLE SWITCHES

TO 6 (4) A 250 V AC

PRODUCT FEATURES

- 100 million times proven switching principle
- Long life endurance with 50 000 mechanical switching cycles
- Excellent actuating characteristic
- Fastening with nut M12

ON REQUEST

- Other colors
- Other switching functions
- Other connection variants
- Cable assembly

Mechanical life endurance		5E4
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		connection side -20 °C ... +100 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA PA glass fiber-reinforced / PA silver-plated
Plug force of the terminals		≤ 80 N
Approval marks		/ /
Suitable for appliances of protection class II		

SERIES 1820 - SINGLE AND DOUBLE-POLE TOGGLE SWITCHES

TO 6 (4) A 250 V AC

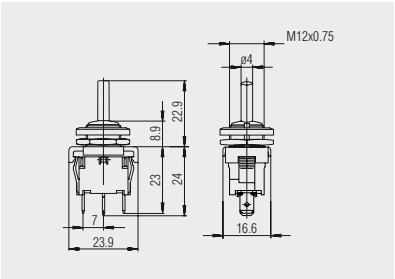
single-pole	Actuator color / printing	Housing color	6 (4) A 250 V AC 5E4	6 (2) A 250 V AC 1E4	6 A 250 V AC 1/2 HP	6 A 125 V AC 1/4 HP	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (SPST)												
1821.1101			●		●	●		4.8	≥ 3	Ag		●
1821.6101			●		●	●			≥ 3	Ag		●
Switch (SPDT)												
1823.1101			●					4.8	≥ 3	Ag		●
1823.6101			●						≥ 3	Ag		●
Switch with OFF position in the center (SPDT - Center OFF)												
1828.1101				●				4.8	< 3	Ag		●
1828.1201				●				4.8	< 3	Ag	momentary function one side	●
1828.1301				●				4.8	< 3	Ag	momentary function both sides	●

double-pole	Actuator color / printing	Housing color	6 (4) A 250 V AC 5E4	6 (2) A 250 V AC 1E4	6 A 250 V AC 1/2 HP	6 A 125 V AC 1/4 HP	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (DPST)												
1822.1101			●		●	●		4.8	≥ 3	Ag		●
Switch (DPDT)												
1824.1101			●					4.8	≥ 3	Ag		●
Switch with OFF position in the center (DPDT - Center OFF)												
1829.1101				●				4.8	< 3	Ag		●
1829.1301				●				4.8	< 3	Ag	momentary function both sides	●

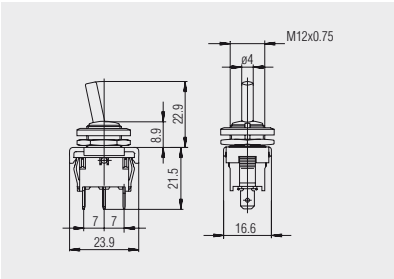
SERIES 1820 - SINGLE AND DOUBLE-POLE TOGGLE SWITCHES

TO 6 (4) A 250 V AC

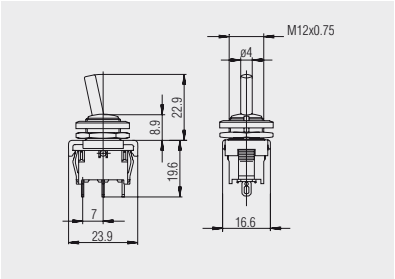
Basic types 1821, 1823 and 1828
single-pole



Quick-connect terminal 4.8
basic type 1828

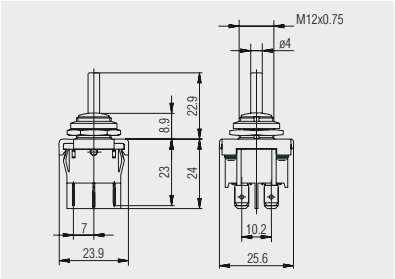


Quick-connect terminal 4.8
basic types 1821 and 1823

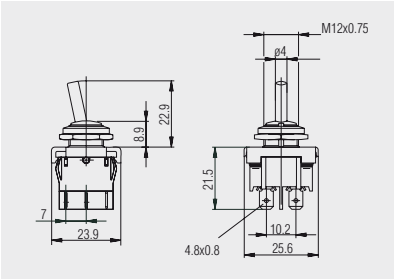


Solder terminal
1821.6101 and 1823.6101

Basic types 1822, 1824 and 1829
double-pole

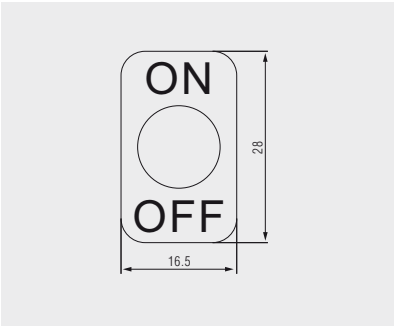


Quick-connect terminal 4.8
basic type 1829



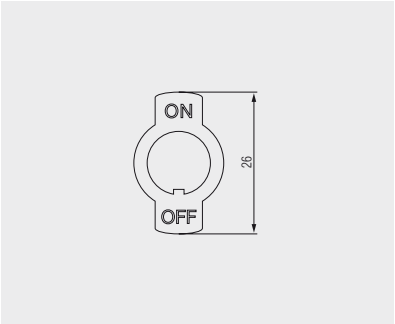
Quick-connect terminal 4.8
basic types 1822 and 1824

Identification plate
240.001.011



Identification plate of aluminum for plugging on with black inscription “ON” and “OFF”

Identification plate
240.002.011

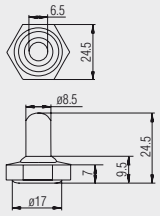


Identification plate of CuZn nickel-plated for plugging on as well as with twist protection and stamped inscription “ON” and “OFF”

SERIES 1820 - SINGLE AND DOUBLE-POLE TOGGLE SWITCHES

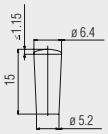
TO 6 (4) A 250 V AC

Protection cap
343.001.013 - green
343.001.023 - black
343.001.033 - red



Neopren® - cap for screwing on (M12 x 0.75) to levers of the series 1820 for dust and water protection of the actuator side

Lever receptacle
203.105.011 - black
203.105.021 - white
203.105.031 - red
203.105.041 - green



Lever receptacle in various colors for the plastic levers of the 1820 series for customer assembly. Serves as a design element and for distinguishing and marking.

Further information under

WWW.MARQUARDT.DE

SERIES 0100 - SINGLE-POLE TOGGLE SWITCHES

TO 2 A 250 V AC

PRODUCT FEATURES

- Robust and powerful toggle switch with 50 000 mechanical switching cycles
- Central fastening with nut M12
- Metal or plastic lever

ON REQUEST

- Other connection variants

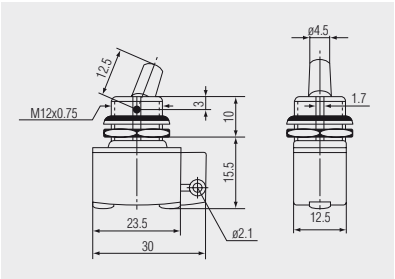
Mechanical life endurance		5E4
Material	actuator	metal / PA (product-dependent)
	housing	Duroplast (base) / chromated galvanized steel (bracket plate)
	connections	silver-plated

single-pole	Actuator description	Housing color	2 A 250 V 1E4	Contact material	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (SPST)								
0100.1201			●		≥ 3	CuZn silver-plated	actuating torque 45.0 ±14.0 Nmm	●
0100.2901			●		≥ 3	CuZn silver-plated	actuating torque 45.0 ±14.0 Nmm metal lever	●

SERIES 0100 - SINGLE-POLE TOGGLE SWITCHES

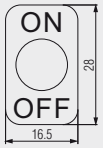
TO 2 A 250 V AC

Basic type 0100



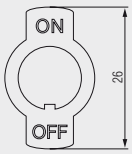
Solder terminal

Identification plate
240.001.011



Identification plate of aluminum for plugging on with black inscription “ON” and “OFF”

Identification plate
240.002.011



Identification plate of CuZn nickel-plated for plugging on and with twist protection and stamped inscription “ON” and “OFF”

Further information under

WWW.MARQUARDT.DE

SLIDE SWITCHES

SLIDE SWITCHES

SERIES 4021

Double and four-pole slide switches

to 10 A 125 V or 5 A 250 V AC (as voltage selector switch)

PAGE 137 - 140

SERIES 1205

Double-pole slide switches

to 10 (6) A 250 V AC

PAGE 141

SERIES 1206

Single-pole slide switches

to 8 (8) A 250 V AC

PAGE 142 - 143

SERIES 0140

Double-pole slide switches

to 2 A 250 V AC

PAGE 144 - 145

Further information under

WWW.MARQUARDT.DE

SERIES 4021 - DOUBLE AND FOUR-POLE SLIDE SWITCHES

TO 10 A 125 V OR 5 A 250 V AC (AS VOLTAGE SELECTOR SWITCH)

PRODUCT FEATURES

- Different designs
- Various connection types
- Suitable as voltage selector switch (for currentless switching)
- Sunken slide for protection against accidental actuation
- Simple assembly with screws

ON REQUEST

- Other colors
- Other labels
- Single to four-pole variants
- Other connection variants (e.g. PCB side)

Mechanical life endurance		1E4
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		connection side -20 °C ... +85 °C actuating side -20 °C ... +55 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator	PA
	housing	PA / hard paper (baseplate) / PA glass fiber-reinforced (baseplate)
	connections	silver-plated / chromated
Plug force of the terminals		≤ 60 N
Approval marks		/ /

SERIES 4021 - DOUBLE AND FOUR-POLE SLIDE SWITCHES

TO 10 A 125 V OR 5 A 250 V AC (AS VOLTAGE SELECTOR SWITCH)

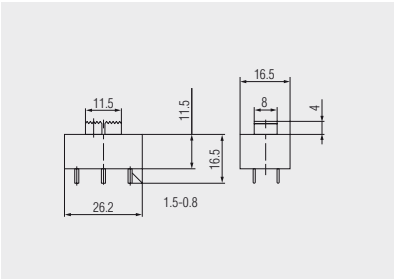
double-pole	Actuator color / printing	Housing color	10 A 125 V AC 1E4	5 A 250 V AC 1E4	2 (0.5) A 250 V AC 1E4	2 A 42 V AC 1E4	10 A 125 V DC	5 A 250 V DC	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
Switch (DPDT)														
4021.0203			●	●			●	●			≥ 3	CuSn silver-plated	5 A or 10 A only as voltage selector switch slide with actuating slot	●
4021.0512			●	●			●	●		2.8	≥ 3	CuSn silver-plated	5 A or 10 A only as voltage selector switch slide with actuating slot	●
4021.4420			●	●			●	●			≥ 3	CuSn silver-plated	5 A or 10 A only as voltage selector switch	●
4021.4620			●	●			●	●			≥ 3	CuSn silver-plated	5 A or 10 A only as voltage selector switch slide with actuating slot	●
4021.4723			●	●			●	●			≥ 3	CuSn silver-plated	5 A or 10 A only as voltage selector switch slide with actuating slot	●
4021.0101					●						≥ 3	CuSn silver-plated		●
4021.0801					●					2.8	≥ 3	CuSn silver-plated		●
4021.2202						●				5 long	≥ 3	Cu		
4021.2203						●				5 long	≥ 3	Cu		
Switch with OFF position in the center (DPDT - Center OFF)														
4021.1202						●				5 long	≥ 3	CuSn silver-plated		
4021.1203						●				5 long	≥ 3	CuSn silver-plated		

four-pole	Actuator color / printing	Housing color	10 A 125 V AC 1E4	5 A 250 V AC 1E4	2 (0.5) A 250 V AC 1E4	2 A 42 V AC 1E4	10 A 125 V DC	5 A 250 V DC	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
Switch (FPDT)														
4024.0201					●						≥ 3	CuSn silver-plated	slide with actuating slot	
4024.0501					●					2.8	≥ 3	CuSn silver-plated	slide with actuating slot	
4024.4601					●						≥ 3	CuSn silver-plated	slide with actuating slot	●

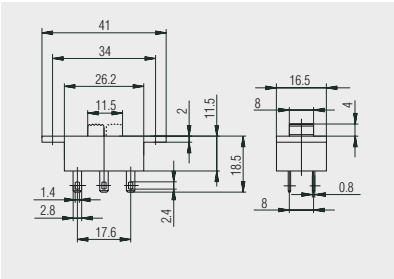
SERIES 4021 - DOUBLE AND FOUR-POLE SLIDE SWITCHES

TO 10 A 125 V OR 5 A 250 V AC (AS VOLTAGE SELECTOR SWITCH)

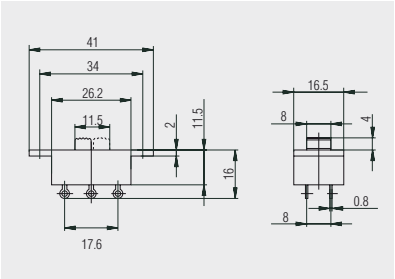
Basic type 4021
double-pole



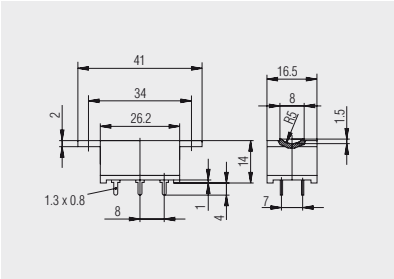
Wire-wrap 5 long
4021.2202, 4021.2203,
4021.1202 and 4021.1203



Quick-connect terminal 2.8
4021.0512 and 4021.0801

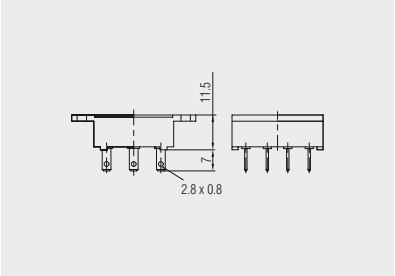


Solder terminal
4021.0203 and 4021.0101

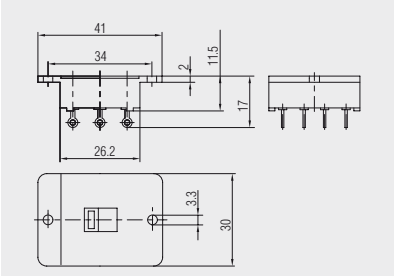


PCB terminal
Slide with actuating slot
4021.4420 and 4021.4620

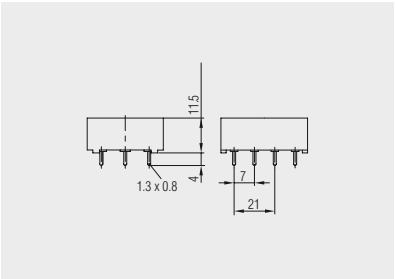
Basic type 4024
four-pole



Quick-connect terminal 2.8
4024.0501



Solder terminal
4024.0201

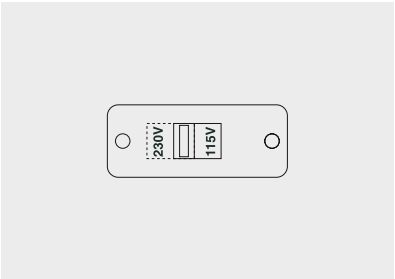


PCB terminal
4024.4601

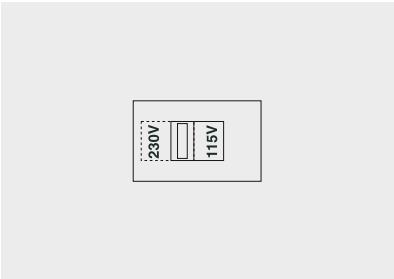
SERIES 4021 - DOUBLE AND FOUR-POLE SLIDE SWITCHES

TO 10 A 125 V OR 5 A 250 V AC (AS VOLTAGE SELECTOR SWITCH)

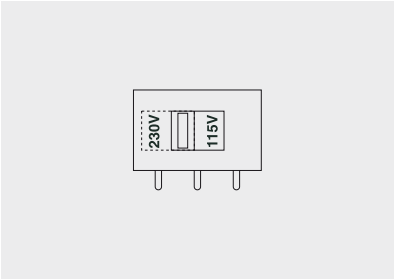
Inscription



4021.0203



4021.4620



4021.4724

Further information under

WWW.MARQUARDT.DE

SERIES 1205 - DOUBLE-POLE SLIDE SWITCHES

TO 10 (6) A 250 V AC

PRODUCT FEATURES

- Double-pole changeover switch
- Powerful up to 15 A
- Dust protected with felt gasket

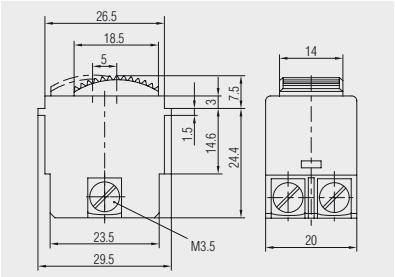
ON REQUEST

- Other colors

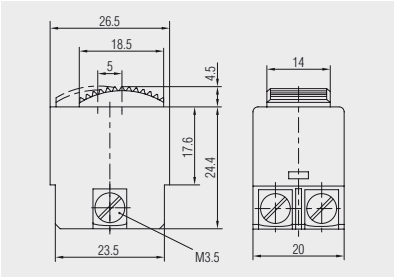
Mechanical life endurance		5E4
Material	actuator	PA
	housing	PA / PA glass fiber-reinforced
	connections	silver-plated
Approval marks		
Suitable for appliances of protection class II		

double-pole	Actuator color / printing	Housing color	15 A 125 AC	10 (6) A 250 V AC 1E4	Connection type	Connection description	Contact material	Stock version
Switch (DPDT)								
1205.0304			●			M3.5	Ag	
1205.0101				●		M3.5	Ag	●

Basic type 1205



Screw connection M3.5
1205.0101



Screw connection M3.5
1205.0304 without collar

SERIES 1206 - SINGLE-POLE SLIDE SWITCHES

TO 8 (8) A 250 V AC

PRODUCT FEATURES

- Powerful up to 25 A at 12 - 36 V DC
- Single-pole slide switch optionally with fastening strip
- For direct and indirect actuation
- Dust protected
- Castable

ON REQUEST

- Other colors
- Other connection types
- For snapping on customized slides

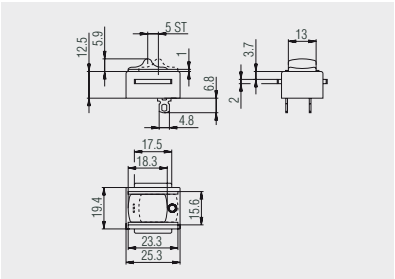
Mechanical life endurance		1E5
Actuator		IP 40
Material	actuator housing connections	PA glass fiber-reinforced PA glass fiber-reinforced silver-plated
Approval marks		VDE / UL / CSA
Suitable for appliances of protection class II		

SERIES 1206 - SINGLE-POLE SLIDE SWITCHES

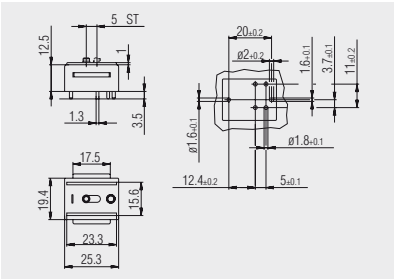
TO 8 (8) A 250 V AC

single-pole	Actuator color / printing	Housing color	8 (8) A 250 V AC 5E4	8 A 250 V AC	25 A 12 - 36 V DC	15 A 125 V AC	Connection type	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (SPST)											
1206.0201			●	●	●	●		≥ 3	Ag	with slide for direct actuation	
1206.2503			●	●	●	●		≥ 3	Ag	with slide for direct actuation	

Basic type 1206



Solder terminal
1206.0201



PCB terminal
1206.2503

Further information under

WWW.MARQUARDT.DE

SERIES 0140 - DOUBLE-POLE SLIDE SWITCHES

TO 2 A 250 V AC

PRODUCT FEATURES

- Long life endurance with 50 000 mechanical switching cycles
- Screw and solder terminals
- Slide with riffle

ON REQUEST

- Other connection variants

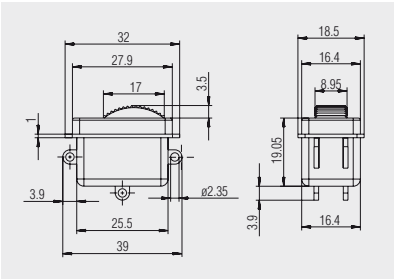
Mechanical life endurance		5E4
Material	actuator	Duroplast
	housing	Duroplast (base) / PA (cover plate)
	connections	silver-plated

double-pole	Actuator color / printing	Housing color	2 A 250 V 5E4	Connection type	Connection description	Contact material	Miscellaneous	Stock version
ON/OFF switch (DPST)								
0141.1202			●		M3	CuBe	M3 without screws	
Switch (DPDT)								
0140.0601			●		4 x solder connection M3	CuBe silver-plated	M3 without screws	
0140.1604			●		M3	CuBe	M3 without screws	
0140.2501			●			CuBe		

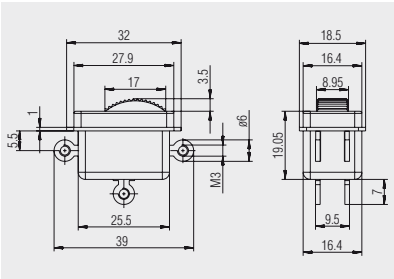
SERIES 0140 - DOUBLE-POLE SLIDE SWITCHES

TO 2 A 250 V AC

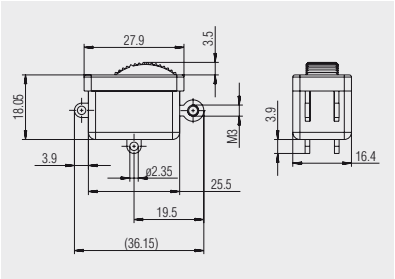
Basic types 0140 and 0141



Solder terminal



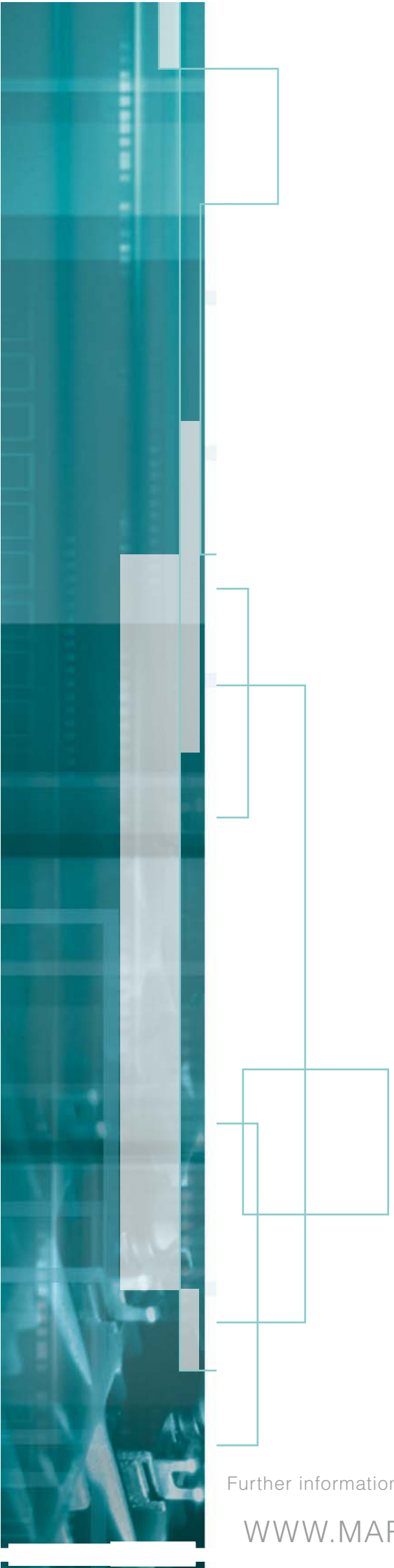
Screw connection chromated M3 without screw



Solder terminal x 4, screw connection M3 without screw

Further information under

WWW.MARQUARDT.DE



Further information under

WWW.MARQUARDT.DE

ROTARY SWITCHES

SERIES 1703

Powerful rotary switches

to 20 (4) A 400 V AC

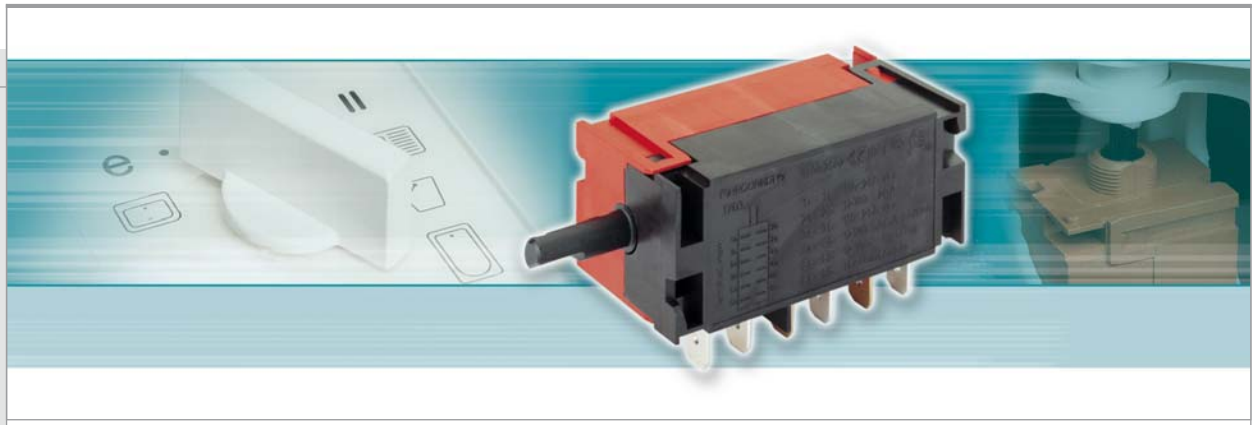
PAGE
149 - 150

Further information under

WWW.MARQUARDT.DE

SERIES 1703 - POWERFUL ROTARY SWITCHES

TO 20 (4) A 400 V AC



PRODUCT FEATURES

- Creep and air distances greater than 8 mm, therefore suitable for mains and touchable low voltage
- 60° switching angle (1 - 4 switching steps)
- Fastening with thread M3 or bayonet connection
- With mechanical forced opening
- Approval for 400 V

ON REQUEST

- Single to four-pole variant
- Other switching functions and sequences
- Other connection variants
- Cable assembly
- Customized actuators
- Gold contacts

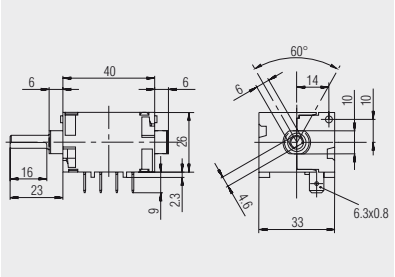
Mechanical life endurance		3E4
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation 500 V small contact distance
Proof tracking		400 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		connection side -20 °C ... +100 °C
Flammability		UL 94 (housing: V-0, spindle: V-2)
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA PA glass fiber-reinforced silver-plated or bare
Plug force of the terminals		≤ 80 N
Approval marks		
Suitable for appliances of protection class II		

SERIES 1703 - POWERFUL ROTARY SWITCHES

TO 20 (4) A 400 V AC

double-pole	Actuator color / printing	Housing color	20 (4) A 400 V AC 1E4	Connection type	Connection description	Contact distance in mm	Contact material	Miscellaneous	Stock version
ON/OFF switch (DPST)									
1703.3201	●		●		6.3	≥ 3	Ag	1 switching step (60 °)	

Basic type 1703



Quick-connect terminal 6.3

Further information under

WWW.MARQUARDT.DE

FOOT SWITCHES

SERIES 2410

Ergonomic foot switches

to 6 (2.5) A 250 V AC

PAGE
153 - 155

Further information under

WWW.MARQUARDT.DE

SERIES 2410 - ERGONOMIC FOOT SWITCHES

TO 6 (2.5) A 250 V AC

PRODUCT FEATURES

- Long life endurance up to 300 000 mechanical switching cycles
- Robust design
- Cable can be retrofitted by customer
- Ergonomical dimensions with different switch actuating forces
- With wall hanger

ON REQUEST

- Other colors
- Customized cable assembly
- Special switching functions
- Other connection variants

Mechanical life endurance		30E4
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Material	actuator housing	treadplate of PA PA
Approval marks		

SERIES 2410 - ERGONOMIC FOOT SWITCHES

TO 6 (2.5) A 250 V AC

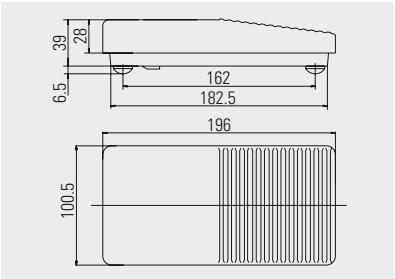
single-pole	Actuator color / printing	Housing color	6 (2.5) A 250 V AC 5E4	Connection type	Connection description	Contact distance in mm	Contact material	Operating force in N	Miscellaneous	Stock version
Normally open contact (SPNO)										
2410.0301			●		2 terminals	< 3	Ag	31 ±5	with switch 1005.1801	●
Changeover switch (SPDT momentary)										
2410.0401			●		3 terminals	< 3	Ag	31 ±5	with switch 1005.1407	●

Combination	Actuator color / printing	Housing color	6 (2.5) A 250 V AC 5E4	Connection type	Connection description	Contact distance in mm	Contact material	Operating force in N	Miscellaneous	Stock version
Normally open contact (SPNO) double-pole										
2410.1001			●		assembled	≥ 3	Ag	45 ±7	1 x PE connector (3 000 mm) / 1 x PE coupling (250 mm) 2 x 1005.1802	●
Normally closed contact (SPNC) / Changeover switch (SPDT momentary)										
2410.0101			●		3 terminals	< 3	Ag	step 1: 25 N / step 2: 85 N	with switch 1005.1407 with switch 1005.1501 switching in sequence	●
Normally open contact (SPNO) / Changeover switch (SPDT momentary)										
2410.0501			●		5 terminals	< 3	Ag	step 1: 22 N / step 2: 31 N	with switch 1005.1407 with switch 1005.1801 switching in sequence changeover switch and normally open contact can be connected separately	●

SERIES 2410 - ERGONOMIC FOOT SWITCHES

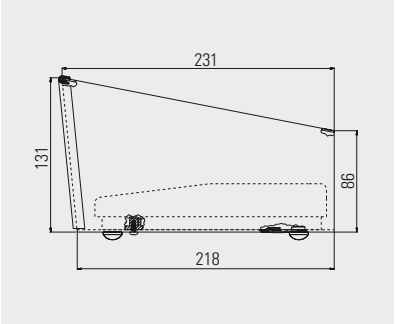
TO 6 (2.5) A 250 V AC

Basic type 2410



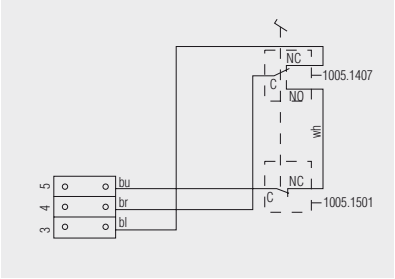
Socket terminal M3

Protection hood
248.008.013

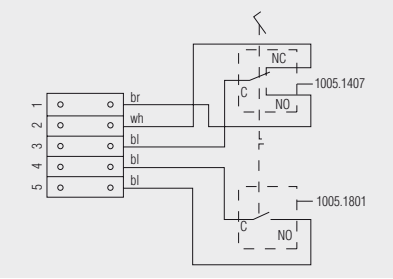


Protection hood of steel sheet in color orange similar to RAL 2004 with edge guard and rubber feet as well as fastening for foot switch of the basic type 2410

Circuit diagram

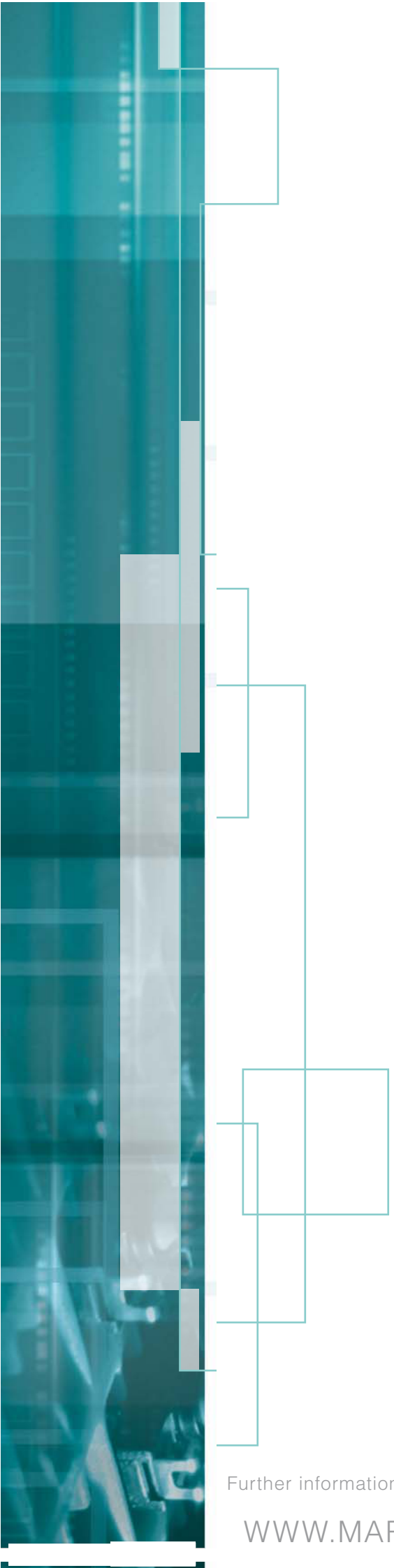


2410.0101



2410.0501

bu - blue
br - brown
bl - black
wh - white
C - common terminal
NC - normally closed contact
NO - normally open contact



Further information under

WWW.MARQUARDT.DE

POWER TOOL SWITCHES

POWER TOOL SWITCHES

Further information under

WWW.MARQUARDT.DE

SERIES 1276 - SINGLE-POLE POWER TOOL SWITCHES

TO 8 (8) A 250 V AC

PRODUCT FEATURES

- Single-pole normally open contact (optionally with catch and switch-on lock)
- Powerful up to 13 A 125 V AC and 100 000 mechanical switching cycles
- M3 screw terminals and terminal connections for tinned wires and wire end ferrules

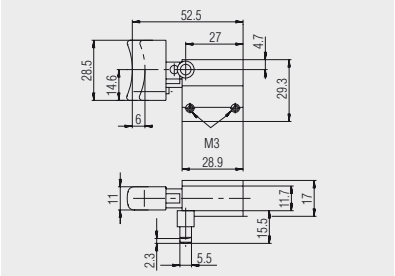
ON REQUEST

- Other connection variants
- Other operating force

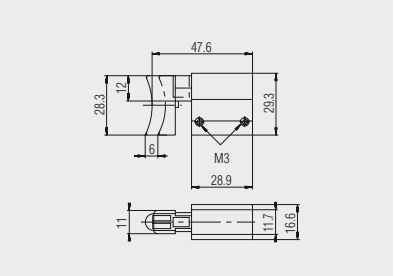
Mechanical life endurance		1E5
Operating force		> 11 N (product-dependent)
Material	actuator	PA glass fiber-reinforced
	housing	PA / PA glass fiber-reinforced
Approval marks		VDE / UL / CSA
Suitable for appliances of protection class II		

single-pole	Actuator color / printing	Housing color	8 (8) A 250 V AC 5E4	13 A 125 V AC	6 A 250 V AC	Connection type	Connection description	Contact material	Miscellaneous	Stock version
Normally open contact (SPNO)										
1276.0101			●	●	●		2 x M3 4 x terminal connection	Ag	lock	
1276.0601			●	●	●		2 x M3 4 x terminal connection	Ag	without lock special pushbutton for stronger spring (> 11 N)	

Basic type 1276



Socket terminal M3 mains side, terminal connection motor side
1276.0101



Socket terminal M3 mains side, terminal connection motor side
1276.0601

SERIES 1277 - DOUBLE-POLE POWER TOOL SWITCHES

TO 5 (5) A 250 V AC

PRODUCT FEATURES

- Double-pole normally open contact (optionally with catch and switch-on lock)
- Powerful up to 5 A and 100 000 mechanical switching cycles
- M3 screw terminals and terminal connections for tinned wires and wire end ferrules

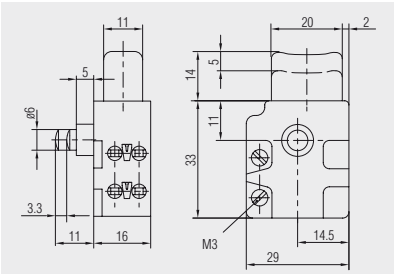
ON REQUEST

- Other colors
- Other connection variants
- With switch-on lock

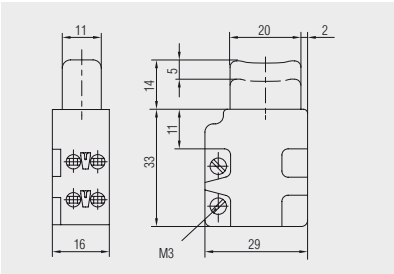
Mechanical life endurance		1E5
Material	actuator	PA / PA glass fiber-reinforced
	housing	PA
Approval marks		
Suitable for appliances of protection class II		

double-pole	Actuator color / printing	Housing color	5 (5) A 250 V AC 5E4	Connection type	Connection description	Contact material	Miscellaneous	Stock version
Normally open contact (DPNO) with pressure point								
1277.0101			●		2 x M3 2 x terminal connection	Cu	lock	
1277.0201			●		2 x M3 2 x terminal connection	Cu	without lock	

Basic type 1277



Socket terminal M3 mains side, terminal connection motor side
1277.0101



Socket terminal M3 mains side, terminal connection motor side
1277.0201

SERIES 1281 - DOUBLE-POLE POWER TOOL SWITCHES

TO 8 (8) A 250 V AC

PRODUCT FEATURES

- Double-pole normally open contact (optionally with catch and switch-on lock)
- Powerful up to 10 A and 100 000 mechanical switching cycles
- Increased dust protection
- M3 screw connections

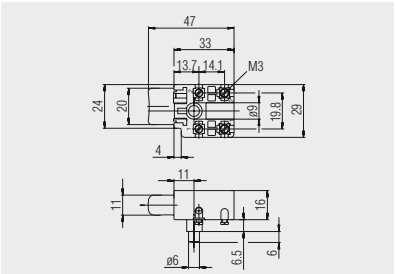
ON REQUEST

- Other colors
- Other connection variants
- Rating up to 17.5 A 125 V AC

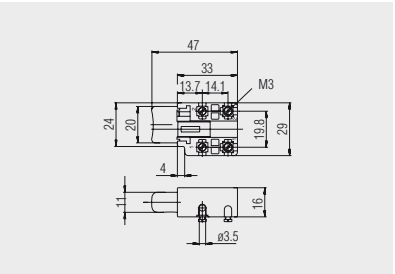
Mechanical life endurance		1E5
Material	actuator	PA
	housing	PA glass fiber-reinforced
	connections	chromated
Approval marks		/ /
Suitable for appliances of protection class II		

double-pole	8 (8) A 250 V AC 5E4	10 A 250 V AC 1 1/2 HP	10 A 125 V AC 3/4 HP	Connection type	Connection description	Contact material	Miscellaneous	Stock version
Normally open contact (DPNO)								
1281.0101	●	●	●		M3	Ag	lock	●
1281.0201	●	●	●		M3	Ag	without lock	●

Basic type 1281



Socket terminal M3
1281.0101



Socket terminal M3
1281.0201

SERIES 1298 - SINGLE-POLE POWER TOOL SWITCHES

TO 8 (8) A 250 V AC

PRODUCT FEATURES

- Single-pole normally open contact with bridging contacts in different electronic variants, e.g. half wave adjuster, half wave regulator, full wave adjuster, diode and linear potentiometer
- Alternatively as a double-pole changeover switch for currentless change in the direction of rotation, adjusting wheel for pushbutton travel

ON REQUEST

- Other colors
- Other connection variants
- Higher rating up to 10 A 125 V AC and 100 000 switching cycles

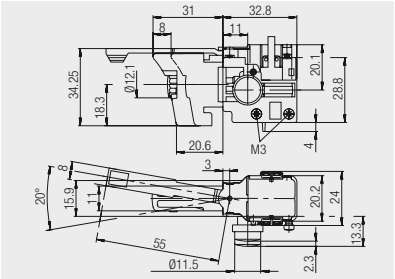
Mechanical life endurance		10E4
Material	actuator housing	PA / PA glass fiber-reinforced PA glass fiber-reinforced
Approval marks		
Suitable for appliances of protection class II		

SERIES 1298 - SINGLE-POLE POWER TOOL SWITCHES

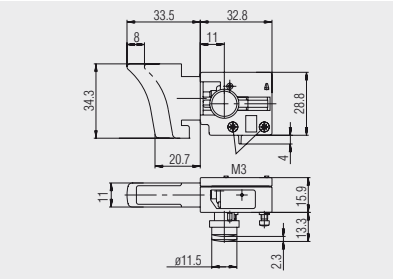
TO 8 (8) A 250 V AC

 single-pole	Actuator color / printing	8 (8) A 250 V AC 5E4	Connection type	Connection description	Contact distance in mm	Contact material	Setting wheel angle	Miscellaneous	Stock version
Normally open contact (SPNO)									
1298.0101		●		2 x M3 4 x terminal connection	≥ 3	Ag		with lock	
1298.0301		●		2 x M3 4 x terminal connection	≥ 3	Ag		small actuator small locking actuator	
1298.2201		●		2 x M3 4 x terminal connection	≥ 3	Ag	296.5°	lock adjusting wheel	
1298.5201		●		2 x M3 4 x terminal connection 4 x 2.8 x 0.8	≥ 3	Ag		lock R-L switch	
1298.5401		●		2 x M3 4 x terminal connection 4 x 2.8 x 0.8	≥ 3	Ag		lock width design R-L switch	
1298.7101		●		2 x M3 4 x terminal connection 4 x 2.8 x 0.8	≥ 3	Ag	296.5°	lock R-L switch adjusting wheel	
1298.7312		●		2 x M3 4 x terminal connection 4 x 2.8 x 0.8	≥ 3	Ag	296.5°	small locking pushbutton small pushbutton R-L switch, adjusting wheel	

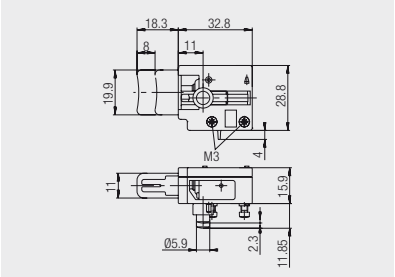
Basic type 1298



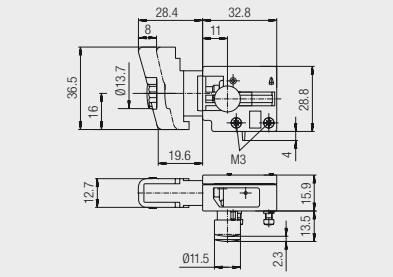
Socket terminal M3 mains side, screwless push-in terminal motor side, quick-connect terminal, 1298.7101



Socket terminal mains side, screwless push-in terminal motor side
1298.0101



Socket terminal M3 mains side, screwless push-in terminal motor side
1298.0301



Socket terminal M3 mains side, screwless push-in terminal motor side
1298.2201

SERIES 1299 - SINGLE-POLE POWER TOOL SWITCHES

TO 6 (6) A 250 V AC

PRODUCT FEATURES

- Single-pole normally open contact with integrated potential-free linear potentiometer
- Powerful with up to 6 A at 100 000 mechanical switching cycles
- With lock

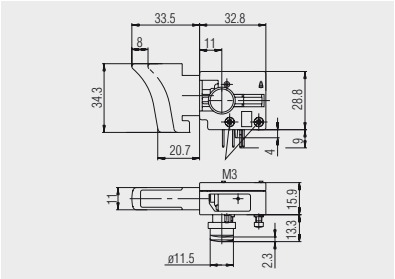
ON REQUEST

- Other colors
- Other actuator forms
- Other connection variants
- As changeover switch
- Right / left rotation
- Without lock
- Higher rating

Mechanical life endurance		1E5
Contact distance		> 3 mm
Material	actuator	PA / PA glass fiber-reinforced
	housing	PA glass fiber-reinforced
	connections	chromated
Approval marks		/ /
Suitable for appliances of protection class II		

single-pole	Actuator color / printing	6 (6) A 250 V AC 5E4	13 A 125 V AC	Connection type	Connection description	Contact material	Miscellaneous	Stock version
Normally open contact (SPNO)								
1299.0101	▌	●	●		2 x M3 4 x terminal connection	Ag	R = 220 kOhm	

Basic type 1299



Socket terminal M3, terminal connection

TACT AND KEY SWITCHES

TACT AND KEY SWITCHES

Further information under

WWW.MARQUARDT.DE

SERIES 3006 - TACT SWITCHES

TO 50 mA 28 V

PRODUCT FEATURES

- Low height even with integrated LED
- SMD connection technique
- Pleasant actuating characteristic thanks to clearly tangible pressure point
- Extremely large actuator surface
- Six standard colors
- Two operating force variants
- Reflow lead-free solderable

ON REQUEST

- Other LED colors
- Different brightness groups

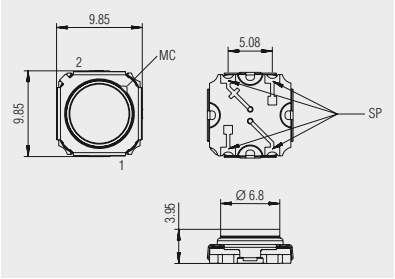
Mechanical life endurance	50E4
Contact resistance (new condition)	< 100 mOhm
Protection type	IP 50
Ambient temperature	-40 °C ... +95 °C (1 h to +120 °C)
Material connections	gold-plated
Bounce time	< 5 ms
Packing unit	1 800 pieces in blister belt on a roller
Miscellaneous	rating max. 1 W voltage range 20 mV - 28 V current range 10 µA - 50 mA

SERIES 3006 - TACT SWITCHES

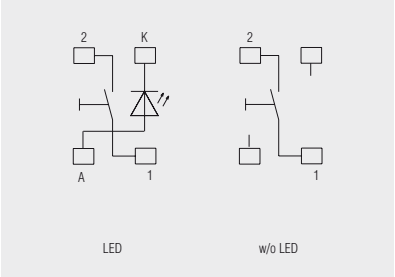
TO 50 mA 28 V

	50 mA 28 V	Contact material	Operating force in N	Operating position (OP) in mm	Free position (FP) max. in mm	Permissible total travel position (TP) in mm	Color lamp	Miscellaneous	Stock version
Normally open contact with 1 pressure point									
3006.2100	●	Au	4 +1 -0.5	3.2 ±0.2	4.15	2.9		without LED	
3006.2101	●	Au	4 +1 -0.5	3.2 ±0.2	4.15	2.9			
3006.2102	●	Au	4 +1 -0.5	3.2 ±0.2	4.15	2.9			
3006.2104	●	Au	4 +1 -0.5	3.2 ±0.2	4.15	2.9			
3006.2105	●	Au	4 +1 -0.5	3.2 ±0.2	4.15	2.9			
3006.2106	●	Au	4 +1 -0.5	3.2 ±0.2	4.15	2.9		LED white	
3006.2107	●	Au	4 +1 -0.5	3.2 ±0.2	4.15	2.9			
3006.2151	●	Au	4 +1 -0.5	3.2 ±0.2	4.15	2.9		low current consumption reduced brightness	
3006.2300	●	Au	6 +1.5 -0.75	3.2 ±0.2	4.15	2.9		without LED	
3006.2301	●	Au	6 +1.5 -0.75	3.2 ±0.2	4.15	2.9			
3006.2306	●	Au	6 +1.5 -0.75	3.2 ±0.2	4.15	2.9		LED white	

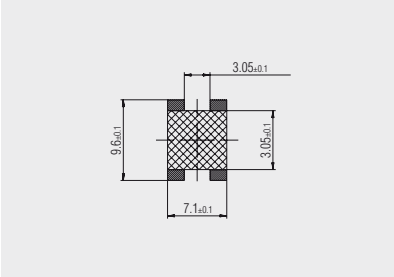
Basic type 3006



SMD connection technique



Circuit diagram with / without LED



Solder pad design

SERIES 6425 - KEY SWITCHES

TO 100 mA 28 V

PRODUCT FEATURES

- Single-pole normally open contact with and without LEDs
- Pleasant actuating characteristic and low actuation noise
- Low bounce time
- Standard with gold-plated contacts
- Wide range of key caps for different design requirements

ON REQUEST

- Customized key caps
- Other LED colors
- Bicolor LED

Contact resistance (new condition)		< 250 mOhm
Insulation resistance (new condition)		> 100 MOhm
Bounce time		< 5 ms
Contact distance		< 3 mm
Ambient temperature		-20 °C ... +70 °C
Contact material		Au
Material	actuator housing connections	POM PBTP tinned
Connection type		PCB terminal
Mechanical life endurance		1E6 at 10 mA 12 V
Miscellaneous		The key base of the standard key can be snapped into a 1.2 mm thick frame with a cut-out of 13.55 x 13.55 mm. A current limiting to max. 20 mA must be provided for the integrated LED!

SERIES 6425 - KEY SWITCHES

TO 100 mA 28 V

	100 mA 28 V	Color lamp	Pitch in mm	Operating force in N	Total travel / stroke in mm	Miscellaneous	Stock version
Normally open contact (SPNO)							
6425.0101	●		> 16	0.7	1.6	customer LED assembly possible	●
6425.1101	●		> 16	0.7	1.6	narrow base for parallel guide	●
6425.3111	●		19	0.7	1.6		●
6425.3121	●		19	0.7	1.6		●
6425.3131	●		19	0.7	1.6		●
6425.4111	●		16	0.7	1.6		●
6425.4121	●		16	0.7	1.6		●
6425.4131	●		16	0.7	1.6		●
6425.6111	●		> 15	0.7	1.6	LED higher for button 827 ... 011	●
6425.6121	●		> 15	0.7	1.6	LED higher for button 827 ... 011	●
6425.6131	●		> 15	0.7	1.6	LED higher for button 827 ... 011	●

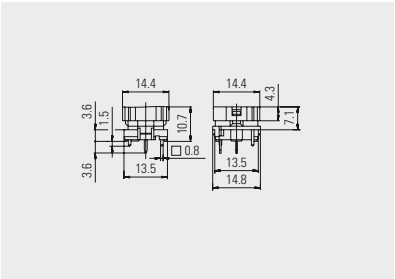
Further information under

WWW.MARQUARDT.DE

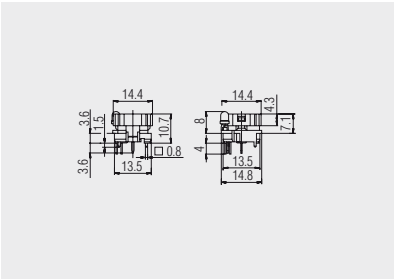
SERIES 6425 - KEY SWITCHES

TO 100 mA 28 V

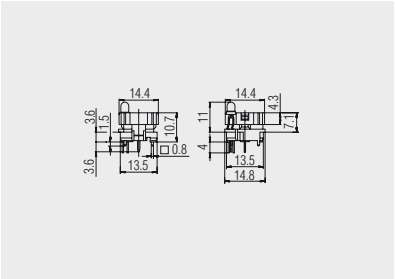
Basic type 6425



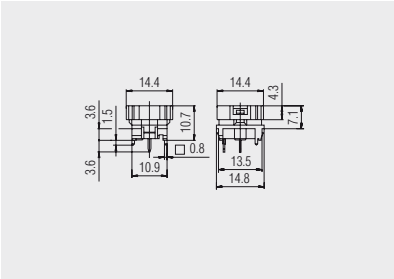
Without LED or customer LED assembly



With LED

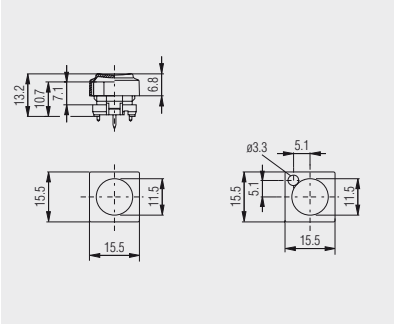


With LED for design key caps



For multiple key caps with parallel guide

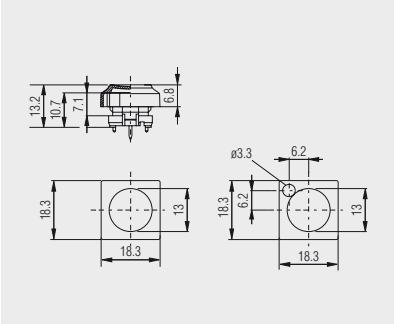
Square key caps
pitch 16 mm



without LED window:
826.000.011 - anthracite
826.000.021 - dark gray
826.000.071 - red
826.000.091 - green

with LED window:
829.000.011 - anthracite
829.000.021 - dark gray
829.000.071 - red
829.000.091 - green

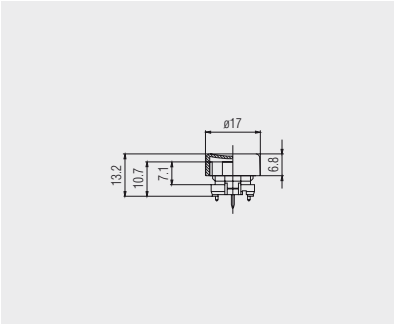
Square key caps
pitch 19 mm



without LED window:
825.000.011 - anthracite
825.000.021 - dark gray
825.000.071 - red
825.000.091 - green

with LED window:
828.000.011 - anthracite
828.000.021 - dark gray
828.000.071 - red
828.000.091 - green

Round key caps



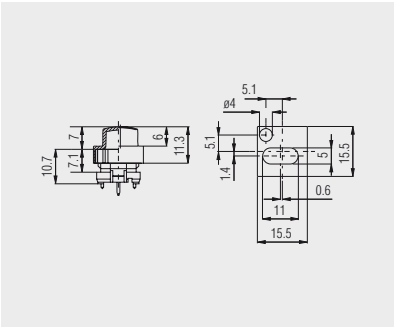
Key caps with ergonomic actuation surface

840.000.011 - anthracite
840.000.021 - dark gray

SERIES 6425 - KEY SWITCHES

TO 100 mA 28 V

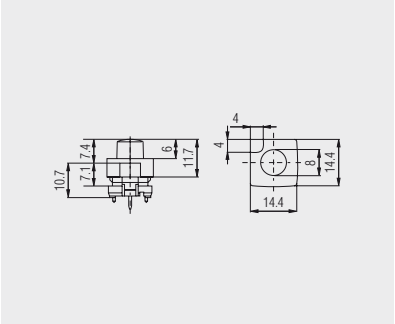
Design key caps



Key cap with oval actuation surface pitch 16 mm

827.020.011 - anthracite
827.020.021 - dark gray
827.020.031 - gray

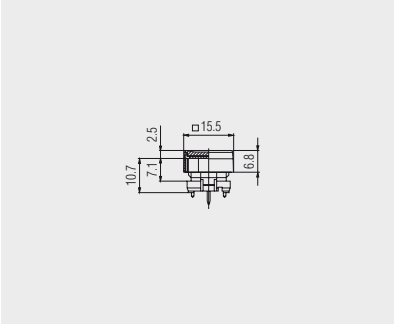
Design key caps



Key cap with round actuation surface pitch > 15 mm

827.100.011 - anthracite
827.100.021 - dark gray
827.100.031 - gray

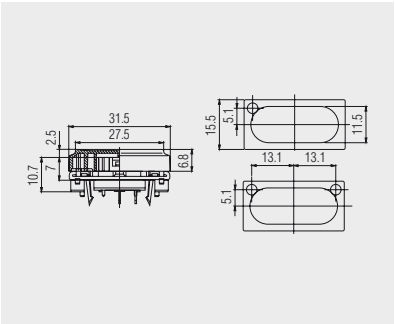
Key caps with transparent cap



835.900.013 key cap anthracite, cap transparent, enclosed loose

With these two-part key caps with snap-on transparent caps individual inspection and color requirements, especially for small series, can be implemented at low cost by customer insertion.
These key caps are suitable for key switches with and without LED and pitch 16 mm.

Double key caps
16 mm pitch

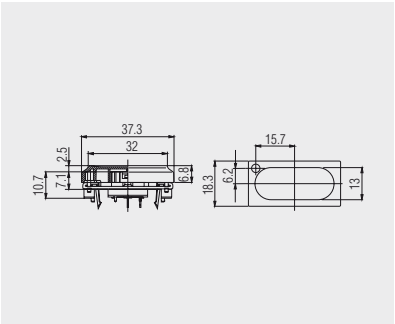


without LED window:
842.000.011 - anthracite
842.000.021 -dark gray
842.000.031 - gray

with one LED window:
842.500.011 - anthracite

with two LED windows:
842.800.011 - anthracite

Double key caps
19 mm pitch



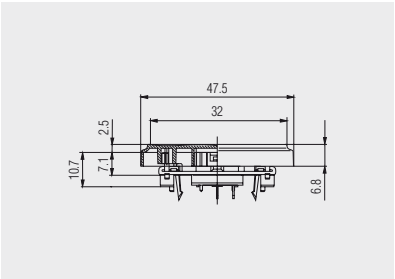
without LED window:
844.000.011 - anthracite
844.000.021 - dark gray
844.000.031 - gray

with one LED window:
844.500.011 - anthracite

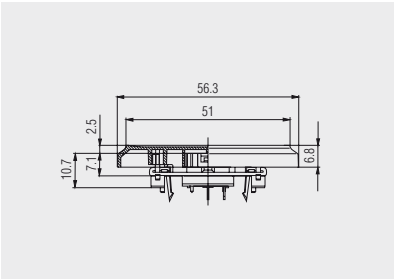
SERIES 6425 - KEY SWITCHES

TO 100 mA 28 V

Triple key caps

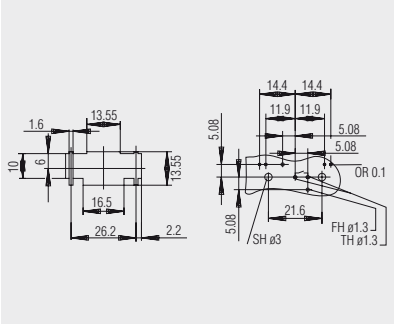


843.000.011 - anthracite
pitch 16 mm



845.000.011 - anthracite
pitch 19 mm

Parallel guide

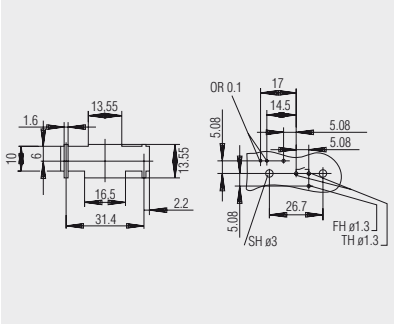


190.053.013
Recommended appliance cut-out and perforation pattern component side

Parallel guide for:
double key caps, pitch 16 mm

The parallel guide guarantees an optimum function even in case of off-center actuation and can be equipped additionally with one or two LEDs.

Parallel guide



190.053.023
Recommended appliance cut-out and perforation pattern component side

Parallel guide for:
triple key caps, pitch 16 mm
double key caps, pitch 19 mm
triple key caps, pitch 19 mm

The parallel guide can be equipped additionally with a LED.

Further information under

WWW.MARQUARDT.DE

SERIES 6425 - KEY SWITCHES

TO 100 mA 28 V

Square key caps with white characters

Please complete the reference numbers by the three figures below the respective character.

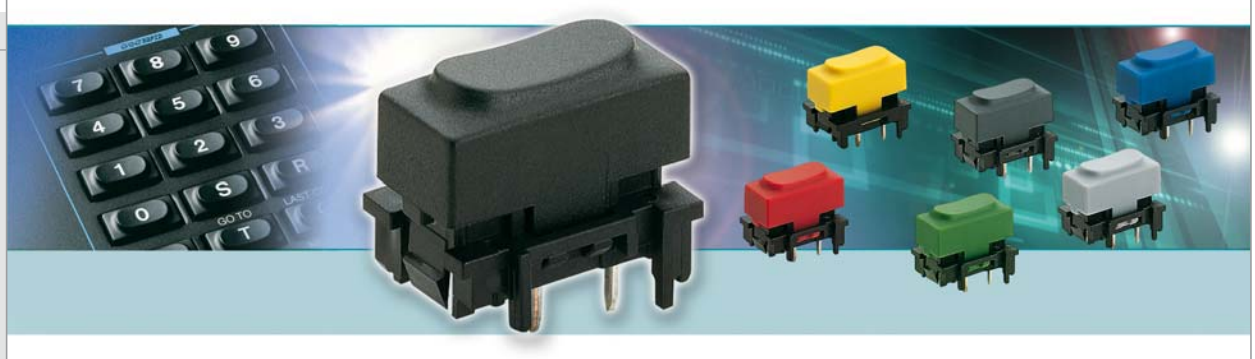
Basic reference numbers for pitch 16 mm:
826 ... 011 - anthracite
826 ... 021 - dark grey

Basic reference numbers for pitch 19 mm:
825 ... 011 - anthracite
825 ... 021 - dark grey

Other key cap colors and characters on request.

SERIES 6450 - KEY SWITCHES

TO 100 mA 28 V



PRODUCT FEATURES

- Single-pole normally open contact with key cap
- Narrow design with proven switching principle of series 6425
- Pleasant actuating characteristic and low actuation noise
- Low bounce time
- Long life endurance
- Standard with gold-plated contacts

ON REQUEST

- Other key cap colors
- Labeled key cap

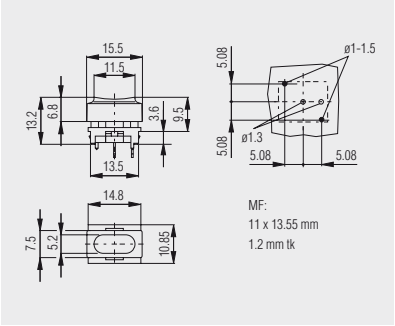
Contact resistance (new condition)		< 250 mOhm
Insulation resistance (new condition)		> 100 MOhm
Contact material		Au
Contact distance		< 3 mm
Bounce time		< 5 ms
Ambient temperature		-20 °C ... +80 °C
Material	actuator housing connections	PA PBTP tinned
Connection type		PCB terminal
Mechanical life endurance		1E6 at 10 mA 12 V

SERIES 6450 - KEY SWITCHES

TO 100 mA 28 V

	Actuator color / printing	100 mA 28 V	Operating force in N	Total travel / stroke in mm	Miscellaneous	Stock version
Normally open contact (SPNO)						
6450.0001		●	0.7	1.6	gray	●
6450.0003		●	0.7	1.6	dark gray	●
6450.0005		●	0.7	1.6	anthracite similar to RAL 9011	●
6450.0006		●	0.7	1.6	red similar to RAL 3013	●
6450.0007		●	0.7	1.6	yellow similar to RAL 1012	●
6450.0008		●	0.7	1.6	green similar to RAL 6001	●
6450.0009		●	0.7	1.6	blue similar to RAL 5019	●

Basic type 6450



Narrow key switch with integrated key cap

The key base can be snapped into a 1.2 mm thick frame with a cut-out of 11 x 13.55 mm.

Further information under

WWW.MARQUARDT.DE

SERIES 3000 - KEY SWITCHES

TO 30 mA 28 V

PRODUCT FEATURES

- With one or two normally open contacts switching in sequence
- By separating the mechanical and electrical components, a high contact reliability and excellent actuating characteristic are achieved
- Connections sealed
- For direct or indirect actuation

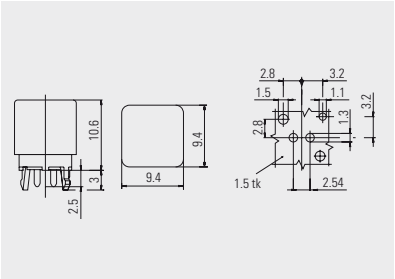
ON REQUEST

- Available with centrally placed LED (only version with a pressure point)
- Different actuator caps

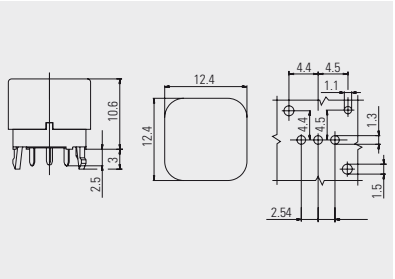
Mechanical life endurance		1E5 2E4 (basic type 3003 - two pressure points)
Ambient temperature		-40 °C ... +85 °C
Material	actuator housing connections	PC / POM PA glass fiber-reinforced tinned
Contact material		Au
Contact distance		< 3 mm

	30 mA 28 V	Connection type	Operating force in N	Operating position (OP) in mm	Free position (FP) max. in mm	Permissible total travel position (TP) in mm	Miscellaneous	Stock version
Double normally open contact with 2 pressure points								
3003.0451	●		5 - 7	9.8 +0.3 -0.2	10.9	8.6	operating force 2: 11 - 14 N operating position 2: 8.9 +0.3 -0.2	
Normally open contact with 1 pressure point								
3000.0452	●		5 - 7	9.8 +0.3 -0.2	10.9	9.2		

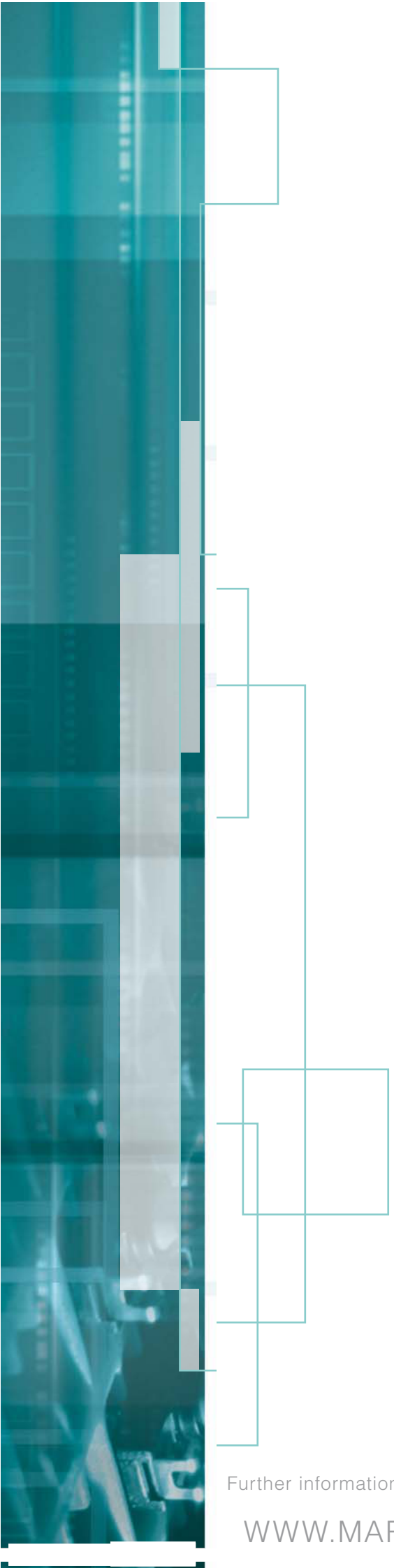
Basic types 3000 and 3003



Normally open contact with one pressure point
3000.0452



Double normally open contact with two pressure points
3003.0451



Further information under

WWW.MARQUARDT.DE

SNAP-ACTION SWITCHES

SNAP-ACTION SWITCHES

SERIES 1055
Subsubminiature snap-action switches IP 67

to 4 A 12 V or 2 A 24 V



PAGE
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SERIES 1050
Subminiature snap-action switches

to 10 (1.5) A 250 V AC



PAGE
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SERIES 1080
Miniature snap-action switches

to 21 (8) A 250 V AC


PAGE
193 - 197

SERIES 1005
Miniature snap-action switches

to 21 (8) A 250 V AC



PAGE
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SERIES 1040
Rotary shaft snap-action switches

to 4 (1) A 250 V AC


PAGE
205 - 206

SERIES 1010
Open snap-action switches

to 10 (3) A 250 V AC



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SERIES 1018
Snap-action switches

to 2 A 12 V DC

PAGE
212

SNAP-ACTION SWITCHES

SERIES 1019
Single-pole snap-action switches

to 6 (2) A 250 V AC



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SERIES 1022
Snap-action switches IP 67

to 4 A 12 V DC


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SERIES 1117
Snap-action switches

to 16 (6) A 400 V AC

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Further information under

WWW.MARQUARDT.DE

SERIES 1055 - SUBSUBMINIATURE SNAP-ACTION SWITCHES IP 67

TO 4 A 12 V OR 2 A 24 V DC

PRODUCT FEATURES

- Compact design with dust and water protected switching system acc. to IP 67 (basic types 1055 / 1058)
- Large overtravel of ≥ 1.2 mm for small size
- The specially designed pushbutton guide enables a start-up angle of 40°
- The modular principle offers a wide selection of connections, auxiliary actuators and fastening types

ON REQUEST

- Rating 0.5 (0.5) A 250 V AC 25E3 and ENEC approval mark
- For higher ambient temperatures
- Customized cable assembly
- Basic type 1058 as double switch or with cable outlet in other directions

Mechanical life endurance		1E6 at 10 mA 12 V
Contact resistance (new condition)		< 50 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Protection type		IP 00 connection side basic types 1055 and 1056 IP 40 actuator side basic type 1056 IP 67 actuator side basic type 1055, connection and actuator side basic type 1058
Ambient temperature		-40 °C ... +85 °C
Flammability		UL 94 HB
Material	actuator	POM
	additional actuator	stainless steel spring steel
	housing	PBTP
	connections	tinned basic type 1058: wires FLRY 0.5 mm², tinned wire ends
Contact material		Ag gold-plated
Approval marks		on request
Shock resistance		50 g
Miscellaneous		connection side cast electrical life endurance at 12 V 2 A: 200E3 (ohmic load)

SERIES 1055 - SUBSUBMINIATURE SNAP-ACTION SWITCHES IP 67

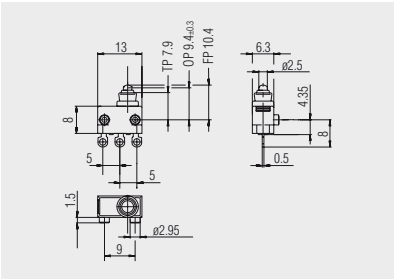
TO 4 A 12 V OR 2 A 24 V DC

	4 A 12 V DC (ohmic load)	2 A 24 V DC (ohmic load)	0.5 (0.5) A 250 V AC 25E3	Connection type	Connection description	Operating force in N	Operating position (OP) in mm	Difference travel max. in mm	Free position (FP) max. in mm	Permissible total travel position (TP) in mm	Actuator description	Lever drawing	Miscellaneous	Stock version
Normally closed contact (SPNC)														
1058.0395	●	●			400 long crimped	≤ 1.8	9.4 ±0.3	0.4	10.4	7.9			pin right 1.5 long	
Normally open contact (SPNO)														
1058.0373	●	●			150 long	≤ 1.8	9.4 ±0.3	0.4	10.4	7.9			pin right 1.5 long	
1058.0593	●	●			300 long	≤ 1.8	9.4 ±0.3	0.4	10.4	7.9			pin both sides 5 long	
1058.5172	●	●			254 long	≤ 2.6	12.4 ±0.65	0.8	14.7	10.3		L21	pin left 5 long	
Changeover switch (SPDT momentary)														
1055.0351	●	●				≤ 1.8	9.4 ±0.3	0.4	10.4	7.9			pin right 1.5 long	●
1055.0551	●	●				≤ 1.8	9.4 ±0.3	0.4	10.4	7.9			pin right 5 long	
1055.0552	●	●				≤ 1.8	9.4 ±0.3	0.4	10.4	7.9			pin left 5 long	
1055.2061	●	●			coded cranked	≤ 1.8	13.75 ±0.3	0.4	14.75	12.25			without pin	
1055.2351	●	●				≤ 1.8	9.4 ±0.3	0.4	10.4	7.9			pin right 1.5 long	●
1055.3653	●	●				≤ 1.8	9.4 ±0.3	0.4	10.4	7.9			pin right 2.5 long	
1055.3654	●	●				≤ 1.8	9.4 ±0.3	0.4	10.4	7.9			pin left 2.5 long	
1055.5155	●	●				≤ 2.6	12.4 ±0.65	0.8	14.7	10.3		L21	pin both sides 2.5 long	
1055.5253	●	●				≤4.2	9.7 ±0.45	0.5	11.6	8.25		L31	pin both sides 2.5 long	
1055.5350	●	●				≤4.2	14.05 ±0.45	0.5	15.85	12.65		L02	without pin	
1055.7255	●	●				≤4.2	14.05 ±0.45	0.5	15.95	12.6		L31	without pin	
1055.8155	●	●				≤ 2.6	12.4 ±0.65	0.8	14.7	10.3		L21	pin right 2.5 long	
1056.0351	●	●				≤1.3	6.15 ±0.3	0.4	7.15	4.65			pin right 1.5 long	●
1056.2351	●	●				≤1.3	6.15 ±0.3	0.4	7.15	4.65			pin right 1.5 long	●
1056.3060	●	●			coded cranked	≤1.3	10.5 ±0.3	0.4	11.5	9			without pin	
1056.3065	●	●	●		coded cranked	≤1.3	10.5 ±0.3	0.4	11.5	9			without pin	
1056.3351	●	●				≤1.3	6.15 ±0.3	0.4	7.15	4.65			pin right 1.5 long	
1056.3352	●	●				≤1.3	6.15 ±0.3	0.4	7.15	4.65			pin left 1.5 long	●
1058.0351	●	●			300 long	≤ 1.8	9.4 ±0.3	0.4	10.4	7.9			pin right 1.5 long	●
1058.0553	●	●			300 long	≤ 1.8	9.4 ±0.3	0.4	10.4	7.9			pin both sides 5 long	
1058.0653	●	●			300 long	≤ 1.8	9.4 ±0.3	0.4	10.4	7.9			pin both sides 2.5 long	●
1058.5253	●	●			300 long	≤4.2	9.7 ±0.45	0.5	11.6	8.25		L31	pin both sides 2.5 long	

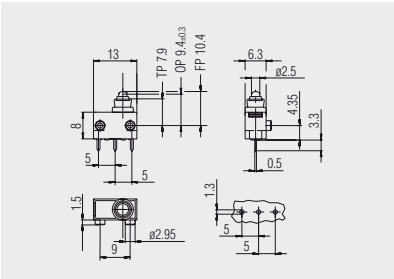
SERIES 1055 - SUBSUBMINIATURE SNAP-ACTION SWITCHES IP 67

TO 4 A 12 V OR 2 A 24 V DC

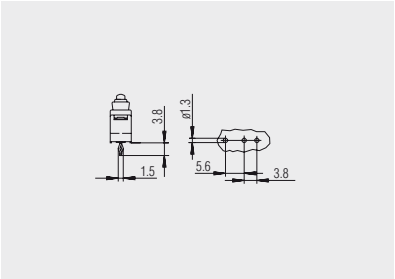
Basic type 1055



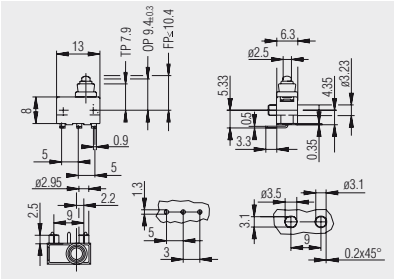
Solder terminal



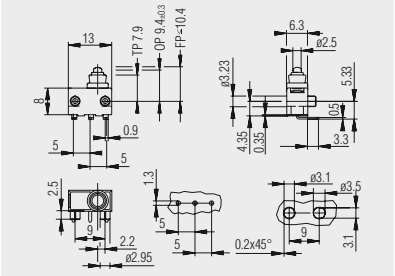
PCB terminal



PCB terminal coded cranked



PCB terminal left angled



PCB terminal right angled

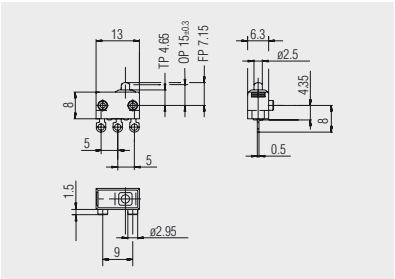
Further information under

WWW.MARQUARDT.DE

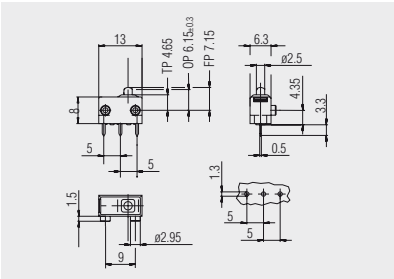
SERIES 1055 - SUBSUBMINIATURE SNAP-ACTION SWITCHES IP 67

TO 4 A 12 V OR 2 A 24 V DC

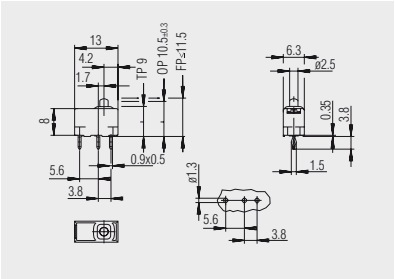
Basic type 1056



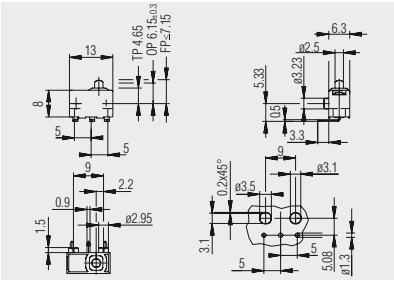
Solder terminal



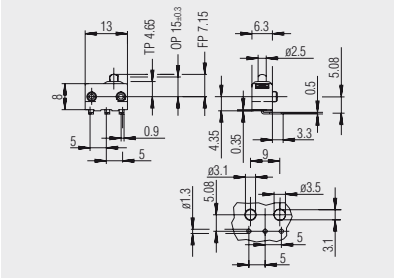
PCB terminal



PCB terminal coded cranked

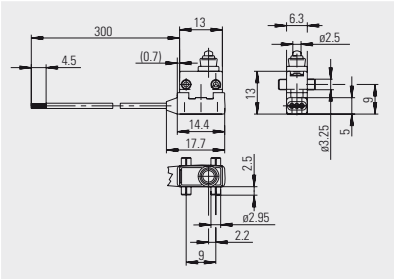


PCB terminal left angled



PCB terminal right angled

Basic type 1058

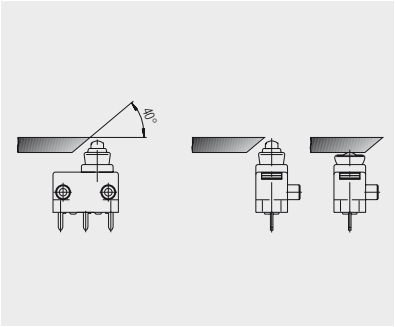


Cable 300 long

SERIES 1055 - SUBSUBMINIATURE SNAP-ACTION SWITCHES IP 67

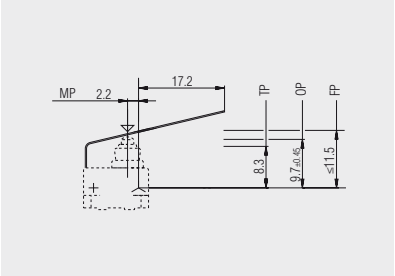
TO 4 A 12 V OR 2 A 24 V DC

Approach angle up to 40°

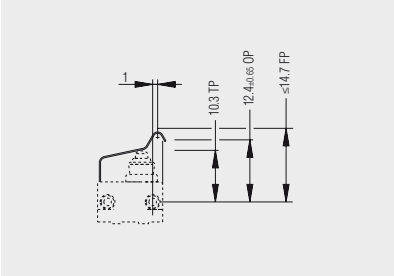


The robust pushbutton guide allows actuations by slides or camshafts with an approach angle of < 40° (depending on the friction partner).
The mechanical life endurance depends on the material and surface properties of the slide and the installation situation in the appliance. Under optimum conditions and longitudinal actuation, 200E3 cycles can be achieved.
The above sketch can be transposed to the basic types 1056 and 1058.

Auxiliary actuators

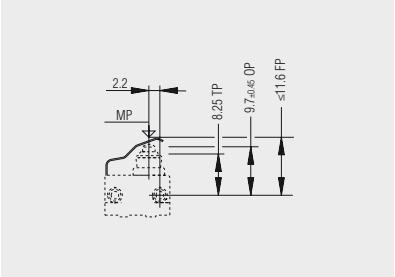


L02: straight lever
191.081.041



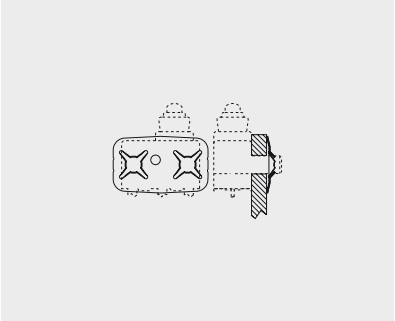
L21: simulated roller
191.081.031

The auxiliary actuators are available as additional parts for the basic types 1055 and 1058 for retrofitting or are already pre-assembled depending on the product.
When assembling yourself, make sure that the lever is pushed into the housing slot right up to the stop.



L31: differential lever
191.081.011

Fastening disc



140.092.021
Fastening disc for the basic types 1055, 1056 und 1058

The fastening disc offers a quick, reliable fastening possibility in combination with switches with 5 mm long pins to plates or plastic parts with a wall thickness up to 2.5 mm.

SERIES 1050 - SUBMINIATURE SNAP-ACTION SWITCHES

TO 10 (1.5) A 250 V AC

PRODUCT FEATURES

- Small, efficient snap-action switch up to 10 (1.5) A 250 V AC or 10.1 A 125 - 250 V AC 1/4 HP
- Lateral approach from both directions possible due to mushroom-shaped actuator
- Large selection of auxiliary actuators of chrome-nickel steel and plastic

ON REQUEST

- Extended overtravel
- Material conformant with the filament wire test acc. to IEC 60335-1:2001 chap. 30
- Increased or reduced difference travel
- Other operating forces and ratings
- Gold-plated contacts

Design		DIN 41635 B
Mechanical life endurance		10E6 1E6 (versions with auxiliary actuator)
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC) mOhm
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation (depending on installation situation) 500 V small contact distance
Proof tracking		175 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40 (actuator side)
Ambient temperature		-40 °C ... +100 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator	PA
	additional actuator	stainless steel spring steel / PA glass fiber-reinforced
	housing	PBTP
	connections	tinned / silver-plated / blank (product-dependent)
Bounce time		< 5 ms
Approval marks		05 / 10 / UL / CSA
Suitable for appliances of protection class II under compliance with the installation conditions required on the equipment side		

SERIES 1050 - SUBMINIATURE SNAP-ACTION SWITCHES

TO 10 (1.5) A 250 V AC

	10 (1.5) A 250 V AC 1E4	5 A 250 V AC 5E4	2 (0.5) A 250 V AC 25E3	10.1 A 125 - 250 V AC 1/4 HP	5 A 125 - 250 V AC 1/10 HP	2 A 125 - 250 V AC	Connection type	Connection description	Contact material	Operating force in N	Operating position (OP) in mm	Difference travel max. in mm	Free position (FP) max. in mm	Permissible total travel position (TP) in mm	Actuator description	Lever drawing	Miscellaneous	Stock version
Normally closed contact (SPNC)																		
1050.1142		●			●			2.8 x 0.5	Ag	≤ 1.5	8.4 ±0.3	0.2	9.3	7.5				
Normally open contact (SPNO)																		
1050.0122		●			●				Ag	≤ 1.5	8.4 ±0.3	0.2	9.3	7.5				●
1050.1122		●			●			2.8 x 0.5	Ag	≤ 1.5	8.4 ±0.3	0.2	9.3	7.5				●
1050.1426		●			●			2.8 x 0.5	Ag	≤ 1.5	9.9 ±0.3	0.2	10.8	8.6			without approval mark greater overtravel	
1050.2122		●			●			sealed	Ag	≤ 1.5	8.4 ±0.3	0.2	9.3	7.5				
1050.1125			●			●		2.8 x 0.5	Ag	≤ 0.7	8.4 ±0.3	0.2	9.3	7.5				
Changeover switch (SPDT momentary)																		
1050.0103	●			●					Ag	≤ 2.2	8.4 ±0.3	0.2	9.3	7.5				●
1050.2403	●				●			sealed	Ag	≤ 2.2	8.4 ±0.3	0.1	9.3	7			greater overtravel	
1050.0102		●			●			sealed	Ag	≤ 1.5	8.4 ±0.3	0.2	9.3	7.5				●
1050.0202		●			●				Ag	≤ 1.5	9.9 ±0.3	0.2	10.8	9.1				●
1050.0802		●			●				Ag	≤ 5	9.9 ±0.3	0.2	10.8	9.3			foam sealing ring around pushbutton	
1050.1102		●			●			2.8 x 0.5	Ag	≤ 1.5	8.4 ±0.3	0.2	9.3	7.5				●
1050.1202		●			●			2.8 x 0.5	Ag	≤ 1.5	9.9 ±0.3	0.2	10.8	9.1				●
1050.2102		●			●			sealed	Ag	≤ 1.5	8.4 ±0.3	0.2	9.3	7.5				●
1050.2202		●			●			sealed	Ag	≤ 1.5	9.9 ±0.3	0.2	10.8	9.1				●
1050.3102		●			●				Ag	≤ 1.5	8.4 ±0.3	0.2	9.3	7.5			fixing pin	●
1050.4102		●			●				Ag	≤ 1.5	8.4 ±0.3	0.2	9.3	7.5			fixing pin	●
1050.5202		●			●			sealed	Ag	≤ 0.5	11.1 ±1.5	1.0	15	7.4		L02		●
1050.5502		●			●			sealed	Ag	≤ 0.6	16.4 ±1.5	1.0	20	13		L22		
1050.5702		●			●			sealed	Ag	≤ 0.6	16.2 ±1.5	1.0	20	13		L12		●
1050.6702		●			●			2.8 x 0.5	Ag	≤ 0.6	16.2 ±1.5	1.0	20	13		L12		●
1050.7202		●			●			sealed	Ag	≤ 0.5	11.1 ±1.5	1.0	15	7.4		L02		●
1050.7702		●			●			sealed	Ag	≤ 0.6	16.2 ±1.5	1.0	20	13		L12		●
1050.0151			●			●		sealed	Au	≤ 1.5	8.4 ±0.3	0.2	9.3	7.5				●
1050.1151			●			●		2.8 x 0.5	Au	≤ 1.5	8.4 ±0.3	0.2	9.3	7.5				●
1050.2151			●			●		sealed	Au	≤ 1.5	8.4 ±0.3	0.2	9.3	7.5				●

SERIES 1050 - SUBMINIATURE SNAP-ACTION SWITCHES

TO 10 (1.5) A 250 V AC

	10 (1.5) A 250 V AC 1E4	5 A 250 V AC 5E4	2 (0.5) A 250 V AC 25E3	10.1 A 125 - 250 V AC 1/4 HP	5 A 125 - 250 V AC 1/10 HP	2 A 125 - 250 V AC	Connection type	Connection description	Contact material	Operating force in N	Operating position (OP) in mm	Difference travel max. in mm	Free position (FP) max. in mm	Permissible total travel position (TP) in mm	Actuator description	Lever drawing	Miscellaneous	Stock version
Changeover switch (SPDT momentary)																		
1050.5251			●			●		sealed	Au	≤ 0.5	11.1 ±1.5	1.0	15	7.4		L02		
1050.5305			●			●		sealed	Au	≤ 0.6	16.6 ±0.2	1.0	20	13.6		L43		●
1050.6251			●			●		2.8 x 0.5	Au	≤ 0.5	11.1 ±1.5	1.0	15	7.4		L02		

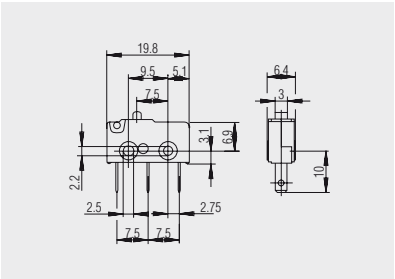
Further information under

WWW.MARQUARDT.DE

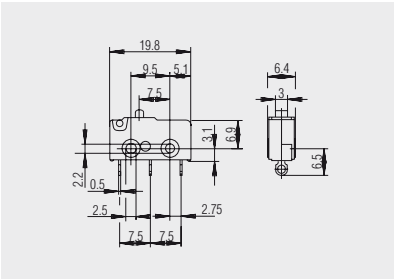
SERIES 1050 - SUBMINIATURE SNAP-ACTION SWITCHES

TO 10 (1.5) A 250 V AC

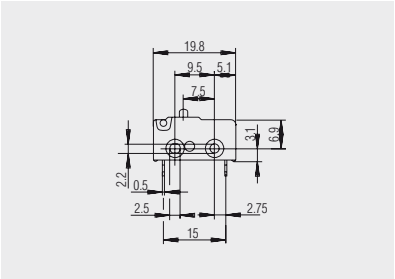
Terminal variants



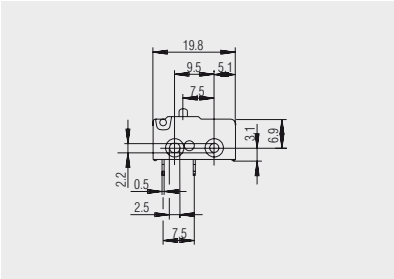
Quick-connect terminal 2.8 x 0.5



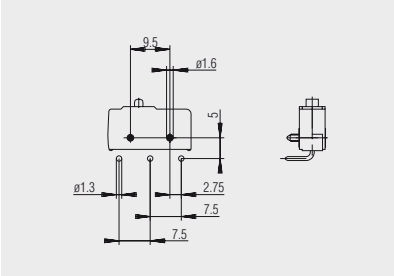
Solder terminal



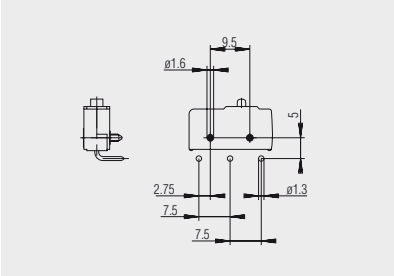
Solder terminal normally closed contact version



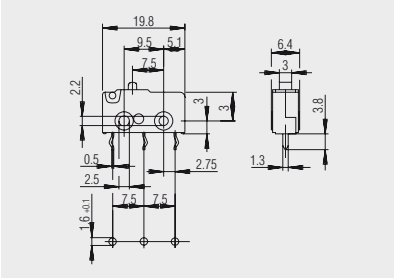
Solder terminal normally open contact version



PCB terminal (base side) left angled



PCB terminal (cover side) right angled

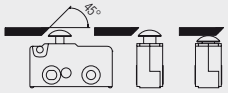


PCB terminal sealed

SERIES 1050 - SUBMINIATURE SNAP-ACTION SWITCHES

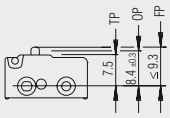
TO 10 (1.5) A 250 V AC

Mushroom-shaped actuator

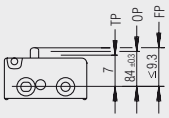


The mushroom-shaped actuator allows, in addition to the vertical actuation from above, lateral approach from any direction. In such application cases, an angle of 45° is necessary on the actuating element (angle for versions with extended overtravel on request). To keep the friction here to a minimum, we recommend the use of materials with a low friction coefficient in relation to the material PA. In addition, the surface of the actuating element should be free from valleys. The mechanical life endurance depends on the material and surface properties as well as on the form of the slide.

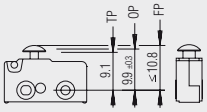
Switching positions



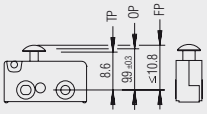
Standard actuator



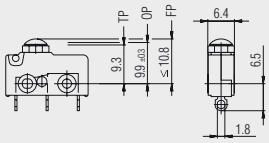
Standard actuator and extended overtravel



Mushroom-shaped actuator



Mushroom-shaped actuator and extended overtravel



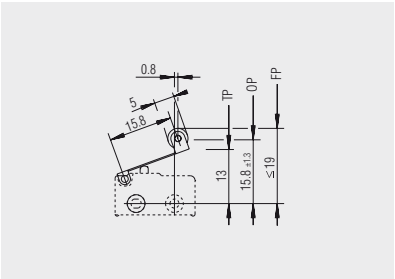
Mushroom-shaped actuator with foam sealing ring

SERIES 1050 - SUBMINIATURE SNAP-ACTION SWITCHES

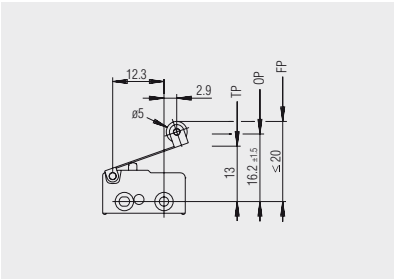
TO 10 (1.5) A 250 V AC

Auxiliary actuator

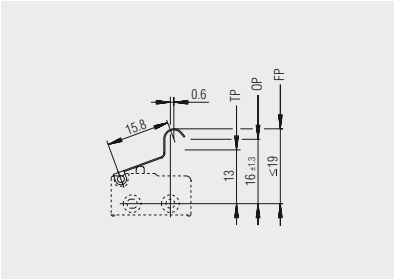
The auxiliary actuators are available as additional parts for later assembly or are already pre-assembled depending on the product. In the adjustable versions the operating position can be set application-specifi-cally by the set screw.



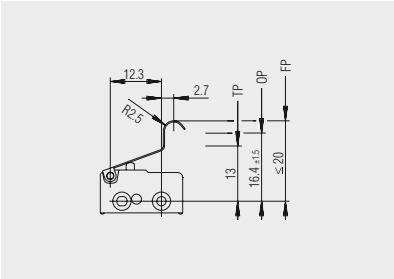
L11: roller lever
191.078.013



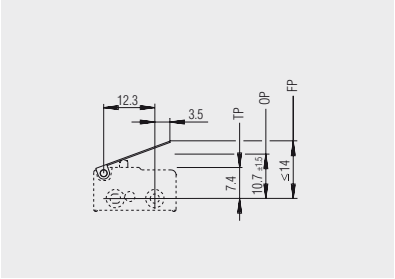
L12: roller lever
191.078.023



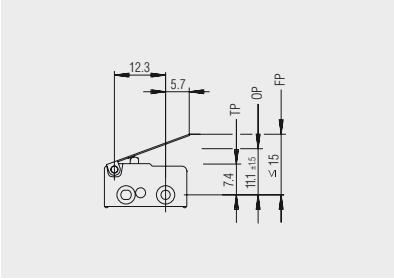
L21: simulated roller
191.071.041



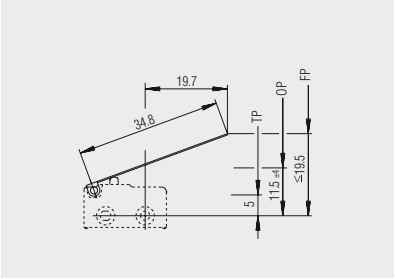
L22: simulated roller
191.071.051



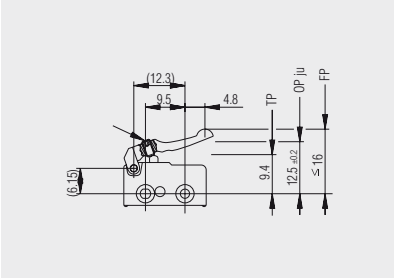
L01: straight lever
191.071.011



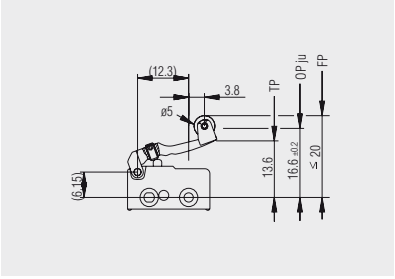
L02: straight lever
191.071.021



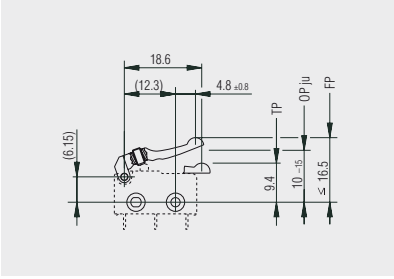
L03: straight lever
191.071.101



L41: adjustable plastic lever
190.075.013



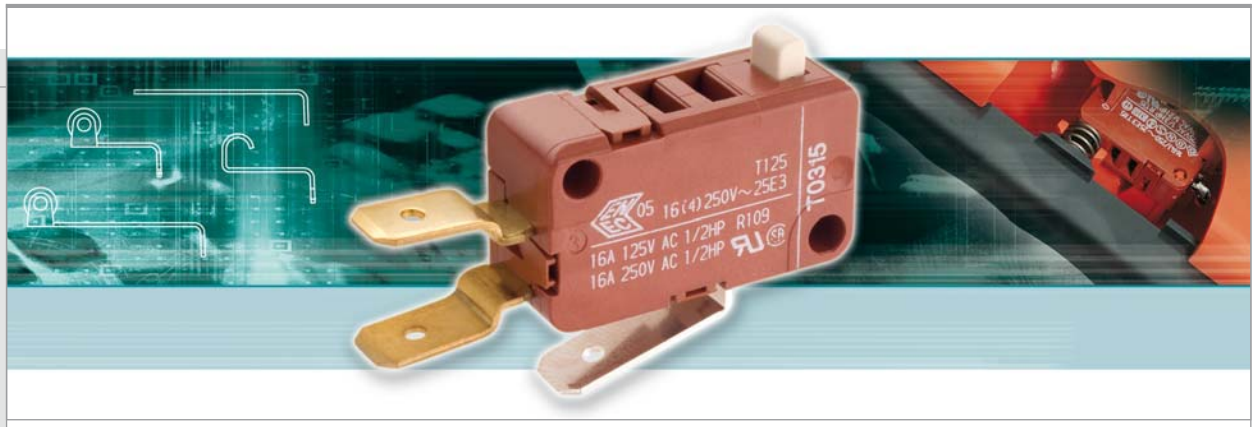
L43: adjustable roller lever
190.072.013



L45: adjustable simulated roller
190.074.013

SERIES 1080 - MINIATURE SNAP-ACTION SWITCHES

TO 21 (8) A 250 V AC



PRODUCT FEATURES

- The precise mounting of the moving contact part (milled bearing blade) offers optimum snap-action even with slow actuation
- Wide range of ratings from 3 (1) A 250 V AC to 21 (8) A 250 V AC
- Versions with gold-plated contacts for signal current applications
- Various auxiliary actuators, two suspension points

ON REQUEST

- Low operating forces (≤ 0.15 N)
- Customized additional actuators
- Plug connection 4.8 x 0.5

Design		DIN 41635 A
Mechanical life endurance		2E6 (basic type 1080) 20E4 (basic type 1085)
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation (depending on installation situation) 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40 (actuator side)
Ambient temperature		-40 °C ... +125 °C
Flammability		UL 94 V-0
Heat and fire resistance		850 °C (category D)
Material	actuator	PETP glass fiber-reinforced
	additional actuator	stainless steel
	housing	PA glass fiber-reinforced / PETP glass fiber-reinforced
	connections	silver-plated / CuZn
Bounce time		< 10 ms
Approval marks		05 / UL / CSA
Suitable for appliances of protection class II under compliance with the installation conditions required on the equipment side		

SERIES 1080 - MINIATURE SNAP-ACTION SWITCHES

TO 21 (8) A 250 V AC

	Normally closed contact (SPNC)	Normally open contact (SPNO)				Changeover switch (SPDT momentary)									
	1080.0464	1080.0440	1085.0342	1080.0585		1080.0103	1080.0203	1080.0304	1080.0403	1080.0503	1080.0603	1080.0903	1080.5906	1080.8403	1085.0103
21 (8) A 250 V AC 1E4		●													
16 (8) A 250 V AC 1E4	●	●				●	●	●	●	●	●	●	●	●	
16 (4) A 250 V AC 5E4		●													
16 (4) A 250 V AC 25E3						●	●	●	●	●	●	●	●	●	●
10 (4) A 250 V AC 25E3			●												
6 (3) A 250 V AC 6E4															
6 (2) A 250 V AC 5E4			●												
4 (4) A 250 V AC 5E4			●												
3 (1) A 250 V AC 5E4				●											
3 (1) A 250 V AC 25E3															
21 A 250 V AC 2 HP		●													
21 A 125 V AC 1 HP		●													
16 A 250 V AC 1/2 HP	●														
16 A 125 - 250 V AC 1/2 HP						●	●	●	●	●	●	●	●	●	●
16 A 125 V AC 1/3 HP	●														
10 A 250 V AC 1/3 HP			●												
10 A 125 V AC 1/8 HP			●												
6 A 250 V AC 1/4 HP															
6 A 125 V AC 1/10 HP															
3 A 125 - 250 V AC				●											
Connection type															
Connection description	6.3	6.3 straight	standing	6.3 PITCH 5				standing	6.3	6.3 PITCH 5	6.3 PITCH 7	4.8 x 0.8	4.8 x 0.5 straight	6.3	
Contact material	Ag	Ag	Ag	Au		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag
Operating force in N	≤ 1.0	≤ 1.5	≤ 3.5	≤ 1.0		≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 0.5	≤ 0.28	≤ 4.0
Operating position (OP) in mm	14.7 ±0.5	14.7 ±0.5	14.4 ± 0.5	14.7 ±0.5		14.7 ± 0.5	14.7 ±0.5	14.7 ±0.5	14.7 ±0.5	14.7 ±0.5	14.7 ±0.5	14.7 ±0.5	15.2 ±1.2	15.2 ±2.2	14.7 ±0.5
Difference travel max. in mm	0.3	0.3	0.8	0.3		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	1.5	0.3
Free position (FP) max. in mm	16.2	16.2	16.2	16.2		16.2	16.2	16.2	16.2	16.2	16.2	16.2	18.8	21.5	16.2
Permissible total travel position (TP) in mm	13.2	13.2	13.2	13.2		13.2	13.2	13.2	13.2	13.2	13.2	13.2	11.7	8.0	13.2
Actuator description															
Lever drawing													L02	L03	
Contact distance	< 3	< 3	> 3	< 3		< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
EN 60335 cap. 30 conform "G"	●			●											
Stock version						●			●						

SERIES 1080 - MINIATURE SNAP-ACTION SWITCHES

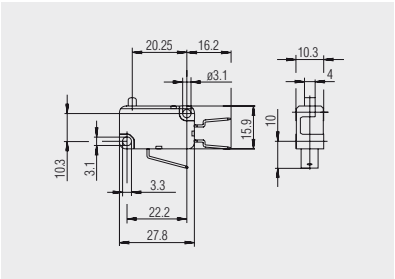
TO 21 (8) A 250 V AC

	Changeover switch (SPDT momentary)	1085.0203	1085.0403	1085.5203	1080.0279	1085.0375
21 (8) A 250 V AC 1E4						
16 (8) A 250 V AC 1E4						
16 (4) A 250 V AC 5E4						
16 (4) A 250 V AC 25E3		●	●	●		
10 (4) A 250 V AC 25E3						
6 (3) A 250 V AC 6E4					●	
6 (2) A 250 V AC 5E4						
4 (4) A 250 V AC 5E4						
3 (1) A 250 V AC 5E4						
3 (1) A 250 V AC 25E3						●
21 A 250 V AC 2 HP						
21 A 125 V AC 1 HP						
16 A 250 V AC 1/2 HP						
16 A 125 - 250 V AC 1/2 HP		●	●	●		
16 A 125 V AC 1/3 HP						
10 A 250 V AC 1/3 HP						
10 A 125 V AC 1/8 HP						
6 A 250 V AC 1/4 HP					●	
6 A 125 V AC 1/10 HP					●	
3 A 125 - 250 V AC						●
Connection type						
Connection description			6.3			standing
Contact material		Ag	Ag	Ag	Au	Ag
Operating force in N		≤ 4.0	≤ 4.0	≤ 1.8	≤ 1.0	≤ 1.7
Operating position (OP) in mm		14.7 ±0.5	14.7 ±0.5	15.3 ±1.5	14.7 ±0.5	14.7 ±0.5
Difference travel max. in mm		0.3	0.3	0.7	0.3	0.3
Free position (FP) max. in mm		16.2	16.2	19.5	16.2	16.2
Permissible total travel position (TP) in mm		13.2	13.2	12.5	13.2	13.2
Actuator description						
Lever drawing				L02		
Contact distance		< 3	< 3	< 3	< 3	< 3
EN 60335 cap. 30 conform "G"						
Stock version			●			

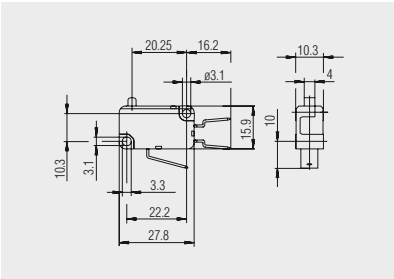
SERIES 1080 - MINIATURE SNAP-ACTION SWITCHES

TO 21 (8) A 250 V AC

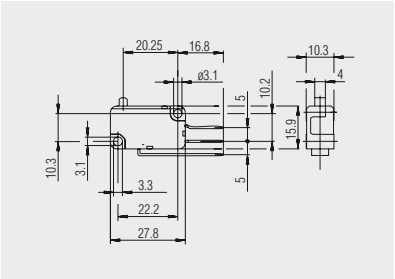
Terminal variants



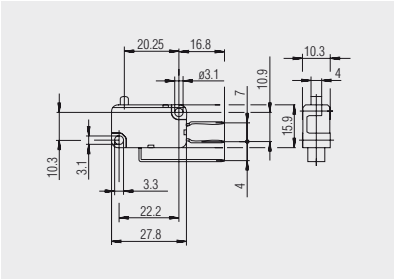
Quick-connect terminal 4.8 x 0.8



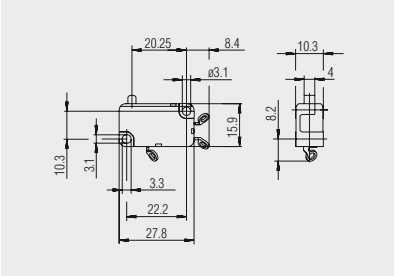
Quick-connect terminal 6.3



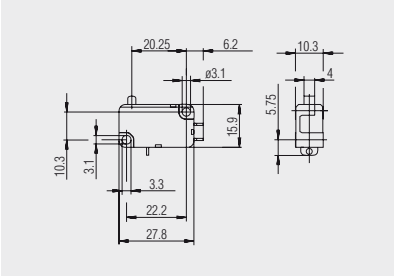
Quick-connect terminal 6.3
PITCH 5



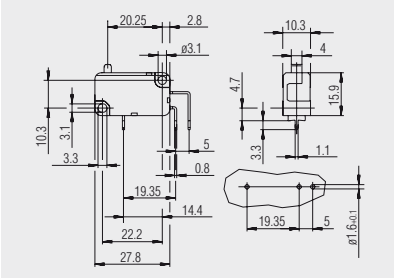
Quick-connect terminal 6.3
PITCH 7



Solder terminal

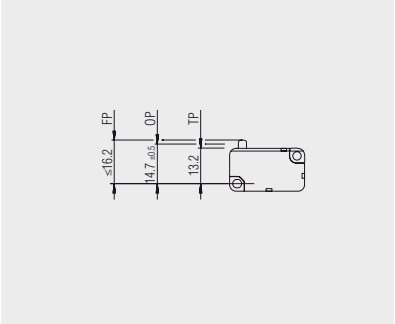


Short solder terminal



PCB terminal standing

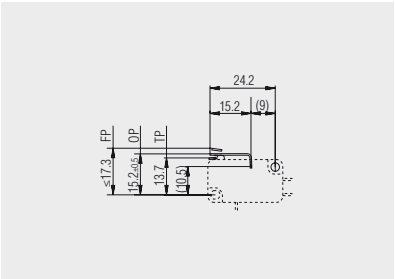
Switching positions



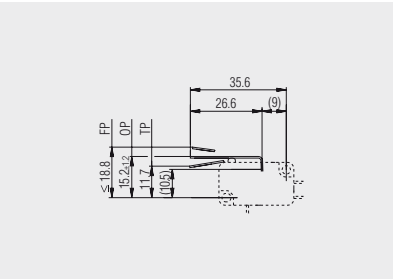
FP: free position
OP: operating position
TP: total travel position

TO 21 (8) A 250 V AC

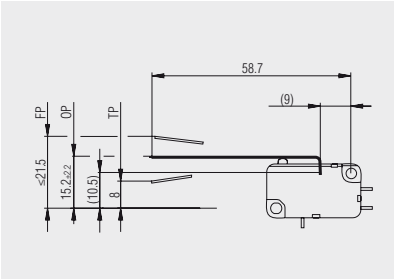
Auxiliary actuators



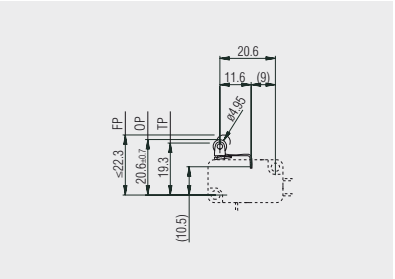
L01: straight lever
191.080.091



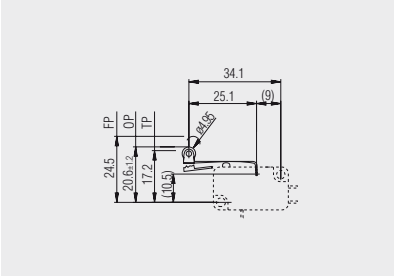
L02: straight lever
191.080.101



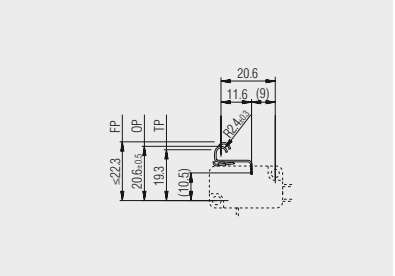
L03: straight lever



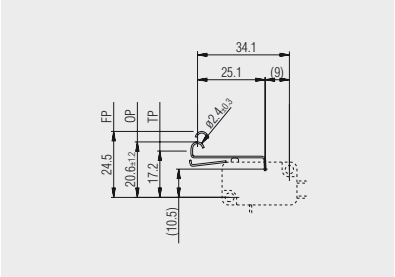
L11: roller lever
191.079.013



L12: roller lever
191.079.023



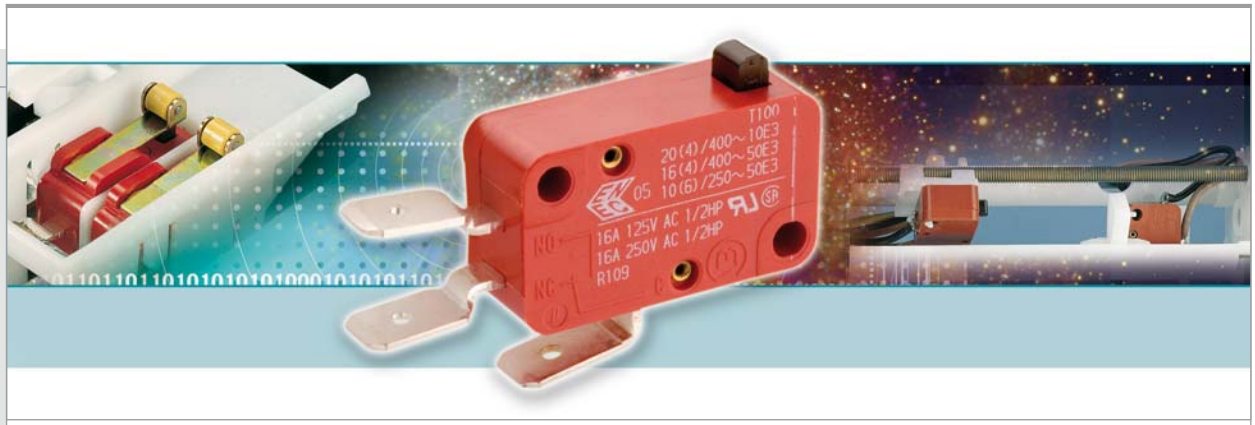
L21: simulated roller
191.080.451



L22: simulated roller
191.080.471

SERIES 1005 - MINIATURE SNAP-ACTION SWITCHES

TO 21 (8) A 250 V AC



PRODUCT FEATURES

- Friction contact system the shearing movement of which can loosen weldings
- Very high inrush currents (capacitive)
- Contact distances less and greater than 3 mm
- Switching forces from 0.2 to 4.2 N

ON REQUEST

- Material conformant with the filament wire test acc. to IEC 60335-1:2001 chap. 30
- Side terminal outlet

Design		DIN 41635 A
Mechanical life endurance		10E6 standard version 5E6 version with lever or contact spacing > 3 mm 5E4 version with curved spring steel lever
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation (depending on installation situation) 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Ambient temperature		-40 °C ... +100 °C on request ... +125 °C ... +85 °C
Flammability		UL 94 (housing: V-0, actuator: V-2) UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator	PA
	additional actuator	galvanized steel / spring steel / stainless steel
	housing	Duroplast type 182 / PA glass fiber-reinforced
	connections	silver-plated / chromated
Bounce time		< 10 ms
Approval marks		/ /
Suitable for appliances of protection class II under compliance with the installation conditions required on the equipment side		

SERIES 1005 - MINIATURE SNAP-ACTION SWITCHES

TO 21 (8) A 250 V AC

	Normally closed contact (SPNC)	1005.1113	1005.0808	1005.1105	1005.1101	1006.3402	Normally open contact (SPNO)	1005.2809	1005.2505	1005.0904	1005.1204	1005.1201	1005.4001	Changeover switch (SPDT momentary)	1004.3503	1005.0404	1005.1004
21 (8) A 250 V AC 25E3								●							●		
20 (4) A 400 V AC 1E4		●														●	●
16 (8) A 250 V AC 1E4																	
16 (4) A 400 V AC 5E4																●	●
16 (4) A 250 V AC 5E4		●						●									
16 (4) A 250 V AC 25E3															●		
12 (12) A 250 V AC 5E4									●								
10 (6) A 250 V AC 5E4		●	●	●						●	●					●	●
10 (4) A 400 V AC 1E4					●	●						●	●				
10 (4) A 250 V AC 5E4																	
8 (8) A 250 V AC 5E4								●									
6 (2.5) A 400 V AC 5E4					●	●						●	●				
6 (2.5) A 250 V AC 5E4																	
21 A 250 V AC 2 HP								●									
21 A 125 V AC 1 HP								●									
16 A 125 - 250 V AC 1/2 HP		●							●						●	●	●
10 A 250 V AC 1/2 HP																	
10 A 125 - 250 V AC 1/2 HP			●	●						●	●						
10 A 125 - 250 V AC 1/4 HP					●	●						●	●				
8 A 125 - 250 V AC 1/3 HP																	
4 A 125 - 250 V AC 1/6 HP																	
Connection type																	
Connection description		6.3 straight		6.3	6.3	6.3		4.8 x 0.8 top side	4.8 x 0.8 straight		6.3	6.3					6.3
Contact distance in mm		> 3	> 3	> 3	< 3	> 3		> 3	> 3	> 3	> 3	< 3	< 3		> 1	< 3	< 3
Contact material		Ag	Ag	Ag	Ag	Ag		Ag	Ag	Ag	Ag	Ag	Ag		Ag	Ag	Ag
Operating force in N		1.6 - 2.8	2.6 - 4.2	2.6 - 4.2	1.5 - 2.5	1.6 - 2.8		2.4 - 3.8	3.5 - 4.9	2.4 - 3.8	2.4 - 3.8	1.5 - 2.5	1.5 - 2.5		0.8 - 1.8	2.4 - 3.8	2.4 - 3.8
Operating position (OP) in mm		14.6 ±0.4	14.6 ±0.4	14.6 ±0.4	14.8 ±0.4	20.5 ±0.4		14.5 ±0.3	14.4 ±0.3	14.4 ±0.3	14.4 ±0.3	14.7 ±0.5	14.7 ±0.5		14.7 ±0.5	14.7 ±0.5	14.7 ±0.5
Difference travel max. in mm		0.7	1.0	1.0	0.3	1.0		1.2	1.2	1.2	1.2	0.3	0.3		0.4	0.3	0.3
Free position (FP) max. in mm		16	16	16	16	22.0		16	16	16	16	16	16		16	16	16
Permissible total travel position (TP) in mm		13.4	13.4	13.4	13.4	19.3		13.4	13.4	13.4	13.4	13.4	13.4		13.4	13.4	13.4
Actuator description																	
Lever drawing						L21											
Miscellaneous															milled bearing blade		
Stock version			●	●	●					●	●	●	●			●	●

SERIES 1005 - MINIATURE SNAP-ACTION SWITCHES

TO 21 (8) A 250 V AC

	Changeover switch (SPDT momentary)	1006.1514	1004.3605	1005.0507	1005.1010	1005.1303	1004.0509	1005.0101	1005.0401	1005.1001	1005.3501	1005.3605	1006.0701	1006.0901	1006.1011	1006.1101	1006.1201
21 (8) A 250 V AC 25E3																	
20 (4) A 400 V AC 1E4		●															
16 (8) A 250 V AC 1E4			●														
16 (4) A 400 V AC 5E4		●															
16 (4) A 250 V AC 5E4				●	●	●											
16 (4) A 250 V AC 25E3							●										
12 (12) A 250 V AC 5E4																	
10 (6) A 250 V AC 5E4		●		●													
10 (4) A 400 V AC 1E4								●	●	●	●	●	●	●	●	●	●
10 (4) A 250 V AC 5E4							●										
8 (8) A 250 V AC 5E4					●	●											
6 (2.5) A 400 V AC 5E4								●	●	●	●	●	●	●	●	●	●
6 (2.5) A 250 V AC 5E4																	
21 A 250 V AC 2 HP																	
21 A 125 V AC 1 HP																	
16 A 125 - 250 V AC 1/2 HP		●		●			●										
10 A 250 V AC 1/2 HP						●											
10 A 125 - 250 V AC 1/2 HP					●												
10 A 125 - 250 V AC 1/4 HP								●	●	●	●	●	●	●	●	●	●
8 A 125 - 250 V AC 1/3 HP			●														
4 A 125 - 250 V AC 1/6 HP																	
Connection type																	
Connection description		6.3			6.3	4.8 x 0.8 straight		M3		6.3						6.3	6.3
Contact distance in mm		< 3	> 1	< 3	> 3	> 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag
Operating force in N		1.2 - 2.1	0.8 - 1.3	2.4 - 3.8	2.4 - 3.8	2.4 - 3.8	0.8 - 1.8	1.5 - 2.5	1.5 - 2.5	1.5 - 2.5	1.5 - 2.5	1.5 - 2.5	1.5 - 2.5	0.8 - 1.4	0.7 - 1.25	1.5 - 2.5	1.5 - 2.5
Operating position (OP) in mm		20.8 ±1.2	14.7 ±0.5	14.7 ±0.5	14.4 ±0.3	14.4 ±0.3	14.7 ±0.5	14.7 ±0.5	14.7 ±0.5	14.7 ±0.5	14.7 ±0.5	14.7 ±0.5	20.8 ±0.5	15.4 ±1.2	20.8 ±1.2	15.3 ±0.5	20.8 ±0.5
Difference travel max. in mm		0.9	0.4	0.3	1.2	1.2	0.1 - 0.25	0.3	0.3	0.3	0.3	0.3	0.3	0.7	0.9	0.3	0.3
Free position (FP) max. in mm		23.5	16	16	16	16	16	16	16	16	16	16	22.1	18.2	23.5	16.6	22.1
Permissible total travel position (TP) in mm		18	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	19.5	12.6	18	14	19.5
Actuator description																	
Lever drawing		L12											L11	L02	L12	L01	L11
Miscellaneous			milled bearing blade	T125			milled bearing blade					pushbutton long side rounded					
Stock version								●	●	●			●	●		●	●

SERIES 1005 - MINIATURE SNAP-ACTION SWITCHES

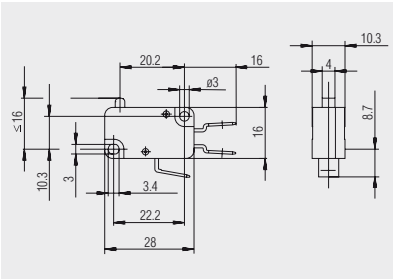
TO 21 (8) A 250 V AC

	Changeover switch (SPDT momentary)	1006.1301	1006.1401	1006.1511	1006.1801	1006.4103	1006.4203	1004.0401	1004.1001	1004.4501	1004.4601	1004.0402	1004.1002
21 (8) A 250 V AC 25E3													
20 (4) A 400 V AC 1E4													
16 (8) A 250 V AC 1E4													
16 (4) A 400 V AC 5E4													
16 (4) A 250 V AC 5E4													
16 (4) A 250 V AC 25E3													
12 (12) A 250 V AC 5E4													
10 (6) A 250 V AC 5E4													
10 (4) A 400 V AC 1E4		●	●	●	●	●	●						
10 (4) A 250 V AC 5E4								●	●	●	●		
8 (8) A 250 V AC 5E4													
6 (2.5) A 400 V AC 5E4		●	●	●	●	●	●						
6 (2.5) A 250 V AC 5E4												●	●
21 A 250 V AC 2 HP													
21 A 125 V AC 1 HP													
16 A 125 - 250 V AC 1/2 HP													
10 A 250 V AC 1/2 HP													
10 A 125 - 250 V AC 1/2 HP													
10 A 125 - 250 V AC 1/4 HP		●	●	●	●	●	●						
8 A 125 - 250 V AC 1/3 HP								●	●	●	●		
4 A 125 - 250 V AC 1/6 HP												●	●
Connection type													
Connection description		6.3	6.3	6.3	6.3				6.3		6.3		6.3
Contact distance in mm		< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Contact material		Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag	Ag
Operating force in N		0.3 - 0.55	0.8 - 1.4	0.7 - 1.25	1.5 - 2.5	1.5 - 2.5	1.5 - 2.5	0.5 - 1.1	0.5 - 1.1	0.5 - 1.1	0.5 - 1.1	0.2 - 0.6	0.2 - 0.6
Operating position (OP) in mm		15.7 ±2.7	15.4 ±1.2	20.8 ±1.2	22 ±1	20.8 ±0.5	20.8 ±0.5	14.7 ±0.5	14.7 ±0.5	20.8 ±0.5	20.8 ±0.5	14.7 ±0.5	14.7 ±0.5
Difference travel max. in mm		1.8	0.7	0.9	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Free position (FP) max. in mm		21.5	18.2	23.5	24.5	22.1	22.1	16	16	22.1	22.1	16	16
Permissible total travel position (TP) in mm		9.8	12.6	18	18.5	19.5	19.5	13.4	13.4	19.5	19.5	13.4	13.4
Actuator description													
Lever drawing		L04	L02	L12	L31	L11	L11			L11	L11		
Miscellaneous					overtravel 1.0 + 1.5 spring-loaded	milled bearing blade	milled bearing blade	milled bearing blade	milled bearing blade	milled bearing blade	milled bearing blade	milled bearing blade	milled bearing blade
Stock version		●	●	●	●			●	●			●	●

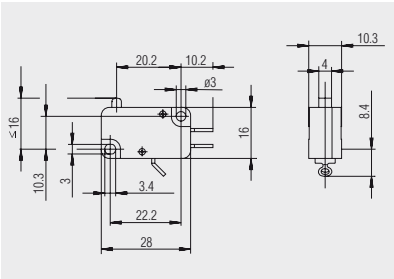
SERIES 1005 - MINIATURE SNAP-ACTION SWITCHES

TO 21 (8) A 250 V AC

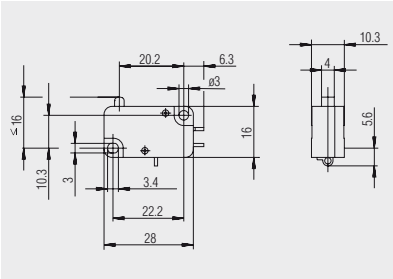
Basic type 1005



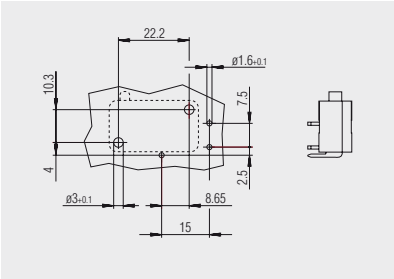
Quick-connect terminal 6.3



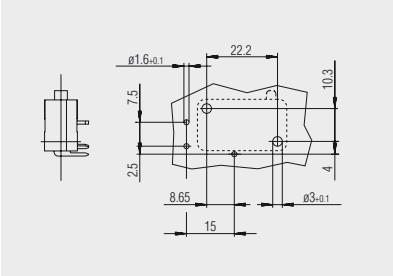
Solder terminal



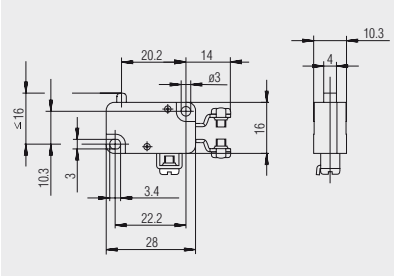
Short solder terminal



PCB terminal (base side)
left angled

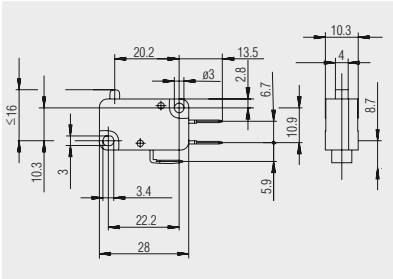


PCB terminal (cover side)
right angled

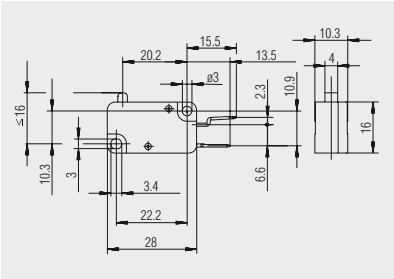


Screw connection M3

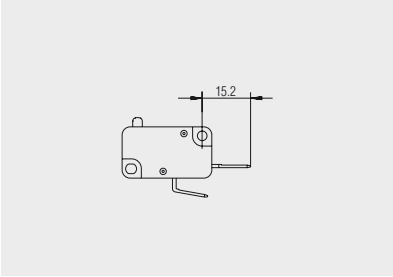
Basic type 1005



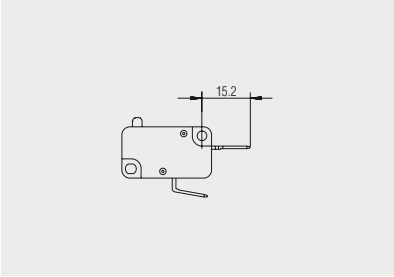
Quick-connect terminal 4.8 x 0.8
straight



Quick-connect terminal 4.8 x 0.8
top side



Quick-connect terminal 6.3
normally closed contact version

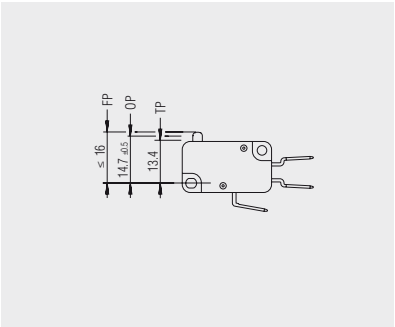


Quick-connect terminal 6.3
normally open contact version

SERIES 1005 - MINIATURE SNAP-ACTION SWITCHES

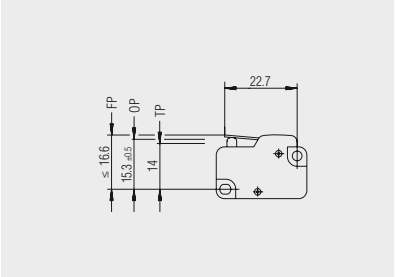
TO 21 (8) A 250 V AC

Basic types 1004 and 1005
switching positions

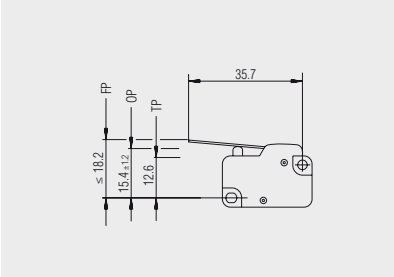


FP: free position
OP: operating position
TP: total travel position

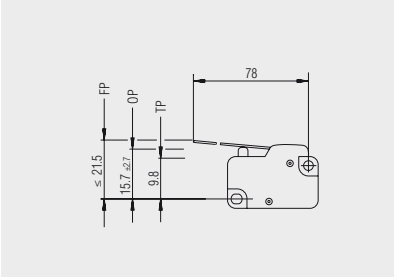
Basic type 1006
auxiliary actuator



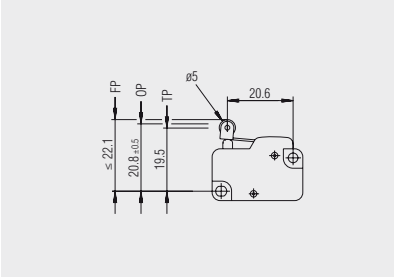
L01: straight lever



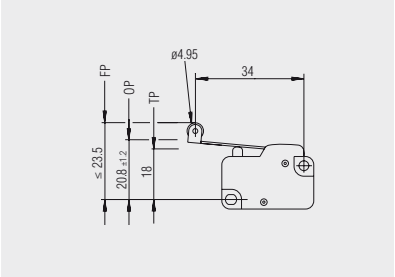
L02: straight lever



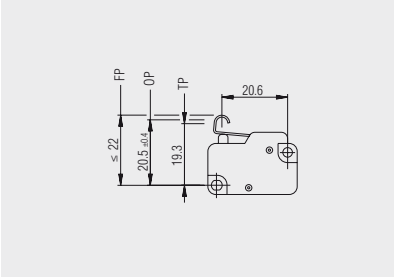
L04: straight lever



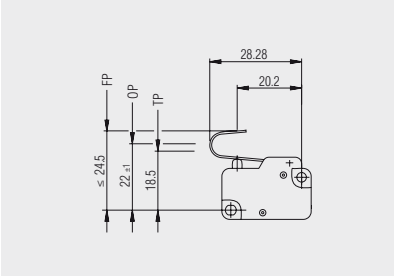
L11: roller lever



L12: roller lever

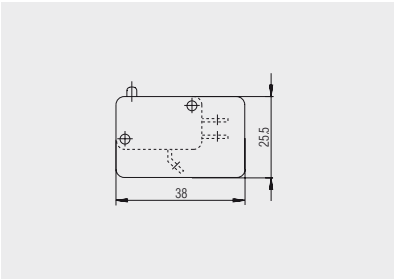


L21: simulated roller

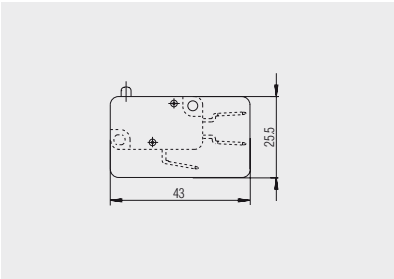


L31: spring lever

Additional parts



Insulating plate for solder terminal
0.5 mm: 231.009.011



Insulating plate for quick-connect terminal
0.5 mm: 231.010.011
0.8 mm: 231.010.021

SERIES 1040 - ROTARY SHAFT SNAP-ACTION SWITCHES

TO 4 (1) A 250 V AC

PRODUCT FEATURES

- Extremely low switching torques
- Spring steel auxiliary actuators which are easily adaptable to customer-specific installation conditions

ON REQUEST

- Other auxiliary actuators
- Normally open contact version

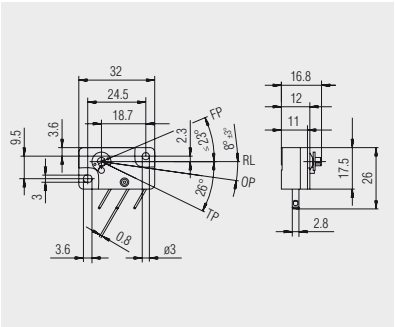
Mechanical life endurance		5E6
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation (depending on installation situation) 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 00 connection side IP 40 actuator side
Ambient temperature		-35 °C ... +85 °C
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	additional actuator housing connections	stainless steel spring steel PA glass fiber-reinforced / PETP silver-plated
Contact distance		< 3 mm
Approval marks		
Suitable for appliances of protection class II under compliance with the installation conditions required on the equipment side		

SERIES 1040 - ROTARY SHAFT SNAP-ACTION SWITCHES

TO 4 (1) A 250 V AC

	4 (1) A 250 V AC 5E4	Connection type	Connection description	Contact material	Stock version
Changeover switch (SPDT momentary)					
1040.0114	●		2.8 x 0.8	Ag	●
1040.0301	●		2.8 x 0.8	Au	

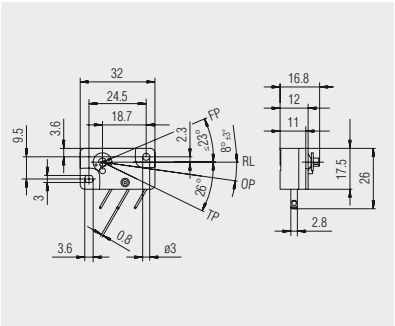
1040.0114



Enclosed loose: actuating lever 80 long, diameter 0.6 mm made of stainless spring steel and fastening disc

FP: free position ≤ 23°
OP: operating position 8° ±3°
TP: total travel position 26°
Pretravel angle max. 34°
Overtravel angle min. 15°
Difference angle 5° - 15°
Switch actuating torque 0.9 - 1.7 Nmm
End actuating torque min. 0.2 Nmm
Reset torque min. 0.15 Nmm

1040.0301



Without lever and fastening disc

FP: free position ≤ 23°
OP: operating position 8° ±3°
TP: total travel position 46°
Pretravel angle max. 34°
Overtravel angle min. 35°
Difference angle 5° - 15°
Switch actuating torque 0.6 - 0.9 Nmm
End actuating torque ≥ 0 Nmm

Further information under

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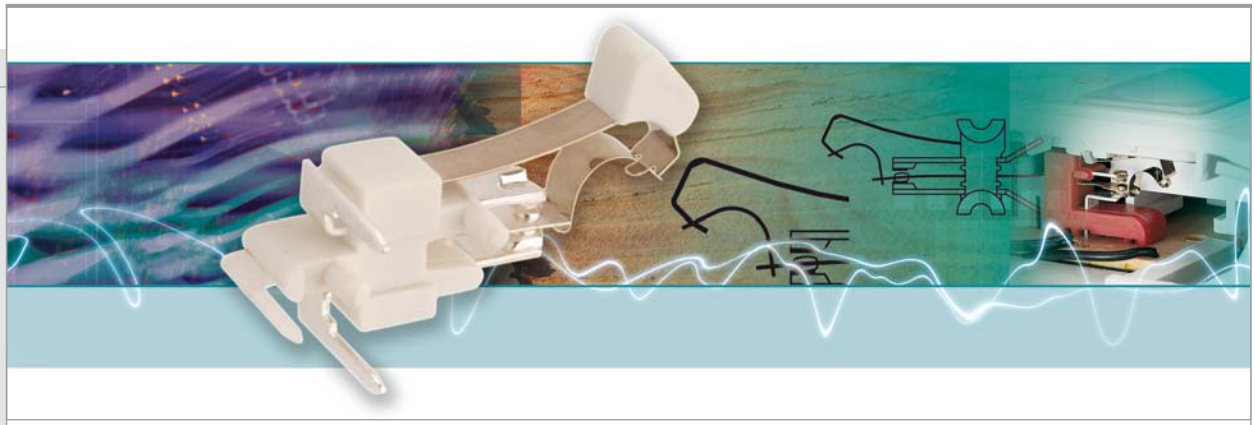
SERIES 1010 - OPEN SNAP-ACTION SWITCHES

TO 10 (3) A 250 V DC



PRODUCT FEATURES

- Powerful snap-action switch with C-spring contact system according to design DIN 41635C
- High switching reliability due to large contact forces directly after switching
- Small size, large travel and difference travel
- Short bounce time
- Contact system insensitive to vibrations

ON REQUEST

- Extended overtravel
- Special base forms
- Special actuating cams
- In addition to a wide range of normally closed contacts, normally open contacts and changeover switches, bistable changeover switches (basic type 1011) and spring sets without snap function (basic type 1017) are available

Design		DIN 41635 C
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation (depending on installation situation) 500 V small contact distance
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 00
Ambient temperature		-20 °C ... +85 °C ... +120 °C (basic type 1014 brief)
Flammability		UL 94 V-2
Heat and fire resistance		850 °C (category D)
Material	actuator	spring steel / PA glass fiber-reinforced / PA / metal (only 1017.0153)
	housing	PA glass fiber-reinforced / PA
	connections	silver-plated
Bounce time		< 5 ms
Approval marks		
Suitable for appliances of protection class II under compliance with the installation conditions required on the equipment side		

SERIES 1010 - OPEN SNAP-ACTION SWITCHES

TO 10 (3) A 250 V DC

	10 (3) A 250 V AC 1E4	6 (2) A 250 V AC 25E3	2 (0.5) A 250 V AC 20E4	2 (0.5) A 250 V AC 5E4	2 A 12 V DC 10E4	1 A 24 V DC 10E4	0.5 A 15 V 5E4	0.1 A 24 V DC 50E4	Connection type	Connection description	Contact material	Operating force in N	Operating position (OP) in mm	Difference travel max. in mm	Free position (FP) max. in mm	Permissible total travel position (TP) in mm	Actuator description	Mechanical life endurance	Miscellaneous	Stock version
Normally closed contact (SPNC)																				
1010.7601				●						9.5 long	Ag	0.25 - 0.6	2.2 ±0.6	0.9	0.4	3.5		1E6		
Normally open contact (SPNO)																				
1010.7401				●						9.5 long	Ag	0.25 - 0.6	2.2 ±0.6	0.9	0.4	3.5		1E6		
1010.7402				●						9.5 long	Ag	0.45 - 1.05	2.2 ±0.6	0.9	0.4	3.5		1E6		
1017.0801								●		9.2 long	Ag	0.15 - 0.5	2.2 ±0.6		0	3.2		1E6	without approval mark	●
1017.0851								●		9.2 long	Au	0.15 - 0.5	2.2 ±0.6		0	3.2		1E6	without approval mark	
1017.5701								●			CuSn silver-plated	0.15 - 0.5	1.4 ±0.6		3.6	0.4		1E6	without approval mark	
Switch (SPDT)																				
1011.5101		●									Ag	0.2 - 0.7						20E4	bistable snap-action switches without approval mark	
Changeover switch (SPDT momentary)																				
1010.7332	●									9.5 long	Ag	0.45 - 1.05	2.2 ±0.6	0.9	0.4	3.5		10E4		
1010.9705		●		●							Au	0.45 - 1.05	3.8 ±0.6	0.9	6.6	2		10E4		
1010.9752		●		●							Ag	0.45 - 1.05	6.9 ±0.6	0.9	9.7	5.1		10E4		●
1010.9802		●		●							Ag	0.45 - 1.05	3.8 ±0.6	0.9	6.6	2		10E4		
1010.9852		●		●							Ag	0.45 - 1.05	6.9 ±0.6	0.9	9.7	5.1		10E4		●
1010.0101			●							6.5 long	Ag	0.25 - 0.6	2.2 ±0.6	0.9	0.4	3.5		1E6	without approval mark	●
1010.4103			●							straight	Au	0.25 - 0.6	2.2 ±0.6	0.9	0.4	3.5		1E6	without approval mark	
1010.4402			●							straight	Ag	0.25 - 0.6	1.3 ±0.6	0.9	4.1	0		1E6	without approval mark small base	●
1010.7102			●							6.5 long	Ag	0.45 - 1.05	2.2 ±0.6	0.9	0.4	3.5		1E6	without approval mark	●
1010.7172			●							6.5 long	Au	0.45 - 1.05	0.9 ±0.6	0.9	3.6	0.2		1E6	without approval mark	
1010.8102			●							straight	Ag	0.45 - 1.05	2.2 ±0.6	0.9	0.4	3.5		1E6	without approval mark	●
1010.0304				●						9.5 long	Ag	0.25 - 0.6	2.2 ±0.6	0.9	0.4	3.5		1E6		●
1010.2003				●						9.5 long	Au	0.45 - 1.05	2.2 ±0.6	0.9	0.4	3.5		1E6		
1010.3901				●						9.5 long	Ag	0.25 - 0.6	0.9 ±0.6	0.9	3.6	0.2		1E6		
1010.6002				●						standing	Au	0.45 - 1.05	11.2 ±0.6	0.9	13.8	9.9		1E6		●
1010.6003				●						standing	Ag	0.25 - 0.6	11.2 ±0.6	0.9	13.8	9.9		1E6		●
1010.7302				●						9.5 long	Ag	0.45 - 1.05	2.2 ±0.6	0.9	0.4	3.5		1E6		
1010.7352				●						9.5 long	Ag	0.45 - 1.05	0.9 ±0.6	0.9	3.6	0.2				

SERIES 1010 - OPEN SNAP-ACTION SWITCHES

TO 10 (3) A 250 V DC

	10 (3) A 250 V AC 1E4	6 (2) A 250 V AC 25E3	2 (0.5) A 250 V AC 20E4	2 (0.5) A 250 V AC 5E4	2 A 12 V DC 10E4	1 A 24 V DC 10E4	0.5 A 15 V 5E4	0.1 A 24 V DC 50E4	Connection type	Connection description	Contact material	Operating force in N	Operating position (OP) in mm	Difference travel max. in mm	Free position (FP) max. in mm	Permissible total travel position (TP) in mm	Actuator description	Mechanical life endurance	Miscellaneous	Stock version
Changeover switch (SPDT momentary)																				
1014.6151					●	●				standing	Au	0.3 - 0.8	6.6 ±0.5	0.6	8.6	5.3		50E4	without approval mark	
Changeover switch with OFF position in the center (SPDT momentary - Center OFF)																				
1017.0153							●			9.2 long	Au		≤ 2.1		0	2.6		1E6	operating range max. 4.2	

Further information under

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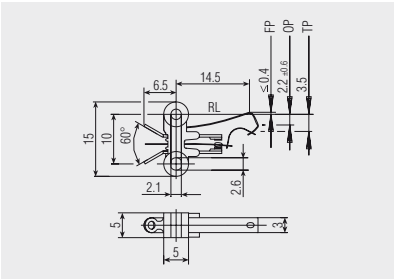
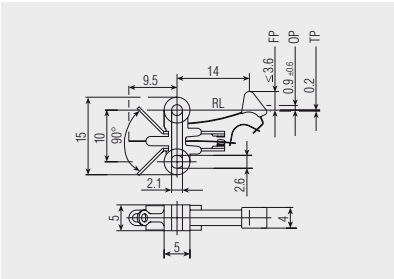
SERIES 1010 - OPEN SNAP-ACTION SWITCHES

TO 10 (3) A 250 V DC

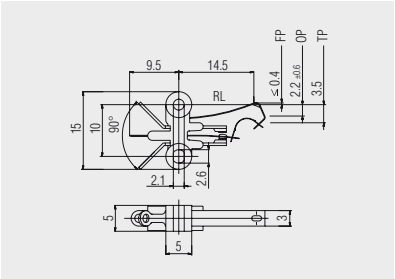
Basic type 1010



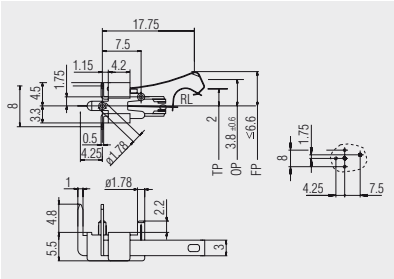
Solder terminal 30° angled
6.5 long



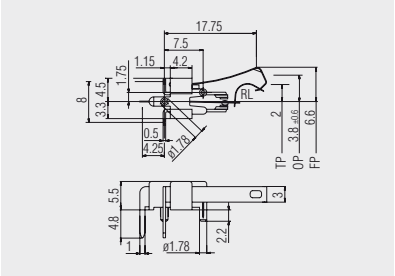
Solder terminal 45° angled
9.5 long



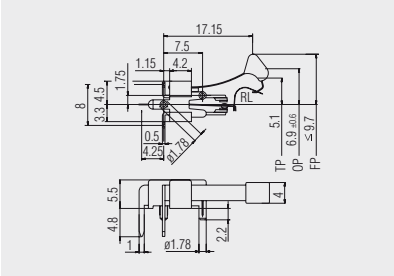
Solder terminal 45° angled
9.5 long



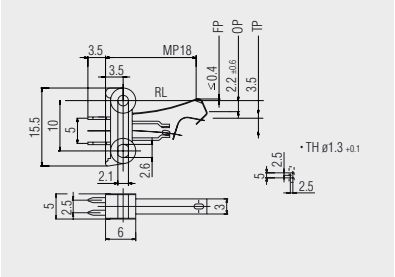
PCB terminal left angled



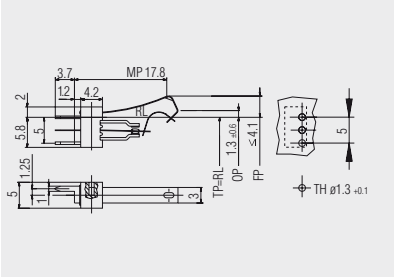
PCB terminal right angled
1010.9802



PCB terminal right angled
1010.9852

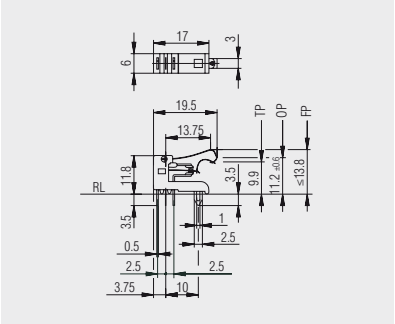


PCB terminal straight



PCB terminal straight

Basic type 1010

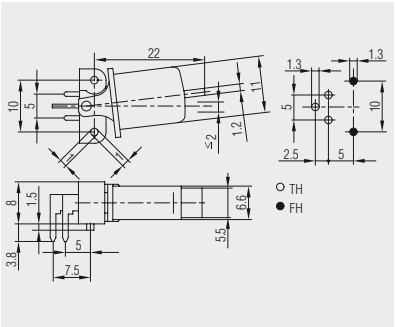


PCB terminal vertical:
A switch actuation vertical to the PCB can be implemented in a confined space with this version.

SERIES 1010 - OPEN SNAP-ACTION SWITCHES

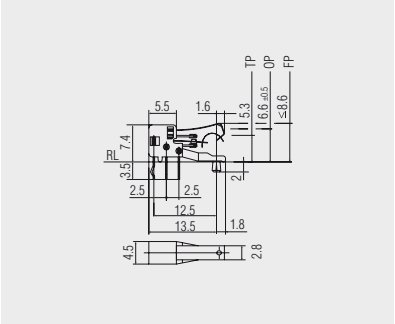
TO 10 (3) A 250 V DC

Basic type 1011



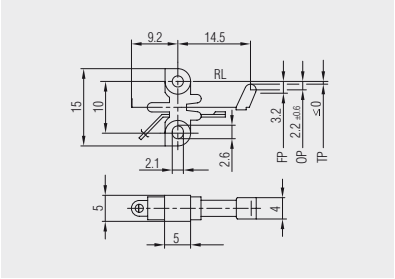
Bistable snap-action switches as changeover switch:
The swivel-mounted housing with molded cam serves as an actuator.

Basic type 1014

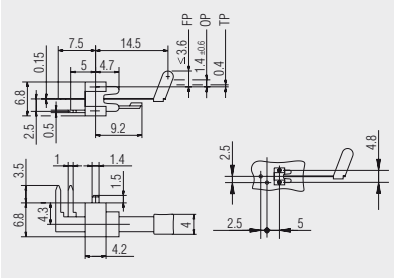


Vertical PCB terminal:
According to the same functional principle as basic type 1010, but in smaller size.
This basic type is designed for low voltages and has no approval mark.

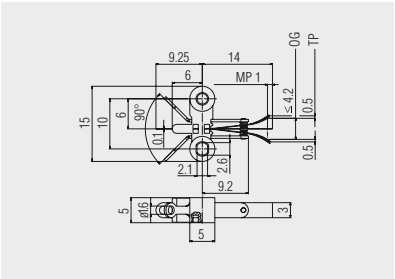
Basic type 1017
without snap function



Solder terminal



PCB terminal left angled



Changeover switch with center OFF position

SERIES 1018 - SNAP-ACTION SWITCHES

TO 2 A 12 V DC

PRODUCT FEATURES

- Powerful snap-action switch with C-spring contact system
- Small size, large travel and difference travel
- High switching reliability due to great contact forces directly after switching
- Mushroom-shaped actuator allows actuation from the side

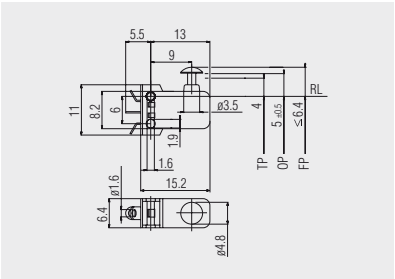
ON REQUEST

- Customized versions

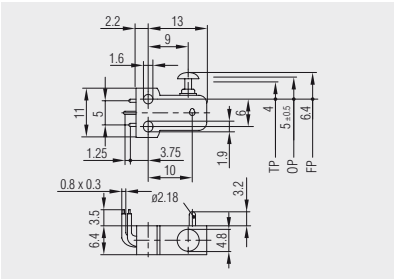
Mechanical life endurance		50E4
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Protection type		IP 00 connection side IP 40 actuator side
Ambient temperature		-40 °C ... +120 °C
Material	actuator housing connections	PA PA / PBTP silver-plated
Contact distance		< 3 mm

	2 A 12 V DC 10E4	1 A 24 V DC 10E4	Connection type	Connection description	Operating force in N	Operating position (OP) in mm	Difference travel max. in mm	Free position (FP) max. in mm	Permissible total travel position (TP) in mm	Miscellaneous	Stock version
Changeover switch (SPDT momentary)											
1018.0301	●	●		Ag	0.3 - 0.8	5 ±0.5	0.6	6.4	4		
1018.1151	●	●		Au	0.3 - 0.8	5 ±0.5	0.6	6.4	4	fixing pin	
1018.2101	●	●		Ag	0.3 - 0.8	5 ±0.5	0.6	6.4	4	fixing pin	

Basic type 1018



Solder terminal



PCB terminal left angled

SERIES 1019 - SINGLE-POLE SNAP-ACTION SWITCHES

TO 6 (2) A 250 V AC

PRODUCT FEATURES

- Snap-action switch with and without housing
- Contact distance > 3 mm
- Normally open contact and normally closed contact version

ON REQUEST

- Gold-plated contacts
- Customized lever variants

Mechanical life endurance		20E4
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation (depending on installation situation)
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Ambient temperature		-40 °C ... +85 °C
Flammability		UL 94 (socket, lever: V-0, actuator: V-2)
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA glass fiber-reinforced / PA PA glass fiber-reinforced silver-plated
Contact distance		> 3 mm
Approval marks		/ housing variants: /
Suitable for appliances of protection class II under compliance with the installation conditions required on the equipment side		

SERIES 1019 - SINGLE-POLE SNAP-ACTION SWITCHES

TO 6 (2) A 250 V AC

	6 (2) A 250 V AC 1E4	5 A 125 - 250 V AC	Connection type	Connection description	Contact material	Operating force in N	Operating position (OP) in mm	Difference travel max. in mm	Free position (FP) max. in mm	Permissible total travel position (TP) in mm	Actuator description	Miscellaneous	Stock version
Normally closed contact (SPNC)													
1019.3101	●			2.8 x 0.8	Ag	0.9 - 1.7	6.3 ±0.8	2.4	1	10.5			
1019.5501	●	●		2.8 x 0.8	Ag	0.9 - 1.7	6.3 ±0.8	2.4	1	10.5		with housing	●
1019.5601	●	●		2.8 x 0.8	Ag	1.5 - 3	2.4 ±0.6	1.2	4.7	0		with housing	●
Normally open contact (SPNO)													
1019.0101	●			2.8 x 0.8	Ag	1.5 - 3	2.4 ±0.6	1.2	4.7	0.5			
1019.0201	●				Ag	1.5 - 3	2.4 ±0.6	1.2	4.7	0.5			
1019.0301	●				Ag	1.5 - 3	2.4 ±0.6	1.2	4.7	0.5			
1019.2101	●			2.8 x 0.8	Ag	0.9 - 1.7	6.3 ±0.8	2.4	1	10.5			●
1019.5101	●	●		2.8 x 0.8	Ag	1.5 - 3	2.4 ±0.6	1.2	4.7	0		with housing	●
1019.5401	●	●		2.8 x 0.8	Ag	0.9 - 1.7	6.3 ±0.8	2.4	1	10.5		with housing	●
1019.5451	●	●		2.8 x 0.8	Au	0.9 - 1.7	6.3 ±0.8	2.4	1	10.5		with housing	

Further information under

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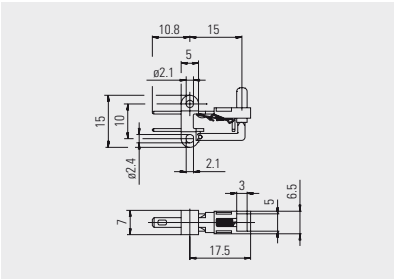
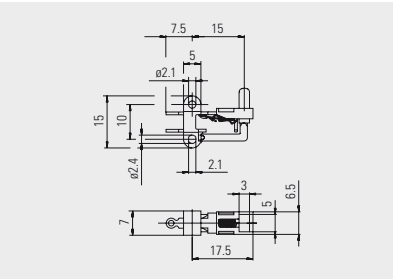
SERIES 1019 - SINGLE-POLE SNAP-ACTION SWITCHES

TO 6 (2) A 250 V AC

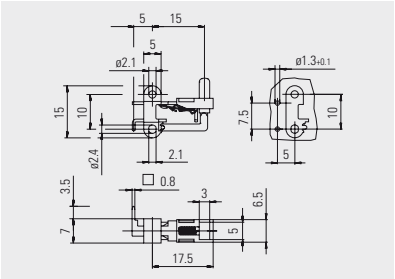
Open design with pushbutton



Quick-connect terminal 2.8 x 0.8

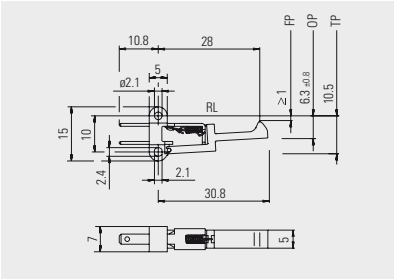


Solder terminal



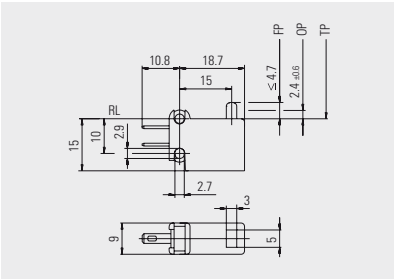
PCB terminal left angled

Open form with lever



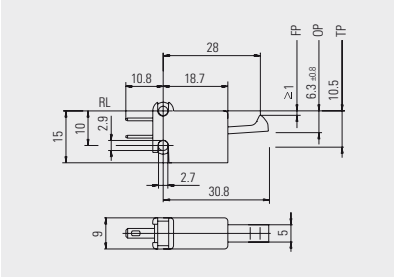
Quick-connect terminal 2.8 x 0.8

Closed form with pushbutton



Quick-connect terminal 2.8 x 0.8

Closed form with lever



Quick-connect terminal 2.8 x 0.8

SERIES 1022 - SNAP-ACTION SWITCHES IP 67

TO 4 A 12 V DC

PRODUCT FEATURES

- Dust and water protection actuator and connection side
- Ice-proof lever bearing
- Small size, large travels
- High switching reliability due to great contact forces directly after switching
- Series with different fastening possibilities

ON REQUEST

- Customized assembly with connecting plugs
- Other auxiliary actuators

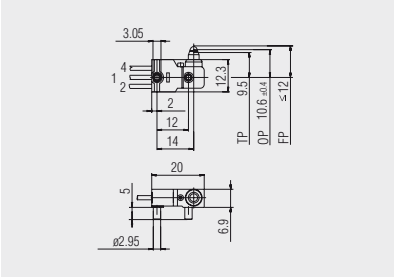
Mechanical life endurance		10E4
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Proof tracking		250 PTI
Protection type		IP 67
Ambient temperature		-40 °C ... +85 °C
Flammability		UL 94 V-2
Material	actuator	POM
	additional actuator	stainless steel spring steel
	housing	PBTP
	connections	cast
Bounce time		< 5 ms
Contact distance		< 3 mm
Contact material		gold-plated
Connection description		500 mm long (connection wires 0.5 mm² molded with switch, tinned wire ends)

SERIES 1022 - SNAP-ACTION SWITCHES IP 67

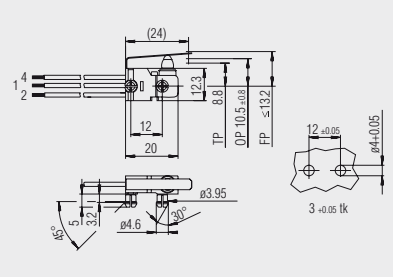
TO 4 A 12 V DC

	4 A 12 V DC 10E4	2 A 24 V DC 10E4	Connection type	Contact material	Operating force in N	Operating position (OP) in mm	Difference travel max. in mm	Free position (FP) max. in mm	Permissible total travel position (TP) in mm	Actuator description	Lever drawing	Miscellaneous	Stock version
Changeover switch (SPDT momentary)													
1022.0101	●	●		Au	< 2.5	10.6 ±0.4	0.6	12	9.5			pin right 5 long	
1022.2201	●	●		Au	< 2.5	10.5 ±0.8	1.0	13.2	8.8		L01	rest pin right	
1022.2202	●	●		Au	< 2.5	10.5 ±0.8	1.0	13.2	8.8		L01	rest pin left	
1022.4501	●	●		Au	< 2.5	13.4 ±0.9	1.0	15.5	11.6		L21	adjustable operating position ±2 1 pin right by top side metal eye	
1022.4502	●	●		Au	< 2.5	13.4 ±0.9	1.0	15.5	11.6		L21	adjustable operating position ±2 1 pin left by top side metal eye	●

Basic type 1022

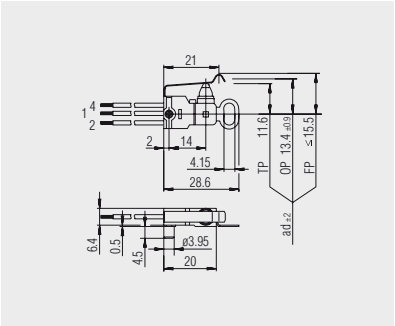


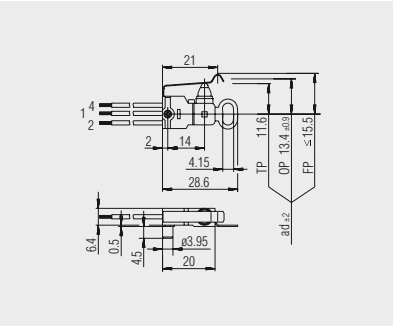
with pushbutton



L01: straight lever and snap pin

Basic type 1022





L21: simulated roller lever, one centering pin and a metal eye.
With the elongated hole fastening the switch can be swiveled around the pin and then fixed with a screw. This makes the operating position adjustable by ±2 mm.

SERIES 1117 - SNAP-ACTION SWITCHES

TO 16 (6) A 400 V AC

PRODUCT FEATURES

- Double interrupting jump contact switching system
- Contact distance > 3 mm
- Material conformant with the filament wire test acc. to IEC 60 335-1:2001 chap. 30 and UL 94 V-0
- Large overtravel
- Actuator can be approached from all directions
- Normally open contact and normally closed contact versions

ON REQUEST

- Customized versions

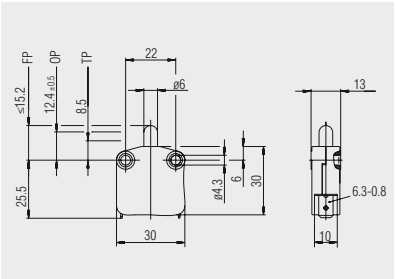
Mechanical life endurance		10E4
Contact resistance (new condition)		< 100 mOhm (1 A 12 V DC)
Insulation resistance (new condition)		> 100 MOhm (500 V DC)
Voltage strength at 250 V		1 500 V function insulation / basic insulation 3 000 V reinforced insulation (depending on installation situation)
Proof tracking		250 PTI
Insulation spacing		acc. to EN 61058 for reinforced or double insulation
Protection type		IP 40
Ambient temperature		-40 °C ... +85 °C
Flammability		UL 94 V-0
Heat and fire resistance		850 °C (category D)
Material	actuator housing connections	PA glass fiber-reinforced PA glass fiber-reinforced silver-plated
Contact material		Ag
Contact distance		≥ 3 mm
Approval marks		/ /
Suitable for appliances of protection class II under compliance with the installation conditions required on the equipment side		

SERIES 1117 - SNAP-ACTION SWITCHES

TO 16 (6) A 400 V AC

	16 (6) A 400 V AC 1E4	12 A 250 V AC 1/2 HP	12 A 125 V AC 1/6 HP	Connection type	Connection description	Contact distance in mm	Operating force in N	Operating position (OP) in mm	Difference travel max. in mm	Free position (FP) max. in mm	Permissible total travel position (TP) in mm	Stock version
Normally closed contact (SPNC)												
1117.0206	●	●	●		6.3	≥ 3	3.5 ±0.5	12.4 ±0.5	2.6	15.2	8.5	●
Normally open contact (SPNO)												
1117.0106	●	●	●		6.3	≥ 3	3.5 ±0.5	12.4 ±0.5	2.6	15.2	8.5	●

Basic type 1117



Quick-connect terminal 6.3

Further information under

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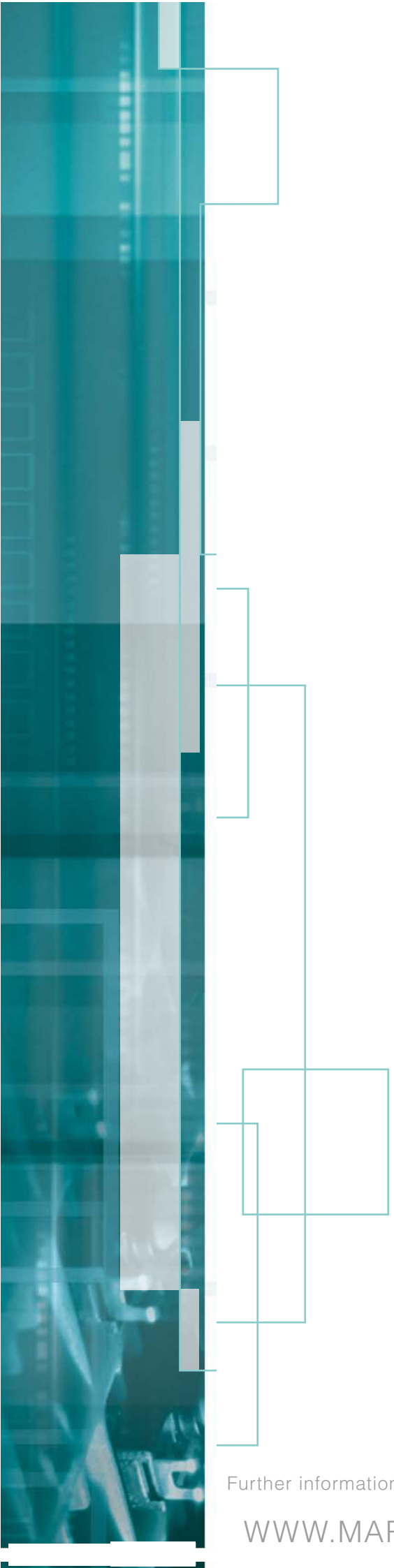

Further information under

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MICRO-SIGNAL SWITCHES

SERIES 1065

Micro-signal switches

to 100 mA 30 V DC

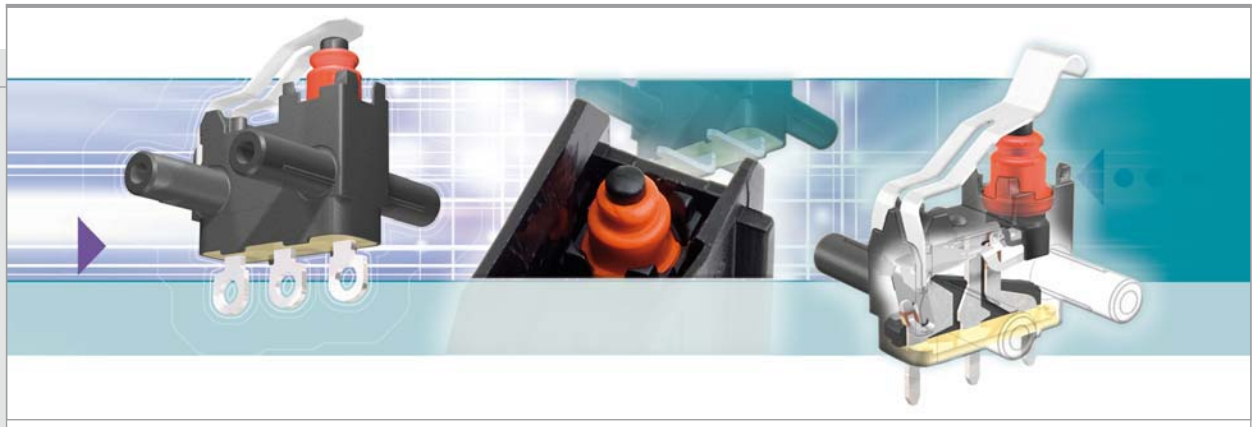
PAGE
223 - 226

Further information under

WWW.MARQUARDT.DE

SERIES 1065 - MICRO-SIGNAL SWITCHES

TO 100 mA 30 V DC



PRODUCT FEATURES

- Redundant contact system for high switching reliability by double contacting
- Self-cleaning contact system due to wiping contacting
- Center-zero version (basic type 1075) for detecting 3 switching positions
- Noiseless switching system
- Large overtravel
- Start-up angle up to 40° possible

ON REQUEST

- Other fastening pins
- Other lever forms
- Customized cable assembly
- Diagnosis capable versions

Mechanical life endurance		50E4
Contact resistance (new condition)		< 500 mOhm
Insulation resistance (new condition)		1 000 MOhm
Protection type		IP 00 connection side basic types 1065 and 1075 IP 67 actuator side all basic types, connection side basic type 1068
Ambient temperature		-40 °C ... +85 °C
Flammability		UL 94 V-2
Material	actuator additional actuator housing connections	POM stainless steel spring steel PBTP tinned
Contact material		Au
Shock resistance		50 g
Miscellaneous		terminal side sealed

SERIES 1065 - MICRO-SIGNAL SWITCHES

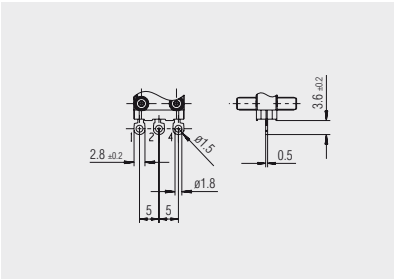
TO 100 mA 30 V DC

	100 mA 30 V DC 2E5	10 mA 16 V DC 50E4	Connection type	Connection description	Operating force in N	Operating position (OP NC) in mm	OFF position in mm	Operating position (OP NO) in mm	Free position (FP) max. in mm	Permissible total travel position (TP) in mm	Actuator description	Lever drawing	Miscellaneous	Stock version
Normally open contact (SPNO)														
1068.0541	●	●		300 long	1 ±0.4	9.65 ±0.3		9.15 ±0.3	10.15	6.85			pin right 5 long	●
Changeover switch (SPDT momentary)														
1065.0503	●	●			1 ±0.4	9.65 ±0.3		9.15 ±0.3	10.15	6.85			pin both sides 5 long	●
1065.0603	●	●			1 ±0.4	9.65 ±0.3		9.15 ±0.3	10.15	6.85			pin both sides 2.5 long	●
1065.2000	●	●		coded	1 ±0.4	14 ±0.3		13.5 ±0.3	14.5	11.2				●
1065.2563	●	●			1 ±0.4	14 ±0.3		13.5 ±0.3	14.5	11.2			pin both sides 5 long	●
1065.3603	●	●			1 ±0.4	9.65 ±0.3		9.15 ±0.3	10.15	6.85			pin both sides 2.5 long	●
1065.3653	●	●			1 ±0.4	9.65 ±0.3		9.15 ±0.3	10.15	6.85			pin both sides 2.5 long	●
1065.5005	●	●				9.85 ±0.45		9.35 ±0.45	11.35	7.35		L02	pin both sides 5 long	●
1065.5103	●	●			≤ 2.2	13 ±0.65		12.3 ±0.65	14.7	9		L21	pin both sides 2.5 long	●
1065.7100	●	●		coded	≤ 2.2	17.35 ±0.65		16.65 ±0.65	19.05	13.35		L21		●
1068.0503	●	●		300 long	1 ±0.4	9.65 ±0.3		9.15 ±0.3	10.15	6.85			pin both sides 5 long	●
1068.0601	●	●		300 long	1 ±0.4	9.65 ±0.3		9.15 ±0.3	10.15	6.85			pin right 2.5 long	●
Changeover switch with OFF position in the center (SPDT momentary - Center OFF)														
1075.0603	●	●			1 ±0.4	9.65 ±0.3	8.85 ±0.5	8.05 ±0.3	10.15	6.85			pin both sides 2.5 long	●
1075.2000	●	●		coded	1 ±0.4	14 ±0.3	13.2 ±0.5	12.4 ±0.3	14.5	11.2				●
1075.3603	●	●			1 ±0.4	9.65 ±0.3	8.85 ±0.5	8.05 ±0.3	10.15	6.85			pin right 2.5 long	●
1075.3653	●	●			1±0.4	9.65 ±0.3	8.85 ±0.5	8.05 ±0.3	10.15	6.85			pin left 2.5 long	●

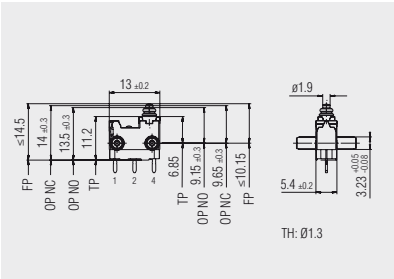
SERIES 1065 - MICRO-SIGNAL SWITCHES

TO 100 mA 30 V DC

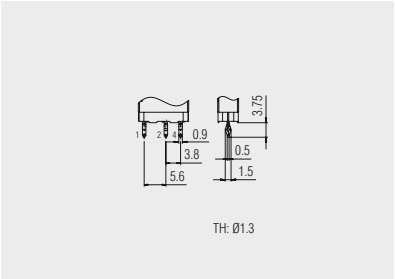
Basic type 1065



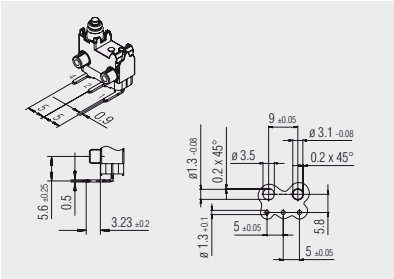
Solder terminal



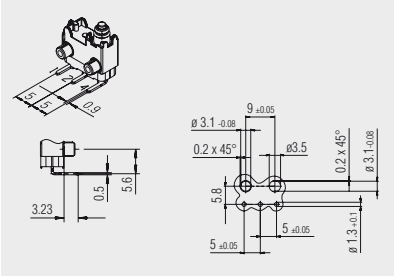
PCB terminal



PCB terminal coded and crowned

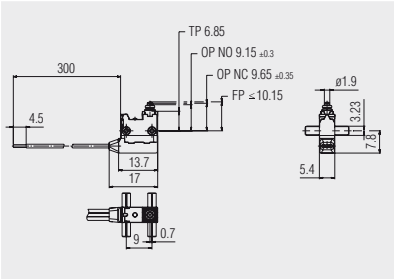


PCB terminal left angled



PCB terminal right angled

Basic type 1068

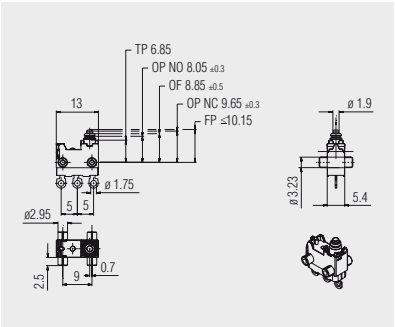


Cable 300 long, tinned wire ends

SERIES 1065 - MICRO-SIGNAL SWITCHES

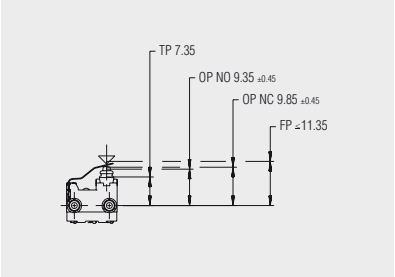
TO 100 mA 30 V DC

Basic type 1075

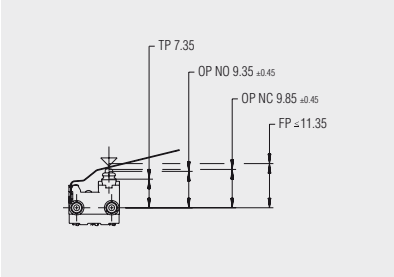


Due to the off range between the normally closed contact and the normally open contact increased in relation to basic type 1065 the switch can be used for determining three switching positions. As a result two conventional switches can be replaced by one of these new switch versions in many applications.

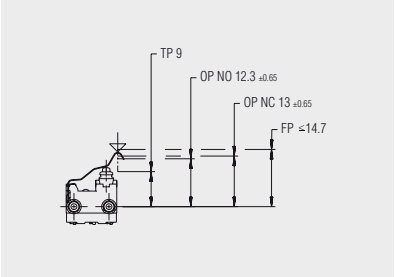
Auxiliary actuator



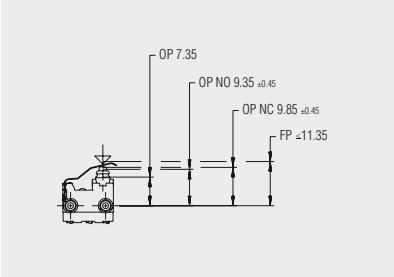
L01: straight lever



L02: straight lever

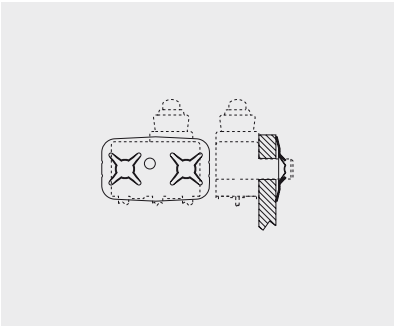


L21: simulated roller lever



L31: differential levers

Additional parts



140.092.021
Fastening disc for the basic types 1065, 1068 and 1075

The fastening disc offers a fast, reliable fastening possibility in combination with switches with 5 mm long pins on plates or plastic parts with a wall thickness of up to 2.5 mm.

SENSORS

Further information under

WWW.MARQUARDT.DE

SERIES 2061 - FLOW SENSORS

FOR WATER VOLUMES UP TO 15 L/MIN

PRODUCT FEATURES

- Robust flywheel flow meter for drinking water with electrical pulse output
- Wide measuring range with 0.6 - 15 l/min
- Scanning by magnetic field sensor
- Enables hot/cold, water and energy saving as well as quality improvement
- Excellent linearity
- EMC protected

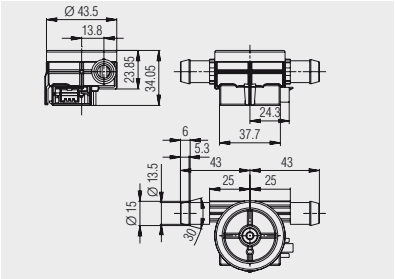
ON REQUEST

- Hall or reed contact
- Optimized measuring ranges for different application areas
- Optional: different pulse/liter ratios
- Increased life endurance
- Spray water protection for electronics

Medium	water
Measuring range	0.6 ... 15 l/min
Life endurance	200 m³
Bursting pressure	8 bar
Accuracy / tolerance	2 ... 4 l/min ±5 %, 4 ... 15 l/min ±3 %
Material Housing	POM
Ambient temperature	+5 °C ... +70 °C
Sensor description	pressure drop at 10 l/min: < 0.4 bar diameter 9 mm
Power supply	3.8 ... 24 V DC (for Hall sensors)
Output current	0 ... 20 mA
Output signal	10 l/min: 200 ±3 % pulses
Pulse	min. pulse width 1 ms pause ratio (Hall sensor) symmetrical
Approval marks	UL / CSA

	Power supply	Connection type	Connection description	Miscellaneous	Stock version
2061.1201	12 V DC		SNAP 2.5 hose nozzle		
2061.1202	12 V DC		SNAP 2.5 hose nozzle		

Basic type 2061



SNAP fastening 2.5, water connection hose nozzle

SERIES 2066 - ANALOGUE PRESSURE SENSORS

FOR WATER AND AIR PRESSURE MEASUREMENT UP TO 4.5 BAR

PRODUCT FEATURES

- Magnetic pressure sensor with analogue output
- Robust and simple structure
- Linear measuring range
- Fully automatic 100 % test and calibration

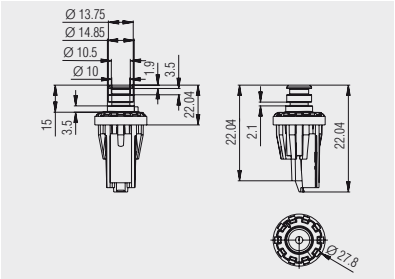
ON REQUEST

- Different measuring ranges
- Adaptation of the output voltage

Medium		heating water air water
Measuring range		0 ... 450 kPa, 4.5 bar, 65 psi
Bursting pressure		> 0.9 MPa, 9 bar, 130 psi
Accuracy / tolerance (characteristic curve nominal)		Uout [V] = 0.55 [V/bar] x applied pressure [bar] + 1.125 [V]
Material	housing diaphragms	Grivory HTV 5 EPDM with fabric reinforcement
Medium temperature		+2 °C ... +90 °C
Storage temperature		-20 °C ... +70 °C
Ambient temperature		-10 °C ... +70 °C
Sensor description		maximum current consumption < 10 mA (8 mA typ.)
Output signal		proportional: 1.125 V at 0 bar, 3.6 V at 4.5 bar
Approval marks		

four-pole	Power supply	Connection type	Connection description	Miscellaneous	Stock version
2066.2102	5 V DC ±0.25 V		SNAP 2.5		

Basic type 2066
four-pole



SNAP fastening 2.5

SERIES 2068 - HUMIDITY SENSORS

FOR PRECISE DETERMINATION OF RESIDUAL MOISTURE BY DIRECT AIR HUMIDITY MEASUREMENT

PRODUCT FEATURES

- Capacitive humidity sensor for clothes dryers
- Determines drying degree of the washing by the humidity
- Exact determination of the residual humidity and remaining running time by direct measurement of the air humidity
- Favorable connection by serial interface (temperature and humidity)
- By special forming and sealing with PTFE diaphragms optimum protection against lint and water condensation
- Touch protection by earthed metal frame

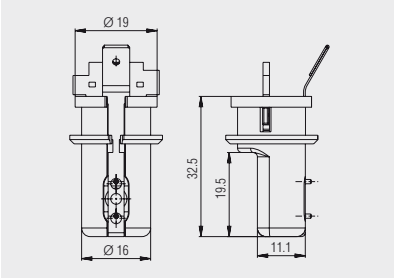
ON REQUEST

- Customized solution

Measuring range	at ±5.0 % RH: 0 ... 100 % RH
Accuracy / tolerance	0.03 % RH / 0.01 °C
Ambient temperature	+5 °C ... +70 °C
Medium temperature	-20 °C ... +80 °C
Power supply	2.4 ... 5.5 V DC

	Power supply	Miscellaneous	Stock version
2068.0000	2.4 ... 5.5 V DC	110 V variant	

Basic type 2068



INDEX OF PART NUMBERS

ROCKER SWITCHES

Minimum packaging units resp. minimum order quantity

INDEX OF PART NUMBERS

Minimum packaging units resp. minimum order quantity

INDEX OF PART NUMBERS

Minimum packaging units resp. minimum order quantity

INDEX OF PART NUMBERS

Minimum packaging units resp. minimum order quantity

INDEX OF PART NUMBERS

MICRO-SIGNAL SWITCHES

SENSORS

Minimum packaging units resp. minimum order quantity

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EMPHASES OF OUR PRODUCT PORTFOLIO

AUTOMOTIVE	Rocker switches, rotary switches and pushbutton switches, bus-capable single switches, multifunction switches, control panels, electronic keys, electronic ignition start switches, keyless go systems, electronic steering locks, gear shift switches
SWITCHES, SENSORS & CONTROLS	POWER TOOL SWITCHES: Mechanical and electronic switches and systems for mains and battery operation SWITCHES: Rocker switches, pushbutton switches, toggle switches, slide switches, rotary switches, foot switches, tact and key switches, snap-action switches, micro-signal switches SENSORS AND SYSTEMS: Flow sensors, pressure sensors, humidity sensors, turbidity sensors, distance sensors, drum illuminations, control and regulating electronics

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