ODX-1300

1300VA DC/AC INVERTER

GENERAL FEATURES:

Sine wave output voltage
Suitable for motors control
Adjustable output voltage
High input-output isolation 3000Vrms
Remote control via RS232
Alarm by isolated relay contacts
Remote ON/OFF opto-coupled
According to the standard EN50155
Fire and smoke: EN45545-2 approved

	24Vdc 16.8 ... 30V	72Vdc 50.4 ... 90V	110Vdc 77 ... 138V
250Vac	**ODX-1300-7442*** 1300 VA	**ODX-1300-7445** 1300 VA	**ODX-1300-7447** 1300 VA
400Vac	**ODX-1300-7452** 1300 VA	**ODX-1300-7455** 1300 VA	**ODX-1300-7457** 1300 VA

Several references are subjected to special MOQs and lead times. Please consult Premium's Sales Dept. and web site.

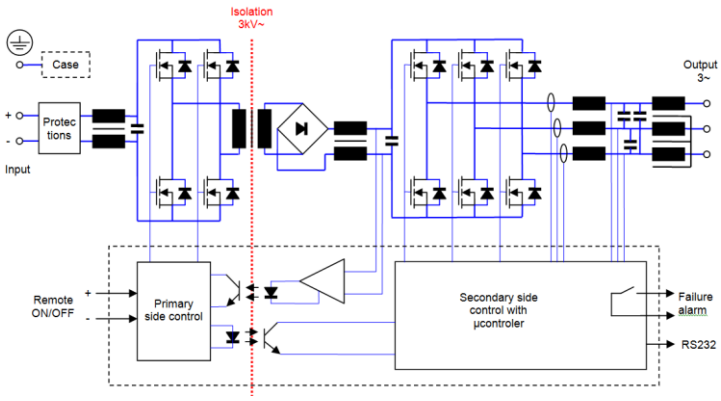
INPUT	
Input voltage range	-30, +25% Vin nom
Maximum input ripple	5% Vin nom (Vrms, 100Hz)
Inrush current	<25A
Polarity protection	By diode
OUTPUT	
Nominal output voltage (Von)	See table (ordering codes)
Output voltage range	150 … 250V (models of 250V output) via RS-232 200 … 400V (models of 400V output) via RS-232
Output frequency range	5…60Hz via RS-232
Load regulation	< 4%
Line regulation	< 2% Vin -25% … +25%, < 10% Vin -30% … +30%
Output wave distortion THD	< 3% (average of 16 samples)
Output HF ripple	< 2.5%
ENVIRONMENTAL	
Storage temperature	-25 … 85°C
Operating temperature:	
Full load	-25 … 55°C (EN50155 OT1)
62.5% load	-25 … 70°C (EN50155 OT3)
25% load	-25 … 85°C (EN50155 OT5)
Relative humidity without condensation	5 … 95%
Cooling	Controlled internal fan
MTBF (MIL-HDBK-217-E; G_b, 25°C)	100.000 h
EMC	
Immunity according	EN61000-6-2, EN50121-3-2
Emissions according	EN61000-6-4, EN50121-3-2
SAFETY	
Dielectric strength: Input /output	3000 Vrms / 50Hz / 1min
Dielectric strength: Output / Earth	1500 Vrms / 50Hz / 1min
Dielectric strength: Input / Earth	1500 Vrms / 50Hz / 1min
Dielectric strength: Remote ON/OFF / Input	500 Vrms / 50Hz / 1min
Safety according to	EN60950-1, EN62368-1
Fire and smoke	EN45545-2
MECHANICAL	
Weight	<3200 g
PROTECTIONS	
Against overloads and short-circuits	Shutdown with auto-recovery (see working parameters)
Against over-temperature	Shutdown with auto-recovery
CONTROL	
Output alarm	Open when alarm. Maximum rating: 0.16A at 160Vdc
Remote ON/OFF input	ON applying a voltage within the input voltage range OFF open circuit or < 5V

ORDERING CODES

Model	Input				Output						
	Voltage		Current		Power		Voltage	Current		Effic.	Size
	Nom.	Range	Max.	No load	Active	Appar.	Nom.	Nom.	Iopk 10ms	Nom.	
	[V]	[V]	[A]	[A]	[W]	[VA]	[V]	[A]	[A]	[%]	
ODX-1300-7442	24	16.8 - 30	73.57	<1.58	1100	1300	250	3.10	6.6	89	2
ODX-1300-7445	72	50.4 - 90	24.25	<0.52	1100	1300	250	3.10	6.6	90	1
ODX-1300-7447	110	77 - 138	15.87	<0.34	1100	1300	250	3.10	6.6	90	1
ODX-1300-7452	24	16.8 - 30	73.57	<1.58	1100	1300	400	1.88	3.4	89	2
ODX-1300-7455	72	50.4 - 90	24.25	<0.52	1100	1300	400	1.88	3.4	90	1
ODX-1300-7457	110	77 - 138	15.70	<0.34	1100	1300	400	1.88	3.4	91	1

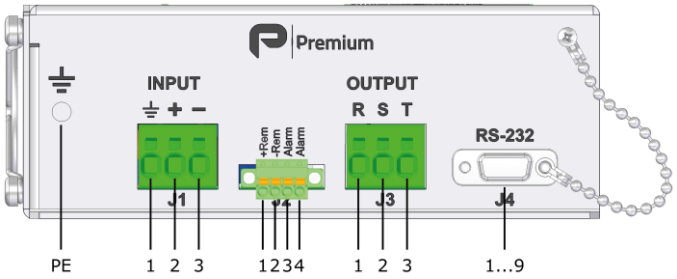
Several references are subjected to special MOQs and lead times. Please consult Premium's Sales Dept. and web site.

BLOCKS DIAGRAM



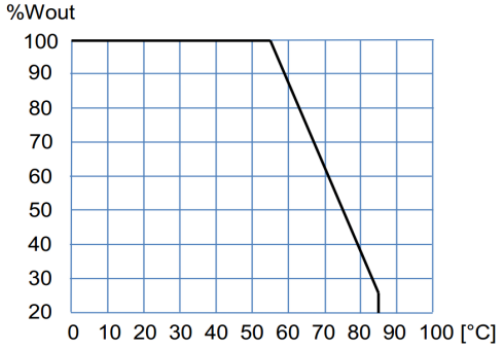
RS232 Monitoring	RS232 Settings
Output voltage	On / Off
Internal temperature	Output voltage
Output frequency	Output frequency
Inverter state	Reset
Model number	
Firmware version	

CONNECTIONS



J0	Case PE	Threaded shank M6 (Rec. torque 3.8 Nm)
J1-1	Protective Earth	Cable 1.5…16mm²
J1-2	+Input	
J1-3	-Input	
J2-1	+Remote off	Phoenix Contact MC1.5/4-GF-3.81 Mating connector included
J2-2	-Remote off	
J2-3	Alarm	
J2-4	Alarm	
J3-1	R Output	Cable 0.75…4mm²
J3-2	S Output	
J3-3	T Output	
J4-2	RS232 Rx	SUB DB9
J4-3	RS232 Tx	
J4-5	RS232 GND	

POWER DERATING vs AMBIENT TEMP.



DESCRIPTION

The ODX-1300 consists of three phase sine-wave DC-AC inverters with galvanic isolation between input and output.

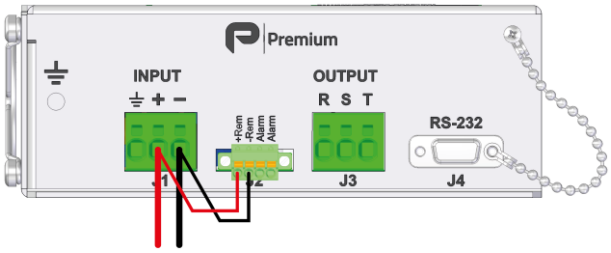
The unit allows:

- Start-up motors by means of a soft start. In the start-up, the output voltage and frequency rise linearly from 0V to set voltage and from 5Hz to set frequency. The start-up ramp slope may be changed via RS-232 port
- Set the rotation speed of a motor according to the appropriate Voltage/Frequency ratio.
- Monitoring the status of the input and output.
- Set and monitor parameters via RS-232.

The ODX-1300 has a maximum output current protection. This protects the semiconductors even when an output short-circuit occurs. It also features a disable function for input under-voltage.

INSTALLATION

- The unit has 4 threaded holes for the fixation on a mounting surface.
- The unit has internal fans. For an appropriate cooling, the air input and output should be free of elements that cause and an air flow reduction (minimum recommended distance to other objects 50mm).
- Make connections as shown in the figure
- To start up the unit without a remote ON/OFF signal, it is possible by configuring the unit via RS232 port or by making the following connection



For safety reasons, the following requirements must be met:

- Provide the equipment with some kind of protective enclosure that complies with the electrical safety directives in effect within the country where the equipment is installed.
- Include an input fuse with a rating immediately higher than the maximum input current.
- Use cables of adequate cross-section to connect inputs and outputs. The following table lists the maximum currents and the minimum cross-sections for the cables used for each power connection.

	Input 24V	Input 72V	Input 110V	Output 250V	Output 400V
Current	70A	24.4A	16 A	3.1A	1.88A
Cable cross section	16 m²	2.5 mm²	1.5 mm²	0.75 mm²	0.75 mm²

RS232 communication port

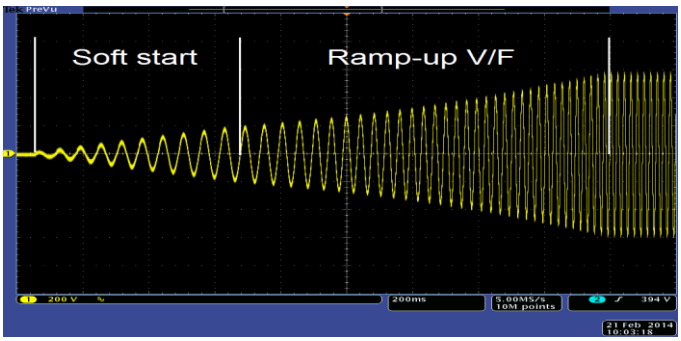
It is possible to control and monitor de unit via RS232 by means a terminal emulator like "Tera Term" or "Putty"
Also it is possible to control and monitor de unit directly using the protocol showed in table:

Protocol configuration: ASCII code, 9600 bauds, parity none, 8 bits, 1bit stop

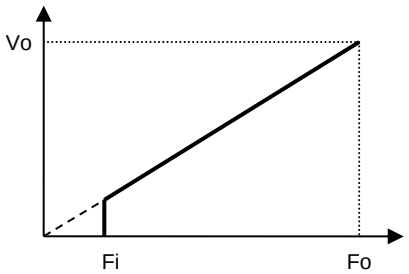
Header		Function	Parameter		Returns	Description
P	R	L	U		PTU▪▪▪.▪	Output voltage in Volts RMS
			T		PTT▪▪▪.▪	Internal temperature in ºC
			F		PTF▪▪▪.▪	Output frequency in Hz
			S		PTS▪▪▪.▪	Inverter status **999.9** → Enabled **000.0** → Disabled **111.1** → Inverter blocked by overload or short-circuit
			M		PTM▪▪▪▪	Model number
			R		PTR▪▪▪▪	Firmware version
			Other character		PTE	Command not supported
		G	3	▪▪▪.▪	OK / ERR	Changes the inverter status **999.9** → Enabled **000.0** → Disabled
			4	▪▪▪.▪	OK / ERR	Set the output voltage in Volts RMS **150.0 ≤ ▪▪▪.▪ ≤ 250.0** (models of 250V output) **200.0 ≤ ▪▪▪.▪ ≤ 400.0** (models of 400V output)
			6	▪▪▪.▪	OK / ERR	Changes the output frequency in Hz (output must be stopped) **005.0 ≤ ▪▪▪.▪ ≤ 075.0** Factory preconfigured → **50 Hz**
			8	▪▪▪.▪	OK / ERR	**111.1** → Reset the inverter
			B	▪▪▪.▪	OK / ERR	Changes the logic of the 'Remote OFF input' **222.2**→ Inverter On applying 15…143Vdc on 'Remote OFF input' **111.1** → Inverter Off applying 15…143Vdc on 'Remote OFF input'
			O	▪▪▪.▪	OK / ERR	Set the initial frequency in the start-up (Fi) (output must be stopped) **005.0 ≤ ▪▪▪.▪ ≤ 075.0** Factory preconfigured → **16Hz**
			P	▪▪▪.▪	OK / ERR	Set the ramp-up in increment of "N" cycles per Hz in mode V/F, frequency changes or start-up (Note-1) **001.0 ≤ ▪▪▪.▪ ≤ 100.0**

Note: **OK** (Data accepted) / **ERR** (Data not valid for the current parameter)

Note 1:



Example for N=1: start-up time = N x 1.7s for changes from 16Hz to 50Hz



Mode V/F curve

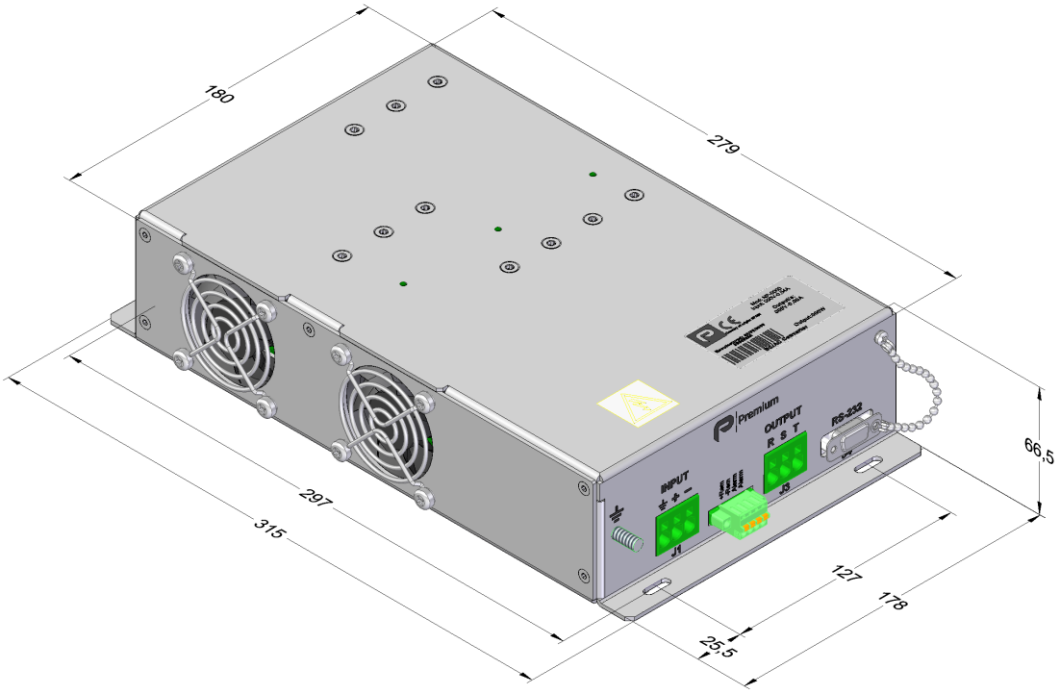
DEFAULT WORKING PARAMETERS

Thermal protection	**7442 ... 7457**			
Internal shutdown temperature	87			ºC
Internal restart temperature	82			ºC
Internal temperature of fan start-up	45			ºC
Input voltage parameters	**74X2**	**74X5**	**74X7**	
Low input voltage timed shutdown (t) (Input alarm)	16.8	50.4	77.0	Vdc
Low input voltage instantaneous shutdown	14.4	43.2	66.0	Vdc
Time to shutdown (t)	500			ms
Output voltage parameters	**744X**	**745X**		
Output frequency	60	50		Hz
Output voltage	208	400		Vac
Output under-voltage shutdown	< 85% of setting 1000ms			
Warning voltage (output alarm)	< 90% of setting 200ms			
Initial start-up frequency	5			Hz
Soft start duration	10 cycles			
Ramp-up V/F	1 Hz/cycle			
Output current parameters	**744X**	**745X**		
Maximum continuous output current	3.10	1.88		A
Time between restart attempts	4000			ms
Number of attempts of consecutive overload	3			
Working failures and reset	**7442 ... 7457**			
Lock for continuous overload or internal failure	Unlimited time			
Reset time by input disconnection	>2			min

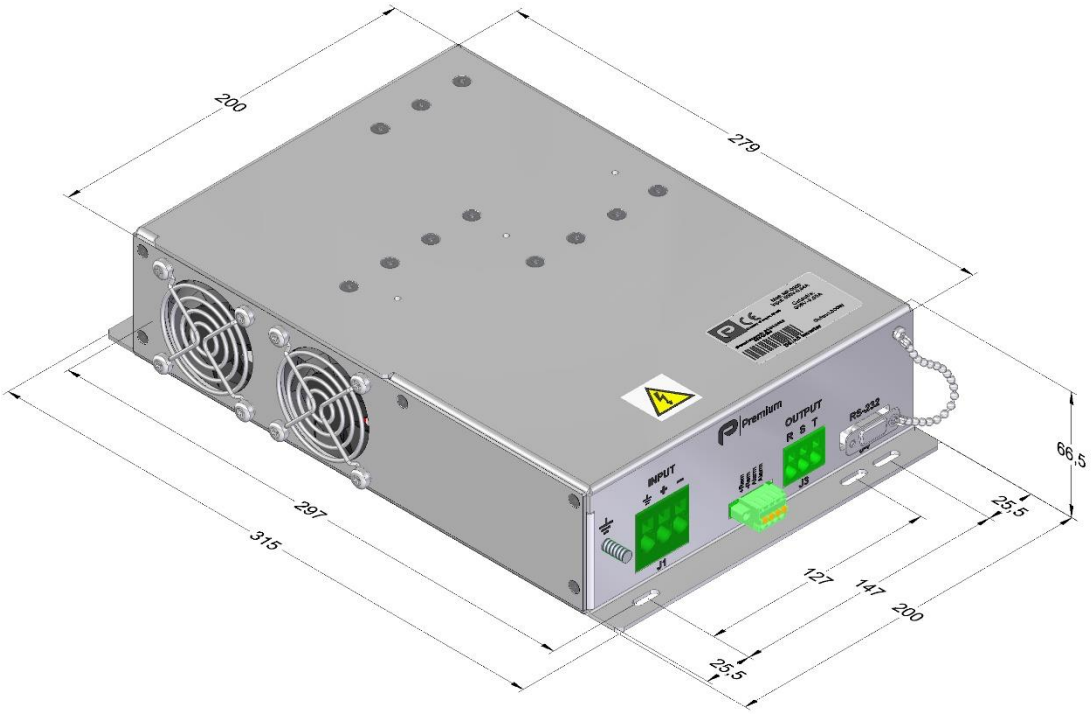
Configurable parameters underlined

DIMENSIONS

SIZE-1



SIZE-2



EU DECLARATION OF CONFORMITY

The undersigned, representing the following:

Manufacturer: PREMIUM, S. A.,
Address: C/ Dolors Aleu 19-21, 08908 L'Hospitalet de Llobregat, SPAIN

herewith declares that the product:

Type:	**DC/AC Inverter**
Brand:	**Premium**
Models:	**ODX-1300-7442, ODX-1300-7445, ODX-1300-7447, ODX-1300-7452, ODX-1300-7455, ODX-1300-7457**

is in conformity with the provisions of the following EU directive(s):

2014/35/EU	Low voltage / The electrical equipment (safety) regulations
2014/30/EU	EMC / Electromagnetic compatibility regulations
2011/65/EU Annex II and its amendment 2015/863/EU	RoHS / Restriction of the use of certain hazardous substances in electrical and electronic equipment

This declaration applies to all specimens manufactured identical to the samples submitted for testing/evaluation.

Assessment of compliance of the product with the requirements relating to aforementioned directives, was performed by Premium S.A. and is based on the following standards:

EN IEC62368-1:2024 A11:2024	Safety. Audio/video information and communication technology equipment
EN IEC61000-6-4:2019	Generic emission standard
EN IEC61000-6-2:2019	Generic Immunity standard
EN IEC63000:2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
EN50155: 2021*	Railway applications. Electronic equipment used on rolling stock material
EN50121-3-2: 2016* A1:2019	Railway applications. EMC Rolling stock equipment

* Optional, see annexe

CE marking year: **2017**

Notes:
For the fulfilment of this declaration the product must be used only for the aim that has been conceived, considering the limitations established in the instructions manual or datasheet.

L'Hospitalet de Llobregat, 19-03-2025

Manuel Camacho
Technical Director

PREMIUM S.A. is an ISO9001and ISO14001 certified company by **Bureau Veritas**

UKCA DECLARATION OF CONFORMITY

The undersigned, representing the following:

Manufacturer:	PREMIUM, S. A.,
Address:	C/. Dolors Aleu 19-21, 08908 L'Hospitalet de Llobregat, SPAIN

herewith declares that the products:

Type:	**DC/AC Inverter**
Brand:	**Premium**
Models:	**ODX-1300-7442, ODX-1300-7445, ODX-1300-7447, ODX-1300-7452, ODX-1300-7455, ODX-1300-7457**

Complies with the essential protection requirements of the following regulations:

SI 2016 No 1101	Low voltage / The electrical equipment (safety) regulations
SI 2016 No 1091	EMC / Electromagnetic compatibility regulations
SI 2012 No. 3032	RoHS / Restriction of the use of certain hazardous substances in electrical and electronic equipment

This declaration applies to all specimens manufactured identical to the samples submitted for testing/evaluation.

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EN IEC62368-1:2024 + A11:2024	Safety. Audio/video information and communication technology equipment
EN IEC61000-6-4:2019	Generic emission standard
EN IEC61000-6-2:2019	Generic Immunity standard
EN IEC63000:2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
EN50155: 2021*	Railway applications. Electronic equipment used on rolling stock material
EN50121-3-2: 2016* +A1:2019	Railway applications. EMC Rolling stock equipment

* Optional, see annexe

UKCA marking year: **2021**

Notes:
For the fulfilment of this declaration the product must be used only for the aim that has been conceived, considering the limitations established in the instructions manual or datasheet.

L'Hospitalet de Llobregat, 19-03-2025

Manuel Camacho
Technical Director

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ANNEXE

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Class OT3 (-25 to 70°C): load <62.5%</td></tr>
<tr><td>4.4.3</td><td>Switch-on extended operating temp.</td><td>ST1: OTx + 15 ºC, test cycle B</td></tr>
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EN50121-3-2:2016 A1:2019</td><td>
<table>
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<tr><td rowspan="4">Radiated emissions</td><td rowspan="4">IEC55016</td><td rowspan="4">Case</td><td>30MHz…230MHz</td><td>40dB(µV/m) Qpk at 10m</td></tr>
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<tr><td>1…3GHz</td><td rowspan="2">Do not apply
Internal freq. < 108MHz</td></tr>
<tr><td>3…6GHz</td></tr>
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</table>
<table>
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<tr><td rowspan="4">Radiated high-frequency</td><td rowspan="4">IEC61000-4-3</td><td rowspan="4">X/Y/Z Axis</td><td>20V/m</td><td>0.08…1.0GHz M. 80% 1kHz</td><td rowspan="4">A</td></tr>
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<tr><td>3V/m</td><td>5.1…6Ghz M. 80% 1kHz</td></tr>
<tr><td rowspan="4">Fast transients</td><td rowspan="4">IEC61000-4-4</td><td>Input</td><td rowspan="3">±2kV</td><td rowspan="3">Tr/Th: 5/50 ns</td><td rowspan="3">A</td></tr>
<tr><td>Output</td></tr>
<tr><td>Signal</td></tr>
<tr><td>PE</td><td>±1kV</td><td></td><td></td></tr>
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<tr><td>Input L to PE</td><td>±2kV</td></tr>
<tr><td rowspan="4">Conducted RF</td><td rowspan="4">IEC61000-4-6</td><td>Input</td><td rowspan="4">10V</td><td rowspan="4">0.15...80MHz M. 80% 1kHz</td><td rowspan="4">A</td></tr>
<tr><td>Output</td></tr>
<tr><td>Signal</td></tr>
<tr><td>PE</td></tr>
</table>
P= Performance criteria, L= Line, PE= Protective Earth
</td></tr>
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<table>
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