

EC Series: Monovolt

Primary switched mode 50 and 100 Watt single output power supplies with rear heat sinks for use in 19" subracks to DIN41494

Features

- Reduced cost primary switched mode power supply on 100 x 160 mm Eurocard
- Plastic coated steel cover
- Overvoltage protection (OVP)
- No load and short circuit proof
- Powerfail signal
- Surface Mount Technology
- Coded H15 connector
- Standardized pinning
- Separate front panel kit with handle
- **18 MONTH WARRANTY**

Ordering information

Description: Economy cased power supply; 3U x 8HP, 50Watt output

Model	Output	Order code
EC 50	5V/8A	116-010188J
EC 50 with Powerfail	5V/8A	116-010189F
EC 50	12V/4A	116-010190G
EC 50	15V/3,5A	116-010192A
EC 50	24V/2,2A	116-010194F
Front panel kit with handle, idents and screws		148-010002K
Mating connector coded H15 to DIN 41612		017-010115K
Coding keys Pkt 10		017-010064F

Description: Economy cased power supply; 3U x 14HP, 100Watt output

EC 100	5V/16A	116-010223K
EC 100	12V/8A	116-010224G
EC 100	15V/7A	116-010225D
EC 100	24V/4A	116-010226A
Front panel kit with handle, idents and screws		148-010005A
Mating connector coded H15 to DIN 41612		017-010115K
Coding keys Pkt 10		017-010064F



EC50 Monovolt

Technical Data EC Series: Monovolt EC50, EC100

Input specification

Input voltage AC-DC:	93-264VAC wide input 115/230VAC switchable (EC100)
Input frequency:	47-63Hz
Inrush surge current limitation:	by NTC resistor
Input overvoltage protection:	by VDR
Hold up time (Nominal V_{IN} ; 100% I_{OUT}):	$\geq 20ms$
Efficiency:	typ. 68-75%

Safety (Compliant with Low Voltage Directive 73/23/EEC)

Certified to, or meets the requirement of:	EN60950, IEC 950, VDE 0805, EN41003 (EC100)
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EMC (Compliant with EMC Directive 89/336/EEC)

Emmissions:	EN 55022/B (0,15-30Mhz)
Immunity:	EN50082-2
Electro Static Discharge:	EN61000-4-2
Electrical fast transients/Burst:	EN61000-4-4
RF Conducted disturbance:	EN50141
RF Field susceptibility:	EN50140

Environmental

Operating temperature:	0°C to +70°C
Storage temperature:	-25°C to +85°C
Relative humidity:	Non-condensing 5% - 95%

Physical

Case material/finish:	ventilated plastic coated steel cassette with cooling cutouts and rear heat sink. DIN 41494 part 5 compatible
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EC Series: Monovolt

Output specification

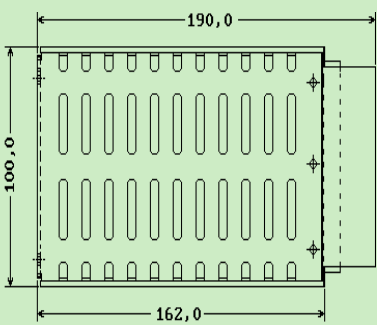
EC50	V1	V1	V1	V1
Output voltage:	5V	12V	15V	24V
Output adjustment range:	4,5-5,5V	10,8-13,2V	13,5-16,5V	21,6-26,4V
Output current:	0-8A	0-4A	0-3,5A	0-2,2A
Ripple:	$\leq 40\text{mV}_{pp}$			
Line regulation (100% I_{OUT}): ΔV_{OUT}	$\leq 0,2\%$			
Load regulation static (10...90% I_{OUT}): ΔV_{OUT}	$\leq 1\%$			
Transient response (10...90% I_{OUT}):	$\leq 1\text{ms}$			
Switching frequency, converter type:	25kHz flyback converter			
Current limit:	$\geq 8,8\text{A}$	$\geq 4,4\text{A}$	$\geq 3,8\text{A}$	$\geq 2,4\text{A}$
Short circuit protection:	continuous, automatic restart			
Overvoltage protection (OVP):	6-6,7V	15,5-18V	17-19,5V	27-32V
Powerfail Signal (at full load) >6ms before V_{OUT} :	$\geq 6\text{ms}$ (@110VAC); $\geq 80\text{ms}$ (@220VAC) before $V1 \leq 4,8\text{VAC}$			
Temperature coefficient/ $^{\circ}\text{C}$:	0,05%			
Voltage compensation with SENSE max.:	-			
Derating:	$1,2\text{W}/^{\circ}\text{C}$ from 45°C			

EC100	V1	V1	V1	V1
Output voltage:	5V	12V	15V	24V
Output adjustment range:	4,5-5,5V	11-13V	14-16V	22-26V
Output current:	16A	8A	7A	4A
Ripple:	$\leq 40\text{mV}_{pp}$			
Line regulation (100% I_{OUT}): ΔV_{OUT}	$\leq 0,2\%$			
Load regulation static (10...90% I_{OUT}): ΔV_{OUT}	$\leq 0,2\%$			
Transient response (10...90% I_{OUT}):	1ms			
Switching frequency, converter type:	25kHz flyback converter			
Current limit:	$\leq 17\text{A}$	$\leq 4,4\text{A}$	$\leq 7,7\text{A}$	$\leq 4,4\text{A}$
Short circuit protection:	continuous, automatic restart			
Overvoltage protection (OVP):	5,7-7,0V	14,5-18V	17-21V	26,3-32V
Temperature coefficient/ $^{\circ}\text{C}$:	0,05%			
Voltage compensation with SENSE max.:	0,5V			
Derating:	$1,2\text{W}/^{\circ}\text{C}$ from 45°C			

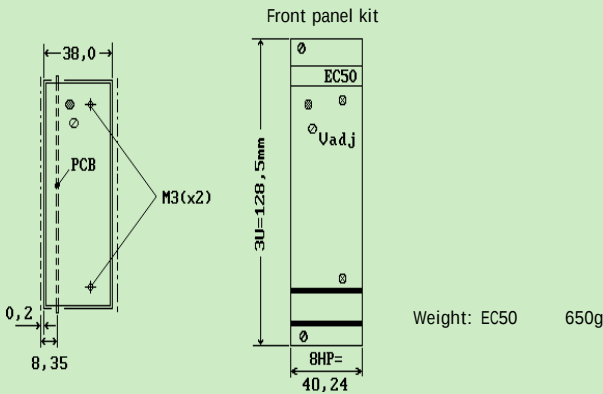
EC Series: Monovolt

Mechanical details

EC50/100

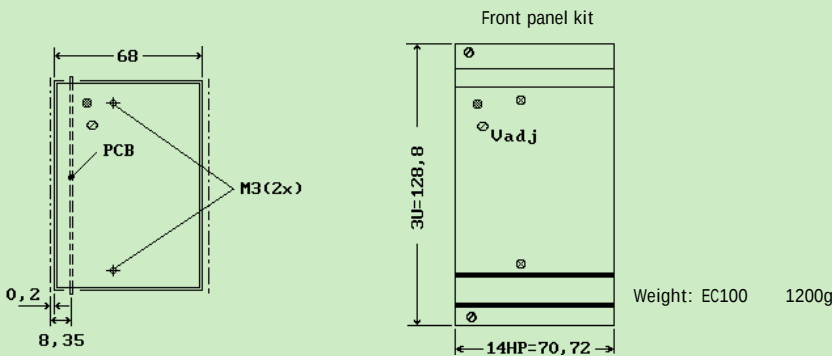


EC50



Weight: EC50 650g

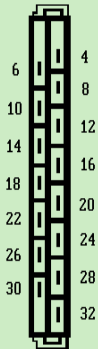
EC100



Weight: EC100 1200g

Pin allocation - H15 connector

PIN	Function	Function
	EC50	EC100
4	+Vout	+Vout
6	+Vout	+Vout
8	-Vout	GND
10	-Vout	GND
12	—	+SENSE
14	—	-SENSE
16	PFQ	—
18	—	—
20	—	—
22	—	—
24	—	—
26	—	—
28	N	N
30	L	L
32	E	E



EC Series: Bivolt, Trivolt

Primary switched mode 50, 100 or 125 Watt dual and triple power supplies with rear heat sinks for use in 19" subracks to DIN41494

Features

- 3U or 6U economy cassette with zinc coated steel cover
- Compact, rugged design
- Safety to approvals to UL, CUL and EN60950
- Compliance to EMC and Low Voltage Directives
- SENSE operation (EC100, 5V output: EC50, EC125)
- Overvoltage (OVP) and short circuit protected
- Powerfail signal
- Remote On/Off (EC50, EC125)
- No minimum load required
- Coded H15 connector
- Standardized pinning
- Separate front panel kit with handle, idents and screws
- Thermally optimised mechanical design
- **18 MONTH WARRANTY**

Ordering information

Description: Bivolt EC Series; 3U x 12HP,
100Watt output

Model	Output	Order code
EC 100	5V/3A, 24V/4A	116-010256L

Description: Trivolt EC Series; 3U x 8HP,
50 Watt output

Model	Output	Order code	Order code
		Without Powerfail	With Powerfail
EC50-A	5V/5A, +12V/1,8A, -12V/0,4A	116-010130J	116-010131F
EC50-B	5V/5A, +15V/1,4A, -15V/0,3A	116-010183B	116-010184K
EC50-C	5V/5A, ±15V/0,8A	116-010186D	116-010187A
EC50-D	5V/5A, ±12V/1A	116-010217B	116-010218K

Description: Trivolt EC Series; 3U x 12HP,
100Watt output

Model	Output	Order code
EC 100	5V/121A, +12V/2A, -12V/0,5A	116-010257H

Description: Trivolt EC Series; 3U x 14HP, 6U x 8HP,
125 Watt output

Model	Output	Order code
EC125, 3U	5V/13A, +12V/4A, -12V/1A	116-010214L
EC125, 6U	5V/13A, +12V/4A, -12V/1A	116-010185G

Description: EC Series; accessories

	Order code
Frontpanel kit with handle, idents and screws: EC50	148-010002K
Frontpanel kit with handle, idents and screws: EC100	148-010035L
3U Frontpanel kit with handle, idents and screws: EC125	148-010005A
6U Frontpanel kit with handle, idents and screws: EC125	148-010003G
Mating connector coded H15 to DIN 41612	17-010115K
Coding keys Pkt 10	17-010064F



EC100 Bivolt

Technical Data EC Series: Bivolt EC100, Trivolt EC50, EC100, EC125

Input specification

Input voltage AC-DC:	93-264VAC continuous input EC50, 115/230VAC switchable EC100, EC125
Input frequency:	47-63Hz
Inrush surge current limitation:	by NTC resistor
Input overvoltage protection:	by VDR
Hold up time (Nominal V_{in} ; 100% I_{out}):	≥20ms EC125; ≥10ms @110VAC, ≥100ms @220VAC EC50
Efficiency:	typ. ≥70%

Safety (Compliant with Low Voltage Directive 73/23/EEC)

Certified to, or meets the requirement of: EN60950, IEC 950, VDE 0805

EMC (Compliant with EMC Directive 89/336/EEC)

Emmissions:	EN 55022/B (0,15-30Mhz)
Immunity:	EN50082-2
Electro Static Discharge:	EN61000-4-2
Electrical fast transients/Burst:	EN61000-4-4
RF Conducted disturbance:	EN50141
RF Field susceptibility:	EN50140

Environmental

Operating temperature:	0°C to +70°C
Storage temperature:	-25°C to +85°C
Relative humidity:	Non-condensing 5% - 95%

Physical

Case material/finish:	zinc coated steel cover with cooling cutouts and rear heat sink. DIN 41494 part 5 compatible
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EC Series: Bivolt, Trivolt

Output specification

BIVOLT EC100		V1	V2	
Output voltage:		5V	24V	
Output adjustment range:		±0,2V	fixed	
Output current:		3A	4A	
Ripple:			≤40mV _{pp}	
Line regulation (100% I _{OUT}): ΔV _{OUT}			≤0,2%	
Load regulation static (10...90% I _{OUT}): ΔV _{OUT}			≤0,5%	
Transient response (10...90% I _{OUT}):			≤0,2ms	
Switching frequency, converter type:		25kHz flyback converter		
Current limit:		≥3,01A	≥4,1A	
Short circuit protection:		continuous, automatic restart		
Overvoltage protection (OVP):		6-6,7V	-	
Powerfail Signal (at full load) >6ms before V _{OUT} :		≤4,8V	-	
Temperature coefficient/°C:		0,05%		
Voltage compensation with SENSE max.:		-		
Derating:		2,5W/°C from 50°C		
TRIVOLT EC50A		V1	V2	V3
Output voltage:		5V	+12V	-12V
Output adjustment range:		4,5-5,5V	~V1	fixed
Output current:		0-5A	0-1,8A	0-0,4A
Output current at single loading:		8A ^{NOTE 1}	4A ^{NOTE 1}	0,8A
Ripple:		≤40mV _{pp}	≤40mV _{pp}	≤10mV _{pp}
Line regulation (100% I _{OUT}): ΔV _{OUT}			≤0,2%	
Load regulation static (10...90% I _{OUT}): ΔV _{OUT}		≤1%	≤5% ^{NOTE 2}	≤0,5%
Transient response (10...90% I _{OUT}):			≤1ms	
Switching frequency, converter type:		25kHz flyback converter		
Current limit:		≥6A(≥9A ^{NOTE 3})	≥2,2A(≥4,5A ^{NOTE 3})	≥0,8A
Short circuit protection:		continuous, automatic restart		
Overvoltage protection (OVP):		6-6,7V	-	-
Powerfail Signal (at full load) >6ms before V _{OUT} :		≥6ms (@110VAC); ≥80ms (@220VAC) before V1 ≤4,8V		
Temperature coefficient/°C:		0,05%		
Voltage compensation with SENSE max.:		-		
Derating:		1,5W/°C from 45°C		
TRIVOLT EC50B		V1	V2	V3
Output voltage:		5V	+15V	-15V
Output adjustment range:		4,5-5,5V	~V1	fixed
Output current:		0-5A	0-1,4A	0-0,3A
Output current at single loading:		8A ^{NOTE 1}	3A ^{NOTE 1}	0,6A
Ripple:		≤40mV _{pp}	≤40mV _{pp}	≤10mV _{pp}
Line regulation (100% I _{OUT}): ΔV _{OUT}			≤0,2%	
Load regulation static (10...90% I _{OUT}): ΔV _{OUT}		≤1%	≤3% ^{NOTE 2}	≤0,5%
Transient response (10...90% I _{OUT}):			≤1ms	
Switching frequency, converter type:		25kHz flyback converter		
Current limit:		≥6A(≥9A ^{NOTE 3})	≥1,7A(≥3,5A ^{NOTE 3})	≥0,6A
Short circuit protection:		continuous, automatic restart		
Overvoltage protection (OVP):		6-6,7V	-	-
Powerfail Signal (at full load) >6ms before V _{OUT} :		≥6ms (@110VAC); ≥80ms (@220VAC) before V1 ≤4,8V		
Temperature coefficient/°C:		0,05%		
Voltage compensation with SENSE max.:		-		
Derating:		1,5W/°C from 45°C		
TRIVOLT EC50C		V1	V2, V3	
Output voltage:		5V	±15V	
Output adjustment range:		4,5-5,5V	fixed	
Output current:		0-5A	0-0,8A	
Output current at single loading:		8A ^{NOTE 1}	1A	
Ripple:		≤40mV _{pp}	≤10mV _{pp}	
Line regulation (100% I _{OUT}): ΔV _{OUT}			≤0,2%	
Load regulation static (10...90% I _{OUT}): ΔV _{OUT}		≤1%	≤0,5%	
Transient response (10...90% I _{OUT}):			≤1ms	
Switching frequency, converter type:		25kHz flyback converter		
Current limit:		≥6A(≥9A ^{NOTE 3})	≥1,1A	
Short circuit protection:		continuous, automatic restart		
Overvoltage protection (OVP):		6-6,7V	-	
Powerfail Signal (at full load) >6ms before V _{OUT} :		≥6ms (@110VAC); ≥80ms (@220VAC) before V1 ≤4,8V		
Temperature coefficient/°C:		0,05%		
Voltage compensation with SENSE max.:		-		
Derating:		1,5W/°C from 45°C		

EC Series: Bivolt, Trivolt

Output specification

TRIVOLT EC50D	V1	V2, V3
Output voltage:	5V	±12V
Output adjustment range:	4,5-5,5V	fixed
Output current:	0-5A	0-1A
Output current at single loading:	8A NOTE 1	1,1A
Ripple:	≤40mV _{pp}	≤10mV _{pp}
Line regulation (100% I _{OUT}): ΔV _{OUT}		≤0,2%
Load regulation static (10...90% I _{OUT}): ΔV _{OUT}	≤1%	≤0,5%
Transient response (10...90% I _{OUT}):		≤1ms
Switching frequency, converter type:	25kHz flyback converter	
Current limit:	≥6A(≥9A NOTE 3)	≥1,1A
Short circuit protection:	continuous, automatic restart	
Overvoltage protection (OVP):	6-6,7V	-
Powerfail Signal (at full load) >6ms before V _{OUT} :	≥6ms (@110VAC); ≥80ms (@220VAC) before V1 ≤4,8V	
Temperature coefficient/°C:	0,05%	
Voltage compensation with SENSE max.:	-	
Derating:	1,5W/°C from 45°C	

Note 1. 60 Seconds max

Note 2. I₂ = 0,1-4 x I_{OUT}

Note 3. Single load

Note 4. V2/V3 output EC50 C+D linear regulated

TRIVOLT EC100	V1	V2	V3
Output voltage:	5V	+12V	-12V
Output adjustment range:	±0,5V	fixed	fixed
Output current:	12A (14A)#	2A (2,5A)#	0,5A (0,8A)#
Ripple:		≤40mV _{pp}	
Line regulation (100% I _{OUT}): ΔV _{OUT}		≤0,2%	
Load regulation static (10...90% I _{OUT}): ΔV _{OUT}	≤0,2%	≤0,8%	≤0,5%
Transient response (10...90% I _{OUT}):	≤0,4ms	≤0,2ms	≤0,2ms
Switching frequency, converter type:	80 kHz forward converter		
Current limit:	≥14,1A	≥2,51A	≥0,8A
Short circuit protection:	continuous, automatic restart		
Overvoltage protection (OVP):	6-6,7V	-	-
Powerfail Signal (at full load) >6ms before V _{OUT} :	≤4,8V	-	-
Temperature coefficient/°C:		0,05%	
Voltage compensation with SENSE max.:	0,5V	-	-
Derating:	2,5W/°C from 50°C		

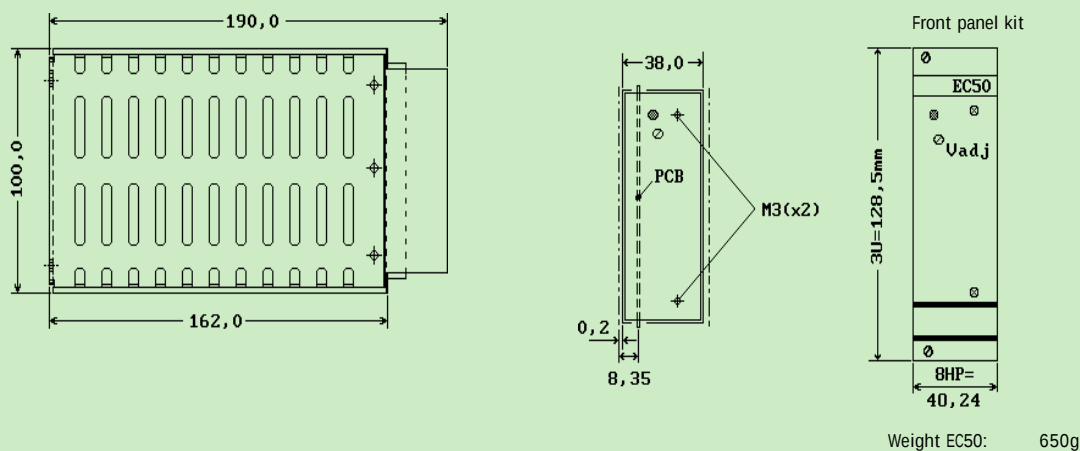
#Total power should not exceed 100Watt

TRIVOLT EC125	V1	V2	V3
Output voltage:	5V	+12V	-12V
Output adjustment range:	4,5-5,5V	10,8-13,2V	-10,8 to -13,2V
Output current:	0-13A	0-4A	0-1A
Ripple:	≤40mV _{pp}	≤40mV _{pp}	≤10mV _{pp}
Line regulation (100% I _{OUT}): ΔV _{OUT}	≤0,3%	≤0,2%	≤0,2%
Load regulation static (10...90% I _{OUT}): ΔV _{OUT}		≤0,2%	
Transient response (10...90% I _{OUT}):		≤1ms	
Switching frequency, converter type:	100kHz forward converter		
Current limit:	≥14A	≥5A	≥1A
Short circuit protection:	continuous, automatic restart		
Overvoltage protection (OVP):	6-6,7V	-	-
Powerfail Signal (at full load) >6ms before V _{OUT} :		-	
Temperature coefficient/°C:		0,05%	
Voltage compensation with SENSE max.:	0,5V	-	-
Derating:	2,5W/°C from 45°C		

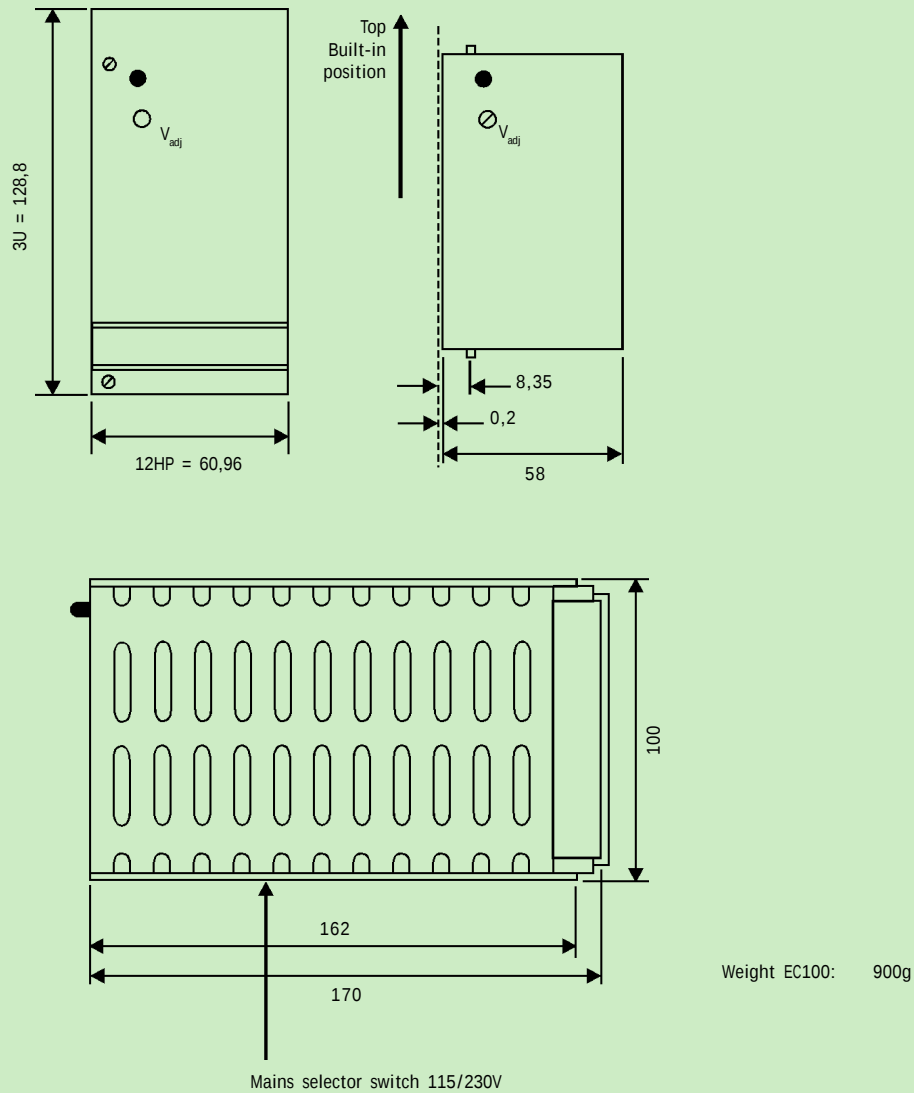
EC Series: Bivolt, Trivolt

Mechanical details

TRIVOLT EC50



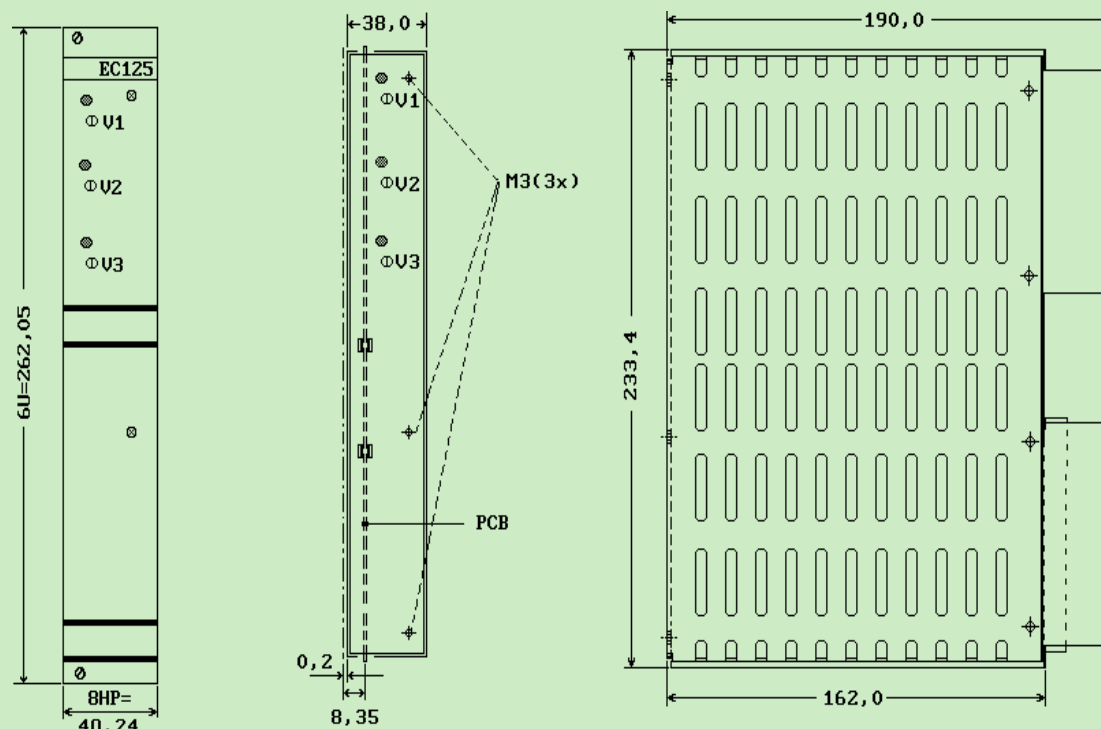
BIVOLT/TRIVOLT EC100



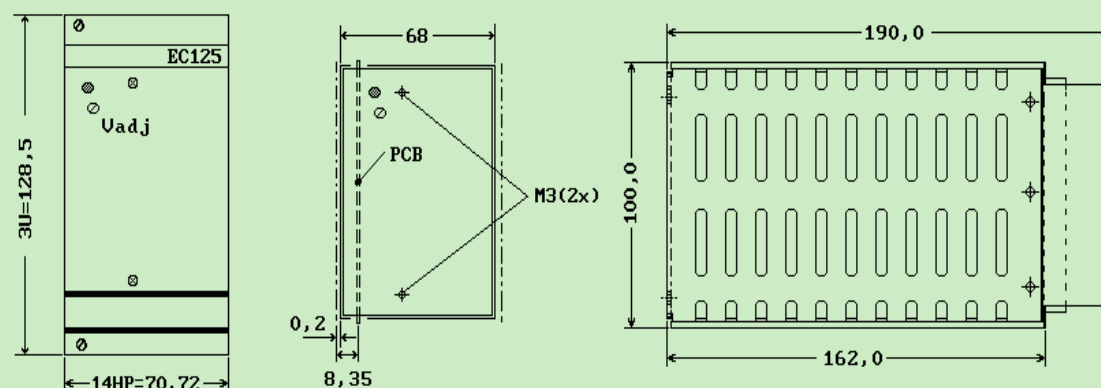
EC Series: Trivolt

Mechanical details

TRIVOLT EC125



Front panel kit



Weight EC125: 1350g

Pin allocation - H15 connector

PIN	Function EC50Trivolt	Function EC100 Bibolt	Function EC100 Trivolt	Function EC125Trivolt
4	+Vout	+V1	+V1	+Vout
6	+Vout	+V1	+V1	+Vout
8	-Vout	GND V1	GND V1	-Vout
10	-Vout	GND V1	GND V1	-Vout
12	NC	NC	+SENSE	+SENSE
14	NC	NC	-SENSE	-SENSE
16	PF $\bar{Q}$	PF $\bar{Q}$	PF $\bar{Q}$	-
18	+V2	NC	+V2	+V2
20	GND V2, V3	+V2	GND V2, V3	GND V2, V3
22	-V3	GND V2	-V3	-V3
24	NC	NC	NC	NC
26	NC	NC	NC	NC
28	N	N	N	N
30	L	L	L	L
32	E	E	E	E

