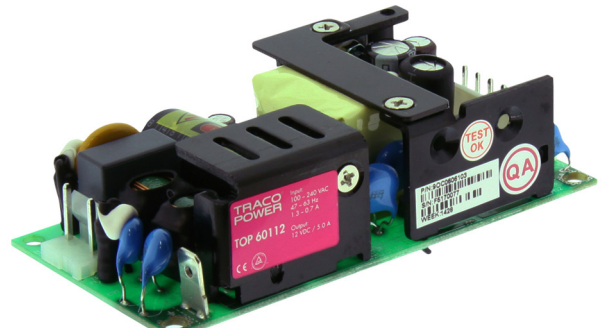


Features

- ◆ 60 W power supply in 2.0" x 4.0" footprint
- ◆ Single-, dual- and triple output models
- ◆ Highest efficiency of 88% typ.
- ◆ Operating temperature range -10°C to $+70^{\circ}\text{C}$
- ◆ EMI filter meets EN 55022, level B
- ◆ Compliance with EN 61000-3-2
- ◆ 3-year product warranty



The new TOP-60 series AC/DC open frame power supplies with Industry standard 2.0" x 4.0" (50.8 x 101.6 mm) footprint feature single-, dual- and triple output models with up to 60 Watt continuous output power. The high efficiency allows an operation up to 70°C with convection cooling.

Compliance with global safety and EMC standards qualify these power supplies for industrial and IT applications.

Models				
Order Code	Output Power nominal	Output 1	Output 2 ¹⁾	Output 3 ¹⁾
TOP 60105	55 W	5.0 VDC / 11.0 A		
TOP 60112	60 W	12 VDC / 5.0 A		
TOP 60115	64 W	15 VDC / 4.3 A		
TOP 60124	64 W	24 VDC / 2.7 A		
TOP 60148	64 W	48 VDC / 1.35 A		
TOP 60252	55 W	+5.0 VDC / 6.0 A (8.0 A) ¹⁾	+12 VDC / 3.0 A	
TOP 60254	55 W	+5.0 VDC / 6.0 A (8.0 A) ¹⁾	+24 VDC / 1.5 A	
TOP 60522	55 W	+5.0 VDC / 6.0 A (8.0 A) ¹⁾	+12 VDC / 3.0 A	-12 VDC / 0.5 A
TOP 60533	55 W	+5.0 VDC / 6.0 A (8.0 A) ¹⁾	+15 VDC / 2.4 A	-15 VDC / 0.5 A
TOP 60316	38 W	+3.3 VDC / 6.0 A (8.0 A) ¹⁾	+5.2 VDC / 3.0 A	+12 VDC / 0.5 A
TOP 60317	38 W	+5.0 VDC / 6.0 A (8.0 A) ¹⁾	+3.3 VDC / 1.5 A	+12 VDC / 0.5 A
TOP 60318	55 W	+5.0 VDC / 6.0 A (8.0 A) ¹⁾	+24 VDC / 1.5 A	-12 VDC / 0.5 A

¹⁾ Peak current for max. 10 sec. or with forced air cooling
Total power should not exceed nominal power

Input Specifications

Input voltage	<ul style="list-style-type: none"> - nominal - AC input range - DC input range 	100 – 240 VAC (universal input) 90 – 264 VAC (with derating at low input) 110 – 370 VDC (max. 40 W output power at input below 120 VDC)
Input frequency		47 – 63 Hz
Harmonic limits		EN 61000-3-2, class A
Earth leakage current		150 μ A max. @264 VAC, 63 Hz
Inrush current (< 2 ms, cold start at 25°C)	<ul style="list-style-type: none"> - 115 VAC - 230 VAC 	30 A typ. 60 A typ.
Input protection		T3.15 A internal fuses (line and neutral)
Recommended circuit breaker		5 A (characteristic C or slow blow fuse)

Output Specifications

Voltage set accuracy		single output models: 2 % max. multi output models, output 1: 3 % max. multi output models, other outputs: 5 % max.
Regulation	<ul style="list-style-type: none"> - Input - Load variation 	single output models: 2 % max. multi output models, output 1: 3 % max. multi output models, other outputs: 5 % max.
Minimum load (to meet regulation specs)		multi output models, output 1: 0.5 A multi output models, output 2: 0.1 A (not required for single output models and output 3 of multi output models)
Ripple and noise (20Mhz Bandwidth)		3.3 & 5 VDC models: <100 mVp-p other models: 1 % Vout
Overvoltage protection (output 1 only)		at 110 % – 135 % of Vout nominal
Short circuit protection		foldback (automatic recovery)
Capacitive load	TOP 60105/60112/60115/60124/60148 models: TOP 60252/60254 models: TOP 60522/60316/60317/60533/60318 models:	3300/2200/1500/470/0 μF max. 2200/82 μF max. 1500/5600/1200/470/330 μF max.
Transient response (25 % load step change)		500 μ s typ.
Hold-up time	<ul style="list-style-type: none"> - Vin = 110 VAC - Vin = 230 VAC 	12 ms typ. 15 ms typ.

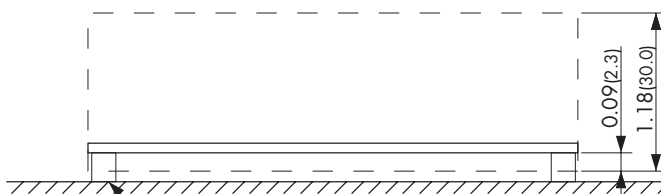
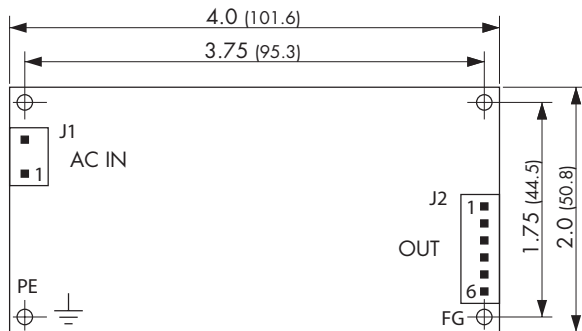
General Specifications

Temperature ranges	<ul style="list-style-type: none"> - Operating - Storage (non-operating) 	-10°C to +70°C -40°C to +85°C
Power derating		2.5 %/K above +50°C
Humidity (non condensing)		0 – 95 % rel. H max.
Efficiency		80 – 88 % 75 % for TOP 60316 & TOP 60317
Switching frequency		62 kHz typ. (pulse width modulation)
Altitude during operation		up to 3'000 m (10'000 ft) approved
Start-up time	<ul style="list-style-type: none"> - Vin = 115 VAC - Vin = 230 VAC 	<3.5 s <2 s
Electromagnetic compatibility	<ul style="list-style-type: none"> - Electrostatic discharge ESD - RF field susceptibility - Electrical fast transient / burst immunity input - Electrical fast transient / burst immunity output - Surge immunity line – neutral ground - Surge immunity output - Immunity to conducted RF disturbances - Magnetic field immunity - Mains voltage dips and interruptions 	EN 61000-4-2 ± 8 kV / ± 6 kV EN 61000-4-3 3 V/m EN 61000-4-4 ± 2 kV EN 61000-4-4 ± 2 kV EN 61000-4-5, ± 2 kV EN 61000-4-5 ± 1 kV EN 61000-4-6 3 Vrms EN 61000-4-8 3 A/m EN 61000-4-11 30 % 500 ms, 60 % 100 ms, >95 % 10 ms

General Specifications

Electromagnetic compatibility (EMC), Emissions	– Conducted input RI suppression – Harmonic current emissions	EN 55022 class B, FCC Part 15 class B IEC/EN 61000-3-2, class A & D
Isolation voltage	– Input / Output – Input / Field Ground – Output / Field Ground	4000 VAC 1500 VAC 500 VAC
Reliability /calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)		>400'000 h
Safety standards	– Information technology equipment – Certification documents	IEC/EN/UL 62368-1 IEC/EN 60950-1 www.tracopower.com/overview/top60
Environment	– Vibration acc. IEC 60068-2-6; – Shock acc. IEC 60068-2-27	3 axis, sine sweep, 10-55Hz, 1g, 1oct/min 3 axis, 15g half sine, 11msShock 20 G (3 directions each 3 times)
Connection		pin connector (Molex)
Weight		205 g (7.23 oz)

Dimensions



Pillars (not included) for connection to protective earth (PE)
Height: 0.2 min. (5.0), Diam.: 0.25 max. (6.0)

To comply with EN 55022 class B:
Field ground (FG) and protective earth (PE)
are to be connected to chassis

Dimensions in Inch, () = mm

Input J1

Pin	Function
1	AC in
2	AC in

J1: Molex Series 41791
mates with Molex crimp terminal: 08-52-0072
and terminal housing: 09-50-3031

Output J2

Pin	Single output	Dual output	Triple output
1	+Vout 1	Vout 1	Vout 1
2	+Vout 1	Vout 1	Vout 1
3	-Vout 1	com.	com.
4	-Vout 1	com.	com.
5	no con.	no con.	Vout 3
6	no con.	Vout 2	Vout 2

J2: Molex Series 41791
mates with Molex crimp terminal: 08-52-0072
and terminal housing: 09-50-3061

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com