



### Features

- ◆ PCB mounting with solder pins or chassis mounting with screw terminals
- ◆ Single-, dual- and triple output models
- ◆ Universal input 85 – 264 VAC, 40 – 440 Hz
- ◆ EMI meets EN 55022, Class B and FCC, Level B
- ◆ Low ripple and noise
- ◆ Over temperature protection
- ◆ Short circuit and overload protection
- ◆ Safety class II product
- ◆ 3-year product warranty

*not recommended for new design in*



The TPM series switching power supplies, comprising 57 (!) standard models, offer high power density in a fully encapsulated plastic case. This feature makes these modules an ideal solution for all space critical applications in commercial and industrial electronic equipment. Full compliance to European low voltage and EMC directive, UL and cUL safety approval qualifies this product for worldwide markets. SMD-technology and an extensive production quality test guarantees a high reliability of these power modules.

### Models

Order code		Output power max.	Output 1	Output 2	Output 3
PCB-mounting with solder pins	Chassis mounting with screw terminals				
TPM 05105		5 Watt	5 VDC / 1000 mA		
TPM 05112			12 VDC / 420 mA		
TPM 05124			24 VDC / 210 mA		
TPM 05212			+12 VDC / 250 mA	-12 VDC / 150 mA	
TPM 05215			+15 VDC / 150 mA	-15 VDC / 150 mA	
TPM 10105	TPM 10105C	10 Watt	5 VDC / 2000 mA		
TPM 10112	TPM 10112C		12 VDC / 840 mA		
TPM 10124	TPM 10124C		24 VDC / 420 mA		
TPM 10212	TPM 10212C		+12 VDC / 400 mA	-12 VDC / 400 mA	
TPM 10215	TPM 10215C		+15 VDC / 300 mA	-15 VDC / 300 mA	
TPM 10512	TPM 10512C		*5 VDC / 1200 mA	+12 VDC / 120 mA	-12 VDC / 120 mA
TPM 10515	TPM 10515C		*5 VDC / 1200 mA	+15 VDC / 100 mA	-15 VDC / 100 mA

DC input (18 – 72 VDC) and other output voltages on request

\* Output floating

<b>Models</b>					
Ordercode		Output Power max.	Output 1	Output 2	Output 3
PCB-mounting with solder pins	Chassis mounting with screw terminals				
TPM 15105	TPM 15105C	<b>15 Watt</b>	5 VDC / 3000 mA	-12 VDC / 400 mA -15 VDC / 400 mA	-12 VDC / 150 mA -15 VDC / 150 mA
TPM 15112	TPM 15112C		12 VDC / 1300 mA		
TPM 15124	TPM 15124C		24 VDC / 600 mA		
TPM 15212	TPM 15212C		+12 VDC / 600 mA		
TPM 15215	TPM 15215C		+15 VDC / 500 mA		
TPM 15512	TPM 15512C		*5 VDC / 1600 mA		
TPM 15515	TPM 15515C		*5 VDC / 1600 mA		
TPM 30105	TPM 30105C	<b>30 Watt</b>	5 VDC / 6000 mA	-12 VDC / 1200 mA -15 VDC / 1000 mA	-12 VDC / 600 mA -15 VDC / 500 mA
TPM 30112	TPM 30112C		12 VDC / 2500 mA		
TPM 30124	TPM 30124C		24 VDC / 1300 mA		
TPM 30212	TPM 30212C		+12 VDC / 1200 mA		
TPM 30215	TPM 30215C		+15 VDC / 1000 mA		
TPM 30252	TPM 30252C		*5 VDC / 3000 mA		
TPM 30254	TPM 30254C		*5 VDC / 3000 mA		
TPM 30512	TPM 30512C		*5 VDC / 3000 mA		
TPM 30515	TPM 30515C		*5 VDC / 3000 mA		
TPM 40105	TPM 40105C	<b>40 Watt</b>	5 VDC / 7000 mA		
TPM 40112	TPM 40112C		12 VDC / 3300 mA		
TPM 40124	TPM 40124C		24 VDC / 1800 mA		

Obsolete  
Discontinued 2011

DC input (18 – 72 VDC) and other output voltages on request \* Output floating

### Input Specifications

Input voltage range	85 – 264 VAC (100–375 VDC)	
Input frequency	40 – 440 Hz	
Input current no load	115 VAC / 230 VAC	TPM 05 models: 18 mA / 13 mA typ. TPM 10 models: 18 mA / 18 mA typ. TPM 15 models: 18 mA / 18 mA typ. TPM 30 models: 25 mA / 20 mA typ. TPM 40 models: 20 mA / 17 mA typ.
Input current full load	115 VAC / 230 VAC	TPM 05 models: 100 mA / 60 mA typ. TPM 10 models: 150 mA / 90 mA typ. TPM 15 models: 220 mA / 118 mA typ. TPM 30 models: 430 mA / 240 mA typ. TPM 40 models: 600 mA / 320 mA typ.
External fuse (recommended)	TPM 05 models: 0.5 A slow blow type TPM 10 models: 1.0 A slow blow type TPM 15 models: 1.0 A slow blow type TPM 30 models: 2.0 A slow blow type TPM 40 models: 3.15 A slow blow type	

### Output Specifications

Voltage set accuracy	– Output 1 (main output)      ±1 % – Output 2/3 (aux. outputs)      ±3 %
Regulation	– Input variation      0.5 % max. – Load variation (10–90%) Single output models: 0.5 % max. Dual/ triple output models: 0.5 % max. (symmetric load)
Minimum load	Dual/ triple output models: 10 % (main output)
Ripple and noise (pk-pk, 20 Mhz Bandwidth)	<2 % of Vout max.
Current limitation	105 – 130 % of Iout max., constant current
Short circuit protection	hiccup mode, indefinite (automatic recovery)
Capacitive load	1000 µF (each output) TPM 05xxx only) 4700 µF (each output) all other models)

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

**General Specifications**

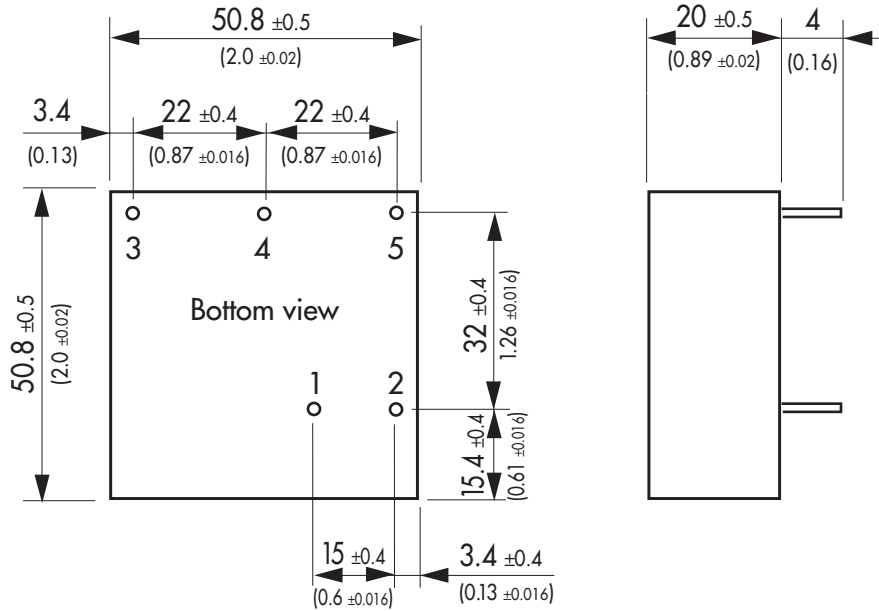
Temperature ranges	<ul style="list-style-type: none"> <li>- Operating</li> <li>- Case temperature</li> <li>- Derating <ul style="list-style-type: none"> <li>TPM 5/ 10/ 15 single output models: 2 %/K above 55°C</li> <li>TPM 5/ 10/ 15 dual output models: 3 %/K above 55°C</li> <li>TPM 10/ 15 triple output models: 5 %/K above 55°C</li> <li>TPM 30/ 40 single output models: 2 %/K above 50°C</li> <li>TPM 30 dual output models: 3 %/K above 50°C</li> <li>TPM 30 triple output models: 5 %/K above 50°C</li> </ul> </li> <li>- Storage (non operating)</li> </ul>	<ul style="list-style-type: none"> <li>-25°C to +70°C max.</li> <li>+95°C max.</li> </ul>
Temperature coefficient	0.01 %/K	
Efficiency	55 – 85 % (depending on model)	
Humidity (non condensing)	95 % rel max.	
Switching frequency (Puls width modulation PWM)	<ul style="list-style-type: none"> <li>TPM 5 models: 125 kHz typ.</li> <li>TPM 10 / 15 / 30 models: 90 kHz typ.</li> <li>TPM 40 models: 70 kHz typ.</li> </ul>	
Hold-up time	<ul style="list-style-type: none"> <li>- Vin = 115 VAC</li> <li>- Vin = 230 VAC</li> </ul>	<ul style="list-style-type: none"> <li>50 ms min.</li> <li>50 ms min.</li> </ul>
I/O isolation voltage (50 Hz 60 sec.)	3'300 VAC	
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)	>800'000 h	
EMI / RFI conducted	EN 55022, class B, FCC part 15, level B	
EMC compliance	<ul style="list-style-type: none"> <li>- Electrostatic discharge ESD</li> <li>- RF field susceptibility</li> <li>- Electrical fast transients/bursts on mainsline</li> <li>- Surge</li> <li>- Immunity to conducted RF disturbances</li> <li>- Immunity to voltage dips, short interruptions and voltage variations</li> </ul>	<ul style="list-style-type: none"> <li>IEC/EN 61000-4-2 4 kV / 8 kV</li> <li>IEC/EN 61000-4-3 10 V/m</li> <li>IEC/EN 61000-4-4 2 kV</li> <li>IEC/EN 61000-4-5 2 kV sym.</li> <li>IEC/EN 61000-4-6 10 V</li> <li>IEC/EN 61000-4-11</li> </ul>
Safety Class II	to IEC/EN 60536	
Safety standards	UL 1950, IEC/EN 60950	
Safety approvals	- UL/cUL	<a href="http://www.ul.com">www.ul.com</a> > UL File no.: e188913
Casing material	CELANEX 2360 FL (UL94V-0 rated)	

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

**Outline Dimensions mm (inches)**

PCB-mounting with solder pins

TPM 5 W



Pin-Out		
Pin	Single	Dual
1	AC in	AC in
2	AC in	AC in
3	-V out	-V out
4	no pin	Common
5	+V out	+V out

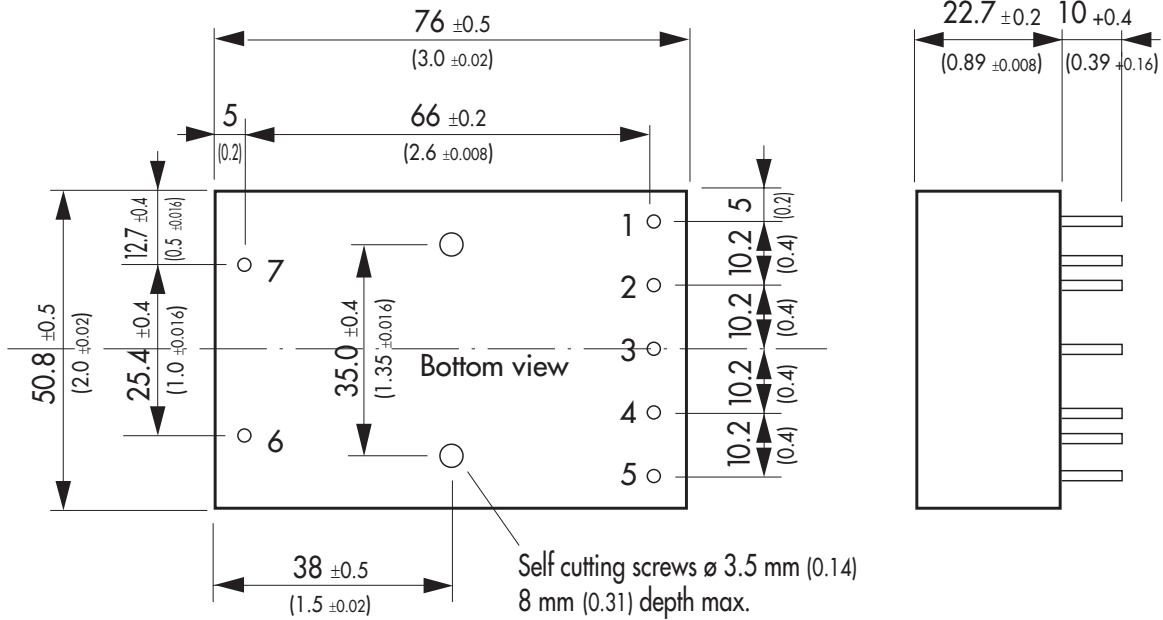
Pin diameter  $\varnothing 1.0 \pm 0.1$  ( $0.039 \pm 0.004$ )

Weight TPM 5 100 g (0.22 lb)

**Outline Dimensions mm (inches)**

PCB-mounting with solder pins

TPM 10/15 W



Pin diameter  $\varnothing 1.0 \pm 0.1$  (0.039 ±0.004)

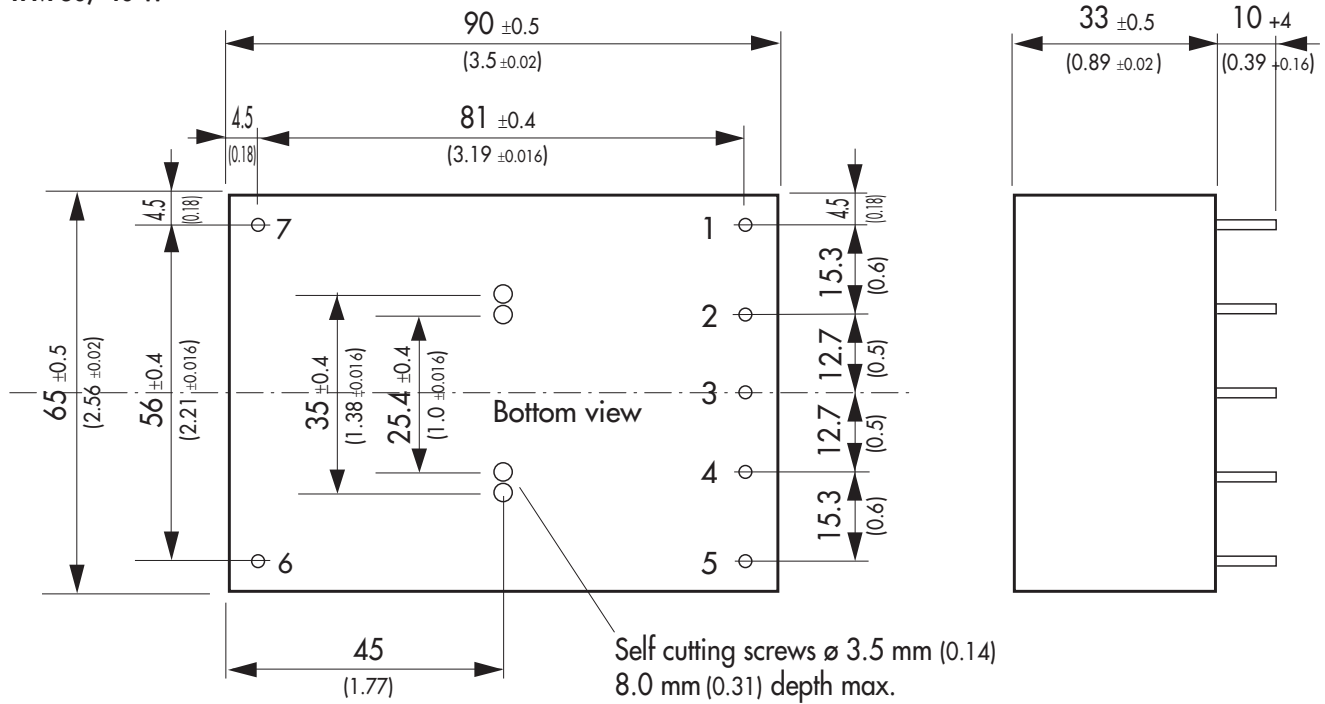
**Weight** TPM 10 150 g (0.33 lb)  
TPM 15 150 g (0.33 lb)

Pin-Out			
Pin	Single	Dual	Triple
1	-V out	-V out	-V out 3
2	No Pin	No Pin	-V out 1
3	No Pin	Common	Com. 2/3
4	No Pin	No Pin	+V out 1
5	+V out	+V out	+V out 2
6	AC in	AC in	AC in
7	AC in	AC in	AC in

**Outline Dimensions mm (inches)**

PCB-mounting with solder pins

TPM 30/ 40 W



Pin diameter  $\varnothing$  1.25  $\pm$ 0.1 (0.05  $\pm$ 0.004)

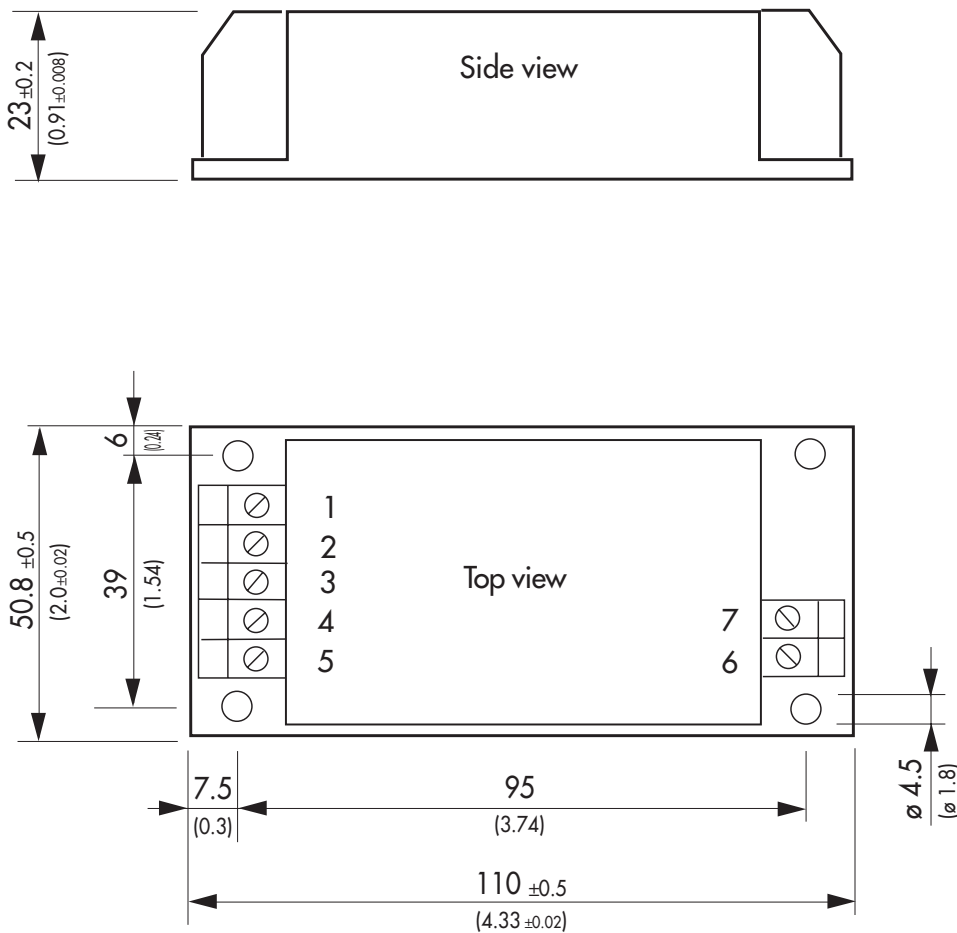
**Weight** TPM 30 340 g (0.75 lb)  
TPM 40 340 g (0.75 lb)

Pin-Out				
Pin	Single	Dual sym.	Dual asym.	Triple
1	No Pin	-V out	-V out 1	-V out 3
2	No Pin	No Pin	+V out 1	-V out 1
3	-V out	Common	No Pin	Com. 2/3
4	No Pin	No Pin	-V out 2	+V out 1
5	+V out	+V out	+V out 2	+V out 2
6	AC in	AC in	AC in	AC in
7	AC in	AC in	AC in	AC in

**Outline Dimensions mm (inches)**

Chassis mounting with screw terminals

TPM 10/15 W C



Connection: wire diameter  $\varnothing$  0.2 – 2.5 mm<sup>2</sup> (AWG 24 – 14)

**Weight** TPM 10 C 200 g (0.44 lb)  
TPM 15 C 200 g (0.44 lb)

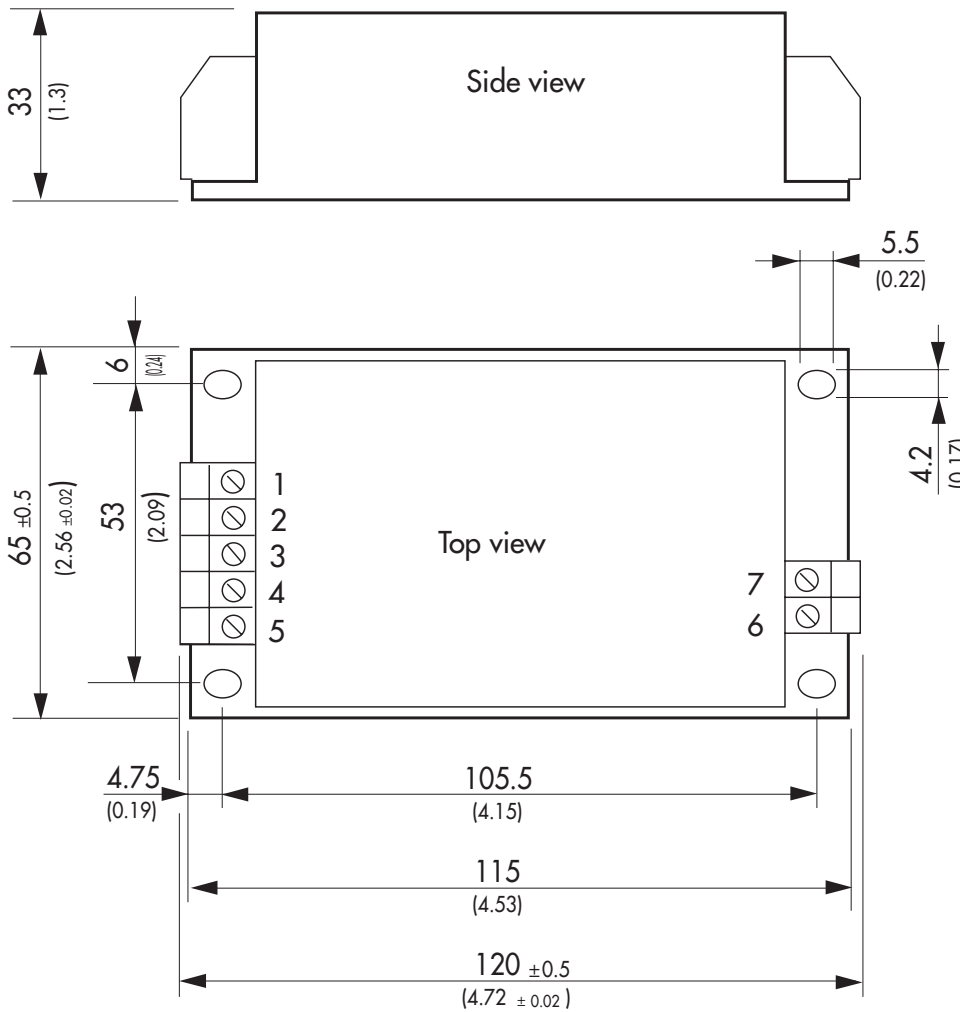
Pin-Out			
Pin	Single	Dual	Triple
1	No Terminal	No Terminal	-V out 3
2	No Terminal	No Terminal	-V out 1
3	No Terminal	-V out	Com. 2/3
4	-V out	Common	+V out 1
5	+V out	+V out	+V out 2
6	AC in	AC in	AC in
7	AC in	AC in	AC in



**Outline Dimensions mm (inches)**

Chassis mounting with screw terminals

TPM 30/ 40 W C



**Weight** TPM 30 380 g (0.84 lb)  
TPM 40 380 g (0.84 lb)

Connection: wire diameter  $\varnothing$  0.2 – 2.5 mm<sup>2</sup> (AWG 24 – 14)

Pin-Out				
Pin	Single	Dual sym.	Dual asym.	Triple
1	No Terminal	No Terminal	No Terminal	-V out 3
2	No Terminal	No Terminal	-V out 1	-V out 1
3	No Terminal	-V out	+V out 1	Com. 2/3
4	-V out	Common	-V out 2	+V out 1
5	+V out	+V out	+V out 2	+V out 2
6	AC in	AC in	AC in	AC in
7	AC in	AC in	AC in	AC in

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at [www.tracopower.com](http://www.tracopower.com)