

## T Series

## 500 Watt AC-DC Converters



Universal input range 70...255V AC with PFC  
Single outputs up to 56.5 V DC  
4 kV AC I/O electric strength test voltage



- Rugged electrical and mechanical design, hot swappable
- Battery chargers for 24 and 48 V lead acid batteries with remote temperature control
- Operating ambient temperature range  $-25...71^{\circ}\text{C}$  with convection cooling

### Selection chart

Output Voltage at $0.5 \times I_{o, \text{nom}}$ [V DC]	Temperature coefficient of output [mV/K]	Output current $I_{o, \text{nom}}$ [A]	Input voltage $U_i$ [V AC]	Type	Options <sup>1</sup>
24.25 24.25	-5 -5	16 16	70...140 85...255	UT 1201-7 LT 1201-7	B1 B1
25.25...28.25 25.25...28.25	-3 -3	14.5 14.5	70...140 85...255	UT 1240-7Z LT 1240-7Z	B1, D B1, D
48 48	-5 -5	11 11	70...140 85...255	UT 1702-7 LT 1702-7	B1 B1
50.5...56.5 50.5...56.5	-3 -3	10.2 10.2	70...140 85...255	UT 1740-7Z LT 1740-7Z	B1, D B1, D
54.5 54.5	-5 -5	10 10	70...140 85...255	UT 1701-7 LT 1701-7	B1 B1

<sup>1</sup> Availability on request.

**Input**

Input voltage AC		refer to selection chart
Input frequency		47/63 Hz
Power factor	active PFC	>0.96
Inrush current	virtually no inrush current	

**Output**

Efficiency	$U_{i\text{ nom}}, I_{o\text{ nom}}$	up to 93%
Output voltage setting accuracy	$U_{i\text{ nom}}, 50\% I_{o\text{ nom}}$	$\pm 0.25\text{ V}$
Output voltage noise (total)	IEC/EN 61204, including a sinusoidal output ripple at twice the line frequency	$\leq 1.1\text{ V}_{\text{pp}}$
Line regulation	$U_{i\text{ min}} \dots U_{i\text{ max}}, I_{o\text{ nom}}$	typ. 1.6%
Load regulation	$U_{i\text{ nom}}, 1 \dots 100\% I_{o\text{ nom}}$	typ. 2.5%
Minimum load	not required	
Current limitation	constant power, constant current characteristic	typ. 145% $I_{o\text{ nom}}$
Operation in parallel	enabled by droop current share	
Hold-up time	$I_{o\text{ nom}}$ , output voltage decrease to 85% $U_{o\text{ nom}}$	16 ms

**Protection**

Input fuse	built-in, UT/LT	10 A slow blow/6.3 A fast
Reverse polarity	bridge rectifier	
Input undervoltage lockout		typ. 90% $U_{i\text{ min}}$
Input overvoltage lockout		typ. 104% $U_{i\text{ max}}$
Input transient	varistor	
Output	no-load, overload and short circuit proof	
Output overvoltage	second control loop	30/60 V SELV
Overtemperature	switch-off with auto restart	$T_{\text{C}}$ typ. 100°C

**Control**

Output voltage adjustment	$U_{\text{cr}}$ input for remote control	93...104% $U_{o\text{ nom}}$
Inhibit	output enabled if inhibit left open	
Output undervoltage monitoring	threshold level externally adjustable	
Status monitoring	system good (Sys OK, $U_o$ OK, no int. or external fault)	
Status indication	LEDs: Sys OK, $U_o$ OK and Error	

**Safety**

Approvals	EN 60950, UL 1950, CSA 22.2 No. 950	
Electric strength test voltage	class I, I/case	2 kV AC
	class I, I/O	4 kV AC
	class I, O/case	1 kV AC
Degree of protection		IP 30

## EMC

Electrostatic discharge	IEC/EN 61000-4-2, level 4, contact/air	8/15 kV, criterion A
Electromagnetic field	IEC/EN 61000-4-3, level 3	10 V/m, criterion A
Electr. fast transients/bursts	IEC/EN 61000-4-4, level 4, capacitive/direct	2/4 kV, criterion A
Surge	IEC/EN 61000-4-5, level 3	2 kV, criterion A
Conducted disturbances	IEC/EN 61000-4-6, level 3	10 V <sub>rms</sub> , criterion A
Electromagnetic emissions	CISPR 22/EN 55022, conducted	class B

## Environmental

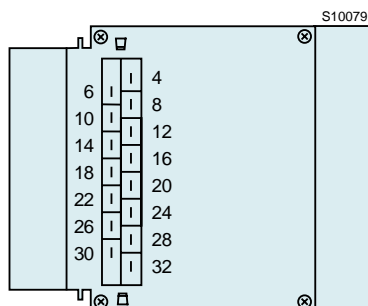
Operating ambient temperature	$U_{i\ nom}, I_{o\ nom}$ , convection cooled	-25...71 °C
Operating case temperature $T_C$	$U_{i\ nom}, I_{o\ nom}$	-25...95 °C
Storage temperature	non operational	-40...100 °C
Damp heat	IEC/EN 60068-2-3, 93%, 40 °C	56 days
Vibration, sinusoidal	IEC/EN 60068-2-6, 2...28/28...2000 Hz	1.5 mm/5 g <sub>n</sub>
Shock	IEC/EN 60068-2-27, 6 ms	100 g <sub>n</sub>
Random vibration	IEC/EN 60068-2-64, 20...500 Hz	4.9 g <sub>n rms</sub>
MTBF	MIL-HDBK-217E, G <sub>B</sub> , 40 °C	198'000 h

## Options

Remote bus voltage monitoring	D
Battery cell voltage selector switch	Z
Mounting plate for chassis mounting	B1

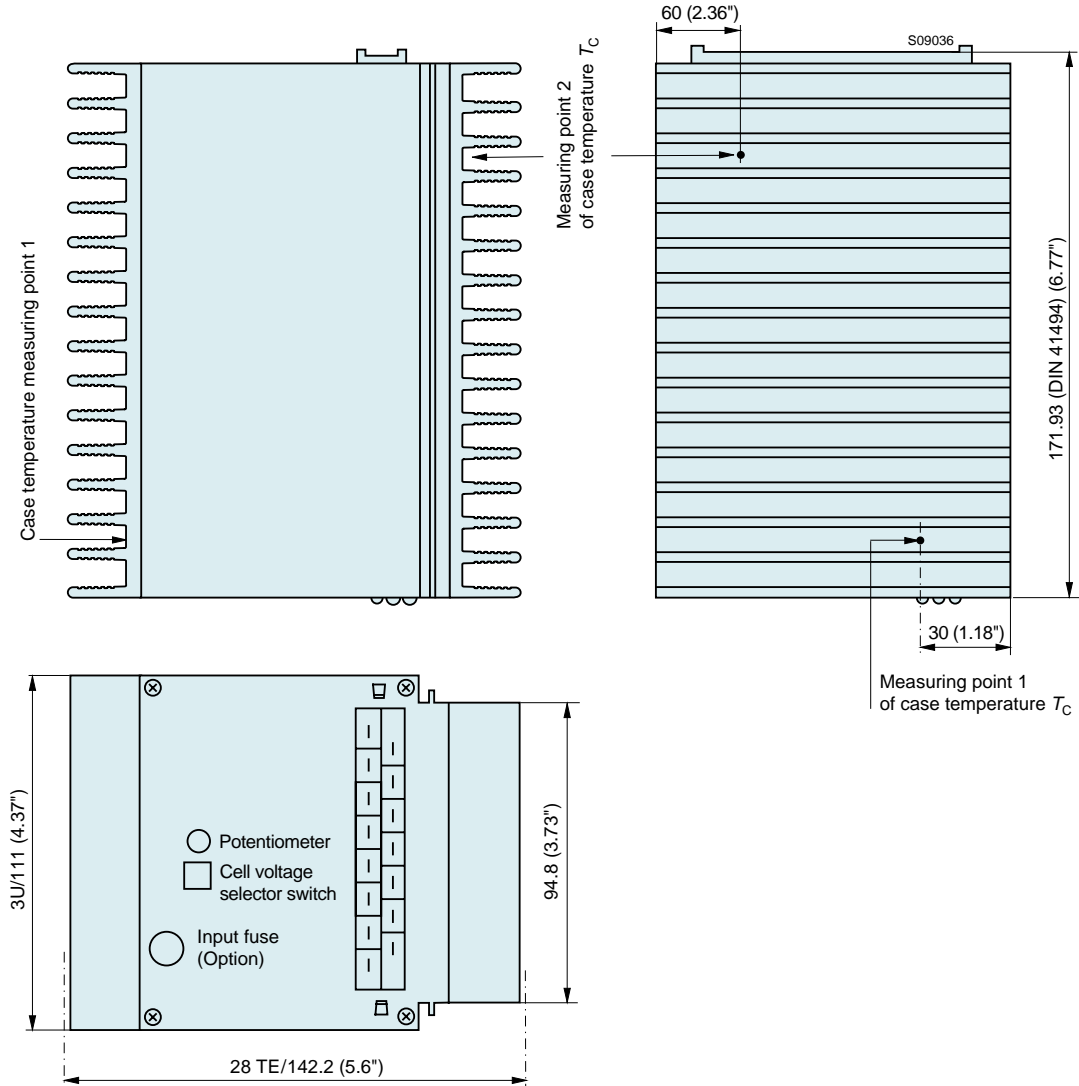
## Pin allocation

Pin	Electrical determination	Design.
4	Phase	P~
6	Neutral	N~
8	Protective earth	⊕
10	Protective earth	⊕
12	Output voltage positive	Vo+
14	Output voltage positive	Vo+
16	Hot plug-in contact, positive	HC+
18	Hot plug-in contact, negative	HC-
20	Output voltage negative	Vo-
22	Output voltage negative	Vo-
24	System good signal input	Sys In
26	System good signal output	Sys Out
28	Inhibit input or remote control input	i/U <sub>cr</sub>
30	Power down signal	D
32	Power down signal threshold of U <sub>o</sub>	D set



## Mechanical data

Tolerances  $\pm 0.3$  mm (0.012") unless otherwise indicated.



## Accessories

- Front panels 19" (Schroff)
- Mating H15 connectors with screw, solder, fast-on or press-fit terminals
- Connector retention facilities and code key system for connector coding
- Back planes for system integration
- 19" racks for system integration
- Temperature sensors for battery charging