

Industrial Power Supplies

TIS Series, 50-600 Watt

Features

- Switch mode power supplies for **DIN-rail mount**
- 6 power ranges with 2, 3, 6, 12, 20 and 24 A output current (24 VDC models)
- Selectable 115/230 VAC input
- Very low ripple and noise
- EMI complies with EN 61000-6-3 and EN 61000-6-4
- Operating temp. range –25°C to +70°C
- For system operation available with built-in functions:
 - **RED:** Redundancy module for N+1 Systems with true current sharing
 - Signal module with AC-powerfail, power good signal and external On/Off control
 - UDS: DC-UPS module for uninterruptable battery backed-up power systems
- Worldwide safety approvals incl. class I, div. 2 location
- Easy snap-on mount on DIN-rails or chassis mount
- 3-year product warranty













The switching power supplies of the TIS series have been particularly designed for applications in industrial process control systems and with machine tools. Excellent specifications and high immunity against electrical disturbances guarantee reliable power for sensitive loads in rugged industrial environments. With the help of optional function modules specific requirements for system applications can be easily realized with a standard model. With the UDS module the power supplies can be extended to a perfect DC-UPS with automatic battery-backup. This function is very often required in applications where a time delayed shutdown of a system is necessary. To monitor and control the power supply a signal module can be installed. For parallel operation with active power sharing a redundancy option is available. This flexibility makes the TIS series power supplies a cost effective solution for many industrial applications.

Models				
Order Code	Input Voltage	Output Power	Output Voltage	Output Current
(includes terminal plugs)	nom.	max.	nom.	max.
TIS 50-112	115-240 VAC		12 VDC	3.5 A
TIS 50-124	universal input	50 W	24 VDC	2.0 A
TIS 75-112			12 VDC	6.0 A
TIS 75-124	115/230 VAC	75 W	24 VDC	3.0 A
TIS 75-148	selectable		48 VDC	1.5 A
TIS 150-124	115/230 VAC		24 VDC	6.0 A
TIS 150-148	selectable	150 W	48 VDC	3.0 A
TIS 300-124			24 VDC	12.0 A
TIS 300-148	115/230 VAC	300 W	48 VDC	6.0 A
TIS 300-172	selectable		72 VDC	4.2 A
TIS 500-124-115	115 VAC	500 W	24 VDC	20.0 A
TIS 500-124-230	230 VAC	500 W	24 VDC	20.0 A
TIS 600-124	115/000 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		24 VDC	24.0 A
TIS 600-148	115/230 VAC	600 W	48 VDC	12.0 A
TIS 600-172	selectable		72 VDC	8.5 A



Industrial Power Supplies TIS Series 50-600 Watt

Input Specifications		
Input voltage range		
Input frequency		47 – 63 Hz
Input current at full load (typ.)	TIS 50: TIS 75: TIS 150: TIS 300: TIS 500: TIS 600:	1.3 A 0.75 A 2.7 A 1.6 A 4.9 A 2.9 A 6.0 A 4.3 A
Recommended circuit breaker, characteristic C or fuse, slow blow typ	TIS 50: TIS 75: TIS 150: TIS 300: TIS 500: TIS 600:	15.0 A
Output Specifications		
Output voltage adj. range	12 VDC models: 24 VDC models: 48 VDC models: 72 VDC models:	48 – 52 VDC
Regulation – Input variation – Load variation (10	–90%) TIS 50, TIS 75, TIS 150: TIS 300, TIS 500, TIS 600:	0.2 % 1.0 % 0.3 % (2.0 % in parallel operation)
Ripple and noise (20MHz bandwidth)		<50 mV pk-pk
Electronic short circuit protection		current limitation at 110 % typ. (constant current, automatic restart)
Over voltage protection, trigger point at		140 % typ. Vout nom.
Hold-up time	TIS 50 TIS 300: TIS 500: TIS 600:	min. 20 ms min. 40 ms



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Temperature ranges	Operating (ambient temp.)		−25°C to +70°C	
	- Derating above 50°C (122°F)		2 %/K	
	– Storage (non operating)		−25°C to +85°C	
Humidity (non condensing	1		95 % rel. H max.	
Pollution degree			2	
Temperature coefficient			0.02 %/K	
Switching frequency			80 kHz typ. (pulse width modulation)	
Efficiency	TIS 50 TIS			
		500:	, i	
	IIS	600:	/1	
Isolation			according to IEC/EN 60950, UL 60950, UL 508	
Reliability, calculated MTB				
(MIL-HDBK-217F, at $+25^{\circ}$ C				
- 6	TIS 500/	600:	340′000 h / 300′000 h	
Safety standards			IEC/EN 60950-1 (SELV, except 72 VDC models UL/cUL 60950-1, UL 508, UL/cUL 1604	
Safety approvals	– CB report		for IEC 60950	
	,		www.tracopower.com/products/tis-cb.pdf	
	– UL approvals		UL/cUL 60950, File e181381	
			UL/cUL 508, File e210002	
			UL/cUL 1604, File e213613 not for TIS 50 & 500 (Class I, Div. 2, Groups A, B, C and D hazardous location	
			www.ul.com -> certifications	
	- CSA certificate (UL 60950-1, CSA 60950-1)		www.tracopower.com/products/tis-csa.pdf	
Electromagnetic compatib	ility (EMC), Emissions		EN 61000-6-3 / EN 61000-6-4	
	- Conducted RI suppression on input		EN 55011 class B, EN 55022 class B,	
			FCC part 15, level B	
	– Radiated RI suppression		EN 55011 class A, EN 55022 class A,	
			FCC part 15, level A	
Electromagnetic compatib			EN 61000-6-2	
	- Electrostatic discharge (ESD)		IEC/EN 61000-4-2 4 kV/8 kV	
	- Radiated RF field immunity		IEC/EN 61000-4-3 10 V/m	
	 Electrical fast transient / burst immunity Surge immunity 		IEC/EN 61000-4-4 2 kV IEC/EN 61000-4-5 2 kV/4 kV	
	 Surge infiniting Immunity to conducted RF disturbances 		IEC/EN 61000-4-6 10 V	
	Power frequency field immunity		IEC/EN 61000-4-8 30 A/m	
Safety class	1 / / / / /		degree of electrical protection 1 (IEC 536)	
Case protection			IP 20 (IEC 529)	
Environment – Vibration			IEC 60068-2-6; 1 gn, 200 sweeps, each axis	
	– Shock		IEC 60068-2-27; 15 gn, 11 ms, each axis	
Enclosure material			aluminium (chassis) / zinc plated steel (cover)	
Mounting (snap-on with se	elf locking spring)		for 35 mm DIN-rails as per EN 50022	
Connection			detachable screw terminal block	
			(plugs included)	
			(TIS 600: fixed screw terminal block)	

Instruction manual can be downloaded under: www.tracopower.com/products/tis-manual.pdf

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



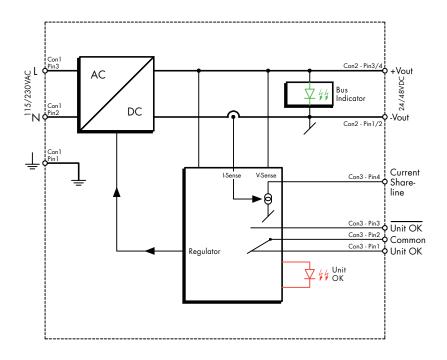
Power Supplies with Redundancy Function

With this option a parallel operation of up to 5 units is possible. Decoupling diodes and current share lines allow to build true N+1 redundant systems with active current sharing for all units. This function also includes an alarm relay to signal a single unit failure.

This option is available for TIS 150 W, TIS 300 W and TIS 600 W models.

Please note: This option cannot be combined with other options.

Models				
Order Code	Input Voltage	Output Power	Output Voltage	Output Current
(includes terminal plugs)		max.	nom.	max.
TIS 150-124 RED	115/230 VAC	150 \	24 VDC	6.0 A
TIS 150-148 RED	selectable	150 W	48 VDC	3.0 A
TIS 300-124 RED	115/230 VAC	200 \	24 VDC	12 A
TIS 300-148 RED	selectable	300 W	48 VDC	6.0 A
TIS 600-124 RED	115/230 VAC	(00)	24 VDC	24 A
TIS 600-148 RED	selectable	600 W	48 VDC	12 A



Specifications

Rating per relay contact

60 VDC /0.36 A max.

Instruction manual for RED option can be downloaded under: http://www.tracopower.com/products/tis-red_manual.pdf



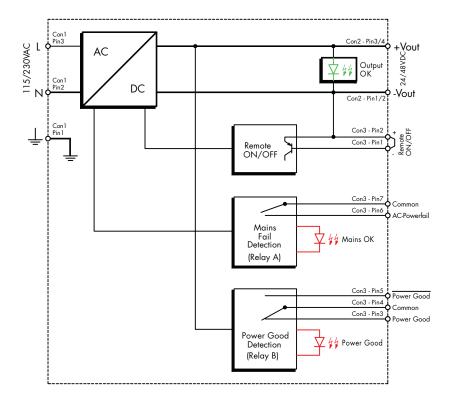
Industrial Power Supplies
TIS Series 50-600 Watt

Power Supplies with Powerfail Functions

These models provide 3 functions required in many process control system applications:

- ◆ AC-Powerfail signal (relay contact)
- Power Good signal (relay contact)
- Remote On/Off

Models				
Order Code	Input Voltage	Output Power	Output Voltage	Output Current
(includes terminal plugs)		max.	nom.	max.
TIS 150-124 SIG	115/230 VAC	150 W	24 VDC	6.0 A
TIS 150-148 SIG	selectable	150 **	48 VDC	3.0 A
TIS 300-124 SIG	115/230 VAC	300 W	24 VDC	12 A
TIS 300-148 SIG	selectable	300 **	48 VDC	6.0 A
TIS 600-124 SIG	115/230 VAC	600 W	24 VDC	24 A
TIS 600-148 SIG	selectable	000 **	48 VDC	12 A



Specifications	
Power Good signal trigger point	models with 24 Vout: >22.8 VDC ±0.5 V relay B closed (pin 4 - pin 3) models with 48 Vout: >45.6 VDC ±1.0 V relay B closed (pin 4 - pin 3)
AC-Powerfail signal	Vin <93 resp. <187 VAC relay A closed (pin 7 – pin 6)
Raiting per relay contact	60 VDC /0.36 A max.
Remote On/Off - ○n - ○ff	short circuit con 3 pin 1 and pin 2 open circuit con 3 pin 1 and pin 2

Instruction manual for SIG option can be downloaded under: http://www.tracopower.com/products/tis-sig_manual.pdf



DC-UPS-System



In addition to the standard power supply function, these models include a professional battery management system to charge and monitor an external battery. In the event of a power failure the battery is switched automatically and without any interruption to the DC output. Once mains power is available again, the battery is switched off. The backup time is limited only by battery capacity and load. Charge current and voltage can be adjusted to values as required by battery type. Power fail and low battery alarm signals

are available via two independent relay contacts. During normal operation the battery status is monitored by periodically loading the battery for a short time. If a cell resistance is high, there is a relay alarm is available. The battery is fully protected under any operational conditions. The power supply is short circuit protected even in battery backup operation but, for safety reasons, the battery should be fitted with a fast blow fuse. Battery mode can be activated by interconnecting pin 7 and 8.

Models							
Order Code 1)	Input Voltage	Output Power	Output Voltage	Output Current 2)			
		max.	nom.	max.			
TIS 300-124 UDS	115/230 VAC	300 W	24 VDC	12 A			
	selectable						
TIS 600-124 UDS	115/230 VAC	600 W	24 VDC	24 A			
	selectable						

¹⁾ Includes terminal plugs, does not include batteries

External Batteries

For external batteries we recommend:

Two Panasonic LC-R123R4PG in series for 3.4 Ah: www.tracopower.com/products/tsp-panas_034.pdf Two Panasonic LC-R127R2PG1 in series for 7.2 Ah: www.tracopower.com/products/tsp-panas_072.pdf

Mounting Devices for Batteries

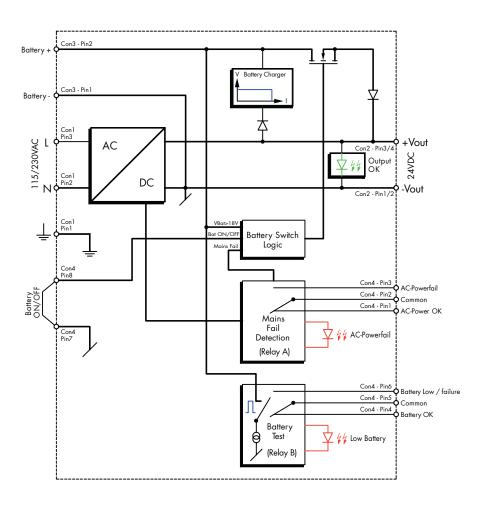
Order Code:

TIS 24-32AF Frame & wiring for two Panasonic LC-R123R4PG batteries **TIS 24-70AF** Frame & wiring for two Panasonic LC-R127R2PG1 batteries

Mounting devices including Batteries on request.

²⁾ reduce max. output current by battery charging current

DC-UPS-System

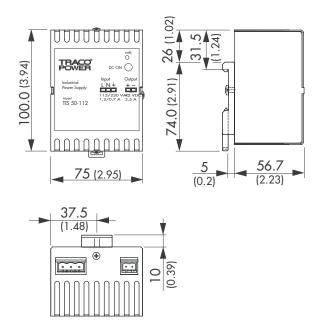


Specifications			
Charging current (factor	ry set)	TIS 300-124 UDS: TIS 600-124 UDS:	
Adjustment range of cha	arging current	TIS 300-124 UDS: TIS 600-124 UDS:	0.15 – 1.5 A
Holding current for chai	rged battery at voltage 27.3 VDC		<50 mA
Overload or short circui	it during battery operation		system switches off
AC-Powerfail signal			Vin <93 or <187 VAC relay A closed (pin 2 – pin 3)
Low battery signal	Battery voltage below 22 VRaiting per relay contact		relay B closed (pin 5 – pin 6) 60 VDC /0.36 A max.

Instruction manual for UDS option can be downloaded under: http://www.tracopower.com/products/tis-uds_manual.pdf

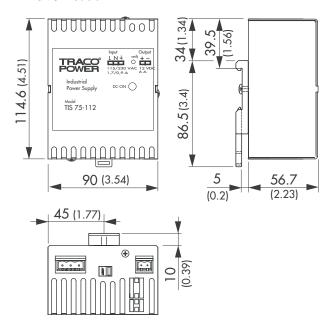
Case Dimensions

TIS 50 models



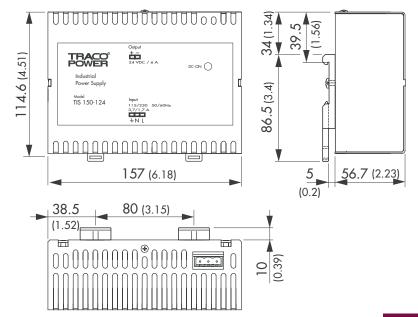
Weight: 0.41 kg (0.9 lb)

TIS 75 models



Weight: 0.48 kg (1.06 lb)

TIS 150 models



Weight: 0.80 kg (1.76 lb)

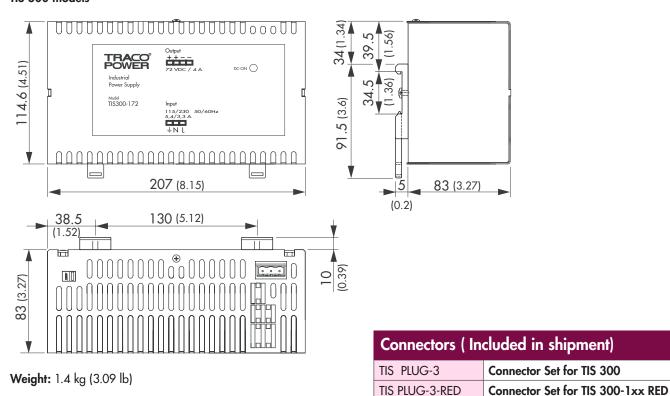
Connectors (Included in shipment)						
TIS PLUG-1	Connector Set for TIS 50/75/150					
TIS PLUG-1-RED	Connector Set for TIS 150-1xx RED					

Connector Set for TIS 300-1xx UDS

Connector Set for TIS 500

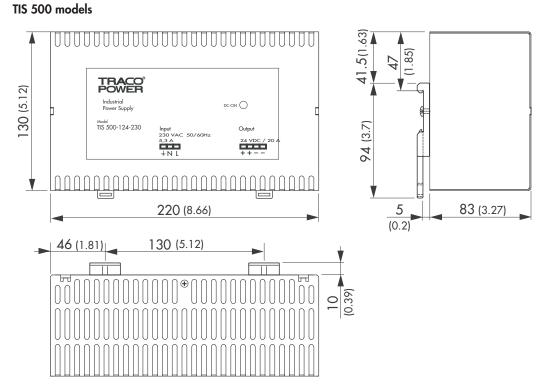
Case Dimensions

TIS 300 models



TIS PLUG-3-UDS

TIS PLUG-5

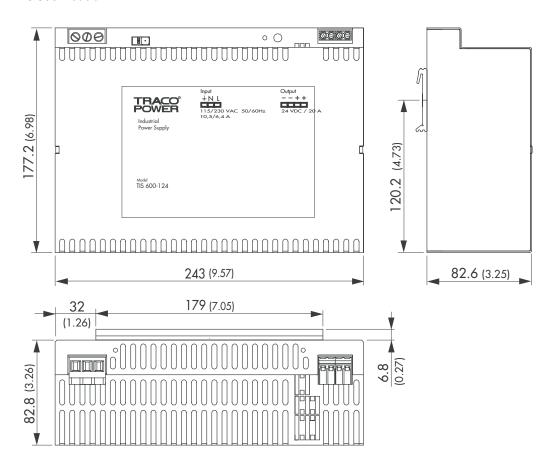


Weight: 1.9 kg (4.19 lb)

Dimensions in [mm], () = Inch Tolerances: ± 0.5 (± 0.02)

Outline Dimensions mm (inches)

TIS 600 models

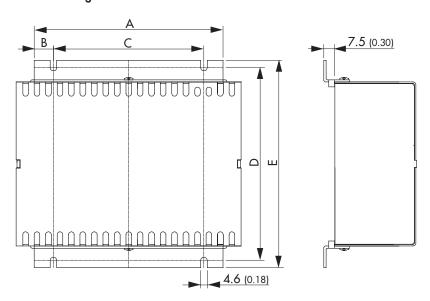


Weight: 2.0 kg (4.41 lb)

Connectors (Included in shipment)				
TIS PLUG-6-RED	Connector Set for TIS 600-1xx RED			
TIS PLUG-6-UDS	Connector Set for TIS 600-1xx UDS			

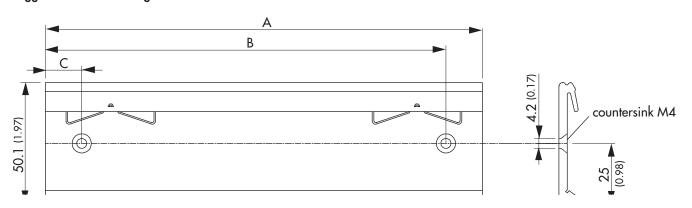
Optional Mounting Systems

Wall mounting kit



Models	Order code	Α	В	С	D	E
TIS 75	MK-75	37 (1.46)	14.5 (0.57)	_	134.5 (5.30)	150.5 (5.93)
TIS 150	MK-150	132 (5.20)	13.5 (0.53)	105 (4.13)	134.5 (5.30)	150.5 (5.93)
TIS 300	MK-300	132 (5.20)	13.5 (0.53)	105 (4.13)	134.5 (5.30)	150.5 (5.93)
TIS 500	MK-500	132 (5.20)	13.5 (0.53)	105 (4.13)	134.5 (5.30)	150.5 (5.93)
TIS 600	MK-600	190 (7.48)	37.5 (1.48)	115 (4.53)	197.0 (7.76)	207.0 (8.15)

Rugged DIN-Rail mounting kit

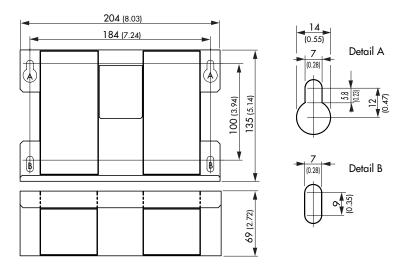


Models	Order code	Α	В	С
TIS 150	RMK-150	150 (5.91)	115 (4.53)	35 (1.38)
TIS 300	RMK-300	200 (7.87)	165 (6.50)	35 (1.38)
TIS 500	RMK-300	200 (7.87)	165 (6.50)	35 (1.38)
TIS 600	standard	180 (7.09)	165 (6.50)	15 (0.59)



Outline Dimensions mm (inches)

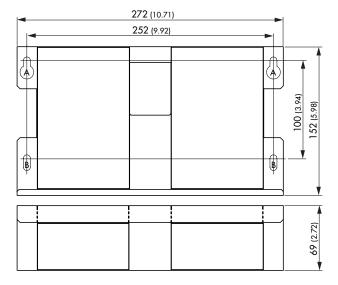
TIS 24-32AF (Frame & wiring, excluding batteries)



On request:

TIS 24-32AP: Package with 2 Panasonic LC-R123R4PG batteries included

TIS 24-70AF (Frame & wiring, excluding batteries)



On request:

TIS 24-70AP: Package with 2 Panasonic LC-R127R2PG1 batteries included

