



FS-TPSU-2430 24 Vdc to 30 Vdc/1 A converter (FTA-T-15)

Description

The FS-TPSU-2430 module is a DC/DC converter, which is used to provide an isolated 30 Vdc / 1 A to other field termination assemblies (FTAs), e.g. the analog input FTA modules FTA-T-14, FS-TSAI-1620m, FS-TSHART-1620m or the active analog input FTA module FTA-T-16. It has voltage monitoring capabilities with local LED indication and also provides alarm functions (read back relay contact). The LED is on and the relay contact is closed if the local DC/DC output voltage is OK.

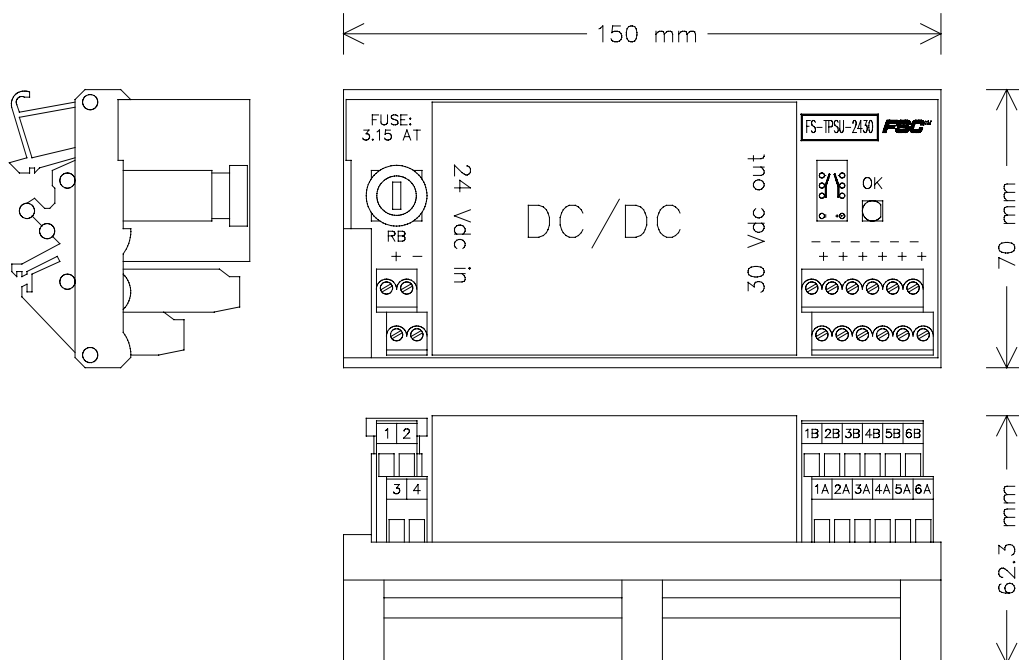


Figure 1 Mechanical layout

Applications

For details on applications and connection options for the FS-TPSU-2430 module refer to the 'SIC to FTA applications' data sheet.

Connections

The FS-TPSU-2430 module has four screw terminals for connection of incoming power wires and the read back wiring. The screw terminals are numbered 1 to 4. The function of each terminal is listed below:

Screw terminal	Function
1	Read back contact
2	Read back contact
3	24 Vdc IN +
4	24 Vdc IN –

Note:

Removal or connection of the 24 Vdc IN+ and/or 24 Vdc IN– wire(s) is only allowed when the 24 Vdc power supply to the FS-TPSU-2430 module has been switched off.

The FS-TPSU-2430 module has twelve screw terminals for connection of outgoing power wires. The screw terminals are numbered '1A', '1B', '2A', etc. to '6B'. The function of each terminal is listed below:

Screw terminal	Function
1A	30 Vdc OUT
1B	0 Vdc OUT
2A	30 Vdc OUT
2B	0 Vdc OUT
3A	30 Vdc OUT
3B	0 Vdc OUT
4A	30 Vdc OUT
4B	0 Vdc OUT
5A	30 Vdc OUT
5B	0 Vdc OUT
6A	30 Vdc OUT
6B	0 Vdc OUT



Technical data

The FS-TPSU-2430 module has the following specifications:

General	Type number:	FS-TPSU-2430
	Approvals:	CE, TÜV, UL, FM**
	Safety class:	AK1-6
	MTBF:	approx. 400,000 hours
Input	Nominal input voltage:	24 Vdc
	Input voltage range:	18 to 36 Vdc
	Inrush current:	≤ 4 A (<i>see note below</i>)
Output	Output voltage:	30 Vdc, ± 0.25 V
	Output current:	1 A (short-circuit proof)
	Short-circuit current:	< 3.3 A
	Ripple (0-30 MHz):	< 0.1 Vrms
	Regulation:	$< 1\%$ (load + line)
	Transient response:	class C according to NFC42801C
	Power-on overshoot:	output < 31 V
	Overvoltage protection:	31 V
	Long-term stability (after 30 min. operation):	$< 0.3\%$
	Efficiency:	$> 75\%$
Physical	Switching frequency:	> 25 kHz
	Module dimensions:	150 x 70 x 62.3 mm (L x W x H) 5.91 x 2.76 x 2.45 in (L x W x H)
	DIN EN rails:	TS32 / TS35 x 7.5
	Used rail length:	151 mm (5.94 in)
Fuse	Rating:	3.15 AT (slow-acting)
	Dimensions:	5 x 20 mm (0.2 x 0.79 in)

Note:

The inrush current limiter is only active at power-on.
To regain the inrush current limiting function, the FS-TPSU-2430 module must be switched off for at least 30 seconds.
Switching on the module within 30 seconds may blow a fuse or activate a circuit breaker.

** See datasheet 10105/2/1

Technical data (continued)

Termination	Screw terminals:	
	– max. wire diameter	2.5 mm ² (AWG 14)
	– strip length	7 mm (0.28 in)
	– tightening torque	0.5 Nm (0.37 ft-lb)
Isolation	Isolation voltage:	
	– input to output	2000 Vac (1 min.)
	– input to relay contact	2000 Vac (1 min.)
	– output to relay contact	2000 Vac (1 min.)
Environment	Operating temperature:	–5°C to +70°C (23°F to 158°F)
	Storage temperature:	–40°C to +85°C (–40°F to +185°F)
	Cooling:	natural convection
Alarm functions	Overvoltage protection:	dual, two-fault-tolerant
	Restart overvoltage protection:	only after removal of 24 Vdc power
	Undervoltage detector:	LED on if voltage OK, readback relay contact closed if voltage OK
	Undervoltage level:	typically 27.5 Vdc
Readback	Relay contact rating:	36 Vdc / 40 mA, 30 Vac / 40 mA

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