

# TPSU-2430

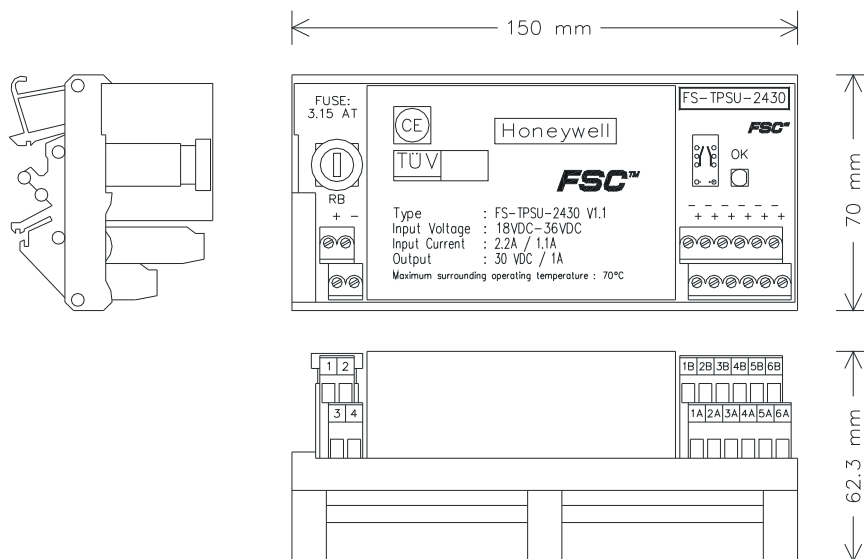
24 Vdc to 30 Vdc / 1 A converter

## Description

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

The FTA module has a universal snap-in provision for standard DIN-EN rails.

Figure 416 Mechanical layout



## Connections

The TPSU-2430 module has four screw terminals for connecting 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 –



### Caution

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 TPSU-2430 module has been switched off.

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The TPSU-2430 module has twelve screw terminals for connection of outgoing power wires. The screw terminals are numbered ‘1A’, ‘1B’, ‘2A’, and so on, up 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 or ground <sup>1</sup>

<sup>1</sup> 0 Vdc must be grounded to provide a predictable system response in case of a short to earth in the field.

## Technical data

The TPSU-2430 module has the following specifications:

<b>General</b>	Type numbers <sup>1 2</sup> :	FS-TPSU-2430 V1.1 FC-TPSU-2430 CCV1.1
	Approvals:	CE, TUV, UL, CSA, FM
	Safety class:	up to and including SIL3
	MTBF:	approx. 400,000 hours
<b>Input</b>	Nominal input voltage:	24 Vdc
	Input voltage range:	18—36 Vdc
	Inrush current:	≤ 4 A ( <i>see note below</i> )
<b>Output</b>	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%
	Switching frequency:	> 25 kHz
<b>Physical</b>	Module dimensions:	150 × 70 × 62.3 mm (L × W × H) 5.91 × 2.76 × 2.45 in (L × W × H)
	DIN EN rails:	TS32 / TS35 × 7.5
	Used rail length:	151 mm (5.94 in)
<b>Fuse</b>	Rating:	3.15 AT (slow-acting)
	Dimensions:	5 × 20 mm (0.2 × 0.79 in)
<b>Termination</b>	Screw terminals:	
	• Max. wire diameter	2.5 mm <sup>2</sup> (AWG 14)
	• Strip length	7 mm (0.28 in)
	• Tightening torque	0.5 Nm (0.37 ft-lb)

<b>Isolation</b>	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.)
<b>Environment</b>	Operating temperature:	–5°C—+70°C (23°F—158°F)
	Storage temperature:	–40°C—+85°C (–40°F—+185°F)
	Cooling:	natural convection
<b>Alarm functions</b>	Overvoltage protection:	dual, two-fault-tolerant
	Restart overvoltage protection:	only after removal of 24 Vdc power
	Undervoltage detector:	LED on if voltage OK, read-back relay contact closed if voltage OK
	Undervoltage level:	typically 27.5 Vdc
<b>Readback</b>	Relay contact rating:	36 Vdc / 40 mA, 30 Vac / 40 mA

- 1 FS-type modules are non conformal coated modules. FC-type modules are conformal coated modules. Conformal coated modules have the letters "CC" preceding the version number.
- 2 Modules with suffix code V1.1 or CCV1.1 have reduced power dissipation. There are no functional changes.



**Caution**

The inrush current limiter is only active at power-on.

To regain the inrush current limiting function, the 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.

# TSPKUNI-1624

## Sub-D to Powered Knife terminals FTA (Universal,16ch)

### Description

The field termination assembly module TSPKUNI-1624 provides sixteen sets of three knife terminals for RUSIO signals.

The TSPKUNI-1624 has:

- a Power input connector (PWR) that supplies the (+24Vdc) field power
- 37-pole sub-D male connector (CN1) that must be connected with (16) RUSIO channels
- 16 sets of three knife terminals for the sixteen channels

Each channel has a the following knife terminal connections:

- a P terminal that has a (2 Amp) fused +24Vdc connection.
- a + terminal that is the (RUSIO) signal connection.
- a - terminal that is the common 0 Volt connection.

The TSPKUNI-1624 has universal snap-in provisions for standard DIN EN rails.

Figure 417 Mechanical layout

