10300/1/1 24 Vdc to 5 Vdc/12 A converter

Description

The supply voltage of the FSC system is 24 Vdc, which can be powered from the plant's 24 Vdc supply system with battery back-up. The FSC system uses an internal 5 Vdc to power the FSC modules. The 10300/1/1 DC/DC converter provides the internal 5 Vdc with galvanic isolation between the two supply voltages.

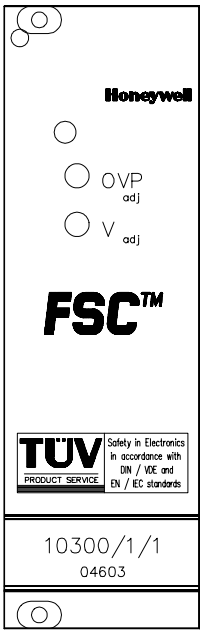


Figure 1 Front view

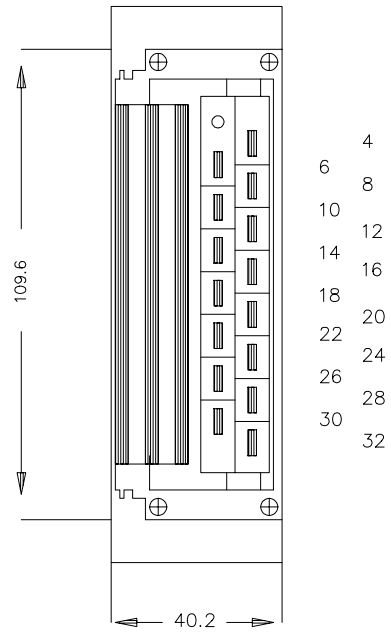
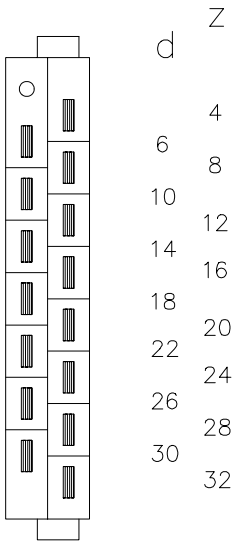


Figure 2 Back view

Note:
Keep 10300/1/1 modules off-line for at least 30 seconds after being on-line. 10300/1/1 modules have an NTC resistor as an inrush current limiter. Replacing (or repowering) the module within 30 seconds after removal (or power-off) may cause a supply voltage dip which may trip the system (because the NTC resistor did not yet cool down sufficiently).

Pin allocation

The back view and pin allocation of the 10300/1/1 power connector are as follows:



d6	+ sense	z4	Supply 5 Vdc
d10	– sense	z8	Supply 5 Vdc
d14	*(see note below)*	z12	GND 5 Vdc
d18		z16	GND 5 Vdc
d22		z20	
d26	Supply 0 Vdc	z24	Supply 0 Vdc
d30	Supply 24 Vdc	z28	Supply 24 Vdc
		z32	Earth

Notes:
1. 10300/1/1 modules without a suffix code and with suffix code 04601 have an ON/OFF input on pin d14. This pin should not be connected.
2. The 10300/1/1 module is a pin-compatible upgraded version of the GK60 module.

Derating curve

The derating curve of the 10300/1/1 module is as follows:

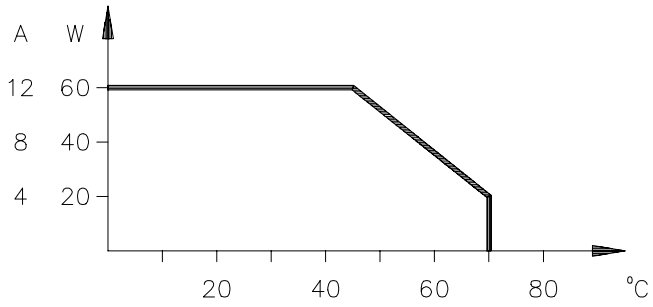


Figure 3 Derating curve (current and power vs. ambient temperature)

Wiring diagram

The 10300/1/1 module is wired in accordance with the wiring diagram below:

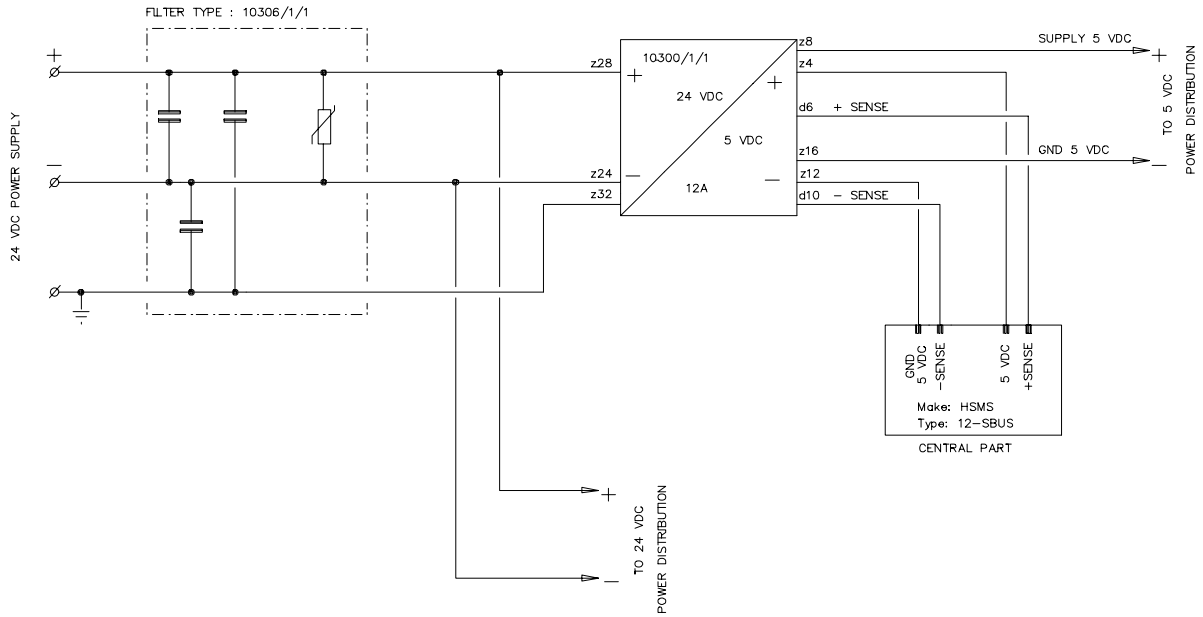


Figure 4 Wiring diagram

Note:
If the 24 Vdc is supplied from an M24-20HE or M24-12HE power supply that is located in the same cabinet as the FSC system, the input filter is not mandatory.

As the limits on the 5 Vdc power supply are very tight (± 5%), this module must be placed closely to the system bus (e.g. 12-SBUS). Use the sense wires correctly and use short wires of proper wire diameter to minimize voltage drop over the wiring.
The minimum wire diameters for 'SUPPLY 5 VDC' and 'GND 5 VDC' to the system bus of the Central Part are as follows:

- up to 8 A: 2.5 mm² (AWG 14)
- up to 12 A: 6 mm² (AWG 10)

Technical data

The 10300/1/1 module has the following specifications:

General	Type number:	10300/1/1 04603*
	Approvals:	CE, TÜV, UL**
	Software versions:	all
	Space requirements:	8 TE, 3 HE (= 8 HP, 3U)
Power	Power requirements:	current < 3.9 A at 24 Vdc voltage 24 Vdc (–15%...+30%)
	Inrush current:	< 18 A
Environment	Ambient temperature:	0°C to 60°C (32°F to 140°F) (see derating curve, Figure 3)
Output	Output voltage:	5 Vdc with overvoltage protection
	Ripple content:	< 40 mV p-p (at full load)
	Output current:	12 A at 0°C to 45°C (32°F to 113°F) 8 A at 0°C to 60°C (32°F to 140°F)
	Hold-up time:	≥ 0 ms
	Output voltage setting (V adj):	5.00 Vdc measured across system bus connections
	Overvoltage protection (OVP adj):	5.75 Vdc
	Efficiency:	≥ 70%

Notes:

***** For 10300/1/1 modules without a suffix code, the output LED may remain on in redundant configurations with single I/O, even if the 10300/1/1 is switched off (LED is energized by a redundant 10300/1/1 unit).

****** 10300/1/1 modules with suffix code 04602 or less are not CE-approved.