

10.2 SDO-0824

10.2.1 Safe digital output module (24 V DC, 0.55 A, 8 channels)

The safe digital output module SDO-0824 has eight 24 V DC, 550 mA output channels to drive loads up to 13 W.

These loads may be resistive (for example lamps) or inductive (for example solenoids). For inductive loads, a suppression diode is included on each output. The outputs, including the suppression diodes, are fully tested and may therefore be used for safe applications.

During the configured Diagnostic Test Interval, the outputs are tested for:

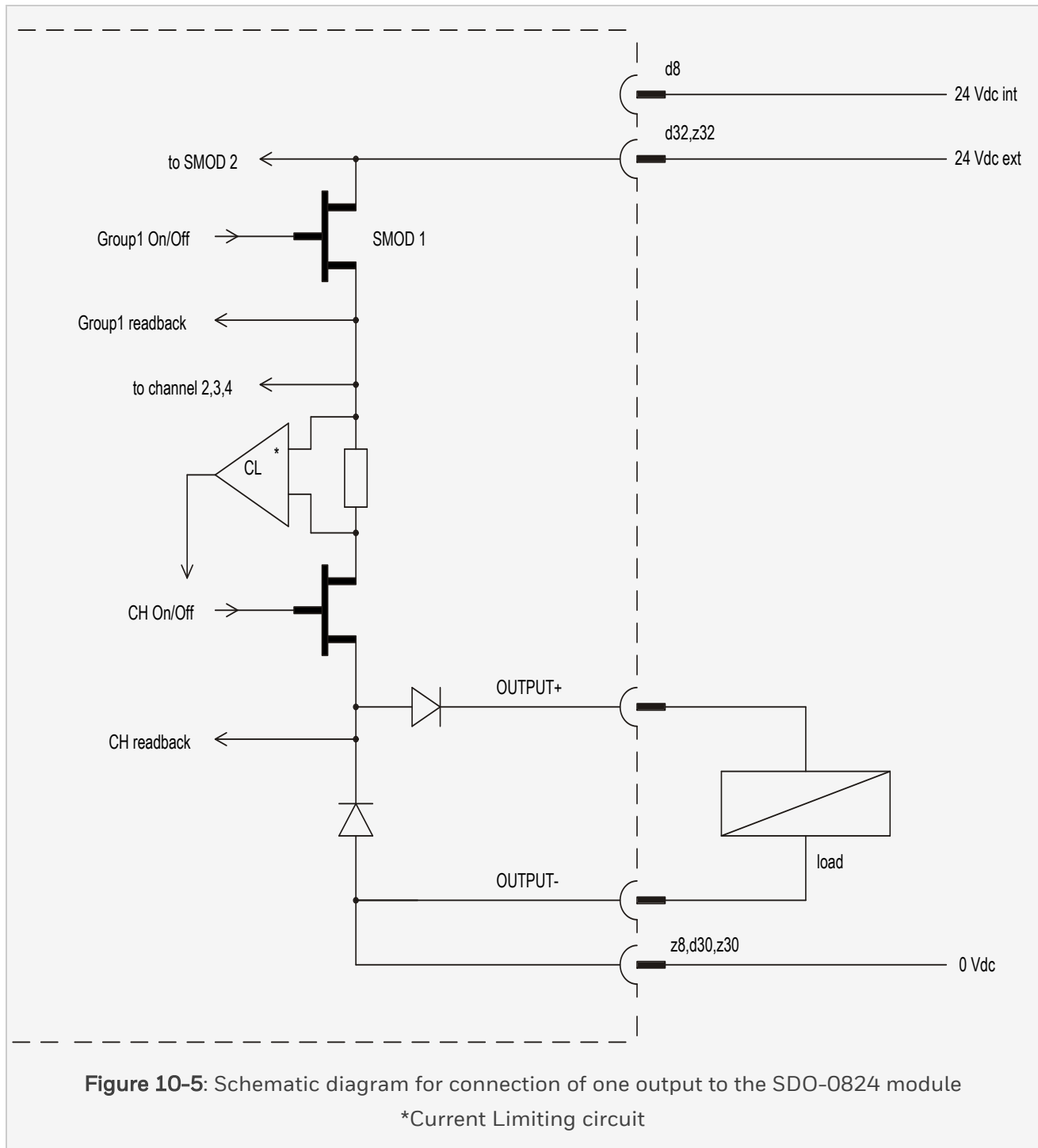
- Ability to de-energize
- Ability to de-energize the group (via secondary means)
- Crosstalk between outputs
- Functioning of the suppression diodes

The outputs are split into two groups of four outputs each. Each group has its own secondary means of de-energizing.

The secondary means of de-energizing (SMOD) enables the watchdog and the processor to de-energize the outputs, irrespective of the result of the application function.

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10.2.2 Pin allocation

The back view and pin allocation of the SDO-0824 module connector are as follows:

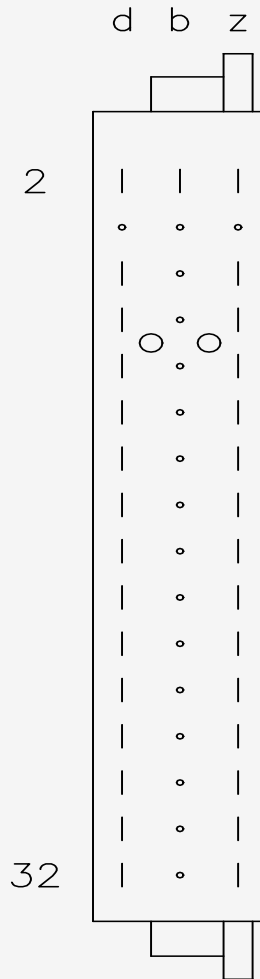


Figure 10-6: Back view and pin allocation of the SDO-0824 module connector

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d2	WDG
d4	-
d6	
d8	Supply 24 V DC int.
d10	(0 V DC)
d12	OUT 1+
d14	OUT 2+
d16	OUT 3+
d18	OUT 4+
d20	OUT 5+
d22	OUT 6+
d24	OUT 7+
d26	OUT 8+
d28	(0 V DC)
d30	Supply 0 V DC
d32	Supply 24 V DC ext.
b2	GND
z2	VCC
z4	-
z6	
z8	Supply 0 V DC
z10	(0 V DC)

z12	OUT 1-
z14	OUT 2-
z16	OUT 3-
z18	OUT 4-
z20	OUT 5-
z22	OUT 6-
z24	OUT 7-
z26	OUT 8-
z28	(0 V DC)
z30	Supply 0 V DC
z32	Supply 24 V DC ext.

10.2.3 Connection examples

The next figures show a number of connection examples for the safe digital output module SDO-0824.

Attention:

The 24 V DC internal and external power supplies must be connected to prevent fault detection during the self-test of the output module (pins d8, z8, d30/z30 and d32/z32).

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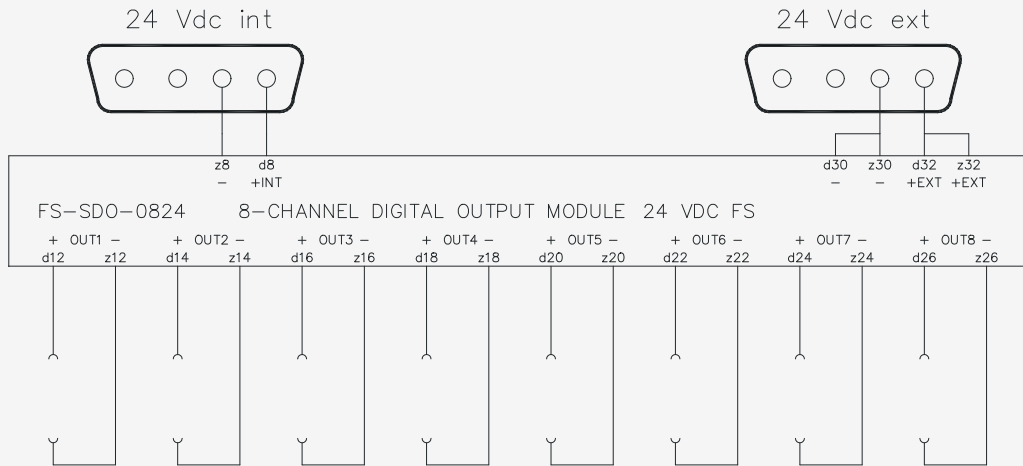


Figure 10-7: Connection example of SDO-0824 module to FTA for both non-redundant and redundant IO configurations

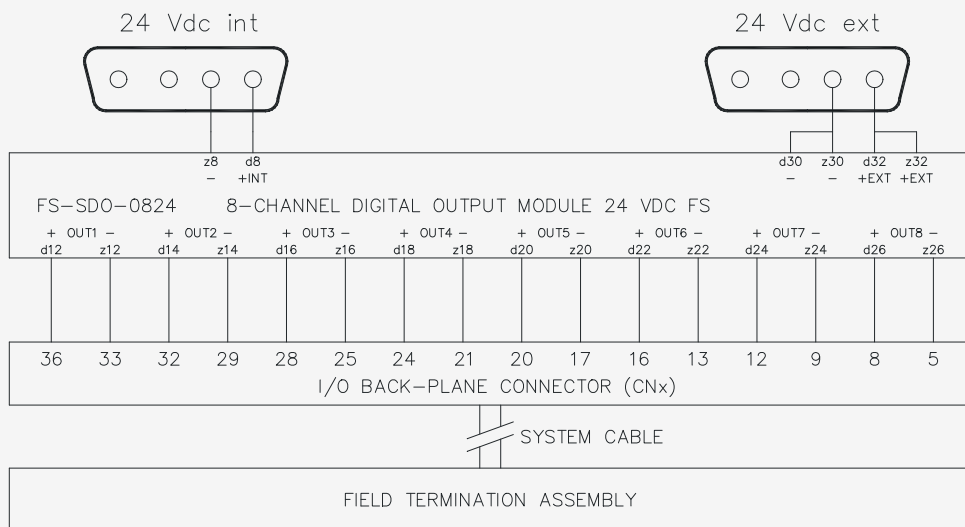


Figure 10-8: IO connection example of SDO-0824 module for non-redundant IO configurations

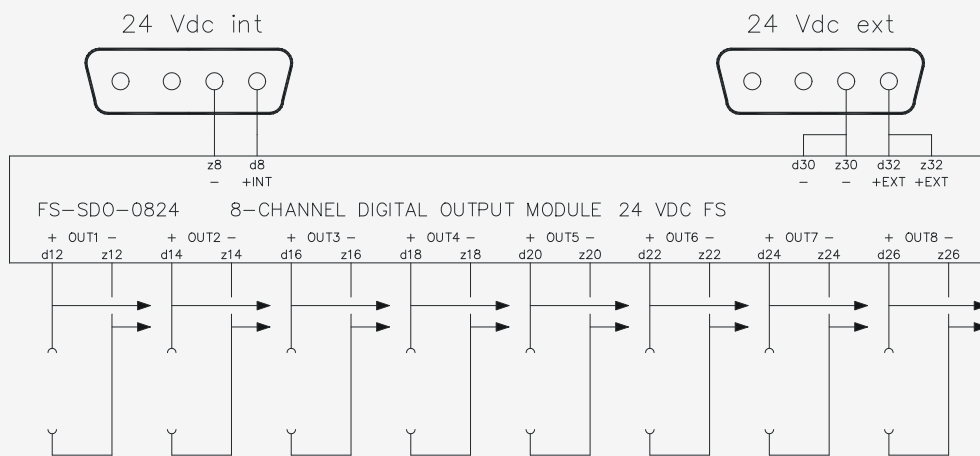


Figure 10-9: IO connection example of SDO-0824 module for redundant IO configurations

10.2.4 Maximum output load

The below figure shows the maximum channel load versus the ambient temperature.

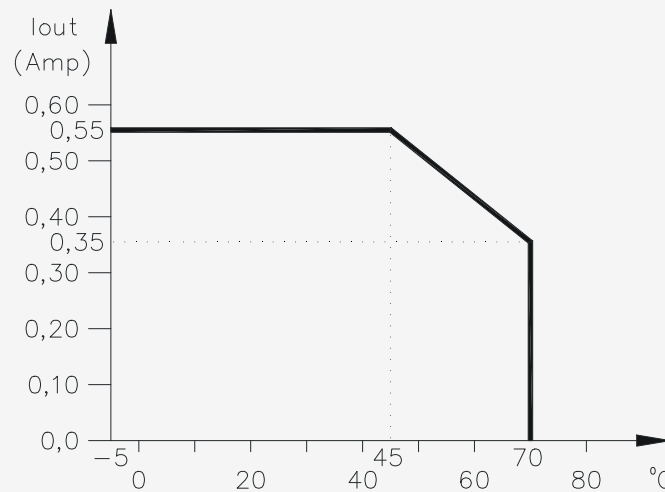


Figure 10-10: Derating curve (channel load vs. ambient temperature) for an SDO-0824

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10.2.5 Technical data

The SDO-0824 module has the following specifications:

General	Type numbers:	FS-SDO-0824
		FC-SDO-0824
	Approvals:	CE, TUV, UL, CSA, FM
	Space requirements:	4 TE, 3 HE (= 4 HP, 3U)
Power	Power requirements:	5 V DC, 25 mA
		24 V DC internal, 25 mA
		24 V DC external, 70 mA (without output load)
Output	Number of output channels:	8
	Output specification:	24 V DC solid-state source, short-circuit proof
	Maximum current:	550 mA
	Maximum lamp load:	120 mA (2.9 W)
	Maximum load capacitance:	1 μ F
	Voltage drop:	< 2.0 V DC at 500 mA
	Off current:	< 0.1 mA
	WDG input current:	8 mA
Key coding	(See section Key coding)	
	Module code:	
	• Holes	A9, C9
	Chassis code:	
	• Large pins	A9, C9