



F 3237: 8-channel input module

safety-related, applicable up to SIL 3 according to IEC 61508,

- for the connection of safety-related proximity switches, proximity switches according to EN 60947-5-6 (NAMUR) and resistor-wired sensors
- monitoring of the lines for short-circuit and line break

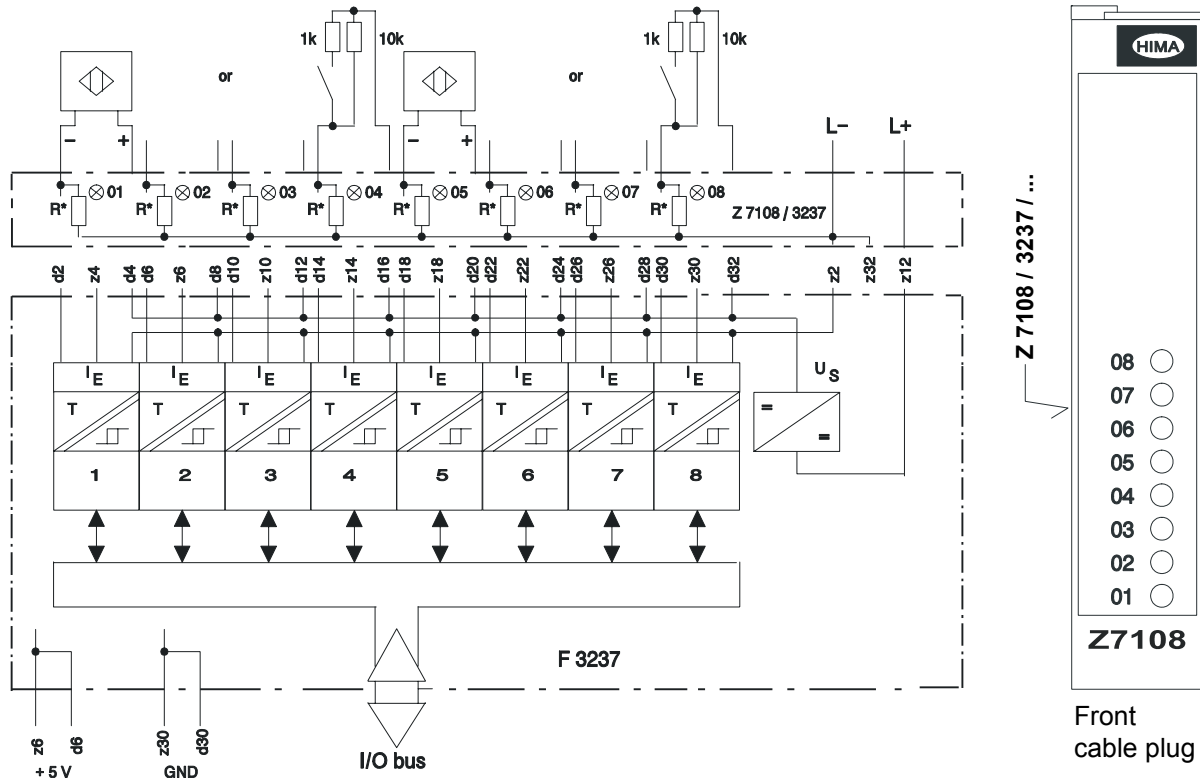


Figure 1: Block diagram and front cable plug

Appertaining function block: HB-RTE-3

The module is automatically tested completely during operation. The main test routines are:

- Switch on and switch-off capability
- Crosstalk of the input circuits by walking-zero
- Function of the input filters
- Correct function of the module

The function of LEDs are not tested.

Switching time	approx. 10 ms
Operating points I_E	
0-signal	$0.35 \leq I_E \leq 1.2 \text{ mA}$
1-signal	$2.1 \leq I_E \leq 6.0 \text{ mA}$
wire break	$\leq 0.28 \text{ mA}$
short circuit	$\geq 6.5 \text{ mA}$
Line impedance	$\leq 50 \Omega$ (acc. to EN 60947-5-6)
Line length	$\leq 1000 \text{ m}$ ($\varnothing = 0.5 \text{ mm}^2$)
Supply voltage U_S	8.2 V
Shunt R^*	681Ω ; 1 %; 0.25 W
(R17...R24)	part no. 00 0751681
Space requirement	4 SU
Operating data	5 VDC / 90 mA; 24 VDC / 170 mA

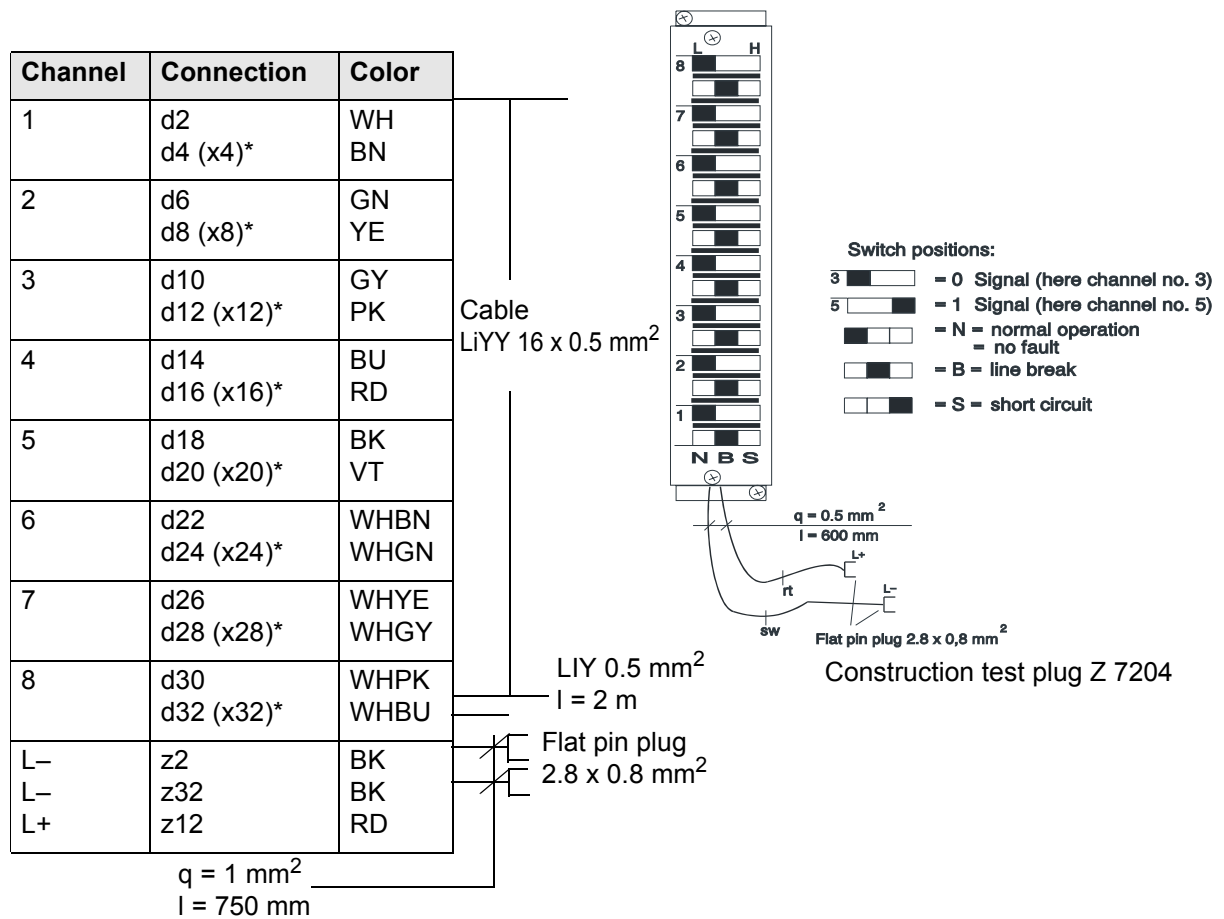


Figure 2: Lead marking cable plug Z 7108 / 3237 / .. and construction test plug Z 7204

* The connections (X4) to (X32) are only used at special cable connectors.

Redundant connection for a safety-related proximity switch

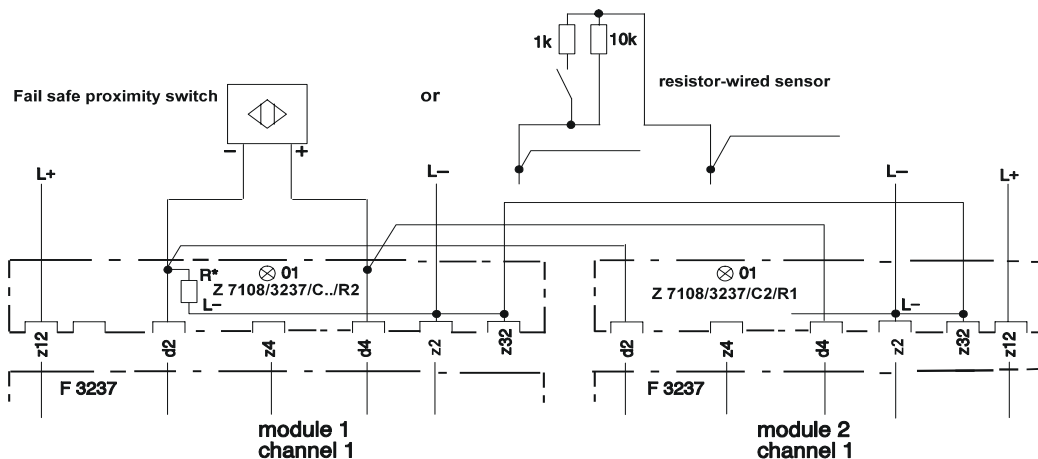
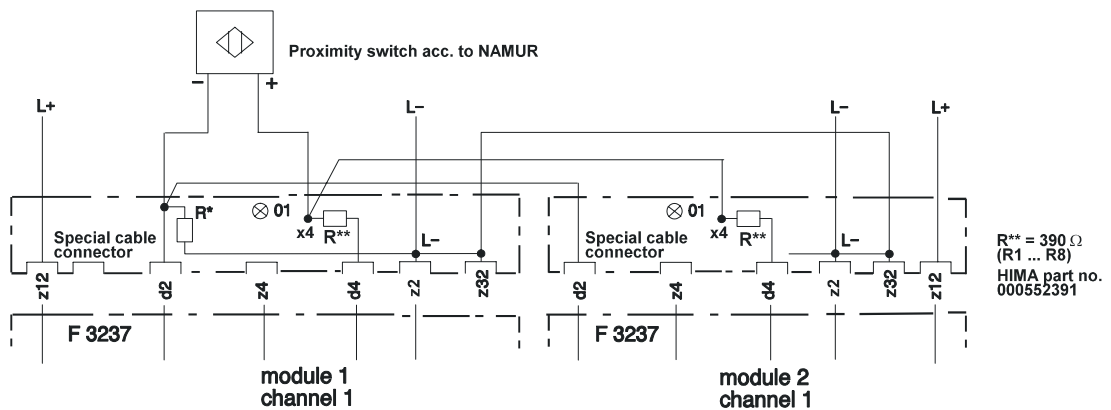


Figure 3: Redundant connection for a safety-related proximity switch

Cable plug: Z7108 / 3237 / C.. / R
HIMA order no.: 93 3237 300

Connection for proximity switches NAMUR (according to EN 60947-5-6: 2000)



R** is also necessary in mono applications!

Figure 4: Redundant connection for one proximity switch NAMUR
(according to EN 60947-5-6: 2000)

Special cable plug: Z7108 / 3237 / C.. / S102 (mono connection)
HIMA order no.: 93 3237102

At redundant connection of proximity switches NAMUR (according to EN 60947-5-6) the following redundant special cable plug must be used:

Z7108 / 3237 / W / R1 / S209 with resistors R1...R8=390 Ω for NAMUR proximity switches

Z7108 / 3237 / Cx / R2 / S209

HIMA order no.: 93 3237 209

Between the plug R2 and R1 (see Figure 4) the connections are configured as single cores.

Note

If using the special cable plug for Namur proximity switches in the safety loop (module - proximity switch) the SIL level may be reduced to that of the proximity switch.

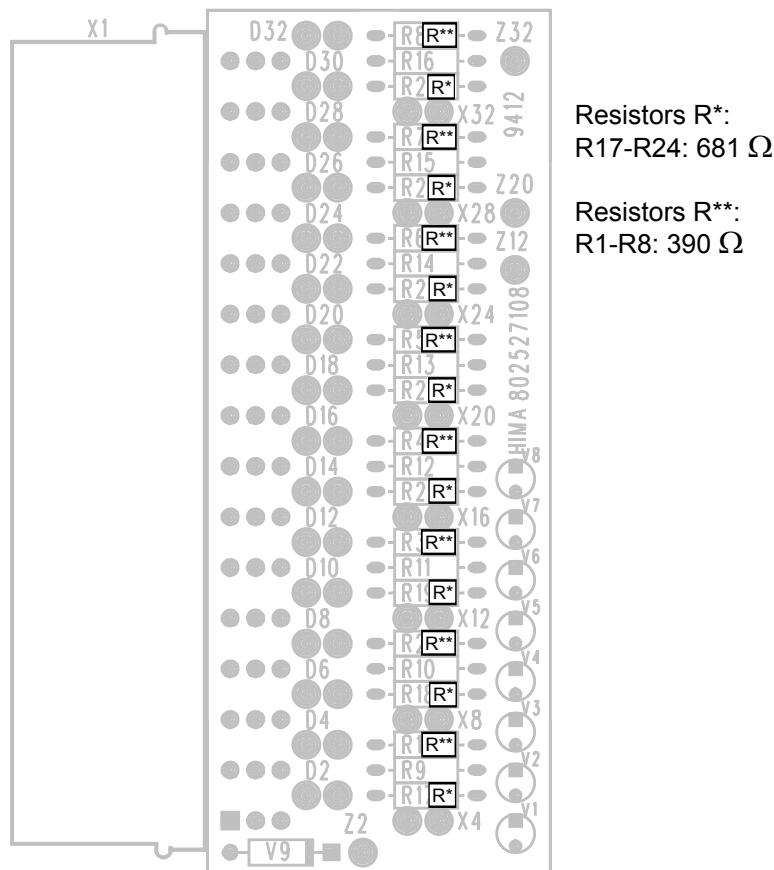
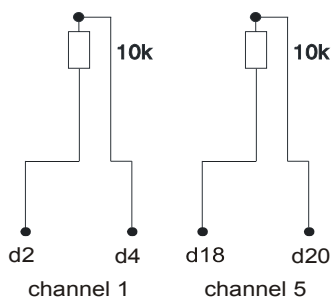


Figure 5: Cable connector Z 7108 (special design for NAMUR)

Termination of not used inputs

Note

Not used inputs, which are connected in the HIMA function block HB-RTE-3, must be terminated with a 10 kΩ resistor at the input of the module. Thereby line error messages of the not used input channels are eliminated (see following scheme).



Example:

Channel 1 and channel 5 are not used.

Termination of channel 1 (connections d2-d4) and channel 5 (connections d18-d20) each with 10 kΩ.

Figure 6: Resistor circuit for the inputs