



## 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

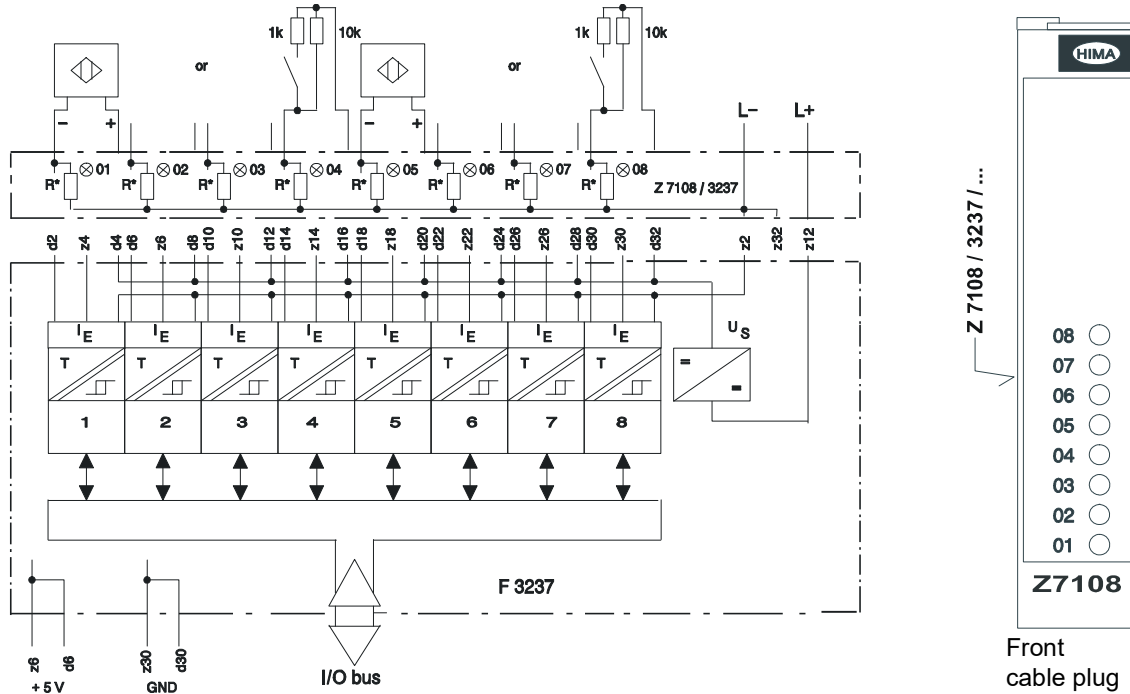


Figure 1: Block diagram and front cable plug

### 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; short-circuit-proof per channel (25 $\Omega$ PTC resistor)
Shunt $R^*$	681 $\Omega$ ; 1 %; 0.25 W
(R17...R24)	part no. 00 0751681
Space requirement	4 SU
Operating data	5 VDC / 90 mA; 24 VDC / 170 mA

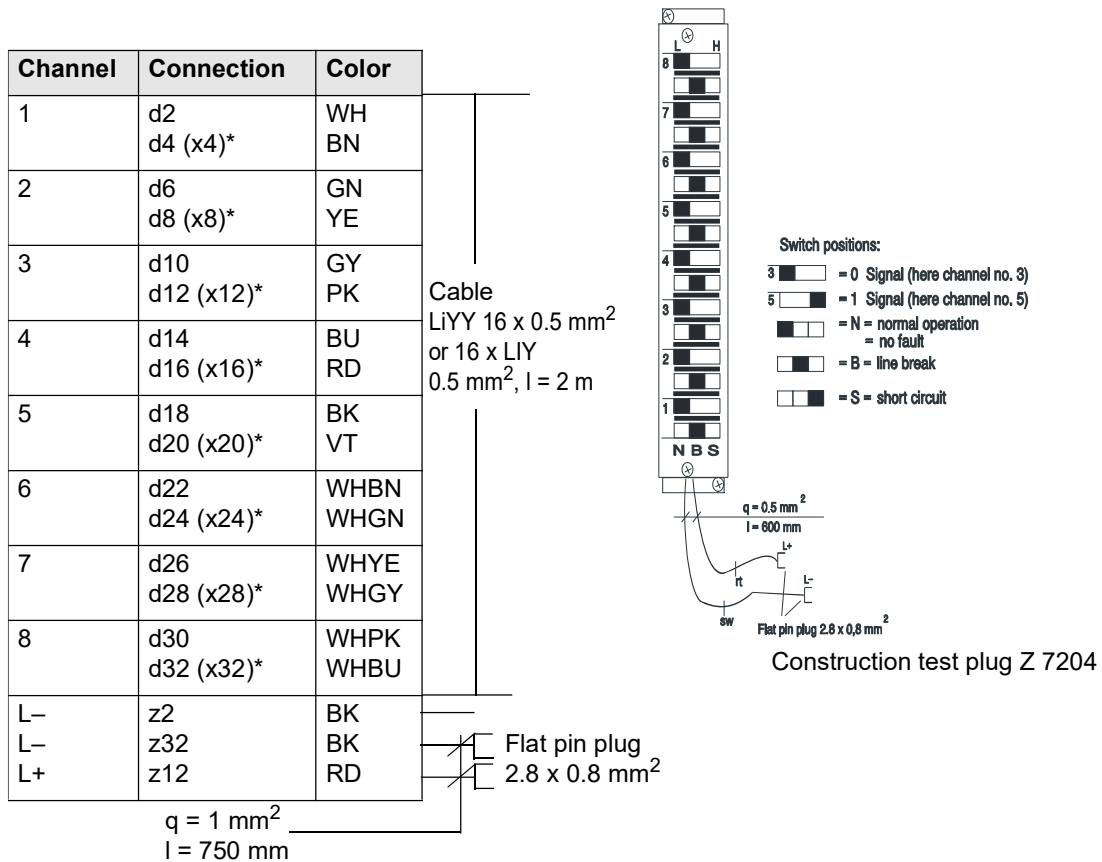


Figure 2: Lead marking cable plug Z 7108 / 3237 / .. and construction test plug Z 7204

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

### Redundant connection for a safety-related proximity switch

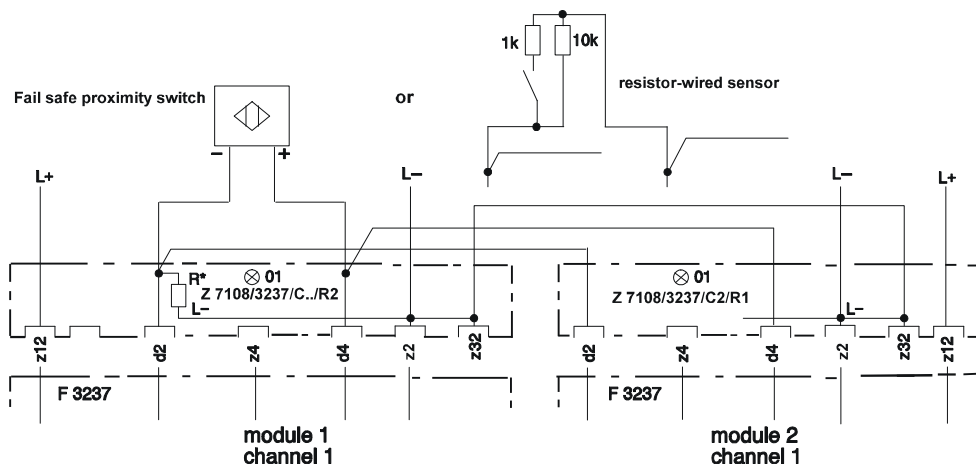
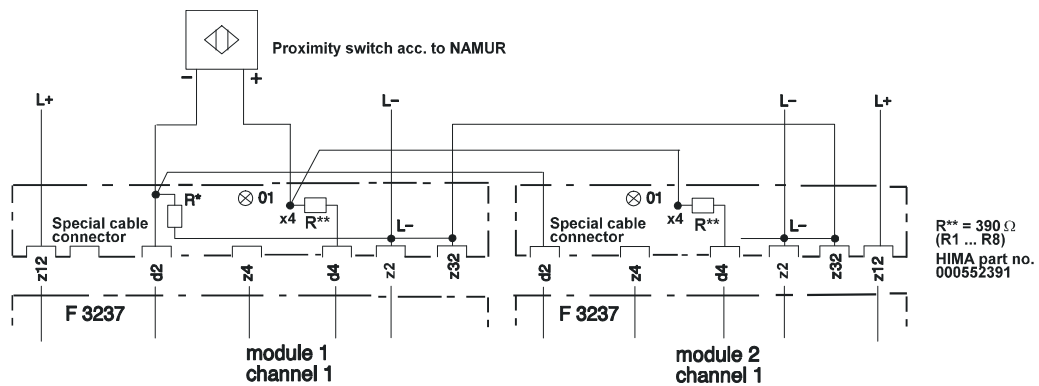


Figure 3: Redundant connection for a safety-related proximity switch

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.

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**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.

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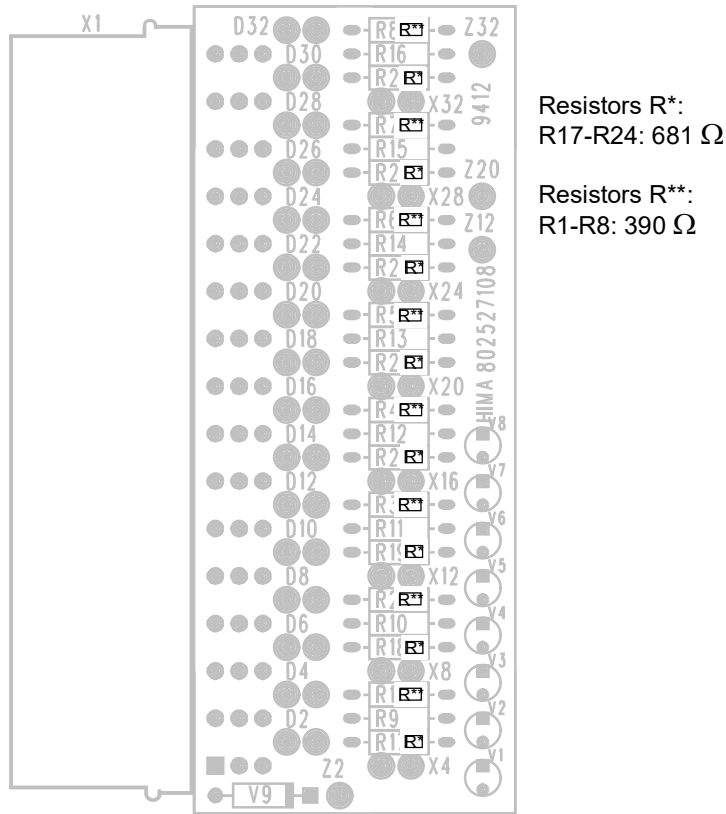
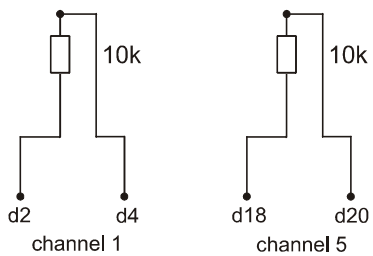


Figure 5: Cable connector Z 7108 (special design for NAMUR)

**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