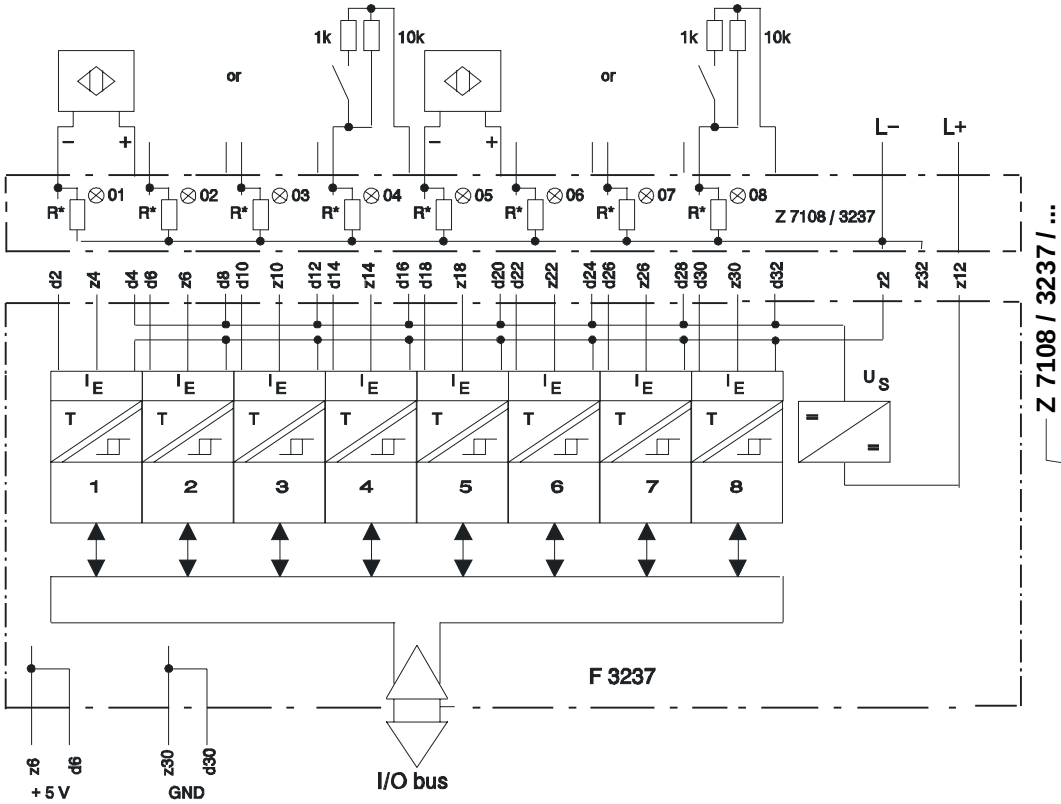
F 3237

F 3237: 8 fold input module, safety related

for the connection of safety related proximity switches, proximity switches acc. to DIN 19234 (NAMUR) and resistor-wired sensors
monitoring of the lines for short-circuit and line break
Safety related, requirement class AK 1 ... 6



Block diagram Front cable plug

The module is automatically tested completely during operation. The main test routines are:
- Switch on and switch off cability
- Crosstalk of the input circuits by walking 0 test
- Function of the input filters
- Correct function of the module
- Short circuit and wire break of the sensor line

Function of LEDs are not tested.
Appertaining softw. building block: HB-RTE-. (for current version refer to the description of the operating system).

Switching time	approx. 10 ms
Operating points I_E	
0 signal	$0.35 \leq I_E \leq 1.2$ mA
1 signal	$2.1 \leq I_E \leq 6.0$ mA
wire break	≤ 0.28 mA
short circuit	≥ 6.5 mA
Line impedance	≤ 50 Ohm (acc. to DIN 19234)
Line length	≤ 1000 m ($\varnothing = 0.5$ mm^2)
Supply voltage U_S	8.2 V
Shunt R*	681 Ohm; 1 %; 0.25 W
(R17 ... R24)	part no. 00 0751681
Space requirement	4 TE
Operating data	5 V =: 90 mA; 24 V =: 170 mA

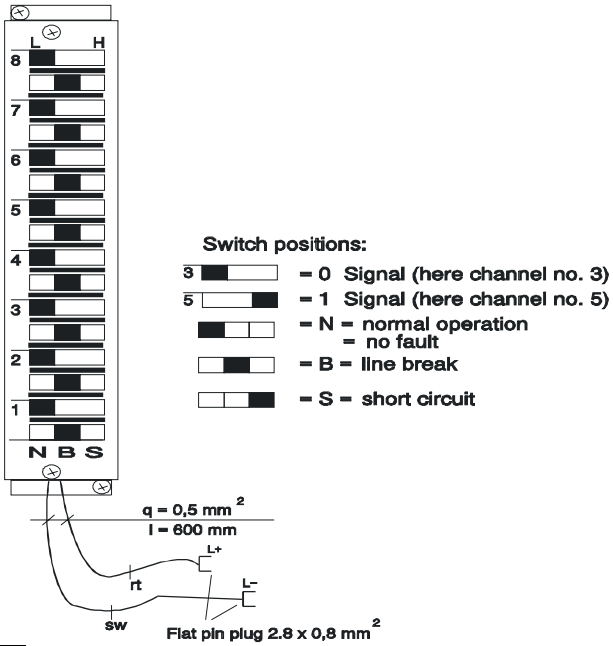
Channel	Connection	Colour
1	d2 d4 (x4)	ws br
2	d6 d8 (x8)	gn ge
3	d10 d12 (x12)	gr rs
4	d14 d16 (x12)	bl rt
5	d18 d20 (x20)	sw vio
6	d22 d24 (x24)	ws-br ws-gn
7	d26 d28 (x28)	ws-ge ws-gr
8	d30 d32 (x32)	ws-rs ws-bl
L– L– L+	 z2 z12	sw sw rt

Cable
LiYY 16 x 0.25 mm^2

LIY 0.5 mm^2
l = 2 m

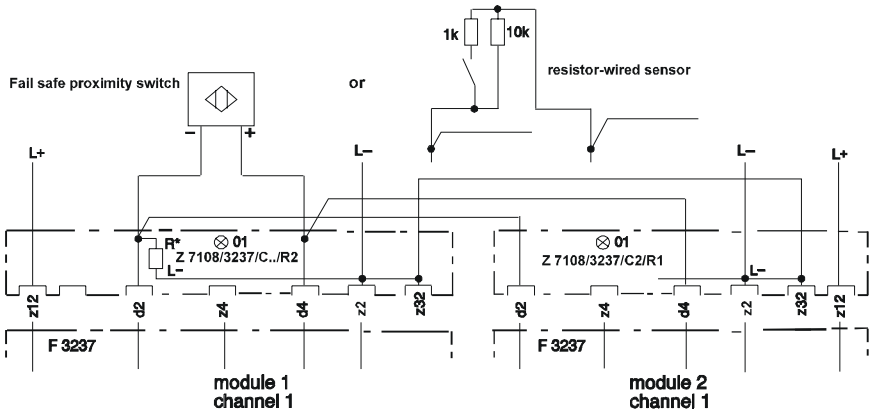
Flat pin plug
2.8 x 0.8 mm^2

q = 1 mm^2
l = 750 mm

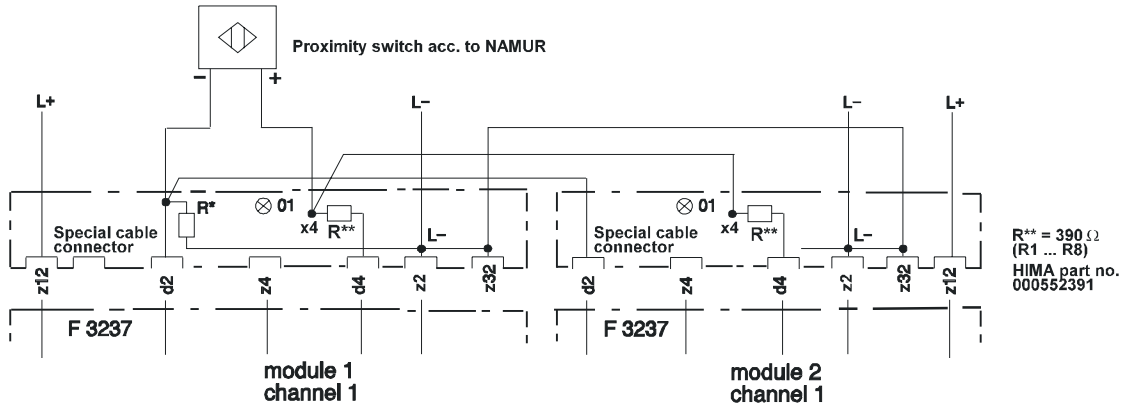


Construction test plug Z 7204

Lead marking cable plug
Z 7108 / 3237 / C..
(x.) with special cable connection



Redundant connection for one proximity switch circuit



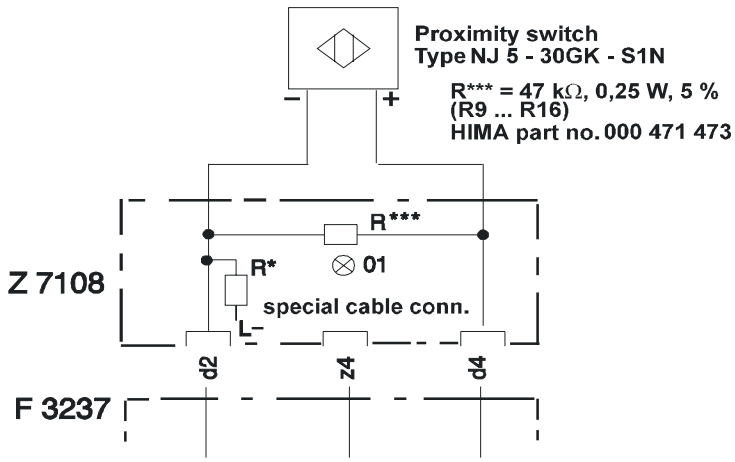
Redundant connection for one proximity switch according to DIN 19234 (NAMUR)

Proximity switches outside the DIN 19234 standard

Different proximity switches are not according to the DIN 19234 standard. E. g. the proximity switch type NJ 5 - 30GK - S1N of the P&F company delivers a very low current in the non-damped state. This effects the reaction of the line break supervision of the F 3237 module

Nevertheless to guarantee a correct function also in this case it is possible to increase the output current of the proximity switch to 170 µA in the non-damped state by switching in parallel a resistor of 47 kΩ.

There are no limitations concerning the using in fail safe circuits because a break of the resistor would be signalled like a line break. Also a real line break will be detected as before.



Connection of the parallel resistor to increase current