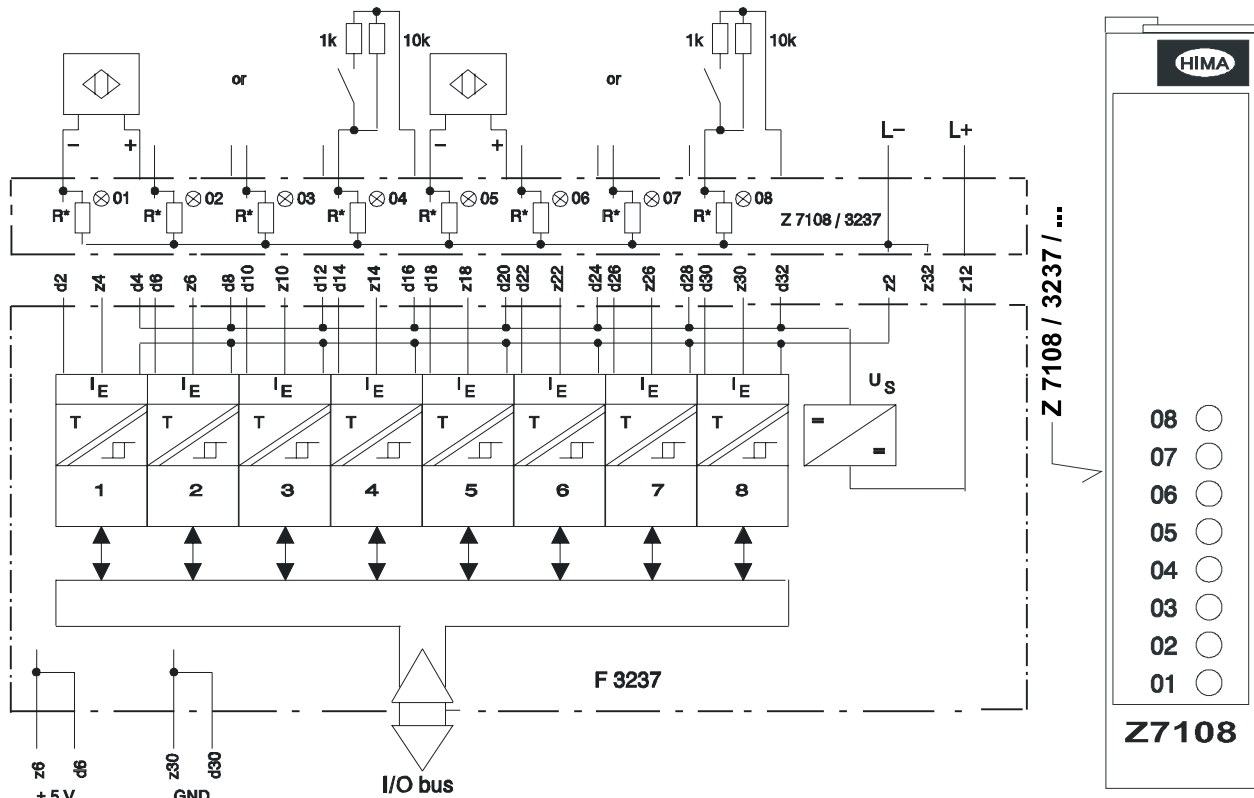




**F 3237: 8 fold input module,
safety related**

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 capability
- 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).

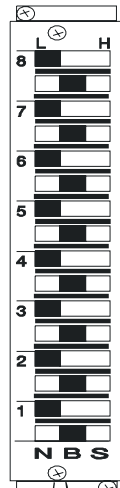
Switching time	approx. 10 ms
Operating points I_E	
0 signal	$0.35 \leq I_E \leq 1.2 \text{ mA}$
1 signal	$2.1 \leq I_E \leq 6.0 \text{ mA}$
wire break	$\leq 0.28 \text{ mA}$
short circuit	$\geq 6.5 \text{ mA}$
Line impedance	$\leq 50 \text{ Ohm}$ (acc. to DIN 19234)
Line length	$\leq 1000 \text{ m}$ ($\varnothing = 0.5 \text{ mm}^2$)
Supply voltage U_S	8,2 V
Shunt R^* (R17 ... R24)	681 Ohm; 1 %; 0.25 W 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-	z2	sw
L-	z12	sw
L+		rt

q = 1 mm²
l = 750 mm

Cable
LiYY 16 x 0.25 mm²

LIY 0.5 mm²
l = 2 m
Flat pin plug
2.8 x 0.8 mm²

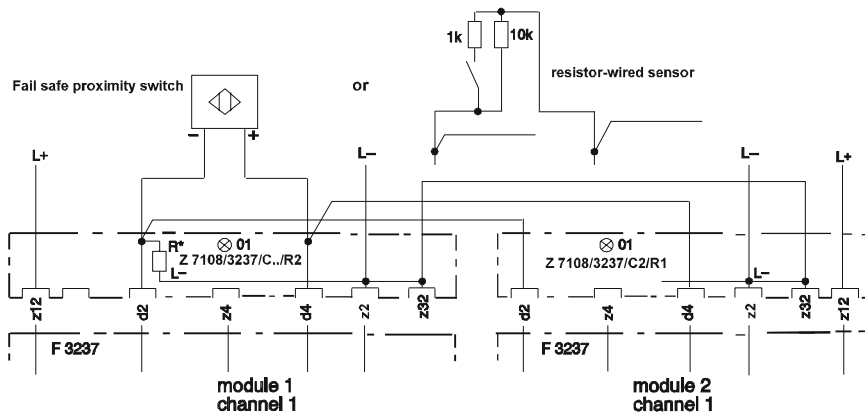


- Switch positions:
- 3 [diagram] = 0 Signal (here channel no. 3)
 - 5 [diagram] = 1 Signal (here channel no. 5)
 - [diagram] = N = normal operation = no fault
 - [diagram] = B = line break
 - [diagram] = S = short circuit

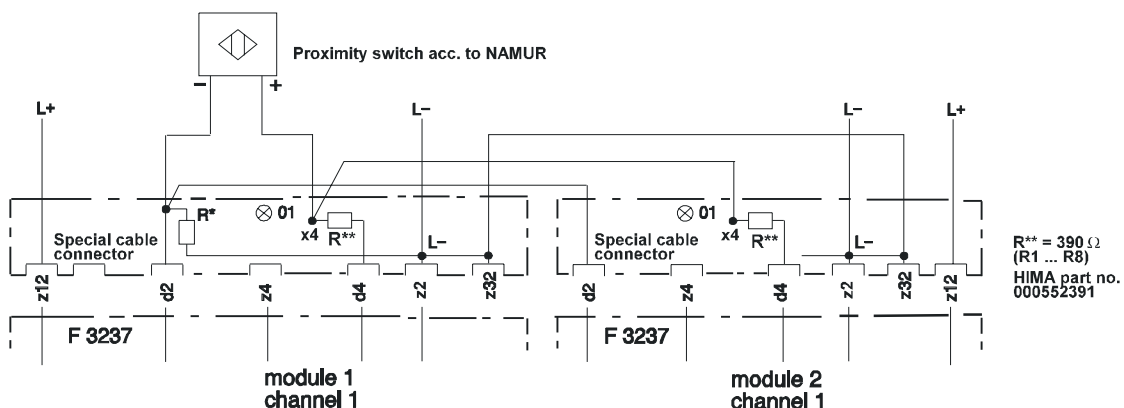
q = 0,5 mm²
l = 600 mm

Flat pin plug 2.8 x 0.8 mm²
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)

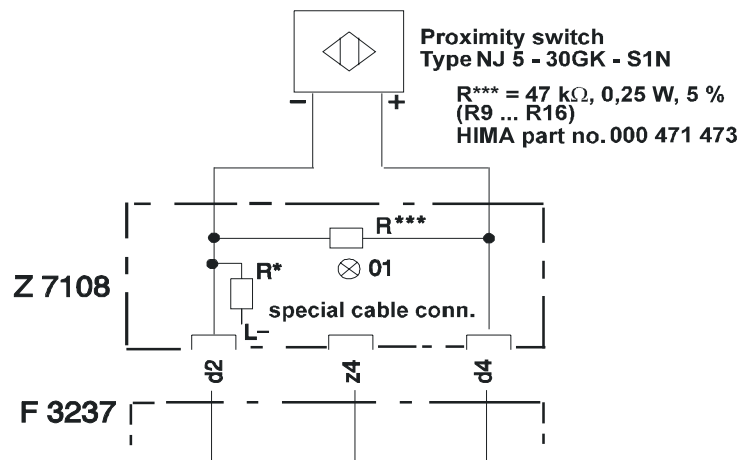
R** = 390 Ω
(R1 ... R8)
HIMA part no.
000552391

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 μ A in the non-damped state by switching in parallel a resistor of 47 k Ω .

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

For your notes