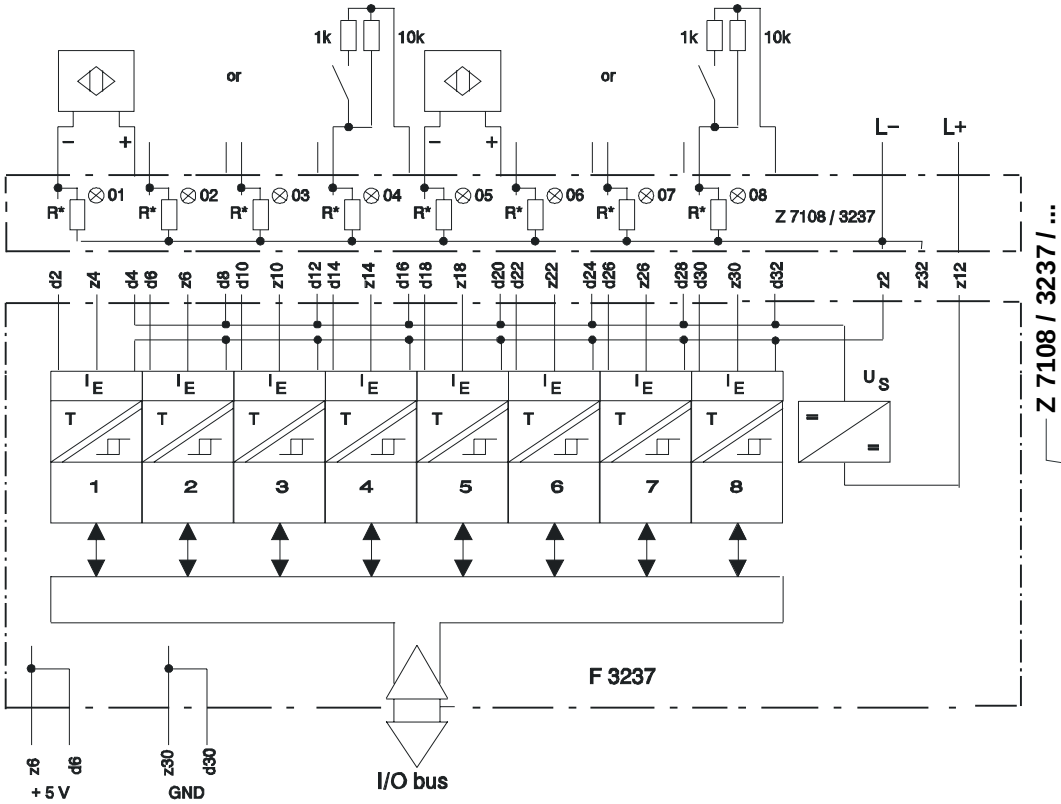
# F 3237

**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 | $\leq 0.28$ mA |
| short circuit | $\geq 6.5$ mA |
| Line impedance | $\leq 50$ Ohm (acc. to DIN 19234) |
| Line length | $\leq 1000$ 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 |

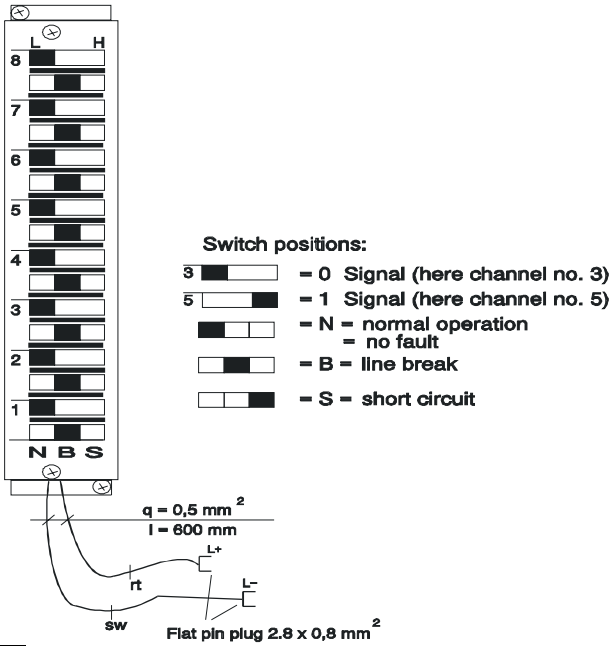
| Channel | Connection | Colour |
|---|---|---|
| 1 | d2<br>d4 (x4) | ws<br>br |
| 2 | d6<br>d8 (x8) | gn<br>ge |
| 3 | d10<br>d12 (x12) | gr<br>rs |
| 4 | d14<br>d16 (x12) | bl<br>rt |
| 5 | d18<br>d20 (x20) | sw<br>vio |
| 6 | d22<br>d24 (x24) | ws-br<br>ws-gn |
| 7 | d26<br>d28 (x28) | ws-ge<br>ws-gr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

Cable
LiYY 16 x 0.25 mm$^2$

LIY 0.5 mm$^2$
l = 2 m

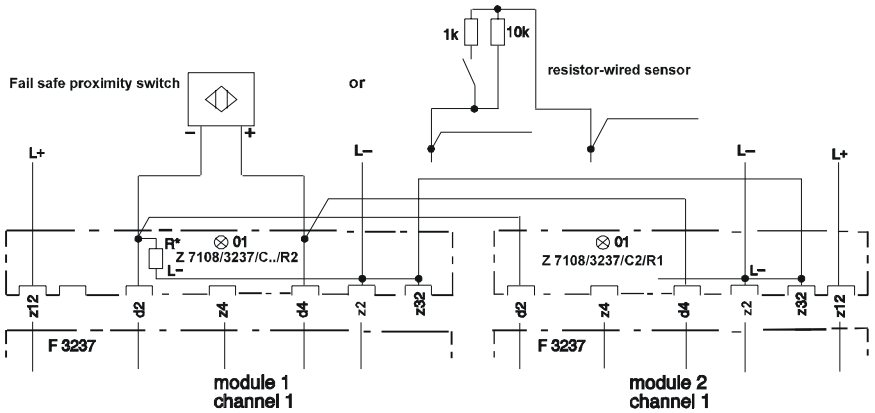
Flat pin plug
2.8 x 0.8 mm$^2$

q = 1 mm$^2$
l = 750 mm

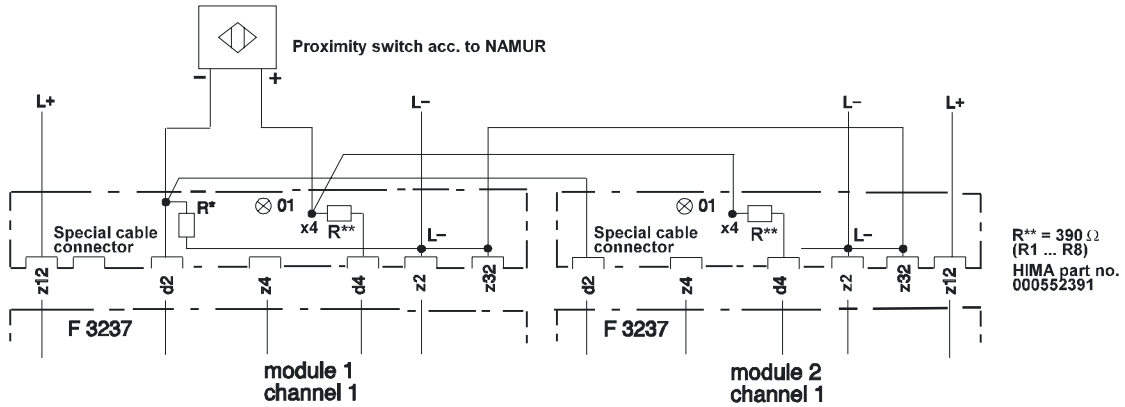



Construction test plug Z 7204

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




Redundant connection for one proximity switch circuit



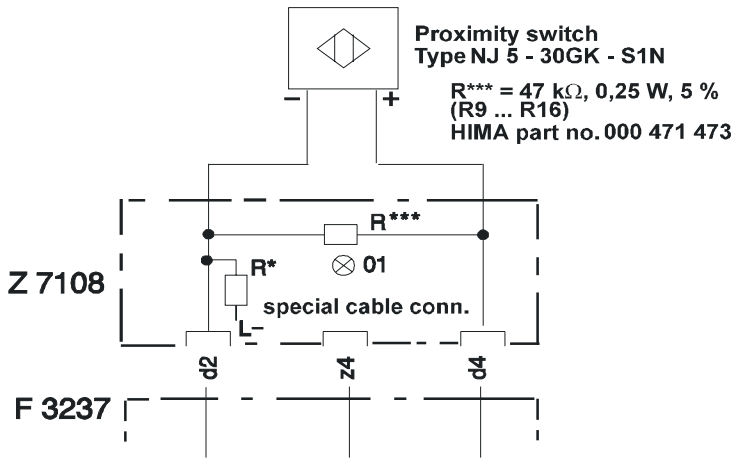

Redundant connection for one proximity switch according to DIN 19234 (NAMUR)

**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

**For your notes**