



F 6214: 4-channel analog input module

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

- for transmitters in two-wire technology 4...20 mA
- voltage inputs 0...1/5/10 V
- current inputs 0...20 mA, with safe isolation
- resolution: 12 bits

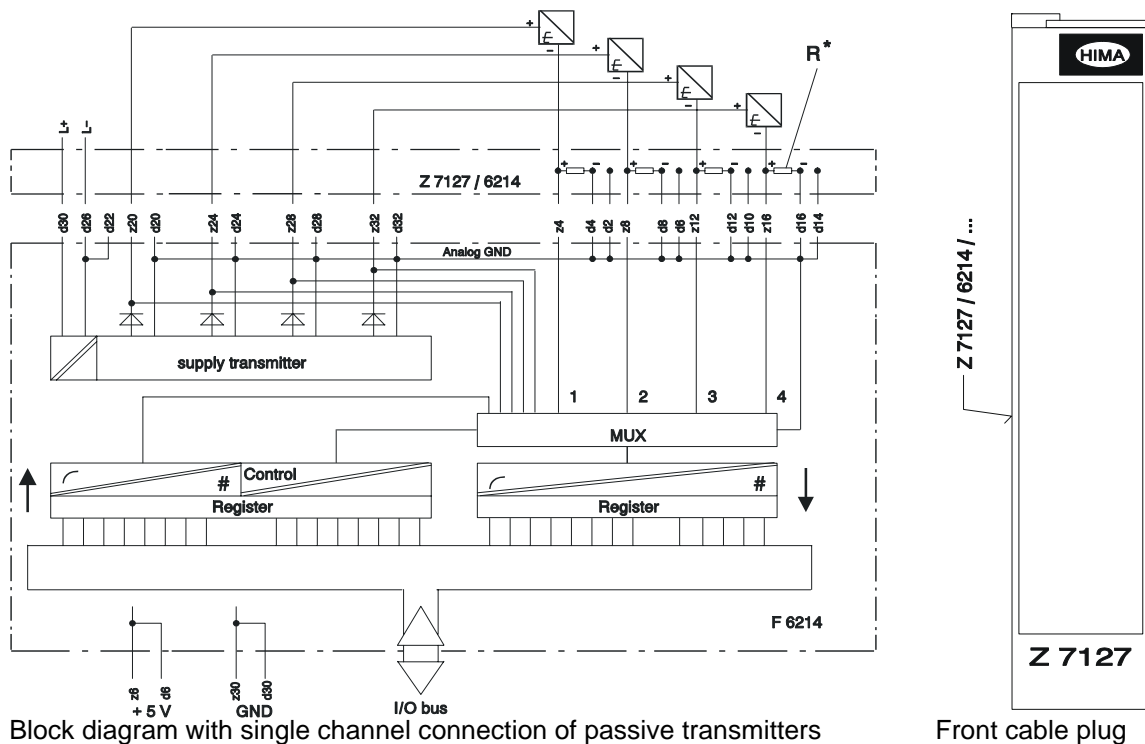


Figure 1: Block diagram and front cable plug

Appertaining function block: HA-RTE-3

Input voltage	0...1.06 V (appr. 6 % overflow)
Digital values	0 mV = 0
	1 V = 3840, 21.3 mA = 4095
Wait after test	100 ms
R*: Shunt for	50 Ω; 0.05 %; 0.125 W;
current input	T<10 ppm/K; part-no: 00 0710500
Input resistance	1 MΩ
Time const. input filter	approx. 10 ms
Transmitter supply	25 V...20 V, 0...22 mA
Short circuit current	25 mA
Load impedance	max. 900 Ω
Scan time	max. 100 ms for 4 channels
Basis error	0.2 % at 25 °C
Operating error	0.3 % at 0...+60 °C
Electric strength	250 V against GND
Space requirement	4 SU
Operating data	5 VDC / 150 mA
	24 VDC / 250 mA

Channel	Connection	Color	Channel	Connection	Color
1	z20 z4 x4 d4	WH BN GN	1	z20 z4 x4 d4	WH BN GN
2	z24 z8 x8 d8	YE GY PK	2	z24 z8 x8 d8	YE GY PK
3	z28 z12 x12 d12	BU RD BK	3	z28 z12 x12 d12	BU RD BK
4	z32 z16 x16 d16	VT WHBN WHGN	4	z32 z16 x16 d16	VT WHBN WHGN
L- L+	d26 d30	BK RD	L- L+	d26 d30	BK RD
Cable screen		YEGN	Cable screen		YEGN

Cable
LiYCY
12 x 0.25 mm²
screened

I = 750 mm
q = 1 mm²

Flat pin
plug
2.8 x 0.8 mm²

I = 120 mm
q = 2.5 mm²

Flat pin plug 6.3 x 0.8 mm, to be connected to the earth bar under the slot

Lead marking cable plug to connect active and passive transmitters
Z 7127 / 6214 / C.. / ITI (U1V)

Lead marking cable plug to connect voltage via potentiometer and smart transmitters
Z 7127 / 6214 / C.. / U5V (U10V)

Figure 2: Lead marking cable plug

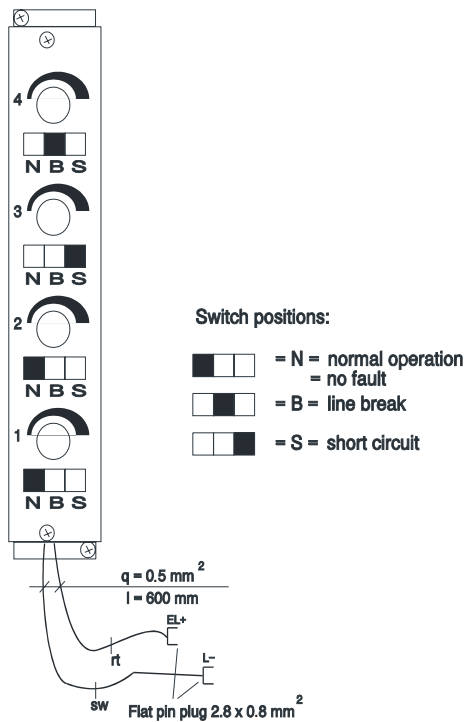


Figure 3: Design of test plug Z 7205

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

- Linearity of the A/D converter
- Cross-talk between the four input channels
- Function of the input filters
- Transmitter supply voltage

Current inputs:

Measuring range 0/4 - 20 mA

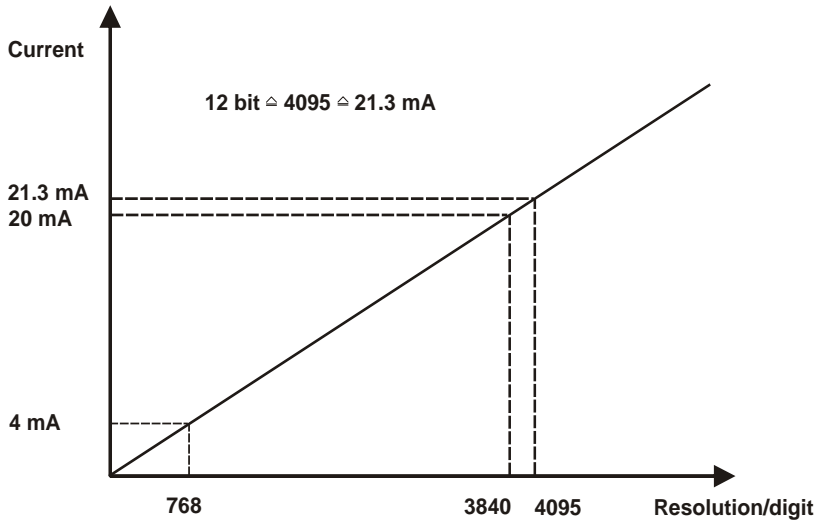


Figure 4: Current inputs

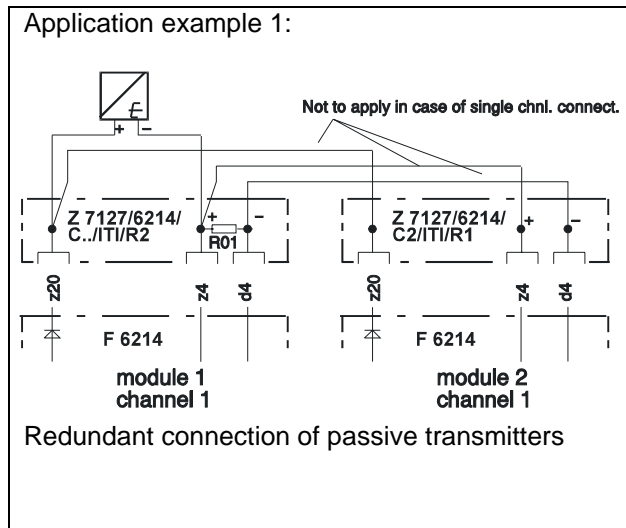


Figure 5: Application example 1

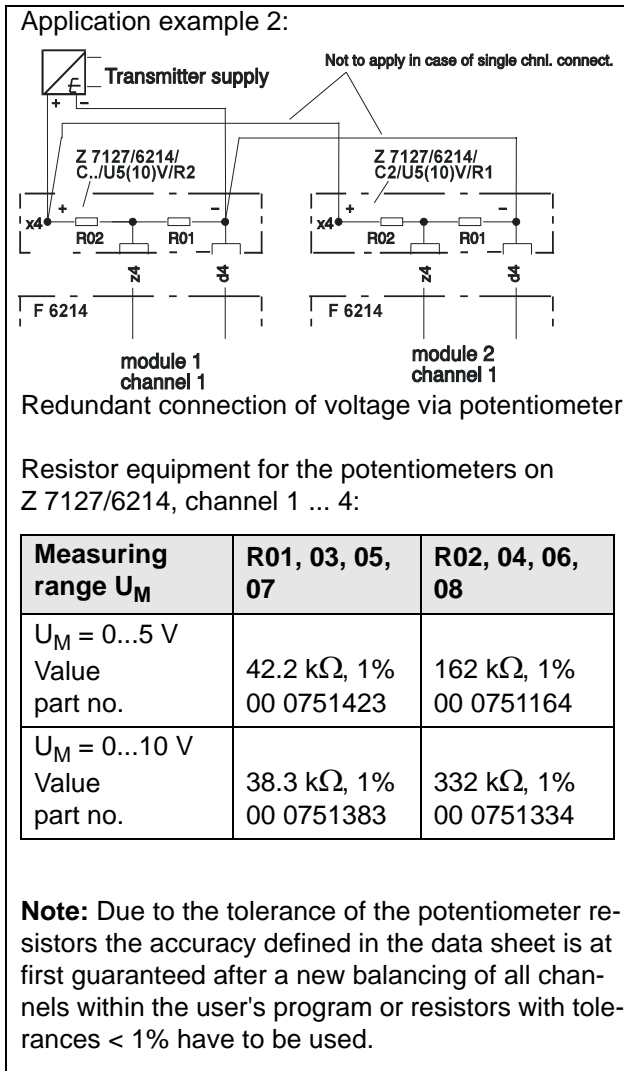


Figure 6: Application example 2

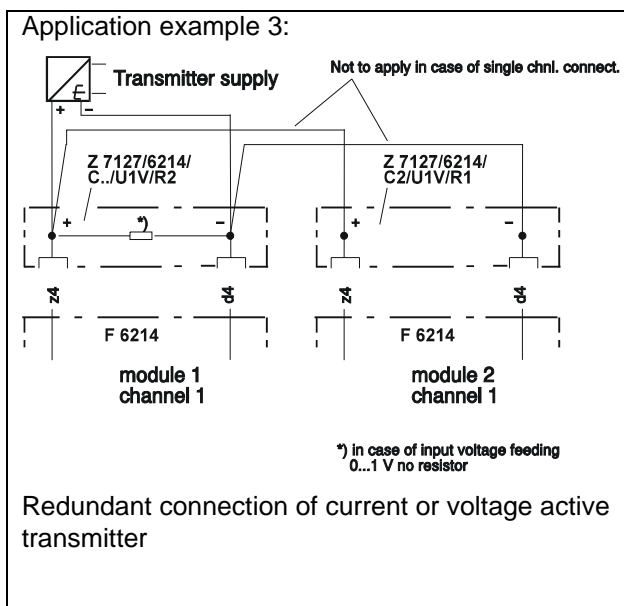


Figure 7: Application example 3

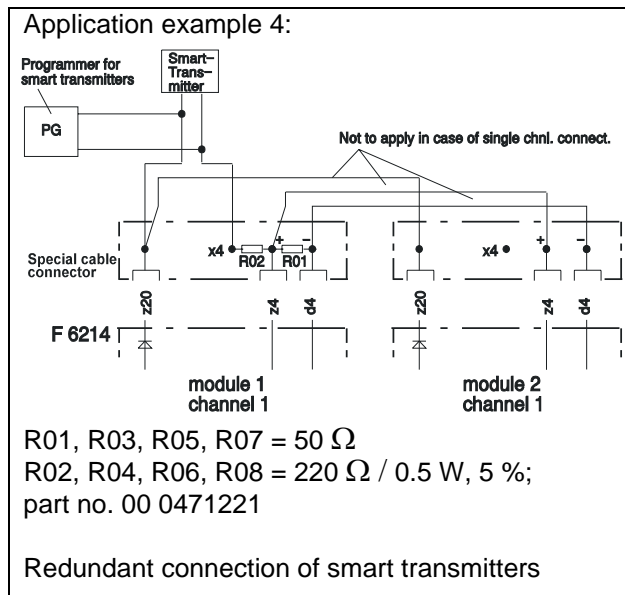


Figure 8: Application example 4

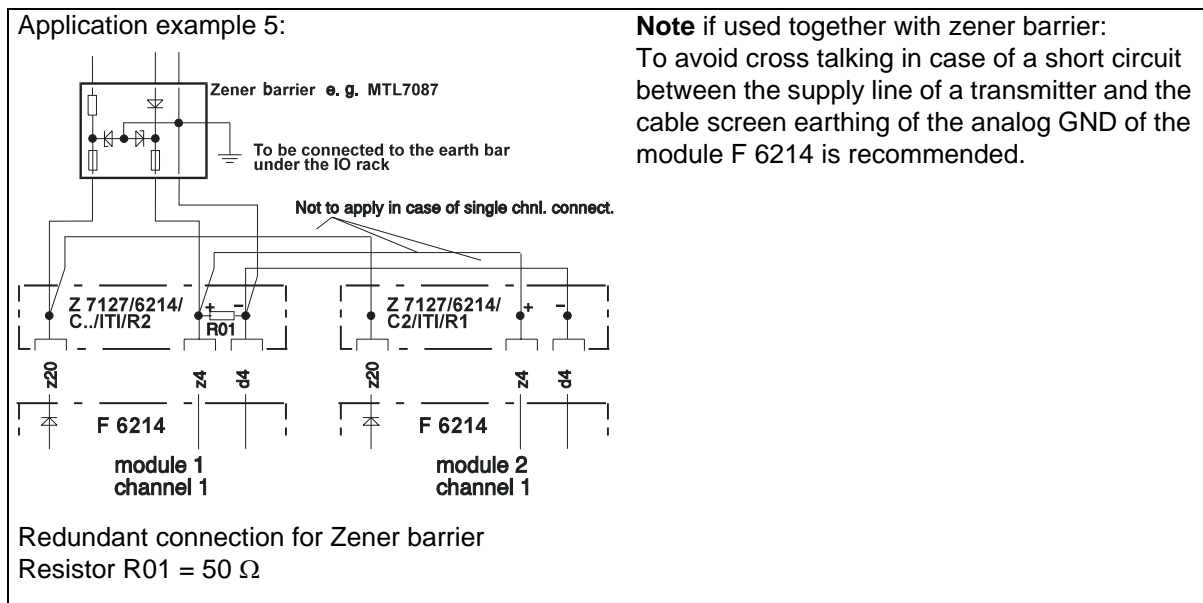


Figure 9: Application example 5

Occupation of not used inputs

To guarantee the correct operation of the internal test routines not used analog inputs have to be terminated with resistors.

Not used inputs, single channel connection

All examples are for channel 1

Installation of the resistors outside the cable connectors: On terminals.

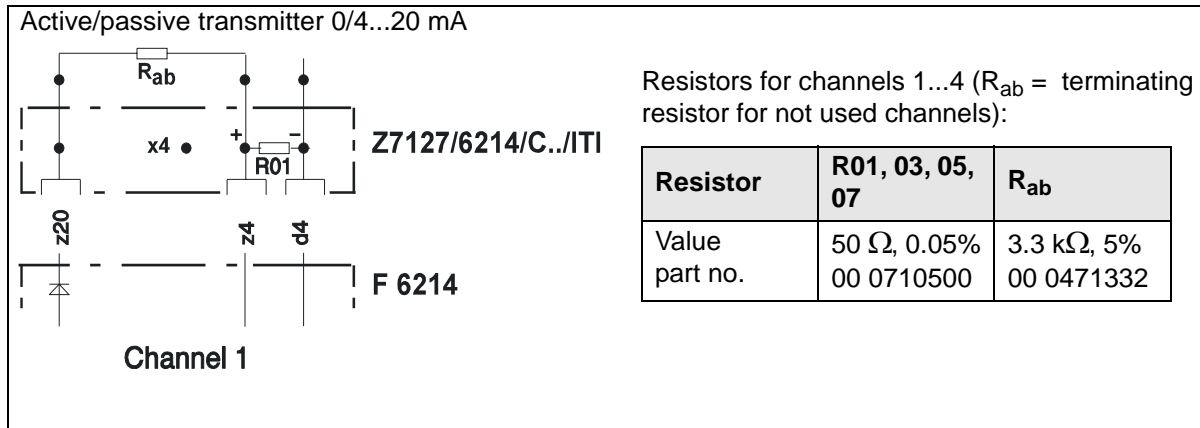


Figure 10: Active/passive transmitter 0/4 ... 20 mA

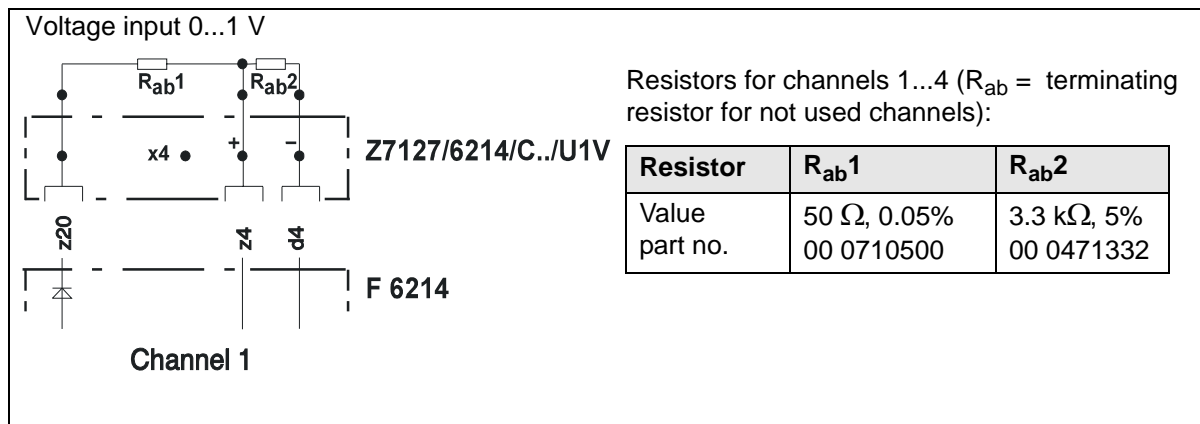


Figure 11: Voltage input 0...1 V

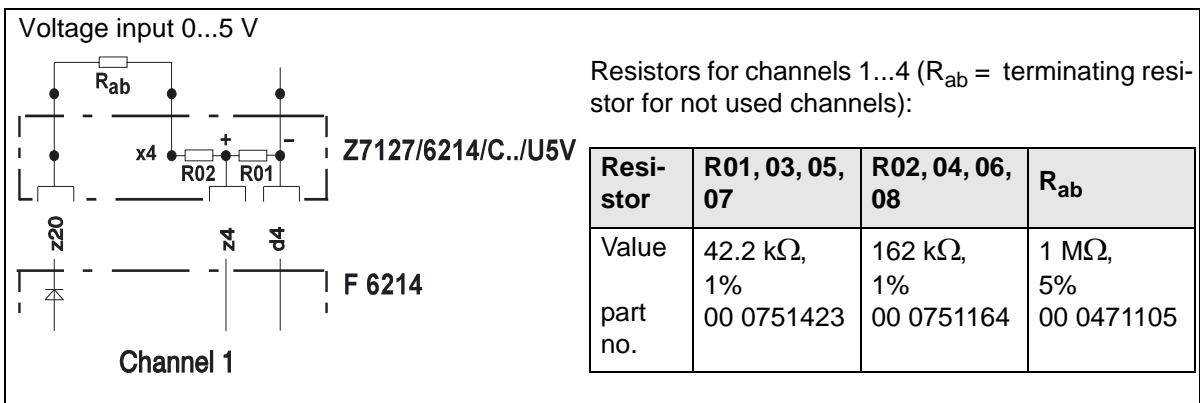


Figure 12: Voltage input 0...5 V

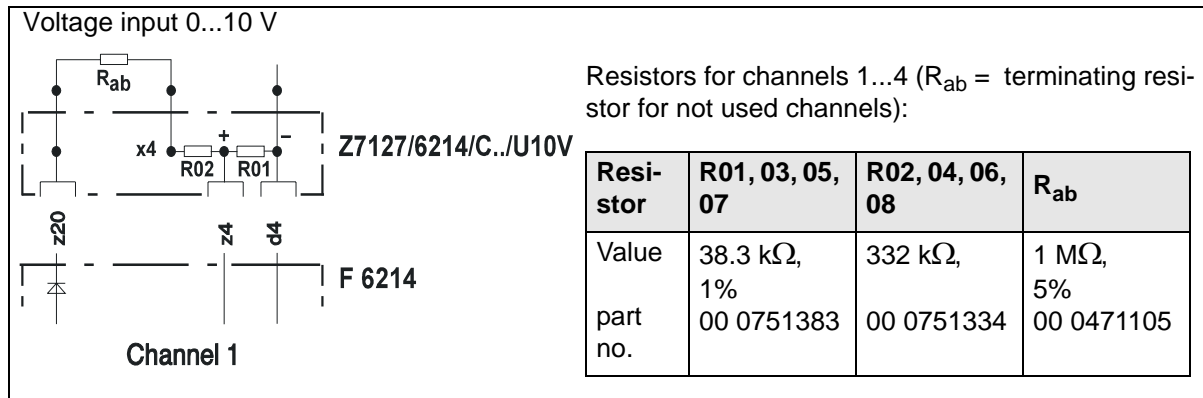


Figure 13: Voltage input 0...10 V

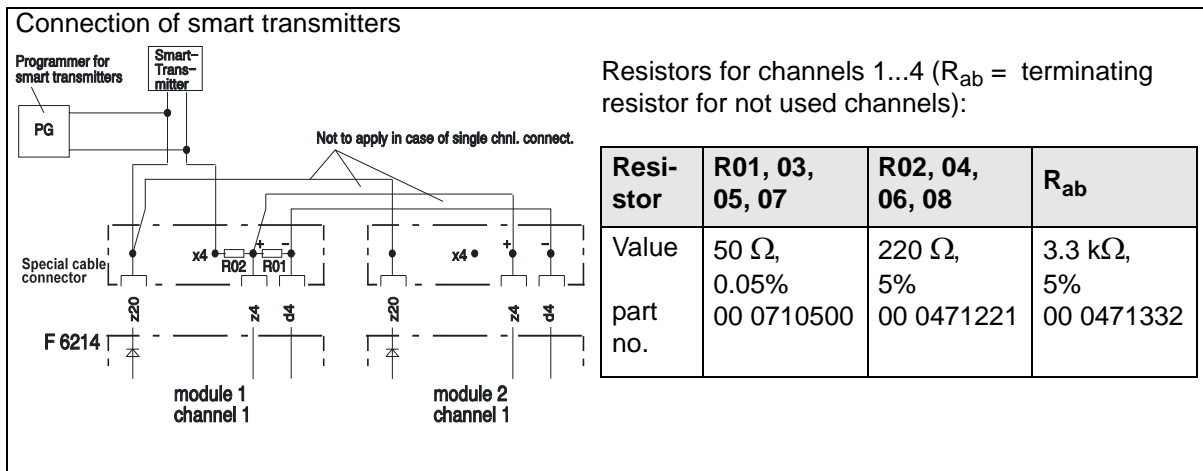


Figure 14: Connection of smart transmitters

Not used inputs, redundant connection

All examples are for channel 1

Install the resistors outside the cable connectors on terminals.

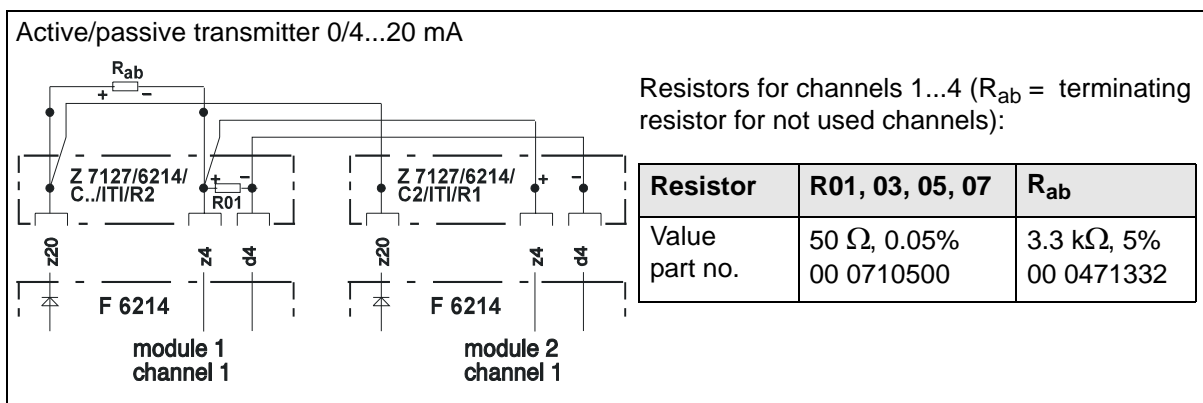


Figure 15: Active/passive transmitter 0/4...20 mA

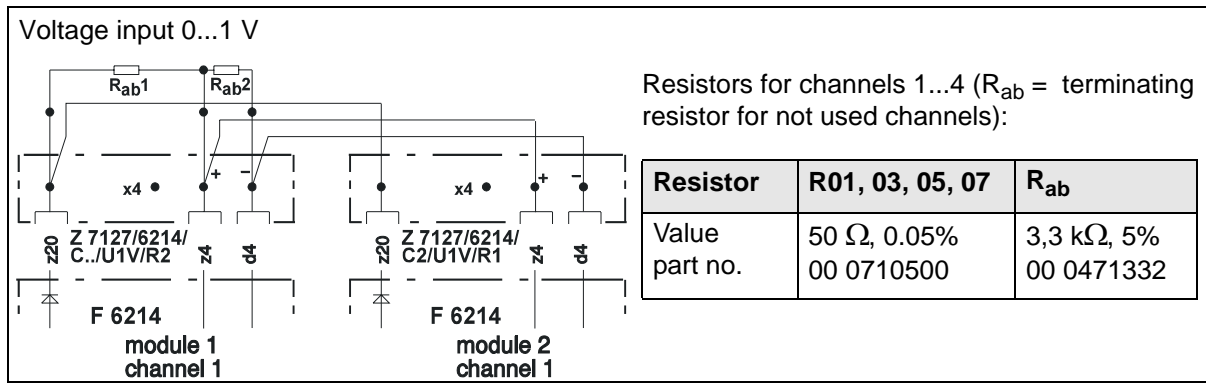


Figure 16: Voltage input 0...1 V

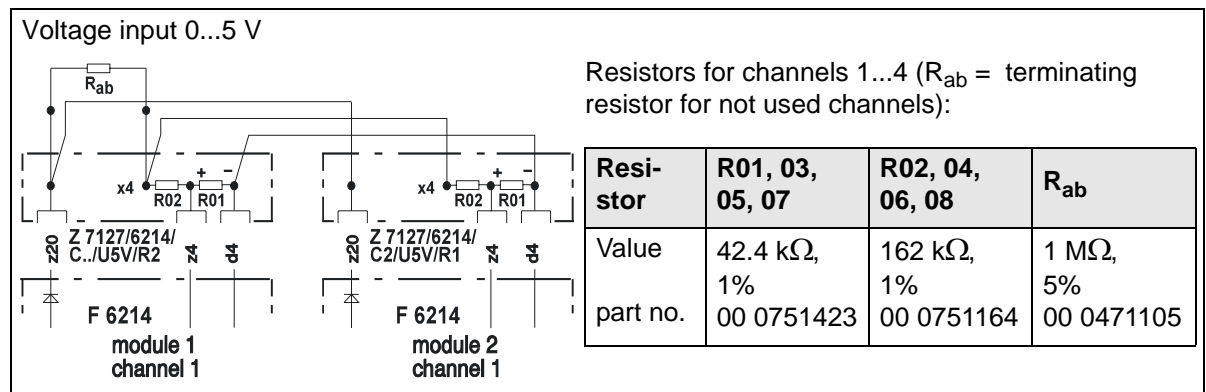


Figure 17: Voltage input 0...5 V

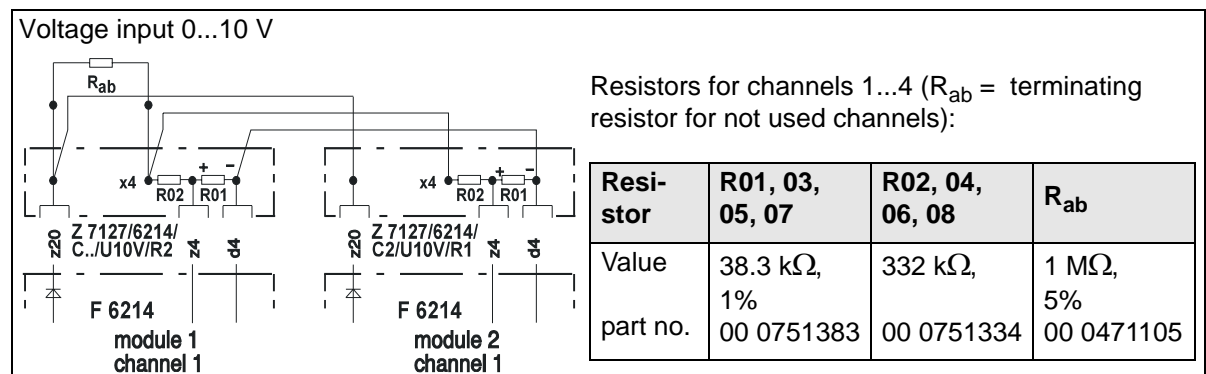


Figure 18: Voltage input 0...10 V

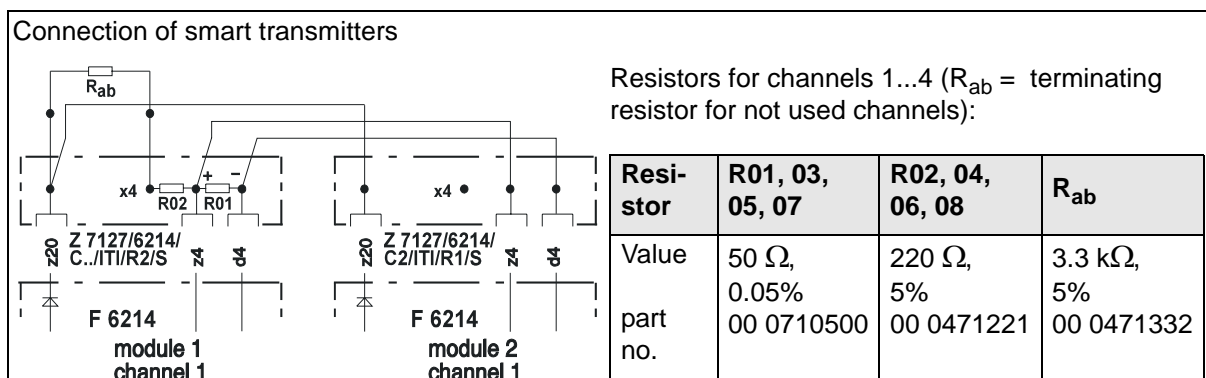


Figure 19: Connection of smart transmitters