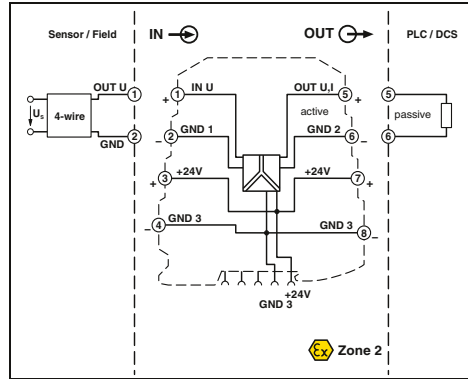
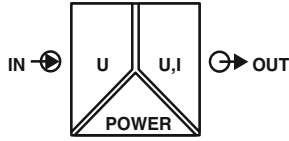


Analog IN / Analog OUT 3-way isolating amplifier



Ex n



Configurable, for shunt measurements



Ex: Housing width 6.2 mm

- Highly compact isolating amplifier for electrical isolation, conversion, amplification, and filtering of mV signals to create standard analog signals
- Ideal for converting signals in the case of shunt measurements
- Up to 280 signal combinations can be configured using DIP switches
- 3-way isolation
- Low power consumption
- Power supply possible through the foot element (T-Connector)
- Standard configuration:
0 ... 50 mV input, 0 ... 20 mA output

Notes:
To order a product with an order configuration, enter the required configuration by referring to the adjacent order key.
Information about power bridging, system cabling, and marking components can be found starting at page 88
1) EMC: Class A product, see page 571

Input data
Input signal (can be configured using DIP switches)
Maximum input signal
Input resistance
Output data
Output signal (configurable using the DIP switch)
Maximum output signal
Load R_B
Ripple
General data
Supply voltage U_B
Nominal supply voltage
Power consumption
Maximum transmission error
Temperature coefficient
Limit frequency (3 dB)
Step response (10 - 90%)
Electrical isolation
Test voltage, input/output/supply
Degree of protection
Ambient temperature (operation)
Mounting
Housing material
Dimensions W / H / D
Screw connection solid / stranded / AWG
Spring-cage connection (solid/stranded/AWG)
Conformance / approvals
Conformance
ATEX
UL, USA / Canada
GL

Technical data

0 ... 50 mV	
Approx. 30 V DC	
Approx. 10 k Ω	
U output	I output
0 ... 5 V / 1 ... 5 V	0 ... 20 mA / 4 ... 20 mA
0 ... 10 V / 2 ... 10 V	
-5 ... 5 V / -10 ... 10 V	
(The bi-polar output can be used only for bi-polar input signals.)	
12.5 V	28 mA
≥ 10 k Ω	< 500 Ω (at 20 mA)
< 20 mV _{pp} (at 10 k Ω)	< 20 mV _{pp} (at 500 Ω)
General data	
19.2 V DC ... 30 V DC	
24 V DC	
< 450 mW (Current output)	
$\leq 0.2\%$	
< 0.01%/K, typ. < 0.002%/K	
(100 Hz / 30 Hz switchable)	
3.5 ms (At 100 Hz)	
Basic insulation according to EN 61010	
1.5 kV (50 Hz, 1 min.)	
IP20	
-20°C ... 65°C	
Any	
PBT	
6.2 / 93.1 / 102.5 mm	
0.2 ... 2.5 mm ² / 0.2 ... 2.5 mm ² / 26 - 12	
0.2 ... 2.5 mm ² / 0.2 ... 2.5 mm ² / 24 - 12	
Conformance / approvals	
CE-compliant	
II 3 G Ex nA IIC T4 Gc X	
UL 508 Recognized	
Class I, Div. 2, Groups A, B, C, D T5 applied for	
GL EMC 2 D	

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
MCR 3-way isolating amplifier , for realization of mV voltages in standard signals.			
Order configuration Screw connection	MINI MCR-SL-SHUNT-UI	2810858	1
Order configuration Spring-cage conn.	MINI MCR-SL-SHUNT-UI-SP	2810874	1
Standard configuration Screw connection	MINI MCR-SL-SHUNT-UI-NC¹⁾	2810780	1
Standard configuration Spring-cage conn.	MINI MCR-SL-SHUNT-UI-SP-NC¹⁾	2810793	1

Order key MINI MCR-SL-SHUNT-UI... (standard configuration entered as an example)

Order No.	Input	Output	Limit frequency	Factory calibration certificate FCC
2810858	IN40	OUT01	100	NONE
2810858 ≙ ...-SHUNT-UI	IN40 ≙ 0...50 mV IN24 ≙ 0...60 mV IN41 ≙ 0...75 mV IN42 ≙ 0...80 mV IN25 ≙ 0...100 mV IN43 ≙ 0...120 mV IN44 ≙ 0...150 mV IN26 ≙ 0...200 mV IN45 ≙ 0...240 mV IN27 ≙ 0...300 mV	OUT01 ≙ 0...20 mA OUT02 ≙ 4...20 mA OUT03 ≙ 0...10 V OUT04 ≙ 2...10 V OUT05 ≙ 0...5 V OUT06 ≙ 1...5 V	30 ≙ 30 Hz 100 ≙ 100 Hz	NONE ≙ without FCC YES ≙ with FCC (a fee is charged)
2810874 ≙ ...-SHUNT-UI-SP	IN28 ≙ 0...500 mV IN46 ≙ 0...600 mV IN47 ≙ 0...750 mV IN48 ≙ 0...800 mV IN29 ≙ 0...1.0 V IN49 ≙ 0...1.2 V IN50 ≙ 0...1.5 V IN30 ≙ 0...2.0 V IN51 ≙ 0...2.4 V IN52 ≙ 0...3.0 V	IN17 ≙ -500...+500 mV IN59 ≙ -600...+600 mV IN60 ≙ -750...+750 mV IN61 ≙ -800...+800 mV IN14 ≙ -100...+100 mV IN62 ≙ -1.2...+1.2 V IN63 ≙ -1.5...+1.5 V IN19 ≙ -2.0...+2.0 V IN58 ≙ -240...+240 mV IN64 ≙ -2.4...+2.4 V IN65 ≙ -3.0...+3.0 V	OUT13 ≙ -5...+5 V OUT14 ≙ -10...+10 V	YESPLUS ≙ Factory calibration certificate with 5 measuring points (a fee is charged)

Note:

A bipolar output (-5...+5 V, -10...+10 V) can only be used for a bipolar input signal.

Combination table for input and output signals

Input	Voltage output						Current output	
	-10...+10 V	0...10 V	2...10 V	-5...+5 V	0...5 V	1...5 V	0...20 mA	4...20 mA
0...50 mV	x	x	x	x	x	x	x	x
0...60 mV		x	x		x	x	x	x
0...75 mV		x	x		x	x	x	x
0...80 mV		x	x		x	x	x	x
0...100 mV		x	x		x	x	x	x
0...120 mV		x	x		x	x	x	x
0...150 mV		x	x		x	x	x	x
0...200 mV		x	x		x	x	x	x
0...240 mV		x	x		x	x	x	x
0...300 mV		x	x		x	x	x	x
0...500 mV		x	x		x	x	x	x
0...600 mV		x	x		x	x	x	x
0...750 mV		x	x		x	x	x	x
0...800 mV		x	x		x	x	x	x
0...1 V		x	x		x	x	x	x
0...1.2 V		x	x		x	x	x	x
0...1.5 V		x	x		x	x	x	x
0...2 V		x	x		x	x	x	x
0...2.4 V		x	x		x	x	x	x
0...3 V		x	x		x	x	x	x
-50...50 mV	x	x	x	x	x	x	x	x
-60...60 mV	x	x	x	x	x	x	x	x
-75...75 mV	x	x	x	x	x	x	x	x
-80...80 mV	x	x	x	x	x	x	x	x
-100...100 mV	x	x	x	x	x	x	x	x
-120...120 mV	x	x	x	x	x	x	x	x
-150...150 mV	x	x	x	x	x	x	x	x
-200...200 mV	x	x	x	x	x	x	x	x
-240...240 mV	x	x	x	x	x	x	x	x
-300...300 mV	x	x	x	x	x	x	x	x
-500...500 mV	x	x	x	x	x	x	x	x
-600...600 mV	x	x	x	x	x	x	x	x
-750...750 mV	x	x	x	x	x	x	x	x
-800...800 mV	x	x	x	x	x	x	x	x
-1...1 V	x	x	x	x	x	x	x	x
-1.2...1.2 V	x	x	x	x	x	x	x	x
-1.5...1.5 V	x	x	x	x	x	x	x	x
-2...2 V	x	x	x	x	x	x	x	x
-2.4...2.4 V	x	x	x	x	x	x	x	x
-3...3 V	x	x	x	x	x	x	x	x

Application example: Monitoring of loading and unloading currents

