

ISOLATION AMPLIFIER



- Input galvanically separated from output and supply
- Current or voltage input
- Signal conversion
- Current and voltage output
- 24 VDC supply or universally supplied
- Applicable in PELV/SELV circuits



Applications:

Galvanic separation of analogue signals (ground loop elimination). ● Measurement of floating signals. ● Signal conversion within the ranges: 0...10 VDC or 0...50 mA on the input and 0...20 mA and 0...10 VDC in fixed ranges on the output.

Technical characteristics:

General:

The 2204 uses microprocessor technology for the selection of gain and zero offset, yet the signal conditioning is analogue with a fast response time of less than 25 ms. In standard ranges, the 2204 is programmable by use of internal DIP-switches within the input and output ranges of the order schedule. Provided that front adjustments are still sealed, the unit needs no adjustment after programming. Universally supplied units have a 3-port galvanic separation between input, supply, and output.

Input:

Current or voltage in standard or special ranges within the measuring range.
Standard input voltage: 0/0.2...1 V, 0/0.5...2.5 V and 0/2...10 V.
Input resistance: typ. 10 M Ω .
Standard input current: 0/1...5 mA or 0/4...20 mA.
Input resistance: norm. 50 Ω (0/4...20 mA).

Output:

The output can be ordered for standard currents and voltages or special versions within the signal range.
Standard output current (pin 3) 0/4...20 mA and 0/1...5 mA acc. to order schedule with the possibility of reversal.
Current limit: 23...28 mA.
Standard voltage output (pin 2) is achieved by short-circuiting pins 2 and 3.
The current signal is available between pins 2 and 1.
For voltage signals in the ranges 0...1 VDC, a 50 Ω shunt (DP 2-1) is applied; in the ranges 0...10 VDC, a 500 Ω shunt (DP 2-2) is applied.

Using both signals simultaneously, the mA loop to ground must go through the internal shunt. Adjustment of 0 and 100% is possible at the front $\pm 10\%$, but please note that the basic calibration is thereby lost.

Electrical specifications:

Specifications range -20°C to +60°C

Common specifications:

Supply voltage, DC 19.2...28.8 VDC
Supply voltage, universal 21.6...253 VAC, 50...60 Hz
or 19.2...300 VDC

Max. consumption 2204--D (24 VDC) \leq 1.3 W
Max. consump. 2204--P (uni. supp.).. \leq 1.8 W
Isolation, test / operation..... 3.75 kVAC / 250 VAC
Signal / noise ratio..... Min. 60 dB
Response time (0...90%) < 25 ms
Temperature coefficient < $\pm 0.01\%$ of span / °C
Linearity error < $\pm 0.1\%$ of span
Effect of supply voltage change < $\pm 0.002\%$ of span / %V
EMC immunity influence < $\pm 0.5\%$ of span
Relative air humidity < 95% RH (non cond.)
Dimensions (HxWxD)..... 80.5 x 35.5 x 84.5 mm
Protection degree IP50
Weight DC / universally supplied..... 110 g / 160 g

Input:

Current:

Measurement range 0...50 mADC
Min. measurement range (span)..... 4 mADC
Max. offset..... 20% of max. value
Input resistance Nom. 50 Ω

Voltage:

Measurement range 0...10 VDC
Min. measurement range (span)..... 0.2 VDC
Max. offset..... 20% of max. value
Input resistance 10 M Ω

Output:

Current output:

Signal ranges..... 0...5 mA / 0...20 mA
Min. measurement range (span)..... 4 mA / 16 mA
Max. offset..... 20% of max. value
Load (max.)..... 20 mA / 600 Ω / 12 VDC
Load stability < $\pm 0.01\%$ of span / 100 Ω
Current limit..... 23...28 mA

Voltage output through internal shunt:

Signal ranges..... 0...0.25 / 0...1 / 0...2.5 / 0...10 V
Min. measurement range (span)..... 0.2 / 0.8 / 2.0 / 8.0 V
Max. offset..... 20% of max. value
Load (min.)..... 500 k Ω
Output resistance 50 Ω / 500 Ω

GOST R approval:

VNIIM, Cert. no. See www.prelectronics.com

Observed authority requirements: Standard:

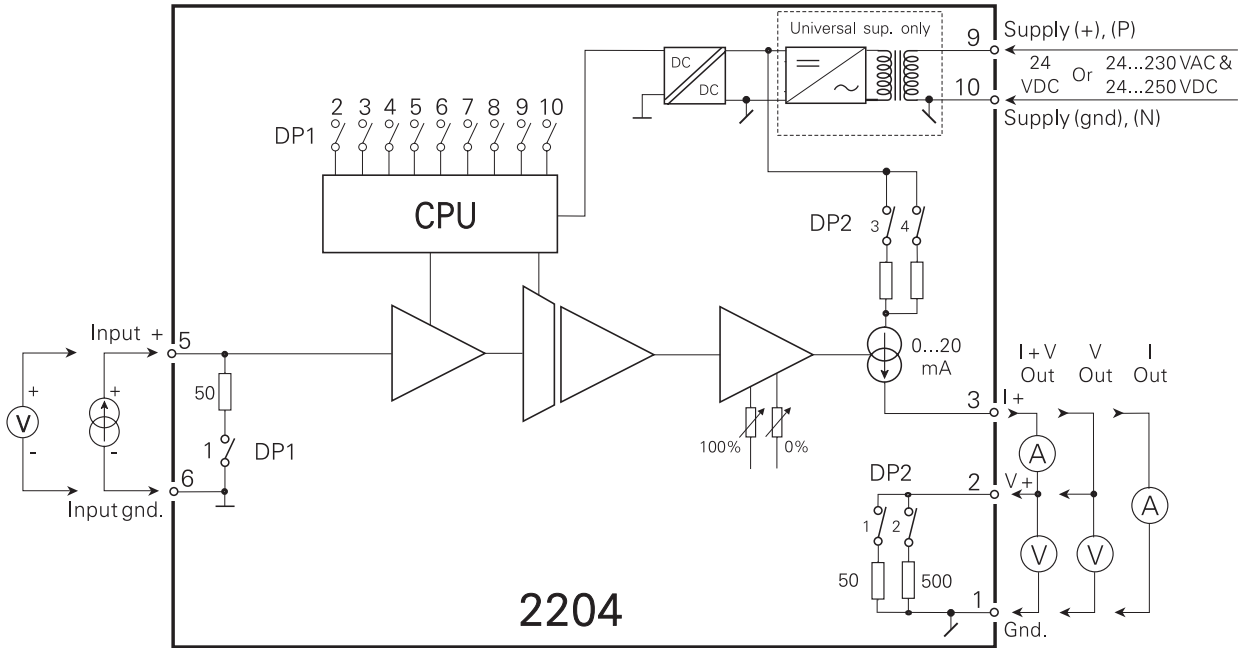
EMC 2004/108/EC EN 61326-1
LVD 2006/95/EC EN 61010-1
PELV/SELV..... IEC 364-4-41 and EN 60742

Of span = Of the presently selected range

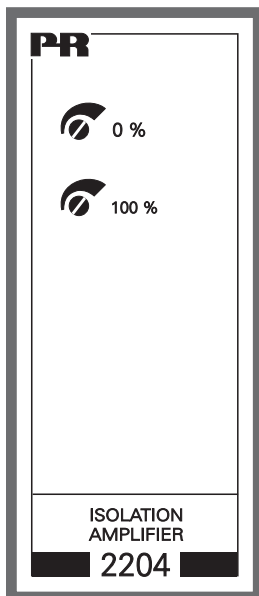
Order : 2204

Type	Input	Output	Supply
2204	0...20 mA : A	Special : 0	24 VDC : D
	4...20 mA : B	0...20 mA : 1	24...230 VAC & : P
	0...1 V : C	4...20 mA : 2	24...250 VDC
	0.2...1 V : D	0... 5 mA : 3	
	0...10 V : E	0...1 V : 4	
	2...10 V : F	0.2...1 V : 5	
	Special : X	0...10 V : 6	
		2...10 V : 7	

Block diagram:



Front layout:



Programming:

INPUT PROGRAMMING	DP1 (10-pole) SW 1, 2, 3, 4, 5	
	SW ON	SW OFF
0...5 mA	1, 3	2, 4, 5
0...20 mA	1, 4	2, 3, 5
0...1 V	2, 3	1, 4, 5
0...2.5 V	2, 4	1, 3, 5
0...10 V	2, 3, 4	1, 5
For 20% offset on input, set DP1 SW5 ON e.g. input 4...20 mA	1, 4, 5	2, 3

OUTPUT PROGRAMMING	DP2 (4-pole) SW 1 - 4		DP1 (10-pole) SW 6, 7, 8, 9, 10	
	SW ON	SW OFF	ON	OFF
0...5 mA	4	1, 2, 3	7	6, 8, 9, 10
0...20 mA	3	1, 2, 4	8	6, 7, 9, 10
0...5 mA / 0...250 mV	1, 4	2, 3	6	7, 8, 9, 10
0...20 mA / 0...1 V	1, 3	2, 4	6, 7	8, 9, 10
0...5 mA / 0...2.5 V	2, 4	1, 3	6, 8	7, 9, 10
0...20 mA / 0...10 V	2, 3	1, 4	6, 7, 8	9, 10
For 20% offset on output, set DP1 SW9 ON e.g. output 4...20 mA	3	1, 2, 4	8, 9	6, 7, 10
For reversed output set DP1, SW10 ON e.g. output 20...4 mA	3	1, 2, 4	8, 9, 10	5, 6, 7

Note: At other spans than the above-mentioned, DP1 and DP2 have a different setting which applies to the delivered special range.