

DCM 817

Passive DC signal isolator

without power supply, modular design

The signal isolator serves to electrically insulate a DC signal in the range 0/4...20 mA (see Fig. 1). It operates passively, i.e. it does not require a separate power supply. The signal isolator is available in two versions which differ in the shape of the connection pins (see Figures 2 and 3 and Table 1). Its modular design enables one or several signal isolators to be mounted on a printed circuit board.



1 : 1

Input signal 0/4...20 mA	Output signal 0/4...20 mA
--------------------------------	---------------------------------

Fig. 1

Features / Benefits

- **Electrically insulated between input and output signal / Prevents the transfer of interference voltages and currents, solves grounding problems in meshed signal networks and is cheap and small**
- **No power supply required / Less termination and wiring work**
- **Modular design / Versatility of application**
- **Small dimensions / Saves space**



Fig. 2. Signal isolator type DCM 817-4.

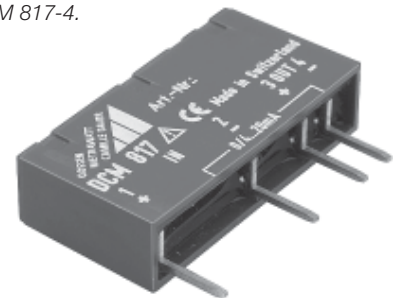


Fig. 3. Signal isolator type DCM 817-5.

Layout and mode of operation

The DC signal isolator comprises a DC chopper Z, an isolating stage T, a rectifier R and an oscillator O (see Fig. 4). The chopper converts the DC signal E into an AC signal. This signal is passed through a transformer serving as an isolating stage. On the secondary site, it is rectified, smoothed and converted into a DC signal A.

The DC chopper is controlled by the oscillator which obtains its power from the input signal.

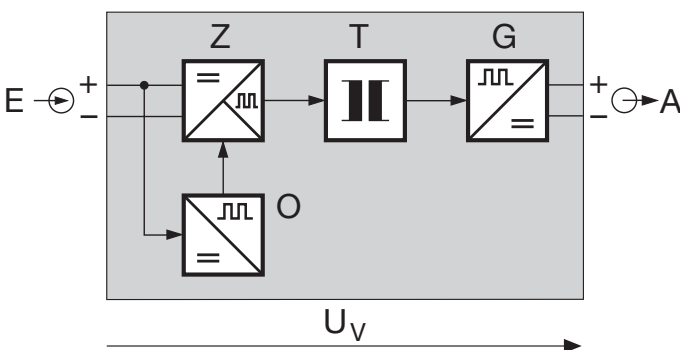


Fig. 4. Schematic diagram.

Technical data

Input E

Current signal:	0/4...20 mA
Max. permissible current:	50 mA
Voltage limiter:	18 V \pm 5% (with zener diode)
Voltage drop U_V :	< 2.1 V (for 500 Ω burden)
Overshoot:	< 20 μ A (typical 5 μ A)

Output A

Current signal:	0/4...20 mA
Limit:	Approx. 30 mA

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Residual ripple: < 20 mV_{ss}
 Time constant: Approx. 5 ms
 Max. burden: 600 Ω

Accuracy data

Error limits: < ± 0.1%
 (reference value 20 mA, linearity error included)

Reference conditions

Ambient temperature: 23 °C, ± 1 K
 Output burden: 100 Ω

Additional error

Burden influence: < 0.2 % (at 500 Ω)
 Temperature coefficient: < 50 ppm/K

Regulations

Test voltage: 500 V_{eff}, 50 Hz, 1 min
 (acc. to IEC 1010)
 Max. surge voltage: 800 V (acc. to IEC 1010)

Ambient conditions

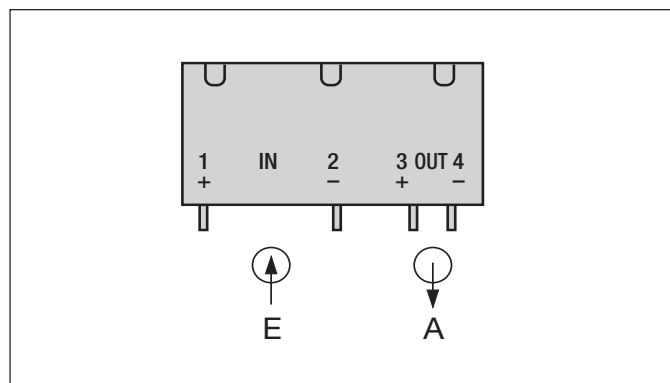
Ambient temperature: Operation -20...65 °C
 Storage -40...85 °C
 Seismic test: 5 g, < 200 Hz,
 2 h in each of 3 directions
 Shock test: **50 g**
 10 shocks in each of 3 directions

Table 1: Units available ex stock

Both versions of the signal isolator are available ex stock. Quoting the order No. is sufficient when ordering.

Type	Version	Order No.
DCM 817-4	bent contact pins	988 719
DCM 817-5	straight contact pins	988 727

Electrical connections



Dimensional drawings

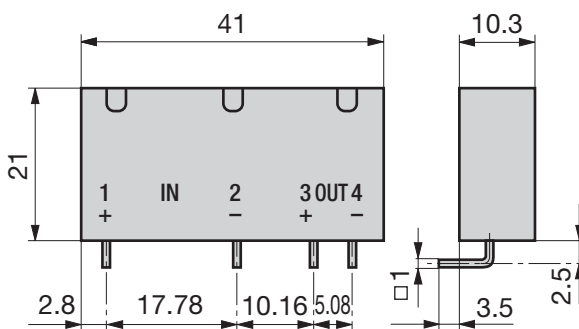


Fig. 5. Signal isolator type DCM 817-4.

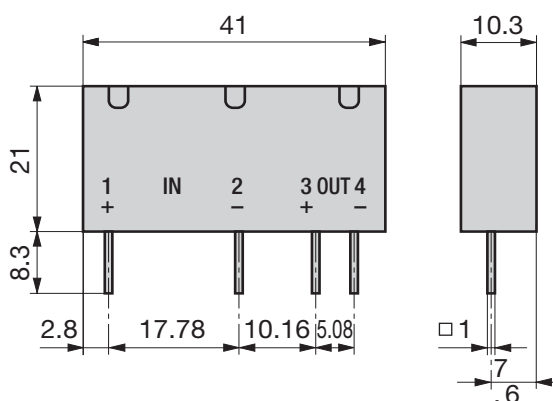


Fig. 6. Signal isolator type DCM 817-5.