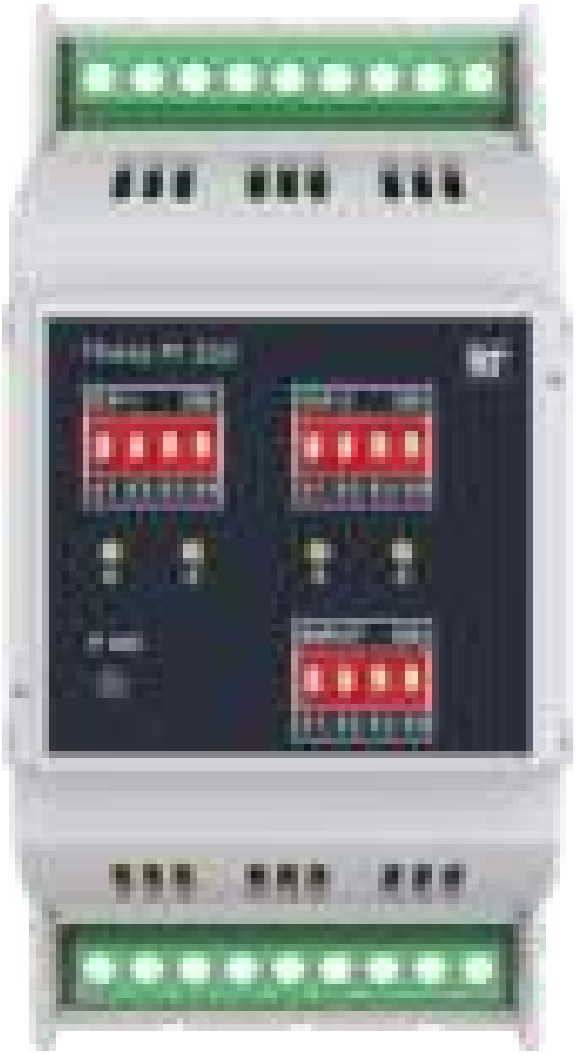
OPERATING MANUAL

Programmable Dual Output DC Isolator



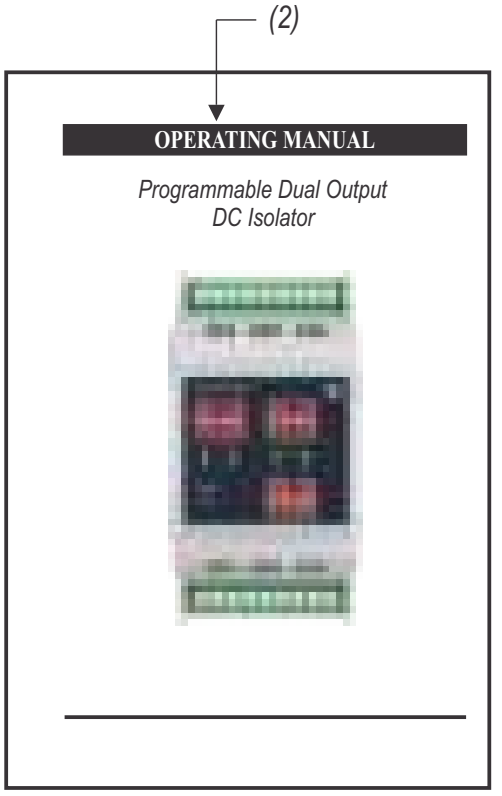
Operating Instructions

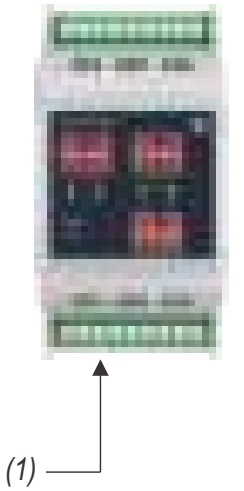
1. Read first and then

*The proper and safe operation of the device assumes that the Operating Instructions are **read** and the **safety** warnings given in the various sections are observed.*

The device should only be handled by appropriately trained personnel who are familiar within and authorised to work in electrical installations.

2. Scope of Supply





(1) **Signal Isolator**
(2) **Operating Instructions**

3. Variants

Auxiliary supply voltage
60....300V AC/DC
20....40V AC / 20...60V DC

4. Brief description

The purpose of the device is to electrically isolate input, outputs and power supply . The isolator fulfills all requirements and regulation concerning electromagnetic compatibility EMC and safety (IEC61326-1 and IEC 61010-1:2010). The device has one input and provides two independent outputs in an extremely small space.

5. Overview of the parts

Fig. 1 shows those parts of the device which are used for mounting, electrical connections and other operations described in the Operating instructions.

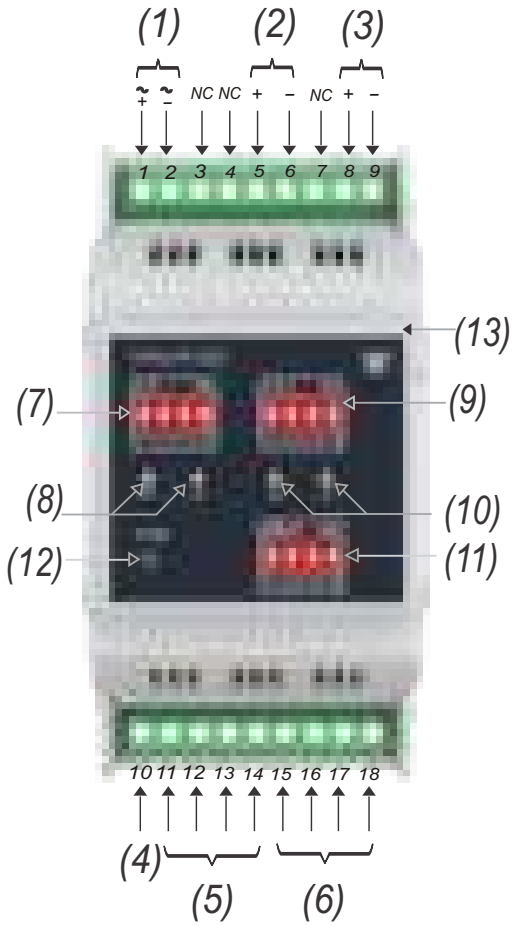


Fig. 1

(1) *Auxiliary supply*
(2) *Output-1 Terminals*
(3) *Output-2 Terminals*
(4) *Input common Terminal*
(5) *Current input Terminals*
(6) *Voltage input Terminals*
(7) *Output-1 slide Switches*
(8) *Output-1 Potentiometers*
(9) *Output-2 slide Switches*
(10) *Output-2 Potentiometers*
(11) *Input slide Switches*
(12) *Power ON LED*
(13) *Front Sticker*

6. Configuration

The device inputs and outputs can be configured using slide switches. Table A and B contains the switch position information for the configuration of input and output-1/output-2 respectively. When ever configuration is changed output-1 and output-2 one adjustment must be accomplished using "Z" (Zero) and "S" (Span) potentiometers provided on front panel separately for both the outputs i.e. output-1 and output-2

Refer Fig.1 Front panel view of device

***TABLE A:** INPUT RANGE SELECTION*

Input	S1	S2	S3	S4
0...20mA	OFF	OFF	OFF	OFF
0...10mA	OFF	OFF	OFF	ON
0...24mA	OFF	OFF	ON	OFF
4...20mA	OFF	OFF	ON	ON
0...10V	OFF	ON	OFF	OFF
0...12V	OFF	ON	OFF	ON
0...5V	OFF	ON	ON	OFF
1...5V	OFF	ON	ON	ON

***TABLE B:** O/P1 & O/P2 RANGE SELECTION*

Output	S1 & S2	S3	S4
0...10mA	OFF	OFF	OFF
0...20mA	OFF	OFF	ON
2...10mA	OFF	ON	OFF
4...20mA	OFF	ON	ON
0...5V	ON	OFF	OFF
0...10V	ON	OFF	ON
1...5V	ON	ON	OFF
2...10V	ON	ON	ON

7. Technical Data

Measuring Input ⊕→

DC Current :

Standard ranges :

1) 0 - 20 mA
2) 0 - 10 mA
3) 4 - 20 mA
4) 0 - 24 mA

$R_i \leq 15.5\Omega$

DC Voltage :

Standard ranges:

1) 0 - 12 V
2) 0 - 10 V

$R_i \geq 100K\Omega$

3) 0 - 5 V
4) 1 - 5 V

$R_i \geq 60K\Omega$

Measuring outputs 1 & 2 ⊖→

DC current:

1) 2...10mA
2) 4...20mA
3) 0...10mA
4) 0...20mA

Burden voltage *15V*

External Resistance *Rext max. [Ω] = 15V/ IAN [mA]*
I AN =Output circuit full scale value

DC voltage:

1) 0...5V
2) 1...5V
3) 0...10V
4) 2...10V

Burden *Rext min. [k Ω] = UAN [V]/ 5 mA*

UAN =Output circuit full scale value

Residual ripple in Output: < 0.4% p.p.

Response time: < 50 ms

Current limiter at R_{ext} =0 : *< 42 mA for voltage output*

Voltage limiter at R_{ext} = ∞ : *< 20V for Current output*

Power supply H →○

Rated operating Voltage: *60 to 300 V AC/DC*
20 to 40 VAC / 20 to 60 VDC

Rated operating frequency: *45 ... 50-60 ... 65 Hz*

Power input : *≤ 5 VA*

Accuracy data (acc. to *IEC 60688*)

Basic accuracy : *Limit error ≤ ± 0.2%*
Including linearity and reproducibility errors

Reference conditions

Ambient temperature *$23^0C \pm 2^0C$*
Output burden *Current: $0.5*R_{ext}$ max.*
Voltage: $2*R_{ext}$ min.

Influencing Factors:

Temperature *< ± 0.1% per 10^0C*
Burden influence *< ± 0.1%*
Longtime drift *< ± 0.3%/ 12 months*
Switch- on drift *< ± 0.2%*

Installation Data:

Mounting position *Rail mounting*

Weight *Approx. 0.25 kg*

Connection Terminal:

Connection Element	*Conventional Screw type terminal with indirect wire pressure*
Permissible cross section of the connection lead	*≤ 4.0 mm² single wire or 2 x 2.5 mm²* fine wire
Permissible Vibrations:	*2 g acc. to EN 60 068-2-6*
Shocks :	*3 x 50 g* *2 shocks each in 6 directions* *Acc. to EN 60 068-2-27*
Electrical :	*All circuits (measuring inputs/ insulation measuring outputs/power supply) are electrically insulated*

Regulation

Electromagnetic Compatibility :	*Acc. to IEC 61326-1*
Protection :	*For Housing : IP 40* *For Terminals : IP 20*
Pollution degree:	*2*
Electrical standards :	*Acc. to IEC 61010-1 resp. EN 61010-1*
Test voltage :	*-All 3.7 kV, 50 Hz 1 min (Leakage current 5mA) Measuring inputs versus :* *-Measuring outputs 2.3 kV, 50 Hz 1min & O/P1 to O/P 2: 500 V ,50 Hz ,1 min* *-All circuits versus case: 3.7kV, 50 Hz ,1min*

Environmental conditions

Climatic rating :	*Climate class 3 acc. to VDI/VDE 3540*
Nominal Range of Use	*0 ºC to 45 ºC (Usage group II)*
Operating temperature	*-10...23...55°C*
Storage temperature	*-40...70^{0}C*
Annual mean Relative humidity	*≤ 75%*

8. Mounting

The Isolator can be mounted on a top-hat rail.

Make sure that the ambient temperature stays within the permissible limits :
-10 and 55^{0}C

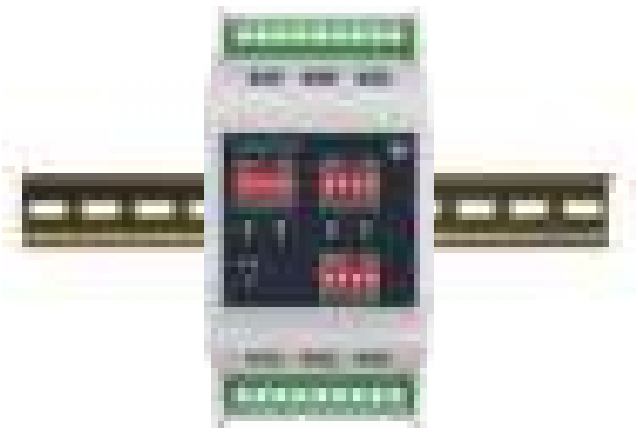


Fig. 2 Top-hat rail Mounting

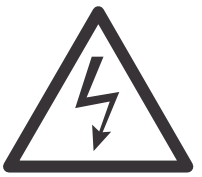
As the front of the enclosure conforms to IP 40. The terminals of the product should be protected from liquids. Transducer should be mounted in a reasonably stable ambient temperature and where the operating temperature is within the range - 10 to 55^{0}C .Vibration should be kept to a minimum and the product should not be mounted where it will be subjected to excessive direct sunlight.

Caution

1. *In the interest of safety and functionality this product must be installed by qualified engineer, abiding by any local regulations.*
2. *Voltages dangerous to human life are present at some of the terminal connections of this unit. Ensure that all supplies are de-energised before attempting any connection or disconnection.*
3. *This product do not have internal fuses therefore external fuses must be used to ensure safety under fault conditions.*

9. Electrical Connections

Input connections are made directly to screw-type terminals with indirect wire pressure. Choice of cable should meet local regulations. Terminal for Current inputs will accept up to ≤ 4.0 mm² single wire or 2 x 2.5 mm² fine wire.



Make sure that the cables are not live when making the connections !

The 230 V power supply is potentially dangerous !

Note that, ...

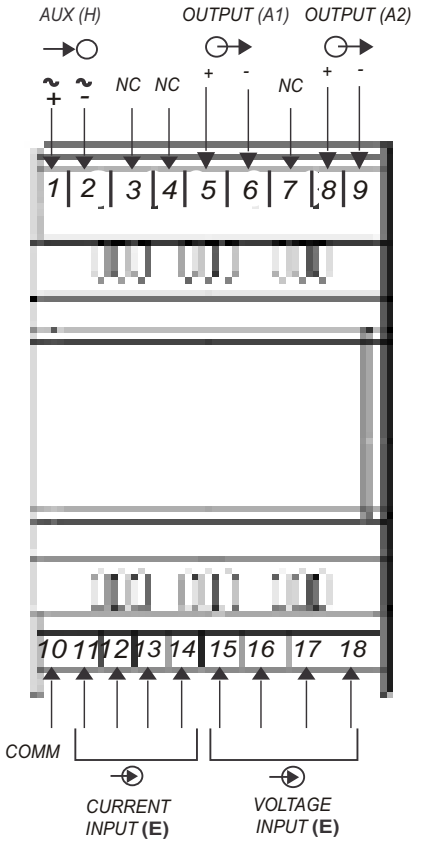
...the data required to perform the electrical insulation task agree with the data on the nameplate of the Isolator (⊣⊕ input E, ⊖→ output A1 & A2 and →○ power supply H !)

...the total loop resistance connected to the output (receiver plus leads) does not exceed the maximum permissible value R_{ext} max. See "Measuring Output" in sec. 7. Technical data" for the maximum values of R_{ext}!

...the input and output cables should be twisted pairs and run as far as possible away from heavy current cables !

In all other respects, observe all local regulations when selecting the type of electrical cable and installing them !

Connection	Terminal details	
Measuring Current input	+	-
A)0....24mA	11	10
B)4....20mA	12	10
C)0....20mA	13	10
D)0....10mA	14	10
Measuring Voltage input		
A)1....5V	15	10
B)0....5V	16	10
C)0....12V	17	10
D)0....10V	18	10
Measuring output 1	5	6
Measuring output 2	8	9
Auxiliary supply	1	2



E = Input
H = Power supply
A1 = Output 1
A2 = Output 2

Fig.3 Front View of Device for electrical Connections

10. Commissioning

Switch on the measuring inputs and the power supply. The green LED lights continuously after switching on.

The power supply unit must be capable of supplying a brief current surge when switching on. The instruments presents a low impedance at the instant of switching ON which requires a current I_{start} of $\geq$35 mA

11. Maintenance

No maintenance is required.

12. Dimensional Drawings

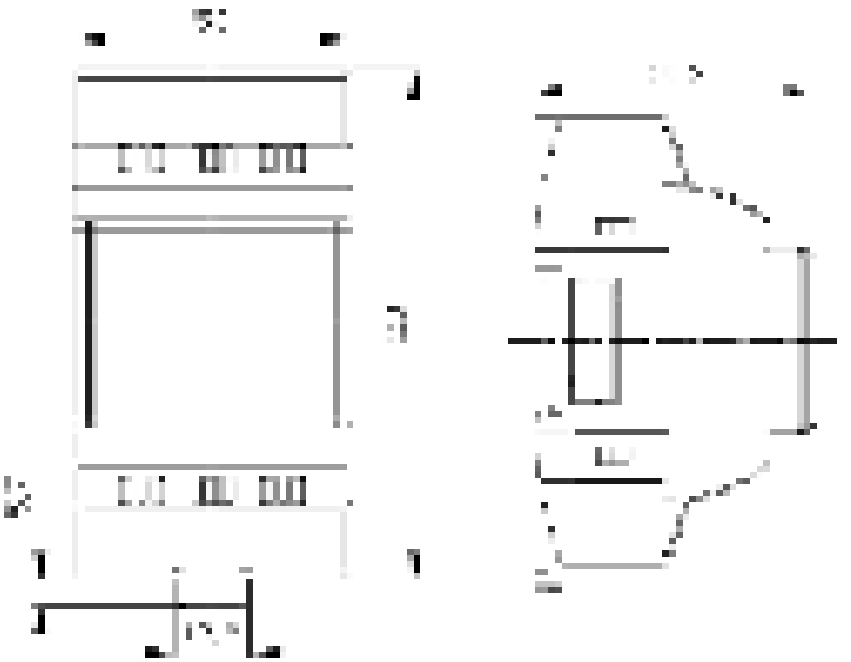


Fig.4 *Side view and Front view*

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