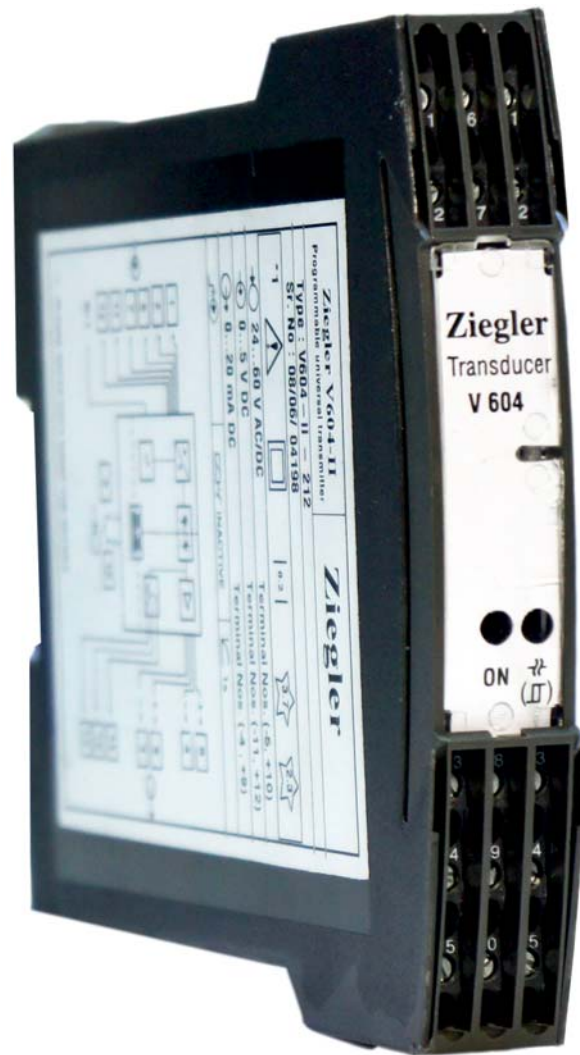


Ziegler

Redefine Innovative Metering

Operating Instructions

Resistance Transmitter Ziegler V 604 - II
Analogue Meters With Moving - Iron Movement



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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

- 8. Mounting
- 9. Electrical connections
- 10. Commissioning

are **observed**.

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

The guarantee is no longer valid if the instrument is further tampered with.

2. Scope of supply

Transmitter (1)

- Standard, measuring input not I.S., power supply 24... 60 V DC/AC
- Standard, measuring input not I.S., power supply 85...230 V DC/AC

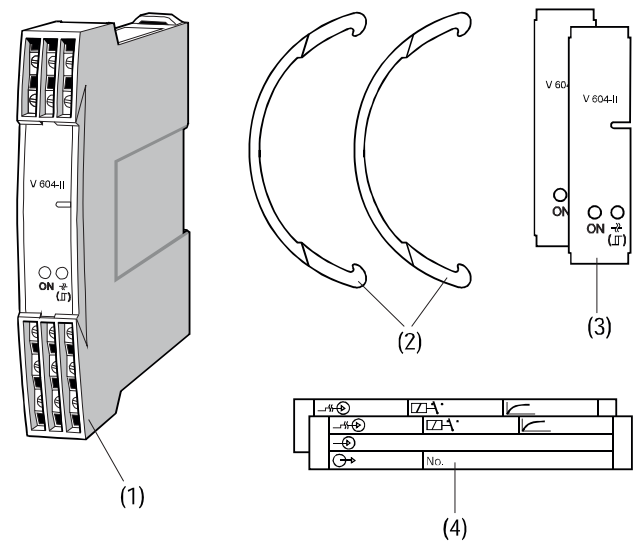


Fig. 1

- 2 withdrawing handles(2) (for withdrawing the device from its housing)
- 2 Frontplates (3) (for notes)
- 2 Type labels (4)

3. Overview of the parts

Figure 2 shows those parts of the transmitter of consequence for mounting, electrical connections, programming connections and other operations described in the Operating Instructions.

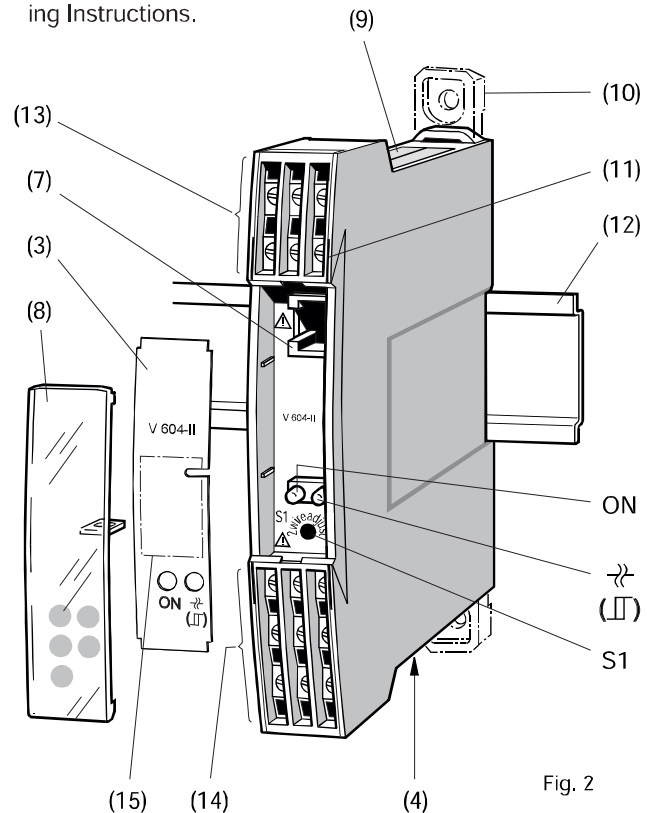




Fig. 2

- (3) Front label
- (4) Type label (operating data)
- (7) Programming connector
- (8) Transparent cover
- (9) Type label (device ratings)
- (10) Fixing bracket
- (11) Opening for withdrawing clip (for opening the housing)
- (12) Top-hat rail 35 × 15 mm or 35 × 7.5 mm (EN 50 022)
- (13) Terminals 1, 2, 6, 7, 11, 12 measuring input M
- (14) Terminals 4, 9 measuring output A1
3, 8 measuring output A2
5, 10 power supply H
13, 14, 15 output contact K
- (15) Space for notes
- S1 Calibration button for automatically compensating the leads of two-wire resistance thermometer circuits
- ON Green LED for signalling operating statuses
-  Red LED for open-circuit sensor supervision or
-  as relay status signal (open-circuit sensor supervision not in operation)

4. Brief description

Resistance connected to the transmitter *RishDucer* V 604-II which then converts the corresponding input signals into impressed current output signal.

The transmitter fulfils the protection requirements according to the EMC guideline (89/336/EWG). The device bears the CE symbol for EMC.

5. Technical data

Measuring input

Measured variable M

The measured variable M = 100...20000 Ω

Measuring output

Output signals A1 and A2

The output signals are load-independent DC currents I_A . A1 and A2 are not DC isolated and the same value is available at both outputs.

Standard ranges for I_A : 0...10 mA

$$\text{External resistance } I_{A1}: R_{\text{ext max. [k}\Omega]} = \frac{15 \text{ V}}{I_{AN} [\text{mA}]}$$

$$I_{AN} = 10 \text{ mA}$$

$$\text{External resistance } I_{A2}: R_{\text{ext max. [k}\Omega]} = \frac{0.3 \text{ V}}{I_{AN} [\text{mA}]}$$

Power supply H

AC/DC power pack (DC and 45...400 Hz)

Table 1: Rated voltages and tolerances

Rated voltage U_N	Fuse	Tolerances	Instrument version
24... 60 V DC / AC	T 160 mA	DC - 15...+ 33% AC ± 15%	Standard
85...230 V ¹ DC / AC	T 100 mA		

Power consumption: < 1.4 W resp. < 2.7 VA

Output contact K

The output contact can be used:

- a) as an additional means of signalling operation of the open-circuit sensor supervision

Light emitting diodes

Table 2: Red LED (, , Fig. 2)

Operating modes	Red LED
Open-circuit sensor or lead	lit

Table 3: Green LED (ON Fig. 2)

Operating status	Green LED
Switching on	Flashes at 1 Hz for 5 seconds after switching on power supply
Normal operation	Continuously ON
Out of range	Flashes at 1 Hz
Open-circuit sensor	Flashes at 1 Hz
Power supply failure	Extinguished

Accuracy (acc. to DIN/IEC770)

Basic accuracy: Limit of error $\leq \pm 0.2\%$

Ambient conditions

Commissioning temp.: - 10 to + 55 °C

Operating temperature: - 25 to + 55 °C,

Storage temperature: - 40 to + 70 °C

Relative humidity

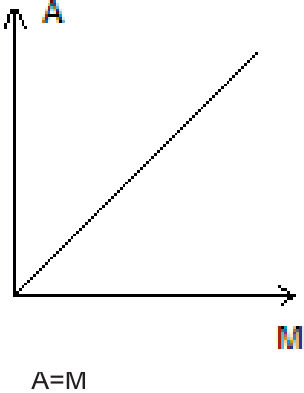
of annual mean: $\leq 75\%$ for standard climatic rating
 $\leq 95\%$ for enhanced climatic rating

Altitude : 2000 m max.

Indoor use statement

Output Characteristic :

Input =M Output =A

Measured Variable	Characteristics	
<p>Linear variation of output=A with resistance M.</p>		<p>Linearized Characteristic</p>

6. Exchanging frontplates

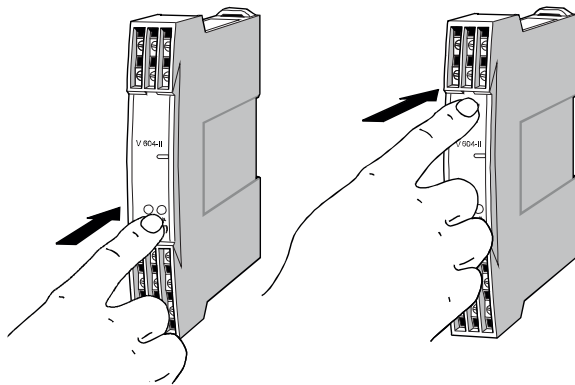


Fig.3 . Left: Removing the transparent cover
Right: Inserting the transparent cover.

Apply gentle pressure to the transparent cover as shown in Fig. 4 until pops out on the opposite side. The label in the cover can be replaced and used for notes.

After replacing the label in the transparent cover, the trans-

parent cover can be snapped into the front of the device again. This is done by inserting it behind the edge at the bottom and pressing it gently down and to the rear with the finger until it snaps into place (right side of Fig. 4).

7. Withdrawing and inserting the device

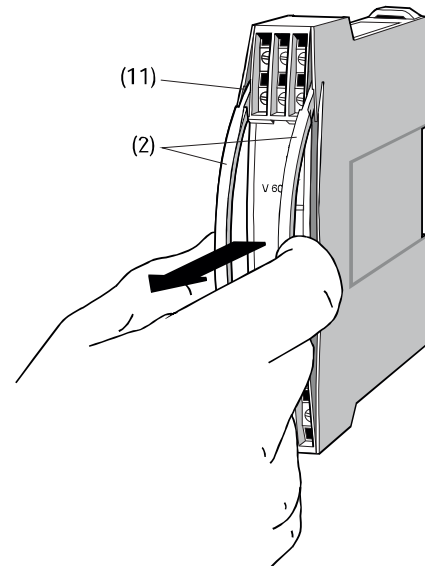


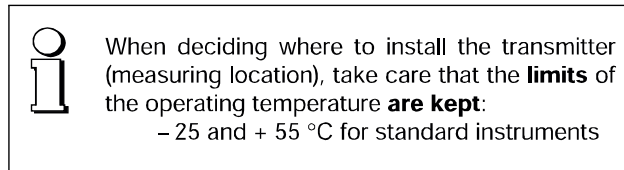
Fig. 4

Insert the Pull-out clamps S17 (2) into the openings (11) until they snap into place. Withdraw the front part together with the main PCB out of the housing.

To reassemble the unit, insert the front part together with the main PCB into the housing until the swallow-tailed sections engage in each other.

8 Mounting

The Ziegler V 604-II can be mounted either on a top-hat rail or directly onto a wall or mounting plate.



8.1 Top-hat rail mounting

Simply clip the device onto the top-hat rail (EN 50 022) (see Fig. 6).

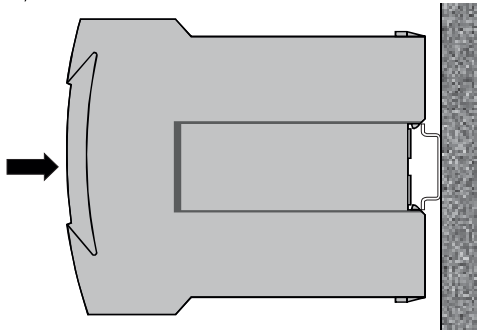


Fig.5 . Mounting on top-hat rails 35 × 15 or 35 × 7.5 mm.

8.2 Wall mounting

Drill 2 holes of approx. 4.5 mm diameter in the wall or panel as shown in the drilling pattern (Fig. 7).

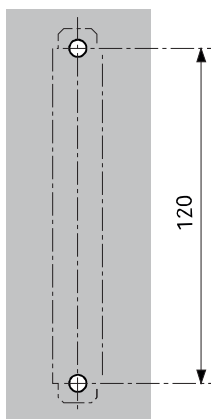


Fig.6 . Drilling pattern.

The while pressing the latch (18) in the base of the device (Fig. 8, left), pull out the transmitter securing brackets (10).

Now secure the transmitter to the wall or panel using two 4 mm diameter screws.

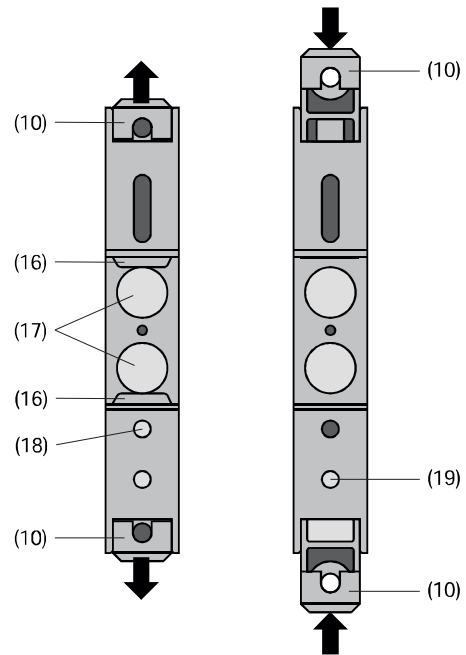


Fig. 7 . Rear of device.

- (10) Screw hole brackets
- (16) Top-hat rail clip
- (17) Rubber buffers
- (18) Latch for pulling the screw hole brackets out
- (19) Latch for pushing the screw hole brackets in

Note:

To return the brackets to their original positions, the latch (19) in the base of the device has to be depressed before applying pressure to the securing brackets (10) (see Fig. 8, right).

9. Electrical connections

The electrical connections are made to screw terminals which are easily accessible from the front of the transmitter (see Fig. 9) and can accommodate wire gauges up to 1 × 2.5 mm².



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

The 230 V power supply and 250 V contact output is potentially dangerous

i Also note that ...

... the data required to carry out the prescribed measurement must correspond to those marked on the nameplate of Ziegler v 604 (→ measuring input M, ⊖ measuring outputs A1 and A2, →○ power supply H and ⊖→ output contact K, see Fig. 9)!

... the total loop resistance connected to the output (receiver plus leads) **does not** exceed the maximum permissible value $R_{ext.}$ see **"Measuring output"** in Section "5. Technical data" for the maximum values of $R_{ext.}$!

... the measurement 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!

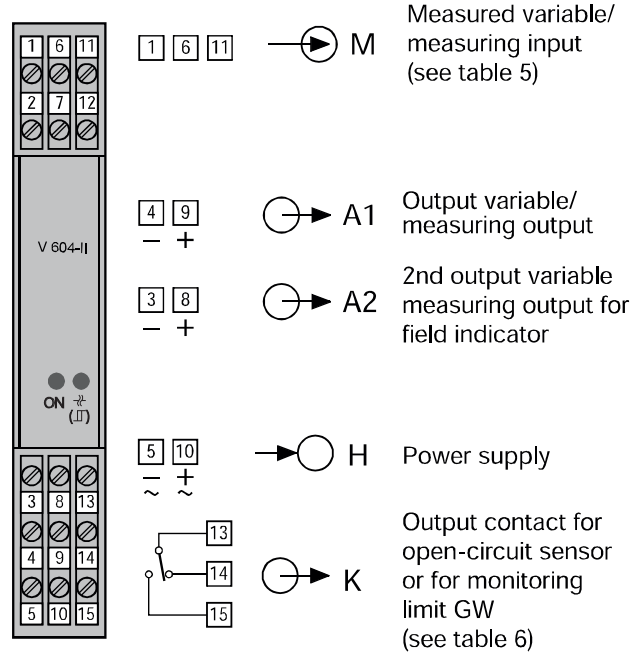


Fig.8 . Terminal allocation.

9.1 Alternative measurement connections

Connect the measuring leads to suit the application as given in Table 4 .

Table 4: Measuring input

Measuring mode / application	Measuring range limits	Connecting diagram Terminal arrangement
Resistance measurement R, three-wire connection $R_{Ltg.} \leq 30 \Omega$ per wire	100 ... 20000 Ω	

Three-wire connection (connection diagram No. 5)
It is assumed that the three leads of a three-wire connection have identical resistances and no compensation is necessary. The lead resistance must not be greater than 30 Ω per lead.

9.2 Measuring output leads

Connect the output leads for output A1 to terminals 4 (-) and 9 (+) and for output A2 (field indicator) to terminals 3 (-) and 8 (+) as shown in Fig. 9.

Note: The maximum permissible external resistance $R_{ext. max}$ of the transmitter must not be exceeded (see Section "5. Technical data").

9.3 Connecting the power supply

Connect the power supply to terminals 5 (\approx) and 10 (\pm) as shown in Fig. 9.

A two-pole switch must be included in the supply connection where facility for switching V 604-II off is desi

Note: An external supply fuse with a rupture capacity ≤ 20 A must be provided for DC supply voltages < 125 V.

9.4 Connecting the output contact

Connect the output contact signalling leads to terminals 13, 14 and 15 (see Fig. 9 and Table5).

Table 5

Contact output K	Material	Contact rating
	Gold flashed silver alloy	AC: $\leq 2 \text{ A}/250 \text{ V}$ (500 VA) DC: $\leq 1 \text{ A}, 0.1 \dots 250 \text{ V}$ (30 W)

Terminals 13 and 14 are connected in the event of a power supply failure.

10. Commissioning

Switch on the measuring input and the power supply. The green LED flashes for 5 seconds after switching on and then lights continuously.



The power supply unit must be capable of supplying a brief current surge when switching on. The transmitter presents a low impedance at the instant of switching which requires a current I_{start} of ...

... $I_{\text{start}} \geq 160 \text{ mA}$ for the version with a power supply range of 24 – 60 V DC/AC

or

... $I_{\text{start}} \geq 35 \text{ mA}$ for the version with a power supply range of 85 – 230 V DC/AC

11. Maintenance

No maintenance is required.

12. Releasing the transmitter

Release the transmitter from a top-hat rail as shown in Fig. 9 .

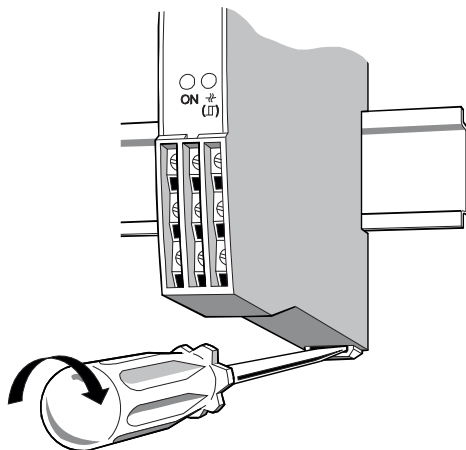


Fig. 10

13. Dimensional drawings

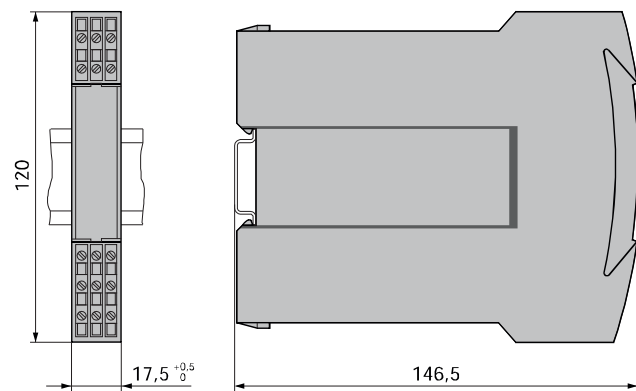


Fig. 10 .Ziegler v604-II clipped onto a top-hat rail (35 x 15 mm or 35 x 7.5 mm) acc. to EN 50 022.

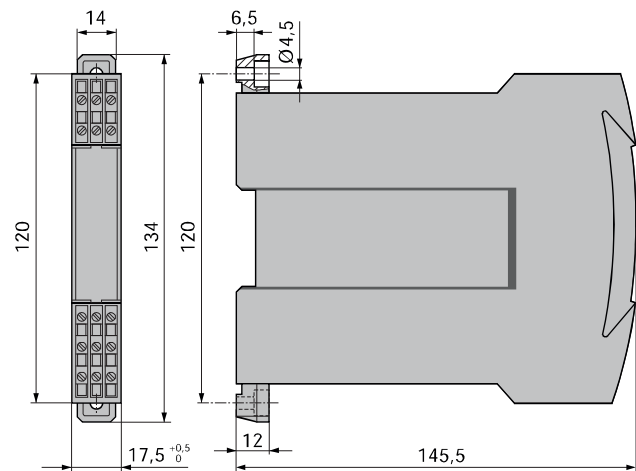


Fig. 11. Ziegler 604-II with the screw hole brackets pulled out for wall mounting.

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