

The following symbols in the Operating Instructions indicate safety precautions which must be strictly observed:



The instruments must only be disposed of in the correct way!

Operating Instructions

Programmable Temperature Transmitter SINEAX V 611



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1. Safety notes



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

- 5. Mounting**
- 6. Electrical connections**
- 8. 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.

Unauthorized repair or alteration of the unit invalidates the warranty!

2. Scope of supply (Figs. 1 and 2)

Transmitter (1)

Order Code: Significance of the 2nd. digit

611-K x
↑
0 Basic configuration programmed
1 Configured to order



Fig. 1



Fig. 2

1 Operating Instructions (2) each in German, French and English

3. Brief description

The programmable **SINEAX V 611** is a two-wire transmitter.

It is used for measuring temperature in conjunction with a thermocouple or resistance thermometer. Thermocouple non-linearities are automatically compensated. The output signal is a current in the range 4...20 mA.

Measured variable, measuring range, signalling and other parameters are programmed with the aid of a PC and the corresponding software.

The sensor circuit is monitored for open and short-circuits and the output responds in a defined manner if one is detected.

The power supply of 12...30 V DC is connected together with the signal by the two leads connected to the measurement output (loop powered).

Transmitters supplied as standard versions are configured as follows:

- Measuring input:	Pt 100 for three -wire connection
- Measuring range:	0 ... 600 °C
- Measuring output:	4 ... 20 mA
- Open-circuit supervision:	Output 21.6 mA
- Mains ripple suppression:	For frequency 50 Hz

4. Technical Data

Measuring input \rightarrow

Input variable and measuring range configured

Input variables	Measuring ranges		
	Limits	Min. span	Max. span
Temperatures with resistance thermometers for two, three or four -wire connection			
Pt 100, IEC 60 751	- 200 to 850 °C	50 K	850 K
Ni 100, DIN 43 760	- 60 to 250 °C	50 K	250 K
Temperatures with thermocouples			
Type B, E, J, K, N, R, S, T acc. to IEC 60 584-1	acc. to type	2 mV	80 mV
Type L and U, DIN 43710			
Type W5 Re/W26 Re, Type W3 Re/W25 Re acc. to ASTM E 988-90			

Cold junction compensation

Internal: Incorporated Pt 100
or
with Pt 100 connected to the terminals

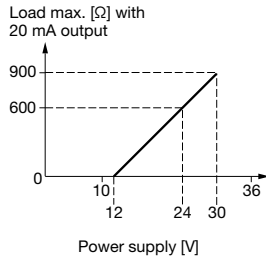
External: Via cold junction thermostat
0...60 °C, configurable

Measuring output $\ominus \rightarrow$ (output/powering circuit)

Output signal IA: Impressed DC current, **linear with temperature**

Standard range: 4...20 mA, 2-wire technique

External resistance (load): $R_{\text{ext max.}} = \frac{\text{Power supply [V]} - 12 \text{ V}}{\text{Max. output current [mA]}}$



Programming connector on the transmitter

Interface: Serial interface

Open and short-circuit sensor circuit supervision

Signalling modes: Output signal configurable to...

- ... the value the output had immediately prior to the open or short-circuit* (hold value)
- ... a value between 4 and 21.6 mA

*The short-circuit indicator is only active for the RTD $\geq 100 \Omega$ at 0 °C, three and four-wire measuring mode

Power supply $\rightarrow \ominus$

DC voltage: Supply 12 ... 30 V DC
max. residual ripple 1% p.p.
(supply must not fall below 12 V)
Protected against wrong polarity

5. Mounting

The SINEAX V 611 can be mounted on a top-hat rail or on a rail "G".



When deciding where to install the transmitter (measuring location), take care that the **limits** of the operating temperature **are kept**:
-25 and + 55 °C

Simply clip the device onto the top-hat rail (EN 50 022) (see Fig. 3).

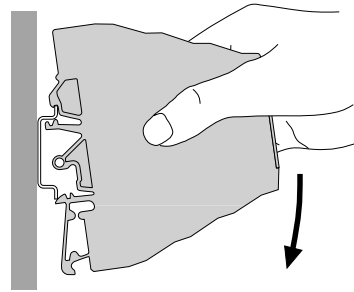


Fig. 3. Mounting onto top-hat rails 35 x 15 or 35 x 7.5 mm.

Simply clip the device onto the rail "G" EN 50 035-G32 (see Fig. 4).

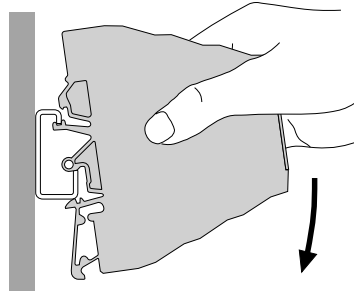


Fig. 4. Mounting onto rail "G".

6. Electrical connections

The leads are connected to the screw terminals for max. 4 mm² (single wire) and 2.5 mm² (fine wire) on the front of the transmitter. The applicable enclosure Protection Class for the terminals is IP 20 according to EN 60 529.



Also note that, ...

... the data required to carry out the prescribed measurement must correspond to those marked on the nameplate of SINEAX V 611 ($\rightarrow \ominus$ sensor, measuring range, $\ominus \rightarrow$ measuring output, Supply Voltage (see Fig. 6)!

... the total loop resistance connected to the output (receiver plus leads) **does not** exceed the maximum permissible value $R_{\text{ext max.}}$, see "**Measuring output**" in Section "4. Technical data"!

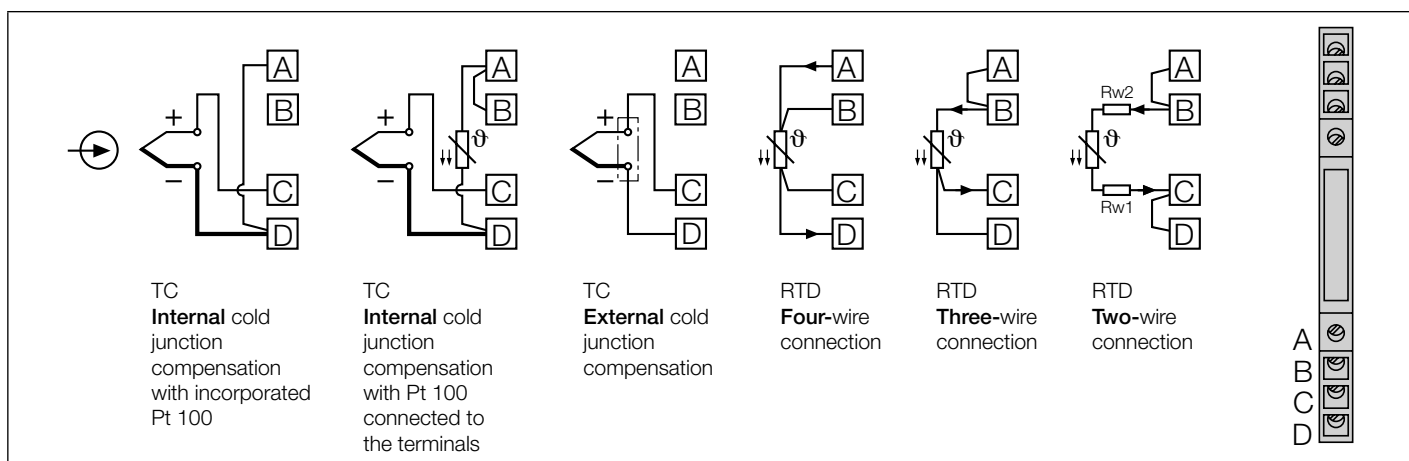
... the measurement input and output cables should be twisted pairs and run as far as possible away from heavy current cables!

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

6.1 Alternative measurement connections

Connect the measuring leads to suit the application as given in Table 1.

Table 1: Measuring input



Notes:

6.1.1 Connection to thermocouples

Pay attention to correct polarity when connecting thermocouples. If the lead from the thermocouple to the transmitter has to be extended, be sure to use thermally compensated leads suitable for the particular type of thermocouple.

6.1.1.1 Internal cold junction compensation with incorporated Pt100

Connect terminals (A) and (D) when using internal compensation by comparison.

Set the configuration software to "internal thermocouple" and "Pt 100 built-in".

6.1.1.2 Internal cold junction compensation with Pt 100 connected to the terminals

For this alternative, a Pt 100 is connected to terminals (A) and (D). Terminals (A) and (B) must be connected.

Set the configuration software.

6.1.1.3 External cold junction compensation

Be sure to configure the reference temperature when using a cold junction thermostat. The cold junction thermostat is connected to the transmitter by copper wire leads.

6.1.2 Connection to resistance thermometers

6.1.2.1 Two-wire connection

Terminals (A) and (B) and (C) and (D) must be connected in the case of a two-wire measurement.

The lead resistance must not be greater than 30 Ω per lead.

6.1.2.2 Three-wire connection

Terminals (A) and (B) must be connected in the case of a three-wire measurement. The three leads must have identical resistances and not be greater than 30 Ω per lead.

6.1.2.3 Four-wire connection

The four-wire measurement is independent of lead resistance within wide limits and therefore no compensation is necessary. The lead resistance must not be greater than 30 Ω per lead.

6.2 Measuring output leads (output/powering circuit)

Connect the measuring output leads (analogue output and power supply) to terminals - and + acc. to Fig. 5.

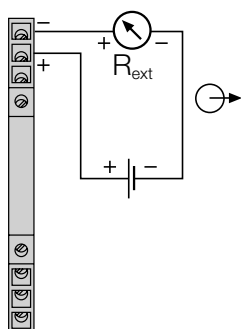


Fig. 5

Permissible power supply H
12 ... 30 V DC

Permissible load max R_{ext}
(acc. to power supply)
900 Ω at 30 V
600 Ω at 24 V
400 Ω at 20 V

Note that twisted leads must be used for the output signal.

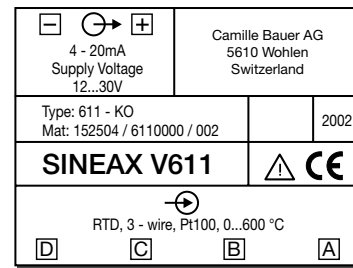


Fig. 6. Example of a nameplate.

7. Configuring the transmitter

It is configured via the serial interface of a PC. For the configuration, a special advantage is that devices with and without a separate power supply connection can be configured.

The following accessories are required (see section "10. Accessories and spare parts") ...

... Configuration software V 600 plus

... Programming cable PK 610

... Ancillary cable

A PC with an RS 232 C interface (Windows 95 or higher) is also required.

The configuration procedure and choice of parameters is explained by the menu-guided configuration program.

To access the programming connector remove the front cover (3) (Fig. 7).

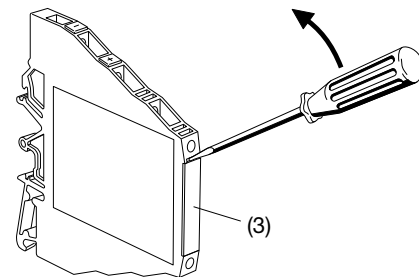


Fig. 7

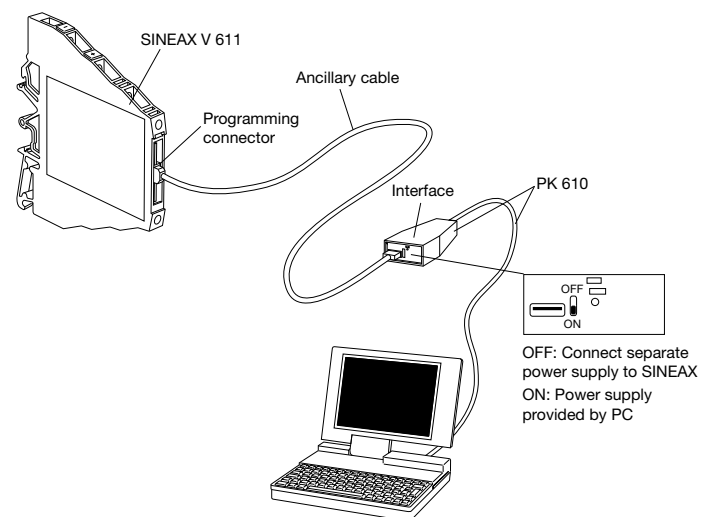


Fig. 8. Configuring a SINEAX V 611 without the power supply. For this case the switch on the Interface must be set to "ON".

Depending on whether the device is programmed with or without a separate power supply, the switch on the PK 610 interface is to be set to "ON" or "OFF", see Fig. 8.



The earthing conditions must be observed when programming the instrument, (e.g. the instrument is installed in the plant).

If one of the power supply or input wires is earthed, a PC without an earth connection **must** be used when programming (e.g. a notebook running on the batteries).

Under no circumstances should a PC be used running from a power supply with an earth connection, as this will damage the transducer.

8. Commissioning

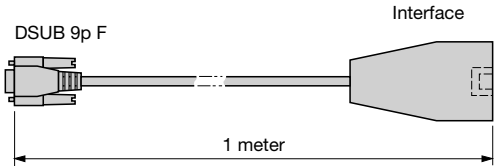
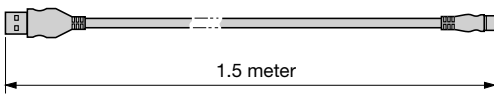


Switch on the measuring input and the power supply. The ambient temperature must be between - 10 and + 55°C.

9. Maintenance

No maintenance is required.

10. Accessories and spare parts

Description	Order No.
Programming cable PK 610 	137 887
Ancillary cable 	141 440
Configuration software V600 plus on CD (Download free of charge under http://www.camillebauer.com)	146 557
Operating Instructions V 611 Bd in German	152 471
Operating Instructions V 611 Bf in French	152 489
Operating Instructions V 611 Be in English	152 497

11. Releasing the transmitter

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

Release the transmitter from a rail "G" as shown in Fig. 10.

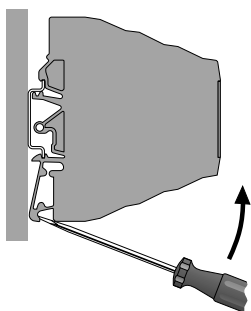


Fig. 9

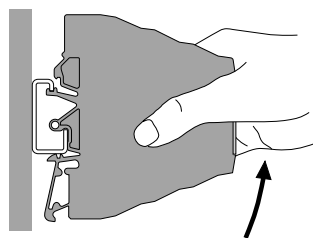


Fig. 10

12. Dimensional drawings

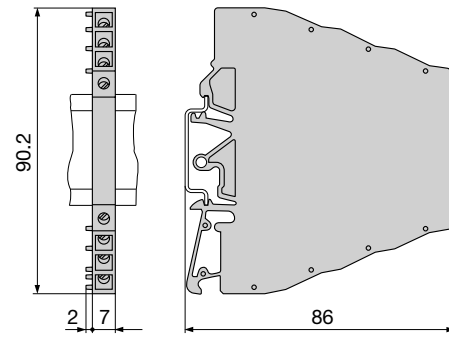


Fig. 11. SINEAX V 611 in carrying rail housing clipped onto a top-hat rail EN 50 022 - 35 x7.5.

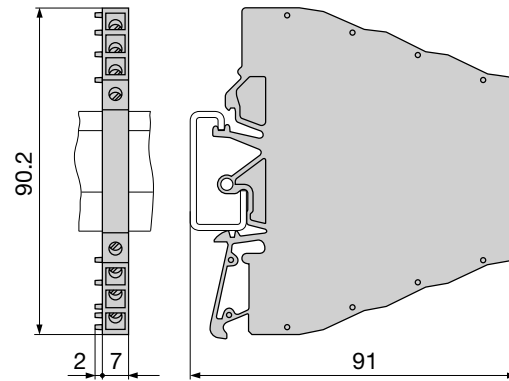


Fig. 12. SINEAX V 611 in carrying rail housing clipped onto a rail "G" EN 50 035 - G32.