CAMILLE BAUER

HOTSPOT

Electrical Thermometers
Temperature Measuring
Transmitters
Isolating Amplifiers
Power Packs

GMC therm

Thermocouples

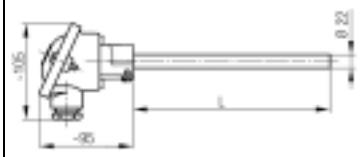
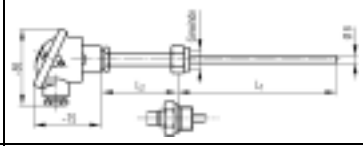
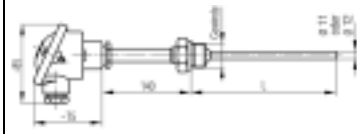
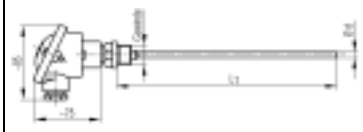
and non-Ex versions

- Measuring insert variants with ceramic and steel protective tubes, including mounting and installation fixtures
- Special variants with noble-metal protective tube for glass melts
- Installation lengths from 160 to 2000 mm, temperature range: –200 to 1800 ºC
- Optionally with integrated 2-wire measuring transducer
- Available as standard or Ex version

Applications

GMCtherm thermocouples are used in practically all industry sectors. They also offer diverse options for use in motors, transformers, turbines, robots, piping systems, tanks, ovens and hardening baths.

Thermocouple Characteristic Values

Type	Sketch	Variant	Thermo-couple [1]	Dimensions [mm]	Protective tube material	Operating temperature [ºC] [2]	Process interface
240		Standard Ex [3]	L J K	L = 100 … 500	1.4571	to +800	None, 15 mm stop flange or adjustable fitting
244		Standard	L J K S	L = 500 … 2000	1.4749 1.4762	to +1000	None, 22 mm stop flange or adjustable fitting
248		Standard Ex [3]	L J K	L_1 = 100 … 1110 L_2 = 140	1.4571	to +800	Sleeve nut (or threaded union) M20x1.5, G½ M18x1.5, M27x2, G¾
254		Standard Ex [3]	L J K	L_1 = 160 … 400 L_2 = 140	1.4571	to +800	Fixed fitting M20x1.5, G½A M27x2, G¾A
256		Standard	L J K	L_1 = 100…1000 d = 3…14	1.4571	–200…+600	Fixed fitting M20x1.5, G½A
257		Standard Ex [3]	L J K	Dimensions L_1: L_3, d_1 and d_2 per DIN 43 772 (weld-on protective tubes, type 4) e.g. type D4 L_1 = 200, L_3 = 65 d_1 = 24, d_2 = 12.5 L_2 = 140	1.4571 1.7335	to +800	Weld-in
260		Standard	L J K	L = 100 … 2000	1.4571	to +800	For laboratory use or installation into protective fixtures
261		Standard Ex [3]	L J K	L = 100 … 2000	1.4571	to +800	For laboratory use

Other dimensions and materials upon request

1) Standard values for L per DIN 43 710, for J, K and S per DIN EN 60 584

2) Operating temperature depends upon thermocouple and protective tube material.

3) BUZ type terminal housing for Ex version

GMC therm

Sheathed Thermocouples

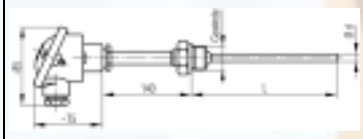
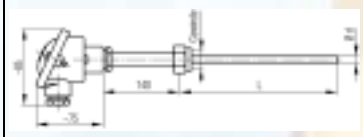
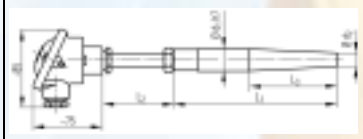
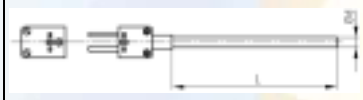
- Also available as measuring insert, and with protective tube and mounting fixture
- Diameters: 0.5 to 6 mm
- Temperature range; – 200 to + 1200 °C (types K and J)
- Optionally with integrated 2-wire measuring transducer
- Available as standard or Ex version

Ex and non-Ex versions

Applications

Flexible temperature sensors for use at difficult to access measuring points, and where high mechanical stressing occurs.

Sheathed Thermocouple Characteristic Values

Type	Sketch	Variant	Thermocouple [1]	Dimensions [mm]	Protective tube material	Operating temperature [ºC] [2]	Process interface
270		Standard Ex [3]	L J K	∅1.5: L max. 30000 ∅2.0: L max. 40000 ∅3.0: L max. 40000 ∅4.5: L max. 18000 ∅6.0: L max. 10000	1.4541 1.4571 1.4841 2.4816	-200 to +1000	Fixed fitting M20x1.5, G½A
271		Standard Ex [3]					Sleeve nut M20x1.5, G½A
272		Standard Ex [3]		Dimensions L_1, L_2, d_1 and d_2 per DIN 43 772 (weld-in protective tubes, type 4) e.g. type D4 L_1 = 200, L_3 = 65 d_1 = 24, d_2 = 12.5 L_2 = 140	1.4571 1.7335	–200 to +800	Weld-in protective tube
273		Standard Ex [3]		∅1.5: L max. 30000 ∅2.0: L max. 40000 ∅3.0: L max. 40000 ∅4.5: L max. 18000 ∅6.0: L max. 10000	1.4541 1.4571 1.4841 2.4816	–200 to +1000	None, solderable or adjustable fitting
282		Standard					None, solderable or adjustable fitting Push-in connector upon request
285		Standard					None (for laboratory use or installation into protective fixtures), solderable or adjustable fitting

Other dimensions and materials upon request

1) Standard values for L per DIN 43 710, for J, K and S per DIN EN 60 584

2) Operating temperature depends upon thermocouple and protective tube material.

3) BUZ type terminal housing for Ex version

Other variants upon request

GMC therm

Resistance Thermometers

- Measuring inserts and complete thermometers in standard fixtures, and special variants with custom tolerances
- Diameters: 3 to 24 mm
- Temperature range: – 200 to + 600 °C
- Optionally with integrated 2-wire measuring transducer
- Available as standard or Ex version

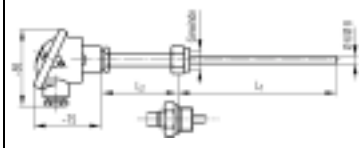
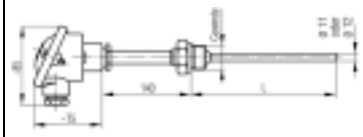
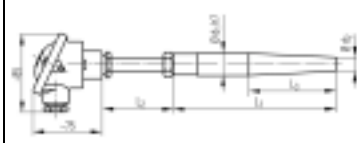
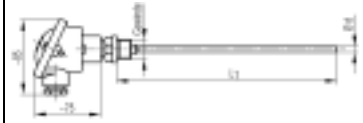
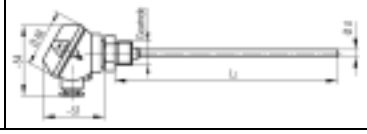
Applications

Temperature measurement for liquids and gases in tanks, piping systems and o0ther apparatus.

Temperature measurements at surfaces, encapsulated miniature sensors with and without connector cable, variants for various climatic categories

Ex and non-Ex versions

Resistance Thermometer Characteristic Values

Type	Sketch	Variant	Sensor [1]	Dimensions [mm]	Protective tube material	Operating temperature [°C] [2]	Process interface
340		Standard Ex [3]	Pt100, Pt500, Pt1000 or as requested, single or double, accuracy class A, B or as requested, 2, 3 or 4-wire connection, various temperature ranges	L = 500 … 2000	1.4571	–200…+600	None, 15 mm stop flange or adjustable fitting
348		Standard Ex [3]		L_1 = 100 … 1150 L_2 = 140			Sleeve nut (or threaded union) M20x1.5, G½ M18x1.5, M27x2, G¾
354		Standard Ex [3]		L_1 = 160 … 400 L_2 = 140			Fixed fitting M20x1.5, G½A, M27x2, G¾A
357		Standard Ex [3]		Dimensions L_1, L_3, d_1 and d_2 per DIN 43 772 (weld-in protective tubes, type 4) e.g. type D4 L_1 = 200, L_3 = 65 d_1 = 24, d_2 = 12.5 L_2 = 140			Weld-in
360		Standard		L = 100 … 2000			For laboratory use or installation into protective fixtures
361		Standard Ex [3]					For laboratory use
372		Standard Ex [3]		L_1 = 100 … 1000 d = 3 … 14			Fixed fitting M20x1.5, G½A
373		Standard					

Other dimensions and materials upon request

1) Standard values for L per DIN 43 710, for J, K and S per DIN EN 60 584

2) Operating temperature depends upon thermocouple and protective tube material

3) BUZ type terminal housing for Ex version

SINEAX V608

Programmable Temperature Measuring Transmitters SINEAX V 608-81/83, Without Electrical Isolation

for TC and RTD inputs

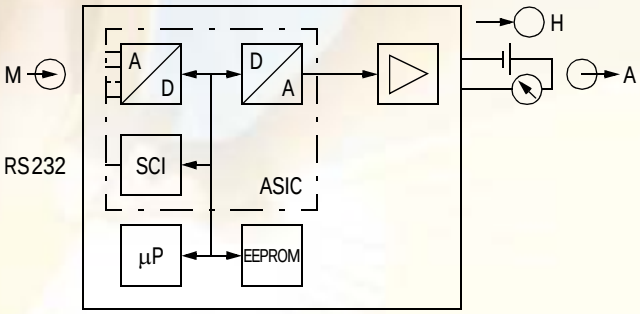
K17 Housing

- Measured quantity and measuring range can be programmed at a PC
- Programmable with power supply connected or disconnected
- Digital measured value data available at programmable interface for easy initial start-up, measured values can be displayed on-site at programming PC
- Available as standard or Ex version

Applications

Programmable temperature measuring transmitter

Converts the measured quantity (i.e. signal from a thermocouple or resistance thermometer) into a proportional, analog output quantity.



Ex and non-Ex versions

SINEAX V 608-81/83 Characteristic Values

M Measurement Input

B, E, J, K, L, N, R, S, T, U
W5 - W26 Re, W3 - W25 Re

Pt 100, – 200 to 850 °C
Ni 100, – 60 to 250 °C
2, 3 or 4-wire connection, other sensor types can be configured as well

Reference Junction Compensation

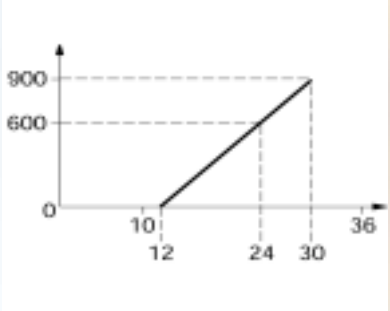
Internal: Integrated Pt 100 resistor

A Measurement Output

Direct current: 4 ... 20 mA, 2-wire connection

External resistor: Depends upon power supply

Max. load [Ω] with 20 mA output



Supply power [V]

H Power Supply

Direct voltage: 12 … 30 V, Supply via the output circuit

Basic Accuracy

Error limit: ≤ ± 0.2%

Programming Port

Interface: Serial interface

Explosion Protection

Ex II 2(1) G CE_{0102} EEx ia IIC T6

Prototype test certificate:
ZELM 01 ATEX 0052

Type 608-83
Input Circuit

U_o = 6 V
I_o = 15 mA
P_o = 39 mW

Ex	C_o	L_o
IIC	990 nF	5 mH
IIB	1760 nF	10 mH

Output Circuit

U_i = 30 V
I_i = 160 mA
P_i ≤ 1 W (depending on temp. class)
C_i ~ 0
L_i ~ 0

SINEAX VK616

Programmable Temperature Measuring Transmitters SINEAX VK 616-71/73, Without Electrical Isolation

for TC and RTD inputs

SINEAX VK 616-71/73 Housing

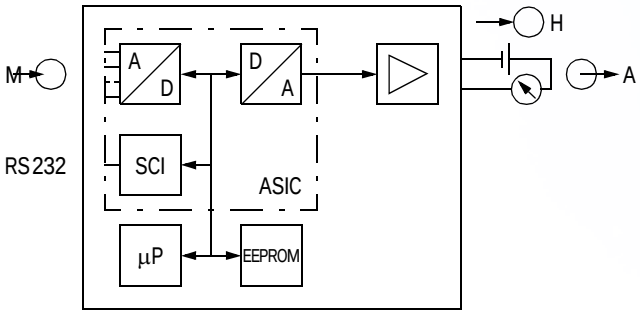
- Measured quantity and measuring range can be programmed at a PC
- Programmable with power supply connected or disconnected
- Digital measured value data available at programmable interface for easy initial start-up, measured values can be displayed on-site at programming PC
- Available as standard or Ex version

Applications

Programmable temperature measuring transmitter.

Converts the measured quantity (i.e. signal from a thermocouple or resistance thermometer) into a proportional, analog output quantity.

For installation into terminal housings of temperature sensors per DIN 43 729, type B



Ex and non-Ex versions

SINEAX VK 616-71/73 Characteristic Values

M Measurement Input

B, E, J, K, L, N, R, S, T, U
W5 - W26 Re, W3 - W25 Re

Pt 100, – 200 to 850 °C
Ni 100, – 60 to 250 °C
2, 3 or 4-wire connection, other sensor types can be configured as well

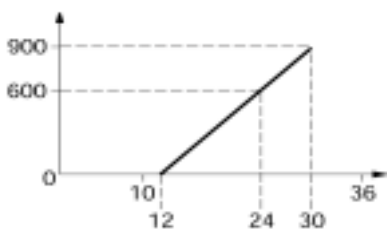
Reference Junction Compensation

Internal: Integrated Pt 100 resistor

A Measurement Output

Direct current: 4 ... 20 mA, 2-wire connection
External resistor: Depends upon power supply

Max. load [Ω] with 20 mA output



Supply power [V]

H Power Supply

Direct voltage 12 … 30 V, Supply via the output circuit

Basic Accuracy

Error limit: ≤ ± 0.2%

Programming Port

Interface: Serial interface

Explosion Protection

Ex II 2(1) G CE_{0102} EEx ia IIC T6

Prototype test certificate:
ZELM 99 ATEX 0010

Type 616 - 73
Input Circuit

U_o = 6 V
I_o = 15 mA
P_o = 39 mW

Ex	C_o	L_o
IIC	990 nF	5 mH
IIB	1760 nF	10 mH

Output Circuit

U_i = 30 V
I_i = 160 mA
P_i ≤ 1 W (depending on temp. class)
C_i ~ 0
L_i ~ 0

SINEAX VK616

Programmable Temperature Measuring Transmitters SINEAX VK 616-72/74, With Electrical Isolation

for TC and RTD inputs

SINEAX VK 616-72/74 Housing

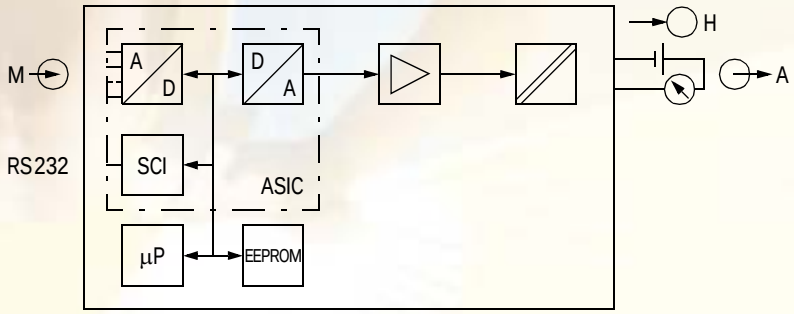
- Measured quantity and measuring range can be programmed at a PC
- Programmable with power supply connected or disconnected
- Electrical isolation between measurement input and measurement output (test voltage: 1500 V AC)
- Digital measured value data available at programmable interface for easy initial start-up, measured values can be displayed on-site at programming PC
- Available as standard or Ex version

Applications

Programmable temperature measuring transmitter.

Converts the measured quantity (i.e. signal from a thermocouple or resistance thermometer) into a proportional, analog output quantity.

For installation into terminal housings of temperature sensors per DIN 43 729, type B



Ex and non-Ex versions

SINEAX VK 616-72/74 Characteristic Values

M Measurement Input

B, E, J, K, L, N, R, S, T, U
W5 - W26 Re, W3 - W25 Re

Pt 100, – 200 to 850 °C
Ni 100, – 60 to 250 °C
2, 3 or 4-wire connection, other sensor types can be configured as well

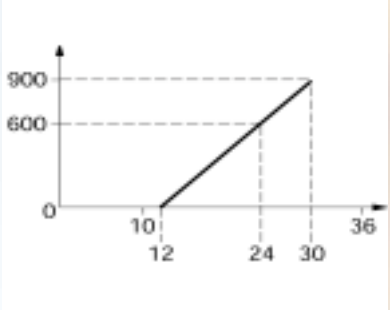
Reference Junction Compensation

Internal: Integrated Pt 100 resistor

A Measurement Output

Direct current: 4 ... 20 mA, 2-wire connection
External resistor: Depends upon power supply

Max. load [Ω] with 20 mA output



Supply power [V]

H Power Supply

Direct voltage: 12 … 30 V, Supply via the output circuit

Basic Accuracy

Error limit: ≤ ± 0.2%

Programming Port

Interface: Serial interface

Explosion Protection

Ex II 2(1) G CE_{0102} EEx ia IIC T6

Prototype test certificate:
ZELM 00 ATEX 0043

Type 616 - 74
Input Circuit

U_o = 6 V
I_o = 8 mA
P_o = 26 mW

Ex	C_o	L_o
IIC	1194 nF	7 mH
IIB	1964 nF	10 mH

Output Circuit

U_i = 30 V
I_i = 160 mA
P_i ≤ 1 W (depending on temp. class)
C_i ~ 0
L_i ~ 0

SINEAX VK626

Programmable Temperature Measuring Transmitters SINEAX VK 626, with HART Protocol

for TC and RTD inputs

SINEAX VK 626 Housing

- Measuring transmitters with HART communications protocol
- Digital communication and power supply via the 2-wire output cable
- Measured quantity, measuring range and other parameters programmable with PC, suitable HART interface and appropriate software
- Electrical isolation (test voltage: 1500 V AC)
- Available as standard or Ex version

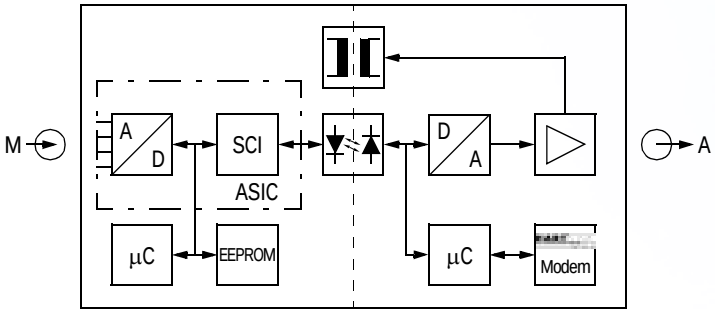
Applications

Temperature measuring transmitters with HART protocol for use in process control systems (SPC, PLC).

Converts the measured quantity (i.e. signal from a thermocouple or resistance thermometer) into a proportional, analog output quantity.

HART (Highway Addressable Remote Transducer) is an open, digital communications protocol for industrial measuring instruments.

For installation into terminal housings of temperature sensors per DIN 43 729, type B



and non-Ex versions

SINEAX VK 626-7A/7B Characteristic Values

M Measurement Input

B, E, J, K, L, N, R, S, T, U
W5 - W26 Re, W3 - W25 Re

Pt 100, – 200 to 850 °C
Ni 100, – 60 to 250 °C
2, 3 or 4-wire connection, other sensor types can be configured as well

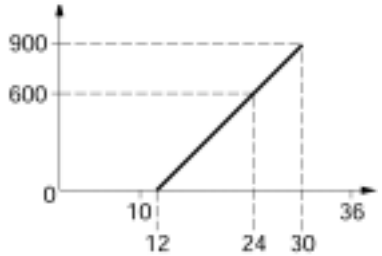
Reference Junction Compensation

Internal: Integrated Pt 100 resistor

A Measurement Output

Direct current: 4 ... 20 mA, 2-wire connection
External resistor: Depends upon power supply

Max. load [Ω] with 20 mA output



Supply power [V]

H Power Supply

Direct voltage: 12 … 30 V, Supply via the output circuit

Basic Accuracy

Error limit: ≤ ± 0.2%

Programming Port

Interface: Output terminals

Explosion Protection

Ex II 2(1) G CE_{0102} EEx ia IIC T6

Prototype test certificate:
ZELM 01 ATEX 0067

Type 626 - 7B Input Circuit

U_o = 6 V
I_o = 5 mA
P_o = 11 mW

Ex	C_o	L_o
IIC	1864 nF	5 mH
IIB	8964 nF	5 mH

Output Circuit

U_i = 30 V
I_i = 160 mA
P_i ≤ 1 W (depending on temp. class)
C_i ~ 0
L_i ~ 0

SINEAX VK636

Programmable Temperature Measuring Transmitters SINEAX VK 636, Communications via PROFIBUS PA

for TC and RTD inputs

SINEAX VK 636 Housing

Ex and non-Ex versions

- Measuring transmitters with bus interface per EN 50 170 and IEC 61158-2
- Digital communication and power supply via the bus line
- Measured quantity, measuring range and other parameters programmable with class 2 master
- Electrical isolation (test voltage: 1500 V AC)
- Reduced installation costs
- Available as standard or Ex version

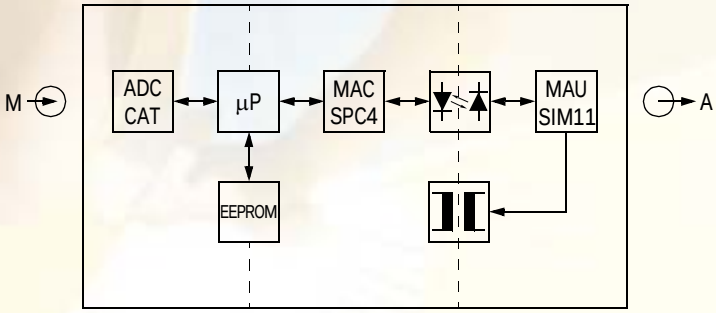
Applications

Temperature measuring transmitter for use in PROFIBUS automation systems.

Converts the measured quantity (i.e. signal from a thermocouple or resistance thermometer) for PROFIBUS PA.

PROFIBUS PA (Process Automation) is an open fieldbus standard per EN 50 170 and IEC 61 158-2 designed especially for the fulfillment of process engineering requirements.

For installation into terminal housings of temperature sensors per DIN 43 729, type B



SINEAX VK 636 Characteristic Values

M Measurement Input

B, E, J, K, L, N, R, S, T, U
W5 - W26 Re, W3 - W25 Re

Pt 100, – 200 to 850 °C
Ni 100, – 60 to 250 °C
2, 3 or 4-wire connection, other sensor types can be configured as well

Reference Junction Compensation

Internal: Integrated Pt 100 resistor

A Measurement Output

Network protocol:	PROFIBUS PA (profile for process control version 3.0)
Transmission:	Per IEC 61158-2
Bus termination:	External
Transmission speed:	31.25 kbit/s

Power Supply

Via common bus couplers per IEC 61158-2. The VK 636 with "intrinsic safety" protection (U_i = 17.5 V, I_i, P_i = any, $C_i \leq 5$ nF, $L_i \leq 10$ µH) is in compliance with the FISCO model, and is thus suitable for connection to bus couplers in accordance with the FISCO model.

The following data apply for other connection configurations, e.g. per FISCO model: U_i = 24 V, I_i = 250 mA, P_i = 1.2 W, $C_i \leq 1.15$ nF, $L_i \leq 3$ µH These values may not be exceeded by the interconnected power pack.

Detailed information regarding the FISCO model is included in PTB report W53 (German Federal Institute for Physics and Metrology), as well as other sources.

Basic Accuracy

Error limit: ≤ ± 0.2%

Programming Port

Interface: Output terminals

Explosion Protection

Ex II 2 (1) G CE_{0102} EEx ia IIC T6

Prototype test certificate:
ZELM 01 ATEX 0070

Type 636-7D Input Circuit

U_o = 6.5 V
I_o = 3 mA
P_o = 4.8 mW

Ex	C_o	L_o
IIC	24 µF	1 H

Output Circuit

Only for connection to intrinsically safe circuits (e.g. FISCO power pack) with the following maximum values:

	FISCO Power Pack	Linear Ranges
U_i	17.5 V	24 V
I_i	Any	250 mA
P_i	Any	1.2 W
C_i	≤ 1.15 nF	
L_i	≤ 3 µH	

SINEAX V624

Programmable Temperature Measuring Transmitters SINEAX V 624

for TC and RTD inputs

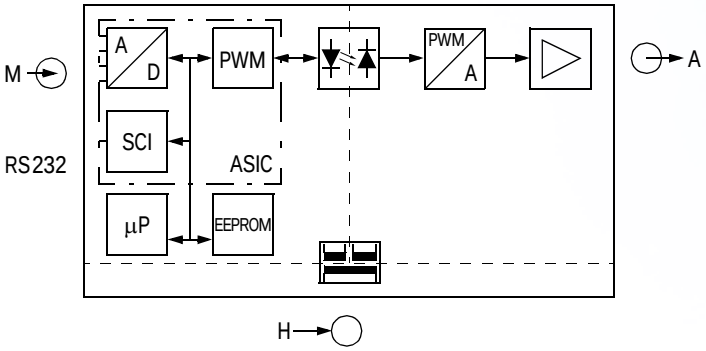
P12/17 or P12/17 St Housing

- Measured quantity and measuring range can be programmed at a PC
- Output quantity range can also be programmed at a PC, type of output quantity (i.e. current or voltage signal) cannot be reprogrammed
- Electrical isolation between measured quantity, analog output quantity and power supply, in compliance with EN 61 010
- Digital measured value data available at programmable interface for easy initial start-up, measured values can be displayed on-site at programming PC
- Available as standard or Ex version

Applications

Programmable temperature measuring transmitter.

Converts the measured quantity (i.e. signal from a thermocouple or resistance thermometer) into a proportional, analog output quantity.



and non-Ex versions

SINEAX V 624 Characteristic Values

M Measurement Input

B, E, J, K, L, N, R, S, T, U
W5 - W26 Re, W3 - W25 Re

Pt 100, – 200 to 850 °C
Ni 100, – 60 to 250 °C
2, 3 or 4-wire connection, other sensor types can be configured as well

Reference Junction Compensation

Internal: Integrated Pt 100 resistor

A Measurement Output

Direct current:	Programmable between 0 and 20 mA and 20 and 0 mA Minimum span: 2 mA
Compliance voltage:	12 V
Direct voltage:	Programmable between 0 and 10 V and 10 and 0 V Minimum span: 1 V
Load capacity:	5 mA

H Power Supply

DC-AC power pack:	DC or 45 … 400 Hz 24 … 60 V and 85 … 230 V (max. 110 V DC for Ex)

Basic Accuracy

Error limit: ≤ ± 0.2%

LED Display

Green LED: Indicates operating state

Programming Port

Interface: Serial interface

Explosion Protection

Ex II (1) GD CE_{0102} [EEx ia] IIC

Prototype test certificate:
ZELM 00 ATEX 0027

Type 624 - 33/-34/-93/-94

Input Circuit

U_0 = 7.2 V
I_0 = 3 mA
P_0 = 5.4 mW

Ex	C_0	L_0
IIC	13.5 µF	1 H
IIB	240 µF	1 H

Linear characteristic curve

PK610

Programming Cable and Accessories for SINEAX Types V 608, VK 616, VK 626 and V 624

PK 610 (Ex) or (NEx) Programming Cable

V 600 *plus* Configuration Software on CD ROM

- Programming possible at measuring transmitter with or without connecting supply power
- Programming of SINEAX V 608, VK 616, VK 626 and V 624 measuring transmitters, standard and Ex versions

Applications

The PK 610 programming cable is used in combination with V 600 PC software *plus* and a PC for programming SINEAX V 608, VK 616 and V 624 measuring transmitters. Data are transmitted in half-duplex mode.

Screenshot from V 600 *plus* Configuration Software

PK 610 Characteristic Values

Connection to the PC

Serial port:	COM 1, 2, 3 or 4 (RS 232 C)
DSUB plug:	9-pin
Transmission speed:	1200 baud
Transmission signal level:	– 5.6 V / + 5.6 V
Receiving signal level:	– 12 … 3 V / + 3 … 12 V
Power consumption:	Approx. 80 mW

Programming Port at Measuring Transmitter

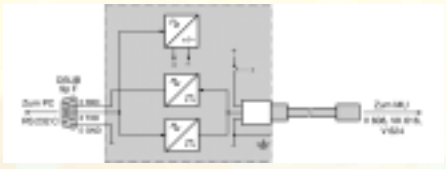
SINEAX type VK 616

Plug connector:	3-pin

SINEAX type V 608 / V 624

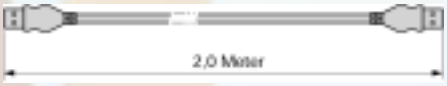
USB jack:	Type A
Signal level:	TTL (0/5 V)
Power consumption:	Approx. 50 mW

Programming Cable Schematic Diagram



Additional Cable for SINEAX VK 616

Additional Cable for SINEAX V 608 and V 624



V 600 *plus* Configuration Software

For SINEAX VK 616, VK 626, V 608 and V 624, Windows 3.1 and higher, on CD ROM

Explosion Protection

Ex II (1) G CE_{0102} [EEx ia] IIC

Prototype test certificate:
ZELM 99 ATEX 0011

Electrical Data

Input Circuit

Cable end with Sub-D9 and/or Sub-D25 socket connector:	For connection to an RS 232 compatible serial interface
Safety relevant maximum voltage:	U_M = 253 V

Output Circuit

Programming jack:	For connection to the programming port of suitably equipped devices
Safety relevant maximum voltage:	U_M = 253 V
Electrical isolation:	Input and output circuits are electrically connected to each other

SINEAX TV809

Programmable Isolating Amplifier
SINEAX TV 809

for electrical isolation, amplification and conversion of DC signals

P12/17 or P12/17 St Housing

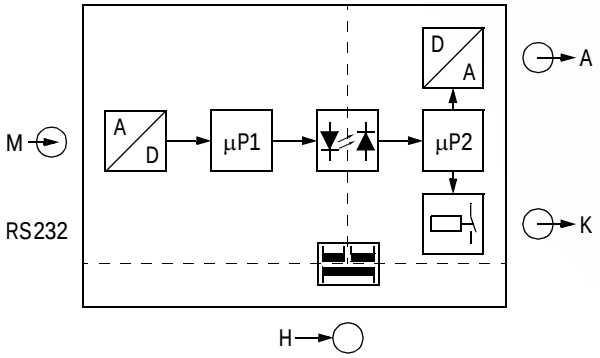
- Measurement input, measurement output and limit value functions can be programmed with a PC
- Input voltage to ± 1000 V
- Response characteristics can be scaled as desired, with reversal as well
- Input signal linearization is possible
- On-line measured value querying and output control via PC is possible
- Power supply monitoring and limit value indication with green LED
- Available as standard or Ex version

Applications

Isolating amplifier for electrical isolation of DC signals.

Processing of unipolar, bipolar and live-zero signals.
Load boosting and option for signal conversion.

Available with optional limit contact for monitoring the measured quantity.



Ex and non-Ex versions

SINEAX TV 809 Characteristic Values

M ⊖→ Measurement Input

Programmable within ± 1000 V (max. 30 V for Ex) and
± 100 mA or ± 1.5 mA, zero point as desired

A ⊖→ Measurement Output

Programmable within ± 20 mA and
± 10 V, also with inverse effective direction,
e.g. 20 … 4 V or + 10 … – 5 V

Compliance voltage: 12 V
with current output

Load capacity: 10 mA
with voltage output

K ⊖→ Contact Output (optional)

Relay: 1 floating switch contact for monitoring a limit value

Contact load: 250 V AC, 2 A, 500 VA, cos φ > 0.7
125 V DC, 2 A, 60 W

Relay functions: Programmable

H →⊖ Power Supply

DC-AC power pack: DC or 45 … 400 Hz
24 … 60 V and
85 … 230 V
(for max. 110 V DC)

Basic Accuracy

Error limit: ≤ ± 0.2%

LED Display

Green LED: Indicates operating state and limit value violation

Programming Port

Interface: Serial interface

Explosion Protection

Ex II (1) G CE_{0102} [EEx ia] IIC

Prototype test certificate:
ZELM 01ATEX 0051

Input Circuit

U_0 = 7.1 V
I_0 = 0.5 mA
P_0 = 0.9 mW

Linear characteristic curve

Ex	C_0	L_0
IIC	14.6 µF	1 H
IIB	268 µF	1 H

PRKAB 600/560

Programming Cable and Accessories for SINEAX TV 809 Isolating Amplifier

PRKAB 600 (Ex) or PRKAB 560 (NEx)
Programming Cable with
TV 809 Additional Cable

TV 800 *plus* Configuration Software on CD ROM

Ex and non-Ex versions

- Electrical isolation between the PC serial port and the isolating amplifier
- Programming of SINEAX TV 809 isolating amplifiers in standard and Ex versions

Applications

PRKAB 600 (Ex) and PRKAB 560 (NEx) programming cables are used in combination with TV 800 *plus* PC software and a PC in order to program the SINEAX TV 809 isolating amplifier.

They also assure electrical isolation between the PC and isolating amplifier terminals.
Data are transmitted in half-duplex mode.

Screenshot from TV 800 *plus* Configuration Software

PRKAB 600/PRKAB 560 Characteristic Values

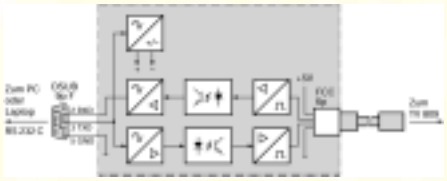
Connection to the PC

Serial port:	COM 1, 2, 3 or 4 (RS 232 C)
DSUB plug:	9-pin
Transmission speed:	1200 … 9600 baud, depending upon PC software
Transmission signal level:	– 5.6 V / + 5.6 V
Receiving signal level:	– 12 … 3 V / + 3 … 12 V
Power consumption:	Approx. 80 mW

Programming Port at Isolating Amplifier

USB jack:	Type A
Signal level:	TTL (0/5 V)
Power consumption:	Approx. 50 mW

Programming Cable Schematic Diagram



Additional Cable to Isolating Amplifier

TV 800 *plus* Configurations Software
for SINEAX TV 809,
Windows 95 and higher, on CD ROM

Explosion Protection

Ex II (1) G CE_{0102} [EEx ia] IIC
Prototype test certificate:
PTB 97 ATEX 2082 U

Electrical Data

Input Circuit

With Sub-D9 and/or Sub-D25 socket: For connection to an RS 232 compatible serial interface

Safety relevant maximum voltage: UM = 253 V

Output Circuit

FCC socket 6-pin: For connection to the configuration port for suitably equipped devices

Safety relevant maximum voltage: UM = 253 V

SINEAX TV819

Unipolar / Bipolar Isolating Amplifier
SINEAX TV 819

for electrical isolation, amplification and conversion of DC signals

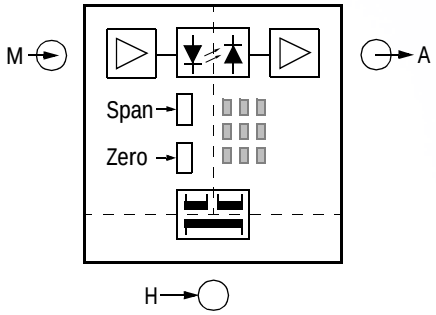
P12/17 or P12/17 St Housing

- Electrical isolation between input, output and power supply
- Flexible: more than 250 different input and output combinations, can be configured with jumpers
- Supply power monitoring with green LED

Applications

Isolating amplifier for electrical isolation of DC signals.

Processing of unipolar, bipolar and live-zero signals, load boosting and option for signal conversion.



Non-Ex version

SINEAX TV 819 Characteristic Values

M ⊖→ Measurement Input

Direct current:	0 … 0.1 mA to 0 … 40 mA and live-zero, initial value > 0 to ≤ 50% final value or span 0.1 to 40 mA between – 40 and 40 mA, bipolar asymmetric also possible
Direct voltage:	0 … 0.06 to 0 … 600 V (1000 V*), also live-zero, initial value > 0 to ≤ 50% final value or span 0.06 to 600 V (1000 V *) between – 600 and 600 V (– 1000 and 1000 V *) bipolar asymmetric also possible

*With an input voltage > 600 V, double isolation is no longer assured. Safety is impaired as a result.

A →⊖ Measurement Output

Direct current:	0 … 1 mA to 0 … 20 mA or live zero, 0.2 … 1 mA to 4 … 20 mA ± 1 to ± 20 mA
Compliance voltage:	12 V
Direct voltage:	0 … 1 V to 0 … 10 V or live zero, 0.2 … 1 V to 2 … 10 V ± 1 to ± 10 V
Load capacity:	5 mA

H →○ Power Supply

DC-AC power pack:	DC or 45 … 400 Hz 24 … 60 V and 85 … 230 V

Basic Accuracy

Error limit:	≤ ± 0.2%

LED Display

Green LED:	Indicates operating state

SINEAX B811

Power Pack with Additional Functions
SINEAX B 811

for supplying power to intelligent and conventional measuring transmitters with 2-wire connection, single-channel

S17 Housing

Ex and non-Ex versions

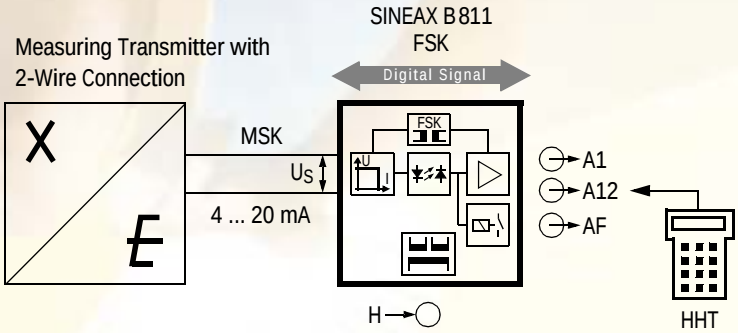
- Hand-held FSK-compatible terminal can be connected to separate terminals allowing for interaction with an "intelligent" measuring transmitter with 2-wire connection, which utilizes FSK technology and HART or company-specific protocol
- Electrical isolation between measuring/supply circuit, output and power supply, in compliance with EN 61 010
- Monitors the measuring/supply circuit for cable interruption and short-circuiting, and indicates errors by means of a red LED, relay and/or failure signal.
- Also available as EURAX plug-in module for 19" rack installation

Applications

Power pack for supplying measuring transmitters using 2-wire connection with DC power, and for 1:1 transmission of the measuring signal, electrically isolated from the measurement output.

Additionally, conversion to another signal range is also possible, for example 0 to 5 mA or 1 to 5 V (signal converter).

Certain variants of the SINEAX B 811 are FSK [1] compatible. They are used for dialog-capable, "intelligent" measuring transmitters with FSK technology and HART or company-specific protocol.



SINEAX B 811 Characteristic Values

MSK Measuring/Supply Circuit

Signal range I_E: 4 ... 20 mA DC
Supply voltage U_S (where I_E = 20 mA):

24 V ± 7%	For standard (non-Ex) version non-FSK[1] compatible
24 V ± 7% HART	For standard (non-Ex) version non-FSK[1] compatible
> 16.9 V Ex	For Ex versions, non-FSK[1] compatible
> 16.4 V Ex HART	For Ex versions, FSK[1] compatible

A1 → Measurement Output

Load-Independent Direct Current

Ranges: 0 ... 20 mA or 4 ... 20 mA selectable with 2 jumpers
0 ... 1 mA to 0 ... < 20 mA or live zero
0.2 ... 1 mA to < (4 ... 20) mA

Compliance voltage: 15 V without communication
10 V (15 V) with communication

Load-Independent Direct Voltage

Ranges: 0 ... 5 V, 1 ... 5 V, 0 ... 10 V or 2 ... 10 V
0 ... > 5 V to 0 ... 15 V or live zero
> (1 ... 5 V) to 3 ... 15 V

Load capacity: 20 mA

A12 → Second Measurement Output

For connection to a field indicator or a hand-held terminal, depending upon device type

Compliance voltage: < 0.3 V

AF → Contact Output

Relay: 1 switchover contact for monitoring the measuring/supply circuit for cable interruption and short-circuits

Contact load: 250 V AC, 2 A, 500 VA cos φ > 0.7
0.1 ... 250 V DC, 1 A, 30 W

HHT Hand-Held Terminal

For bidirectional transmission of digital communication signals to and from "intelligent" measuring transmitters with 2-wire technology and FSK technology with HART or company-specific protocol.

Frequency range: 500 Hz ... 35 kHz

H → Power Supply

DC-AC power pack: DC or 45 ... 400 Hz
24 ... 60 V and 85 ... 230 V (for max. 110 V DC)

Basic Accuracy

Error limit: ≤ ± 0.2%

LED Displays

Green LED: Indicates operating state

Red LED: Indicates cable interruption and short-circuiting in the measuring/supply circuit

Explosion Protection

Ex II (1) G CE_{0102} [EEx ia] IIC

Prototype test certificate:
PTB 97 ATEX 2083

U_0 = 21 V
I_0 = 75 mA
P_0 = 660 mW

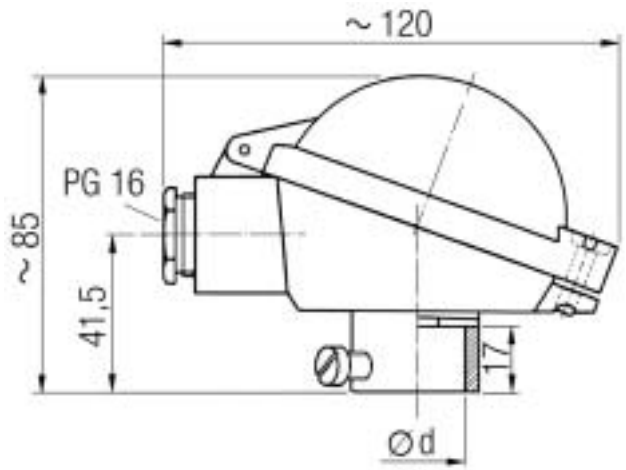
Ex	C_0	L_0
IIC	178 nF	6.7 mH
IIB	1.26 µF	25 mH

Trapezoidal characteristic curve

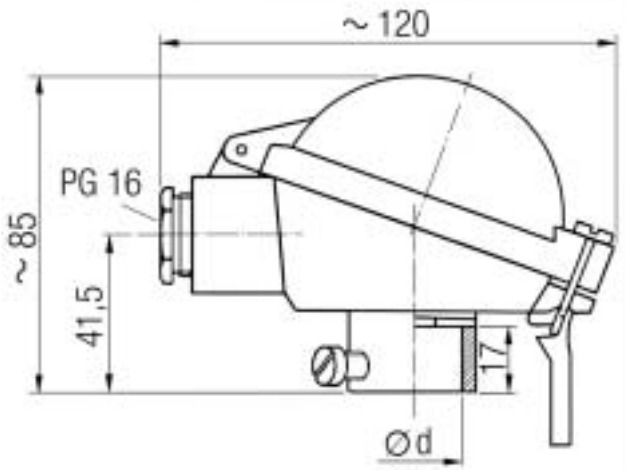
Also available as EURAX plug-in module for 19" rack installation, and SIRAX backplane module!

[1] FSK = frequency shift keying

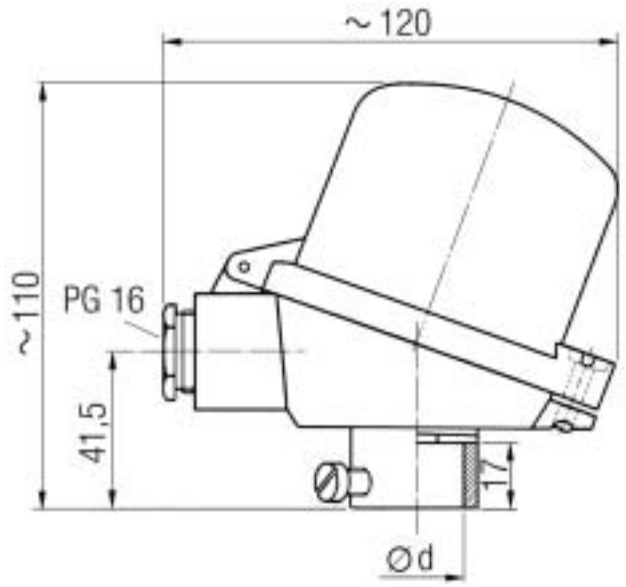
Type BUZ (folding cover with screw for Ex version)



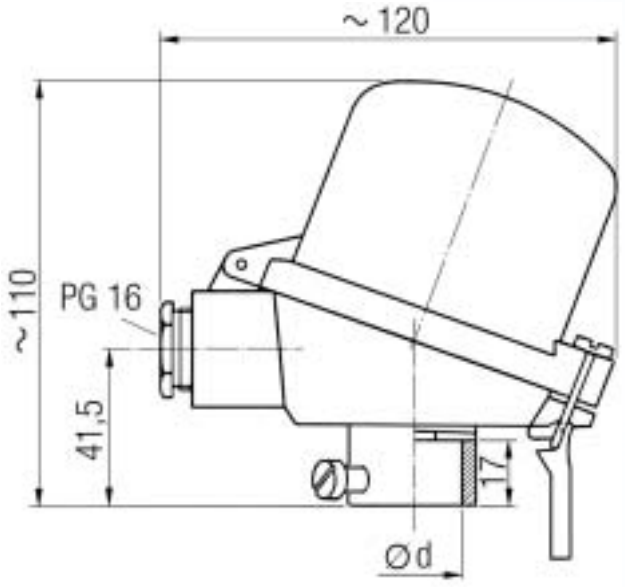
Type BUS (folding cover with quick closure)



Type BUZH (folding cover with screw for Ex version)



Type BUSH (folding cover with quick closure)



Types BUZ, BUS, BUZH and BUSH:

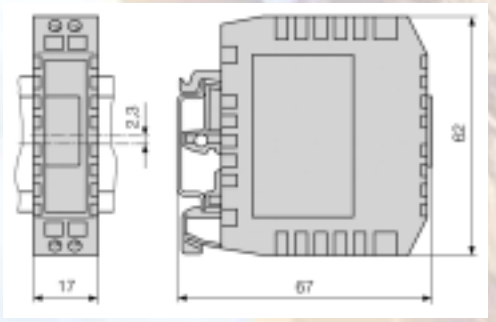
- Protective tube connector diameter: 15.5 / M24x1.5 / G 1/2
- Fixing dimensions per DIN 43 729
- IP 54 protection with threaded connection for protective tube
- IP 53 protection with plain drill-hole connection for protective tube
- No retaining screws required for protective tube with threaded connection
- Type BUZ terminal housing for Ex version
- Material: Lightweight die-cast metal

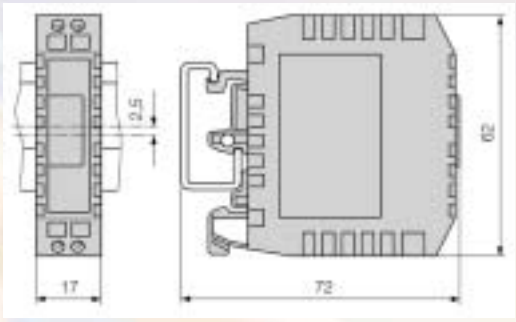
Housing
Dimensional Drawings

Housing for Temperature Measuring Transmitters and Isolating Amplifiers, Top-Hat Rail Mounting

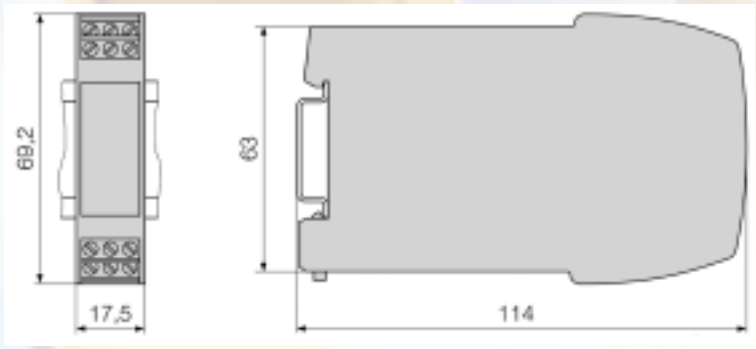
Housing for Temperature Measuring Transmitters for Installation into the Terminal Housing of a Temperature Sensor

K17 Housing … on top-hat rail per EN 50 022 - 35 x 7.5 mm … on G rail per EN 50 035 - G32

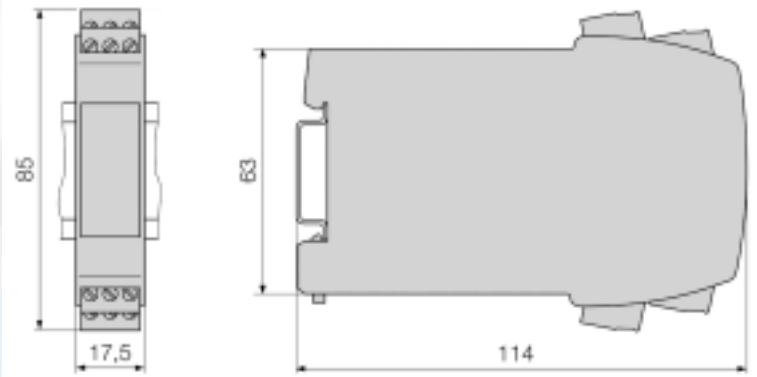




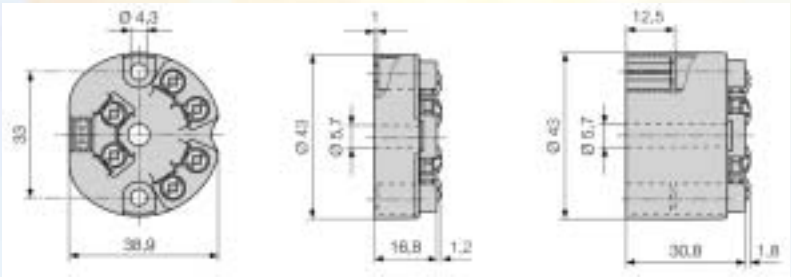
P12/17 Housing … on top-hat rail per EN 50 022 - 35 x 7.5 mm



P12/17 St Housing … on top-hat rail per EN 50 022 - 35 x 7.5 mm

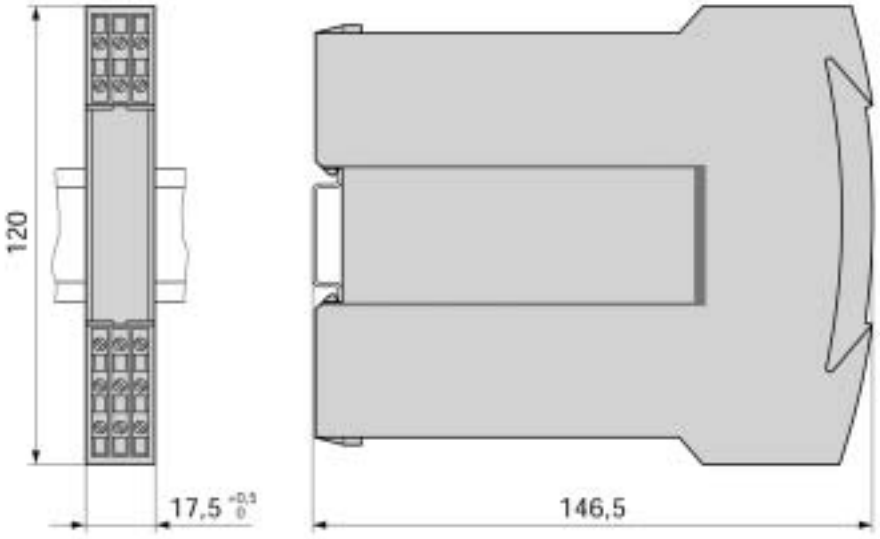


Housing: SINEAX VK 616/626/636 VK 616-71/73 VK 616-72/74, VK 626, VK 636

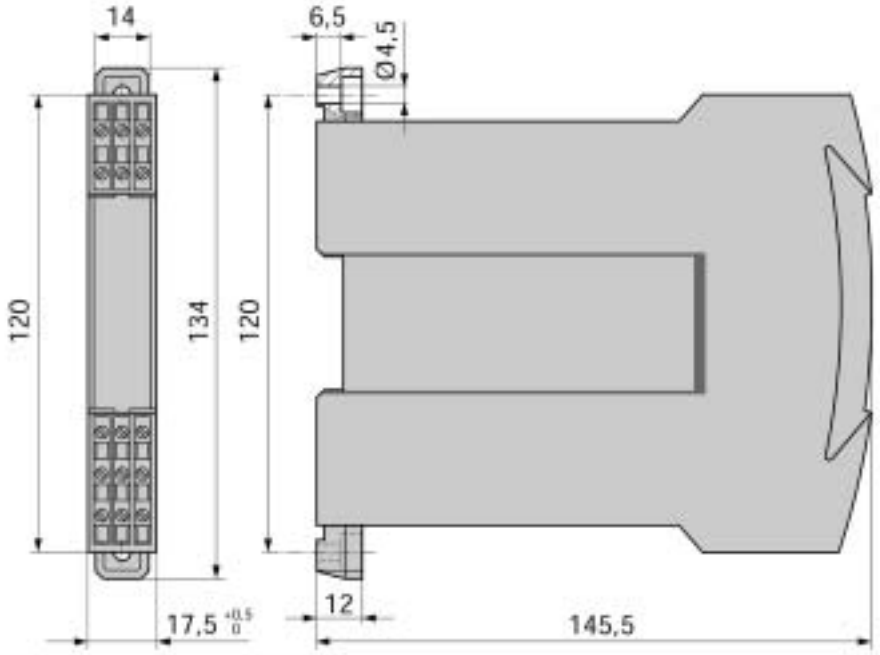


Housing
Dimensional Drawings

S17 Housing … on top-hat rail per EN 50 022 - 35 x 7.5 mm



S17 Housing With extended tabs for wall mounting



General Characteristic Values

Installation

Housing material for SINEAX V 608: polyamide
Flammability class V2 per UL 94
Housing material for all other SINEAX devices:
Lexan 940 (polycarbonate)
Flammability class V0 per UL 94
Self-extinguishing, non-drip, halogen-free

Mounting, depending upon housing type

... For snap-mounting to top-hat rail
(35 x 15 mm or 35 x 7.5 mm) per EN 50 022
... For wall mounting with extended tabs
... For installation into the terminal housing of a temperature sensor per DIN 43 729, type B

Connector Terminals

Connector	Screw terminal with indirect wire clamping

Allowable Connector Lead Cross-Section

K17 and S17 housing	Max. 2 x 0.75 mm^2 or 1 x 2.5 mm^2
P12 housing	For 0.14 to 2.5 mm^2
Measuring transmitter	Max. 2 x 1.5 mm^2

Ambient Conditions depending upon type

Climatic stress	IEC 60 068-2-1/2/3
Operating temperature	– 25 to + 55 °C or – 40 to + 80 °C
Relative humidity, mean annual	≤ 75%, no condensation

Product Spectrum

Measuring Technology – Universal	Voltage Quality – Energy – Power Field Measuring Systems, Cable Detection Devices Resistance Thermometers / Clip-On Measuring Instruments Digital Multimeters Analog Multimeters Multimeter Accessories Calibrators Temperature Measuring Instruments
Testing Technology – Electrical	Testing Electrical Installations & Equipment (perm. installed) Testing Electrical Devices (portable) Testing Electrical Machines Earthing, Insulation, Low-Resistance Workshop Test Panels AS Interface Test Instruments
Measuring Technology – Industrial	Measuring Transducers for Universal Use Measuring Transducers for Electrical Quantities Temperature Measuring Transmitters Measuring Transducers for Angle of Rotation DC Signal Isolators, Isolating Transformers Power Packs, Mounting Racks Isolating Switching Amplifiers, Isolating Amplifiers Valve Control Modules, Limit Value Indicators Ex-i Equipment
Energy Management	Energy Meters, Summators, Additional Components Power – Energy – Voltage Quality ECS – Energy Control System Energy Management – Engineering Competent Project Management Partner
Power Supplies	Laboratory Power Supplies, OEM Power Supplies
Control Technology	Analog & Compact Controllers, Controller Modules / Control Systems
Recording Technology	Continuous Line Recorders, Point Recorders
Software for	Measuring Instruments Test Instruments ECS – Energy Control System Measuring Transducers, Isolating Amplifiers Power Supplies Controllers

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CAMILLE BAUER

International Sales

AUSTRIA
GMC-Instruments GmbH
Obere Viaduktgasse 28
A-1030 Wien

Phone +43 1 715 1500
Fax +43 1 715 1505
e-mail: info@at.gmc-instruments.com

BELGIUM
SA GMC-Instruments Belgium NV
63 Chemin des deux Maisons, b. 4
Tweehuizenweg 63, b. 4
Bruxelles B-1200 Brussel

Phone +32 2 762 9276
Fax +32 2 762 6176
e-mail: info@be.gmc-instruments.com

CZECH REPUBLIC
GMC - měřicí technika s.r.o.
Fügnerova 1a
CZ-67801 Blansko

Phone +420 506 410 905
Fax +420 506 410 907
e-mail: info@cz.gmc-instruments.com

FRANCE
GMC-Instruments France S.A.
5, rue Pasteur
F-91349 Massy Cedex

Phone +33 1 6920 8949
Fax +33 1 6920 5492
e-mail: info@fr.gmc-instruments.com

GREAT BRITAIN
GMC-Instruments (UK) Ltd.
Priest House, Priest Street
GB-Cradley Heath B64 6JN

Phone +44 1 384 63 8822
Fax +44 1 384 63 9168
e-mail: info@uk.gmc-instruments.com

ITALIY
GMC-Instruments Italia S.r.l.
Via Carlo Cattaneo, 9
I-20035 Lissone (MI)

Phone +39 39 245 9080
Fax +39 39 245 9088
e-mail: info@it.gmc-instruments.com

NETHERLANDS
GMC-Instruments Nederland B.V.
Daggeldersweg 18
NL-3449 AH Woerden

Phone +31 3484 211 55
Fax +31 3484 225 28
e-mail: info@nl.gmc-instruments.com

SPAIN
Electromediciones Kainos, S.A.
Poligon Industrial Est, Energía, 56
E-08940 Cornellá de Llobregat
Barcelona

Phone +34 934 742 333
Fax +34 934 743 470
e-mail: info@es.gmc-instruments.com

SWITZERLAND
GMC-Instruments Schweiz AG
Glattalstrasse 63
CH-8052 Zürich

Phone +41 1 302 3535
Fax +41 1 302 1749
e-mail: info@ch.gmc-instruments.com

USA
GMC-Instruments Inc.
250 Telser Road, Unit F
Lake Zurich, IL 60047-USA

Phone +1 847 540 7240
Fax +1 847 540 7242
e-mail: info@us.gmc-instruments.com

Partners in:

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Member of GMC Instruments Group

GMC-Instruments Deutschland GmbH
Thomas-Mann-Str. 16-20
D-90471 Nürnberg
Telefon +49 (0) 91186 02-111
Telefax +49 (0) 91186 02-777
e-mail: info@gmc-instruments.com
http://www.gmc-instruments.com

Printed in Germany · Subject to change without notice · 1/3.02 · Order No. 3-337-117-03