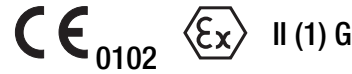


Plug-in module SIRAX TV 808, 1 channel

Isolating amplifier unipolar/bipolar

For electrically insulating, amplifying and converting DC signals



Application

The purpose of the isolating amplifier **SIRAX TV 808** (Fig. 1) is to electrically insulate input and output signals, respectively to amplify and/or change the signal level or type (current or voltage) of the input signals.

The instrument fulfils all the important requirements and regulations concerning electromagnetic compatibility **EMC** and **Safety** (IEC 1010 resp. EN 61 010). It was developed and is manufactured and tested in strict accordance with the **quality assurance standard** ISO 9001.

An explosion-proof "Intrinsically safe" [Ex ia] IIC version rounds off this series of SIRAX TV 808. Production QA is also certified according to guideline 94/9/EG.

Variants

- and non-Ex isolating amplifiers
- 36 standard input and output combinations selected by plug-in jumpers
- User-specific input and/or output ranges
- Power supply 24...60 V DC/AC or 85...230 V DC/AC

Please request our data sheet TV 808-62 Le for two-channel versions.

Features / Benefits

- **Isolating amplifier plugs onto backplane** (mechanically latched by fasteners), all electrical connections made to the backplane and not to the SIRAX TV 808 / Thus no wiring when replacing devices
- **Electric insulation between input, output (2.3 kV) and power supply (3.7 kV) / Prevents measurement errors due to potential leakage**
- **Flexibility provided by 36 different input and output combinations selected by simply positioning plug-in jumpers / No influence on accuracy / Reduced stocking**
- **Non-standard user-specific ranges available**
- **AC/DC power supply / Universal**
- **Available in type of protection "Intrinsic safety" [Ex ia] IIC (see "Table 5: Data on explosion protection")**

Standard versions

Input and output set to 0 ... 20 mA. Any of the standard ranges simply selected by positioning plug-in jumpers without influencing measurement accuracy.

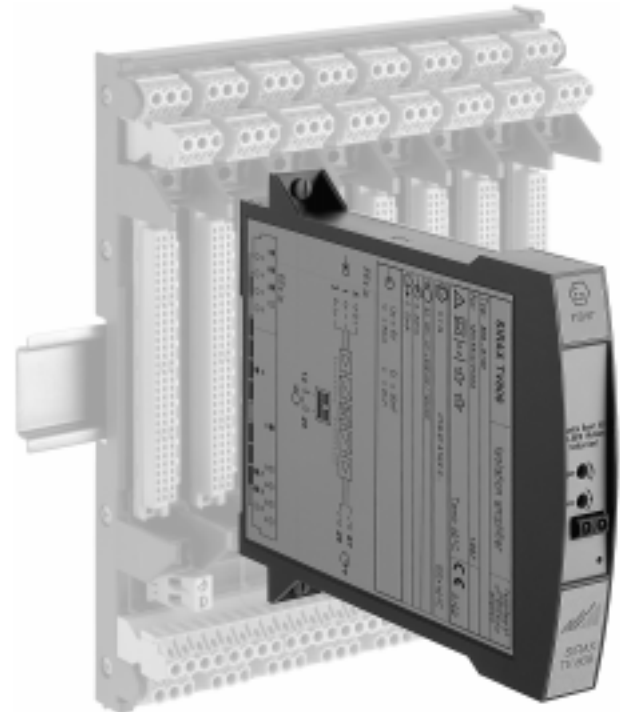


Fig. 1. Plug-in module SIRAX TV 808-61 for plugging onto backplane BP 902.

Table 1: Standard (non-Ex) version

Standard ranges		Power supply	Order No.
Input	Output		
0... 20 mA	0... 20 mA	24... 60 V DC/AC	125 139
4... 20 mA	4... 20 mA		
± 20 mA	± 20 mA		
0... 10 V	0... 10 V	85...230 V DC/AC	125 147
2... 10 V	2... 10 V		
± 10 V	± 10 V		

Table 2: [Ex ia] IIC version, (input intrinsically safe)

Standard ranges		Power supply	Order No.
Input	Output		
0... 20 mA	0... 20 mA	24... 60 V DC/AC	125 155
4... 20 mA	4... 20 mA		
± 20 mA	± 20 mA		
0... 10 V	0... 10 V	85...110 V DC/ 85...230 V AC	125 163
2... 10 V	2... 10 V		
± 10 V	± 10 V		

Please complete the Order Code 808-61.1 .. according to "Table 4: Ordering informations" for versions with user-specific input and/or output ranges.

Plug-in module SIRAX TV 808, 1 channel

Isolating amplifier unipolar/bipolar

Technical data

Measuring input \rightarrow

DC current:	Standard ranges 0...20 mA, 4...20 mA, ± 20 mA Limit values 0...0.1 to 0...50 mA also live-zero, start value > 0 to $\leq 50\%$ final value -0.1...0...+0.1 to -50...0...+50 mA also bipolar asymmetrical $R_i = 15 \Omega$
DC voltage:	Standard ranges 0...10 V, 2...10 V, ± 10 V Limit values 0...0.06 to 0...40, Ex max. 30 V also live-zero, start value > 0 to $\leq 50\%$ final value -0.06...0...+0.06 to -40...0...+40 V, Ex max. -30...0...+30 V $R_i = 100 \text{ k}\Omega$
Overload:	DC current continuously 2-fold DC voltage continuously 2-fold

Measuring output \rightarrow

DC current:	Standard ranges 0...20 mA, 4...20 mA, ± 20 mA Limit values 0...1 to 0...20 mA 0.2...1 to 4...20 mA -1...0...+1 to -20...0...+20 mA
Burden voltage:	12 V
External resistance:	$R_{\text{ext max.}} [\text{k}\Omega] = \frac{12 \text{ V}}{I_{\text{AN}} [\text{mA}]}$ I_{AN} = Output circuit full-scale value
DC voltage:	Standard ranges 0...10 V, 2...10 V, ± 10 V Limit values 0...1 to 0...10 V 0.2...1 to 2...10 V -1...0...+1 to -10...0...+10 V
Burden:	$\geq 2 \text{ k}\Omega$
Current limiter at $R_{\text{ext max.}}$:	Approx. $1.1 \times I_{\text{AN}}$ for current output
Voltage limiter at $R_{\text{ext}} = \infty$:	Approx. 13 V
Residual ripple in output current:	0.5% p.p.
Response time:	< 50 ms

Power supply H \rightarrow

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

Table 3: Nominal voltages and tolerances

Nominal voltage U_N	Tolerance	Instrument version
24... 60 V DC / AC	DC -15...+33% AC $\pm 15\%$	Standard (non-Ex)
85...230 V ¹ DC / AC		
24... 60 V DC / AC	DC -15...+33% AC $\pm 15\%$	Type of protection "Intrinsically safe" [Ex ia] IIC
85...230 V AC		
85...110 V DC	-15...+10%	

Power input: ≤ 1.2 W resp. ≤ 3 VA

Accuracy data (acc. to DIN/IEC 770)

Basic accuracy: Limit error $\leq \pm 0.2\%$
Including linearity and reproducibility errors

Reference conditions:

Ambient temperature: 23 °C, ± 2 K
Power supply: 24 V DC $\pm 10\%$ and 230 V AC $\pm 10\%$
Output burden: Current: $0.5 \cdot R_{\text{ext max.}}$
Voltage: $2 \cdot R_{\text{ext min.}}$

Influencing factors:

Temperature: $< \pm 0.1\%$ per 10 K
Burden influence: $< \pm 0.1\%$ for current output
 $< 0.2\%$ for voltage output,
if $R_{\text{ext}} < 2 \cdot R_{\text{ext min.}}$
Longtime drift: $< \pm 0.3\%$ / 12 months
Switch-on drift: $< \pm 0.2\%$
Common and transverse
mode influence: $< \pm 0.2\%$
Output + or -
connected to ground: $< \pm 0.2\%$

Installation data

Housing: Isolating amplifier in housing B17 for
plugging onto backplane BP 902.
Refer to Section "Dimensional drawing"
for dimensions
Material of housing: Lexan 940 (polycarbonate)
flammability class V-0 acc. to UL 94,
self-extinguishing, non-dripping, free
of halogen

¹ For power supplies > 125 V, the auxiliary circuits should include an external fuse with a rating ≤ 20 A DC.

Designation:	SIRAX TV 808	Contamination level:	2
Mounting position:	Any	Overvoltage category acc. to IEC 664:	III for power supply II for measuring input and measuring output
Electrical connections:	96-pin connector acc. to DIN 41 612, pattern C Layout see Section "Electrical connections"	Double insulation:	– Power supply versus all circuits – Measuring input versus measuring output
Coding:	Isolating amplifier supplied already coded. The rack is coded by the user by fitting the coding inserts supplied	Test voltage:	Measuring input versus: – measuring output 2.3 kV, 50 Hz, 1 min. – power supply 3.7 kV, 50 Hz, 1 min. Measuring output versus: – power supply 3.7 kV, 50 Hz, 1 min.
Weight:	Approx. 0.18 kg		
Electrical insulation:	All circuits (measuring input / measuring output / power supply) are electrically insulated		
Regulations		Environmental conditions	
Electromagnetic compatibility:	The standards DIN EN 50 081-2 and DIN EN 50 082-2 are observed	Climatic rating:	Climate class 3Z acc. to VDI/VDE 3540
Intrinsically safe:	Acc. to DIN EN 50 020: 1996-04	Commissioning temperature:	– 10 to + 40 °C
Housing protection (acc. to IEC 529 resp. EN 60 529):	Housing IP 40 Terminals IP 00	Operating temperature:	– 25 to + 40 °C, Ex – 20 to + 40 °C
Electrical standards:	Acc. to IEC 1010 resp. EN 61 010	Storage temperature:	– 40 to + 70 °C
Operating voltage:	< 300 V between all insulated circuits	Annual mean relative humidity:	≤ 75%

Table 4: Ordering informations (see also Table 1 and 2: "Standard versions")

DESCRIPTION	MARKING
1. Mechanical design Housing B17 (for plugging onto backplane BP 902, see data sheets BP 902)	808 - 6
2. Number of channels 1) 1 channel	1
3. Version / Power supply 1) Standard, 24 ... 60 V DC/AC 2) Standard, 85 ... 230 V DC/AC 3) [EEx ia] IIC, 24 ... 60 V DC/AC (Input intrinsically safe) 4) [EEx ia] IIC, 85 ... 110 V DC / 230 V AC (Input intrinsically safe)	1 2 3 4
4. Function 1) 1 input, 1 electrically insulated output	1

Plug-in module SIRAX TV 808, 1 channel

Isolating amplifier unipolar/bipolar

DESCRIPTION	MARKING
<p>5. Input signal</p> <p>9) Input [V] <input type="text"/></p> <p>Z) Input [mA] <input type="text"/></p> <p>Line 9: [V] 0 ... 0.06 to 0 ... 40, Ex max. 30 also live-zero, start value > 0 to ≤ 50% final value [M] -0.06 ... 0 ... + 0.06 to -40 ... 0 ... + 40, Ex max. - 30 ... 0 ... + 30 also bipolar asymmetrical</p> <p>Line Z: [mA] 0 ... 0.1 to 0 ... 50 also live-zero, start value > 0 to ≤ 50% final value [mA] -0.1 ... 0 ... + 0.1 to -50 ... 0 ... + 50 also bipolar asymmetrical</p>	<p>9</p> <p>Z</p>
<p>6. Output signal</p> <p>9) Output [V] <input type="text"/></p> <p>Z) Output [mA] <input type="text"/></p> <p>Line 9: [V] 0 ... 1 to 0 ... 10 0.2 ... 1 to 2 ... 10 -1 ... 0 ... + 1 to -10 ... 0 ... + 10</p> <p>Line Z: [mA] 0 ... 1 to 0 ... 20 0.2 ... 1 to 4 ... 20 -1 ... 0 ... + 1 to -20 ... 0 ... + 20</p>	<p>9</p> <p>Z</p>

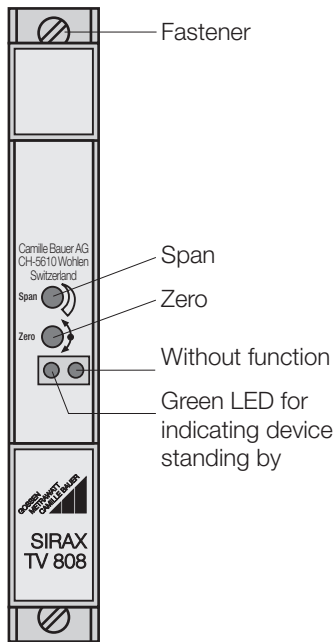
Possible special versions, e.g. increased climatic rating on inquiry.

Table 5: Data on explosion protection  **II (1) G**

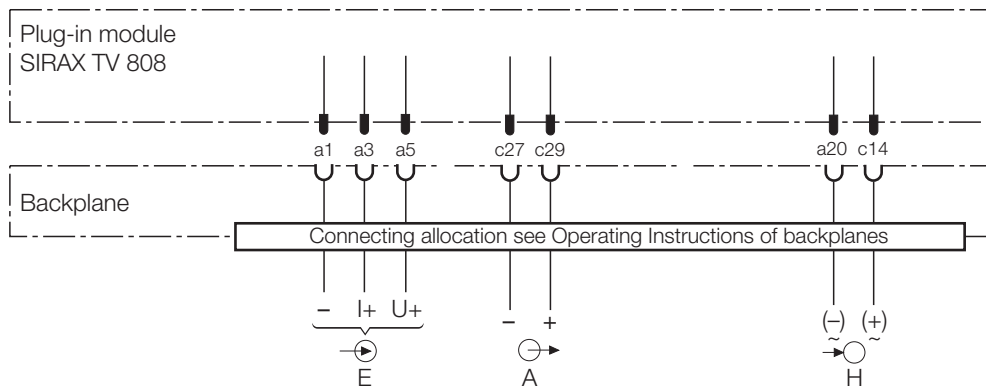
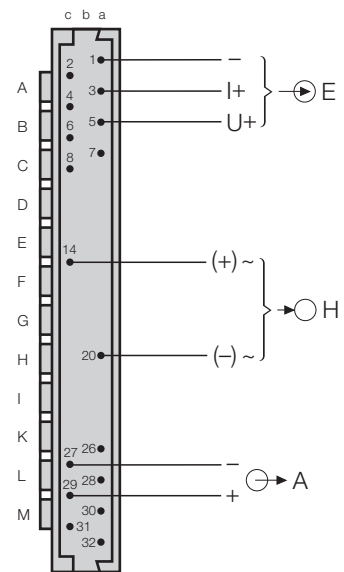
Order code	Type of protection	Input	Output	Type Examination Certificate	Mounting location
808-613. ... 808-614. ...	[EEx ia] IIC	$U_o = 6 \text{ V}$ $I_o = 63 \mu\text{A}$ $L_i = 20 \mu\text{H}$ $C_i = 20 \text{ nF}$ only for connection to certified intrinsically safe circuits with following maximum value: $U_o = 30 \text{ V}$	$U_m = 253 \text{ V AC}$ resp. 125 V DC	PTB 97 ATEX 2191	Outside the hazardous area

Electrical connections

SIRAX TV 808
Front



SIRAX TV 808
Rear



E = Input
A = Output
H = Power supply

Plug-in module SIRAX TV 808, 1 channel

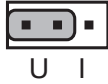
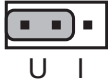
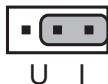
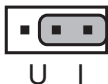
Isolating amplifier unipolar/bipolar

Configuration

The SIRAX TV 808 unit has to be opened before it can be configured.

Type of output signal (voltage or current)

The output can be configured for a voltage or current signal by inserting the plug-in jumpers **ST 4** and **ST 3** in position “U” or “I” (Fig. 2).

Output $\ominus \rightarrow$	Jumpers	
	ST 4	ST 3
Voltage [V]	 U I	 U I
Current [mA]	 U I	 U I

Standard input and output ranges

Two of the six plug-in jumpers **B1** to **B6** are used for selecting the standard ranges of the isolating amplifiers. Providing the potentiometers “Span” and “Zero” are not moved, changing the range has no influence on amplifier accuracy.

$\ominus \rightarrow$	4...20 mA	0...20 mA	-20...20 mA	2...10 V	0...10 V	-10...10 V
4...20 mA	B1, B4	B2, B4	B3, B4	B1, B4	B2, B4	B3, B4
0...20 mA	B1, B5	B2, B5	B3, B5	B1, B5	B2, B5	B3, B5
-20...20 mA	B1, B6	B2, B6	B3, B6	B1, B6	B2, B6	B3, B6
2...10 V	B1, B4	B2, B4	B3, B4	B1, B4	B2, B4	B3, B4
0...10 V	B1, B5	B2, B5	B3, B5	B1, B5	B2, B5	B3, B5
-10...10 V	B1, B6	B2, B6	B3, B6	B1, B6	B2, B6	B3, B6

The default setting of the preferred versions ex stock is 0 ... 20 mA for input and output, i.e. jumpers are inserted in positions B2 and B5 and jumpers ST 4 and ST 3 are in position “I”.

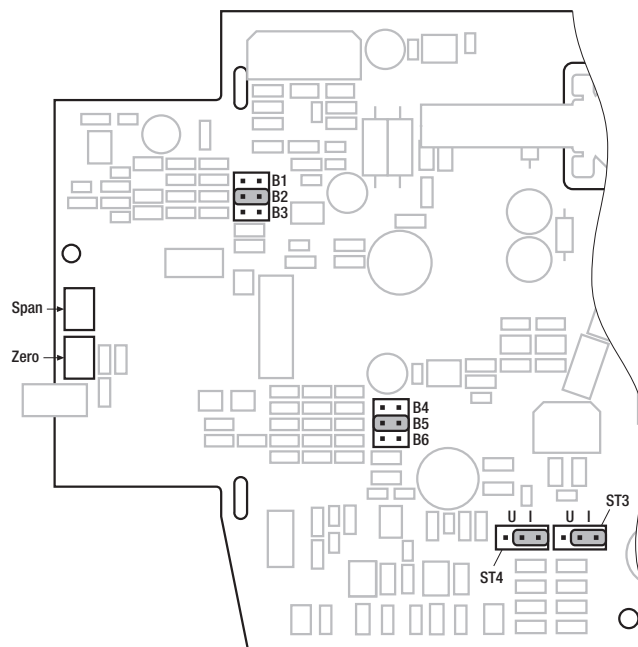


Fig. 2. Position of the jumpers ST 4 and ST 3, B1 to B6 and the potentiometers “Span” and “Zero”.

Table 6: Accessories and spare parts

Description	Order No.
Coding comb with 12 sets of codes (for coding the backplane BP 902)	107 971
Operating Instructions TV 808-61 B d-f-e	125 171
Data card (for recording configured settings)	130 956

Standard accessories

- 1 Operating Instructions for SIRAX TV 808 in three languages: German, French, English
- 1 Coding comb with 12 sets of codes
- 3 Data cards (for recording configured settings)
- 1 Type Examination Certificate (for instruments in type of protection “Intrinsically safe” only)

Dimensional drawing

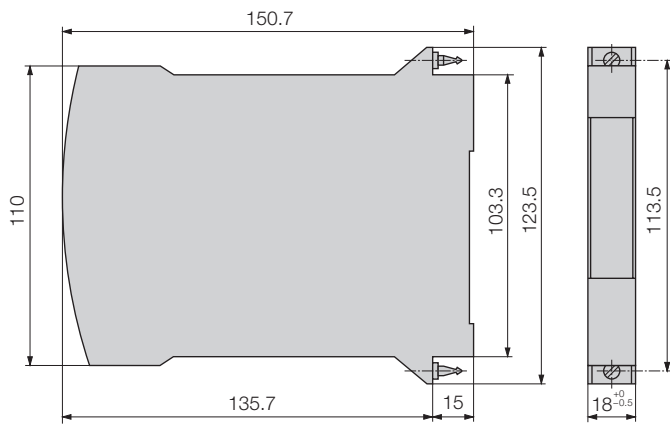


Fig. 3. SIRAX TV 808 in housing B17.

Plug-in module SIRAX TV 808, 1 channel

Isolating amplifier unipolar/bipolar

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