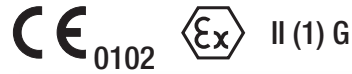


# Plug-in module SIRAX TV 808, 1 channel Isolating amplifier unipolar/bipolar



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.

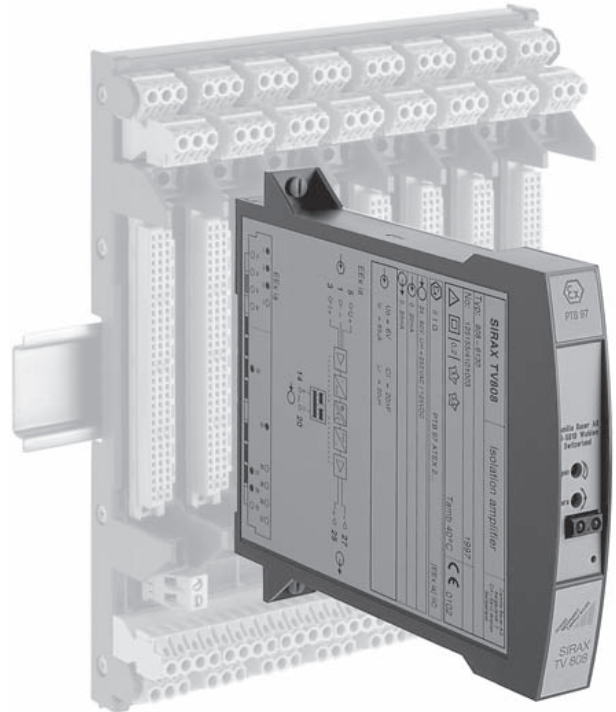


Fig. 1. Plug-in module SIRAX TV 808-61 for plugging onto backplane BP 902.

## Variants

- $\text{Ex}$  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 3: Data on explosion protection")

## Technical data

### Measuring input $\rightarrow$

DC current:

Standard ranges  
0...20 mA, 4...20 mA,  $\pm$  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,  $\pm$  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**

Overload:

$R_i = 100 \text{ k}\Omega$   
DC current  
continuously 2-fold  
DC voltage  
continuously 2-fold

# Plug-in module SIRAX TV 808, 1 channel

## Isolating amplifier unipolar/bipolar

### Measuring output

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:	$R_{\text{ext max.}} [\text{k}\Omega] = \frac{12 \text{ V}}{I_{\text{AN}} [\text{mA}]}$ $I_{\text{AN}}$ = 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:	≥ 2 kΩ
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

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 ± 15%	Standard (non-Ex)
85...230 V <sup>1</sup> DC / AC		
24... 60 V DC / AC	DC - 15...+ 33% AC ± 15%	Type of protection "Intrinsically safe" [EEx 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 ≤ ± 0.2%  
Including linearity and reproducibility errors

### Reference conditions:

Ambient temperature: 23 °C, ± 2 K  
Power supply: 24 V DC ± 10% and 230 V AC ± 10%

Output burden  
Current:  $0.5 \cdot R_{\text{ext max.}}$   
Voltage:  $2 \cdot R_{\text{ext min.}}$

### Influencing factors:

Temperature	< ± 0.1% per 10 K
Burden influence	< ± 0.1% for current output < 0.2% for voltage output, if $R_{\text{ext}} < 2 \cdot R_{\text{ext min.}}$
Longtime drift	< ± 0,3% / 12 months
Switch-on drift	< ± 0.2%
Common and transverse mode influence	< ± 0.2%
Output + or - connected to ground	< ± 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

Designation: SIRAX TV 808

Mounting position: Any

Electrical connections: 96-pin connector acc. to DIN 41 612, pattern C  
Layout see Section "Electrical connections"

Coding: Isolating amplifier supplied already coded.  
The rack is coded by the user by fitting the coding inserts supplied

Weight: Approx. 0.18 kg

### Electrical insulation:

All circuits (measuring input / measuring output / power supply) are electrically insulated

### Regulations

Electromagnetic compatibility: The standards DIN EN 50 081-2 and DIN EN 50 082-2 are observed

Intrinsically safe: Acc. to DIN EN 50 020: 1996-04

Housing protection (acc. to IEC 529 resp. EN 60 529): Housing IP 40  
Terminals IP 00

Electrical standards: Acc. to IEC 1010 resp. EN 61 010





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

# Plug-in module SIRAX TV 808, 1 channel

## Isolating amplifier unipolar/bipolar

Operating voltage:	< 300 V between all insulated circuits	<b>Environmental conditions</b>	
Contamination level:	2	Climatic rating:	Climate class 3Z acc. to VDI/VDE 3540
Overvoltage category acc. to IEC 664:	III for power supply II for measuring input and measuring output	Commissioning temperature:	- 10 to + 40 °C
Double insulation:	- Power supply versus all circuits - Measuring input versus measuring output	Operating temperature:	- 25 to + 40 °C, <b>Ex - 20</b> to + 40 °C
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.	Storage temperature:	- 40 to + 70 °C
		Annual mean relative humidity:	≤ 75%

**Table 2: Ordering informations**

DESCRIPTION	MARKING
<b>1. Mechanical design</b> Housing B17 (for plugging onto backplane BP 902, see data sheets BP 902)	808 - 6
<b>2. Number of channels</b> 1) 1 channel	1
<b>3. Version / Power supply</b> 1) Standard, 24 ... 60 V DC/AC 2) Standard, 85 ... 230 V DC/AC 3) [EEx ia] IIC, (Input intrinsically safe) 24 ... 60 V DC/AC 4) [EEx ia] IIC, (Input intrinsically safe) 85 ... 110 V DC / 230 V AC	1 2 3 4
<b>4. Function</b> 1) 1 input, 1 electrically insulated output	1
<b>5. Input signal</b> 9) Input [V]  Z) Input [mA]  Line 9: [V] 0 ... 0.06 to 0 ... 40, <b>Ex max. 30</b> also live-zero, start value > 0 to ≤ 50% final value [V] -0.06 ... 0 ... + 0.06 to -40 ... 0 ... + 40, <b>Ex max. -30 ... 0 ... + 30</b> also bipolar asymmetrical 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	9 Z
<b>6. Output signal</b> 9) Output [V]  Z) Output [mA]  Line 9: [V] 0 ... 1 to 0 ... 10 0.2 ... 1 to 2 ... 10 -1 ... 0 ... + 1 to -10 ... 0 ... + 10 Line Z: [mA] 0 ... 1 to 0 ... 20 0.2 ... 1 to 4 ... 20 -1 ... 0 ... + 1 to -20 ... 0 ... + 20	9 Z

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

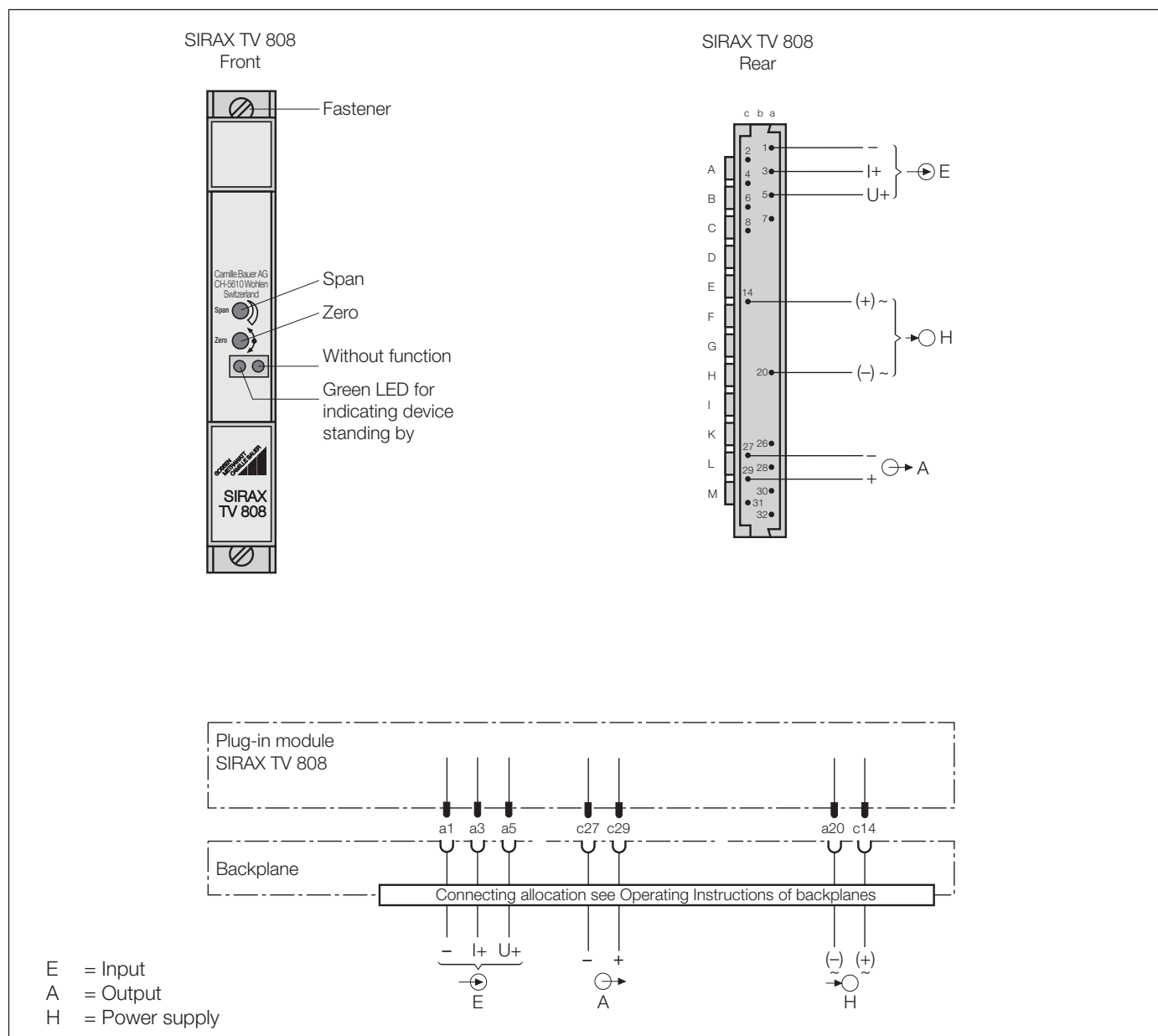
# Plug-in module SIRAX TV 808, 1 channel

## Isolating amplifier unipolar/bipolar

**Table 3: Data on explosion protection**  $\text{Ex}$  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. $125 \text{ V DC}$	PTB 97 ATEX 2191	<b>Outside</b> the hazardous area

### Electrical connections



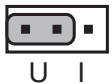
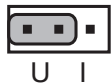


# Plug-in module SIRAX TV 808, 1 channel Isolating amplifier unipolar/bipolar

## 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 $\rightarrow$	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.

$\rightarrow$ $\leftarrow$	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	<b>B2, B5</b>	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

### Dimensional drawing

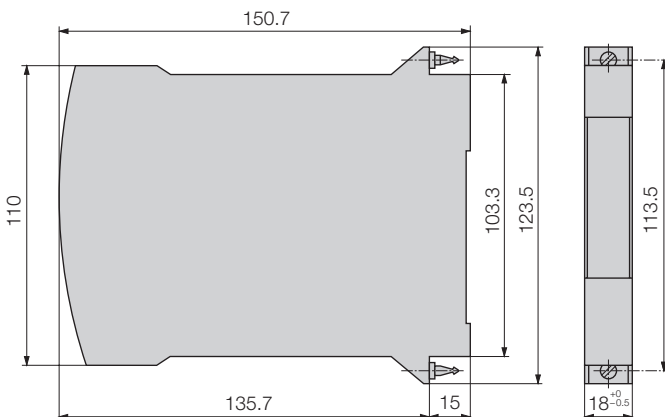


Fig. 3. SIRAX TV 808 in housing **B17**.

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".

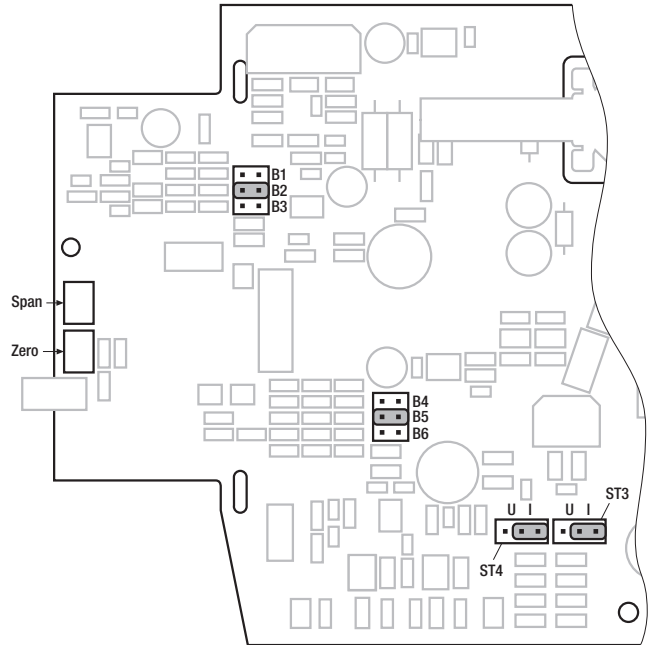


Fig. 2. Position of the jumpers **ST 4** and **ST 3**, **B1** to **B6** and the potentiometers "Span" and "Zero".

### Table 4: Accessories and spare parts

Description	Order No.
<b>Coding comb with 12 sets of codes</b> (for coding the backplane BP 902)	107 971
<b>Operating Instructions TV 808-61 B d-f-e</b>	125 171
<b>Data card</b> (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)