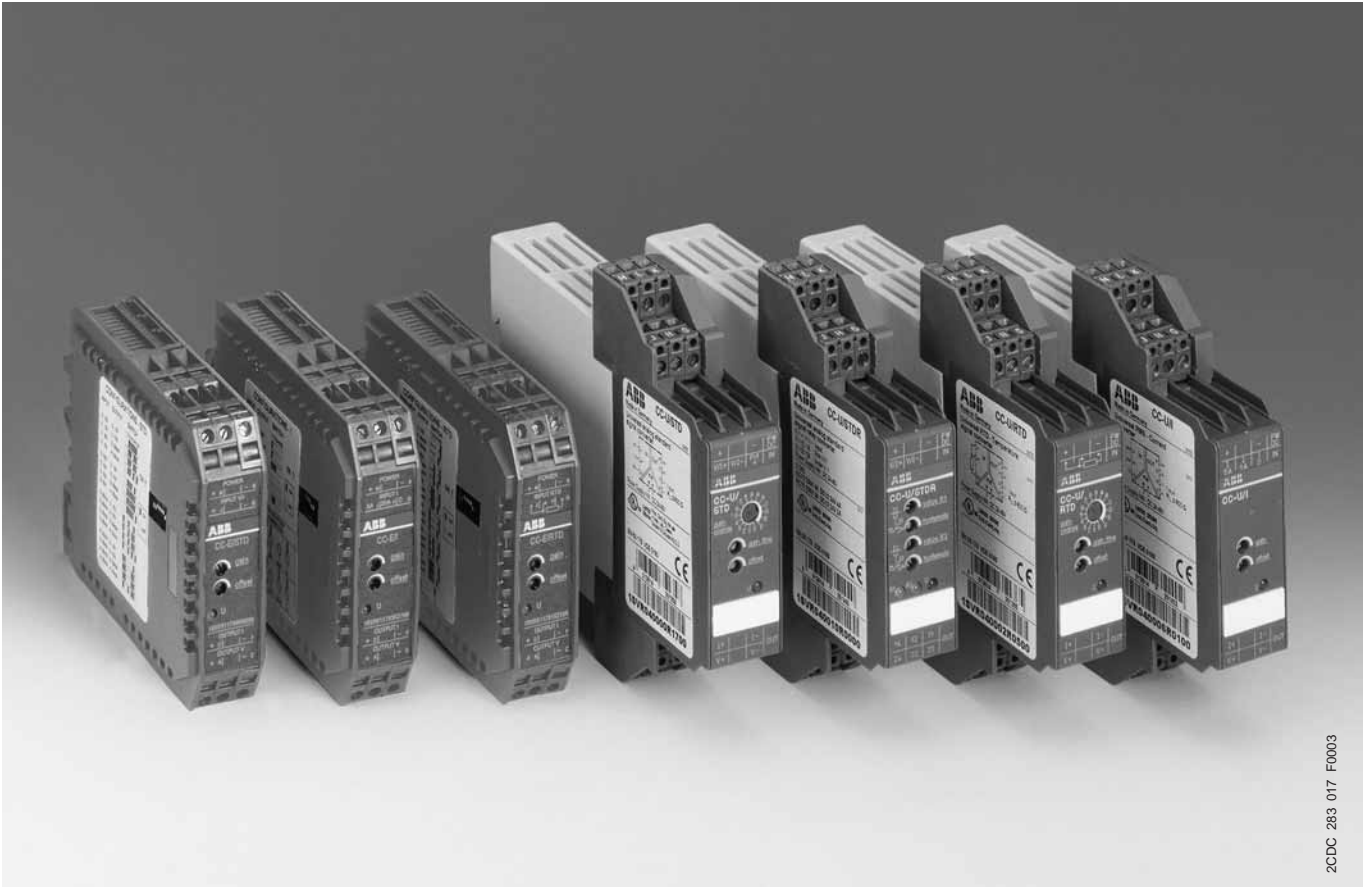




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Analog signal converters CC range Benefits and advantages



2CDC 283 017 F0003

5

CC-E product range for analog signal processing

- Universally configurable devices and single-function devices
- Adjustment and operating elements on the front side
- Safe operation by electrical 3-way isolation
- Unambiguous and clear connecting terminal markings

Conversion, measurement and separation of

- standard signals (0-5 V, 0-10 V, 0-20 mA, 4-20 mA)
- temperature signals of RTD sensors (PT 100)
- thermocouple signals (types J and K)
- current measurement signals (0-5 A, 0-20 A AC/DC)

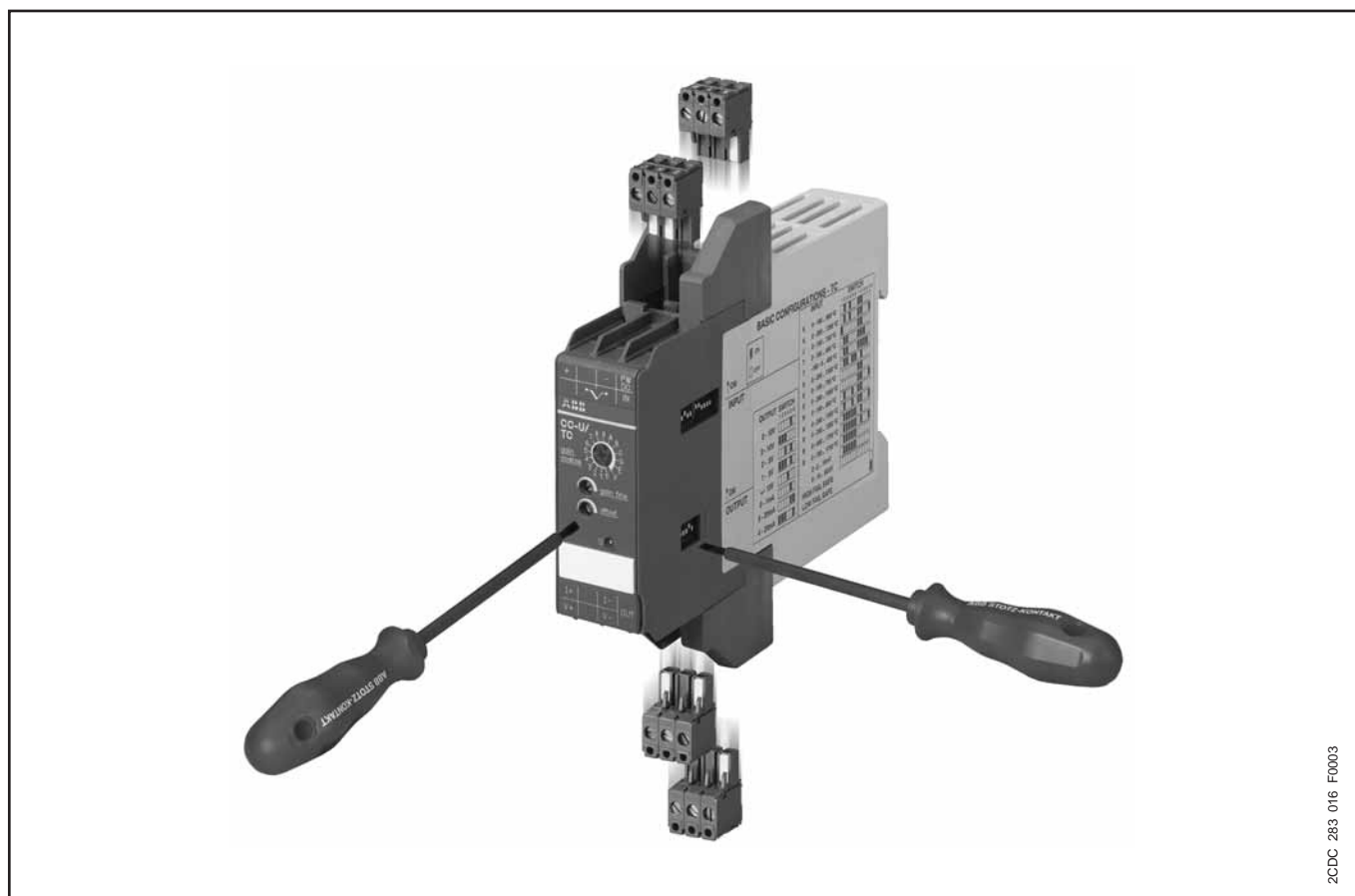
Characteristics of single-function devices

- No adjustment or balancing necessary.

Characteristics of universal devices

- The required input and output ranges can be configured by means of directly accessible DIP switches positioned on the side
- Gain adjustment of $\pm 5\%$ by means of an adjustment potentiometer on the front-side
- Offset adjustment of $\pm 5\%$ by means of adjustment potentiometers on the front-side

Analog signal converters CC range Benefits and advantages



2CDC 283 016 F0003

5

CC-U product range for analog signal processing

- 8 different standard signal outputs on one device
- Input and output side universally configurable
- Also available with 2 threshold relay outputs
- Adjustment and operating elements on the front side
- Safe operation by electrical 3-way isolation
- Plug-in connecting terminals, unambiguously and clearly marked

Conversion, measurement and separation of

- standard signals
- signals of RTD sensors (PT10, PT100, PT1000)
- thermocouple signals
- RMS values of currents and voltages

Characteristics

- The required input and output ranges can be configured for all devices by means of directly accessible DIP switches positioned on the side.
- Due to the wide input range of the gain and offset stages all input signals between the minimum and the maximum input value can be universally converted to all common output signals.
- Devices for DC or AC (50/60 Hz) supply available.

Analog signal converters

CC range

Application, approvals

Applications for analog signal processing and correct solution using CC-E and CC-U converters

Nearly every process includes a control system that receives data by means of analog signals and then evaluates the data and sets the respective parameters correspondingly.

When transmitting analog signals numerous problems may arise which can disturb or even block an ideal behavior of the process.

Below we have listed some processing problems together with the respective solutions to solve these problems:

Signal conversion

Sometimes the available signals cannot be processed by the controller or the actuator. In this case, signal converters are required to convert the input signal (or different input signals) to the desired output signal.

Signal amplification

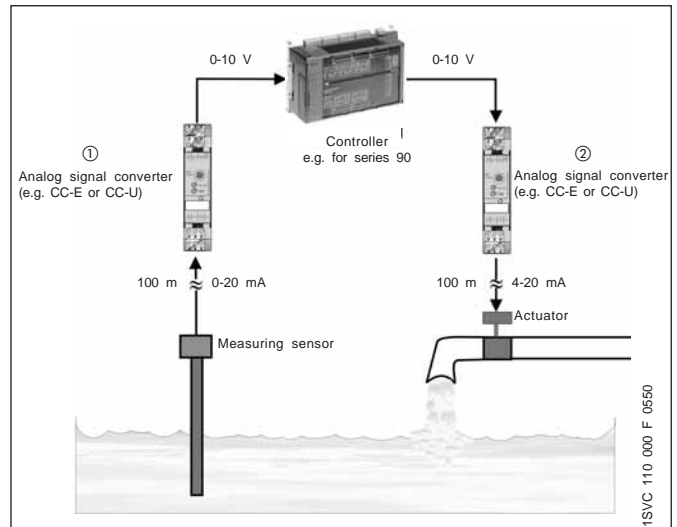
If long lines or high burdens have to be operated, it may be necessary to amplify the signal. CC analog signal converters require only low input power and provide high output power.

Thus, there are no restrictions for the converter's position on the line, i.e. it can be used

- for signal refreshing ① at the end of the line (low input power)
- or for signal amplification ② at the beginning of the line (high output power).

Signal filtering

Particularly on long lines or in rough industrial environments the signals are exposed to high electromagnetic interferences. The frequency of the coupled interference signals may be in the range of the common mains frequency (50 Hz) or even much higher (in case of frequency converters). According to the specific requirements, analog signal converters are available which provide reliable suppression of those interferences by means of an input low-pass filter.



Signal separation

- Protection against overvoltage
The increased use of micro-electronics make controls much more sensitive against overvoltages, resulting from lightning discharges or switching processes. Suppression diodes are incorporated in the input of the CC analog signal converters which enable the converters to arrest overvoltages with low energy level (resulting from switching processes) by themselves. The products furthermore provide electrical isolation between input, output and supply circuit for protection of the controller connected to the output.
- Protection against ground loops
If components are used which refer to ground, the measuring signals can be falsified by a so-called ground loop. In this case, certain parts of the signal are transmitted via earth and not via the analog transmission line, thus causing incorrect evaluation of the signal. The electrical isolation between the input and the output disconnects these ground loops and thus enables correct signal transmission.

5

Approvals	CC-E/STD	CC-U/STD	CC-U/STDR	CC-E/RTD	CC-U/RTD	CC-U/RTDR	CC-E/TC	CC-U/TC	CC-U/TCR	CC-E/I	CC-E I _{ac} / ILPO	CC-U/I	CC-U/W				
UL 508	■	■	■	■	■	■	■	■	■	■	■	■	■				
1604 class 1, div. 2 (hazardous locations)	■	■		■	■		■	■		■		■	■				
C-Tick	■	■	■	■	■	■	■	■	■	■	■	■	■				

Analog standard signal converters

CC-E/STD, C-E x/x

Ordering details

2CDC 281 001 F 0003

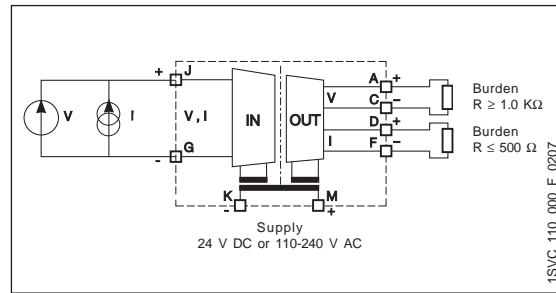


CC-E/STD

- ① Gain adjustment
- ② Offset adjustment
- ③ U: green LED - supply voltage
- ④ DIP switch for input and output configuration (only available on universal devices)

CC-E/STD analog signal converter with 3-way electrical isolation

- Universally configurable device (type E-STD)
- 10 single-function devices
- "Plug and Play", no adjustment of single-function devices required
- Approvals , ¹⁾,



DIP switch settings

Input	Output	Switch							
		1	2	3	4	5	6	7	8
0...5V	0...5V								
0...5V	0...10V								
0...5V	0...20mA								
0...5V	4...20mA								
0...10V	0...5V								
0...10V	0...10V								
0...10V	0...20mA								
0...10V	4...20mA								
0...20mA	0...5V								
0...20mA	0...10V								
0...20mA	0...20mA								
0...20mA	4...20mA								
4...20mA	0...5V								
4...20mA	0...10V								
4...20mA	0...20mA								
4...20mA	4...20mA								

Legend: ON, OFF

Type	Input signal	Output signal	Order code	Price 1 piece
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Supply voltage: 24 V DC
universal

CC-E/STD	0-5 V, 0-10 V 0-20 mA, 4-20 mA	0-5 V, 0-10 V 0-20 mA, 4-20 mA	1SVR 011 700 R 0000 ¹⁾	
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single-function

CC-E V/V		0-10 V	1SVR 011 710 R 2100	
CC-E V/I	0-10 V	0-20 mA	1SVR 011 711 R 1600	
CC-E V/I		4-20 mA	1SVR 011 712 R 1700	
CC-E I/V		0-10 V	1SVR 011 713 R 1000	
CC-E I/I	0-20 mA	0-20 mA	1SVR 011 714 R 1100	
CC-E I/I		4-20 mA	1SVR 011 715 R 1200	
CC-E I/V		0-10 V	1SVR 011 716 R 1300	
CC-E I/I	4-20 mA	0-20 mA	1SVR 011 717 R 1400	
CC-E I/I		4-20 mA	1SVR 011 718 R 2500	
CC-E V/V	-10...+10 V	-10...+10 V	1SVR 011 719 R 2600	

Supply voltage: 110-240 V AC
universal

CC-E/STD	0-5 V, 0-10 V 0-20 mA, 4-20 mA	0-5 V, 0-10 V 0-20 mA, 4-20 mA	1SVR 011 705 R 2100	
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single-function

CC-E V/V		0-10 V	1SVR 011 720 R 2300	
CC-E V/I	0-10 V	0-20 mA	1SVR 011 721 R 1000	
CC-E V/I		4-20 mA	1SVR 011 722 R 1100	
CC-E I/V		0-10 V	1SVR 011 723 R 1200	
CC-E I/I	0-20 mA	0-20 mA	1SVR 011 724 R 1300	
CC-E I/I		4-20 mA	1SVR 011 725 R 1400	
CC-E I/V		0-10 V	1SVR 011 726 R 1500	
CC-E I/I	4-20 mA	0-20 mA	1SVR 011 727 R 1600	
CC-E I/I		4-20 mA	1SVR 011 728 R 2700	
CC-E V/V	-10...+10 V	-10...+10 V	1SVR 011 729 R 2000	

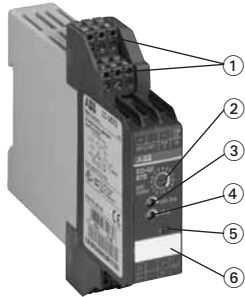
Pack. units: 1 piece

• Technical data 168 • Dimensional drawings 173

Analog standard signal converter CC-U/STD

Ordering details

2CDC 281 002 F0003



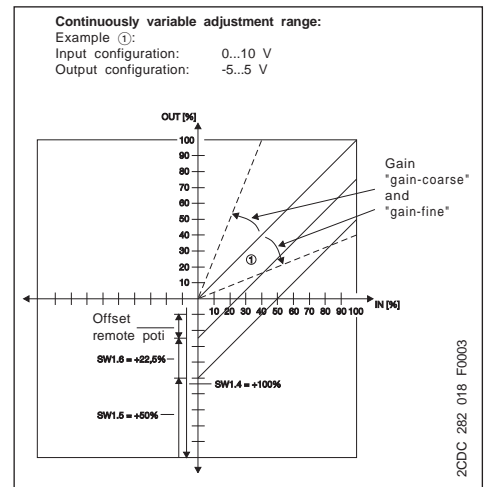
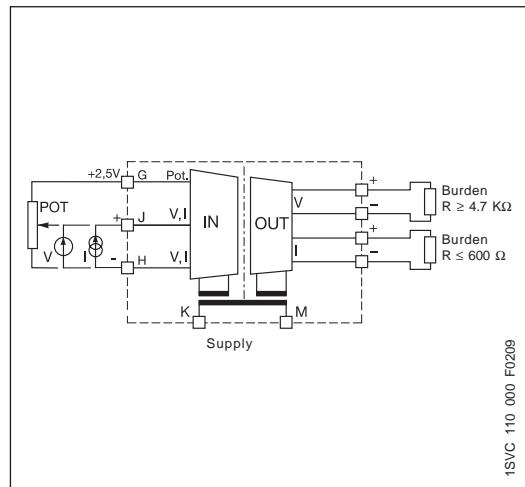
CC-U/STD

- ① Plug-in terminals
- ② Gain: Coarse adjustment
- ③ Gain: Fine adjustment
- ④ Offset adjustment
- ⑤ U: green LED - supply voltage
- ⑥ Marker

CC-U/STD universal signal converter with 3-way electrical isolation

- More than 120 configurations possible
- Configurable output signal response on input signal interruption (low fail safe / high fail safe)
- Adjustment and operating elements on the front-side
- Short-circuit proof signal outputs
- Plug-in connecting terminals for inputs, outputs and supply
- Very fast signal transmission enables use in control systems

■ Approvals   1604 class I, div. 2, 






DIP switch settings

Input	SW1								Gain	Coarse Type
	1	2	3	4	5	6	7	8		
Potentiometer									A...D	C
0...50 mV									A...D	C
0...100 mV									4...5	5
0...250 mV									0...1	1
0...500 mV									7...9	8
0...1 V									3...4	3
0...2.5 V									0	0
0...5 V									5...7	6
0...10 V									2	2
1...5 V									7...9	8
2...10 V									2...4	3
-10...+10 V									0	0
0...125 mV									3...4	3
0...8 V									3...4	3
-22.5...+22.5 mV									B...F	D
-11...+11 V									0	0
2.5...7.5 V									5...7	6
3.33...9.99 V									3...4	4
10...0 V									2	2
100...0 mV									4...5	5
0...1 mA									A...D	B
0...20 mA									2...4	3
4...20 mA									4...5	4
10...50 mA									0...1	1
20...4 mA									4...5	4
20...0 mA									4...2	3
-0.45...+0.45 mA									B...F	D
-55...+55 mA									4...6	5
High fail safe *)									-	-
Low fail safe *)									-	-
No fail safe *)									-	-

*) Detection of input signal interruptions:

If the input signal circuit is interrupted, the output signal changes to the adjusted minimum value (low fail safe) or maximum value (high fail safe). If "No fail safe" is configured, input signal interruptions are not detected.

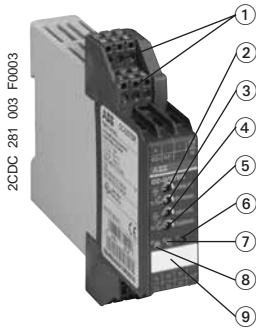
Output	SW2					
	1	2	3	4	5	6
0...5 V						
0...10 V						
1...5 V						
2...10 V						
-10...+10 V						
-5...+5 V						
-10...0 V						
-5...0 V						
0...6.66 V						
-10...3.33 V						
-5...1.66 V						
0...8 V						
0...4 V						
-10...-2 V						
-5...-1 V						
1.25...6.25 V						
-7.5...-2.5 V						
-3.75...1.25 V						
1.66...8.33 V						
-6.66...-6.66 V						
-3.33...-3.33 V						
-8...0 V						
-4...0 V						
0...1 mA						
0...20 mA						
4...20 mA						
0...10 mA						
0...0.5 mA						
0...13.33 mA						
0...666 µA						
0...16 mA						
0...800 µA						
0...8 mA						
0...400 µA						
2.5...12.5 mA						
125...625 µA						
3.33...16.66 mA						
166...833 µA						
0.2...1 mA						
2...10 mA						
100...500 µA						

Legend
 ON
 OFF
 no influence

Type	Supply voltage 50/60 Hz	Order code	Pack. unit pieces	Price 1 piece
CC-U/STD	24-48 V DC / 24 V AC 110-240 V AC / 100-300 V DC	1SVR 040 000 R 1700	1	
		1SVR 040 001 R 0400	1	

• Technical data 170 • Dimensional drawings 173



Analog standard signal converter CC-U/STDR with relay output Ordering details

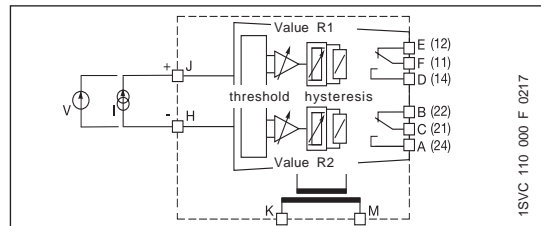


CC-U/STDR

- ① Plug-in connecting terminals
- ② Threshold value for R1
- ③ Hysteresis for R1
- ④ Threshold value for R2
- ⑤ Hysteresis for R2
- ⑥ U: green LED - supply voltage
- ⑦ R2: yellow LED - Relay 2 energized
- ⑧ R1: yellow LED - Relay 1 energized
- ⑨ Marker

CC-U/STDR universal signal converter for standard signals, with 2 threshold relay outputs and with 3-way electrical isolation

- Standard signal converter with 7 setting ranges
- 2 threshold relay outputs with one c/o contact each (threshold and respective hysteresis can be adjusted independently from each other)
- Open-circuit or closed-circuit principle configurable by means of a DIP switch
- 2 yellow LEDs for clear status indication of the output relays
- Plug-in connecting terminals for inputs, outputs and supply
- Approvals  , 

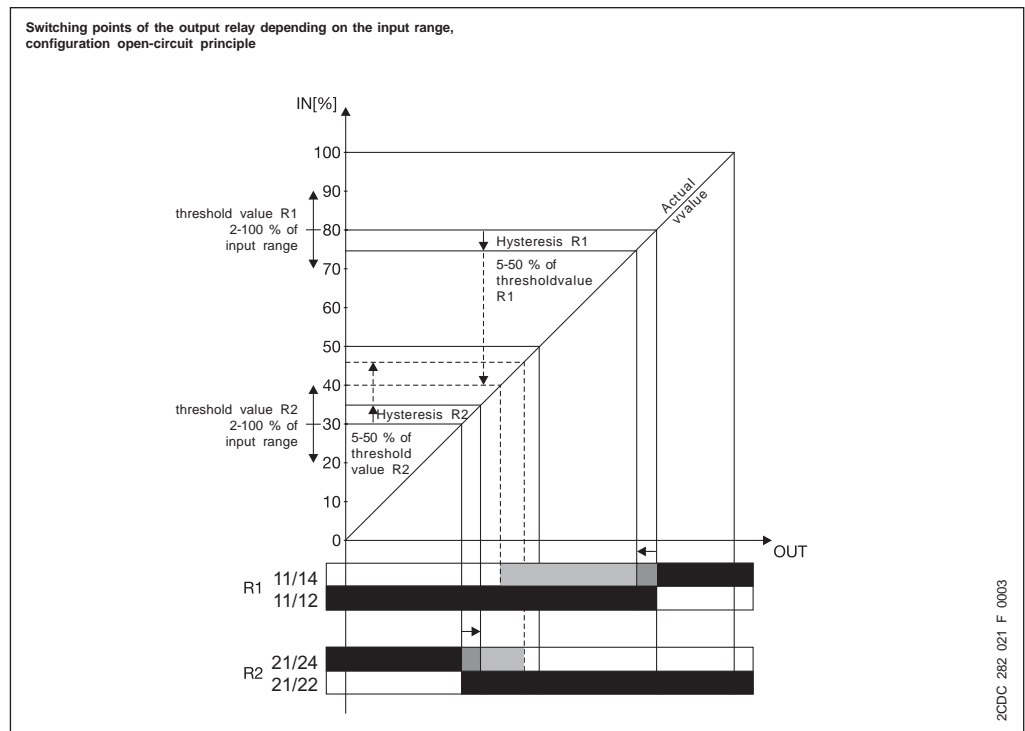
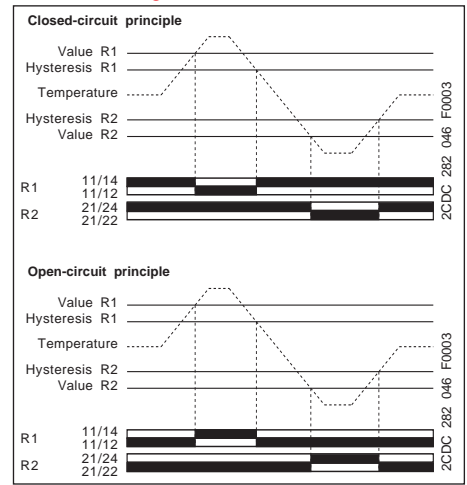


DIP switch settings

Input	SW1					
	1	2	3	4	5	6
0 ... 10 V						
0 ... 5 V	■					
0 ... 1 V		■				
-10 ... +10 V			■			
1 ... 5 V				■		
0 ... 20 mA					■	
4 ... 20 mA						■
Closed-circuit principle						■
Open-circuit principle						■

Legend:
 ■ ON
 □ OFF
 ■ no influence

Functional diagrams CC-U/STDR

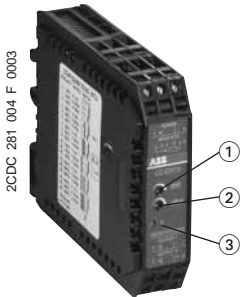


Type	Supply voltage 50/60 Hz	Order code	Pack. unit pieces	Price 1 piece
CC-U/STDR	24-48 V DC / 24 V AC	1SVR 040 010 R 0000	1	
	110-240 V AC / 100-300 V DC	1SVR 040 011 R 2500	1	

• Technical data 172 • Dimensional drawings 173



Temperature signal converter for RTD sensors CC-E/RTD Ordering details



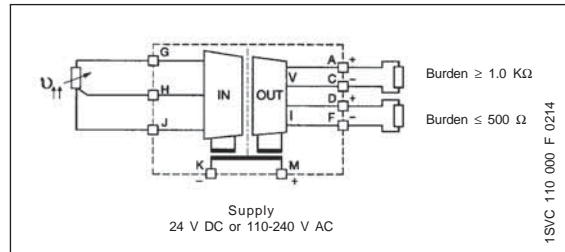
CC-E/RTD

- ① Gain adjustment
- ② Offset adjustment
- ③ U: green LED - supply voltage

CC-E/RTD temperature signal converter for RTD sensors, linearized with 3-way electrical isolation

- Universally configurable device (type E-RTD)
- 12 single-function devices
- "Plug and Play", no adjustment of single-function devices required
- Temperature signal converter for PT100 sensors
- 2- or 3-wire connection

■ Approvals , ¹⁾,



DIP switch settings

Input	Output	SW 1					
		1	2	3	4	5	6
0-100°C	0-10 V						
0-100°C	0-20 mA						
0-100°C	4-20 mA						
0-300°C	0-10 V						
0-300°C	0-20 mA						
0-300°C	4-20 mA						
0-500°C	0-10 V						
0-500°C	0-20 mA						
0-500°C	4-20 mA						
-50-+50°C	0-10 V						
-50-+50°C	0-20 mA						
-50-+50°C	4-20 mA						
-50-+250°C	0-10 V						
-50-+250°C	0-20 mA						
-50-+250°C	4-20 mA						
High bit rate							
Low bit rate							

Legend:
 ON
 OFF
 no influence

Type	Input signal	Output signal	Order code	Price 1 piece
------	--------------	---------------	------------	---------------

Supply voltage: 24 V DC
universal

Type	Input signal	Output signal	Order code	Price 1 piece
CC-E/RTD	refer to table	0-10 V, 0-20 mA, 4-20 mA	1SVR 011 701 R 2500 ¹⁾	
single-function				
CC-E RTD/V	PT100 0...100 °C	0-10 V	1SVR 011 730 R 2500	
CC-E RTD/I		0-20 mA	1SVR 011 731 R 1200	
CC-E RTD/I		4-20 mA	1SVR 011 732 R 1300	
CC-E RTD/V	PT100 -50...+50 °C	0-10 V	1SVR 011 733 R 1400	
CC-E RTD/I		0-20 mA	1SVR 011 734 R 1500	
CC-E RTD/I		4-20 mA	1SVR 011 735 R 1600	
CC-E RTD/V	PT100 0...300 °C	0-10 V	1SVR 011 736 R 1700	
CC-E RTD/I		0-20 mA	1SVR 011 737 R 1000	
CC-E RTD/I		4-20 mA	1SVR 011 738 R 2100	
CC-E RTD/V	PT100 -50...+250 °C	0-10 V	1SVR 011 739 R 2200	
CC-E RTD/I		0-20 mA	1SVR 011 740 R 0700	
CC-E RTD/I		4-20 mA	1SVR 011 741 R 2400	

Supply voltage: 110-240 V AC
universal

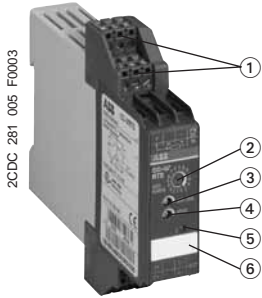
Type	Input signal	Output signal	Order code	Price 1 piece
CC-E/RTD	refer to table	0-10 V, 0-20 mA, 4-20 mA	1SVR 011 706 R 2200	
single-function				
CC-E RTD/V	PT100 0...100 °C	0-10 V	1SVR 011 788 R 2400	
CC-E RTD/I		0-20 mA	1SVR 011 789 R 2500	
CC-E RTD/I		4-20 mA	1SVR 011 790 R 2200	
CC-E RTD/V	PT100 -50...+50 °C	0-10 V	1SVR 011 791 R 1700	
CC-E RTD/I		0-20 mA	1SVR 011 792 R 1000	
CC-E RTD/I		4-20 mA	1SVR 011 793 R 1100	
CC-E RTD/V	PT100 0...300 °C	0-10 V	1SVR 011 794 R 1200	
CC-E RTD/I		0-20 mA	1SVR 011 795 R 1300	
CC-E RTD/I		4-20 mA	1SVR 011 796 R 1400	
CC-E RTD/V	PT100 -50...+250 °C	0-10 V	1SVR 011 797 R 1500	
CC-E RTD/I		0-20 mA	1SVR 011 798 R 2600	
CC-E RTD/I		4-20 mA	1SVR 011 799 R 2700	

Pack. units: 1 piece

• Technical data 168 • Dimensional drawings 173

Temperature signal converter for RTD sensors CC-U/RTD

Ordering details

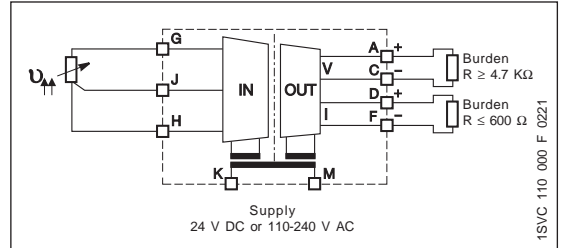


CC-U/RTD

- ① Plug-in connecting terminals
- ② Gain: Coarse adjustment
- ③ Gain: Fine adjustment
- ④ Offset adjustment
- ⑤ U: green LED - supply voltage
- ⑥ Marker

CC-U/RTD universal signal converter for PT10, PT100, PT1000 temperature sensors (acc. to IEC 751 and JIS C 1604*), linearized with 3-way electrical isolation

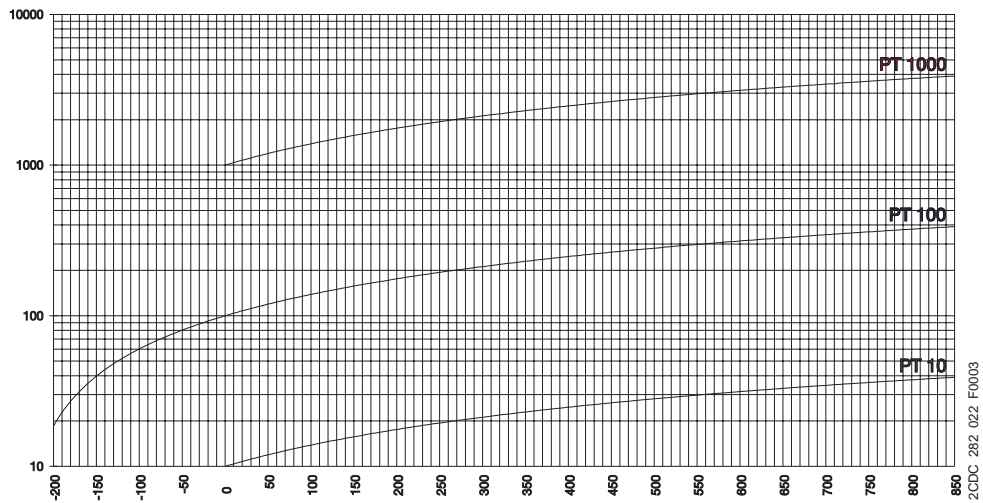
- Configurable output signal response on input signal interruption (low fail safe / high fail safe)
- Adjustment and operating elements on the front-side
- Short-circuit proof signal outputs
- Plug-in connecting terminals for inputs, outputs and supply
- Approvals



UL US, UL 1604 class I, div. 2, CE

) Japanese standard

Characteristic curves: Resistance of PT10, PT100 and PT1000 sensors depending on the temperature



DIP switch settings

Input	SW1						SW2						Gain coarse
	1	2	3	4	5	6	1	2	3	4	5	6	
PT 10	0...500°C	■						■	■	■	■	■	F
	0...550°C	■						■	■	■	■	■	E
	0...600°C	■						■	■	■	■	■	D
	0...650°C	■						■	■	■	■	■	C
	0...700°C	■						■	■	■	■	■	B
	0...750°C	■						■	■	■	■	■	A
PT 100	0...800°C	■						■	■	■	■	■	9
	0...850°C	■						■	■	■	■	8	
	0...50°C	■						■	■	■	■	F	
	0...60°C	■						■	■	■	■	E	
	0...70°C	■						■	■	■	■	B	
	0...80°C	■						■	■	■	■	A	
PT 1000	0...90°C	■						■	■	■	■	9	
	0...100°C	■						■	■	■	■	8	
	0...200°C	■						■	■	■	■	3	
	0...300°C	■						■	■	■	■	2	
	0...400°C	■						■	■	■	■	1	
	0...500°C	■						■	■	■	■	0	
0...10°C	■						■	■	■	■	8		
0...20°C	■						■	■	■	■	3		
0...30°C	■						■	■	■	■	2		
0...40°C	■						■	■	■	■	1		
0...50°C	■						■	■	■	■	0		
0...60°C	■						■	■	■	■	0		
0...6°C	■						■	■	■	■	F		
Low fail safe*)	■						■	■	■	■	-		
High fail safe*)	■						■	■	■	■	-		

*) Detection of input signal interruptions:
If the input signal circuit is interrupted, the output signal changes to the adjusted minimum value (low fail safe) or maximum value (high fail safe).

Output	SW3					
	1	2	3	4	5	6
0...5 V						
0...10 V						
1...5 V	■					
2...10 V	■					
-10...+10 V						
-5...+5 V						
-10...0 V						
-5...0 V						
0...6.66 V						
-10...3.33 V						
-5...1.66 V						
0...8 V						
0...4 V						
-10...-2 V						
-5...-1 V						
1.25...6.25 V						
-7.5...-2.5 V						
-3.75...-1.25 V						
1.66...8.33 V						
-6.66...-6.66 V						
-3.33...-3.33 V						
-8...0 V						
-4...0 V						
0...1 mA						
0...20 mA						
4...20 mA						
0...10 mA						
0...0.5 mA						
0...13.33 mA						
0...666 µA						
0...16 mA						
0...800 µA						
0...8 mA						
0...400 µA						
2.5...12.5 mA						
125...625 µA						
3.33...16.65 mA						
166...833 µA						
0.2...1 mA						
2...10 mA						
100...500 µA						

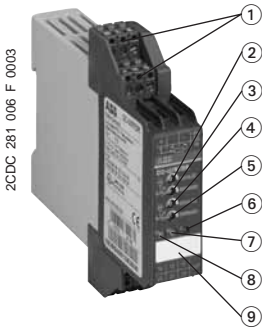
Legend
 ■ ON
 □ OFF
 ■ no influence

Type	Supply voltage 50/60 Hz	Order code	Pack. unit pieces	Price 1 piece
CC-U/RTD	24-48 V DC / 24 V AC 110-240 V AC / 100-300 V DC	1SVR 040 002 R 0500 1SVR 040 003 R 0600	1 1	

• Technical data 170 • Dimensional drawings 173

Temperature signal converter for RTD sensors CC-U/RTDR with relay output

Ordering details



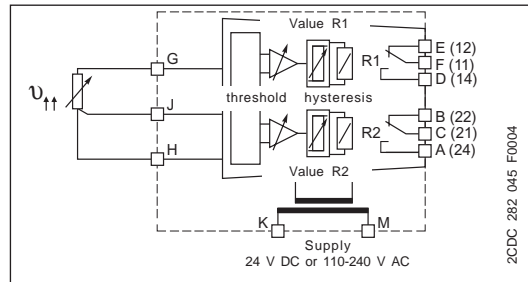
CC-U/RTDR

- ① Plug-in connecting terminals
- ② Threshold value for R1
- ③ Hysteresis for R1
- ④ Threshold value for R2
- ⑤ Hysteresis for R2
- ⑥ U: green LED - supply voltage
- ⑦ R2: yellow LED - Relay 2 energized
- ⑧ R1: yellow LED - Relay 1 energized
- ⑨ Marker

CC-U/RTDR universal signal converter for temperature and resistance signals, with 2 threshold relay outputs and 3-way electrical isolation

- Temperature signal converter for PT100 signals (5 ranges up to 800 °C) and variable resistances from 0-380 Ω
- 2 threshold relay outputs with one c/o contact each (threshold and respective hysteresis can be adjusted independently from each other)
- Open-circuit or closed-circuit principle configurable by means of a DIP switch
- 2 yellow LEDs for clear status indication of the output relays
- Plug-in connecting terminals for inputs, outputs and supply

Approvals ,

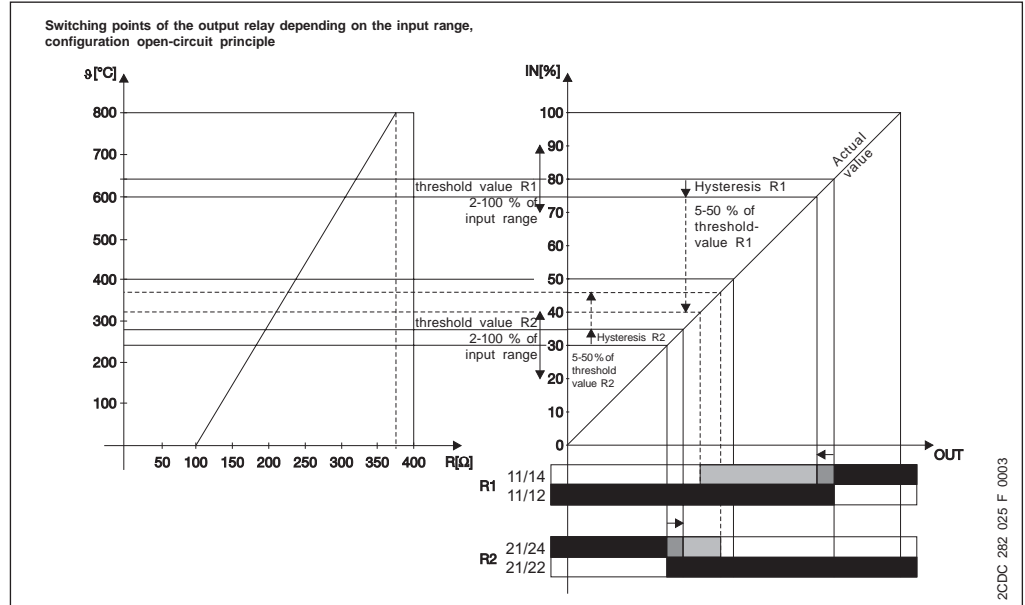
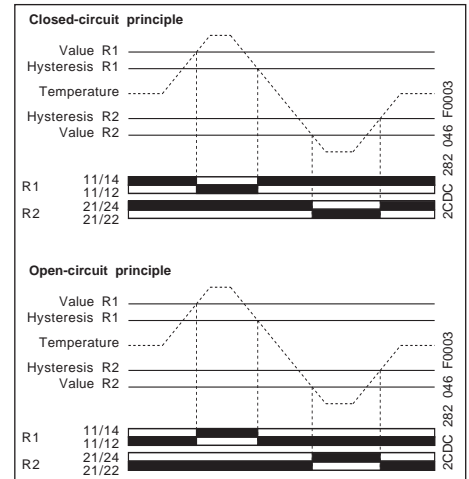


DIP switch settings

Input PT100	SW1					
	1	2	3	4	5	6
0...100 °C	■	■				
0...200 °C	■		■			
0...400 °C			■	■		
0...600 °C				■	■	
0...800 °C					■	■
Closed-circuit principle	■	■	■	■	■	■
Open-circuit principle	■	■	■	■	■	■

Legend
 ■ ON
 □ OFF
 ▒ no influence

Functional diagrams CC-U/RTDR

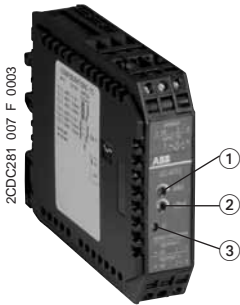


Type	Supply voltage 50/60 Hz	Order code	Pack. unit pieces	Price 1 piece
CC-U/RTDR	24-48 V DC / 24 V AC	1SVR 040 012 R 2600	1	
	110-240 V AC / 100-300 V DC	1SVR 040 013 R 2700	1	

• Technical data 172 • Dimensional drawings 173

Temperature signal converter for thermocouples CC-E/TC




Ordering details

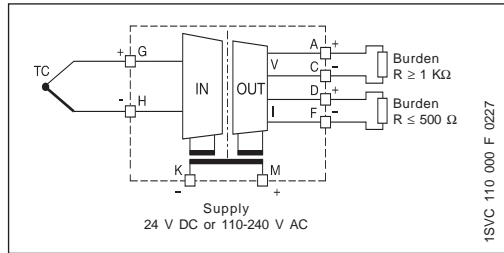


CC-E/TC




- ① Gain adjustment
- ② Offset adjustment
- ③ U: green LED - supply voltage

CC-E/TC analog signal converter for thermocouple signals of the types J and K with 3-way electrical isolation

- Universally configurable device (type E/TC)
- 6 single-function devices
- "Plug and Play", no adjustment of single-function devices required
- Approvals   1604 class I, div. 2 (universal device) ¹⁾, 



DIP switch settings		SW1					
Input	Output	1	2	3	4	5	6
TC-J: 0 ... 600 C	0 ... 10 V						
TC-J: 0 ... 600 C	0 ... 20 mA						
TC-J: 0 ... 600 C	4 ... 20 mA						
TC-K: 0 ... 1000 C	0 ... 10 V						
TC-K: 0 ... 1000 C	0 ... 20 mA						
TC-K: 0 ... 1000 C	4 ... 20 mA						
High fail safe							
Low fail safe							

Legend:
 ON
 OFF
 no influence

Type	Input signal	Output signal	Order code	Price 1 piece
------	--------------	---------------	------------	---------------

Supply voltage: 24 V DC
universal

CC-E/TC	thermocouple types J and K	0-10 V, 0-20 mA, 4-20 mA	1SVR 011 702 R 2600 ¹⁾	
single-function				
CC-E TC/V	type J 0-600 °C	0-10 V	1SVR 011 750 R 0100	
CC-E TC/I		0-20 mA	1SVR 011 751 R 2600	
CC-E TC/I		4-20 mA	1SVR 011 752 R 2700	
CC-E TC/V	type K 0-1000 °C	0-10 V	1SVR 011 753 R 2000	
CC-E TC/I		0-20 mA	1SVR 011 754 R 2100	
CC-E TC/I		4-20 mA	1SVR 011 755 R 2200	

Supply voltage: 110-240 V AC
universal

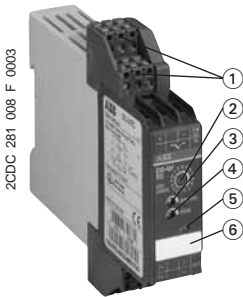
CC-E/TC	thermocouple types J and K	0-10 V, 0-20 mA, 4-20 mA	1SVR 011 707 R 2300	
single-function				
CC-E TC/V	type J 0-600 °C	0-10 V	1SVR 011 760 R 0300	
CC-E TC/I		0-20 mA	1SVR 011 761 R 2000	
CC-E TC/I		4-20 mA	1SVR 011 762 R 2100	
CC-E TC/V	type K 0-1000 °C	0-10 V	1SVR 011 763 R 2200	
CC-E TC/I		0-20 mA	1SVR 011 764 R 2300	
CC-E TC/I		4-20 mA	1SVR 011 765 R 2400	

Pack. units: 1 piece

• Technical data 168 • Dimensional drawings 173

Temperature signal converter for thermocouples CC-U/TC

Ordering details

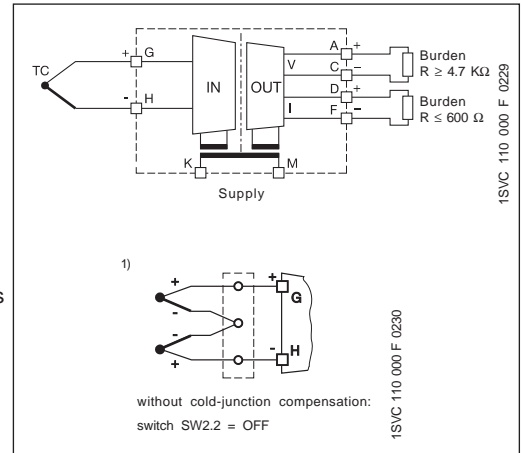
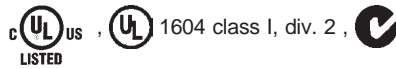


CC-U/TC

- ① Plug-in connecting terminals
- ② Gain: Coarse adjustment
- ③ Gain: Fine adjustment
- ④ Offset adjustment
- ⑤ U: green LED - supply voltage
- ⑥ Marker

CC-U/TC universal signal converter for thermocouples with 3-way electrical isolation

- Temperature signal converter for thermocouples of the types K, J, T, S, E, N, R, B
- Continuously adjustable voltage signal input 0-10 mV and 0-50 mV
- Differential temperature meas. possible ¹⁾
- Configurable output signal response on input signal interruption (low fail safe / high fail safe)
- Adjustment and operating elements on the front-side
- Short-circuit proof signal outputs
- Plug-in connecting terminals for inputs, outputs and supply
- Approvals

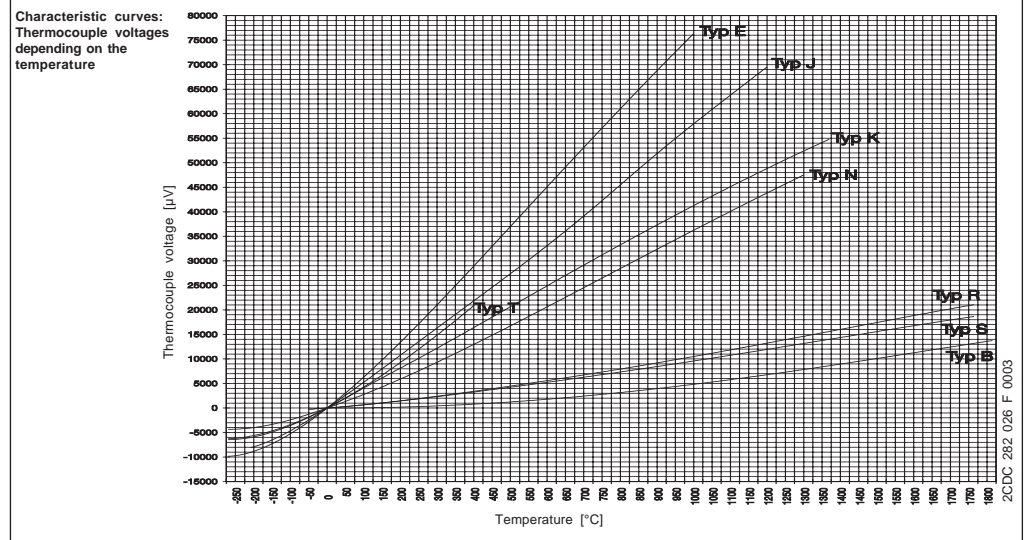


DIP switch settings

Input		SW1					SW2						
Typ	Temperature range	1	2	3	4	5	6	1	2	3	4	5	6
K	0-100...900 °C												
K	0-250...1350 °C												
J	0-100...750 °C												
T	0-100...400 °C												
T	-150...400 °C												
S	0-250...1550 °C												
E	0-100...700 °C												
E	0-200...1000 °C												
N	0-100...650 °C												
N	0-200...1300 °C												
R	0-250...1350 °C												
R	0-450...1700 °C												
B	0-700...1750 °C												
mV	0-2...10 mV												
mV	0-10...50 mV												
LOW FAIL SAFE [*]													
HIGH FAIL SAFE [*]													

Output	SW2					
	1	2	3	4	5	6
0...5 V						
0...10 V						
1...5 V						
-5...10 V						
-10...+10 V						
-5...+5 V						
-10...0 V						
-5...0 V						
0...6,66 V						
-10...3,33 V						
-5...1,66 V						
0...3 V						
0...4 V						
-10...-2 V						
-5...-1 V						
1,25...6,25 V						
-7,5...-2,5 V						
-3,75...-1,25 V						
1,66...8,33 V						
-8,66...-6,66 V						
-3,33...-3,33 V						
-8...0 V						
0...1 mA						
0...20 mA						
4...20 mA						
0...10 mA						
0...0,5 mA						
0...13,33 mA						
0...666 µA						
0...16 mA						
0...800 µA						
0...8 mA						
0...400 µA						
2,5...12,5 mA						
125...625 µA						
3,33...16,66 mA						
166...833 µA						
0,2...1 mA						
2...10 mA						
100...500 µA						

^{*} Detection of input signal interruptions:
If the input signal circuit is interrupted, the output signal changes to the adjusted minimum value (low fail safe) or maximum value (high fail safe).

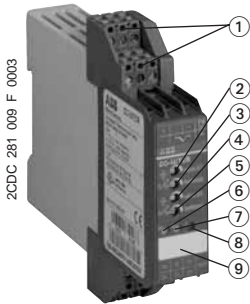


Type	Supply voltage 50/60 Hz	Order code	Pack. unit pieces	Price 1 piece
CC-U/TC	24-48 V DC / 24 V AC 110-240 V AC / 100-300 V DC	1SVR 040 004 R 0700 1SVR 040 005 R 0000	1 1	

• Technical data 170 • Dimensional drawings 173

Temperature signal converter for thermocouples CC-U/TCR with relay output

Ordering details



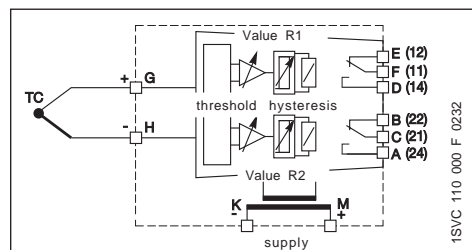
CC-U/TCR

- ① Plug-in connecting terminals
- ② Threshold value for R1
- ③ Hysteresis for R1
- ④ Threshold value for R2
- ⑤ Hysteresis for R2
- ⑥ U: green LED - supply voltage
- ⑦ R2: yellow LED - Relay 2 energized
- ⑧ R1: yellow LED - Relay 1 energized
- ⑨ Marker

CC-U/TCR universal signal converter for thermocouples, with 2 threshold relay outputs and 3-way electrical isolation

- Temperature signal converter for thermocouples of the types K, J, T, S
- 2 threshold relay outputs with one change-over contact each (threshold and respective hysteresis can be adjusted independently from each other)
- Open-circuit or closed-circuit principle configurable by means of a DIP switch
- 2 yellow LEDs for clear status indication of the output relays
- Plug-in connecting terminals for inputs, outputs and supply

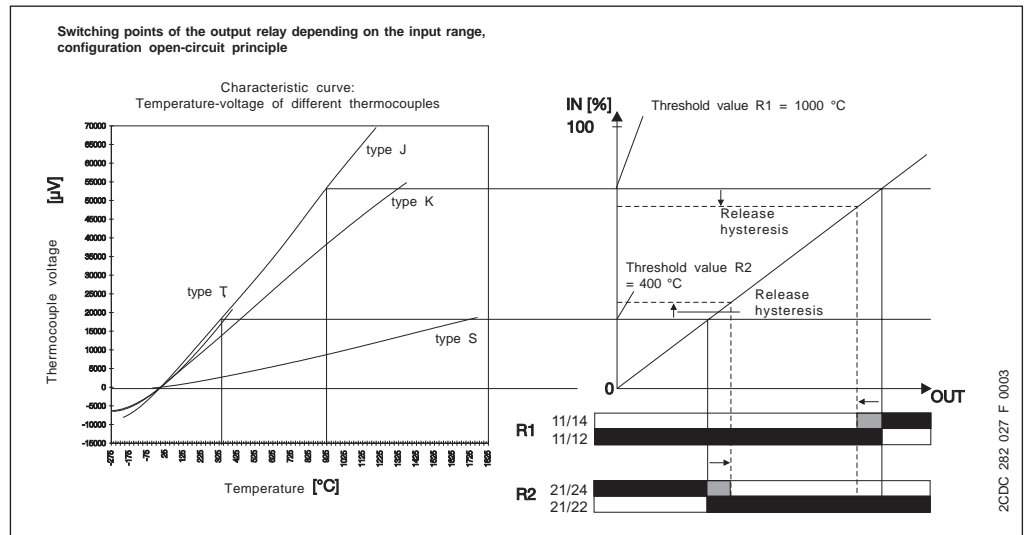
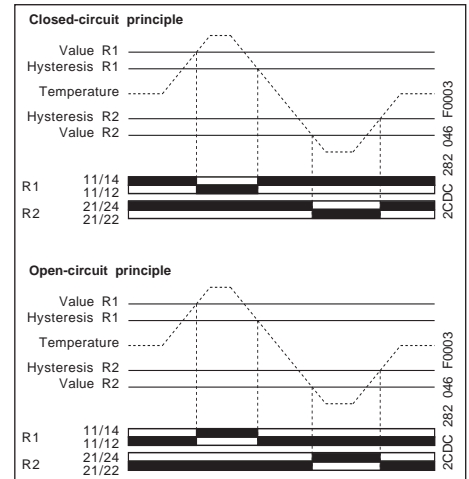
Approvals



DIP switch settings		SW1					
Typ	Input Temperature range	1	2	3	4	5	6
J	0...240 °C						
J	0...480 °C						
J	0...1200 °C						
K	0...250 °C						
K	0...500 °C						
K	0...1350 °C						
T	-150...+120 °C						
T	0...220 °C						
T	0...400 °C						
S	0...210 °C						
S	0...380 °C						
S	0...860 °C						
S	0...1550 °C						
Closed-circuit principle		■ ON					
Open-circuit principle		■ OFF					

Legend:
 ■ ON
 ■ OFF
 ■ no influence

Functional diagrams CC-U/TCR



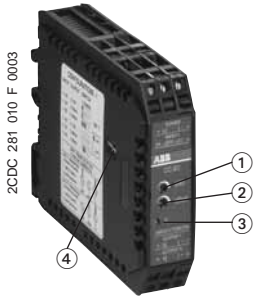
Type	Supply voltage 50/60 Hz	Order code	Pack. unit pieces	Price 1 piece
CC-U/TCR	24-48 V DC / 24 V AC 110-240 V AC / 100-300 V DC	1SVR 040 014 R 2000 1SVR 040 015 R 2100	1 1	

• Technical data 172 • Dimensional drawings 173



Measuring converter for sinusoidal and DC currents CC-E/I

Ordering details

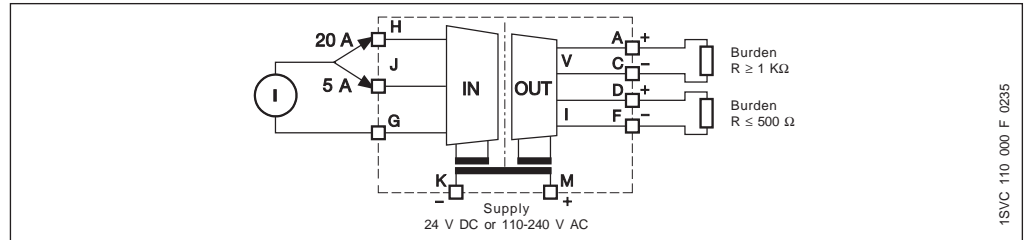


CC-E/I

- ① Gain adjustment
- ② Offset adjustment
- ③ U: green LED - supply voltage
- ④ DIP switch for input and output configuration (only available on universal devices)

CC-E/I current measuring converter for current signals 0-5 A, 0-20 A (AC/DC) with 3-way electrical isolation

- Universally configurable device (type E/I)
- 6 single-function devices
- "Plug and Play", no adjustment of single-function devices required
- Approvals , ¹⁾,



DIP switch settings

Select input range by terminals		
Input range 5 A		
Connected lines		
Used terminals		
Terminal marking	5 A	20 A
Input range 20 A		
Connected lines		
Used terminals		
Terminal marking	5 A	20 A

Input	Output	SW1					
		1	2	3	4	5	6
I - DC	0 ... 10 V	■					
I - AC	0 ... 10 V						
I - DC	0 ... 20 mA		■				
I - AC	0 ... 20 mA						
I - DC	4 ... 20 mA	■	■	■			
I - AC	4 ... 20 mA	■	■	■			

Legend: ON, OFF

Type	Input signal	Output signal	Order code	Price 1 piece
------	--------------	---------------	------------	---------------

Supply voltage: 24 V DC
universal

CC-E/I	0-5 A, 0-20 A, AC/DC	0-10 V, 0-20 mA, 4-20 mA	1SVR 011 703 R 2700 ¹⁾	
single-function				
CC-E I_{AC}/V		0-10 V	1SVR 011 770 R 0500	
CC-E I_{AC}/I	0-5 A, 0-20 A, AC	0-20 mA	1SVR 011 771 R 2200	
CC-E I_{AC}/I		4-20 mA	1SVR 011 772 R 2300	
CC-E I_{DC}/V		0-10 V	1SVR 011 773 R 2400	
CC-E I_{DC}/I	0-5 A, 0-20 A, DC	0-20 mA	1SVR 011 774 R 2500	
CC-E I_{DC}/I		4-20 mA	1SVR 011 775 R 2600	

Supply voltage: 110-240 V AC
universal

CC-E/I	0-5 A, 0-20 A, AC/DC	0-10 V, 0-20 mA, 4-20 mA	1SVR 011 708 R 0400	
single-function				
CC-E I_{AC}/V		0-10 V	1SVR 011 780 R 1100	
CC-E I_{AC}/I	0-5 A, 0-20 A, AC	0-20 mA	1SVR 011 781 R 0600	
CC-E I_{AC}/I		4-20 mA	1SVR 011 782 R 0700	
CC-E I_{DC}/V		0-10 V	1SVR 011 783 R 0000	
CC-E I_{DC}/I	0-5 A, 0-20 A, DC	0-20 mA	1SVR 011 784 R 0100	
CC-E I_{DC}/I		4-20 mA	1SVR 011 785 R 1100	

Pack. units: 1 piece

• Technical data 169 • Dimensional drawings 173

Measuring converter for sinusoidal currents

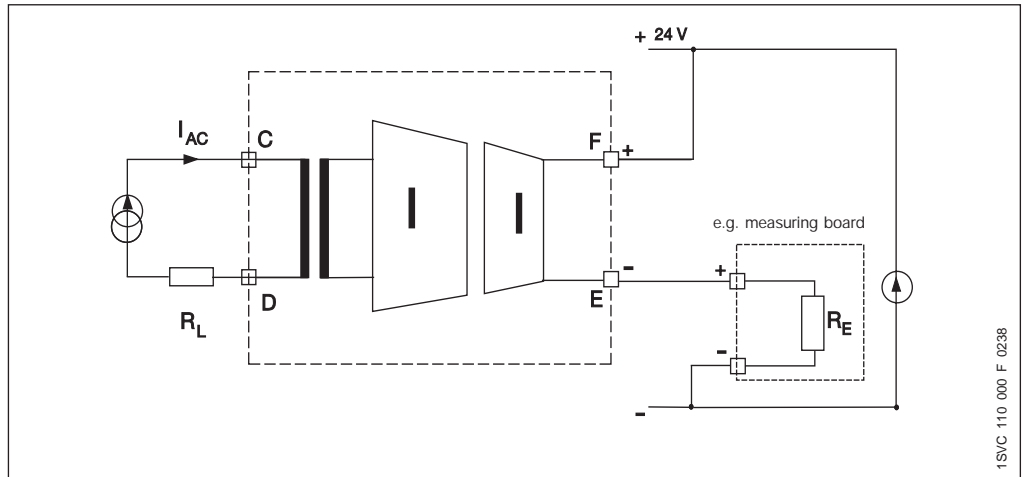
CC-E $I_{AC}/ILPO$

Ordering details

CC-E $I_{AC}/ILPO$ current measuring converter without auxiliary power for sinusoidal currents 0-1 A, 0-5 A, output 4 - 20 mA

- Measuring converter for sinusoidal AC currents (0-1 A, 0-5 A)
- Measuring range selection by front-side slide switch
- 4-20 mA output current in proportion to input current
- no additional power supply required

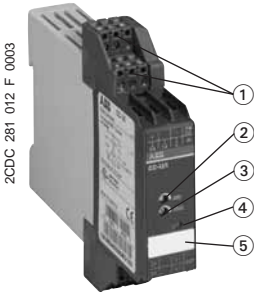
■ Approvals  



Type	Input signal	Order code	Pack. unit pieces	Price 1 piece
CC-E $I_{AC}/ILPO$	0-1 A, 0-5 A, AC	1SVR 010 203 R 0500	1	



Measuring converter for current RMS values CC-U/I Ordering details

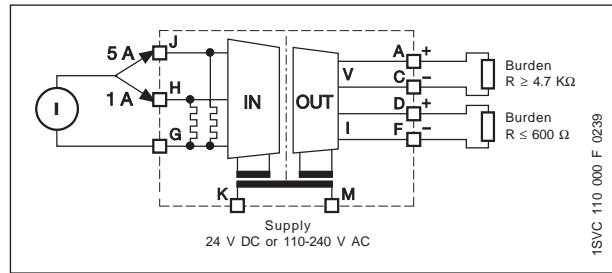


CC-U/I

- ① Plug-in connecting terminals
- ② Gain adjustment
- ③ Offset adjustment
- ④ U: green LED - supply voltage
- ⑤ Marker

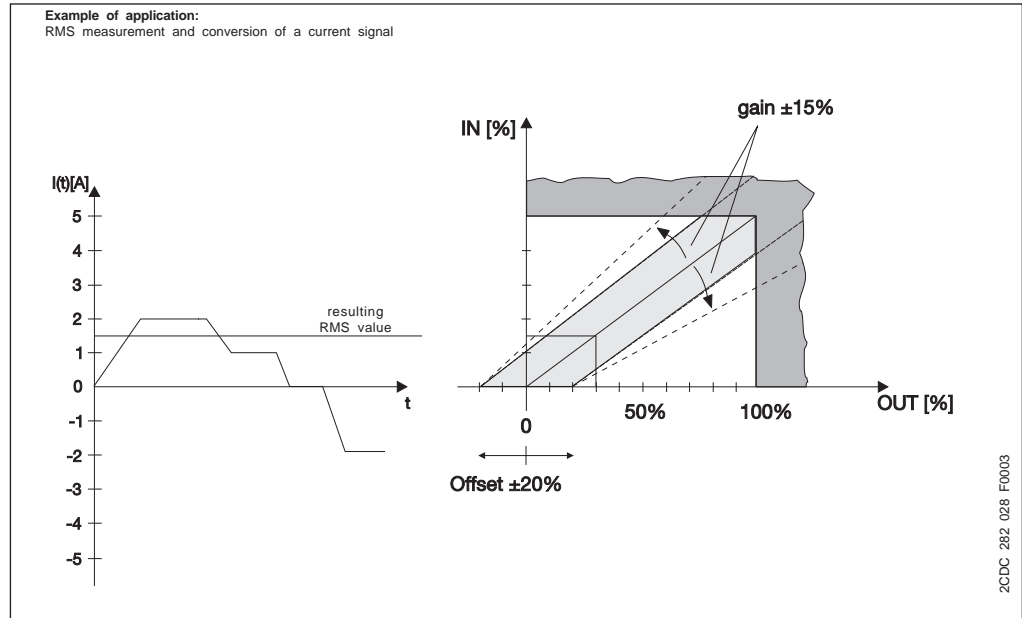
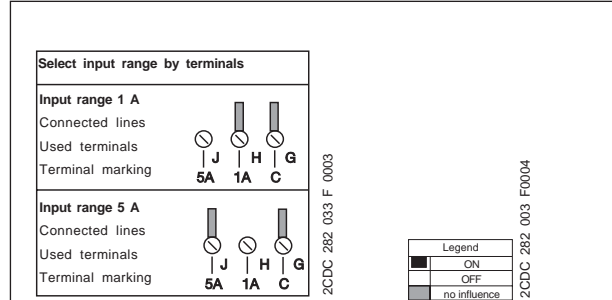
CC-U/I universal current measuring converter for RMS values of 0-1 A and 0-5 A, with 3-way electrical isolation

- RMS converter for current signals up to 1 A and up to 5 A of any wave form (DC, DC with superimposed AC components, pure sinusoidal, triangular, phase-angle controlled, etc. in a measuring range of 0-600 Hz)
- Adjustment and operating elements on the front-side
- Short-circuit proof signal outputs
- Plug-in connecting terminals for inputs, outputs and supply
- Approvals , ,



DIP switch settings

Output	SW1					
	1	2	3	4	5	6
0...5 V						
0...10 V						
1...5 V	■	■	■	■	■	■
2...10 V	■	■	■	■	■	■
-10...10 V						
-5...5 V						
-10...0 V						
-5...0 V						
0...6.66 V						
-10...3.33 V						
-5...1.66 V						
0...3 V						
0...4 V						
-10...-2 V						
-5...-1 V						
1.25...6.25 V						
-7.5...-2.5 V						
-3.75...-1.25 V						
1.66...6.33 V						
-6.66...-6.66 V						
-3.33...-3.33 V						
-3...0 V						
-4...0 V						
0...1 mA						
0...20 mA						
4...20 mA						
0...10 mA						
0...0.5 mA						
0...13.33 mA						
0...6.66 mA						
0...16 mA						
0...800 μA						
0...8 mA						
0...400 μA						
2.5...12.5 mA						
125...625 μA						
3.33...16.66 mA						
166...833 μA						
0...1 mA						
2...10 mA						
100...500 μA						

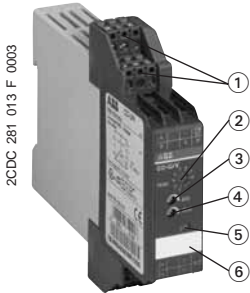


Type	Supply voltage 50/60 Hz	Order code	Pack. unit pieces	Price 1 piece
CC-U/I	24-48 V DC / 24 V AC	1SVR 040 006 R 0100	1	
	110-240 V AC / 100-300 V DC	1SVR 040 007 R 0200	1	

• Technical data 171 • Dimensional drawings 173

Measuring converter for voltage RMS values CC-U/V

Ordering details

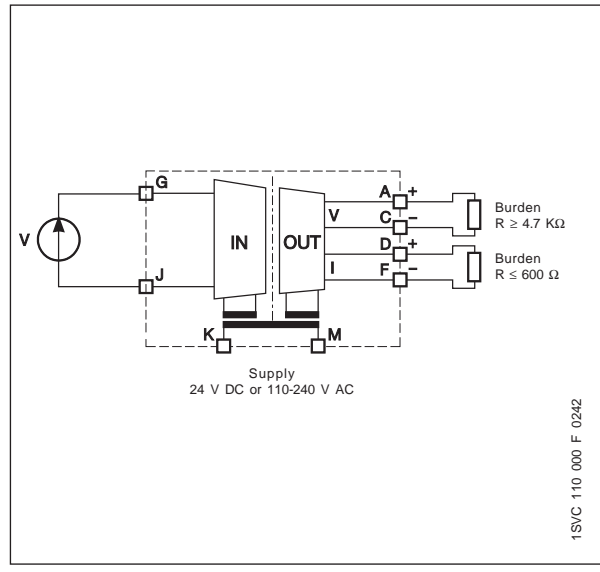


CC-U/V

- ① Plug-in connecting terminals
- ② Input voltage range selection
- ③ Gain adjustment
- ④ Offset adjustment
- ⑤ U: green LED - supply voltage
- ⑥ Marker

CC-U/V universal voltage measuring converter for RMS values of 0-600 V, with 3-way electrical isolation

- RMS converter for voltage signals up to 600 V of any wave form (DC, DC with superimposed AC components, pure sinusoidal, triangular, phase-angle controlled, etc. in a measuring range of 0-600 Hz)
- Adjustment and operating elements on the front-side
- Short-circuit proof signal outputs
- Plug-in connecting terminals for inputs, outputs and supply
- Approvals , ,



DIP switch settings

Output	SW1					
	1	2	3	4	5	6
0...5 V						
0...10 V						
1...5 V						
2...10 V						
-10...+10 V						
-5...+5 V						
-10...0 V						
-5...0 V						
0...6,66 V						
-10...3,33 V						
-5...1,66 V						
0...8 V						
0...4 V						
-10...-2 V						
-5...-1 V						
1,25...6,25 V						
-7,5...2,5 V						
-3,75...1,25 V						
1,66...8,33 V						
-6,66...6,66 V						
-3,33...3,33 V						
-8...0 V						
-4...0 V						
0...0,1 mA						
0...20 mA						
4...20 mA						
0...10 mA						
0...0,5 mA						
0...13,33 mA						
0...666 µA						
0...16 mA						
0...800 µA						
0...8 mA						
0...400 µA						
2,5...12,5 mA						
125...625 µA						
3,33...16,66 mA						
166...833 µA						
0,2...1 mA						
2...10 mA						
100...500 µA						

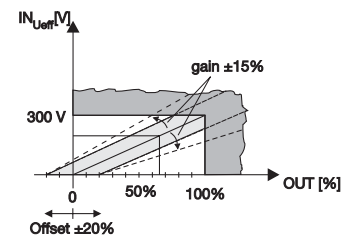
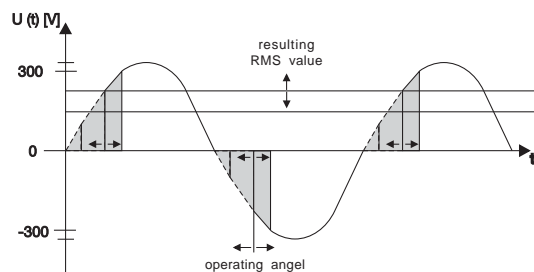
Measuring voltage ranges

Selecting input range by front-face rotary switch	Switch position
0...100 V	1
0...150 V	2
0...250 V	3
0...300 V	4
0...400 V	5
0...450 V	6
0...550 V	7
0...600 V	8

Legend	
	ON
	OFF
	no influence

Example of application:

RMS measurement and conversion of a phase-angle controlled voltage signal L1 = 230 V



Type	Supply voltage 50/60 Hz	Order code	Pack unit pieces	Price 1 piece
CC-U/V	24-48 V DC / 24 V AC	1SVR 040 008 R 1300	1	
	110-240 V AC / 100-300 V DC	1SVR 040 009 R 1400	1	

• Technical data 171 • Dimensional drawings 173

Analog signal converters

CC-E/STD, CC-E/RTD, CC-E/TC

Technical data

Input circuits J-G-H	CC-E/STD		CC-E/RTD	CC-E/TC
	Current	Voltage	Temperature sensors	Thermocouples (IEC 584-1 and -2)
Input signal	0-20 mA / 4-20 mA	0-5 V / 0-10 V / -10...+10 V	PT100	TC.K, TC.J
Input measuring range			-50 ... +300 °C	TC.K 0-1000 °C, TC.J 0-600 °C
Limitation of input signals	+55 mA	± 11 V		
Influence of line resistance			< 0.01 %/Ω	> 0.5 % / 100 Ω
Gain adjustment range			± 5 % (universal devices)	
Offset adjustment range			± 5 % (universal devices)	
Input impedance	50 Ω	1 mΩ		
Suppression at 50 Hz				> 35 dB
Common-mode rejection			100 dB	
Output circuits D-F A-C	Current		Voltage	
Output signal	0-20 mA, 4-20 mA		0-5 V, 0-10 V	
Output burden	≤ 500 Ω		≥ 1.0 KΩ	
Accuracy	Factory setting		± 0,1 % of full-scale	
	Repeat accuracy ¹⁾		± 0,5 % of full-scale	
Temperature coefficient			± 500 ppm/°C	
Residual ripple			< 0.5 %	
Response time	200 μs		10 ms	
Transmission frequency	2 kHz		80 Hz	2 Hz (up to -3 dB)
Response to input circuit interruption			Low Fail Safe: Output voltage > 15 % of measuring range ²⁾ Low Fail Safe: Output voltage < -0.6 V, output current = 0 mA	
Supply circuits K - M	DC versions		AC versions	
Supply voltage	24 V DC		110-240 V AC - 50/60 Hz	
Supply voltage tolerance	-15 % ... + 15 %		-15 % ... + 10 %	
Power consumption	1.5 W typ.		1.5 VA typ.	
Indication of operational states				
Supply voltage			U: green LED	
Isolation data				
Test voltage between all isolated circuits			2.5 kV AC	
Rated insulation voltage	-		-	-
General data				
Operating temperature			0 °C ... +60 °C	
Storage temperature			-20 °C ... +80 °C	
Degree of protection acc. to DIN 40050			IP20	
Mounting position			ventilation slots on top and bottom	
Mounting on DIN rail			snap-on mounting	
Wire size	solid wire		4 mm ² (10 AWG)	
	stranded wire		2.5 mm ² (14 AWG)	

¹⁾ Constant parameters

²⁾ Only -/RTD and -/TC: Single-function devices respond with LOW FAIL SAFE to input signal interruptions

Analog signal converters

CC-E/I, CC-E I_{AC}/ILPO

Technical data

Input circuits	CC-E/I		CC-E I _{AC} /ILPO
	J-G-H		C-D
	AC cur. meas.	DC cur. meas.	2 meas. ranges selectable
Input signal	0-5 A / 0-20 A	0-5 A / 0-20 A	0-1 A / 0-5 A / sinusoidal
Measuring frequency			50/60 Hz
Overload capacity of inputs	10 x I _{Nom.} for max. 1 s		10 x I _{Nom.} for max. 2 s
Gain adjustment range	± 5 % (univ. devices)		-
Offset adjustment range	± 5 % (univ. devices)		-
Input impedance / resistance	5A = 65 Ω	20 A =2.5 mΩ	5 mΩ
Output circuits	D-F Current	A-C Voltage	F-E passive current output in proportion to input current
Output signal	0-20 mA 4-20 mA	0-10 V	4-20 mA
Output burden / load	≤ 500 Ω	≥ 1.0 Ω	12 V DC - 150 Ω 24 V DC - 750 Ω 30 V DC - 1050 Ω
Accuracy	Factory setting		± 0,1 % of full-scale
	Repeat accuracy ¹⁾		± 2 % of full-scale
Offset adjustment range	-		± 5 %
Gain adjustment range	-		± 20 %
Temperature coefficient	± 500 ppm/°C		300 ppm/°C
Residual ripple	< 0,5 %		-
Response time	0,5 s		-
Transmission frequency	DC or 50/60 Hz		-
Response to circuit interruption	Low Fail Safe: Output voltage < 200 mA, output current < 400 μA		-
Supply circuits K - M	DC Versions	AC Versions	
Supply voltage	24 V DC	110-240 V AC 50/60 Hz	12-30 V DC
Supply voltage tolerance	-15 % ... + 15 %	-15 % ... + 10 %	-
Power consumption	typ 1.5 W	typ 1.5 VA	-
Indication of operational states			
Supply voltage	U: green LED		-
Isolation data			
Test voltage between all isolated circuits	2.5 kV AC		
Rated insulation voltage	-		250 V AC
General data			
Operating temperature	0 °C ... +60 °C		-20 °C ... +60 °C
Storage temperature	-20 °C ... +80 °C		-40 °C ... +80 °C
Degree of protection acc. to DIN 40050	IP20		
Mounting position	ventilation slots on top and bottom		
Mounting on DIN rail	snap-on mounting		
Wire size	solid wire	4 mm ² (10 AWG)	1x2.5 mm ² (14 AWG)
	stranded wire	2.5 mm ² (14 AWG)	

¹⁾ Constant parameters

Analog signal converters

CC-U/STD, CC-U/RTD, CC-U/TC

Technical data

Input circuits J-G-H	CC-U/STD			CC-U/RTD	CC-U/TC
	Current	Voltage	Potentiometer	temperature sensors	Thermocouples (IEC 584-1 and 2)
Input signals	0-20 mA 4-20 mA 10-50 mA 0-1 mA	0-100 mV 0-1 V 0-5 V 1-5 V 0-10 V 2-10 V ± 10 V	470 Ω ... 1 MΩ	PT10, PT100, PT1000 (IEL 751 and JICC 1604)	TC.K TC.J TC.T TC.S TC.E TC.N TC.R TC.B
Limitation of input signals	± 55 mA	± 11 V	10 kΩ	-	-
Temperature range	-	-	-	Max. Temperature adjustable: 6-60 °C for PT1000 50-500 °C for PT100 500-850 °C for PT 10	refer to temperature specs. of individual thermocouples
Influence of line resistance	-	-	-	0.015 °C/Ω	< 0.01 % / 100 Ω
Gain adjustment range (univ. devices)	0.9- 110 mA	45 mV - 22 V	-	-	-
Offset adjustment range (univ. devices)	-137.5 % ... +62.5 %			± 5 %	± 10 %
Input impedance	for different ranges			-	-
without detection of input signal interruption	51 Ω	6 MΩ	3 GΩ	-	-
with detection of input signal interruption	51 Ω	3.5 MΩ	9.5 GΩ	-	-
Suppression at 50 Hz	-	-	-	-	> 40 dB
Common-mode rejection	-	-	-	120 dB	105 dB
Output circuit D-F A-C	Current		Voltage		
Output signals	0-20 mA, 4-20 mA		0-5 V, 1-5 V, 0-10 V, 2-10 V, ±10 V		
Output burden	≤ 600 Ω		≥ 4,7 KΩ		
Accuracy	±0,1 % of full-scale		±0,2 % of full-scale		±0,1 % of full-scale
Temperature coefficient	±150 ppm/°C		±250 ppm/°C		±200 ppm/°C at min offset ±400 ppm/°C at max. offset
Residual ripple	-	-	-	< 0,15 %	-
Response time	200 μs		10 ms		200 ms
Transmission frequency	1 kHz		80 Hz		2 Hz (bis -3 dB)
Supply circuits K - M					
Supply voltage	24-48 V DC / 24 V AC		110-240 V AC / 100-300 V DC		
Supply voltage tolerance	DC: -15 % ... + 15 %		AC: -15 % ... + 10 %		
Power consumption	2 W at 24 V DC		4.5 VA at 230 V AC		
Indication of operational states					
Supply voltage	U: green LED				
Isolation data					
Test voltage between all isolated circuits	1.5 kV				
Electromagnetic compatibility	acc. to EN 61000-6-4, EN 61000-6-2				
General data					
Operating temperature	-20 °C ... +60 °C				
Storage temperature	-40 °C ... +80 °C				
Mounting position	any				
Mounting on DIN rail	snap-on mounting / screw mounting with adapter				
Wire size	solid wire	plug-connector with screw terminals 1.5 mm ² (16 AWG)			
	stranded wire	plug-connector with screw terminals 2.5 mm ² (14 AWG)			

Analog signal converters

CC-U/I, CC-U/V

Technical data

Input circuits J-G-H	CC-U/I any current signals, RMS measurement	CC-U/V any voltage signals, RMS measurement	
Measuring signals	0-1 A 0-5 A	0-100 V, 0-200 V 0-300 V, 0-400 V 0-500 V, 0-600 V	
Measuring frequency	0-600 Hz		
Overload capacity of inputs	10 x I _{Non.} for max. 2 s	-	
Gain adjustment range	±20 %		
Offset adjustment range	±15 %		
Input impedance / resistance	60 mΩ / 12 mΩ	> 800 kΩ	
Output circuits D-F A-C			
	Current	Voltage	
Output signal	0-20 mA, 4-20 mA	0-5 V, 1-5 V, 0-10 V, 2-10 V, ±10 V	
Output load	≤ 600 Ω	≤ 4,7 kΩ	
Accuracy	0,5 %		
Temperature coefficient	±250 ppm/°C max.	±300 ppm/°C max.	
Residual ripple	< 0.15 %		
Response time	150 ms		
Supply circuit K - M			
Supply voltage	24-48 V DC / 24 V AC	110-240 V AC / 100-300 V DC	
Supply voltage tolerance	DC: -15 % ... + 15 %	AC: -15 % ... + 10 %	
Power consumption	2 W at 24 V DC	4.5 VA at 230 V AC	
Indication of operational states			
Supply voltage	U: green LED		
Isolation data			
Test voltage between all isolated circuits	1.5 kV		
Electromagnetic compatibility	acc. to EN 61000-6-4, EN 61000-6-2		
General data			
Operating temperature	-20 °C ... +60 °C		
Storage temperature	-40 °C ... +80 °C		
Mounting position	any		
Mounting on DIN rail (EN 50022)	snap-on mounting / screw mounting with adapter		
Wire size	solid wire	plug-connector with screw terminals 1.5 mm ² (16 AWG)	
	stranded wire	plug-connector with screw terminals 2.5 mm ² (14 AWG)	

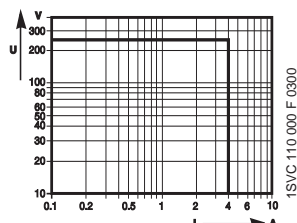
Analog signal converters with relay output CC-U/STDR, CC-U/RTDR, CC-U/TCR

Technical data

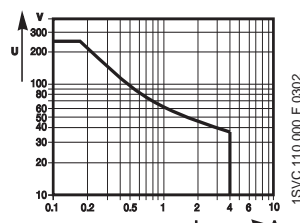
Input circuits J - H	CC-U/STDR		CC-U/RTDR	CC-U/TCR
	Current	Voltage	Temperature sensors	Thermocouples (IEC 584-1 and -2)
Measuring signal / input range	0-20 / 4-20 mA	0-1 V / 1-5 V / 0-10 / ±10 V	PT100	TC.K, TC.J, TC.T, TC.S
Input burden	50 Ω	> 5 mΩ		
Adjustable threshold	2-100 % of selected input range			
Adjustable hysteresis	5-50 % of threshold			
Accuracy	0.5 %			
Temperature coefficient	±300 ppm/°C			
Output circuits E - D - F, B - C - A			Relay, 2 c/o contacts	
Rated switching voltage	250 V AC			
Rated switching current	AC-12 (resistive) 230 V		4 A	
	AC-15 (inductive) 230 V		3 A	
	DC-12 (resistive) 24 V		4 A	
	DC-13 (inductive) 24V		2 A	
Min. switching voltage	12 V			
Min. switching current	10 mA			
min. switching power	0.6 VA (W)			
Response time	10 ms			
Max. lifetime	mechanical		30 x 10 ⁶ switching cycles	
	electrical (AC-12, 230 V, 4 A)		0.1 Mio. switching cycles	
Supply circuits K - M				
Supply voltage	24-48 V DC / 24 V AC		110-240 V AC / 100-300 V DC	
Supply voltage tolerance	DC: -15 %...+15 %		AC: -15 % ... +10 %	
Power consumption	2 W at 24 V DC		4.5 VA at 230 V AC	
Indication of operational states				
Supply voltage	U: green LED			
1st output relay energized	R1: yellow LED			
2nd output relay energized	R2: yellow LED			
Isolation data				
Insulation voltage between all isolated circuits	1.5 kV			
Electromagnetic compatibility	acc. to EN 61000-6-4, EN 61000-6-2			
General data				
Operating temperature	-20 °C ... +60 °C			
Storage temperature	-40 °C ... +80 °C			
Mounting position	any			
Mounting on DIN rail (EN 50 022)	snap-on mounting / screw mounting with adapter			
Wire	solid wire	plug-connector with screw terminals 1.5 mm ² (16 AWG)		
size	stranded wire	plug-connector with screw terminals 2.5 mm ² (14 AWG)		

Load limit curves

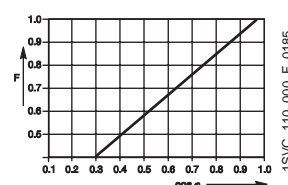
AC load (resistive)



DC load (resistive)



Derating curve



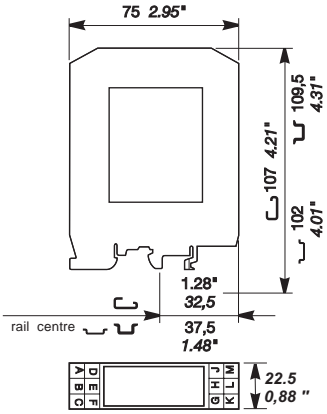
Analog signal converters

CC-E, CC-U

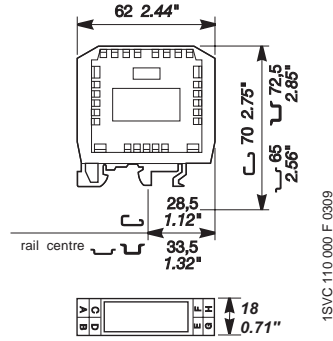
Dimensional drawings, Connecting terminals

Dimensions in mm

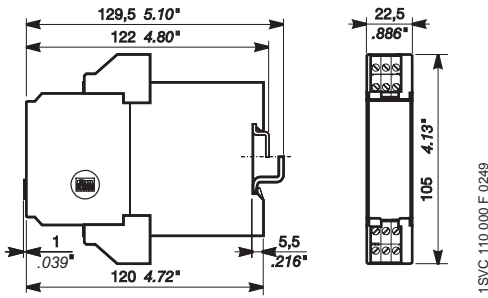
CC-E/x



CC-E I_{Ac}/ILPO

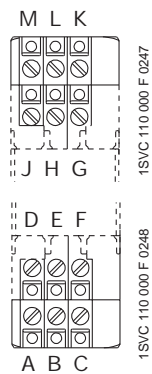


CC-U/x , CC-U/xR



Connecting terminals CC-U/x

Width 22.5 mm / .886 "



Notes

5

