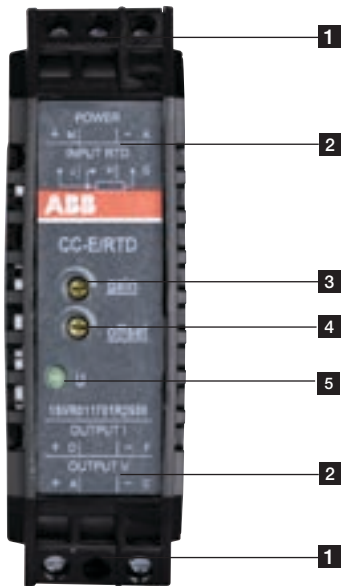


# Analog signal converters - CC-E range

## Benefits and advantages

4



- 1 Terminals M, K, J, H, G
- 2 Terminal explanation
- 3 Adjustment of gain
- 4 Adjustment of offset
- 5 Indication of operational states  
U - control supply voltage applied

### CC-E range

- 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

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

- 2 universally configurable devices (type CC-E/STD)
- 2x10 single-function devices
- "Plug and Work", no adjustment of single-function devices required

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

- 2 universally configurable devices (type CC-E/TC)
- 2x6 single-function devices
- "Plug and Work", no adjustment of single-function devices required
- Integrated cold-junction compensation

### CC-E I<sub>AC</sub>/ILPO measuring converter without auxiliary power for sinusoidal currents 0-1 A, 0-5 A, output 4-20 mA

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

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

- 2 universally configurable devices (type CC-E/RTD)
- 2x12 single-function devices
- "Plug and Work", no adjustment of single-function devices required
- Temperature signal converter for PT100 sensors
- 2- or 3-wire connection

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

- 2 universally configurable devices (type CC-E/I)
- 2x6 single-function devices
- "Plug and Work", no adjustment of single-function devices required

### Loop-powered current/current isolator without external power supply for analog current signals of 0-20 mA and 4-20 mA

- Electrical isolation between input and output
- Very low internal voltage drop  $\leq 2.5$  V
- Available with one or two independent channels
- Width only 18 mm (1 and 2 channels)

# Analog signal converters - CC-E range

## Ordering details - Standard signal converters



CC-E/I

2CDC 281 010 F0003



CC-E V/V

2CDC 281 001 F0003



CC-E I/I-2

2CDC 281 041 F0003

### Ordering details - Standard signal converters

Supply voltage range	Input signal	Output signal	Type	Order code	Price 1 pce	Weight (1 pce) kg (lb)
24 V DC	0-5 V, 0-10 V 0-20 mA, 4-20 mA	0-5 V, 0-10 V 0-20 mA, 4-20 mA	CC-E/STD <sup>1)</sup> 3)	1SVR011700R0000		0.088 (0.194)
	0-10 V	0-10 V	CC-E V/V	1SVR011710R2100		0.083 (0.183)
		0-20 mA	CC-E V/I	1SVR011711R1600		0.084 (0.185)
	0-20 mA	4-20 mA	CC-E V/I	1SVR011712R1700		0.084 (0.187)
		0-10 V	CC-E I/V	1SVR011713R1000		0.082 (0.181)
	4-20 mA	0-20 mA	CC-E I/I	1SVR011714R1100		0.084 (0.187)
		4-20 mA	CC-E I/I	1SVR011715R1200		0.084 (0.185)
	4-20 mA	0-10 V	CC-E I/V	1SVR011716R1300		0.084 (0.185)
		0-20 mA	CC-E I/I	1SVR011717R1400		0.084 (0.187)
	-10...+10 V	4-20 mA	CC-E I/I	1SVR011718R2500		0.084 (0.187)
		-10...+10 V	-10...+10 V	CC-E V/V	1SVR011719R2600	
	110-240 V AC	0-5 V, 0-10 V 0-20 mA, 4-20 mA	0-5 V, 0-10 V 0-20 mA, 4-20 mA	CC-E/STD <sup>3)</sup>	1SVR011705R2100	
0-10 V		0-10 V	CC-E V/V	1SVR011720R2300		0.096 (0.212)
		0-20 mA	CC-E V/I	1SVR011721R1000		0.087 (0.192)
0-20 mA		4-20 mA	CC-E V/I	1SVR011722R1100		0.091 (0.200)
		0-10 V	CC-E V/V	1SVR011723R1200		0.091 (0.200)
4-20 mA		0-20 mA	CC-E I/I	1SVR011724R1300		0.088 (0.194)
		4-20 mA	CC-E I/I	1SVR011725R1400		0.088 (0.194)
4-20 mA		0-10 V	CC-E V/V	1SVR011726R1500		0.096 (0.212)
		0-20 mA	CC-E I/I	1SVR011727R1600		0.087 (0.192)
-10...+10 V		4-20 mA	CC-E I/I	1SVR011728R2700		0.088 (0.194)
		-10...+10 V	-10...+10 V	CC-E V/V	1SVR011729R2000	
loop powered		0-20 mA, 4-20 mA	0-20 mA, 4-20 mA	CC-E I/I-1 <sup>2)</sup>	1SVR010200R1600	
	CC-E I/I-2 <sup>2)</sup>			1SVR010201R0300		0.044 (0.097)

<sup>1)</sup> 1604 Class I, Div.2 (universal device)

<sup>2)</sup> CC-E-I/I-1 has 1 channel, CC-E-I/I-1 has 2 channels

<sup>3)</sup> 3-way electrical isolation

<sup>4)</sup> with relay output

# Analog signal converters - CC-E range

## Ordering details - RTD converters



2CDC281 004 F0003

CC-E/RTD

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### Ordering details - RTD converters

Supply voltage range	Input signal	Output signal	Type	Order code	Price 1 pce	Weight (1 pce) kg (lb)	
24 V DC	refer to table	0-10 V, 0-20 mA, 4-20 mA	CC-E/RTD <sup>1)</sup>	1SVR011701R2500		0.091 (0.200)	
	PT100 0...100 °C	0-10 V	CC-E RTD/V	1SVR011730R2500		0.084 (0.185)	
		0-20 mA	CC-E RTD/I	1SVR011731R1200		0.086 (0.190)	
		4-20 mA	CC-E RTD/I	1SVR011732R1300			
	PT100 -50...+50 °C	0-10 V	CC-E RTD/V	1SVR011733R1400		0.083 (0.183)	
		0-20 mA	CC-E RTD/I	1SVR011734R1500		0.084 (0.185)	
		4-20 mA	CC-E RTD/I	1SVR011735R1600		0.084 (0.187)	
	PT100 0...300 °C	0-10 V	CC-E RTD/V	1SVR011736R1700		0.084 (0.185)	
		0-20 mA	CC-E RTD/I	1SVR011737R1000		0.084 (0.187)	
		4-20 mA	CC-E RTD/I	1SVR011738R2100		0.101	
	PT100 -50...+250 °C	0-10 V	CC-E RTD/V	1SVR011739R2200		0.084 (0.185)	
		0-20 mA	CC-E RTD/I	1SVR011740R0700		0.084 (0.187)	
		4-20 mA	CC-E RTD/I	1SVR011741R2400			
	110-240 V AC	refer to table	0-10 V, 0-20 mA, 4-20 mA	CC-E/RTD	1SVR011706R2200		0.093 (0.205)
		PT100 0...100 °C	0-10 V	CC-E RTD/V	1SVR011788R2400		0.086 (0.190)
			0-20 mA	CC-E RTD/I	1SVR011789R2500		0.088 (0.194)
			4-20 mA	CC-E RTD/I	1SVR011790R2200		0.089 (0.196)
		PT100 -50...+50 °C	0-10 V	CC-E RTD/V	1SVR011791R1700		0.087 (0.192)
0-20 mA			CC-E RTD/I	1SVR011792R1000		0.089 (0.196)	
4-20 mA			CC-E RTD/I	1SVR011793R1100			
PT100 0...300 °C		0-10 V	CC-E RTD/V	1SVR011794R1200		0.087 (0.192)	
		0-20 mA	CC-E RTD/I	1SVR011795R1300		0.089 (0.196)	
		4-20 mA	CC-E RTD/I	1SVR011796R1400			
PT100 -50...+250 °C		0-10 V	CC-E RTD/V	1SVR011797R1500		0.086 (0.190)	
		0-20 mA	CC-E RTD/I	1SVR011798R2600		0.089 (0.196)	
		4-20 mA	CC-E RTD/I	1SVR011799R2700		0.088 (0.194)	

<sup>1)</sup> 1604 Class I, Div.2 (universal device)

<sup>2)</sup> CC-E-I/I-1 has 1 channel, CC-E-I/I-1 has 2 channels

<sup>4)</sup> with relay output

# Analog signal converters - CC-E range

## Ordering details - Thermocouple converters



CC-E TC

2CDC 281 007 F0003

### Ordering details - Thermocouple Converters

Supply voltage range	Input signal	Output signal	Type	Order code	Price 1 pce	Weight (1 pce) kg (lb)	
24 V DC	thermocouple types J and K	0-10 V, 0-20 mA, 4-20 mA	CC-E/TC <sup>4)</sup>	1SVR011702R2600		0.089 (0.196)	
		0-10 V	CC-E TC/V	1SVR011750R0100		0.087 (0.192)	
	type J 0...600 °C	0-20 mA	CC-E TC/I	1SVR011751R2600		0.084 (0.187)	
		4-20 mA	CC-E TC/I	1SVR011752R2700		0.102	
	type K 0...1000 °C	0-10 V	CC-E TC/V	1SVR011753R2000		0.084 (0.185)	
		0-20 mA	CC-E TC/I	1SVR011754R2100		0.086 (0.190)	
		4-20 mA	CC-E TC/I	1SVR011755R2200		0.088 (0.194)	
		0-10 V, 0-20 mA, 4-20 mA	CC-E/TC	1SVR011707R2300		0.084 (0.187)	
	110-240 V AC	thermocouple types J and K	0-10 V	CC-E TC/V	1SVR011760R0300		0.088 (0.194)
			0-20 mA	CC-E TC/I	1SVR011761R2000		0.1 (0.220)
type J 0...600 °C		4-20 mA	CC-E TC/I	1SVR011762R2100		0.086 (0.190)	
		0-10 V	CC-E TC/V	1SVR011763R2200		0.088 (0.194)	
type K 0...1000 °C		0-20 mA	CC-E TC/I	1SVR011764R2300		0.086 (0.190)	
		4-20 mA	CC-E TC/I	1SVR011765R2400		0.088 (0.194)	

<sup>4)</sup> with relay output

# Analog signal converters - CC-E range

## Ordering details - Measuring converters



CC-E I<sub>Ac</sub>/ILPO

2CDC 281 018 F0004

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### Ordering details - Measuring Converters

Supply voltage range	Input signal	Output signal	Type	Order code	Price 1 pce	Weight (1 pce) kg (lb)
24 V DC	0-5 A, 0-20 A, AC/DC	0-10 V, 0-20 mA, 4-20 mA	CC-E/I <sup>(5)</sup>	1SVR011703R2700		0.096 (0.212)
	0-5 A, 0-20 A, AC	0-10 V	CC-E I <sub>Ac</sub> /V <sup>(5)</sup>	1SVR011770R0500		0.090 (0.198)
		0-20 mA	CC-E I <sub>Ac</sub> /I <sup>(5)</sup>	1SVR011771R2200		0.092 (0.203)
		4-20 mA	CC-E I <sub>Ac</sub> /I <sup>(5)</sup>	1SVR011772R2300		0.092 (0.207)
	0-5 A, 0-20 A, DC	0-10 V	CC-E I <sub>Dc</sub> /V <sup>(5)</sup>	1SVR011773R2400		0.092 (0.207)
		0-20 mA	CC-E I <sub>Dc</sub> /I <sup>(5)</sup>	1SVR011774R2500		0.091 (0.200)
		4-20 mA	CC-E I <sub>Dc</sub> /I <sup>(5)</sup>	1SVR011775R2600		0.093 (0.205)
	110-240 V AC	0-5 A, 0-20 A, AC/DC	0-10 V, 0-20 mA, 4-20 mA	CC-E/I <sup>(5)</sup>	1SVR011708R0400	
0-5 A, 0-20 A, AC		0-10 V	CC-E I <sub>Ac</sub> /V <sup>(5)</sup>	1SVR011780R1100		0.092 (0.203)
		0-20 mA	CC-E I <sub>Ac</sub> /I <sup>(5)</sup>	1SVR011781R0600		0.092 (0.207)
		4-20 mA	CC-E I <sub>Ac</sub> /I <sup>(5)</sup>	1SVR011782R0700		0.095 (0.209)
0-5 A, 0-20 A, DC		0-10 V	CC-E I <sub>Dc</sub> /V <sup>(5)</sup>	1SVR011783R0000		0.093 (0.205)
		0-20 mA	CC-E I <sub>Dc</sub> /I <sup>(5)</sup>	1SVR011784R0100		0.095 (0.209)
		4-20 mA	CC-E I <sub>Dc</sub> /I <sup>(5)</sup>	1SVR011785R1100		0.095 (0.209)
loop powered		0-1 A, 0-5 A, AC	4-20 mA	CC-E I <sub>Ac</sub> /ILPO <sup>(6)</sup>	1SVR010203R0500	

<sup>(5)</sup> with relay output

<sup>(6)</sup> for sinusoidal currents

# Analog signal converters - CC-E range

## DIP switch settings, Dimensional drawings

### CC-E/STD, CC-E x/x (universal devices)

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

2CDC 282 001 F0204

Legend	
■	ON
□	OFF

2CDC 282 002 F0204

### CC-E/RTD

Input	Output	Switch					
		1	2	3	4	5	6
0...100 °C	0...10 V				■	■	■
	0-20 mA				■	■	■
	4-20 mA				■	■	■
0...300 °C	0-10 V				■	■	■
	0-20 mA				■	■	■
	4-20 mA				■	■	■
0...500 °C	0-10 V				■	■	■
	0-20 mA				■	■	■
	4-20 mA				■	■	■
-50...+50 °C	0-10 V	■					
	0-20 mA	■					
	4-20 mA	■					
-50...+250 °C	0-10 V	■	■				
	0-20 mA	■	■				
	4-20 mA	■	■				
-50...+450 °C	0-10 V	■	■				
	0-20 mA	■	■				
	4-20 mA	■	■				
High fail safe		■	■	■	■	■	■
Low fail safe		■	■	■	■	■	■

2CDC 282 006 F0208

Legend	
■	ON
□	OFF
□	no influence

2CDC 282 003 F0204

### CC-E/TC

Input	Output	Switch					
		1	2	3	4	5	6
TC-J: 0...600 °C	0...10 V		■	■			■
	0...20 mA		■	■			■
	4...20 mA		■	■			■
TC-K: 0...1000 °C	0...10 V	■					■
	0...20 mA	■					■
	4...20 mA	■					■
High fail safe		■	■	■	■	■	■
Low fail safe		■	■	■	■	■	■

2CDC 282 007 F0208

Legend	
■	ON
□	OFF
□	no influence

2CDC 282 003 F0204

### CC-E/I

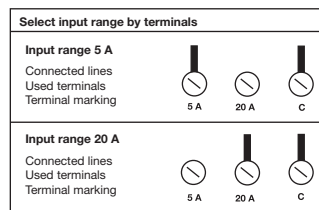
Input	Output	Switch					
		1	2	3	4	5	6
I - DC	0...10 V	■					
		■					
I - AC	0...20 mA	■					
		■					
I - DC	4...20 mA	■	■				
		■	■				
I - AC	4...20 mA	■	■				
		■	■				

2CDC 282 005 F0208

Legend	
■	ON
□	OFF

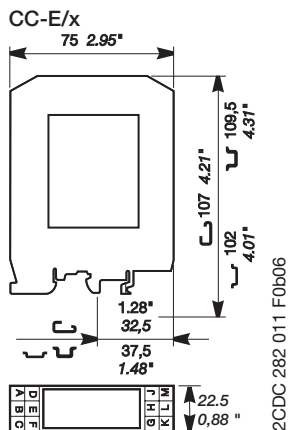
2CDC 282 002 F0204

### Input range selection - CC-E/I

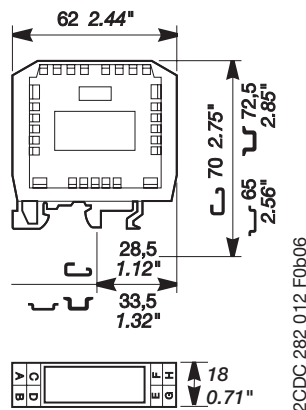


2CDC 282 011 F0204

### Dimensional drawings



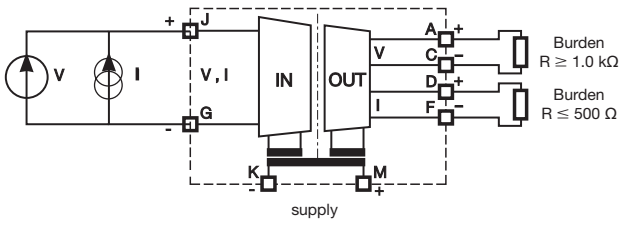
### CC-E I<sub>AC</sub>/ILPO, CC-E I/I



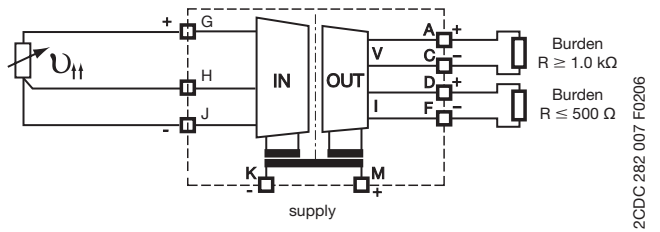
# Analogue signal converters - CC-E range

## Wiring instructions

### CC-E/STD, CC-E x/x (universal devices)

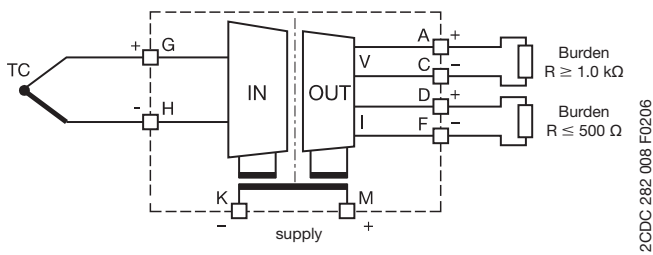


### CC-E/RTD

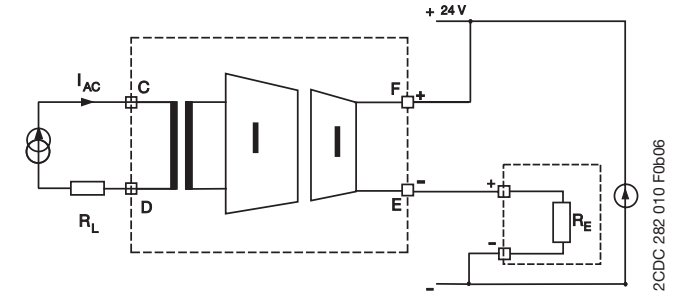


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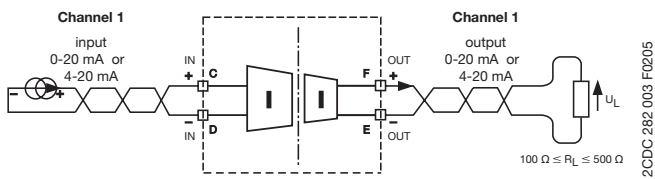
### CC-E/TC and CC-E/I



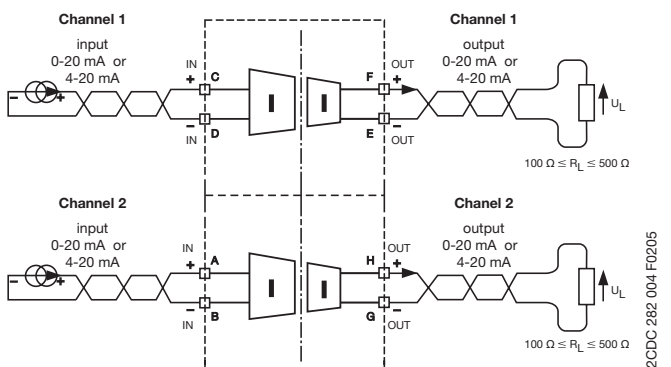
### CC-E I<sub>AC</sub>/ILPO



### CC-E I/I-1



### CC-E I/I-2



# Analog signal converters - CC-E range

## Technical data

Type	CC-E/STD / CC-E x/x	CC-E/RTD <sup>3)</sup>	CC-E/TC
<b>Input circuits - Analog inputs</b>	<b>J-G-H</b>	<b>Current</b>	<b>Voltage</b>
Input signal	Standard signals	PT100	TC.K, TC.J
Rated input range	0...20 mA / 4...20 mA	0...5 V / 0...10 V / -10...+10 V	-50...+500 °C
Limitation of input signals	+55 mA	± 11 V	
Influence of line resistance			< 0.01 %/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	
<b>Output circuits - Analog outputs</b>	<b>D-F, A-C</b>	<b>Current</b>	<b>Voltage</b>
Output signal	0-20 mA, 4-20 mA		0-5 V, 0-10 V
Output burden	≤ 500 Ω		≥ 1.0 kΩ
Accuracy <sup>1)</sup>	± 0.5 % of full-scale		
Residual ripple	< 0.5 %		
Response time	200 μs	10 ms	
Transmission frequency	2 kHz	80 Hz	2 Hz (up to -3 dB)
Reaction to input circuit interruption		High fail safe: Output voltage > 115 % of measuring range <sup>2)</sup> Low fail safe: Output voltage < -0.6 V, output current = 0 mA	
<b>Supply circuits</b>	<b>K-M</b>	<b>DC versions</b>	<b>AC versions</b>
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.
<b>Indication of operational states</b>	U: green LED		
<b>General data</b>	Ambient temperature range operation / storage		
	0...+60 °C / -20...+80 °C		
	Temperature coefficient		
	± 500 ppm/°C		
	Degree of protection (DIN 40050)		
	IP20		
	Mounting position		
	ventilation slots on top and bottom		
	Mounting		
	DIN rail (IEC/EN 60715), snap-on mounting		
<b>Electrical connection</b>	Wire size		
	rigid	0.2-4 mm <sup>2</sup> (24-12 AWG)	
	fine-strand with(out) wire end ferrule	0.2-2.5 mm <sup>2</sup> (24-14 AWG)	
	Stripping length		
	7 mm (0.28 inch)		
	Tightening torque		
	0.5 Nm (4.4 lb.in)		
<b>Electromagnetic compatibility</b>	Interference immunity		
	EN 61000-6-2		
	electrostatic discharge (ESD)	IEC/EN 61000-4-2	Level 3 (±6 kV / ±8 kV)
	electromagnetic field (HF radiation resistance)	IEC/EN 61000-4-3	10 V/m
	fast transients (Burst)	IEC/EN 61000-4-4	Level 3 (±2 kV / 5 kHz)
	powerful impulses (Surge)	IEC/EN 61000-4-5	±2 kV / ±1 kV
	HF line emission	IEC/EN 61000-4-6	10 V
	Interference emission	EN 61000-6-4	Class B
<b>Isolation data</b>	Test voltage between all isolated circuits		
	2.5 kV AC		
	Rated insulation voltage		
	-	-	-

<sup>1)</sup> Includes non-linearity and factory setting, influenced by supply voltage and output load.

<sup>2)</sup> Only -/RTD and -/TC: Single-function devices respond with Low fail safe to input signal interruptions.

<sup>3)</sup> When connecting a 2-wire sensor, the terminals J and H have to be jumpered.

Approvals on page 4/4.



# Analog signal converters - CC-E range

## Technical data

4

Type	CC-E I/I-1 / CC-E I/I-2	
<b>Input circuits - Analog inputs</b>		
<b>Current</b>		
Input current $I_{IN}$	0-20 mA, 4-20 mA	
Min. input current	< 100 $\mu$ A	
Max. input current	50 mA <sup>1)</sup> ( $V_{IN} < 18$ V)	
Input voltage $U_{IN}$	< 2.5 V + ( $I_{IN} \times R_I$ )	
Input voltage drop $U_I$	< 2.5 V (20 mA, $R_I = 0 \Omega$ )	
Max. input voltage	18 V <sup>1)</sup> ( $I_{IN} < 50$ mA)	
<b>Output circuits</b>		
Output current $I_{OUT}$	0-20 mA, 4-20 mA	
Output load $R_L$	0-500 $\Omega$	
Output voltage $U_{OUT}$	$I_{OUT} \times R_L$	
Residual ripple	< 20 mV <sub>pp</sub> (500 $\Omega$ , 20 mA)	
Response time (0-100 %)	< 15 ms (0-500 $\Omega$ , 20 mA), < 5 ms (500 $\Omega$ , 20 mA, 25 °C)	
Accuracy	$\leq 0.1$ % of full-scale (20 mA)	
Load influence (0-500 $\Omega$ )	$\leq \pm 0.05$ % / 100 $\Omega$ , $\leq -0.1$ % / 100 $\Omega$ (25 °C)	
<b>General data</b>		
Width of the enclosure	18 mm	
Weight	1 channel	approx. 0.037 kg (0.082 (0.181) lb)
	2 channel	approx. 0.044 (0.097) kg (0.097 lb)
Mounting position	any	
Degree of protection	enclosure / terminals	IP20 / IP20
Ambient temperature range	operation / storage	-25...+60 °C / -40...+85 °C
Temperature coefficient	< $\pm 50$ ppm / °C	
Mounting	DIN rail (IEC/EN 60715)	
<b>Electrical connection</b>		
Wire size	rigid	0.2-4 mm <sup>2</sup> (24-12 AWG)
	fine-strand with(out) wire end ferrule	0.2-2.5 mm <sup>2</sup> (24-14 AWG)
Stripping length	7 mm (0.28 inch)	
Tightening torque	0.5 Nm (4.4 lb.in)	
<b>Standards</b>		
Product standard	EN 50178	
Low Voltage Directive	2006/95/EC	
EMC Directive	2004/108/EC	
<b>Electromagnetic compatibility</b>		
Interference immunity	EN 61000-6-2	
electrostatic discharge (ESD)	EN 61000-4-2	Level 3 ( $\pm 6$ kV / $\pm 8$ kV)
electromagnetic field (HF radiation resistance)	EN 61000-4-3	10 V/m
fast transients (Burst)	EN 61000-4-4	Level 3 ( $\pm 2$ kV / 5 kHz)
powerful impulses (Surge)	EN 61000-4-5	$\pm 2$ kV / $\pm 1$ kV
HF line emission	EN 61000-4-6	10 V
magnetic fields	EN 61000-4-8	30 A/m
Interference emission	EN 61000-6-4	
Radiated noise	EN 55011	Class B
Operational reliability (EN 68-2-6)	4 g	
Mechanical resistance (EN 68-2-6)	10 g	
Environmental testing (IEC 68-2-30 Db)	24 h cycle, 55 °C, 93 % rel., 96 h	
<b>Isolation data</b>		
Insulation voltage input / output	500 V <sub>eff</sub> / 50 Hz	
Insulation voltage between channels	5 kV <sub>eff</sub> / 50 Hz (device with 2 channels)	
Pollution category	2	
Overvoltage category	II	

<sup>1)</sup> The input parameters have to be limited to the indicated maximum values.

Approvals on page 4/4.

# Analog signal converters - CC-E range

## Technical data

Type	CC-E/I J-G-H		CC-E I <sub>AC</sub> /ILPO C-D
	AC current	DC current	2 meas. ranges selectable
<b>Input circuits - Analog inputs</b>			
Rated input range	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	input range 1	10 x I <sub>Nom</sub> (50 A) for max. 1 s	10 x I <sub>Nom</sub> (50 A) for max. 2 s
	input range 2	10 x I <sub>Nom</sub> (200 A) for max. 1 s	10 x I <sub>Nom</sub> (200 A) for max. 2 s
Gain adjustment range	±5 % (universal devices)		-
Offset adjustment range	±5 % (universal devices)		-
Input impedance / resistance	5A : 65 mΩ	20 A : 2.5 mΩ	5 mΩ
<b>Output circuits - Analog outputs</b>			
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 <sup>1)</sup>	± 2 % of full-scale		-
Offset adjustment range	±5 % (universal device)		± 5 %
Gain adjustment range	±5 % (universal device)		± 20 %
Residual ripple	< 0.5 %		-
Response time	0.5 s		0.6 s
Transmission frequency	DC or 50/60 Hz		AC: 50/60 Hz
Reaction to input circuit interruption	Low fail safe: output voltage < 200 mA, output current < 400 μA		-
<b>Supply circuits</b>			
	<b>K-M</b>	<b>DC versions</b>	<b>AC versions</b>
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	-
<b>Indication of operational states</b>			
Supply voltage	U: green LED		-
<b>General data</b>			
Ambient temperature range operation / storage	0...+60 °C / -20...+80 °C		-20...+60 °C / -40...+80 °C
Temperature coefficient	± 500 ppm/°C		300 ppm/°C
Degree of protection (DIN 40050)	IP20		
Mounting position	ventilation slots on top and bottom		
Mounting	DIN rail (IEC/EN 60715), snap-on mounting		
<b>Electrical connection</b>			
Wire size	rigid	0.2-4 mm <sup>2</sup> (24-12 AWG)	
	fine-strand with(out) wire end ferrule	0.2-2.5 mm <sup>2</sup> (24-14 AWG)	
Stripping length	7 mm (0.28 inch)		
Tightening torque	0.5 Nm (4.4 lb.in)		
<b>Electromagnetic compatibility</b>			
Interference immunity	EN 61000-6-2		
electrostatic discharge (ESD)	IEC/EN 61000-4-2	Level 3 (±6 kV / ±8 kV)	
electromagnetic field (HF radiation resistance)	IEC/EN 61000-4-3	10 V/m	
fast transients (Burst)	IEC/EN 61000-4-4	Level 3 (±2 kV / 5 kH)	
powerful impulses (Surge)	IEC/EN 61000-4-5	±2 kV / ±1 kV	
HF line emission	IEC/EN 61000-4-6	10 V	
Interference emission	EN 61000-6-4	Class B	
<b>Isolation data</b>			
Test voltage (between all isolated circuits)	2.5 kV AC		
Rated insulation voltage	-		250 V AC

<sup>1)</sup> Includes non-linearity and factory setting, influenced by supply voltage and output load.

Approvals on page 4/4.