



- MSI

No

### CiR - Configuration in RUN

Reparameterization possible in RUN	Yes
Calibration possible in RUN	No

### Supply voltage

Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes

### Input current

Current consumption, max.	37 mA; without sensor supply
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### Encoder supply

24 V encoder supply	
• 24 V	Yes
• Short-circuit protection	Yes
• Output current, max.	20 mA; max. 50 mA per channel for a duration < 10 s

### Power loss

Power loss, typ.	0.85 W; Without encoder supply voltage
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### Address area

Address space per module	
• Address space per module, max.	8 byte; + 1 byte for QI information

### Analog inputs

Number of analog inputs	4; Differential inputs
permissible input voltage for voltage input (destruction limit), max.	30 V
permissible input current for current input (destruction limit), max.	50 mA
Cycle time (all channels), min.	Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels)

### Input ranges (rated values), voltages

• 0 to +10 V	Yes; 15 bit
• Input resistance (0 to 10 V)	120 kΩ
• 1 V to 5 V	Yes; 15 bit
• Input resistance (1 V to 5 V)	120 kΩ
• -10 V to +10 V	Yes; 16 bit incl. sign
• Input resistance (-10 V to +10 V)	120 kΩ
• -5 V to +5 V	Yes; 16 bit incl. sign
• Input resistance (-5 V to +5 V)	120 kΩ

### Input ranges (rated values), currents

• 0 to 20 mA	Yes; 15 bit
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<ul style="list-style-type: none"> <li>• Input resistance (0 to 20 mA)</li> <li>• 4 mA to 20 mA</li> <li>• Input resistance (4 mA to 20 mA)</li> </ul>	100 Ω; + approx. 0.7 V diode forward voltage Yes; 15 bit 100 Ω; + approx. 0.7 V diode forward voltage
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	1 000 m; 200 m for voltage measurement

### Analog value generation for the inputs

Measurement principle	integrating (Sigma-Delta)
<b>Integration and conversion time/resolution per channel</b>	
<ul style="list-style-type: none"> <li>• Resolution with overrange (bit including sign), max.</li> <li>• Integration time, parameterizable</li> <li>• Interference voltage suppression for interference frequency f1 in Hz</li> <li>• Conversion time (per channel)</li> </ul>	16 bit Yes 16.6 / 50 / 60 Hz 180 / 60 / 50 ms
<b>Smoothing of measured values</b>	
<ul style="list-style-type: none"> <li>• Number of levels</li> <li>• parameterizable</li> </ul>	4; None; 4/8/16 times Yes

### Encoder

<b>Connection of signal encoders</b>	
<ul style="list-style-type: none"> <li>• for voltage measurement</li> <li>• for current measurement as 2-wire transducer — Burden of 2-wire transmitter, max.</li> <li>• for current measurement as 4-wire transducer</li> </ul>	Yes Yes 650 Ω No

### Errors/accuracies

Linearity error (relative to full-scale), (+/-)	0.01 %
Temperature error (relative to full-scale), (+/-)	0.005 %/K
Crosstalk between the inputs, min.	50 dB
Repeat accuracy in steady state at 25 °C (relative to full-scale), (+/-)	0.05 %
<b>Operational error limit in overall temperature range</b>	
<ul style="list-style-type: none"> <li>• Voltage, relative to full-scale, (+/-)</li> <li>• Current, relative to full-scale, (+/-)</li> </ul>	0.5 % 0.5 %
<b>Basic error limit (operational limit at 25 °C)</b>	
<ul style="list-style-type: none"> <li>• Voltage, relative to full-scale, (+/-)</li> <li>• Current, relative to full-scale, (+/-)</li> </ul>	0.3 % 0.3 %
<b>Interference voltage suppression for <math>f = n \times (f_1 \pm 1 \%)</math>, <math>f_1</math> = interference frequency</b>	
<ul style="list-style-type: none"> <li>• Series mode interference (peak value of interference &lt; rated value of input range), min.</li> <li>• Common mode voltage, max.</li> <li>• Common mode interference, min.</li> </ul>	70 dB 10 V 90 dB

### Isochronous mode

Isochronous operation (application synchronized up to terminal)	No
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### Interrupts/diagnostics/status information

#### Alarms

• Diagnostic alarm	Yes
• Limit value alarm	No

#### Diagnostic messages

• Monitoring the supply voltage	Yes
• Wire-break	Yes; at 4 to 20 mA
• Short-circuit	Yes; with 1 to 5 V or 2-wire mode: Short-circuit of the encoder supply to ground or of an input to the encoder supply
• Group error	Yes
• Overflow/underflow	Yes

#### Diagnostics indication LED

• Monitoring of the supply voltage (PWR-LED)	Yes; Green LED
• Channel status display	Yes; Green LED
• for channel diagnostics	No
• for module diagnostics	Yes; Green/red LED

### Potential separation

#### Potential separation channels

• between the channels	Yes; channel group-specific between 2-wire current input group and voltage input group
• between the channels and backplane bus	Yes
• between the channels and the power supply of the electronics	Yes; only for voltage inputs

### Permissible potential difference

between different circuits	75 V DC/60 V AC (base isolation)
between the inputs (UCM)	10 V DC

### Isolation

Isolation tested with	707 V DC (type test)
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### Dimensions

Width	15 mm
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### Weights

Weight, approx.	31 g
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**last modified:** 14.05.2016