

2-CHANNEL TRANSMITTER PL C



- PL C / SIL 1
- IO-LINK AND 4...20 mA
- 2 LIMIT VALUES
- RESPONSE TIME 10 MS
- TÜV NORD CERTIFIED



IO-Link



Analog signal



IP00

KEY DATA

Property	Value	Property	Value
Safety level	PL c / SIL 1	Certificate	TÜV Nord 44 799 14098202
Channel 1	strain gauge full bridge	Channel 2	universal
Outputs	IO-Link and 4 ... 20 mA	Response time	max. 10 ms
Limit values	2, electrically switched	Switch load	30 VAC/VDC, 500 mA max.
Dimensions	21 x 76.95 x 4.2 mm	Order code	EOMF · maker ID IX

The two-channel transmitter with an integrated overload circuit of class PL c / SIL 1. The safety circuit has its own amplifier and runs parallel to the measuring chain; a semiconductor relay opens on an exceeded switching point, on an undervoltage of the bridge supply, on a cable break and on an undervoltage of the safety circuit itself. Three installation conditions and the unlocking of the limit values are in CONFORMITY — they have to be known before the enclosure is closed.



TECHNICAL DATA

INPUT

Channel 1	strain gauge full bridge, unit-less
Channel 2	universal, °C preset
Range, both channels	freely settable within -3200.0 ... +3200.0
Pt100 (1 x)	3-wire, -200 ... 800 °C
... sensor current	0.9 mA
Thermocouple type J	-210 ... 1200 °C
... type K	-200 ... 1372 °C
... type N	-200 ... 1300 °C
Bridge supply	3 V · min. 1 × 350 Ω, 2 × 700 Ω for two bridges
On request	other units, ranges and sensor types

OUTPUT AND PERFORMANCE

Interface	IO-Link, level 0 / 24 V
Current output	4 ... 20 mA, via input 1
Accuracy	max. 0.05 % of range + sensor error
Resolution	16 bit strain gauge / 24 bit universal
Filter	0.5 s strain gauge / 25 s temperature
Switch-on delay	< 5 s
Response time, measuring	20 ms
Response time, safety	max. 10 ms

POWER SUPPLY

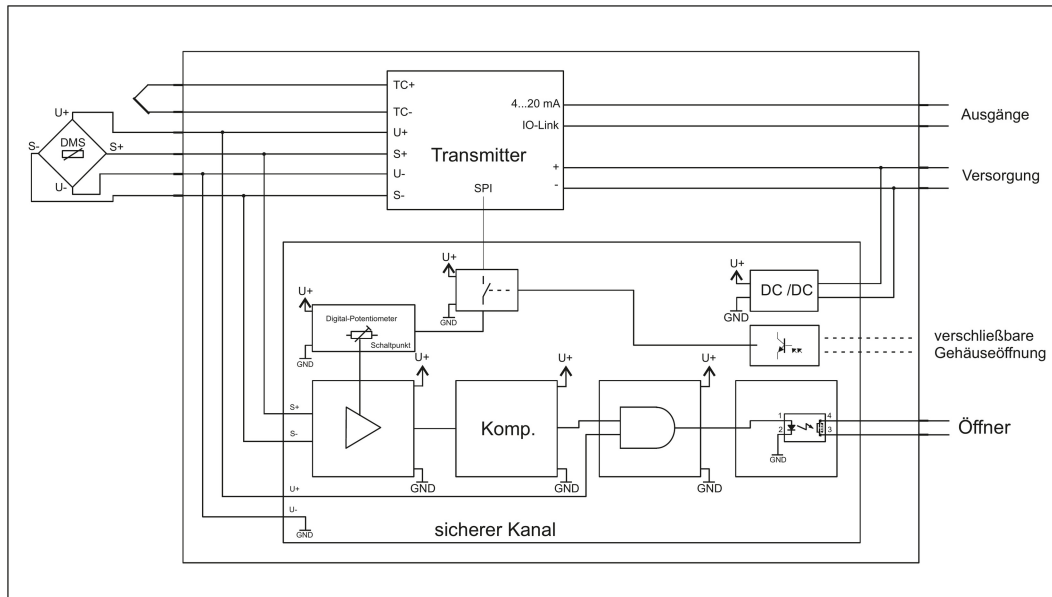
Voltage	24 VDC
Current, standard	< 30 mA
Switching current (SIO)	max. 100 mA
Total current	max. 130 mA
Reverse polarity	protected — no function, no damage

MECHANICS AND ENVIRONMENT

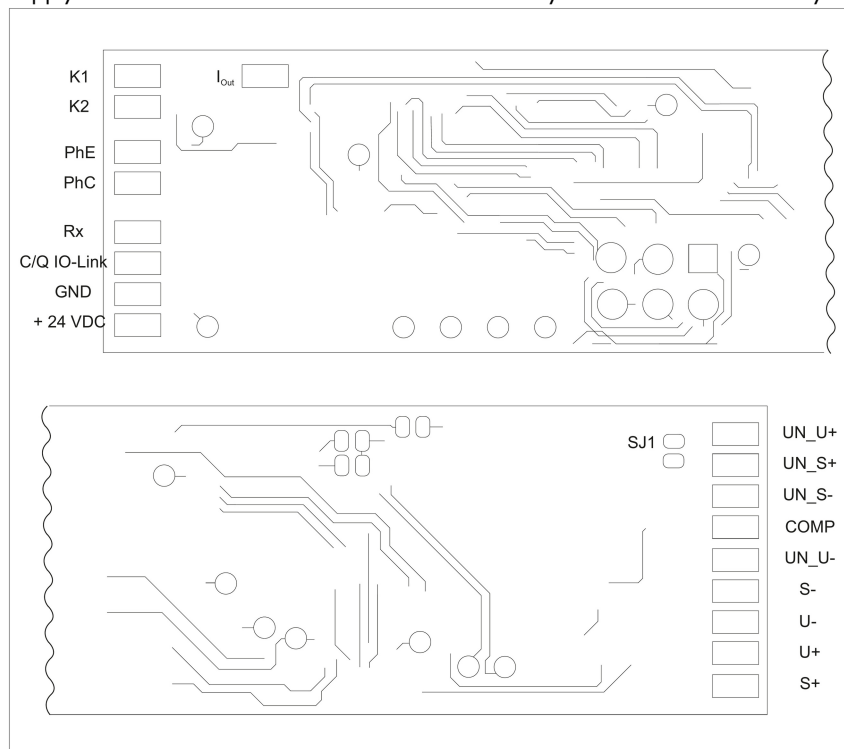
Dimensions	21 × 76.95 × 4.2 mm
Material	FR4, PBT
Protection	IP00 — min. IP54 required, see CONFORMITY
Connection	solder pads 2.7 × 1.5 mm
Mounting position	any
Weight	approx. 7.6 g
Operating temperature	-20 ... +80 °C
Storage temperature	-20 ... +85 °C
Humidity	harmless if installed condensation-proof
Maintenance	free of maintenance, but see CONFORMITY
EMC	EN 61000-6-2:2005
	EN 61000-6-4:2007



FUNCTION AND TERMINAL ASSIGNMENT



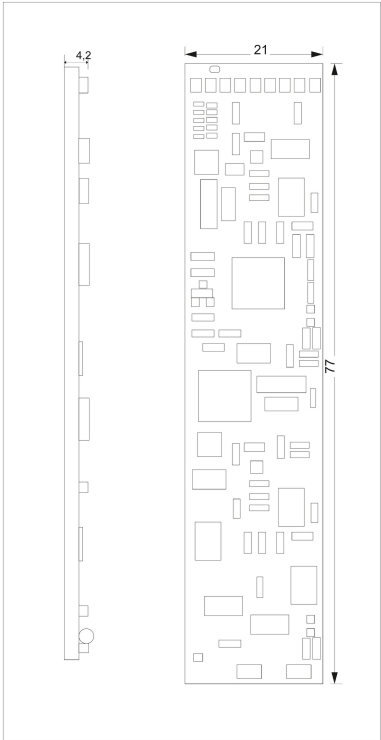
Block diagram. The safety circuit has its own amplifier and lies parallel to the measuring chain of the IO-Link transmitter; the input is biased at high impedance so that a cable break is detected. Two comparators — one for the measured signal against the switching point, one for the bridge supply — are ANDed and drive a semiconductor relay. The safe state is the relay open.



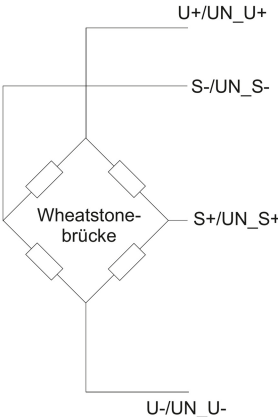
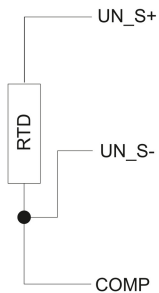
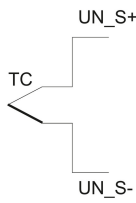
Solder pads. Left: the switching output K1 / K2, the phototransistor connections PhE / PhC, Rx, C-Q IO-Link, GND and +24 VDC, and the current output IOOut. Right: the two sensor inputs, UN_ for the universal channel including COMP and the strain gauge channel. SJ1 is a soldered jumper.



DIMENSIONS AND SENSOR CONNECTION



21 × 76.95 mm with a height of 4.2 mm; the drawing shows the length rounded to 77 mm.

Kanal 1 und Kanal 2		Kanal 2	
DMS		Widerstandsthermometer	Thermoelement
 Wheatstone- brücke		 RTD	 TC

Wiring examples: strain gauge bridge on channel 1 and channel 2, resistance thermometer and thermocouple on channel 2.



CONFORMITY AND SAFETY

Safety level	PL c / SIL 1
Certificate	TÜV Nord no. 44 799 14098202
Safety standards	EN ISO 13849-1:2015 · EN 61508:2010
EMC	EN 61000-6-2:2005 · EN 61000-6-4:2007
Limit 1 — switch-on	-7 ... +7 mV, settable over IO-Link
Limit 2 — switch-off	-5 ... +21 mV, settable over IO-Link
Switching type	electrical · accuracy $\pm 50 \mu\text{V}$ · response time max. 10 ms
Switch load	max. 30 VAC / VDC at max. 500 mA
Safe state	semiconductor relay open (high impedance)
The relay opens on	an exceeded switching point · an undervoltage or absence of the amplifier supply · a cable break on one or both signal lines · an undervoltage or absence of the safety circuit supply
Unlocking the limits	A phototransistor (SFH 309 or similar) must be connected and lit while the limits are set over IO-Link. Read the settings back afterwards, then darken the phototransistor — in normal operation it has to be covered so that unintended illumination is ruled out
Condition — enclosure	The board has to be installed to at least IP54 inside the sensor housing
Condition — vibration	The board has to be secured against vibration
Condition — test	The safety circuit has to be checked for correct function at regular intervals; recommended test interval two years
Check before start-up	The limit values have to be verified before commissioning
Explosion protection	None

ORDER INFORMATION

Accessories

- An IO-Link master is required for configuration and operation, and so is the matching IODD file from the IODD Finder. For setting the limit values a phototransistor is also required (SFH 309 or similar) — a standard component.

ORDER KEY

Field	Value	Meaning
Product	EOMF	octogon product code — 2-channel transmitter PL c, OEM board
Series ID	IX · 4 digits	series ID IX, followed by the four digits
Digit 1 — input	0 · 1	0 strain gauge and thermocouple · 1 strain gauge and Pt100 (channel 1 and 2)
Digit 2 — output	0	IO-Link and 4 ... 20 mA — the current output runs over input 1
Digit 3 — setup	0	to customer specification — please state it
Digit 4 — special	0 · 1	0 no · 1 yes (please specify)

Factory setting: thermocouple type K, unit °C, maximum range · strain gauge -2 ... +2 mV/V (equal to a range of 0 ... 3200.0) · current output -2 ... +2 mV/V (equal to 4 ... 20 mA) · limit 1 -2 mV · limit 2 +4 mV. The order code is formed from the product code and the four digits.

