Quality Management
ISO 9001:2008
▶ Voluntary participation in regular monitoring
DEKRA Certification
DEKRA certified

Data Sheet

049.4e

Isolating Transducer for Standard Signals, Self-Powered

TUP 2.0

WEIGEL

Application

The Isolating Transducer **TUP 2.0** (passive) accepts a standard DC current (0 ... 20 mA) and subsequently converts it to a galvanically isolated load independent DC current output.

The TUP 2.0 Transducer can also be supplied as **two-channel version** to galvanically isolate one or two standard DC current signals.

The signal can be transmitted over a considerable distance and fed into indicators, recorders and/or control systems. It is possible to connect more than one measuring or control device to the output circuit provided the total impedance does not exceed the rating.

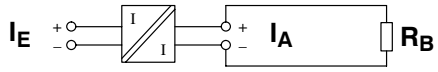
The output is **short-circuit proof** and **safe against idling**.

Operating Principle

Input and output current are galvanically isolated from each other not requiring an auxiliary power supply. The energy necessary is provided by the input circuit.

Consequently, the input resistance is dependent on the input current and the load resistance R_B connected.

Block Circuit Diagram



General Technical Data

case details	projecting case clamping to TH 35 DIN rail according to DIN EN 60 715
material of case	ABS/PC black self-extinguishing to UL rating 94 V–0
terminals	screw-terminals
wire cross-section	4 mm^2 max.
enclosure code	IP 40 case IP 20 terminals
dielectric test	3536 V active circuits to case, 2210 V measuring circuit to output

Note:
This isolating transducer is **not** suitable for use in electric power distribution systems!

class of protection	II
measurement category	CAT III
pollution level	2
dimensions WxHxL	22.5 mm x 80 mm x 115 mm
weight	approx. 0.12 kg

Inputs

input quantity	I_E	DC current
rated input current	I_{EN}	20 mA
measuring range		0 ... I_{EN}
modulation range		1.2 I_{EN}
overload limit continuously		2 I_{EN} max.
max. input voltage permissible		16 V
power consumption		2.4 V based on 20 mA

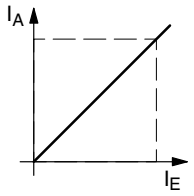
Outputs

current output

output current	I_A	load independent DC current
rated current	I_{AN}	0 ... 20 mA
load range	R_A	0 ... 500 Ω (rated load 250 Ω)
load error		≤ 0.1% based on 50% load change
residual ripple		≤ 30 mV_{ss}
idling voltage		≤ 25 V
response time		≤ 0.05 s based on $R_{A\ max}$

Input and output are galvanically isolated.

Conversion Characteristics



Input 0 ... 20 mA
Output 0 ... 20 mA

Accuracy at Reference Conditions

accuracy	±0.2% (for 0 ... I_{EN})
temperature coefficient	≤ 0.03%/K

valid for standard products and a life period of 1 year maximum.

reference conditions

load	250 Ω ±1%
ambient temperature	23°C±1K
warm-up	≥ 5 min

Environmental

climatic suitability	climatic class 3 to VDE/VDI 3540 sheet 2
operating temperature range	0 ... +55°C
storage temperature range	–25 ... +65°C
relative humidity	≤ 75% annual average, non-condensing

Rules and Standards

DIN EN 60 529	Enclosure codes by housings (IP-code)
DIN EN 60 688	Electrical measuring transducers converting AC quantities into analog or digital signals
DIN EN 60 715	Dimensions of low voltage switching devices: standardized DIN rails for mechanical fixation of electrical devices in switchgears
DIN EN 61 010-1	Safety requirements for electrical measuring, control and laboratory equipment Part 1: General requirements
DIN EN 61 326-1	Electrical equipment for measurement, control and laboratory use – EMC requirements Part 1: General requirements (IEC 61 000-4-3 evaluation criterion B) (DIN EN 55011 Class A)
VDE/VDI 3540 sheet 2	Reliability of measuring and control equipment (classification of climates for equipment and accessories)

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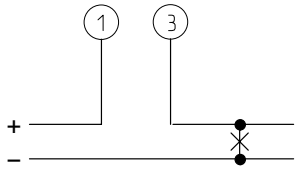
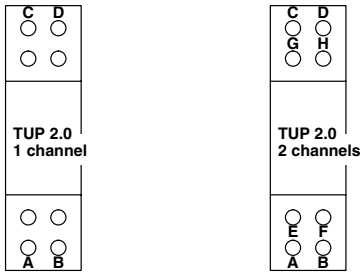
Connections



Terminals

front view

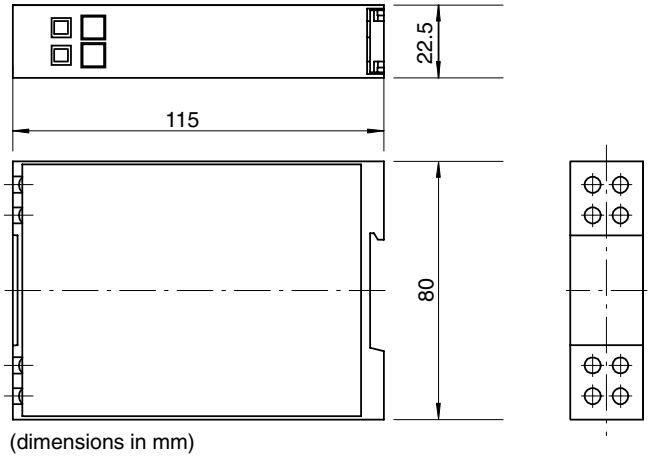


terminal		TUP 2.0		TUP 2.0
		1 channel		2 channels
A	1	I_E (+)	1	I_{E1} (+)
B	3	I_E (–)	3	I_{E1} (–)
C		I_A (+)		I_{A1} (+)
D		I_A (–)		I_{A1} (–)
E		–	1	I_{E2} (+)
F		–	3	I_{E2} (–)
G		–		I_{A2} (+)
H		–		I_{A2} (–)

I_E current input
I_A current output

Dimensions

side view front view



(dimensions in mm)

Ordering Guide

type	transducer
	physical quantity
TUP 2.0	isolating transducer for standard signals
	version
1	for 1 standard signal 0 ... 20 mA
2	for 2 standard signals 0 ... 20 mA
	input signal range
1	0 ... 20 mA
	output
5	0 ... 20 mA

ordering example

TUP 2.0	2 1 5

isolating transducer for 2 standard signals,
inputs 0 ... 20 mA, outputs 0 ... 20 mA

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