

Data Sheet

052.6e

Standard Signal Interface-Converter

MU-RS232/485



WEIGEL

Application

The standard signal interface converter **MU-RS 232/485** considers a standard signal (0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 2 ... 10 V, 0 ... 1 V) and issues the value parametrically to an interface RS 232 and RS 485.

The converter has been designed to match the transducer family without any problems.

When using the RS485 interface, up to 32 devices can be meshed and read out via a 2-wire line (of 1000 m maximum length).

The output signal can be indicated, recorded and/or used for controlling directly at test point or in measuring facilities located far away.

The converter requires an external auxiliary power supply.

A **PC software**, executable on Windows® 95/98/2000/XP, is available for control of functions and for read-out of measured values. The PC can be connected either via an integrated serial interface (RS 232) or to a RS 485 - interface if provided with the PC. For this purpose we are offering a RS 232 - 485 - converter **AP-RS 232/485** as a plugable connection-type to any commercial PC.

A PC with USB interface can be connected via the **USB – RS 232 converter with cable** (1.8 m).

The control is effected by the widespread machine language SCPI.

Operating Principle

The measuring variable is digitalized via an A to D converter edited and issued by a microprocessor.

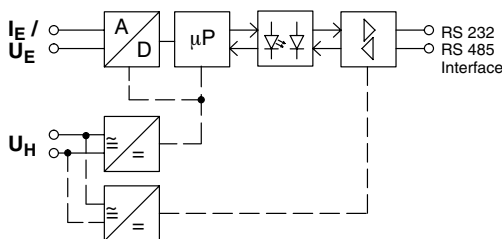
The interface is galvanically isolated from the measuring circuit (dielectric test 500 V) to avoid interferences.

Concerning the attachment-version, the interface input will be connected to the voltage output of the transducer. In this case, the voltage output should not be used any longer. However, the current output can be fully utilized.

Warning: In the attachment-version without galvanic isolation, the interfaces are located on the same potential as the transducer outputs.

The converter can be connected to the PC via a commercial RS 232 - cable (9 - contact 1:1 connection, socket - plug). A connection via 3 - contact cable is also possible, provided the signals DTR and DSR as well as RTS and CTS are shortened.

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, 500 V measuring circuit to output	
class of protection	II	
measurement category	CAT III	
pollution level	2	
dimension WxHxL	22.5 mm x 80 mm x 115 mm	
weight	approx. 0.12 kg	

Inputs

input quantity	I_E U_E	DC current or DC voltage	
rated input current	I_{EN}	20 mA	input resistance 50 Ω
rated input voltage	U_{EN}	10 V / 1 V ↯	1 MΩ / 100 kΩ
measuring range ↯		current input 0 ... I_{EN}	voltage input 0 ... U_{EN}
modulation range, admissible		$1.2 I_{EN}$	$1.2 U_{EN}$
overload limit			
continuously		$1.2 I_{EN}$	$1.2 U_{EN}$
1 s max.		$2 I_{EN}$	$2 U_{EN}$

Interfaces

type	RS 232 (V.24) and RS 485 (SCPI commands)
Baud-rate	19200 Baud
data bit	8
parity	none
stop bit	2

↯ for other ratings refer to **Extras**



Standard Signal Interface-Converter

SCPI Commands

The following SCPI commands are supported:

command	function
-aa-CONFigure:VOLTage:DC <z>,{<z>}	set upper and, if necessary, lower setpoint for switching output
-aa-CONFigure:CURRent:DC <z>,{<z>}	set upper and, if necessary, lower setpoint for switching output
-aa-CONFigure?	enquiry of configured values
-aa-DISPlay:TEXT <text>	create optional text following measured value
-aa-*IDN?	issue device attributes
-aa-*IDN <z>	set new device address
-aa-READ	issue a measured value
-aa-TRIGger:DElay <z>	output of periodic measured value (not possible in case several transducers are meshed)
-aa-Limit <z>,{<z>}	set upper and, if necessary, lower setpoint for signal output (optional)

aa=RS 485 - device address
z=number
{}=parameter will not have to be entered
<text>=free selectable text for the output after the measured value
Each command has to be terminated by <CR>.

Auxiliary Supply

auxiliary voltage U_{HN} 230 V AC (195 ... 253 V), 48 ... 62 Hz \blacklozenge
power consumption < 5.5 VA

Accuracy at Reference Conditions

accuracy $\pm 0.1\%$ and ± 1 count
(for 0 ... I_{EN} resp. 0 ... U_{EN})
temperature coefficient $\leq 0.03\%/K$
valid for standard products and a life period of 1 year maximum.

reference conditions

auxiliary voltage $U_{HN} \pm 5\%$
ambient temperature $23^\circ C \pm 1K$
warm - up ≥ 5 min

Environmental

climatic suitability climatic class 3 to VDE/VDI 3540 sheet 2
operating temperature range 0 ... $+55^\circ C$
storage temperature range $-25 \dots +65^\circ C$
relative humidity $\leq 75\%$ annual average, non - condensing

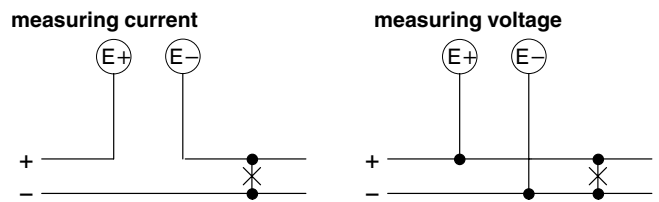
Rules and Standards

- 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)

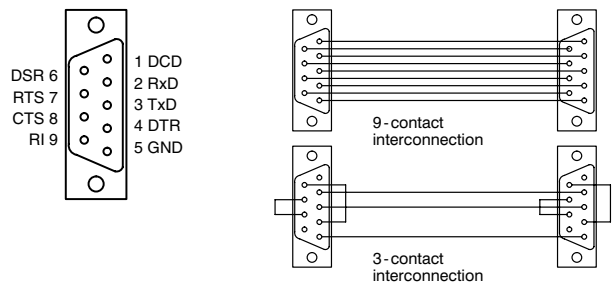
Extras

- output**
 - switching output 8 ... 40 V DC / 10 ... 30 mA
 - open collector insulation voltage 1 kV
 - switching output MOS FET for voltages up to 230 V AC/DC and currents up to 100 mA
 - insulation voltage 3 kV
- auxiliary voltage U_{HN}** 115 V AC (85 ... 126 V), 48 .. 62 Hz
24 V DC (18 ... 36 V)
- wide - range supply** 20 ... 90 V DC resp. 15 ... 65 V AC, 90 ... 357 V DC resp. 65 ... 253 V AC

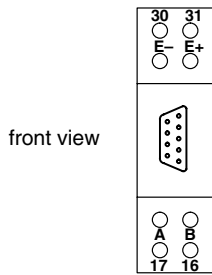
Connections



RS232-Interconnection



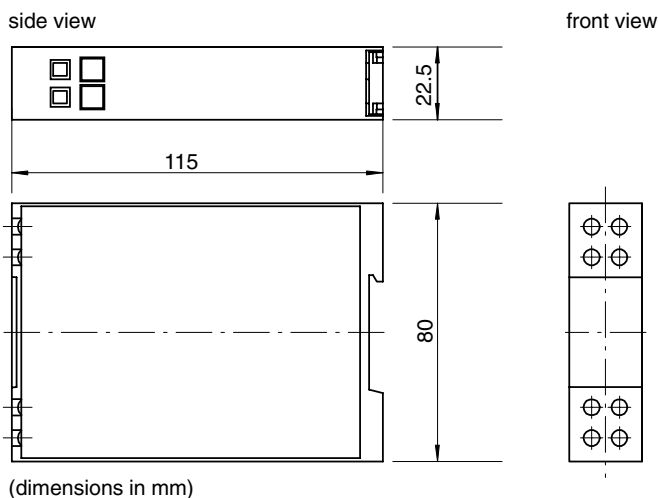
Terminal Board



terminal	MU - RS 232/485	MU - RS 232/485
	current input	voltage input
A	RS 485	RS 485
B	RS 485	RS 485
E+	$I_E (+)$	$U_E (+)$
E-	$I_E (-)$	$U_E (-)$
16	$U_H L1(+)$	$U_H L1(+)$
17	$U_H N (-)$	$U_H N (-)$
30	switching output (+) ↗	switching output (+) ↗
31	switching output (-) ↘	switching output (-) ↘
SUB-D	RS 232	RS 232

I_E current input
 U_E voltage input
 U_H input auxiliary voltage

Dimensions



Ordering Guide

type	standard signal interface - converter
MU - RS 232/485	
1	individual device with galvanic isolation
input measuring range	
1	0 ... 20 mA
2	0 ... 10 V
3	4 ... 20 mA
4	2 ... 10 V
5	0 ... 1 V
0	special measuring range **)
output	
1	switching output DC 24 V
2	switching output AC/DC 230 V
0	none *)
auxiliary supply	
H1	AC 230 V (195 ... 253 V), 48 ... 62 Hz *)
H2	AC 115 V (85 ... 126 V), 48 ... 62 Hz
H3	DC 24 V (18 ... 36 V)
H4	DC 20 ... 90 V / AC 15 ... 65 V
H5	DC 90 ... 357 V / AC 65 ... 253 V

*) standard
 **) on request, please clearly add the desired specifications.

ordering example

MU - RS 232/485 1 4 0 H1

standard signal interface converter, individual device,
 input signal 2 ... 10 V, no switching output,
 auxiliary voltage 230 V AC

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– specifications subject to change without notice; date of issue 1/11 –

