

Data Sheet

045.3e

Transducers for AC Current or AC Voltage without Auxiliary Supply

AU 2.0
VU 2.0

the New Generation



WEIGEL

Application

The transducer models **AU / VU 2.0** convert **RMS values of sinusoidal AC currents resp. AC voltages** to a load independent DC current output signal. This 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.

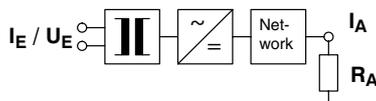
Input and output circuits are **galvanically isolated from each other**. The output circuit is **short-circuit proof** and **safe against idling**.

The transducers are designed to be mounted in machines/systems. Regulations for installation of electrical systems and equipment have to be observed.

Operating Principle

The AC input current/voltage is galvanically isolated, rectified and fed into a network which produces a load independent DC output current proportional to the input signal.

Block Circuit Diagram



General Data

case details	moulded case clamping to DIN-rail (to DIN EN 50 022 – 35)
material of case	Lexan 500 R 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	2.2 kV input to case, 3.7 kV output to case, measuring circuit to output
class of protection	II
excess voltage category	II
pollution level	2
dimensions WxHxL	22.5 mm x 80 mm x 115 mm
weight	approx. 0.35 kg

Inputs

input rating sinusoidal AC current (AU 2.0)
sinusoidal AC voltage (VU 2.0)

frequency range 48 ... 62 Hz

power consumption
voltage transformer < 3 VA
current transformer 5A < 4 VA
current transformer 1A < 2 VA

operating voltage 600 V max.

input	AU 2.0 rated current $I_{EN} \blacktriangleright$	VU 2.0 rated voltage $U_{EN} \blacktriangleright$
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1 A *)	57.7 V (100 V : $\sqrt{3}$)
1.2 A	63.5 V (110 V : $\sqrt{3}$)
5 A *)	100 V *)
6 A	110 V *)
	150 V
	250 V
	400 V
	500 V
	600 V

*) also for use on transformer

	AU 2.0	VU 2.0
measuring range	0 ... I_{EN}	0 ... U_{EN}
modulation range	1.2 I_{EN}	1.2 U_{EN}
overload limit	1.5 I_{EN} continuously 10 I_{EN} 1 s max.	1.2 U_{EN} continuously 2 U_{EN} 1 s max.

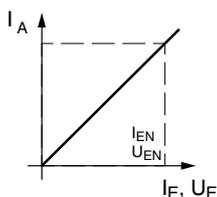
Outputs

current output

output current	I_A	load independent DC current
rated current	I_{AN}	0 ... 20 mA
load range	R_A	0 ... 500 Ω
load error		$\leq 0.4\%$ based on 50% load change
idling voltage		≤ 20 V
residual ripple	AU 2.0	VU 2.0
based on $R_{A \max}$.	3 mV _{eff} approx.	9 mV _{eff} approx.
response time	AU 2.0	VU 2.0
based on $R_{A \max}$.	≤ 300 ms	≤ 100 ms

Input and output circuits are galvanically isolated.

Conversion Characteristics

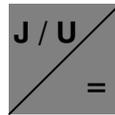


Input 0 ... I_{EN} / 0 ... U_{EN}
Output 0 ... 20 mA

Auxiliary Supply

not required

\blacktriangleright for other ratings refer to **Extras**



Transducers for AC Current or AC Voltage without Auxiliary Supply

Accuracy at Reference Conditions

accuracy class 0.5 ($\pm 0.5\%$ of end value) \blacktriangleright
 temperature coefficient $\leq 0.003\%/K$

reference conditions

frequency 50 ... 60 Hz
 wave form sine wave, distortion factor $\leq 0.1\%$
 load $0.5 R_{A \max} \pm 1\%$
 ambient temperature $23^\circ C \pm 1K$
 warm-up ≥ 1 min

Environmental

climatic suitability climatic class 3 to VDE/VDI 3540
 operating temperature range $-10 \dots +55^\circ C$
 storage temperature range $-25 \dots +65^\circ C$
 relative humidity $\leq 75\%$ annual average, non-condensing

Rules and Standards

DIN EN 50 022	mounting rails
DIN EN 50 082-2	electromagnetic compatibility (EMC), interference immunity
DIN EN 55 011	limits and measuring procedures for radio-interference of industrial, scientific and medical high-frequency equipment
DIN EN 60 688	electrical measuring transducers converting AC quantities into analog or digital signals
DIN EN 61 010	safety requirements for electrical measuring-, control- and laboratory equipment
DIN VDE 0470-1	enclosure codes through housings (IP-code)
VDE/VDI 3540 sheet 2	reliability of measuring and control equipment (classification of climates)

Extras

input ratings

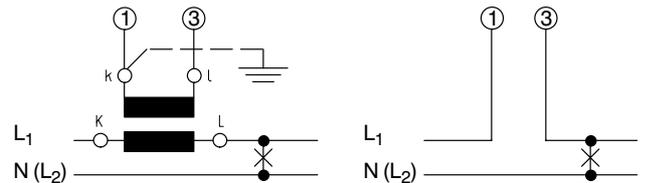
rated current I_{EN} deviating from standard inputs on request

rated voltage U_{EN} deviating from standard inputs on request

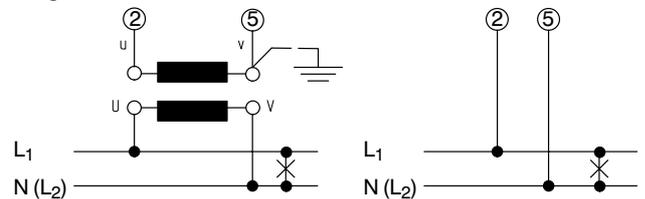
accuracy class 0.2 ($\pm 0.2\%$ of end value) on request

Connections

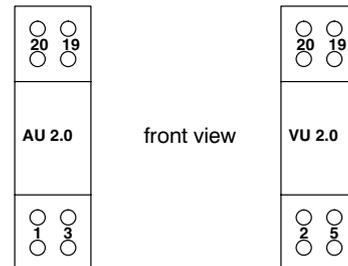
current



voltage



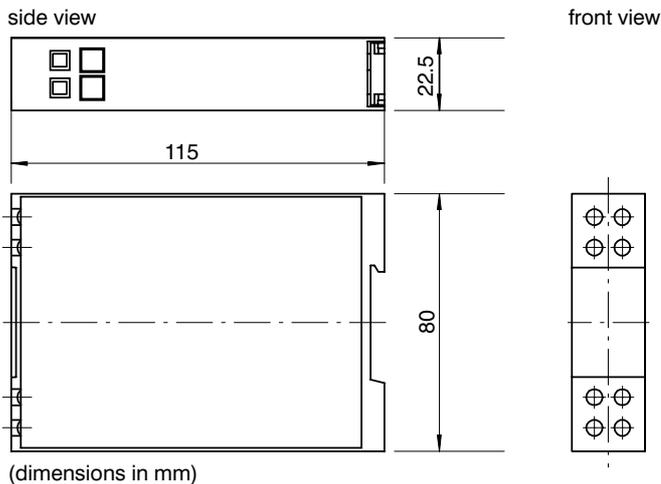
Terminals



terminal	AU 2.0	VU 2.0
1	I_E	–
2	–	U_E
3	I_E	–
5	–	U_E
19	$I_A (+)$	$I_A (+)$
20	$I_A (-)$	$I_A (-)$

I_E current input
 U_E voltage input
 The numbers on the terminals conform to details in connection diagrams (refer to DIN 43 807).
 I_A current output

Dimensions



Ordering Guide

type	transducers
	power current units
	without auxiliary voltage, class 0.5
AU 2.0	AC current
VU 2.0	AC voltage
	input AU 2.0
10	0 ... 1.0 A
12	0 ... 1.2 A
50	0 ... 5.0 A
60	0 ... 6.0 A
xx	special measuring range *)
	input VU 2.0
57,7	0 ... 57.7 V
63,5	0 ... 63.5 V
100	0 ... 100 V
110	0 ... 110 V
150	0 ... 150 V
250	0 ... 250 V
400	0 ... 400 V
500	0 ... 500 V
600	0 ... 600 V
xxx	special measuring range *)
	output
5	0 ... 20 mA
	auxiliary supply
H0	none (not required)

*) on request

ordering example

AU 2.0	50	5	H0
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transducer for AC current 0 ... 5 A, output 0 ... 20 mA,
without auxiliary voltage

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– specifications subject to change without notice; date of issue 08/05 –

