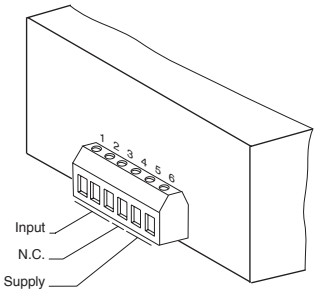
DESCRIPTION

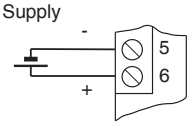
Digital panel meter with 3½-digit LED display.
The panel meter is used for monitoring and measurement of:
• AC/DC voltage.
• AC/DC current.
• Temperature with Pt-100/500/1000, Ni-100, thermistors and thermocouples.
• Standard process signals.
The actual input signal type and measuring range must be specified when the panel meter is ordered.
Splash proof front panel with integrated display in standardized housing (96 x 48 mm) with plug-in terminals at the rear of the panel meter.
Versions with galvanic isolation between input signal and power supply.

REAR PANEL/CONNECTIONS

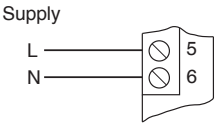


Supply voltage

DC

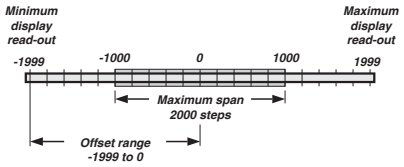


AC



CALIBRATION/CONFIGURATION

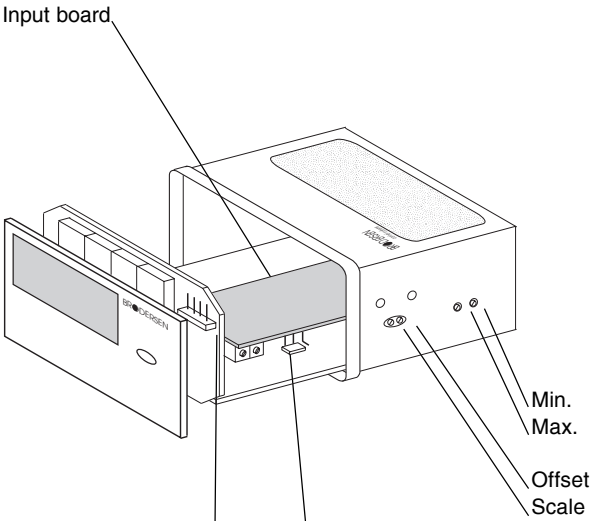
The panel meter for monitoring of standard process signals is fully user adjustable within in the scale limits -1999 to 1999 with a maximum span of 2000 steps, e.g. a scale from -1000 to 1000.



The offset is adjustable within the range -1999 to 0.

The decimal point position is selectable _.___ __.__ ___.__ ____

The input range is selectable 0-20mA/0-10V or 4-20mA/2-10V.



Decimal point position

Jumper	Display
●● ○ ○	1.999
○ ●● ○	19.99
○ ○ ●●	199.9
○ ○ ○ ○	1999

Input selection

Jumper	Input
●● ○	0-20mA/0-10V
○ ●●	4-20mA/2-10V

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VERSION/ORDERING CODES

Type: UDM-20 924 P1

Supply voltage:

24V AC	024
48V AC	048
110/120V AC	115
220/240V AC	230
24V DC	G24

Input:

Current:

DC:	DC [3]
0-19.99mA.	DC1
0-199.9mA.	DC2
0-10.00A.	DC3 [1]
0-100.0A.	DC4 [1]
AC:	AC [3]
0-19.99mA.	AC1
0-199.9mA.	AC2
0-5.00A.	AC3
0-200A.	AC4 [5]
0-500A.	AC5 [6]

Voltage:

DC:	DV [3]
0-19.99V.	DV1
0-199.9V.	DV2
0-500V.	DV3
AC:	AV [3]
0-19.99V.	AV1
0-199.9V.	AV2
0-500V.	AV3

RTDs:

Pt-100:	P [3]
-50.0-199.9°C.	P1
-50-850°C.	P3
Pt-500:	P [3]
-50.0-199.9°C.	P51
-50-850°C.	P53
Pt-1000:	P [3]
-50.0-199.9°C.	P11
-50-850°C.	P13
Ni-100:	N [3]
-50.0-199.9°C.	N1
Thermistor (KTY):	T [3]
-30.0-100.0°C.	T1

Thermocouples:

Fe-CuNi:	J [3]
-50-1200°C.	J1 [4]
NiCr-Ni:	K [3]
-50-1350°C.	K1 [4]
PtRh-Pt 10%:	S [3]
-50-1750°C.	S1 [4]
PtRh-Pt 13%:	R [3]
-50-1750°C.	R1 [4]

Standard process signals U: [3]

0-20mA/4-20mA DC and 0-10V/2-10V DC	U1

TECHNICAL DATA

Temperature drift: Max. 0.01% per °C.

Display: 3½ -digit LED-type (-1999 to 1999).
Digit height: 14 mm.

Scale: The scale is adjusted to the actual measuring range listed in the ordering key, except U1 version with user adjustable scale (-1999 to 1999, max. 2000 steps).

Decimal point: Selectable _.__ __.__ __.__ __.__

Terminals: 1.5 mm² plug-in screw terminals.

Supply voltage: 24V DC (19.2-28.8V),
24V AC (19.2-28.8),
48V AC (38.4-57.6),
110/120V AC (88-132V),
220/240V AC (176-264V).

Mains frequency: 45-66Hz.

Consumption: 2VA.

Protection:
Front: IP54 (IP65 on request).
Rear: IP20.

Ambient temperature: -10-55°C.

Isolation:
AC supply voltage versions: 4kV AC according to EN 60950 class II.
12, 24, 48 V d.c: 500V.

Dimensions: According to DIN 43700.
Front: 96 x 48 mm.
Cut-out: 91 x 43 mm.
Depth: 88 mm + frame 7 mm + terminals 10 mm.

Housing:
Front: Plastic.
House: Self-extinguishing ABS.

Weight: Approx. 250-370 g.

NOTES/REMARKS

1) With external shunt (60mV voltage drop) type AAS-010 (0-10.0 A DC) or AAS-100 (0-100 A DC).
3) Special range. Please specify input and scale.
4) The specified accuracy is valid within the subranges:
J1: 0 -1100 °C. S1: 150 -1550 °C,
K1: 0 -1150 °C. R1: 150 -1550 °C.
5) With external current transformer type AAT-200.1 (I_1/I_2=200A/1A).
6) With external current transformer type AAT-500.1 (I_1/I_2=500A/1A).

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AC/DC VOLTAGE

DESCRIPTION

Input for direct measurement of AC or DC voltages up to 500V. The AC input is equipped with a full wave rectifier for accurate AC measurement.
The scale of the panel meter is adjusted to the actual measuring range.

Typical applications:
Monitoring systems (over/undervoltage).
Generator monitoring systems.
Batterry charge monitor.
Battery monitoring in power back-up systems.

MEASURING RANGES

AC	DC
0-19.99V	0-19.99V
0-199.9V	0-199.9V
0-500V	0-500V

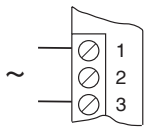
Other ranges are available on request.

Input impedance:
AC: 1kOhm/V.
DC: 1MOhm (>10V).

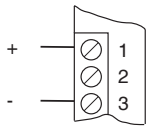
Measuring accuracy:
AC: 0.3% of full scale ± 1 digit.
DC: 0.1% of full scale ± 1 digit.

WIRING DIAGRAMS

AC



DC



AC/DC CURRENT

DESCRIPTION

Input for direct measurement of AC or DC current up to 200mA DC or 5A AC The measuring range is easily extended by adapting an external shunt or current transformer.
The AC input is equipped with a full wave rectifier for accurate AC measurement.
The scale of the panel meter is adjusted to the actual measuring range.

Typical applications:
General monitoring applications.
Monitoring/protection of motors.
Battery charge monitor.

MEASURING RANGES

AC		DC	
0-19.99mA		0-19.99mA	
0-199.9mA		0-199.9mA	
0-5.00A			
0-200A 0-500A	with external current transformer (1A sec.)	0-10.00A 0-100.0A	with external shunt (60mV voltage drop)

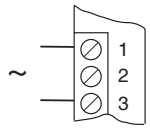
Other ranges are available on request.

Input impedance: 1V
I max.
60mV with shunt.
I max

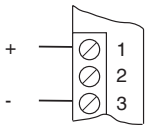
Measuring accuracy:
AC: 0.3% of full scale ± 1 digit.
DC: 0.1% of full scale ± 1 digit.

WIRING DIAGRAMS

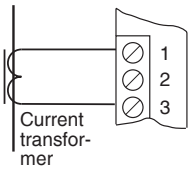
AC



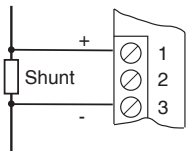
DC



AC with current transformer



DC with shunt



TEMPERATURE

DESCRIPTION

Input for all types of temperature sensors, both thermocouples and resistor types, makes the UDM-20 suitable for most temperature moni-toring applications.
The scale of the panel meter is adjusted to the actual measuring range.

Typical applications:
General temperature monitoring.

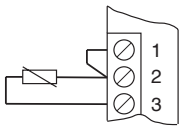
MEASURING RANGES

RTDs/Thermistors			
Pt-100/500/1000	Ni-100	Thermistor (KTY)	
-50.0-199.9°C -50-850°C	-50.0-199.9°C	30.0-100.0°C	
Thermocouples			
Fe-CuNi	NiCr-Ni	PtRh-Pt 10%	PtRh-Pt 13%
-50-1200°C-	50-1350°C	-50 -1750°C	-50-1750°C

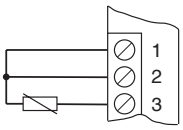
Measuring accuracy:
RTD/thermistor: 0.1% of full scale ±1 digit.
Thermocouples: 1% of full scale ±1 digit [4].

WIRING DIAGRAMS

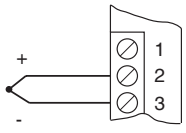
RTD/Thermistor (2-wire)



RTD/Thermistor (3-wire)



Thermocouple



STANDARD PROCESS SIGNAL

DESCRIPTION

The scaling facilities of the UDM-20 makes it ideal as a monitor device for normal standard process signals, e.g. 4-20mA.
Any output from a transmitter can be scaled to engineering units and a unit label can be inserted on front of the panel meter. A sheet with common units is enclosed with the panel meter.

Typical applications:
General process instrumentation.
Signal monitor with read-out in engineering units.

MEASURING RANGES

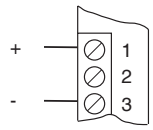
AC
0-20mA/4-20mA and 0-10V/2-10V. The actual input signal is selected via a jumper on the input board of the panel meter.

Measuring accuracy: 0.1% of full scale ± 1 digit.

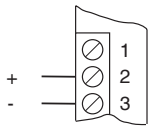
Input impedance:
Voltage: 1Mohm.
Current: 50Ohm.

WIRING DIAGRAMS

Voltage



Current



CONFIGURATION/CALIBRATION

Example: Adjust the panel meter to a scale -1000 to 1000 , input signal 4-20mA.

1) Remove the front frame and the plug-in terminal and pull out carefully the circuit board. Place jumpers for input signal selection and decimal point position.
Assemble the panel meter and connect the supply voltage.
2) Apply min. signal 4mA and adjust Min to display read-out 0000.
3) Apply max. signal 20mA and adjust Scale (coarse) and Max. input (fine) to a display read-out of 1999.
Adjust Offset to display read-out 1000.
4) Apply min. signal 4mA and check display read-out is -1000. If incorrect, return to step 2 and readjust the panel meter.

The panel meter is now calibrated and ready to use.

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