GOSSEN Müller & Weigert

DIGEM 96 x 48 AK5

2786688607
09/03

for the following measurements:

- DC ammeter / DC voltmeter
- Input transducer 4 ... 20 mA / 0 ... 20 mA
- DC shunts
- Current transformer .../1 A; .../5 A
- AC voltmeter 100 or 700 V
- Thermal resistances Pt100
- Thermocouples
- Frequency

Suitable functions are indicated on the nameplate of each meter.

1 Ambient conditions

Working temperature	0 ... 50 ˚C
Self temperature	–20 ... 70 ˚C
Application class	KWG as per DIN 40050
Climatic test	type tests as per IEC 68 parts 2 and 3; 96 h
Vibration resistance	as per EN 61010-1.01

2 Code compliance

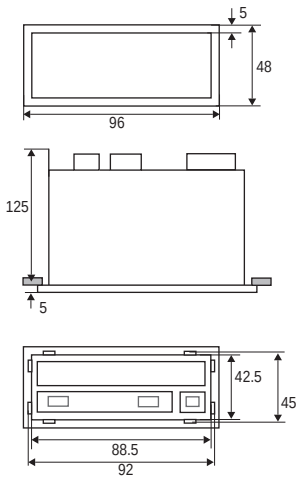
Design	as per EN 61010-1.01
Safety class	1
Enclosure code	
Case	IP 40 as per DIN 40050
Terminals	IP 00 as per DIN 40050
Overvoltage category	II
Soilage classification	1 interior 2 exterior
EMC	EN 61000-4-
RFI suppression	EN 61000-3-

3 Installation

First insert meter in front panel cutout without the slider fasteners. Then locate slider fasteners in the bevel rivets on the sidewalls and clamp meter to front panel using the screw spindles. These meters are suitable for panel mounting as well as in rack/mosaic arrangements after having inserted the fastener for the corresponding rack mounting system in the bevel rivets so that the complete unit can then be shoved into the rack.

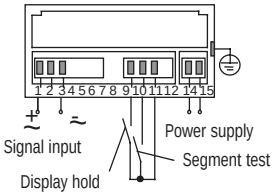
4 Dimensional drawing

Front panel cutout: $45^{+0.6}$ x $92^{+0.8}$ mm

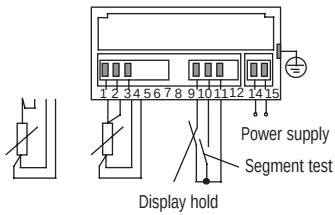


5 Connections

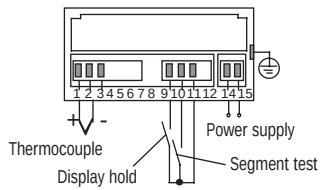
Caution!
Display hold and segment test (connections 9, 10, 11) are connected electrically with the signal input. External circuit elements have to be insulated corresp. to the signal input GND.



for DC and AC ranges, 2-wire input transducers, current transformers, DC shunts and frequency



for thermal resistances Pt100



for thermocouples

6 Opening the rear side of the meter

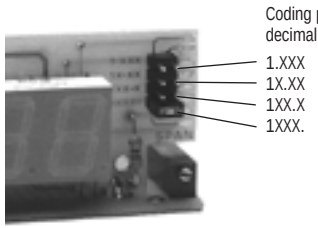
Caution!
Opening meters, changing the auxiliary supply voltage and selecting the decimal point is only allowed when the power supply is „off“ and the signal is „on“.

7 Changing the aux. supply voltages from 230 V~ to 115 V~

Turn the coding plug located behind the transformer. The set voltage range can be read off from the plug (not as for version 24 V DC).

8 Selection the decimal point

Before selecting it is necessary to detach the bezel, the front panel and the display.
Selecting the decimal point is done by means of the coding plug on the front panel of the meter.



9 Calibration of the signal

Caution!
During calibration certain components are autom. dangerously live. It is therefore mandatory that calibration is carried out by suitably qualified personnel only. Use an insulated screwdriver for potentiometer calibration.

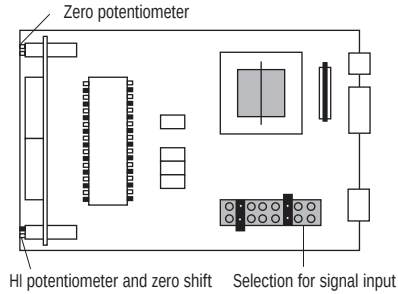
Definition of input span (SPAN RANGE) and zero shift (ZERO RANGE)
The input span corresponds to the total display capability from LO to HI, the setting ignoring any decimal point.

Example:

A meter having an input range of 4 ... 20 mA and a display range of –30.0 ... 190.0 has an input span to the value of 2200 = [–(–300) + .1999].
Zero shift corresponds to the number of digits by which LO is shifted.
In the above example zero shift is –300.

9.1 Calibration for meters with connection to input transucers 4 ... 20 mA / 0 ... 20 mA

Option:



Calibration

Two separate potentiometers and two coding plugs are provided for calibrating the input span and meter zero. Calibration is done in the following sequence:

Input span:

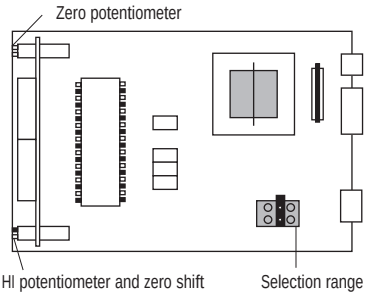
- Insert zero position coding plug in the center position (CAL); this places the zero potentiometer out of circuit
- Insert the two coding plugs for the input span in the corresponding range
- Apply the input span signal (HI-LO) to the signal input
- Using the HI pot. set the display of the input simplified calibration for 4 ... 20 mA
- Apply 4 mA to the signal input
- With the HI potentiometer set the value corresponding to 1/4 of the signal input
  Example:
  Signal input = 2200
  Value to be set = 550

Zero calibration:

- Insert zero position coding plug in location corresponding to the required display
  (negative values = NEGATIV,
  positive values = POSITIV,
  zero values = MID RANGE)

9.2 Calibrations for meters with DC ranges and DC shunts or AC ranges

Option:



- Insert the coding plug in the corresponding range (from 60 mV shunts to 50 mV, from 150 mV shunts to 100 mV and from 300 mV shunts to 200 mV)
- If the meter has the offset option, calibrate the display to „000“ using the zero potentiometer
- Apply a signal to the input corresponding to 95 % of full scale (HI)
- Calibrate to the precise value using the HI potentiometer

9.3 Calibration for meters with connection to current transformer or frequency

Same calibration as for meters with AC ranges without the presetting by coding plugs.

9.4 Calibration for temperature measurement

These meters are calibrated exactly by the factories. Therefore the calibration on location is not necessary.

- Connect resistance for 0 °C (100.0 Ω) to the signal input and set the display to 0 °C by means of the potentiometer
- Connect resistance for 190 °C = 172.16 Ω (resp. for 600 °C = 313.59 Ω) to the signal input and set the display to 190 °C (resp. to 600 °C) by means of the HI potentiometer

Protective conductor connection must be connected to ground!

10 Specifications

Display

Type	7 segments LED
Hue	red, optional green
Numeral height	approx. 14 mm
Count	–1999 ... 1999
Decimal points	Front panel adjustable
Display range	–1999 ... 1999
Overflow	1 ... if signal value >1999
Polarity	„–“ indicated automatically

Input

dep. on version (see nameplate) for DC/AC ranges:

Voltage drop as per	
DC mA or AC mA	max. 1.6 V
Input resistance	
as DC V	≥ 1 MΩ
as AC V	≥ 2 MΩ
Overload as per DC V	10times, max. 250 V
for AC V	10times, max. 250 V
	for 700 V max. 1.2times (protective impedance)
for DC V	2times
SMRR	>50 dB as 50 Hz

for DC shunts

Input resistance	Range	50 mV	50 kΩ
	Range	100 mV	100 kΩ
	Range	200 mV	65 kΩ
Overload	max. 2 V		

for current transformers

Overload	60times for 1 s
	2times permanently

for Pt100

Current by sensor	1 mA

for frequency

Input voltage	80 ... 700 V
Measuring range	12 ... 199.9 Hz
	12 ... 500 Hz
Calibration	Meters are precalibrated to a standard value

Control commands

Display hold	Remote select
Segment test	Remote select

Accuracy

after exact calibration	±(0.05 % +2 digits)

Additional error

AC ranges	±(0.2 % +3 digit) for 50 ... 60 Hz DC part ±0.2 %
Temperature ranges	±(0.3 % +1 digit)
Wire influence for Pt100 3-wire	<2.8 °C/ΔΩ
Temperature drift	<190 ppm/°C
Zero drift (only for devices with shift zero point)	<0.2 digits/°C
Warmup	approx. 1 minute

Auxiliary supply voltage

... standard	230 V/50 ... 60 Hz convertible to 115 V AC –15 % ... +10 %
Option 24 V DC/AC (see nameplate)	18 ... 36 V DC/24 V AC –15 % ... +10 %
Power consumption	max. 3.5 W

A/D converter

System	Dual slope
Integration time	approx. 100 ms
Sampling rate	typ. 3 per sec.

Case

Style	Split metal shell
Bezel	96 x 48; black, dull (gray/light optional)
Bezel thickness	5 mm
Insertion depth	max. 125 mm
Weight	approx. 0.4 kg
Fasteners	DIN screw clip; rack mount optional
Terminals	Faston 2.8 x 0.8 mm; screw terminal blocks optional

Test voltages

U_H	230/115 V	24 V
Supply-input signal	2.3 kV	0.5 kV
Supply-case	1.35 kV	0.5 kV
Input signal-case	3.25 kV	3.25 kV

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