

DIGEM f 96 x 48 AK

3-349-006-03
1/7.98

- Display range: ± 1999
- Simple configuration
- Rugged metal housing
- Supply Voltage: 230 V, 50 / 60 Hz,
can be converted to 115 V, 50 / 60 Hz
- Also with 24 V DC supply voltage



Applications

The DIGEM f 96 x 48 AK has been designed for industrial applications which frequently require precise, on-site adjustment of the display range.

Each measuring instrument is suited for one of the following measuring tasks:

- Direct current and voltage measurement (without zero shifting)
- Connection to measuring transducers, 4 ... 20 mA / 0 ... 20 mA (with zero shifting as desired)
- Connection to 2-wire measuring transducers, 4 ... 20 mA with 24 V / 20 mA transmitter power supply
- Connection to shunt resistors, 60 mV / 150 mV / 300 mV DC
- Alternating voltage measurement
- Connection to current transformers, ... / 1 A or ... / 5 A
- True RMS alternating voltage measurement
- True RMS alternating current measurement
- Temperature measurement
- Frequency measurement to 199.9 Hz

Description

Adjustments and balancing are especially easy for these rugged, compact instruments. Complete balancing of the 4 ... 20 mA model can be accomplished alone with the standard 4 mA signal. The measuring instrument for connection to 2-wire measuring transducers provides the transducer with a supply voltage of 24 V / 20 mA. Previously required power packs are no longer necessary.

The pre-selection of measuring ranges is accomplished with clearly arranged coding plugs inside the instrument. Potentiometers at the front panel allow for precision balancing.

Instruments for the measurement of temperature and frequency are balanced at the factory. Measuring instruments for the remaining ranges are balanced to a standard value prior to shipment.

Precision balancing can be performed at the factory upon request.

The instrument requires a supply voltage of 230 V, 50 / 60 Hz, which can be rewired within the device to 115 V, 50 / 60 Hz. The measuring instrument is optionally available in a 24 V DC / AC version.

Measuring inputs are generally equipped with rugged screw terminal for instruments which are to be used in combination with current transformers. This version of the instrument can withstand 60-fold overloading for 1 second.

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Characteristic Values

Display

Type	7 segment LED
Color	red / option: green
Character Height	14 mm
Display Range	max. ± 1999
Polarity	"-" is displayed automatically
Decimal Point	adjustable at front panel
Overflow Display	"1 ...", if display > 1999

Input

One Measuring Range	see Order Information /
Depending upon Model	ID Number

Balancing

Instruments for the measurement of temperature and frequency are balanced at the factory.

Instruments are pre-balanced to a single standard value for DC and AC ranges. Option: precise balancing to a single value.

DC-AC Ranges

Input resistance	> 1 M Ω
Voltage Drop for DC Current Measurement	max. 1.6 V
Overload	10-fold, max. 250 V 700 V range: max 1.2-fold

Shunt Resistor Connection

Input Resistance	50 k Ω with 60 mV shunt 100 k Ω with 150 mV shunt 65 k Ω with 300 mV shunt adjustable within the instrument without replacing any components
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Current Transformer Connection

Overload	2-fold, continuous, 60-fold for 1 second
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Temperature Ranges

Pt100	0 ... 199.9 °C (32 ... 392 °F) either 3-wire / 4-wire connection
Thermocouples	type J or K

Error Limits

Intrinsic Error	$\pm (0.05 \% + 2 \text{ digits})$
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Additional Error

AC Ranges without DC Components for DC Components, TRMS Temperature Ranges	$\pm (0.2\% + 3 \text{ digits})$ at 50 ... 60 Hz add. $\pm 2\%$ for DC components additional $\pm (0.3\% + 1 \text{ digit})$ RL influence: 2.8 °C / $\Delta \Omega$
Temperature Coefficient	< 190 ppm / K
Zero Point Drift	max. 0.2 digits / K
Series-Mode Rejection Ratio (SMRR)	> 50 dB at 50 Hz

Control Commands

Display Value Storage	externally controlled
Segment Test	externally controlled

Supply Voltages

Convertible to	230 V, 50 / 60 Hz + 10% - 15% 115 V, 50 / 60 Hz + 10% - 15%
Option:	18 ... 36 V DC / 24 V AC $\pm 10\%$
Power Consumption	approx. 3.5 W

A-D Conversion

Conversion Method	dual slope
Integration Time	approx. 100 ms
Measurements per Second	typically 3, response time for the entire instrument is dependent upon the measured quantity

Ambient Conditions

Operating Temperature Range	0 ... + 50 °C
Storage Temperature Range	- 20 ... + 70 °C
Relative Humidity	max. 85%

Housing

Material	metal half-shells
Front Dimensions	96 x 48 mm
Bezel Color	black matt, options: gray or pebble gray
Bezel Height	5 mm
Bezel Width	5 mm
Installation Depth	max. 125 mm
Weight	approx. 0.4 kg
Mounting	screw clamp
Connectors	tab connectors, 2.8 x 0.8 mm option: screw terminal blocks

Compliance with Regulations

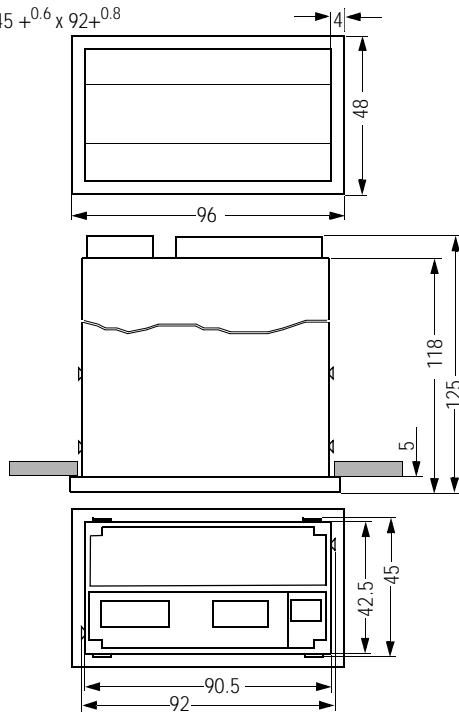
Protection	IP 40, front panel
Protection Class	1
Tested	per EN 61010-1 / VDE 0411-1

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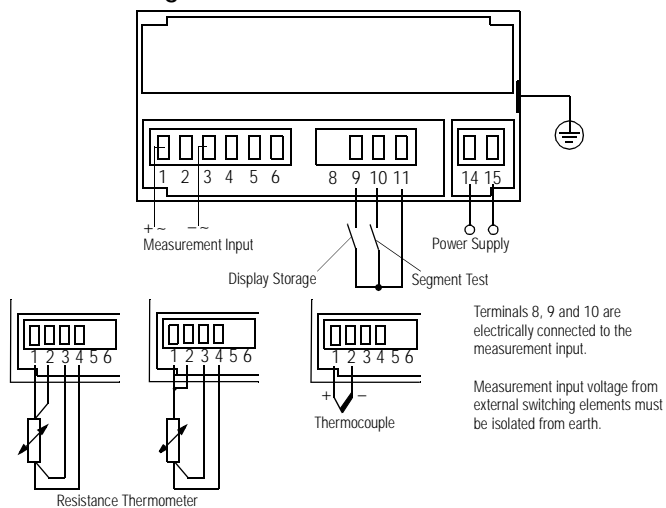
Dimensional Drawing

Connectors: Tab Connectors, A 2.8 - 0.8

Panel Cutout: $45^{+0.6} \times 92^{+0.8}$



Terminal Assignments



Order Information

Features		ID Number		
DIGEM f 96 x 48 AK	Measuring Instrument	A1060		
	Measuring Instrument for Measuring Transducer		A1061	
LED Display	red (standard)	•	•	
	green	A1	A1	
Input Quantities				
Direct Current	200 μ A	D01	-	
	± 2 mA	D02	-	
	± 20 mA	D03	-	
	± 200 mA	D04	-	
	\pm xxx mA, as requested (max. 200 mA)	D90	-	
	0 ... xxx mA (max. 200 mA)	D91	D91	
	0 ... 20 mA	-	D05	
	4 ... 20 mA	-	D07	
4 ... 20 mA with power supply for 2-wire measuring transducer (24 V / 20 mA), only in combination with 230 V AC power supply	-	D08		
Direct Voltage	± 200 mV	D10	-	
	± 2 V	D11	-	
	± 20 V	D12	-	
	± 200 V	D13	-	
	0 ... 5 V	-	D17	
	0 ... 10 V	D18	D18	
	\pm xxx V, as requested (min. 0.2 V, max. 200 V)	D92	-	
	DC Shunt Resistor	± 60 mV	D14	-
	± 150 mV	D15	-	
	± 300 mV	D16	-	
Alternating Current, Sinusoidal, Current Transformer	... / 1 A	D20	-	
	... / 5 A	D21	-	
Alternating Voltage, Sinusoidal	0 ... 199.9 V ~	D30	-	
	0 ... 700 V ~	D31	-	
Alternating Current, True RMS, Current Transformer	... / 1 A	D40	-	
	... / 5 A	D41	-	
Alternating Voltage, True RMS	0 ... 100.0 V ~	D50	-	
	0 ... 700 V ~	D51	-	
Temperature Ranges to Pt100	3-Wire Connection	0 ... 199.9°C	D60	-
		- 190 ... + 800°C	D66	-
		32 ... 392°F	D61	-
	4-Wire Connection	0 ... 199.9°C	D62	-
		- 190 ... + 800°C	D68	-
		32 ... 392°F	D63	-
Thermocouple	Type J	0 ... 760°C	D70	-
		32 ... 1400°F	D71	-
	Type K	0 ... 1260°C	D72	-
		32 ... 1999°F	D73	-
Line Frequency				
12 ... 199.9 Hz (80 ... 700 V)		D80	-	
12 ... 500 Hz (80 ... 700 V)		D81	-	

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Features	ID Number	
Display Range		
Standard balancing preset to upper range value: 1000 ¹⁾	•	•
Same as measuring range with maximum resolution	E1	–
± xxxx, as requested (max. 1999)	E91 ²⁾	–
0 ... xxx, as requested (max. 1999)	E92	E92
xx (or -xx) ... xxxx, as requested (max. 1999)	–	E93
xx (or -xx) ... xxxx, as requested (max. 1999)	E94 ²⁾	–
Upper range value, preset to approx. 1000 Offset adjustment possible (- 100 ... + 300 digits)	E4	–
Decimal Point		
Same as measuring range	•	•
no decimal point	ED1	ED1
xxx . X	ED2	ED2
xx . XX	ED3	ED3
x . XXX	ED4	ED4
Measured Quantity Designation		
Same as measuring range	•	•
no measured quantity labelling	EM1	EM1
select measured quantity from table EM (page 4)	EM . .	EM . .
as requested	EM90	EM90
Supply Voltage		
230 V, 50 / 60 Hz	H1	H1
110 V, 50 / 60 Hz	H2	H2
24 V DC / AC	H3	H3
Bezel		
black matt (standard)	•	•
gray matt, RAL 7037	P1	P1
pebble gray matt, RAL 7032	P2	P2
Font Panel		
GOSSSEN-METRAWATT Design	•	•
as requested	PD..	PD..
Terminals		
tab connectors, 2.8 x 0.8 mm	R1	R1
screw terminal blocks	R2	R2

Features	ID Number	
Mounting		
DIN screw clamp	•	•
manual rack mount	RM1	RM1
Rear Panel Identification		
No identification	•	•
with identification (enter in clear text)	T9	T9
Additional Labelling, Front Panel (max. 15 characters)		
No additional labelling	•	•
with labelling at bottom as requested	TA92	TA92
with labelling at top as requested	TA91	TA91

¹⁾ For temperature ranges, AC 700 V, AC 199.9 V and for frequency (line frequency), standard balancing to display is same as measuring range with max. resolution (same as E1)

²⁾ Not available with features D80, D81

Measured Quantity Designations: Table EM

Measured Quantity	Order Number
%	EM 11
mV	EM 12
V	EM 13
kV	EM 14
mA	EM 15
A	EM 16
Hz	EM 17
µA	EM 19
°C	EM 18
W	EM 21
kW	EM 22
MW	EM 23
var	EM 24
ms	EM 31
min ⁻¹	EM 32