Description

Digital Panel instruments MD.245 are designed to measure and display either DC currents (MDA245), DC voltages (MDV245), or temperature (MDC245). The low supply current requirement (≤ 80 mA) and the large voltage supply ranges permit a wide variety of uses.The full-scale reading of the standard signal instruments is user-adjustable within a range of approximately 500 digits (e.g. between 1000 and 1500), and jumpers for decimal point setting are provided on the display pcb.
The instrument are panel mounted with a front frame dimension of 48 mm x 24 mm.

MDA245
MDV245

MDC245

Temperature sensor
MSC KTY-16-6

Measuring ranges

DC current

Measuring range	Resolution	Input resistance	Overload protection	Pin designation –	+
0...±20 mA	10 µA	10 Ω	±150 mA	3	1
4...20 mA	8 µA	10 Ω	±150 mA	3	1

DC voltage

Measuring range	Resolution	Input resistance	Overload protection	Pin designation –	+
0...± 5 V	2.5 mV	>1 MΩ	±60 V	3	1
0...±10 V	5 mV	>1 MΩ	±60 V	3	1

Temperature

Sensor	Measuring range	Resolution	Terminals
Temperature sensor KTY-16-6	-30...+100 °C	1 °C	1 - 3

Technical data

Display
Red 7-segment LED display
3 1/2 digit (MDA, MDV), or 2 1/2 digit (MDC),
10 mm high
Automatic mains value indication prefix "-"
Over-range indication: The last three digits are extinguished.

Accuracy of display (at 23°C)
Current/voltage measuring instrument: ≤ 0.1% span ±1 digit
Temperature measuring instrument: ≤ 0.8 % span
(span = full measuring range)

Reading characteristics
Integrating dual-slope
Count rate: 2.5 readings/second
Auto zero before each conversion.

Environmental requirements

Temperature drift:	≤ 0.01 % span/K
Warm-up to full accuracy:	≤ 15 minutes
Operating temperature range:	0...+50 °C
Storage temperature range:	-20...+70°C
Relative humidity:	0...75 % annual average, 95 % max. (without condensation)
Application class:	KWF to DIN 40040
Instrument mass:	approx. 75 g

Voltage supply ranges:
DC 4 V - 7 V
DC 7 V - 16 V
DC 16 V - 28 V (standard)
not physically isolated from measuring input.
Maximum allowed residual ripple 10 %, but not less than the minimum voltage or more than the maximum voltage.
Current consumption: ≤ 80 mA
The instruments are reverse polarity protected.
Max. wire size (max. wire dia. 1.4 mm):
1.0 mm^2/AWG18 stranded wire
1.5 mm^2/AWG16 single conductor (solid)

Ordering information for Panel Instruments MDA/MDV 245

Type No.								
Physical dimensions								
A current								
V voltage								
Case								
245 48 mm x 24 mm								
Version								
D DC current/voltage								
Display								
3 3 1/2 digit								
Input								
1 0...5 V								
2 0...10V								
3 0...20 mA								
4 4...20 mA								
Display range								
1 0... (0...500)*								
2 0... (500...1000)*								
3 0... (1000...1500)*								
4 0... (1500...1999)*								
Supply voltage (rated voltage)								
D1 DC 4...7 V								
D2 DC 7...16 V								
D3 DC 16...28 V (standard)								
K Special calibration**								
MD	A	245 - D	3	4	3	D3	...	ordering example

*) Set the final value within the range shown in parenthesis by means of the potentiometer.
**) Specify when ordering.

Ordering information for Panel Instrument MDC 245

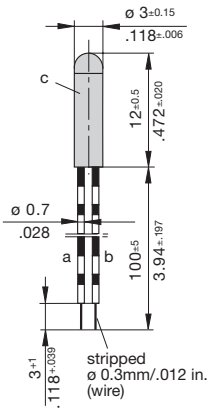
Type No.					
Physical dimension					
C temperature					
Case					
245 48 mm x 24 mm					
Version					
H21 for temperature sensor KTY-16-6 Measuring range: -30...+100°C 2 1/2 digit display					
Supply voltage (rated voltage)					
D1 DC 4...7 V					
D2 DC 7...16 V					
D3 DC 16...28 V (standard)					
MD	C	245 - H21	D3	ordering example	

Temperature Sensor MSC (suitable for Instrument MDC 245)

Ordering reference: MSC KTY-16-6
Technical data:

Sensor	KTY-16-6
Temperature range	-30...+100°C
Resistance	2000 Ω ±1 % with 25°C
Operating current	≤ 0.5 mA
Temperature coefficient	0.75 %/K

Potted into nickel plated brass housing with insulated leadwire connections.



Terminal selection
a electrical contact
b electrical contact
c housing: potential free

Case

Fig. 1 Side view

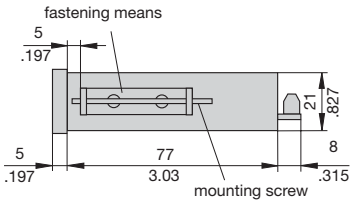


Fig. 2 Front view

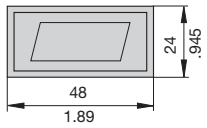


Fig. 3 Rear view

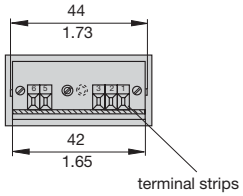
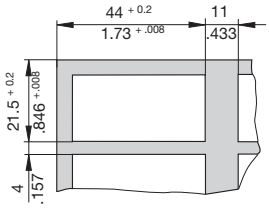


Fig. 4 Panel cut-out

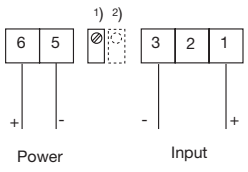


This is a metric design and millimeter dimensions take precedence (mm / inch)

Case material: glass fibre reinforced black Noryl GFN SE1
Degree of protection: IP50 (front) IP20 (rear)

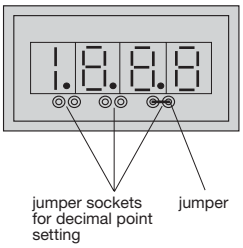
Connector pin assignment /Potentiometer setting

Current/voltage instrument

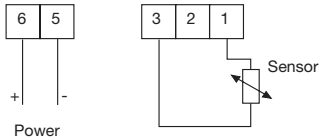


1) potentiometer to set reading range
2) offset correction (only with measuring range 4...20 mA)

Decimal point setting



Temperature instrument



All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.