Digital Panel Meter

A9000 Series

Features

- Standard DIN size (48 x 96 mm) panel
- Measurement range can be changed by switching the input range

Ordering Code

A9 ① 1 ② – ③

Series	① Power supply	Management code	② Input	③ Output option	Description
A9					A9000 series
	1				AC100–240 V AC ±10%
	3				DC5 V (–5%) – 12 V (+10%)
	4				DC12–24 V ±10%
		1			Management code
			1		DC voltage measurement
			2		DC current measurement
			4		AC voltage measurement (True-RMS)
			5		AC current measurement (True-RMS)
			6		AC large current measurement (True-RMS)
			B		Process signal measurement
			C		Thermocouple measurement
			D		RTD measurement
			E		DC large voltage measurement
			F		AC large voltage measurement (True-RMS)
				01	None (display only)
				02	BCD output (TTL)
				03	BCD output (Open collector)

Input Specifications

■DC Measurement 1 2 B E

Code	Range	Measurement range	Max. resolution	Input resistance	Max. input	Accuracy
1	11	±199.99 mV	10 µV	Approx. 100 MΩ	±50 V	±(0.1% rdg +2 digit)
	12	±1.9999 V	100 µV			
	13	±19.999 V	1 mV	Approx. 1 MΩ	±250 V	
	14	±199.99 V	10 mV			
2	22	±1.9999 mA	0.1 µA	Approx. 10 Ω	±50 mA	±(0.2% rdg +2 digit)
	23	±19.999 mA	1 µA			
	24	±199.99 mA	10 µA	Approx. 0.1 Ω	±3 A	
	25	±1999.9 mA	100 µA			
B	1V	1–5 V	–	Approx. 1 MΩ	±50 V	±(0.1% rdg +3 digit)
	3V	±10 V	–			
	2A	4–20 mA	–	Approx. 10 Ω	±50 mA	±(0.2% rdg +3 digit)
E	15	±700.0 V	100 mV	Approx. 10 MΩ	±700 V	±(0.1% rdg +3 digit)

■AC Measurement 4 5 6 F

Code	Range	Measurement range	Max. resolution	Input resistance	Max. input	Accuracy
4	11	0–199.99 mV	10 µV	Approx. 100 MΩ	50 V	±(0.2% rdg +20 digit)
	12	0–1.9999 V	100 µV			
	13	0–19.999 V	1 mV	Approx. 1 MΩ	250 V	
	14	0–199.99 V	10 mV			
5	23	0–19.999 mA	1 µA	Approx. 10 Ω	50 mA	±(0.5% rdg +20 digit)
	24	0–199.99 mA	10 µA			
	25	0–1999.9 mA	100 µA	Approx. 0.1 Ω	3 A	
6	26	0–5.000 A	1 mA	CT	8 A	±(0.5% rdg +20 digit)
F	15	0–700.0 V	100 mV	Approx. 10 MΩ	700 V	±(0.2% rdg +20 digit)

Frequency range	40 Hz to 1 kHz *Only input code **6** uses 50 Hz or 60 Hz
Dead zone	None
Response time	Approx. 1 s

*Accuracy applies to sine waves of 5% or more of full scale.

■Thermocouple Measurement C

Code	Range	Input	Measurement / display range	Max. resolution	Accuracy
C	KA	K Thermocouple	−50.0 to +199.9°C	0.1°C	±0.5%fs
	KB	K Thermocouple	−50.0 to +1200.0°C		±0.2%fs
	J	J Thermocouple	−50.0 to +1000.0°C		
	T	T Thermocouple	−50.0 to +400.0°C		±0.6%fs
	S	S Thermocouple	0.0 to +1700.0°C		±0.4%fs
	R	R Thermocouple	−10.0 to +1700.0°C		
	B	B Thermocouple	+100.0 to +1800.0°C		

*Accuracy of B thermocouple applies at 500°C or above.

Cold junction compensation error	±2°C
Burnout alarm	Displays "----"
Internal resistance	50 Ω or less

■RTD Measurement D

Code	Range	Input	Measurement / display range	Max. resolution	Accuracy
D	PA	Pt100 Ω	−100.0 to +199.9°C	0.1°C	±0.2%fs
	JPA	JPt100 Ω			
	PB	Pt100 Ω	−100 to +600°C	1°C	±0.6%fs
	JPB	JPt100 Ω	−100 to +500°C		

External resistance	RTD: 10 Ω or less per lead wire
Sensor current	Approx. 1 mA

Common Specifications

Display	Red 7-segment LED (character height 14.2 mm)
Polarity display	'–' is displayed automatically when the result is negative
Display range	−19999 to 19999
Scaling	Offset: ±19999, Full scale: ±19999 (setting range) *Temperature input: fixed scaling (cannot be changed)
Over range display	Displays O.L. or −O.L.
Decimal point	Configurable *Temperature input is fixed per range
Zero display	Leading zero suppression
Operating temp. / humidity range	0 to +50°C, 35–85%RH (non-condensing)
Power supply	AC100–240 V AC ±10%; DC5 V (−5%)–12 V (+10%), DC12–24 V ±10%
Power consumption	4.5 VA max. (AC power), 1.7 W max. (DC power)
Dimensions	48(H) × 96(W) × 75(D) mm
Weight	Approx. 160 g (AC power), approx. 150 g (DC power)
Dielectric strength	AC power: power–input / each output terminal AC1500V for 1 min. DC power: power–input / each output terminal DC500V for 1 min. Common: input–each output terminal DC500V for 1 min. Case–each terminal AC1500V for 1 min.
Insulation resistance	100 MΩ or more at DC500V between the above terminals
Sampling rate	Approx. 40 ms (25 times/s) to approx. 8 s (0.125 times/s)
Moving average count	Select from [None / 2 / 4 / 8 / 16 / 32]
Display update cycle	Approx. 40 ms (25 times/s) max.
Sensor power supply	None
Standard accessories	Unit sticker ×1, terminal cover

External Control

Hold	Holds the display at any timing
Digital zero	Sets the display to zero at any timing
Peak hold	Holds the [Max.] / [Min.] / [Max.–Min.] value
Pattern selection	Stores and sets up to 4 patterns of scaling data

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Option Specifications

BCD Output

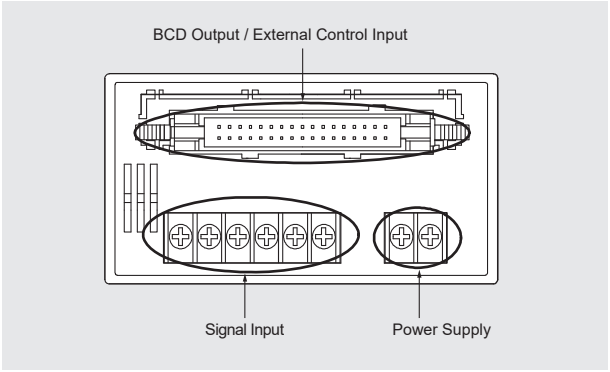
Output method TTL or open collector

● **TTL specifications:** Output logic: switchable. Output signal: TTL level fan-out = 2, CMOS compatible.

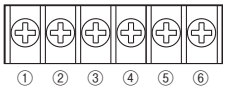
● **Open collector specifications:** Output logic: switchable. Transistor output capacity: DC30V 10 mA. Output saturation voltage: 1.2 V or less (at 10 mA).

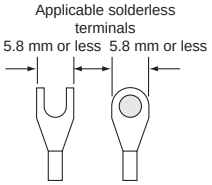
● **ENABLE input specifications:** Function: shorting the ENABLE and COM terminals sets all BCD outputs to high impedance (TTL) or turns the transistor OFF.
Control signal HI level: 3.5–5 V relative to the D.COM terminal.
Control signal LO level: 0–1.5 V relative to the D.COM terminal. Input current: −0.5 mA.

Terminal Connections



Input





DC Voltage input 1		
No.	Name	Description
1	HI (11, 12)	Input terminal (+) 11, 12 range
2	HI (13, 14)	Input terminal (+) 13, 14 range
3	LO	Input terminal (−)
4	NC	No connection
5	NC	
6	NC	

DC Small Current input 2		
No.	Name	Description
1	HI (22, 23)	Input terminal (+) 22, 23 range
2	HI (24, 25)	Input terminal (+) 24, 25 range
3	LO	Input terminal (−)
4	NC	No connection
5	NC	
6	NC	

AC Voltage input 4		
No.	Name	Description
1	HI (11, 12)	Input terminal (+) 11, 12 range
2	HI (13, 14)	Input terminal (+) 13, 14 range
3	LO	Input terminal (−)
4	NC	No connection
5	NC	
6	NC	

AC Small Current input 5		
No.	Name	Description
1	HI (23)	Input terminal (+) 23 range
2	HI (24, 25)	Input terminal (+) 24, 25 range
3	LO	Input terminal (−)
4	NC	No connection
5	NC	
6	NC	

AC Large Current input 6		
No.	Name	Description
1	HI (26)	Input terminal (+) 26 range
2	NC	No connection
3	LO	Input terminal (−)
4	NC	No connection
5	NC	
6	NC	

Process input B		
No.	Name	Description
1	HI (2A)	Input terminal (+) 2A range
2	HI (1V)	Input terminal (+) 1V range
3	HI (3V)	Input terminal (+) 3V range
4	LO	Input terminal (−)
5	NC	No connection
6	NC	

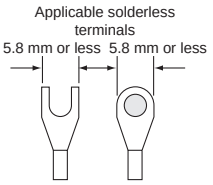
Thermocouple input C		
No.	Name	Description
1	HI (TC)	Input terminal (+) thermocouple
2	LO (TC)	Input terminal (−) thermocouple
3	NC	No connection
4	NC	
5	NC	
6	NC	

RTD input D		
No.	Name	Description
1	RTD (A)	Input terminal, resistance element lead wire
2	RTD (B)	Input terminal, resistance element lead wire
3	RTC (C)	Input terminal, lead-resistance cancel wire
4	NC	No connection
5	NC	
6	NC	

DC Large Voltage input E		
No.	Name	Description
1	HI (15)	Input terminal (+) 15 range
2	NC	No connection
3	LO	Input terminal (−)
4	NC	No connection
5	NC	
6	NC	

AC Large Voltage input F		
No.	Name	Description
1	HI (15)	Input terminal (+) 15 range
2	NC	No connection
3	LO	Input terminal (−)
4	NC	No connection
5	NC	
6	NC	

Power supply



AC Power supply		
No.	Name	Description
7	POWER	Power supply terminal (non-polarity)
8	POWER	

DC Power supply		
No.	Name	Description
7	POWER	Power supply terminal (−)
8	POWER	Power supply terminal (+)

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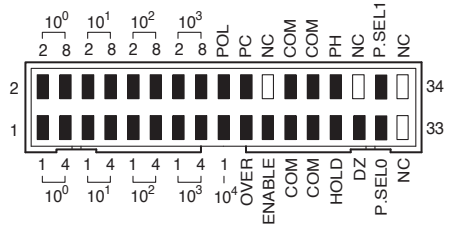
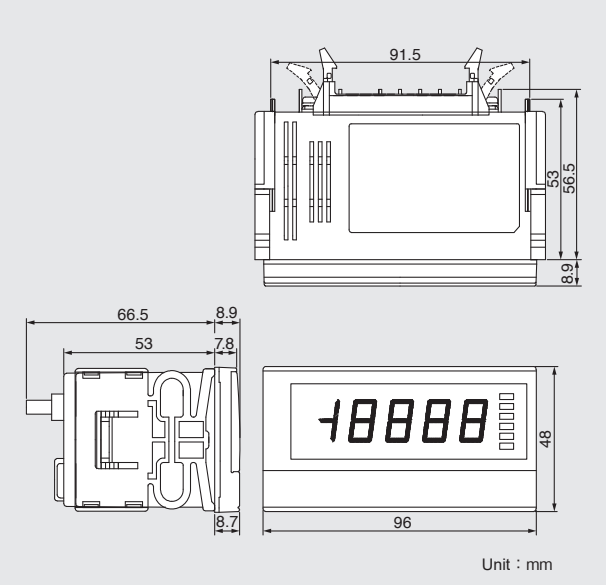
BCD Output / External Control Input Section



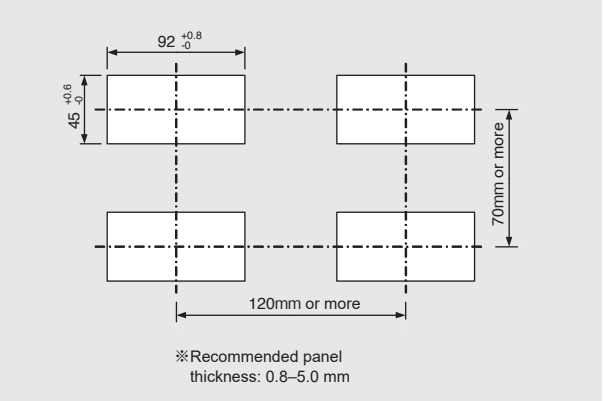
No.	Name	Description
1–4	10^0 1, 2, 4, 8	BCD 10^0 digit, bit 1/2/4/8 output
5–8	10^1 1, 2, 4, 8	BCD 10^1 digit, bit 1/2/4/8 output
9–12	10^2 1, 2, 4, 8	BCD 10^2 digit, bit 1/2/4/8 output
13–16	10^3 1, 2, 4, 8	BCD 10^3 digit, bit 1/2/4/8 output
17	10^4 1	BCD 10^4 digit, bit 1 output
18	POL	BCD polarity output
19	OVER	BCD overflow output
20	P.C	BCD print command output
21	ENABLE	BCD enable terminal
22	NC	No connection
23–26	COM	Common terminal for BCD output and external control
27	HOLD	Hold terminal
28	PH	Peak hold terminal
29	DZ	Digital zero terminal
30	NC	No connection
31	P.SEL0	Pattern selection
32	P.SEL1	
33–34	NC	No connection

*For display-only models (output code 01), terminals 1–22 are NC (no connection).

Dimensions



Panel Cutout



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