

DIGITAL PANEL METER

A2100

NEW!



■ Features

- LED height 10mm
- Power supply 5VDC or 5 to 24VDC
- 3 1/2 digit

■ DC Voltage Measurement

Range	Measurement Range	Input Impedance	Input Protection	Accuracy
11	±199.9mV	100M	±50V	± (0.1% of F.S)
12	±1.999V			
13	±19.99V			
14	±199.9V	1M	±250V	

■ DC Current Measurement

Range	Measurement Range	Input Impedance	Input Protection	Accuracy
22	±1.999mA	100	±50mA	± (0.2% of F.S)
23	±19.99mA	10	±150mA	
24	±199.9mA	1	±500mA	
25	±1.999A	0.1	±3A	

■ Power supply

● Non-isolation type

Voltage: 5VDC±5%
Consumption: 60mA

● Isolation type

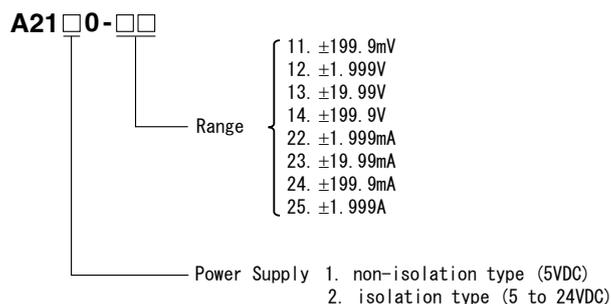
Voltage: 5 to 24VDC
Consumption: 100mA

■ Specification

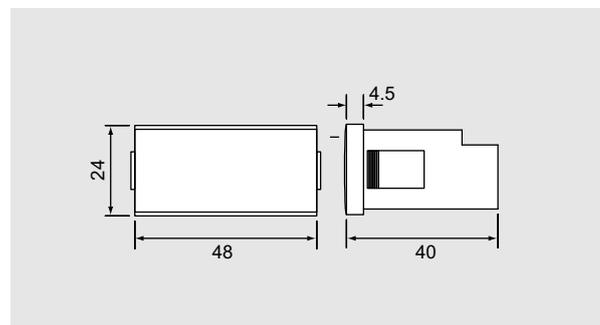
Input configuration: Single Ended
Conversion rate: 2.5/sec
Max display: 1999
Overrange indication: When input exceeds the maximum display, 0000 or -0000 flashes
Display: Red LED, 10mm
Polarity: A "-" is displayed automatically
Decimal point: Settable to any digit position by front SW
External control: Hold
Operating Temp.: 0 to 50°C 35 to 85% RH
Dimensions: 48mm (W) × 24mm (H) × 39.7mm (D) DIN size
Weight: 40g
Dielectric strength: Power supply and input terminal at 500VDC/1min
Case and each terminals at 1500VAC/1min
Insulation resistance: 500VDC 100M Ω at the above terminals

* Replacement for AP-200, AP-201A, AP-202A(no option)

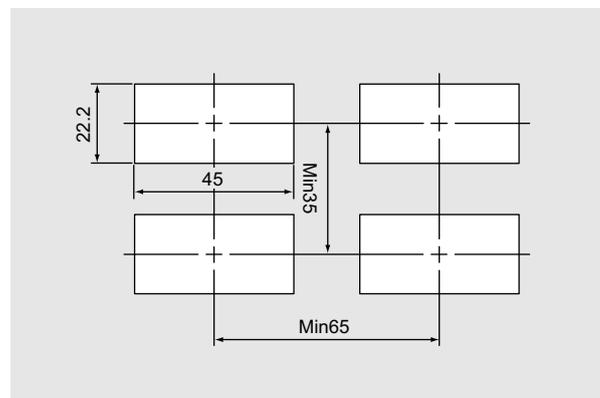
■ Ordering Code



■ Dimensions



■ Panel Cutout



DIGITAL PANEL METER

A2200

NEW!



■ Features

- LED hight 10mm
- Power supply 5 to 24VDC (Isolation)
- 4 1/2 digit

■ DC Voltage Measurement

Range	Measurement Range	Input Impedance	Input Protection	Accuracy
12	±1.999V	100M	±50V	± (0.1% of F.S)
13	±19.99V	1M	±250V	
14	±199.9V			

■ Power supply

● Isolation type

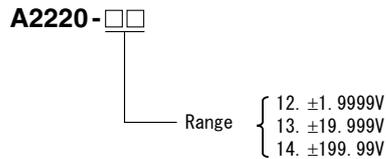
Voltage: 5 to 24VDC
Consumption: 100mA

■ Specification

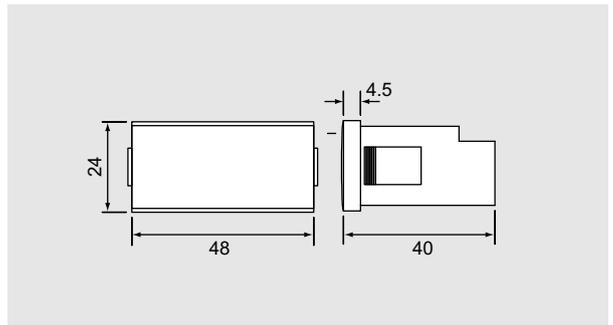
Input configuration: Single Ended
Conversion rate: 2.5/sec
Max display: 19999
Overrange indication: When input exceeds the maximum display, 0000 or -0000 flashes
Display: Red LED, 10mm
Polarity: A "-" is displayed automatically
Decimal point: Settable to any digit position by front SW
External control: Hold
Operating Temp.: 0 to 50°C 35 to 85% RH
Dimensions: 48mm (W) × 24mm (H) × 39.7mm (D) DIN size
Weight: 40g
Dielectric strength: Power supply and input terminal at 500VDC/1min
Case and each terminals at 1500VAC/1min
Insulation resistance: 500VDC 100M Ω at the above terminals

* Replacement for AP-241A, AP-242A, AP-244A(no option)

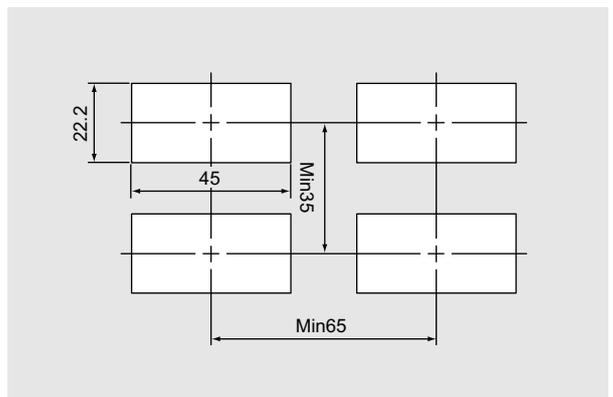
■ Ordering Code



■ Dimensions

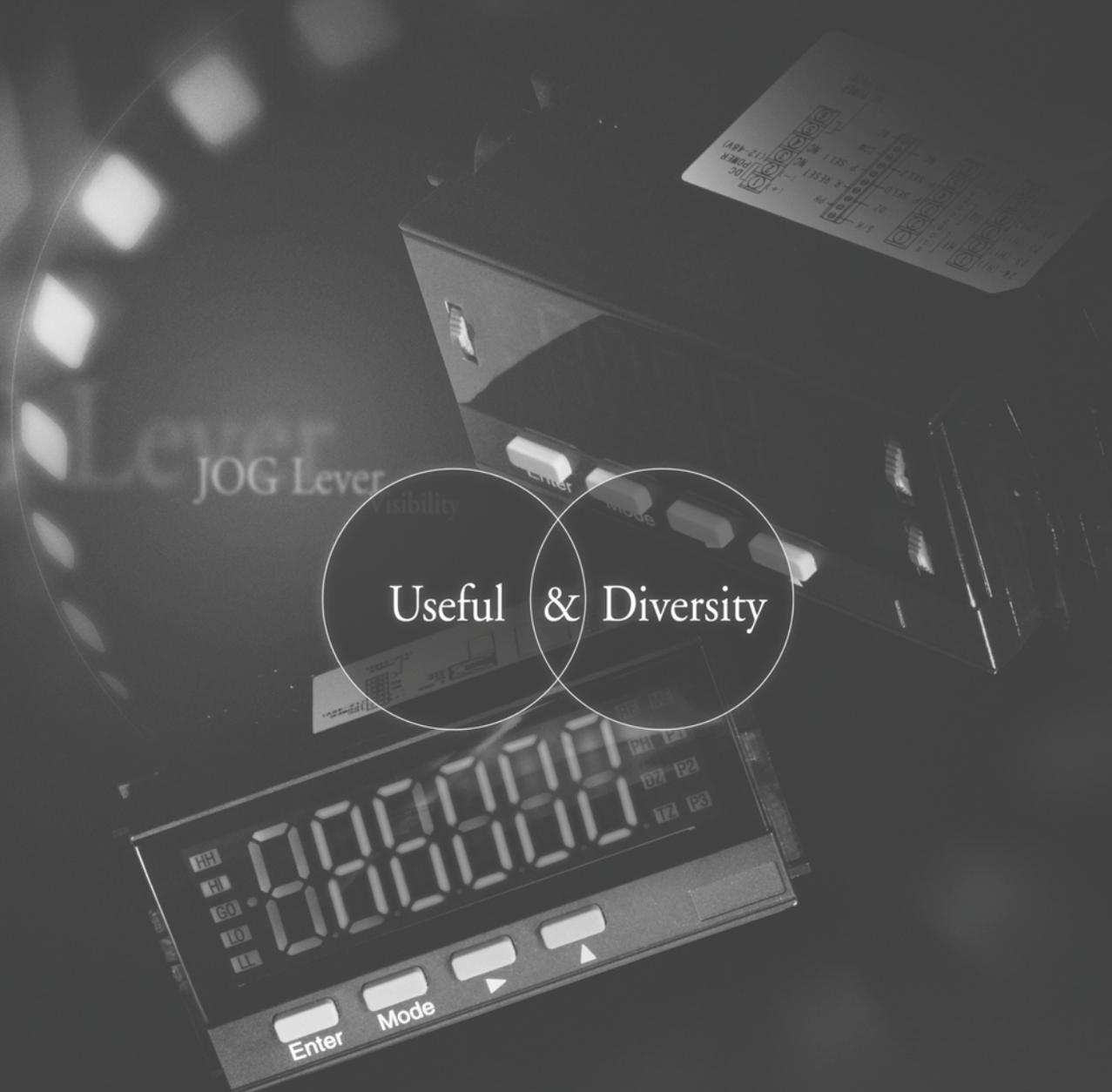


■ Panel Cutout



Universal Type Digital Panel Meter

A6000 SERIES



Useful & Diversity

Input Specifications

■ DC voltage, current

• A6XX1-XX

Range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
11	±99.99 mV	offset ±9999 full scale ±9999	±50 V	±(0.03% of rdg + 1 digit)
12	±999.9 mV		±50 V	
13	±9.999 V		±250 V	
14	±99.99 V		±250 V	
15	±700 V		±700 V	±(0.1% of rdg + 2 digit)

• A6XX2-XX

Range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
21	±99.99 µA	offset ±9999 full scale ±9999	±10 mA	±(0.1% of rdg + 2 digit)
22	±999.9 µA		±10 mA	
23	±9.999 mA		±50 mA	
24	±99.99 mA		±500 mA	

• A6XX3-XX

Range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
25	±999.9 mA	offset ± 9999	±3 A	±(0.1% of rdg + 2 digit)
26	±2.000 A	full scale ±9999		

■ AC voltage, current (TRUE-RMS)

• A6XX4-XX

Range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
11	99.99 mV	offset ±9999 full scale ±9999	50 V	±(0.2% of rdg + 20 digit)
12	999.9 mV		50 V	
13	9.999 V		250 V	
14	99.99 V		250 V	
15	700.0 V		700 V	

Minimum display 50 digits

• A6XX5-XX

Range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
21	99.99 µA	offset ±9999 full scale ±9999	10 mA	±(0.5% of rdg + 20 digit)
22	999.9 µA		10 mA	
23	9.999 mA		50 mA	
24	99.99 mA		500 mA	

Minimum display 50 digits

• A6XX6-XX

Range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
25	999.9 mA	offset ±9999	3 A	±(0.7% of rdg + 20 digit)
26	5 A	full scale ±9999	8 A	

Minimum display 50 digits

■ Resistance

• A6XX7-XX

Range	Measurement Range	Display	Current	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
11	99.99 Ω	offset ±9999 full scale ±9999	5 mA	±(0.1% of rdg + 4 digit)
12	999.9 Ω		0.5 mA	
13	9.999 KΩ		50 µA	
14	99.99 kΩ		5 µA	

Measurement method: Two or Four wire (internal socket changable)

■ Thermocouple • RTD

• A6XX8-XX

Range	Sensor type	Measurement Range	Maximum Resolution	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
KA	K	-50.0 to 199.9°C	0.1°C	±(0.5% of FS)
KB	K	-50 to 1200°C	1°C	±(0.2% of FS)
J	J	-50 to 1000°C	1°C	±(0.2% of FS)
T	T	-50 to 400°C	1°C	±(0.6% of FS)
S	S	0 to 1700°C	1°C	±(0.4% of FS)
R	R	-10 to 1700°C	1°C	±(0.4% of FS)
B	B	100 to 1800°C	1°C	±(0.4% of FS)
PA	PT100 Ω	-100.0 to 199.9°C	0.1°C	±(0.15% of FS)
PB	PT100 Ω	-100 to 600°C	1°C	±(0.3% of FS)

available Fahrenheit display

Cold junction compensator accuracy : ±2°C (10 to 40°C)

Sensor lead resistance : less than 50 Ω

Linearizing method : Digital linearizing

Burn out alarm : - - - -

Conversion time : 2.5/sec

■ Frequency

• A6XX9-XX

Range	Measurement Range	Accuracy (23°C ± 5, 35 ~ 85% RH)
11	0.1 to 999.9 Hz	±(0.2% of FS)
12	1 to 9.999 kHz	
13	10 to 99.99 kHz	

• A6XX9-XX

Input type	Input voltage level	Input Protection
Open collector	L: less than 1.5 V (5V, pullup)	30 V
Logic	L: less than 1 V, HI: 2.5 to 15 V	15 V
Magnet	0.3 to 30 V P-P	30 V
Voltage	30 V rms to 500 V rms	500 V

Prescale : 0.01 ~ 10.00

PPR : 1~100

Power supply for sensor : 12 VDC ±10%

Universal Type Digital Panel Meter

A7000 SERIES



Input Specifications

■ DC voltage, current

• A7X11-X

Range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
11	±99.99 mV	offset ±9999 full scale ±9999	±50 V	±(0.03% of rdg + 1 digit)
12	±999.9 mV		±50 V	
13	±9.999 V		±250 V	
14	±99.99 V		±250 V	
15	±700 V		±700 V	

Conversion rate: 1000times/sec

• A7X12-X

Range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
21	±99.99 uA	offset ±9999 full scale ±9999	±10 mA	±(0.1% of rdg + 2 digit)
22	±999.9 uA		±50 mA	
23	±9.999 mA		±50 mA	
24	±99.99 mA		±700 mA	

Conversion rate: 1000times/sec

• A7X13-X

Range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
25	±999.9 mA	offset ± 9999	±3 A	±(0.1% of rdg + 2 digit)
26	±2.000 A	full scale ±9999		

Conversion rate: 1000times/sec

■ AC voltage, current (TRUE-RMS)

• A7X14-X

Range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
11	99.99 mV	offset ±9999 full scale ±9999	50 V	±(0.2% of rdg + 20 digit)
12	999.9 mV		50 V	
13	9.999 V		250 V	
14	99.99 V		250 V	
15	700.0 V		700 V	

Minimum display 50 digits
Frequency range: 40Hz to 1kHz
Response time: Approx 1 sec(10% to 90%)
Conversion rate: 1000times/sec

• A7X15-X

Range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
21	99.99 uA	offset ±9999 full scale ±9999	10 mA	±(0.5% of rdg + 20 digit)
22	999.9 uA		10 mA	
23	9.999 mA		50 mA	
24	99.99 mA		500 mA	

Minimum display 50 digits
Frequency range: 40Hz to 1kHz
Response time: Approx 1 sec(10% to 90%)
Conversion rate: 1000times/sec

• A7X16-X

Range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
25	999.9 mA	offset ±9999	3 A	±(0.7% of rdg + 20 digit)
26	5 A	full scale ±9999	8 A	

Minimum display 50 digits
Frequency range: 40Hz to 1kHz
Response time: Approx 1 sec(10% to 90%)
Conversion rate: 1000times/sec

■ Resistance

• A7X17-X

Range	Measurement Range	Display	Current	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
11	99.99 Ω	offset ±9999 full scale ±9999	5 mA	±(0.1% of rdg + 4digit)
12	999.9 Ω		0.5 mA	
13	9.999 KΩ		50 uA	
14	99.99 kΩ		5 uA	

Conversion rate: 100times/sec
Measurement method: Two or Four wire (internal socket changable)

■ Thermocouple • RTD

• A7X18-X

Range	Sensor type	Measurement Range	Maximum Resolution	Accuracy (23°C ± 5°C, 35 ~ 85% RH)
KA	K	-50.0 to 199.9°C	0.1°C	±(0.5% of FS)
KB	K	-50 to 1200°C	1°C	±(0.2% of FS)
J	J	-50 to 1000°C	1°C	±(0.2% of FS)
T	T	-50 to 400°C	1°C	±(0.6% of FS)
S	S	0 to 1700°C	1°C	±(0.4% of FS)
R	R	-10 to 1700°C	1°C	±(0.4% of FS)
B	B	100 to 1800°C	1°C	±(0.4% of FS)
PA	PT100 Ω	-100.0 to 199.9°C	0.1°C	±(0.15% of FS)
PB	PT100 Ω	-100 to 600°C	1°C	±(0.3% of FS)

available Fahrenheit display
Cold junction compensator accuracy : ±2°C (10 to 40°C)
Sensor lead resistance : less than 50 Ω
Linearizing method : Digital linearizing
Burn out alarm : - - - -
Conversion time : 2.5times/sec

UNIVERSAL TYPE DIGITAL PANEL METER

A8000

NEW!



Input Specifications

DC voltage , current

● A83□1-0□ (DC voltage)

range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 to 85%RH)
11	± 199.99mV	offset ± 19999 full scale ± 19999	± 50V	± (0.1% of rdg + 2 digit)
12	± 1.9999V		± 50V	
13	± 19.999V		± 250V	
14	± 199.99V		± 250V	

● A83□2-0□ (DC current)

range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 to 85%RH)
22	± 1.9999mA	offset ± 19999 full scale ± 19999	± 50mA	± (0.2% of rdg + 2 digit)
23	± 19.999mA		± 50mA	
24	± 199.99mA		± 3A	
25	± 1999.9mA		± 3A	

AC voltage, current (TRUE-RMS)

● A83□4-0□ (AC voltage)

range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 to 85%RH)
11	199.99mV	offset ± 19999 full scale ± 19999	50V	± (0.2% of rdg + 20 digit)
12	1.9999V		50V	
13	19.999V		250V	
14	199.99V		250V	

Frequency range : 40Hz to 1kHz

Response time : Approx 1 sec (10% to 90%)

Dead band : 100 digit

● A83□5-0□ (AC current)

range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 to 85%RH)
23	19.999mA	offset ± 19999 full scale ± 19999	50mA	± (0.5% of rdg + 20 digit)
24	199.99mA		3A	
25	1999.9mA		3A	

Frequency range : 40Hz to 1kHz

Response time : Approx 1 sec (10% to 90%)

Dead band : 100 digit

Process

● A83□B-0□

range	Measurement Range	Display	Input Protection	Accuracy (23°C ± 5°C, 35 to 85%RH)
1V	1 to 5V	Offset : ± 19999 Fullscale ± 9999	± 50V	± (0.1% of rdg + 3digit)
2V	4 to 20mA		± 50mA	

Excitation power supply : 24VDC ± 10% 30mA

Features

- Power Supply : 5V to 12VDC, 12V to 24VDC
- BCD Output (option)
- 4 1/2 digit

Thermocouple • RTD

● A83□C-0□ (Thermocouple)

range	Sensor type	Measurement Range	Maximum Resolution	Accuracy (23°C ± 5°C, 35 to 85%RH)
KA	K	-50.0 to 199.9°C	0.1°C	± (0.5% of FS)
KB	K	-50 to 1200°C	1°C	± (0.2% of FS)
J	J	-50 to 1000°C	1°C	± (0.2% of FS)
T	T	-50 to 400°C	1°C	± (0.6% of FS)
S	S	0 to 1700°C	1°C	± (0.4% of FS)
R	R	-10 to 1700°C	1°C	± (0.4% of FS)
B	B	100 to 1800°C	1°C	± (0.4% of FS) applied over 500°C

Cold junction compensator accuracy : ± 2°C (10 to 40°C)

Sensor lead resistance : less than 50

Linearizing method : Digital linearizing

Burn out alarm : - - - -

● A83□D-0□ (RTD)

range	Sensor type	Measurement Range	Maximum Resolution	Accuracy (23°C ± 5°C, 35 to 85%RH)
PA	PT100	-100.0 to + 199.9°C	0.1°C	± (0.15% of FS)
PB	PT100	-100 to + 600°C	1°C	± (0.3% of FS)

available Fahrenheit display

Output Specification

● BCD output

Type of output: Open collector or TTL
 Logic: Changeable
 Output rate: DC30V 10mA (open collector)
 Funout 2 (TTL)

● External Control

Hold: Shorted HOLD terminal and COM terminal or equipotential, Hold ON
 Digital Zero: Shorted DZ terminal and COM terminal or equipotential, Digital zero ON
 Peak Hold: Shorted PH terminal and COM terminal or equipotential, Peak hold ON

Common Specification

Display: Red LED 10mm height
 Maximum display: -19999 to 19999
 Conversion rate: 20times/sec
 Overrange indication: When input exceed the maximum display display 0L or -OL
 Zero display: Leading zero suppression
 Decimal point: Settable to any digit position
 Operating temp: 0 to 50° C (35 to 85% RH)
 Storage temp: -10 to 70° C less than 60%RH
 Power supply: 5V to 12VDC, 12V to 24VDC
 Power consumption: Appro x 1.5W
 Dimensions: 48mm (W) x 24mm (H) x 96mm (D)
 DIN size
 Weight (unit only): Appro x 100g
 Dielectric strength: Power supply/input terminal/output terminal/external control DC500V/min
 Input terminal/output terminal/external control DC500V/min
 Case/each terminal AC1500V/min
 Insulation resistance: DC500V more than 100M Ω at the above terminals

UNIVERSAL TYPE DIGITAL PANEL METER

A8000

Ordering Code

A8 □ □ □ - 0 □

Option

Input

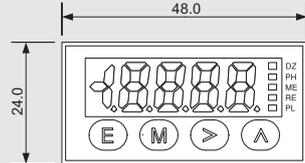
Front sheet

Power supply

1. none
 2. BCD (TTL), external control
 3. BCD (Open collector), external control
1. DC voltage
 2. DC current
 4. AC voltage
 5. AC current
- B. Process
C. Thermocouple
D. RTD
1. with sheet switch
 2. without print sheet switch
3. 5V to 12VDC
 4. 12V to 24VDC

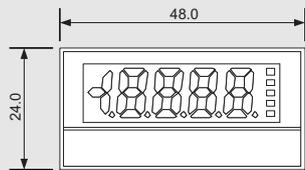
Dimensions

With sheet switch

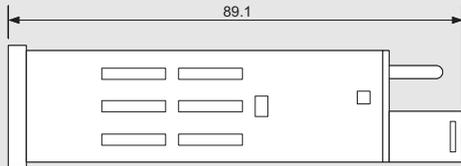


Front View

Without sheet switch



Side View



We reserve the right to change specifications without notice.

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Watanabe Electric Industry Co.,Ltd

NEW!



■ Input specifications

● DV voltage measurement

Range	Measurement Range	Display	Accuracy	input impedance	Maximum allowable input
11	±199.99mV	Offset	±(0.1% of rdg+2 digit)	100MΩ	±50V
12	±1.9999V	±19999			
13	±19.99V	Fullscale			
14	±199.99V	±19999	Approx.1MΩ	±250V	

● DC voltage measurement 15 range

Range	Measurement Range	Display	Accuracy	input impedance	Maximum allowable input
15	±700.0V	Offset	±(0.1% of rdg+3 digit)	100MΩ	±700V
		±19999			
		Fullscale			
		±19999			

● DC current measurement

Range	Measurement Range	Display	Accuracy	input impedance	Maximum allowable input
22	±1.9999mA	Offset	±(0.2% of rdg+3 digit)	Approx.10Ω	±50mA
23	±19.999mA	±19999			
24	±199.99mA	Fullscale			
25	±1999.9mA	±19999	Approx0.1Ω	±3A	

● Process signal measurement

Range	Measurement Range	Display	Accuracy	input impedance	Maximum allowable input
2A	4~20mA	Offset	±(0.2% of rdg+3digit)	Approx.10Ω	±50mA
1V	1~5V	Fullscale	±(0.1% of rdg+3digit)	Approx.1MΩ	±50V
		±19999	±(0.1% of rdg+3digit)	Approx1MΩ	±50V

● Common specification

Operating Type : ΔΣ conversion type
 Input Circuit : Single Ended Type
 Sampling speed : Maximum 25 times per second
 Over range alarm : Display O.L.or -O.L. applying to maximum display for the input
 Display : red 7 segment LED (character height 14.2mm)
 Display range : -19999~19999
 Maximum display : 19999
 Zero display : Leading zero suppress
 Built-in EEPROM
 Number of rewriting : 1,000,000 times(min)
 Operating temperature and humidity range : 0~50°C35~85%RH
 Storage temperature and humidity range : -10~70°C not less than 60% RH
 Dimensions : 96mm(H) × 48mm(W) × 75mm(D)
 Weight : 160g(TYP)(AC power supply)/ 150g(TYP)(DC power supply)
 Dielectric voltage : power supply signal input/BCD output / Between of external control input AC 1500V per minute(AC power supply) power supply signal input/ BCD output/ Between of external control input DC500V per minute(DC power supply) Signal input BCD output/between of external control DC500V per minute(common) Case between of each terminal AC 1500V per minute (common) : In the above interterminal DC 500V 100MΩ
 Insulated resistance : Built-in rewriting EEPROM, in the case of digital zero "OFF" to "ON", setup "ON", digital zero "OFF" to "ON".
 Attention : Please be sure that number of rewriting not surpassing the above number of cases

■ Features

- * DIN size (48X96mm)
- * BCD output (option)

● AC current (A9111-0□,A9112-0□)

Power supply voltage range : AC100~240V±10%
 Consuming VA : 4.5VA

● DC power supply (A9311-0□,A9312-0□)

Power supply voltage range : DC5~5%~12V±10%
 Electric power consumption : 1.5W

● DC power supply(A9411-0□,A9412-0□)

Power supply voltage range : DC12~24V±10%
 Electric power consumption : 1.5W

■ External control

Hold "Hold terminal or COM terminal" short, or hold "ON" with the "0" level
 Digital zero "DZ terminal or COM terminal" short or digital zero "ON" with the "0" level
 Peak hold "PH terminal or COM terminal" short or peak hold function
 "ON" with the "0" level
 Pattern select By the combination of P.SEL0 terminal, P.SEL1 terminal open/short(or "1" level/"0" level),select the scaling pattern
 Attention) "0" level : 0~1.5V apply to COM, "1" level : 3.5~5V apply to COM

■ Option specification

● BCD output

◎At TTL (A9□11-02,A9□1-02)

Measurement data Tri-state parallel BCD
 Polarity signal "1" level at minus display
 "OVER" signal "1" level at OVER display
 Printing command signal A positive pulse of approx.1ms at every measurement
 Output logic Available for switching (except the printing command signal)
 Output signal TTL level, funout 2 CMOS 5V

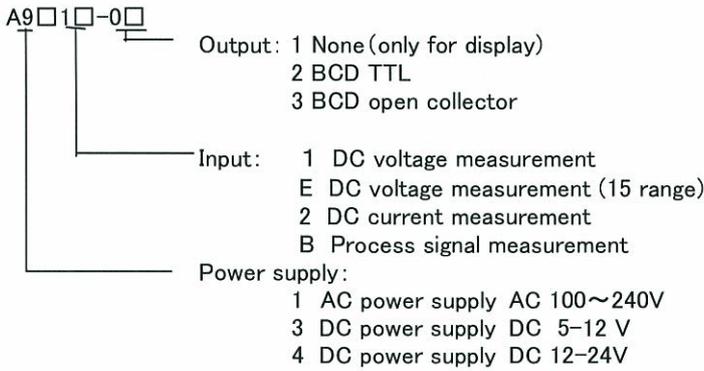
◎At open collector

Measurement data Negative logic transistor "ON" at logic 1
 Polarity signal Transistor "ON" at minus input
 "OVER" signal Transistor "ON" at overflow input
 Printing command signal Transistor "ON" during a period of approx.20ms At every measurement completion
 Transistor output capacity, Applied voltage 30V max
 Current 10mA max
 Saturated output voltage, less than 1.2V at 10mA

● ENABLE

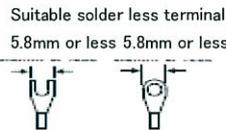
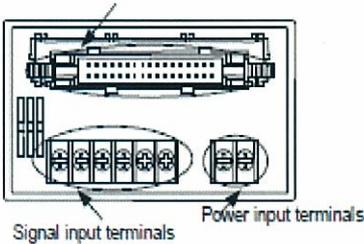
Function Shorted Enable and COM terminals, Transistor OFF.
 (High impedance status at TTL)
 "0" level : applying to COM 0~1.5V
 "1" level : applying to COM 3~5V

■ Ordering Code



■ Connection diagram

BCD output / External control input connector



● DC voltage/current measurement



- ① Input terminal HI (11,12range,22,23range + side input) terminal)
- ② Input terminal HI (13,14range,24,25range + side input) terminal)
- ③ Input terminal LO (-side input terminal)
- ④⑤⑥ NC terminal

● DC voltage measurement 15 range



- ① Input terminal HI (15 range + side terminal)
- ③ Input terminal LO(15 range - side input terminal)
- ②④⑤⑥ :NC terminal

● Process signal measurement



- ① Input terminal HI (2A range +side input terminal)
- ② Input terminal HI(1V range + seide input terminal)
- ③ Input terminal HI(3V range + seide input terminal)
- ④ Input terminal LO(minus side input terminal)
- ⑤⑥ NC terminal

● Power supply

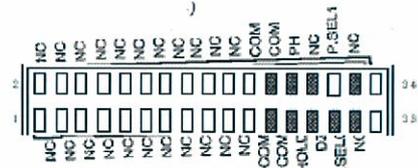


- Please do not connect to the NC
- ⑦ Power supply terminal(In the case of DC power supply 0V)
 - ⑧ Power supply terminal(In the case of DC power supply +V)

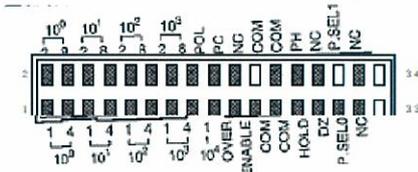
This panel meter has no power supply switch so that if connecting to power supply directly to operating condition.

● BCD output - external control

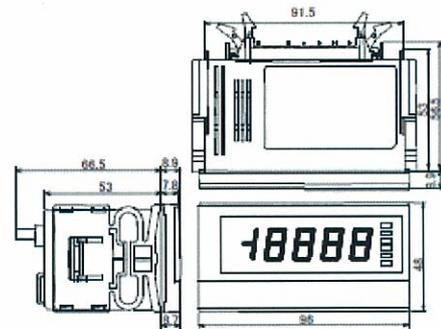
Upper terminals (without BCD outputs)



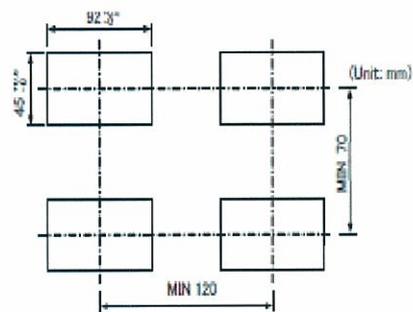
Upper terminals (with BCD outputs)



■ Dimensions



■ Panel cut diagram



※Recommended panel thickness 0.8 to 5 mm

PROCESS MONITOR

AL-213



■ Features

- Self power (4-20mA)
- LED display 10.16mm (red)
- Screw terminal

■ 4-20mA Measurement

Model	Range	Display	Input Protection
AL-213	4-20mA	Offset ± 200 Fullscale 00-1999	$\pm 50\text{mA}$

Accuracy: $\pm (0.1\% \text{ of FS} + 1 \text{ digit})$ $0 \sim 50^\circ\text{C}$ 35-85%RH

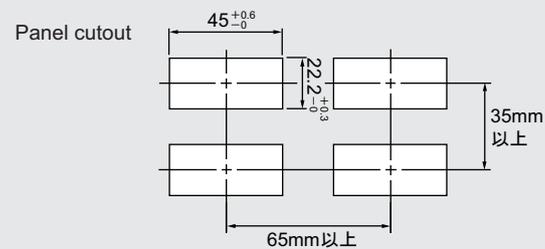
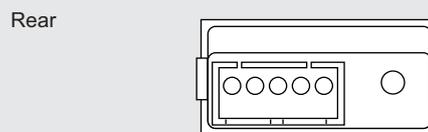
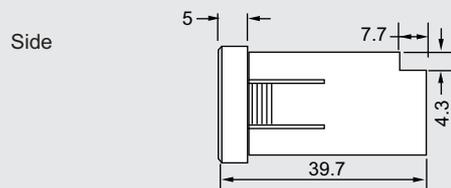
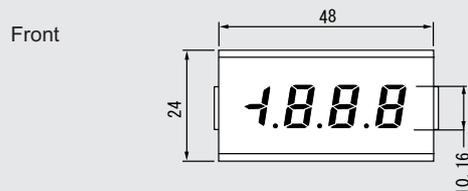
■ Specifications

Input Configuration:	Single ended
Max. display:	1999
Conversion rate:	2.5/sec (TYP)
Normal mode rejection:	40 dB (TYP)
Temperature Coefficient:	Offset display, $\pm 0.3 \text{ digit}/^\circ\text{C}$ Fullscale display, $\pm 0.3 \text{ digit}/^\circ\text{C}$
Overrange indication:	When input exceeds the maximum display, display 1 and blank other digits
Fullscale adjustment:	100-1999
Offset adjustment:	± 200
Voltage drop:	5 V at 4 mA 5.3 V at 20 mA
Display:	LED (red), 10.16 mm
Polarity:	A "-" is displayed automatically
Decimal point:	Settable to any digit position
Operating temp.:	0 -50°C 35-85%RH
Dimensions:	48 (W) \times 24 (H) \times 40 (D) mm DIN size
Dielectric strength:	Between input (LO) and earth (E) DC500 V/min
Weight:	approx. 55 g

■ Ordering code

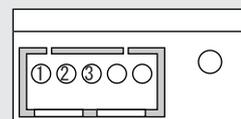
AL-213

■ Dimensions



Panel thickness 0.8 to 3.2mm

■ Connection Diagram



Terminal No. 1 Input HI
2 Input LO
3 Earth

SETPOINT COMPARATOR

AM-215A



DC Voltage Measurement

Model	Range	Display Adjustable	Input Impedance	Max. Allowed Input
AM-215A-11	±99.99mV	Offset ±9999 Full scale ±9999	100MΩ or more	±50V
AM-215A-12	±999.9mV			
AM-215A-13	±9.999V		Approx. 1MΩ	
AM-215A-1V	1 to 5V			

Accuracy : ±(0.03% of rdg. +2 digit) (23°C ±5°C)

DC Current Measurement

Model	Range	Display Adjustable	Input Impedance	Max. Allowed Input
AM-215A-2A	4-20mA	Offset ±9999 Full scale ±9999	Approx. 50Ω	±50mA

Accuracy : ±(0.1% of rdg. +2 digit) (23°C ±5°C)

* This accuracy is for (FSC - OFS) / (FIN - OIN) ≤ 1
*1 : 1V [(FIN - OIN) × 2], 2A : [(FIN - OIN) × 5]

Specifications

Measurement function : Select either DC voltage or DC current (single range)

Input circuit : Single ended

Operation type : Sigma-Delta conversion

Sampling speed : Max. 25 per second

Display : Red 7-segment LED display (character height : approx. 8mm)

Polarity display : A minus sign is displayed if the operation result is negative.

Out-of-range warning : "oL" or "-oL" is displayed with respect to the input signal when the value is outside the display range.

Max. display : ±9999 (full 4 digits)

Decimal point : Can be set at any position using the front-panel flat switches.

Zero display : Leading zero suppress

Backup : Settings are held in EEPROM (guaranteed for 100,000 writes)

Operating temperature and humidity ranges : 0 to 50°C, 35 to 85% RH (no condensation)

Storage temperature and humidity ranges : -20 to 70°C, 60% or less RH (no condensation)

Supply voltage : DC 24V ±20%

Consumed power : Approx. 2.2W

External dimensions : 48(W) × 24(H) × 87.8(D)

Weight : Approx. 100g

Withstand voltage : DC 500V for 1 minute across power terminals/input terminals and each output terminal.
DC 500V for 1 minute across input terminals/each output terminal.
AC 1500V for 1 minute across case/power terminals, input terminals, and each output terminal.

Insulating resistance : 100MΩ or more with DC 500V across the terminals listed above.

Standard accessories : Operation manual, unit seal

Conformity standard : EN61326+A1, +A2
E247481

Features

- AL1 and AL2 set-point
- Bright LED 8mm (Red)
- 1 to 5V, 4 to 20mA Measurement
- Power Supply DC24V ±20% (isolated)
- Offset +/-9999 adjustable
- Fullscale +/-9999 adjustable

External control unit

Digital zero : Digital zero is turned ON when the DZ terminal and COM terminal are shorted or at the same potential.

External power supply unit

Rating : DC 24V ±5%
Max. load : 25mA

Comparator unit

Control method : Microcomputer computation
Setting range : -9999 to +9999
Comparator operation : Depends on sampling speed
Comparator conditions :

Comparator condition	Check result display		Output		
	AL1	AL2	OUT1	OUT2	OUT3
Measurement value > HI limit value	OFF	ON	OFF	OFF	ON
LO limit value ≤ Measurement value ≤ HI limit value	OFF	OFF	OFF	ON	OFF
LO limit value > Measurement value	ON	OFF	ON	OFF	OFF

HH / HI / GO mode					
Comparator condition	Check result display		Output		
	AL1	AL2	OUT1	OUT2	OUT3
Measurement value > HH limit value	ON	ON	OFF	ON	ON
Measurement value > HI limit value	ON	OFF	OFF	ON	OFF
HI limit value ≥ Measurement value	OFF	OFF	ON	OFF	OFF

GO / LO / LL mode					
Comparator condition	Check result display		Output		
	AL1	AL2	OUT1	OUT2	OUT3
Measurement value ≥ LO limit value	OFF	OFF	OFF	OFF	ON
LO limit value > Measurement value	OFF	ON	OFF	ON	OFF
LL limit value > Measurement value	ON	ON	ON	ON	OFF

Setting condition : HI / GO / LO mode HI limit value > LO limit value
HH / HI / GO mode HH limit value > HI limit value
GO / LO / LL mode LO limit value > LL limit value

Hysterisis : For each comparator all limit value can be set as 1 to 999 digits.

Relay output unit

Output ratings : DC 24V, 1A (resistance load)

Photocoupler output unit

Output ratings : MAX. 30V 50mA
Output saturation voltage : 1.2V max. at 50mA

Optional unit

Analog output unit (can not be installed together with RS-485)

Output function : 4 to 20mA (AM-215A-XX-6X) or 0 to 10V (AM-215A-XX-7X)

Output specifications:

Mode	Load Resistance	Accuracy	Ripple
4 to 20mA	0 to 250Ω	±(0.5% of FS)	25mVp-p max.
0 to 10V	10kΩ min.		50mVp-p max.