

Universal Type Digital Panel Meter

A6000 SERIES



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 + 1digit)
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 + 2digit)

A6XX2-XX

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		±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	±(0.3% of rdg + 20 digit)

Minimum display 50 digits

A6XX5-XX

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

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 + 4digit)
12	999.9 Ω		0.5 mA	
13	9.999 KΩ		50 uA	
14	99.99 kΩ		5 uA	

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%

■ Strain gauge

• A6XXA-XX

sensor	Zero adjustment range	Span adjustment range	Measurement range	Accuracy
5 V	-1 to + 1 mV/V	1 to 3mV/V	-4 ~ + 4 mV/V	±(0.1% of FS) + 2 digit
10 V				

Sesnor : 350 Ω
 Power supply for sensor : 5 V ± 5% (less than 15 mA)
 10 V ± 5% (less than 30 mA)
 Conversion speed : 1000/sec

■ Process

• A6XXB-XX

sensor	Measurement Range	Display	Accuracy
1 V	1 to 5 V	offset: ±9999 full scale 0 to ±9999	±(0.03% of rdg + 2digit) ±(0.1% of rdg + 3digit)
2 V	±5 V		
2 A	4 to 20 mA		
3 A	±20 mA		

Excitation power supply : 12 VDC ±5%
 24 VDC ±5% 25 mA

Output Specification

• HI & LO setpoints output (A6XXX-1X Relay output) (A6XXX-2X Photocoupler)

Comparative condition:

Indication > High setpoint	HI
High setpoint ≥ Indication ≥ Lo setpoint	GO
Indication < Lo setpoint	LO

Setting range : -9999 to 9999
 Hysteresis : 1 to 999 digit for each setpoints
 Relay contact capacity : AC250 V 2 A resistive load
 DC30 V 2 A resistive load
 Photocoupler capacity : DC30 V 20 mA

Option

• External control (A6XXX-X1)

Start/Hold : Shorted between COM terminal and start/hold terminal or same level → hold
 Open COM terminal and start/hold terminal or 5 V → start
 D. ZERO : Shorted between COM terminal and D.ZERO terminal → ON
 P.HOLD : Shorted between COM terminal and P. HOLD terminal → ON
 R.RE (relay reset) : Shorted between COM terminal and R.RE terminal → ON
 P.SEL1 to 3 : as below

	pattern 1	pattern 2	pattern 3	pattern 4	pattern 5	pattern 6	pattern 7	pattern 8
P.SEL1	OFF	ON	OFF	ON	OFF	ON	OFF	ON
P.SEL2	OFF	OFF	ON	ON	OFF	OFF	ON	ON
P.SEL3	OFF	OFF	OFF	OFF	ON	ON	ON	ON

ON : Shorted between COM terminal and P.SEL terminal or same level
 OFF : Open between COM terminal and P.SEL terminal or 5 V

• BCD output (A6XXX-X2 TTL) (A6XXX-X3 Open collector)

Type of output : Open collector or TTL
 Logic : Changeable
 Output rate : DC30 V 10 mA (open collector)
 Funout 2 (TTL)

• Analog output (A6XXX-X4)

output	Load resistance	Accuracy	Ripple
0 to 1 V	more than 10 kΩ	±(0.5% of F.S)	50 mV p-p
0 to 10 V			
1 to 5 V			
4 to 20 mA	less than 550 Ω		25 mV p-p

Output method : PWM method
 Scaling : Digital scaling
 Resolution : 13 bit
 Reponse time : approx 0.5 sec

• RS232C (Conforming to EIA RS-232C)(A6XXX-X5)

Communication method : Full duplex
 Transmission speed : 4800/9600/19200/38400 bps
 Start bit : 1 bit
 Data length : 7 bit/8 bit
 Parity : Even parity/ odd parity/ none
 Stop bit : 1 bit/2 bit
 Character code : ASCII code
 Transmission control process : Ignord process

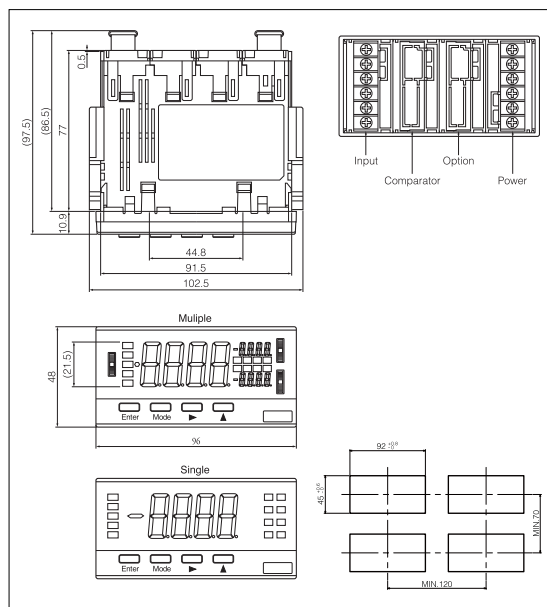
• RS-485 (conforming to EIA RS-485)(A6XXX-X6)

Communication method : Full duplex
 Transmission speed : 4800/9600/19200/38400 bps
 Start bit : 1 bit
 Data length : 7 bit/ 8 bit
 Parity : Even parity/ odd marity/ none
 Error detection : BCC
 Stop bit : 1 bit/2 bit
 Character code : ASCII code
 Transmssion control process : Ignord process
 Signal name : +non reversal output
 -reversal output
 Maximum no of meter connected : 31
 Line length : up to 500m in total

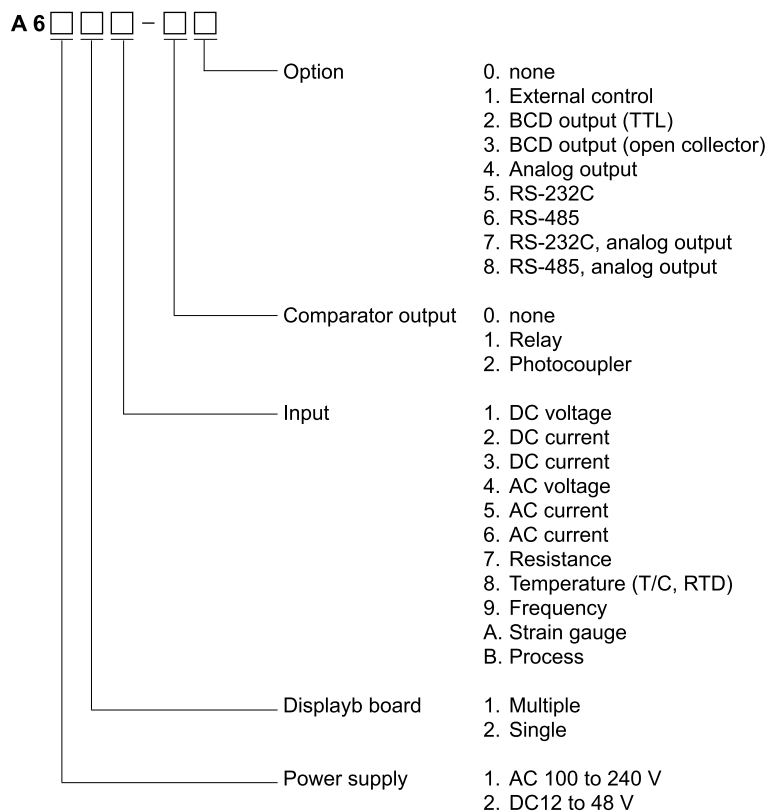
Common Specification

Display	: Main display Red or Green LED 20 mm Sub display Red LED 6 mm	
Conversion rate	: 1000 times/sec.	
Maximum display	: 9999	
Overrange indication	: When input exceed the maximum display display OVER or -OVER	
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	: AC 100 to 240 V $\pm 10\%$ DC 12 to 48 V $\pm 10\%$	
Power consumption	: 8 VA (max. load)	
Dimensions	: 96 mm (W) X 48 mm (H) X 97.5 mm (D) DIN size	
Weight	: approx. 450 g	
Dielectric strength (AC)	: Power supply/input terminal/output terminal	AC1500 V/min.
	(DC) : Power supply/input terminal/output terminal	DC500 V/min.
	(Common) : Case/each terminal	AC1500 V/min.
Insulation resistance	: DC500 V more than 100 M Ω at the above terminals	

Dimensions



Ordering Code



We reserve the right to change specifications without notice.

watanabe

Watanabe Electric Industry Co., Ltd.

6-16-19, Jingumae, Shibuya-ku,

Tokyo 150-0001, Japan

Phone: +81-33400-6147 FAX: +81-33409-3156

<http://www.watanabe-electric.co.jp>