

SPECIFICATIONS

DC VOLTAGE (DC V)

Ranges:

* 16.7 ms shows 16.66 ...

	Integrating Time (500/200 ms)		Integrating Time (100/20/16.7 ms)*		Integrating Time (2.5 ms)		Input Resistance	Max. Input
	Max. Reading	Resolution	Max. Reading	Resolution	Max. Reading	Resolution		
200 mV	199.9999	100 nV	199.999	1 µV	199.99	10 µV	> 1 GΩ	±200 V peak between Hi and Lo. ±42 V peak between Lo and guard. ±500 V peak between guard and case.
2,000 mV	1,999.999	1 µV	1,999.99	10 µV	1,999.9	100 µV		
20 V	19.99999	10 µV	19.9999	100 µV	19.999	1 mV		
200 V	199.9999	100 µV	199.999	1 mV	199.99	10 mV	10 MΩ ±1%	

Accuracy (Integrating Time 500 ms): ±(% of reading+digits)

Range	24 h, 23±1°C	90 days, 23±5°C	1 year, 23±5°C	Temperature Coefficient (/°C*)
200 mV	0.004 + 20 (3) {4}	0.006 + 25 (4) {4}	0.01 + 25 (4) {4}	0.0007 + 5 (.6) {.2}
2,000 mV	0.0025 + 8 (2) {3}	0.0045 + 10 (2) {3}	0.0075 + 10 (2) {3}	0.00055 + 1 (.2) {.1}
20 V	0.003 + 8 (2) {3}	0.005 + 10 (2) {3}	0.009 + 10 (2) {3}	0.00065 + 1 (.2) {.1}
200 V	0.0045 + 10 (2) {3}	0.009 + 15 (2) {3}	0.016 + 15 (2) {3}	0.00075 + 1 (.2) {.1}

* Temperature range: 5 to 18, 28 to 40°C.

- Accuracy at 24 hours, 23±1°C is the value for the calibration standard.
- Auto Zero ON, Null.
- **Integrating time:** At 200 ms, 2 is added to the value (digits) in integrating time 500 ms.
- () indicates the value (digits) in integrating time 100 ms. At 20/16.7 ms, 2 is added to the value (digits) in integrating time of ().
- { } indicates the value (digits) integrating time 2.5 ms.
- At Auto Zero OFF, temperature coefficient of ±(0.0015% of range ±25 µV)/°C is added (at 5 to 40°C).
- **Common Mode Rejection:** 120 dB or more. Integrating time: 500/200/100/20/16.7 ms. Rs = 1 kΩ, 50/60 Hz ±0.1% (Rs: signal source resistance.)
- **Normal Mode Rejection:** 60 dB or more. Integrating time: 500/200/100/20/16.7 ms, 50/60 Hz ±0.1%.

RESISTANCE (OHM)

Ranges:

Range	Integrating Time (500/200 ms)		Integrating Time (100/20/16.7 ms)		Integrating Time (2.5 ms)		Current through Unknown
	Max. Reading	Resolution	Max. Reading	Resolution	Max. Reading	Resolution	
200 Ω	199.9999	100 µΩ	199.999	1 mΩ	199.99	10 mΩ	1 mA
2,000 Ω	1,999.999	1 mΩ	1,999.99	10 mΩ	1,999.9	100 mΩ	1 mA
20 kΩ	19.99999	10 mΩ	19.9999	100 mΩ	19.999	1 Ω	100 µA
200 kΩ	199.9999	100 mΩ	199.999	1 Ω	199.99	10 Ω	10 µA
2,000 kΩ	1,999.999	1 Ω	1,999.99	10 Ω	1999.9	100 Ω	1 µA
20 MΩ	19.9999	100 Ω	19.9999	100 Ω	19.999	1 kΩ	100 nA

Accuracy (4-wire, Integrating Time 500 ms): ±(% of reading+digits)

Range	24 h, 23±1°C	90 days, 23±5°C	1 year, 23±5°C	Temperature Coefficient (/°C*)
200 Ω	0.004 + 25 (4) {4}	0.008 + 30 (5) {4}	0.012 + 30 (6) {4}	0.001 + 10 (2) {0.5}
2,000 Ω	0.003 + 15 (3) {3}	0.006 + 25 (4) {3}	0.01 + 25 (5) {3}	0.00075 + 2 (0.5) {0.1}
20 kΩ	0.003 + 15 (3) {3}	0.006 + 25 (5) {3}	0.01 + 25 (5) {3}	0.00075 + 2 (0.5) {0.1}
200 kΩ	0.005 + 20 (3) {3}	0.008 + 30 (5) {3}	0.012 + 30 (5) {3}	0.00075 + 1 (0.5) {0.1}
2,000 kΩ	0.02 + 135 (15) {20}	0.03 + 150 (20) {30}	0.05 + 150 (20) {30}	0.003 + 2 (0.5) {0.1}
20 MΩ	0.2 + 30 (30)	0.2 + 30 (30)	0.02 + 30 (30)	0.02 + 1 (1)

* Temperature range: 5 to 18, 28 to 40°C.

- Accuracy at 24 hours, 23±1°C is the value for the calibration standard.
- Auto Zero ON, Null.
- **Integrating Time:** At 200 ms, 2 is added to the value (digits) in integrating time 500ms.
- () indicates the value (digits) in integrating time 100 ms. For integrating time 20/16.7 ms, 2 is added to the value (digits) enclosed in the parentheses.
- { } indicates the value (digits) in integrating time 2.5 ms.
- For 20 MΩ at sampling interval 400 ms or more. Accuracy is not prescribed in integrating time 2.5 ms.
- At Auto Zero OFF, temperature coefficient on 200 Ω range is ±(0.013% of range)/°C, on other ranges ±(0.003% of range)/°C is added (at 5 to 40°C).
- For 2-wire system, 2 mΩ/°C is added.
- Excluding the influence of leadwires.
- **Open Circuit Voltage:** Max. 10 V.
- **Maximum Input Voltage:** ±200 V peak or 200 V rms (between Hi and Lo).
- **Response Time:** 0.4 s or less on 2,000 kΩ/20 MΩ ranges (to final value).

■ TEMPERATURE (TC)

Range ^{*1}	Measurement Range		Resolution (500/200 ms)	Accuracy ^{*2} (Integrating Time 500/200/100/20/16.7 ms): ± (% of rdg + °C)			Temperature Coefficient (common to Each Integrating Time) ^{*5}
				24 hours, 23±1°C ^{*4}	90 days, 23±5°C ^{*4}	1 year, 23±5°C ^{*4}	Temperature Coefficient ^{*4} (% of rdg + °C)/°C
R	−50.0 to 0°C	−58.0 to 32.0°F	0.1°C (0.1°F)	0.005 + 0.5 {0.7}	0.007 + 0.5 {0.7}	0.01 + 0.5 {0.7}	0.001 + 0.07
	0.0 to 100.0°C	32.0 to 212.0°F	0.1°C (0.1°F)	0.005 + 0.4 {0.5}	0.007 + 0.4 {0.5}	0.01 + 0.4 {0.5}	
	100.0 to 600.0°C	212.0 to 1,112.0°F	0.1°C (0.1°F)	0.005 + 0.3 {0.4}	0.007 + 0.3 {0.4}	0.01 + 0.3 {0.4}	
	600.0 to 1,760.0°C	1,112.0 to 3,200.0°F	0.1°C (0.1°F)	0.005 + 0.2 {0.3}	0.007 + 0.2 {0.3}	0.01 + 0.2 {0.3}	
S	−50.0 to 0°C	−58.0 to 32.0°F	0.1°C (0.1°F)	0.005 + 0.6 {0.7}	0.007 + 0.6 {0.7}	0.01 + 0.6 {0.7}	0.001 + 0.07
	0.0 to 100.0°C	32.0 to 212.0°F	0.1°C (0.1°F)	0.005 + 0.4 {0.5}	0.007 + 0.4 {0.5}	0.01 + 0.4 {0.5}	
	100.0 to 600.0°C	212.0 to 1,112.0°F	0.1°C (0.1°F)	0.005 + 0.3 {0.4}	0.007 + 0.3 {0.4}	0.01 + 0.3 {0.4}	
	600.0 to 1,760.0°C	1,112.0 to 3,200.0°F	0.1°C (0.1°F)	0.005 + 0.2 {0.3}	0.007 + 0.2 {0.3}	0.01 + 0.2 {0.3}	
B	0.0 to 42°C	32.0 to 107.6°F	—	—	—	—	0.001 + 0.02
	42.0 to 100.0°C	107.6 to 212.0°F	0.1°C (0.1°F)	0.005 + 7.0 {9.0}	0.007 + 7.0 {9.0}	0.01 + 7.0 {9.0}	
	100.0 to 200.0°C	212.0 to 392.0°F	0.1°C (0.1°F)	0.005 + 1.5 {2.0}	0.007 + 1.5 {2.0}	0.01 + 1.5 {2.0}	
	200.0 to 300.0°C	392.0 to 572.0°F	0.1°C (0.1°F)	0.005 + 1.0 {1.2}	0.007 + 1.0 {1.2}	0.01 + 1.0 {1.2}	
	300.0 to 400.0°C	572.0 to 752.0°F	0.1°C (0.1°F)	0.005 + 0.7 {0.9}	0.007 + 0.7 {0.9}	0.01 + 0.7 {0.9}	
	400.0 to 1,820.0°C	752.0 to 3,308.0°F	0.1°C (0.1°F)	0.005 + 0.3 {0.4}	0.007 + 0.3 {0.4}	0.01 + 0.3 {0.4}	
K	−270.0 to −250.0°C	−454.0 to −418.0°F	0.1°C (0.1°F)	0.004 + 1.3 {2.5}	0.006 + 1.3 {2.5}	0.01 + 1.3 {2.5}	0.0007 + 0.02
	−250.0 to −200.0°C	−418.0 to −328.0°F	0.1°C (0.1°F)	0.004 + 0.5 {0.9}	0.006 + 0.5 {0.9}	0.01 + 0.5 {0.9}	
	−200.0 to 0.0°C	−328.0 to 32.0°F	0.1°C (0.1°F)	0.004 + 0.3 {0.4}	0.006 + 0.3 {0.4}	0.01 + 0.3 {0.4}	
	0.0 to 1,370.0°C	32.0 to 2,498.0°F	0.1°C (0.1°F)	0.004 + 0.2 {0.3}	0.006 + 0.2 {0.3}	0.01 + 0.2 {0.3}	
J	−210.0 to −200.0°C	−346.0 to −328.0°F	0.1°C {0.1°F}	0.004 + 0.4 {0.6}	0.006 + 0.4 {0.6}	0.01 + 0.4 {0.6}	0.0007 + 0.01
	−200.0 to −150.0°C	−328.0 to −238.0°F	0.1°C (0.1°F)	0.004 + 0.3 {0.5}	0.006 + 0.3 {0.5}	0.01 + 0.3 {0.5}	
	−150.0 to 0.0°C	−238.0 to 32.0°F	0.1°C (0.1°F)	0.004 + 0.2 {0.4}	0.006 + 0.2 {0.4}	0.01 + 0.2 {0.4}	
	0.0 to 1,200.0°C	32.0 to 2,192.0°F	0.1°C (0.1°F)	0.004 + 0.2 {0.3}	0.006 + 0.2 {0.3}	0.01 + 0.2 {0.3}	
E	−270.0 to −250.0°C	−454.0 to −418.0°F	0.1°C (0.1°F)	0.004 + 0.8 {1.5}	0.006 + 0.8 {1.5}	0.01 + 0.8 {1.5}	0.0007 + 0.01
	−250.0 to −200.0°C	−418.0 to −328.0°F	0.1°C (0.1°F)	0.004 + 0.3 {0.6}	0.006 + 0.3 {0.6}	0.01 + 0.3 {0.6}	
	−200.0 to 0.0°C	−328.0 to 32.0°F	0.1°C (0.1°F)	0.004 + 0.2 {0.4}	0.006 + 0.2 {0.4}	0.01 + 0.2 {0.4}	
	0.0 to 1,000.0°C	32.0 to 1,832.0°F	0.1°C (0.1°F)	0.004 + 0.2 {0.3}	0.006 + 0.2 {0.3}	0.01 + 0.2 {0.3}	
T	−270.0 to −250.0°C	−454.0 to −418.0°F	0.1°C (0.1°F)	0.004 + 1.0 {1.5}	0.006 + 1.0 {1.5}	0.01 + 1.0 {1.5}	0.0007 + 0.02
	−250.0 to −200.0°C	−418.0 to −328.0°F	0.1°C (0.1°F)	0.004 + 0.3 {0.5}	0.006 + 0.3 {0.5}	0.01 + 0.3 {0.5}	
	−200.0 to 400.0°C	−328.0 to 752.0°F	0.1°C (0.1°F)	0.004 + 0.2 {0.3}	0.006 + 0.2 {0.3}	0.01 + 0.2 {0.3}	
U	−200.0 to −100.0°C	−328.0 to −148.0°F	0.1°C (0.1°F)	0.004 + 0.3 {0.4}	0.006 + 0.3 {0.4}	0.01 + 0.3 {0.4}	0.0007 + 0.01
	−100.0 to 0.0°C	−148.0 to 32.0°F	0.1°C (0.1°F)	0.004 + 0.3 {0.4}	0.006 + 0.3 {0.3}	0.01 + 0.3 {0.4}	
	0.0 to 600.0°C	32.0 to 1,112.0°F	0.1°C (0.1°F)	0.004 + 0.2 {0.3}	0.006 + 0.2 {0.2}	0.01 + 0.2 {0.4}	
L	−200.0 to −100.0°C	−328.0 to −148.0°F	0.1°C (0.1°F)	0.004 + 0.3 {0.4}	0.006 + 0.3 {0.4}	0.01 + 0.3 {0.4}	0.0007 + 0.01
	−100.0 to 900.0°C	−148.0 to 1,652.0°F	0.1°C (0.1°F)	0.004 + 0.2 {0.3}	0.006 + 0.2 {0.3}	0.01 + 0.2 {0.3}	
N	0.0 to 1,300.0°C	32.0 to 2,372.0°F	0.1°C (0.1°F)	0.004 + 0.2 {0.3}	0.006 + 0.2 {0.3}	0.01 + 0.2 {0.3}	0.0007 + 0.02
W	0.0 to 2,315.0°C	32.0 to 4,199.0°F	0.1°C (0.1°F)	0.004 + 0.2 {0.4}	0.006 + 0.2 {0.4}	0.01 + 0.2 {0.4}	0.001 + 0.03
KPvsAu7Fe	0.0 tp 20.0 K 20.0 to 70.0K 70.0 to 300.0K	—	0.1K 0.1K 0.1K	^{*2} 0.005 + 1.3 {0.4} 0.005 + 0.2 {0.3} 0.005 + 0.2 {0.2}	^{*2} 0.007 + 0.3 {0.3} 0.007 + 0.2 {0.2} 0.007 + 0.2 {0.2}	^{*2} 0.011 + 0.3 {0.3} 0.011 + 0.2 {0.2} 0.011 + 0.2 {0.2}	^{*3} 0.001 + 0.05

^{*1} As to the R, S, B, K, J, E, T and N, the provisions of IEC584-1 apply.
As to the U and L, those of DIN 43710 apply.
As to the W, those of Hoskins Mfg Co. (USA) apply.
As to the KPvsAu7Fe, those of NSB Vol. 76A apply.

^{*2} KPvsAu7Fe: ± (% of rdg + K)

^{*3} KPvsAu7Fe: ± (% of rdg + K)/°C

^{*4} In case of accuracy and temperature coefficient of °F, multiply 1.8 × °C.

^{*5} Condition: At ambient temperature of 5 to 18°C (41 to 64°F) and 28 to 40°C (82 to 104°F)

● Accuracy of reference junction compensation

Range	Accuracy of Reference Junction Compensation (°C)	Description
R, S, B, W, KPvsAu7Fe	±0.3°C (±0.6°F)	At the ambient temperature of 5 to 40°C
K, J, E, U, L, N, T	±0.2°C (±0.4°F)	

- In case of internal compensation, the above accuracy of reference junction compensation should be added to measuring accuracy.
- The accuracy of Type B at 0 to 42°C is not prescribed.

■ **Temperature unit:** Changeable among °C, °F, and K. Provided, however, that only K applies as to KPvsAu7Fe.

■ Accuracy

- The accuracy is in the case of REAR input, external RJC (reference junction temperature = 0°C.)
- In case of FRONT input, 0.2°C should be added.
- { } indicates the values in integrating time of 2.5 ms.
- Auto Zero ON.
- Accuracy of RJC is excluded.
- The accuracy for Type B at 0 to 42°C is not prescribed.
- **Common mode rejection:** 120dB or more. Integrating time: 500, 200, 100, 20 and 16.7 ms, Rs=1 kΩ, 50/60 Hz ± 0.1%
- **Normal mode rejection:** 60 dB or more. Integrating time: 500, 200, 100, 20, and 16.7 ms, 50/60 Hz ± 0.1%
- In case of integrating time 200 or 500 ms at measuring temperature, the response time is 100 ms by setting FILTER.

■ TEMPERATURE (RTD)

*1 Range	Measurement Range	Resolution	Current through Unknown	*2 Accuracy (Integrating Time 500/200 ms): \pm (% of rdg+°C)			Temperature Coefficient (Common to Each Integrating Time)*5
		500/200/100 ms		24 hours, $23 \pm 1^\circ\text{C}^{*4}$	90 days, $23 \pm 5^\circ\text{C}^{*4}$	1 year, $23 \pm 5^\circ\text{C}^{*4}$	Temperature Coefficient (% of rdg+°C)/°C ^{*4}
Pt100	-200.00 to 650.00°C (-328.00 to 1,202.00°F)	0.01°C (0.01°F)	1 mA	0.005+0.07 (0.1) {0.3}	0.01+0.07 (0.1) {0.3}	0.014+0.07 (0.1) {0.3}	0.001+0.006
JPt100	-200.00 to 510.00°F (-328.00 to 950.00°F)	0.01°C (0.01°F)	1 mA	0.005+0.07 (0.1) {0.3}	0.01+0.07 (0.1) {0.3}	0.014+0.07 (0.1) {0.3}	0.001+0.004
Pt1000	-200.00 to 650.00°C (-328.00 to 1,202.00°F)	0.01°C (0.01°F)	0.1 mA	0.005+0.05 (0.07) {0.2}	0.01+0.05 (0.07) {0.2}	0.014+0.05 (0.07) {0.2}	0.001+0.003
J263*B	2.0 to 300.0K	0.1K	1 mA	*2 $\begin{bmatrix} 0.005+0.1 \\ (0.1) \{0.2\} \end{bmatrix}$	*2 $\begin{bmatrix} 0.012+0.1 \\ (0.1) \{0.2\} \end{bmatrix}$	*2 $\begin{bmatrix} 0.016+0.01 \\ (0.1) \{0.2\} \end{bmatrix}$	*3 0.001+0.003

*1 As to Pt100, IEC751-1995 apply. As to JPt100, JIS1604-1989 apply.
As to Pt1000, the prescription for Pt100 of IEC751-1995 applies.

*2 J263*B: \pm (% of rdg+K)

*3 J263*B: \pm (% of rdg+K)/°C.

*4 In case of accuracy and temperature coefficient of °F, multiply $1.8 \times$ °C.

*5 Conditions: Ambient temperature 5 to 18°C (41 to 64°F), 28 to 40°C (82 to 104°F).

■ TEMPERATURE UNIT

Changeable among °C, °F and K, but as to J263*B only K applies.

■ ACCURACY

- Same accuracy for both FRONT and REAR input.
- Allowable conductor resistance: Less than 10 Ω .
- () indicates the accuracy in integrating time of 100, 20, 16.7 ms.
- { } indicates the accuracy in integrating time of 2.5 ms.

■ TEMPERATURE COEFFICIENT

- For 3-wire Pt100, J263 ... 0.003°C/°C
JPt100, Pt1000 ... 0.002°C/°C is added.

■ SAMPLING INTERVAL

10 ms to 60 min. (Resolution: 1 ms, 1 s at 3 s or more)

■ MINIMUM TIME OF THE FOLLOWING CONDITIONS

- DC V, OHM, RTD (2- or 4-wire),
TC (reference junction compensation)

Integrating Time	Measuring Interval (Auto Zero OFF)	Measuring Interval (Auto Zero ON)
2.5 ms	10 ms	15 ms
16.7 ms	25 ms	45 ms
20 ms	35 ms	55 ms
100 ms	110 ms	215 ms
200 ms	210 ms	415 ms
500 ms	510 ms	1015 ms

● RTD (3-wire)

Integrating Time	Measuring Interval
2.5 ms	95 ms
16.7 ms	145 ms
20 ms	155 ms
100 ms	395 ms
200 ms	695 ms
500 ms	1595 ms

● TC

Integrating Time		
2.5 ms	70 ms	150 ms
16.7 ms	135 ms	215 ms
20 ms	150 ms	230 ms
100 ms	470 ms	550 ms
200 ms	870 ms	950 ms
500 ms	2070 ms	2150 ms

■ GENERAL SPECIFICATIONS

Operating Principle: Feedback pulse width modulation method.

Sample Mode: Auto/Single/N reading.

Maximum Reading: 1999999

Overrange Information: -oL- sign display.

Data Memory: 1,000 data, measured data can be stored and recalled: (STORE/RECALL).

Ranging: AUTO, MANUAL, (remote control and programming possible).

Analog Output (D/A converter): Optional.

Burnout: TC burnout (defective connection or disconnection etc.) is automatically checked and indicated by alarm display (ON or OFF selectable).

2 k Ω or less (normal), if the value is higher than 30 k Ω , the connection is cut down. Current 2.2 μA or so. Pulse width detection; 2.4 ms or so.

Operating Temperature Range: 5 to 40°C (41 to 104°F).

Humidity Range: 20 to 80% relative humidity.

Warmup Time: Approx. 60 minutes to rated accuracy.

Power Requirements: 100/115 V AC $\pm 10\%$ (100/115 V: selectable by switch), 50 or 60 Hz (200/230 V must be specified, selectable)

Power Consumption: 20 VA max.

Dimensions (Approx.): 213(W) \times 88(H) \times 350(D) mm, (8-3/8 \times 3-1/2 \times 13-15/16")

Weight (Approx.): 3 kg (6.6 lbs)

● GP-IB Interface (756301)

Electrical & Mechanical Specifications: Conforms to IEEE Std 488-1978.

Interface Function & Identification: SH1, AH1, L4, SR1, RL1, PP0, DC1, DT1, C0. Address mode, address and header ON/OFF are settable.

● RS-232-C Interface (756302)

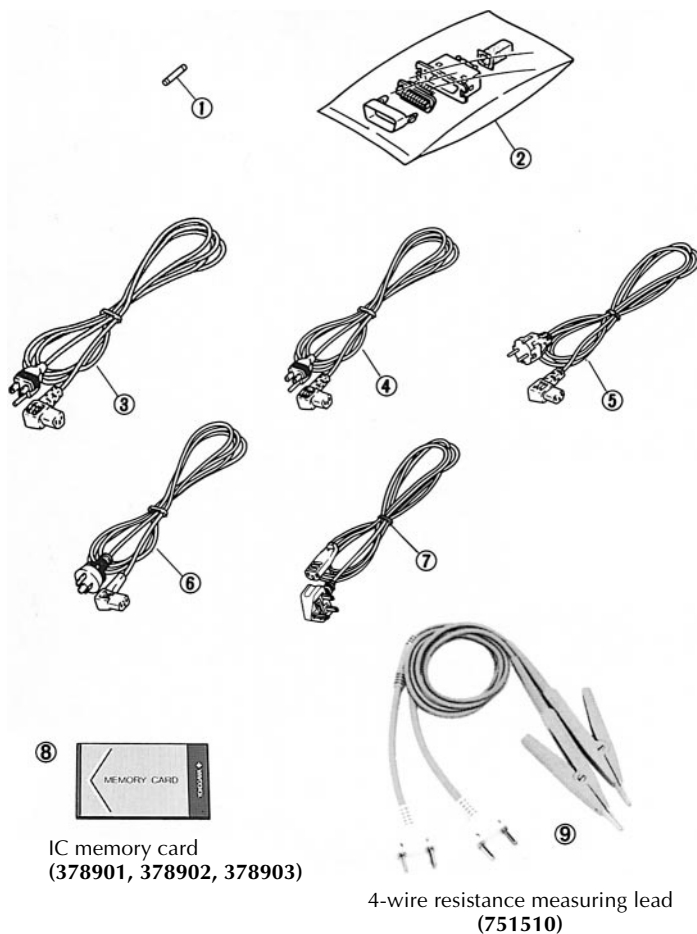
Transmission Systems: Start-stop system.

Data Transfer Rates: 75, 150, 300, 600, 1,200 2,400, 4,800, 9,600 bps. Hand Shake mode, bps rate, No. of bits and header ON/OFF are settable.

STANDARD ACCESSORIES

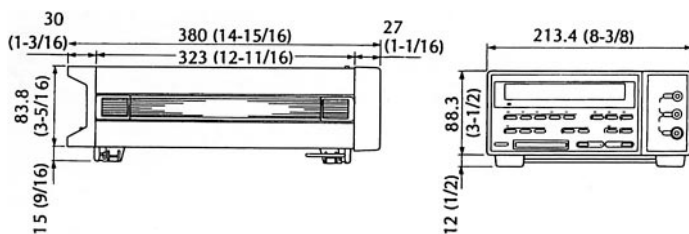
No.	Name	Part No.	Description	Q'ty
1.	Fuse*	A1105EF A1103EF	0.2 A, 100 V 0.1 A, 200 V	1
2.	Remote connector	A1004JD	—	1
—	Instruction manual	—	—	1
3.	Power supply cord*	A1007WD	100 V series (JIS standard)	1
4.		A1006WD	115 V series (UL standard)	1
5.		A1009WD	200 V series (VDE standard)	1
6.		A1013WD	230 V series (SAA standard)	1
7.		A1023WD	BS standard	1

*Specified one.



DIMENSIONS

Unit: mm (inch)



AVAILABLE MODELS

Model	Suffix Codes	Description
756301	6.5 digits DC V, OHM, TEMP (TC & RTD) (GP-IB)
756302	DC V, OHM, TEMP (TC & RTD) (RS-232-C)
	-C	Always C (version code)
Power Requirements	-1	100 V AC (50 & 60 Hz), 115 V AC changeable
	-3	115 V AC (50 & 60 Hz), 100 V AC changeable
	-5	200 V AC (50 & 60 Hz), 230 V AC changeable
	-7	230 V AC (50 & 60 Hz), 200 V AC changeable
Power Cord	/B	JIS standard
	/D	UL standard
	/F	VDE standard
	/R	SAA standard
	/I	BS standard
Optional Feature	/DA	D/A converter

OPTIONAL ACCESSORIES

No.	Name	Code	Description
8.	Memory card (8 k bytes)	378901	Setting & measured data
	Memory card (16 k bytes)	378902	Setting & measured data
	Memory card (64 k bytes)	378903	Setting & measured data
—	Dummy card	B9586NG	Dust cap for memory card slot
—	Rack mounting kit	751501	EIA (single mounting)
—	Rack mounting kit	751502	EIA (double mounting)
—	Rack mounting kit	751503	JIS (single mounting)
—	Rack mounting kit	751504	JIS (double mounting)
9.	4-wire resistance measuring lead	751510	0.6 m

< Rack Mounting >

