YOKOGAWA

7555
Digital Multimeter

7555 (755501)
213 × 88 × 379 mm 3 kg
(8-3/8 × 3-1/2 × 11" 6.6 lbs)

RS-232-C
GP-IB

The 7555 Digital Multimeter surpasses all other YOKOGAWA's DMMs to date. While maintaining the same user-friendly basic functions as the previous models, the 7555 multimeter's front panel has been redesigned for improved operability, with enlarged keys that are fewer in number. Frequently-used measuring items can also be operated using one-touch key actions. Equipped with communications functions and offering additional functions, such as a simple scanner function and a BCD output function, the multimeter is applicable to system use, such as automatic measurement, not to speak of bench use.

The multimeter's memory can store up to 2000 measured data items and ten types of setup information.

FEATURES

- **5-1/2 Digit Display "199999"**
- **High Speed Sampling 125 Times/Second**
- **Complete Communication Functions — Standard Provision of RS-232-C, and Optional Addition of GP-IB**
- **Large Current Measurement (DC 200 A, AC 150 A) (when Current Clamp is Used)**
- **Simple Scanner that Permits Multiple Point Measurement (Optional)**
- **BCD Output & D/A Output Functions (Optional)**

FUNCTIONS

- **There are Six Measurement Items: DC V, AC V, Ω2W, Ω4W, DC A, and AC A.**
- **You Can Measure Large Currents Up to 200 A.**

Current measurement using a current clamp (751106)

- **BCD Output (Optional)**
  The measurement data (including decimal point, unit, polarity and over-range) is output in parallel form.
  By combining the instrument with a programmable controller, you can use it on a production line, for example.

- **D/A Output (Optional)**
  Any three-digit number in a row of the displayed data can be outputted in analogue with ±1 V full scale.
- **Simple Scanner (Optional)**
  Multi-points (up to 8 channels) DC V measurement is available with this scanner option.
  It employs a photo MOS relay, resulting in extended operational life. A removable terminal block is used to simplify wiring.

Easily removable scanner terminal block

SPECIFICATIONS

DC Voltage (DC V)

● Ranges

Range	Sampling SLOW / MID2 / MID1		Sampling FAST		Input Resistance	Max. Input (Hi-Lo)
	Max. Reading	Resolution	Max. Reading	Resolution		
200 mV	199.999	1 μV	199.99	10 μV	>1 GΩ	±1000 V PEAK (10s) ± 500 V PEAK (continuously)
2000 mV	1999.99	10 μV	1999.9	100 μV		
20 V	19.9999	100 μV	19.999	1 mV	10MΩ ±1%	±1000V PEAK (continuously)
200 V	199.999	1 mV	199.99	10 mV		
1000 V	1000.00	10 mV	1000.0	100 mV		

● Accuracy (Sampling SLOW) : ±(% of reading + digits)

Range	24h, 23±1°C	90days, 23±5°C	1 year, 23±5°C	Temperature Coefficient (5 to 18, 2 to 40°C)
200 mV	0.0055+6(6)	0.009+8(6)	0.012+8(6)	0.0011+1 (0.4)
2000 mV	0.0045+3(5)	0.006+3(5)	0.009+3(5)	0.0009+0.5 (0.3)
20 V	0.007+4(6)	0.0012+4(6)	0.02+4(6)	0.0012+0.5 (0.3)
200 V	0.006+3(5)	0.011+3(5)	0.019+3(5)	0.0012+0.5 (0.3)
1000 V	0.008+3(5)	0.013+3(5)	0.021+3(5)	0.0015+0.5 (0.3)

* The 24 h, 23±1°C accuracy is the value with respect to the calibration standard.
* The NULL function is used.
* When sampling MID2 is used, 1 is added to the value of digits of SLOW.
* When sampling MID1 is used, 3 is added to the value of digits of SLOW.
* The number in parentheses is the value of digits in the case of sampling FAST.
* Common mode rejection ratio: 120 dB or better
(Value at sampling SLOW/MID2/MID1, 50/60 Hz±0.1%, Rs = 1 kΩ)
* Normal mode rejection ratio: 60 dB or better
(Value at sample SLOW/MID2/MID1, 50/60 Hz±0.1%)
* Maximum allowable voltage between Lo and the case: ±500 V PEAK

DC Current (DC A)

● Ranges

Range	Sampling SLOW / MID2 / MID1		Sampling FAST		Input Resistance
	Max. Reading	Resolution	Max. Reading	Resolution	
2000 μA	1999.99	10 nA	1999.9	100 nA	<11 Ω
20 mA	19.9999	100 nA	19.999	1 μA	<11 Ω
200 mA	199.999	1 μA	199.99	10 μA	<0.3 Ω
2000 mA	1999.99	10 μA	1999.9	100 μA	<0.3 Ω

● Accuracy (Sampling SLOW) : ±(% of reading + digits)

Range	1 year, 23±5°C
2000 μA	0.06 +100(100)
20 mA	0.06 + 20(20)
200 mA	0.12 + 80(20)
2000 mA	0.12 + 40(40)

* When sampling MID2 is used, 10 is added to the value of digits of SLOW.
* When sampling MID1 is used, 20 is added to the value of digits of SLOW.
* The number in parentheses is the value of digits in the case of sampling FAST.
* Temperature coefficient: ±(1/10 of measurement accuracy)/°C
* Allowable current: 2 A (built-in 2 A fuse)

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● When current clamp (**751106**) is used

Range	Max. Reading	Resolution	Accuracy : ±(% of reading + digits)
200 A	199.9	100 mA	2 + 10 (≤150 A)
			2.5 + 10 (>150 A)

* The accuracy is the value over one year, at 23±5°C, after zero adjustment.
* Temperature coefficient: ±(1/10 of measurement accuracy)/°C

Resistance (OHM)

● Ranges

Range	Sampling SLOW / MID2 / MID1		Sampling FAST		Current Through Unknown
	Max. Reading	Resolution	Max. Reading	Resolution	
200 Ω	199.999	1 mΩ	199.99	10 mΩ	1 mA
2000 Ω	1999.99	10 mΩ	1999.9	100 mΩ	1 mA
20 kΩ	19.9999	100 mΩ	19.999	1 Ω	100 µA
200 kΩ	199.999	1 Ω	199.99	10 Ω	25 µA
2000 kΩ	1999.99	10 Ω	1999.9	100 Ω	2.5 µA
20 MΩ	19.9999	100 Ω	———	———	250 nA
200 MΩ	199.99	10 kΩ	———	———	25 nA

● Accuracy (4-wire system, Sampling SLOW):±(% of reading + digits)

Range	24 h, 23±1°C	90 days, 23±5°C	1 year, 23±5°C	Temperature Coefficient (5 to 18, 28 to 40°C)
200 Ω	0.008+6(6)	0.015+7(6)	0.019+7(6)	0.0021+1(1.5)
2000 Ω	0.007+4(5)	0.012+6(5)	0.016+6(5)	0.0016+1(0.4)
20 kΩ	0.007+3(5)	0.012+5(5)	0.016+5(5)	0.0016+1(0.4)
200 kΩ	0.008+3(5)	0.013+5(5)	0.017+5(5)	0.0016+1(0.4)
2000 kΩ	0.03+15(20)	0.05+20(30)	0.05+20(30)	0.005+1(0.4)
20 MΩ	0.25+30	0.25+30	0.25+30	0.02+3
200 MΩ	2+20	2+20	2+20	0.05+5

* The 24 h, 23 ±1°C accuracy is the value with respect to the calibration standard.
* The NULL function is used.
* When sampling MID2 is used, 1 is added to the value of digits of SLOW.
* When sampling MID1 is used, 3 is added to the value of digits of SLOW.
* The number in parentheses is the value of digits in the case of sampling FAST.
* The accuracy in the case of the 2-wire method is the same as that of the 4-wire method. However, 4 mΩ/°C is added to the temperature coefficient.
* Excludes the effect of the lead wires.
* Open temperature voltage: Max. 12.5 V
* Max. input: ±300 V PEAK (between Hi and Lo, between SENSE Hi and SENSE Lo)
* Response time: Until the reading falls within the specified accuracy
2000 kΩ/20 MΩ range Within 0.4 seconds
200 MΩ range Within 5 seconds

AC Voltage (AC V)

● Ranges

Range	Sampling SLOW / MID2 / MID1		Input Resistance	Max. Input (Hi-Lo)
	Max. Reading	Resolution		
200 mV	199.999	1 µV	1 MΩ±2% Approx. 150 pF	700 Vrms or ±1000 V PEAK less than 10^7 V·Hz
2000 mV	1999.99	10 µV		
20 V	19.9999	100 µV		
200 V	199.999	1 mV		
700 V	1000.00	10 mV		

● Accuracy (Sampling SLOW):±(% of reading + digits), 1 year, 23±5°C

Range	20 to 30 Hz	30 to 45 Hz	45 Hz to 10kHz	10 to 20 kHz	20 to 50 kHz	50 to 100 kHz
200 mV	0.9+250	0.5+250	0.4+250	0.5+300	0.8+500	2+500
2000 mV	0.8+100	0.4+100	0.2+100	0.4+200	0.6+500	2+500
20 V	0.8+100	0.4+100	0.2+100	0.4+200	0.6+500	2+500
200 V	1+100	0.4+100	0.3+100	0.4+200	0.8+500	3+500
700 V	1+100	0.4+100	0.4+100	0.6+300		

* When sampling MID2 is used, 10 is added to the value of digits of SLOW.
* When sampling MID1 is used, 20 is added to the value of digits of SLOW.
* AC coupling: True RMS value measurement method
* Input range: Sinusoidal waveform of between 5 and 100% of the range
* Response time: Until the reading falls within ±0.2% of the final value Within 400 ms
* Crest factor: 3 at full scale (For 700 V range: 2 at full scale)
* Temperature coefficient: ±(1/10 of the measurement accuracy)/°C
* Maximum allowable voltage between Lo and the case: ±500 V PEAK

AC Current (AC A)

● Ranges

Range	Sampling SLOW / MID2 / MID1		Input Resistance (50 Hz)
	Max. Reading	Resolution	
2000 µA	1999.99	10 nA	<11 Ω
20 mA	19.9999	100 nA	<11 Ω
200 mA	199.999	1 µA	<0.3 Ω
2000 mA	1999.99	10 µA	<0.3 Ω

● Accuracy (Sampling SLOW): ±(% of reading + digits), 1 year, 23±5°C

Range	20 to 30Hz	30 to 45Hz	45Hz to 2kHz	2 to 5kHz
2000 µA	1.5+350	0.8+300	0.5+300	0.8+300
20 mA	1.3+300	0.8+200	0.5+200	0.8+200
200 mA	1.3+300	0.8+300	0.5+300	0.8+300
2000 mA	1.5+300	1.5+200	1+200	1.5+200

* When sampling MID2 is used, 10 is added to the value of digits of SLOW.
* When sampling MID1 is used, 20 is added to the value of digits of SLOW.
* AC coupling: True RMS value measurement method
* Input: Sinusoidal waveform of between 5 and 100% of the range
* Response time: Until the reading falls within ±0.2% of the final value Within 400 ms
* Crest factor: 3 at full scale
* Temperature coefficient: ±(1/10 of the measurement accuracy)/°C
* Maximum allowable current: 2 A (built-in 2 A fuse)

◆ When current clamp (**751106**) is used.

Range	Max. Reading	Resolution	Accuracy : ±(% of reading + digits)
150 A	150.0	100 mA	2 + 10

* The accuracy is the value over one year, at 23±5°C, after zero adjustment.
* 40 to 500 Hz
* Temperature coefficient: ±(1/10 of measurement accuracy)/°C

Communication Functions

* RS-232-C interface (standard provision)

Transmission method: Start-stop synchronization
Transmission speed: 75, 150, 300, 600, 1200, 2400, 4800, 9600 bits/s
Handshake mode, baud rate, number of bits, and header can be set to ON or OFF.

* GP-IB interface (option)

Electrical and mechanical specifications:
Conforms to IEEE ST'd 488-1978
(Conforms to IEEE ST'd 488.2-1987)
Functional specifications: SH1, AH1, T5, L4, SR1, RL1, PP0, DC1, DT1, C0C
Address mode, address, and header can be set to ON or OFF.

Sampling

	Sampling Speed	Integrating Time
SLOW	2/s	200 ms
MID2	4/s	100 ms
MID1	20/s	20 or 16.67 ms
FAST	50/s (125/s)	2 ms

* When MID1 is used, 20 ms (50 Hz) or 16.66 ms (60 Hz) is automatically selected according to the supply voltage frequency.
* In the case of AC voltage and AC current measurement, MID1 is activated when FAST is selected.
* In the 20 M and 200 MΩ range, MID2 is activated when FAST or MID1 is selected.

General Specifications

Operating principle:	Feedback Pulse Width Modulation method
Sample mode:	Auto/Single
Sampling rate:	Four modes of SLOW, MID2, MID1, and FAST are available.
Maximum reading:	199999
Over-range information:	-oL- sign display
Data memory:	Up to 2000 items of measurement data and also 10 kinds of setup information can be saved.
Operating temperature:	5 to 40°C
Humidity:	20 to 80% RH
Power requirements:	100 V AC (90 to 110 V AC), 120 V AC (108 to 132 V AC) 230 V AC (207 to 253 V AC) 50 or 60 Hz
Storage temperature:	-5 to 50°C
Power consumption:	20 VA max.
Warmup Time:	Approx. 60 minutes (until all specifications are satisfied)
Dimensions:	Approx. 213 (W) × 88 (H) × 350 (D) mm
Weight:	Approx. 3 kg

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Optional Specifications

GP-IB: See Communications Functions above.
Simple scanner: 8 ch, 2-wire (Available for DC voltage measurement only)
Maximum tolerable voltage: 30 V between Hi and Lo terminals, 30 V between channels, 250 V peak between Hi/Lo terminals and the housing
Channel number is displayed on the front panel.
Accuracy: Add 20 to the digits value given as the accuracy for the DC voltage measurement when the range is 2000 mV or less.
Add (0.02% of reading + 20 digits) to the value given as the accuracy for the DC voltage measurement when the range is 20 V or more.
BCD output: Data output: BCD parallel output
Output data: measurement data, decimal point, unit, polarity, over-range
Connector: 50-pin (equivalent to Amphenol 57-40500)
D/A output Output voltage range: -1 V to + 1 V / F.S.
Corresponding reading: any three contiguous digits (or 3 1/2-digits in the case of "1999") of the displayed data

Standard operating condition
Humidity: 50 ±10% RH
Power supply voltage 100 V AC ±1%

Standard Accessories

Power supply cord : 1 piece
Measurement lead : 1 piece
Fuse 2A (FAST) : 1 piece
Remote connector : 1 piece
Instruction manual : 1 copy

AVAILABLE MODELS

Model	Suffix Code	Description
755501		5.5 digits DV C, DC A, OHM, AC V, AC A
Power requrements	**-1**	100 V AC (50 or 60Hz)
	-4	120 V AC (50 or 60Hz)
	-7	230 V AC (50 or 60Hz)
Power Cord	**-D**	UL, CSA standard
	-F	VDE standard
	-R	AS standard
	-Q	BS standard
Option	**/CI**	GP-IB Interface
	/KI	Scanner
	/D2	D/A output +BCD output

* You cannot incorporate both /**K1** and /**D2** optional specifications at the same time.
* /**C1**, /**K1** and /**D2** optional specifications must be specified at the time of ordering (incorporated at the factory).

● Optional Accessories

No.	Name	Code	Description
1	Current clamp*	**751106**	DC 0 to 200 A, AC 0 to 150 A (40 to 500 Hz)
–	Terminal 16PT	**A1460JT**	for scanner option
–	Rack mounting kit	**751533-E2**	EIA (single mounting)
–	Rack mounting kit	**751534-E2**	EIA (double mounting)
–	Rack mounting kit	**751533-J2**	JIS (single mounting)
–	Rack mounting kit	**751534-J2**	JIS (double mounting)
–	Conversion connector	**366971**	RS-232-C conversion connector
–	4-wire resistance measuring lead	**751510**	0.6 m
2	Measurement Lead set	**758917**	0.75 m
3	Banana plug set	**758919**	ϕ4 mm Plug / ϕ4 mm socket
–	Banana conversion adapter	**758920**	ϕ2 mm Plug / ϕ4 mm socket
–	Fork Terminal adapter set	**758921**	Fork terminal / ϕ4 mm socket
4	Alligator clip adapter set	**758922**	Alligator dip / ϕ4 mm socket
5	Clamp adapter set	**758923**	Clamp / ϕ4 mm socket
6	BNC conversion adapter	**758924**	BNC / 4 mm socket (+,–)
7	Safety adapter	**758925**	Conductor part: gold plated

*Current clamp (**751106**) is supported by Yokogawa M&C Corporation


1


2


3


4


5


6


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DIMENSIONS

Unit : mm (inch)