

NEW

YOKOGAWA 


Reliable and Convenient for Maintenance Digital Multimeter


TY500 series Built-in Memory Type TY530/Standard Type TY520

Based on Safe Design, Supporting Various Maintenance Applications

- **High Precision**
 - Basic accuracy 0.09%
 - True RMS measurement
- **Ensured Field Site Safety**
 - Conforms to safety standards EN61010-1 1000V CAT. III, 600V CAT. IV
 - Safety shutters for preventing erroneous insertion of test leads into current measurement terminals
- **New Functions for Yokogawa Middle Class DMMs**
 - Current direct reading function provided by current clamp sensor (optional)
 - Low-pass Filter (LPF)
 - Logging-mode memory for 1600 data*
 - USB communication, application software* (Optional DMM communication package)
 - *TY530 only
- **Closed Case Calibration**



 Built-in Memory Type
TY530
Standard type
TY520



Yokogawa Meters & Instruments Corporation

LF TY700/TY500-E

NEW

YOKOGAWA 

High Accuracy & Performance Digital Multimeter

TY700 series Advanced Type TY720/Standard Type TY710

Most Reliable Handheld DMM

- **Highest Precision**
 - Basic accuracy 0.020%
 - True RMS measurement
- **New Functions for Electronic and Industrial Use**
 - Simultaneous measurement and display of DC and AC
 - Switchable RMS/MEAN detection*
 - Low-pass Filter (LPF)*
 - AC50mV range*
 - Lo-Power resistance measurement*
 - *TY720 only
- **Full Support for Data Management**
 - A large-capacity logging-mode memory
TY720: 10,000 data
TY710: 1,000 data
 - USB communication, application software (Optional DMM communication package)
- **Safe Design and Wide Temperature Range for Harsh Use**
 - Conforms to safety standards EN61010-1 1000V CAT. III, 600V CAT. IV
 - Safety shutters for preventing erroneous insertion of test leads into current measurement terminals
 - Operating temperature range -20 to +55°C
 - Storage temperature range -40 to +70°C
- **Closed Case Calibration**



 Advanced type
TY720
Standard type
TY710



Yokogawa Meters & Instruments Corporation

LF TY700/TY500-E

Model and Specification Code		Optional Accessories	
Name	Model	Name	Model Specification
Digital Multimeter	TY710	DMM communication package	92015 USB communication adapter + USB communication cable + Application software
	TY720	Communication package for printer	97016 Printer adapter + Printer cable
		Printer	97010 Thermal printer Paper width 112mm
		AC adapter for printer	94005 AC 100V ± 10%
		Printer	94006 For Printer, Europe
		Thermal printing paper	97080 10 rolls (1 set)
		Test leads	98015 1000V CAT III, 600V CAT IV, Red/black (1 set)
		Test leads with Alligator Clip	99014 1000V CAT III, 600V CAT IV, Red/black (1 set)

TY700 General Specifications

Measurement Functions: DC voltage, AC voltage, DCV+ACV, DC current, AC current, DCA+ACA, resistance, frequency, temperature, capacitance, duty cycle, decibel calculation, continuity check, diode test, low-power resistance (TY720 only)
For AC voltage/current, RMS/MEAN detection can be switched (TY720 only).
For AC voltage/current, the low-pass filter can be turned on/off (TY720 only).
Additional Functions: Data hold/auto hold/peak hold (TY720 only), range hold, maximum/minimum/average values resistance, capacitance zero, relative and percentage value calculation, manual-mode memory, logging-mode memory, auto power off, backlight (white LED)
Display: 5-digit LCD:7-segment
Digital display: Main display; [50,000] counts
Sub-display: [50,000] counts
Bar graph display:51-segment
Polarity indicator: "-" appears automatically when the polarity is negative
Overrange indicator: "OL"
Low-battery indicator: " " appears at or below the minimum operating voltage.

Measuring Rate: -6 times/sec (Frequency: 1 time/sec, Capacitance: max. 0.03 times/sec (50mF), Resistance: 4 times/sec)
Bar graph display: 15 times/sec
Operating Temp. and Humidity: -20 to 55°C; 80% RH or less (no condensation) 40 to 55°C; 70% RH or less
Storage Temp. and Humidity: -40 to 70°C; 70% RH or less (no condensation)
Temperature Coefficient: Add the accuracy 0.05°C to the basic accuracy at a temperature within -20 to 18°C and 28 to 55°C. For continuous measurements, add 1 digit/°C for DC voltage (DCV) and DC current (DCA). Add 3 digits/°C for 50mV, 5A, and 10A ranges
Power Supply: Four AA (R6) dry cells
Battery Life: Approx. 120 hours (for continuous DC voltage measurement with alkaline cells)
Withstanding Voltage: -6.88kV for 5 seconds (between input terminals and casing)
Dimensions: Approx. 90(W) x 152(H) x 49(D) mm
Weight: Approx. 560g (including batteries)
Compliance with Standards: Safety EN61010-1, EN61010-031, 1000V CAT III, 600V CAT IV, pollution level 2, indoor, 2000m max. above sea level
EMC: EN61326-1 Class B, EN55011 Class B Group 1

Standard Accessories -AA (R6) dry cells: 4, Test lead set (98015): 1, Fuse (installed) 440mA/1000V and 10A/1000V, Instruction manual: 1

Performance

Test conditions: Temperature and humidity = 23 ± 5°C, 80% RH or less; Accuracy = ± (% rdg + dgt).
Note: A response time is the time required for achieving the accuracy specified for the corresponding range.

DC Voltage Measurement (=V)

Range	Resolution	Accuracy TY710, TY720	Input Resistance	Maximum Input Voltage
50mV	0.001mV	0.05+10	Approx. 100MΩ	1000V DC
500mV	0.01mV	0.02+2		
2400mV	0.1mV	0.025+5	10MΩ	1000V rms AC
5V	0.0001V			
50V	0.001V	0.03+2	10MΩ	1000V rms AC
500V	0.01V			
1000V	0.1V			

NMR: 80dB or greater for 50V/60Hz ± 0.1%At 50mV of range, 70dB or greater for 50V/60Hz ± 0.1%
CMR: 100dB or greater for 50V/60Hz(Rs=1kΩ) Response time: 0.3 seconds or less

AC Voltage Measurement [RMS] (-V)

Range	Resolution	Accuracy (Upper: TY710, Lower: TY720; the display of "—" is not specified)					Input Impedance	Maximum Input Voltage
		10 - 20Hz	20Hz - 1kHz	1kHz - 10kHz	10kHz - 20kHz	20kHz - 50kHz		
50mV	0.001mV	2+80 ²	0.4+40 ²	5+40 ²	5.5+40 ²	15+40 ²	11MΩ<50pF	1000V rms AC 1000V DC
500mV	0.01mV	1.5+30 ¹	0.7+30 ¹	2+50 ²	—	—		
5V	0.0001V	1+30 ¹	0.4+30 ¹	1+40 ¹	2+70 ²	5+200 ²	10MΩ<50pF	1000V rms AC 1000V DC
50V	0.001V	—	—	—	—	—		
500V	0.01V	—	—	—	—	—		
1000V	0.1V	—	—	—	—	—		

*1: At 5 to 100% of range *2: At 10 to 100% of range CMR: 80dB or greater for DC to 60Hz(Rs=1kΩ) Response time: 1 second or less

AC Voltage Measurement [MEAN] (-V)

Range	Resolution	Accuracy TY720			Input Impedance	Maximum Input Voltage
		10 - 20Hz	20 - 500Hz	500 - 1kHz		
50mV	0.001mV	4+80 ²	1.5+30 ²	5+30 ²	11MΩ<50pF	1000V rms AC 1000V DC
500mV	0.01mV	2+30 ¹	1+30 ¹	3+30 ¹		
5V	0.0001V	—	—	—	10MΩ<50pF	1000V rms AC 1000V DC
50V	0.001V	—	—	—		
500V	0.01V	—	—	—		
1000V	0.1V	—	—	—		

*1: At 5 to 100% of range *2: At 10 to 100% of range CMR: 80dB or greater for DC to 60Hz (Rs = 1kΩ) Response time: 1 second or less

DCV + ACV (=+)

Range	Resolution	Accuracy (Upper: TY710, Lower: TY720; the display of "—" is not specified)					Input Impedance	Maximum Input Voltage
		DC, 10 - 20Hz	DC, 20Hz - 1kHz	DC, 1k - 10kHz	DC, 10k - 20kHz	DC, 20k - 50kHz		
5V	0.0001V	1.5+10 ¹	1+10 ¹	2+10 ²	—	11MΩ<50pF	1000V rms AC 1000V DC	
50V	0.001V	1.5+10 ¹	0.5+10 ¹	1+10 ¹	2+10 ²			
500V	0.01V	—	—	—	—	10MΩ<50pF	1000V rms AC 1000V DC	
1000V	0.1V	—	—	—	—			

*1: At 5 to 100% of range *2: At 10 to 100% of range CMR: 80dB or greater for DC to 60Hz (Rs = 1kΩ) Response time: Approx. 2 seconds

Resistance Measurement (Ω)

Range	Resolution	Accuracy		Maximum Testing Current	Open-circuit Voltage	Input Protection Voltage
		TY710	TY720			
500Ω	0.01Ω	0.1+2 ¹	0.05+2 ¹	<1mA	<2.5V	1000V rms
5kΩ	0.0001kΩ					
50kΩ	0.001kΩ	0.5+2	1+2	<25μA	<0.13V	1000V rms
500kΩ	0.01kΩ					
5MΩ	0.0001MΩ	—	—	<1.5μA	<0.13V	1000V rms
50MΩ	0.001MΩ					

*1: Accuracy after zero calibration Response time: 1 second or less for 500Ω to 500kΩ, 5 seconds or less for 5MΩ to 50MΩ

Low-power Resistance Measurement (LP-Ω)

Range	Resolution	Accuracy TY720	Maximum Testing Current	Open-circuit Voltage	Input Protection Voltage
50kΩ	0.01kΩ				
500kΩ	0.1kΩ	1+3	<0.6μA	<0.05μA	1000V rms
5MΩ	0.001MΩ				

Continuity Check (☉)

Range	Resolution	Continuity Buzzer TY710, TY720	Testing Current	Open-circuit Voltage	Input Protection Voltage
500Ω	0.1Ω	Buzzer sounds at 100 ± 50Ω or less.	Approx. 0.5mA	<5V	1000V rms

DC Current Measurement (=A)

Range	Resolution	Accuracy TY710, TY720	Voltage Drop	Maximum Input Current
500μA	0.01μA	0.2+5	<0.11mV/μA	440mA fuse-protected
5000μA	0.1μA			
50mA	0.001mA	0.6+10	<4mV/mA	10A fuse-protected
500mA ⁴	0.01mA			
5A	0.0001A	0.6+5	<0.1V/A	10A fuse-protected
10A	0.001A			

Response time: 0.3 seconds or less *3: Maximum testing current at 500mA of range is 440mA

AC Current Measurement [RMS] (-A)

Range	Resolution	Accuracy (Upper: TY710, Lower: TY720; the display of "—" is not specified)			Voltage Drop	Maximum Input Current
		10 - 20Hz	20Hz - 1kHz	1kHz - 5kHz		
500μA	0.01μA	1.5+20	1+20	—	<0.11mV/μA	440mA fuse-protected
5000μA	0.1μA					
50mA	0.001mA	1+20	0.75+20	1+30	<4mV/mA	10A fuse-protected
500mA ⁴	0.01mA					
5A	0.0001A	1.5+20	1+20	—	<0.1V/A	10A fuse-protected
10A	0.001A					

Shown above is the accuracy at 5 to 100% of range (10 to 100% for 10A range). Response time: 1 second or less *3: Maximum testing current at 500mA of range is 440mA.

AC Voltage Measurement [MEAN] (-A)

Range	Resolution	Accuracy TY720		Voltage Drop	Maximum Input Current
		20 - 500Hz	500Hz - 1kHz		
500μA	0.01μA	2+20	1.5+20	2+30	440mA fuse-protected
5000μA	0.1μA				
50mA	0.001mA	3+20	2+20	4+30	10A fuse-protected
500mA ⁴	0.01mA				
5A	0.0001A	2+10	1.5+10	—	10A fuse-protected
10A	0.001A				

Shown above is the accuracy at 5 to 100% of range (10 to 100% for 10A range). Response time: Approx. second or less *3: Maximum testing current at 500mA of range is 440mA.

DCA + ACA (=+)

Range	Resolution	Accuracy (Upper: TY710, Lower: TY720; the display of "—" is not specified)			Voltage Drop	Maximum Input Current
		DC, 10 - 20Hz	DC, 20Hz - 1kHz	DC, 1k - 5kHz		
500μA	0.01μA	1.5+10	1.5+10	—	<0.11mV/μA	440mA fuse-protected
5000μA	0.1μA					
50mA	0.001mA	2+10	1+10	1.5+10	<4mV/mA	10A fuse-protected
500mA ⁴	0.01mA					
5A	0.0001A	2+10	1.5+10	—	<0.1V/A	10A fuse-protected
10A	0.001A					

Shown above is the accuracy at 5 to 100% of range (10 to 100% for 10A range). Response time: Approx. 2 seconds *3: Maximum testing current for 500mA of range is 440mA.

Diode Test (->)

Range	Resolution	Accuracy TY710, TY720	Testing Current (If = 0.6 V)	Open-circuit Voltage	Input Protection Voltage
2.4V	0.0001V	1 + 2	Approx. 0.5mA	<5V	1000V rms

Temperature Measurement (TEMP)

Range	Resolution	Accuracy TY710, TY720	Input Protection Voltage
-200 - 1372°C	0.1°C	1+1.5°C	1000V rms

Temperature probe: Type K thermocouple sensor (optional)

Capacitance (-F)

Range	Resolution	Accuracy TY710, TY720	Input Protection Voltage
5nF	0.001nF	1+5 ¹	1000V rms
50nF	0.01nF		
500nF	0.1nF	2+5	1000V rms
5μF	0.001μF		
50μF	0.01μF	3+5	1000V rms
5mF	0.001mF		
50mF	0.01mF		

*1: Accuracy after zero calibration

Frequency Measurement (Hz)

Range (auto-ranging)	Resolution	Accuracy TY710, TY720
2.000 - 9.999Hz	0.001Hz	0.02+1 ¹
9.00 - 99.99Hz	0.01Hz	
90.0 - 999.9Hz	0.1Hz	—
9.000 - 9.999kHz	0.001kHz	
9.00 - 99.99kHz	0.01kHz	

*1: At 10 to 100% of input voltage or current range

Duty Cycle (%)

Range	Resolution	Accuracy TY710, TY720
10 - 90%	1%	± 1% ¹

*1: For input of a square wave with a frequency within 10.00 to 500.0Hz. At 100% of input voltage or current range

Peak Hold Function (PH) TY720 only

Range	Accuracy TY720	Response Time
DCV, DCA	± 100 digit	>250μs

Model and Specification Code		Optional Accessories	
Name	Model	Name	Model Specification
Digital Multimeter	TY520	DMM communication package	92015 USB communication adapter + USB communication cable + Application software
	TY530	Communication package for printer	97016 Printer adapter + Printer cable
		Printer	97010 Thermal printer Paper width 112mm
		AC adapter for printer	94005 AC 100V ± 10%
		Printer	94006 For Printer, Europe
		Thermal printing paper	97080 10 rolls (1 set)
		Test leads	98015 1000V CAT III, 600V CAT IV, Red/black (1 set)
		Test leads with Alligator Clip	99014 1000V CAT III, 600V CAT IV, Red/black (1 set)
		Fuse	99015 440mA/1000V (1 piece/1 unit)
		Fuse	99016 10A/1000V (1 piece/1 unit)
		TC-K temperature probe	90050 -50 to 600°C (For liquids)

TY500 General Specifications

Measurement Functions: DC Voltage, AC voltage, DC current, AC current, resistance, frequency, temperature, capacitance, continuity check, diode test For AC voltage/current, RMS/MEAN detection can be switched (TY530 only).
Low-pass filter can be switched on/off
Additional Functions: Data hold/auto hold/range hold, maximum/minimum/average values (TY530 only), resistance, relative and percentage value calculation, memory function (TY530 only), segmentation function (TY530 only), logging-mode memory (TY530 only), auto power off, backlight
Display: 3.5-digit LCD:7-segment
Digital display:[6000] counts
Bar graph display:31-segment
Polarity indicator: "-" appears when the polarity is negative
Overrange indicator: "OL"
Low-battery indicator: " " appears at or below the minimum operating voltage.

Measuring Rate: -5 times/sec (Frequency: 1 time/sec, Capacitance: max. 0.14 times/sec (1000μF), Resistance: 2.5 times/sec, Temperature: 0.7 times/sec), Bar graph display: 25 times/sec (DC voltage, diode test: 5 times/sec)
Operating Temp. and Humidity: -10 to 55°C; 80% RH or less (no condensation) 40 to 55°C; 70% RH or less
Storage Temp. and Humidity: -30 to 70°C; 70% RH or less (no condensation)
Temperature Coefficient: Add the accuracy 0.1°C to the basic accuracy at a temperature within -10 to 18°C and 28 to 55°C.
Power Supply: Four AA (R6) dry cells
Battery Life: Approx. 300 hours (for continuous DC voltage measurement with alkaline cells)
Withstanding Voltage: -6.88kV for 5 seconds (between input terminals and casing)
Dimensions: Approx. 90(W) x 152(H) x 49(D) mm
Weight: Approx. 570g (including batteries)
Compliance with Standards: Safety EN61010-1, EN61010-031, 1000V CAT III, 600V CAT IV, pollution level 2, 2000m max. above sea level
EMC: EN61326-1 Class B, EN55011 Class B Group 1

Standard Accessories -AA (R6) dry cells: 4, Test lead set (98015): 1, Fuse (installed) 440mA/1000V and 10A/1000V, Instruction manual: 1

Performance

Test conditions: Temperature and humidity = 23 ± 5°C, 80% RH or less; Accuracy = ± (% rdg + dgt).
Note: A response time is the time required for achieving the accuracy specified for the corresponding range.

DC Voltage Measurement (=V)

Range	Resolution	Accuracy TY520, TY530	Input Resistance
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