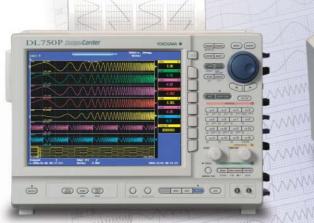


YOKOGAWA

DITEST Scope & Chart Recorder Two-in-One

Sometimes an Oscilloscope, Sometimes a Chart Recorder! The DL750P is equipped with a fully functional scope and chart recorder.



DL750P (701230) 16 isolated analog inputs + 16 logic inputs

> Oscilloscope: 1 GW instantaneous display(GigaZoom) Chart Recorder: High resolution A4 thermal printer

Chart Recorder Function

Access Settings Directly with the "RECORDER" Key '

- Set chart speed, chart length, and other settings in menu just like a chart recorder
- Automatic recording to memory
 During real-time printing, the DL750P also automatically records the waveforms to
 memory in the background. Up to approximately 10 meters (1000 div) can be saved.
- "Reprint" function

Once measurement completed, you can change the print format, length, or other parameters and print the data again. The Reprint function means never worrying about printer failure or running out of paper.

■ The DL750P enables you to...

Check results immediately while on site

High speed printer outputs an A4 size sheet in approximately 15 seconds (20 mm/sec)

□ View multi-channel data in high resolution

The A4 size printer records all channels together, with 1600-dot vertical resolution.

□ Print only what you need

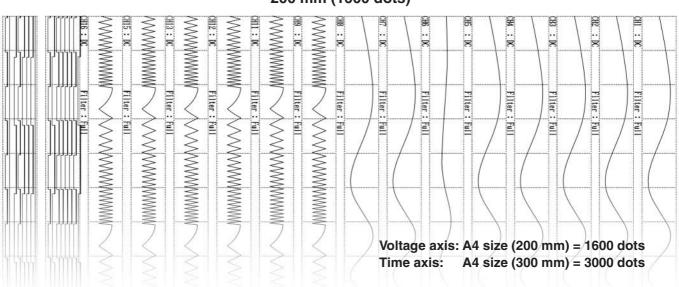
Using the DL750's GigaZoom function, you can instantly print out only the portions of waveforms that you need, thus saving paper.

Record for long periods of time with high reliability Waveforms can be printed out continuously in real time while the electronic data is also automatically saved (up to 1000 div or 10 meters).



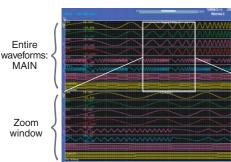
200 mm printing width (1600-dot resolution) High resolution A4 thermal printer

■ DL750P Printout Example (A4 Size, High Resolution)



■ GigaZoom function + A4 Printer

The GigaZoomEngine instantly displays up to 1 GW of data and zoom windows at the same time





Print any length of the zoomed waveforms in high resolution "Zoom Print" function

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Prints XY Plots in High Resolution

- Includes dedicated mode for emulating an XY recorder (XY Recorder mode)
- Prints A4 size plots (200 mm x 200 mm) in high resolution
- · Prints up to 4 pairs(of waveforms) at the same time
- Replaces XY recorders





200 mm = 1600 dots

dots	
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Universal Modules

• Multiple inputs of general-use voltage (100 kS/s, 16-bit) and temperature (thermocouple)

Two isolated inputs (voltage: 100 kS/s, 16-bit; temperature: 500 S/s) Two types of modules available: with or without AAF (anti-aliasing filter)

Key Specifications

Voltage range: 20 V/div-5 mV/div (for 10 div display, in steps of 1-2-5) Temperature: Thermocouple (K, E, J, T, L, U, N, R, S, B, W, iron-doped, gold/chromel)

Filters: AUTO (AAF), 4 kHz, 400 Hz, 40 Hz





Universal 701261

Universal with AAF 701262

200 mm (1600 dots)

DL750P Applications



- □ Maintenance (steel plants, power plants, cogeneration systems)
- □ On-board testing for railroads and other vehicles
- □ Heavy machinery development (industrial machinery, robotics, semiconductor manufacturing equipment)

Multichannel on-site observations (automobiles, automobile parts)

Replacement for Yokogawa's AR, OR, and LR instruments (former models)

11313

Main Unit Specifi	cations		User-defined math f	function (with /G	2 option)
Basic Specification	S			Operators	ABS, SQR, LOG, EXP, NEG, SIN, COS, TAN, ATAN, PH, DIF, DDIF, INTG, BIN
Input Type Number of Slots Maximum sampling		Plug-in module (each unit has a built-in A/D converter) 8 (up to 16 channels) 10 MS/s (701250/701255), 1MS/s (701251) 100 kS/s (701260/61/62/70/71/75), 25 kS/s (701280), 500 S/s (701265)		FFT types Number of FFT points	PH, DIF, DDF, INTG, BIN P2, P3, F1, F2, FV, PWHH, PWHL, PWLH, PWLL, PWXX FILT1, FILT2, HLBT, MEAN, MAG, LOGMAG, PHASE, REAL, IMAG LS, PS, PSD, CS, TF, CH 1000, 2000, 5000, 10000, 20000, 50000, 100000 Rectangular, Hanning, Flattop, Exponential
Logic inputs Max. record length	Standard	16 (8 bits × 2) 2.5 MW/CH, 50 MW total	Waveform Measurem		
Ū	/M1	10 MW/CH, 250 MW total			
Time axis accuracy Time axis setting ra		25 MW/CH, 500 MW total 50 MW/CH, 1 GW total ±0.005% 500 ns-30 sec/div, 1 min-30 min/div, 1 h-12 h/div, 1 day-3 days/div (up to 30 days)	Numerical monitoring Cursors No. of auto-measured wav Operations	veform parameters	Numerically displays the waveform level (instantaneous) for approximately 1 sec interval. Horizontal, Vertical, Marker, Degree, H&V 24 P-P, Max, Min, High, Low, Avg, Rms, Amp, StdDiv,
Acquisition modes		Normal, Envelope, Averaging, Box average			+Oshot, -Oshot,
Triggers					Rise, Fall, Freq, Period, +Duty, +Width, -Width, Pulse, Burst1, Burst2, Avg, Freq, Avg, Period
Modes Simple trigger sour Enhanced trigger s		AUTO, AUTO LEVEL, NORMAL, SINGLE, SINGLE (n) CH1 to CH16, DSP1 to DSP6, LINE, EXT, LOGIC_A, LOGIC_B, Time A \rightarrow B(n), A delay B, B > Time, B < Time, B Time Out, Period, Window, Wave Window		cal processing ons Judgement	Rdelay, Fdelay, IntiTY, Int2TY, Int2XY Max. no. of cycles: 48,000 (max. no. of parameters: 48,000) Zone, Parameter Parameter (16), Zone (4) Print, Save (Binary/ASCII), Beep, Mail
Display			External I/O	710110110	
Display ³ Display modes	Split Zoom XY Accumulation	10.4-inch color TFT liquid crystal display (SVGA 800 × 600 dots) Single, Dual, Triad, Quad, Octal, Hexadecimal (DL/50P) Main, Main&Z1, Main&Z1&Z2, Main&Z2, Z1 ONLY, Z2 ONLY, Z1&Z2 Single Mode (X is fixed, Y is set by user), Quad Mode (XY1, XY2, XY3, XY4) PERSIST Overlays in one color	 LOGIC input specifica Maximum sampling Compatible probes EXT TRIG IN/EXT TF EXT Clock IN 	rate RIG OUT	8 bits × 2 (26 pin connector × 2) 10 MS/s 8-bit non-isolated (700986), 8-bit isolated (700987) RCA pin jack (TTL (0 to 5 V) input) RCA pin jack (TTL (0 to 5 V) input)
Printer (DL750P)			USB peripheral terminal Compliance with David		USB mouse, USB keyboard, USB printer DL750P only (USB memory, USB storage)
 Built-in printer Printing method Paper Effective print width Functions 	g of specified range	Thermal line-dot printing A4 size roll (210 mm (W) × 20 meters) 200 mm (1600 dots) Real-time printing, XY printing, Screen printing Zoom print, Fine print (print specified range in high resolution) 20 mm/sec (500 ms/div)	(Complies with Rev1. • Ethernet (with /C10 o • Other communication • GO/NO-GO I/O • Probe power terminal Max. no. of probes p Compatible probes	USB to PC option) n interfaces Il (with /P4 optio	For control from PC via USB Complies with 100BASE-TX, 10BASE-T GP-IB, SERIAL (RS232), SCSI Modular jack (RJ11), TTL (0-5 V input)
 Real-time printing (c) 		ode)		probes allowed	See: http://www.yokogawa.com/tm/dl/probe_index/tm-dlprobe.htm
Functions		Print (record) waveforms in real time, and save automatically to memory (up to 1000 div) in background	Media Drives		
Resolution	Vertical Horizontal	8 dots/mm A4 size (200 mm)=1600 dots 10 dots/mm A4 size (300 mm)=3000 dots			Selectable form floppy drive or PC card (Zip not available with the DL750P)
Waveform printing	Speeds	20 mm/s (500 ms/div), 10 mm/s, 5 mm/s, 2 mm/s, 1 mm/s 100 mm/min, 50 mm/min, 25 mm/min, 20 mm/min, 10 mm/min,		HDD	40 GB hard drive (with /C8 option)
		5 mm/min, 2 mm/min, 1 mm/min	DSP Channel Function	•	
	Memory length Digital values	100 mm/h, 50 mm/h, 25 mm/h, 20 mm/h, 10 mm/h Continuous, 20 cm, 50 cm, 1 m, 2 m 2.5 M/CH fixed, max. 1000 div (depends on chart speed) Intervals: 1 s, 2 s, 5 s, 10 s, 15 s, 20 s, 30 s, 1 min, 2 min, 5 min, 10 min, 15 min, 20 min, 30 min, 60 min Print directions: Standard or rotated 180 degrees	DSP channels Maximum sampling rat Operators	te	6 100 kS/s (when exceeding 100 kS/s, the data is resampled at 100 kS/s Calculation of 2 items between channels (addition, subtraction, multiplication, division) ■ Differentiation (w/ LPF) ■ Integration ■ Digital filtering (LPF, HPF, BPF, FIR type, IIR type, variable cutoff frequency) ■ Knocking filter function (filter calculations and bulb noise
Print format	Vert. axis divisions	Select from 1, 2, 3, 4, 8, or 16 Flexible zone function available when 1 division selected	Deal The should be		rejection function)
	Vert. axis format	Select 1 div=10 div printed or 1 div=10 mm printed	Real-Time Hard Disk		
		Gague display, upper/lower limits, channel markers, time CH information, messages, CH data	Max usable space p Maximum sampling		100 kS/s (1 CH)
Reprint function		Reprints after STOP (enables resetting of format and range specification)	DualCapture Function		
Print start/stop		PDF file output function Specified length printed upon trigger (Single mode, Repeat(Normal)	This function captures	the same wave	form data at two different sampling rates.
XY recorder mode	Ext. terminal	mode) GO/NO-GO terminal can be used for start/stop input (L=start, H=stop)	Main (low-speed) Sub (high-speed) Sub maximum no. of ca		Max. sampling rate: 100 kS/s, max. memory length: 100 MW Max. sampling rate: 10 MS/s, max. memory length: 10 KW (fixed) 500 (/M3, /M2), 250 (/M1), 100 (with standard memory)
Functions	Vertical	Prints XY plots in high resolution: emulates an XY plotter.	Voice Memo Functio		
Resolution Max. no. of recorda	Horizontal	8 dots/mm × 200 mm=1600 dots 8 dots/mm × 200 mm=1600 dots Any group of 4	Voice memo		Stores voice data during roll mode, plays back from microphone termin and speaker output terminal.
Sampling rate	Die waveloiills	5 kS/s max.	 Voice comment 		Stores voiced comments when saving images.
Memory length		1 MW/CH	Acquisition Memory	Backup	
Record format Zoom Print/Fine print	nt function	XY single (fixed, T-Y not available)	Functions		Backs up acquisition memory and voice data, maintained by four AA
Functions	Waveforms can	be printed in high resolution, also when not in real-time mode Quickly prints the portion zoomed with the GigaZoomEngine in high			alkaline batteries Approximately 10 hours (with /M3 option)
		resolution Prints the cursor-specified range in high resolution	General Specificatio	ns	
Print format	Fine print Vertical Horizontal	Same format as in real-time mode Print length can be specified	Rated supply voltage Rated supply frequenc	CV	100 to 120 VAC/200 to 240 VAC (automatically switched) 50/60 Hz
Screen Data Output			Power consumption		Approximately 200 VA-MAX
Output formats) PNG, JPEG, BMP, PostScript	Withstand voltage Insulating resistance Exterior dimensions	DI 750P	1500 VAC for one minute across power supply and ground 10 M Ω or greater at 500 VDC across power supply and ground 355 mm (W) × 250 mm (H) × 225 mm (D) excluding handle and
Analysis Functions					protrusions
Ch-to-ch calculation Calculable record I Standard:		Definable math waveforms: 8 Up to 800 kW (MATH 1 only), up to 100 KW (MATH 1-8) Addition, subtraction, multiplication, division, binary conversion, phase shifting, FFT		DL750P Modules e range	Approx 7.9 kg (main unit only), approx 10.3 kg (main unit + 701250 × 8 Approximately 300 g per module (average) 5 to 40°C
	FFT types FFT window	PS (1000, 2000, 5000, 10000, 20000, 50000, or 100000 points) Rectangular, Hanning, Flattop, Exponential	 Maximum sampling rate If the sampling frequent Standard operating cont Some pixels of the LCD there may be gradients in 	cy exceeds the ma ditions: ambient te	ype of modules used. xx. sampling rate of the module, the same data is inserted. mp.23°C \pm °C, ambient humidity 55 \pm 10%RH rmanently illuminated or non-illuminated. Also, due to the characteristics of LCDs ise understand that these phenomena do not indicate a defective display.

Universal (Voltage/Te	mperat	ure) Modules	(701261/701262)		
Data updating rate Temperature A/D conversion resolution Frequency range (-3 dB) ⁺ Voltage Temperature Input range Voltage (1-1) Temperature Effective measurement range (voltage) DC offset (voltage) DC accuracy' (voltage)	701261: no TC (therma Isolated um 100 kS/s 500 Hz Voltage: 16 DC to 40 k DC to 100 5 mV/div tc K, E, J, T, L 20 div (disp ± 5 div \pm (0.25% of	bits (2400 LSB/div); te Hz 20 V/div (10 div displa , U, N, R, S, B, W, iron- olay range 10 div) 10 div)	mperature: 0.1°C y, in steps of 1-2-5) doped gold/chromel		
Temp. measured range/accuracy ^{1,2}	Type K E J T L U N	Measured Range -200°C to 1300°C -200°C to 800°C -200°C to 1100°C -200°C to 400°C -200°C to 900°C -200°C to 400°C -200°C to 400°C 0°C to 1300°C	Accuracy ±(0.1% of reading + 1.5°C) However, for -200°C to 0°C, ±0.2% of reading + 1.5°C)		
	R, S	0°C to 1700°C	±(0.1% of reading + 3°C) However, 0°C for 200°C: ±8°C 200°C for 800°C: ±5°C		
	B	0°C to 1800°C	±(0.1% of reading + 2°C) However, 400°C to 700°C: ±8°C Effective range: 400°C to 1800°C		
	Gold/chron K	0°C to 2300°C nel	±(0.1% of reading + 3°C) 0 K to 300 K 0 to 50 K: ±4		
Max. input voltage (1 kHz or less) Max. allowable common mode volt. (1 kHz or less) Input connector	50 to 300 K: ±2.5 K 42 V (DC+ACpeak): for satisfying safety standards ³ 150 V (DC+ACpeak): allowable maximum4 42 V (DC+ACpeak) (CAT I & CAT II, 30 Vrms) Binding post				
Input impedance Approximately 1 MΩ Input filters Voltage OFF, AUTO (AAF), 4 kHz, 400 Hz, 40 Hz (-12 dB/oct except AUTO Temperature OFF, 30 Hz, 8 Hz, 2 Hz AAF (anti-aliasing filter) ⁵ 701262 only Cutoff frequency fc = fs (sampling frequency) × 40% fc automatically linked with the sampling frequency. Cutoff characteristics: -65 dB at 2 Xfc (typical value)					
	±(0.02% of	±(0.01% of 10 div)/°C (typical value) ±(0.02% of 10 div)/°C (typical value) 366961 (banana-to-alligator 1:1)			

Under reference operating conditions (ambient temp. of 23°C ±5°C, ambient humidity of 55% ±10%RH, after 30-minute warmup period and calibration).
 Does not include reference junction/temperature compensation accuracy.
 Since the input connector is of a binding post type, it is possible to touch the metal part of the connector. Therefore, for safety reasons, the maximum value is 42 V (DC+ACpeak).
 Maximum value at which the input circuit will not be damaged.
 When Is= 50 Hz to 100 KHz. When Is:50 Hz, Ic=20 Hz (fixed).
 Except Wen filters set to AUTO.

DL750/DL750P Model Numbers and Suffix Codes

Model	Suf	fix Code		Description	
701210	Sum Code			"DL750 main unit (16 isolated channels + 16-bit logic) ¹	
701210				112 mm width A6 thermal printer built-in"	
701230				"DL750P main unit (16 isolated channels + 16-bit logic) ¹	
701230				210 mm width A4 thermal printer built-in"	
Power cable	-D			UL/ CSA standard	
Power cable					
	-F			VDE standard	
	-R			AS standard	
	-Q			BS standard	
	-H			GB standard(Complied with CCC)	
Internal media drive ²		J1		Floppy drive	
		J2		Zip® drive (available for the DL750 only) ³	
		J3		PC card drive	
Default Help language	•	-HE		English online help	
	- [-HJ		Japanese online help	
	- [-HC		Chinese online help	
	- [-HG		German online help	
		-HF		French online help	
		-HL		Italian online help	
		-HK		Korean online help	
Memory expansion		/M1		Memory expansion to 10 MW/CH ⁴	
		/M2		Memory expansion to 25 MW/CH ⁴	
		/M3		Memory expansion to 50 MW/CH ⁴	
Other specifications		/C8		Internal 40 GB hard drive (FAT32)	
	/C10			Ethernet interface	
	/G2			User-defined math function	
		/_G	3	DSP channel function	
			/P4	Probe power (4-output)	
		L	/DC	DC12 V power (DC10-18 V) (DL750 only)3	

Plug-in modules are not included.
 Choose only one.
 Zip drive and DC12V power supply cannot be specified together with the DL750P.
 A. Cannot be specified together.

Standard Accessories

Product		Order Qty.
Power cable		1
User's manuals (on	e set)	1
Transparent front co	over	1
Printer roll paper	DL750 (A6 10 m/roll)	3
i initer fon paper	DL750P (A4 20 m/roll)	1
Cover panel (for blank module slots)		8
Rubber feet (four per set)		1
Soft case (for storing accessories)		1

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YOKOGAWA ELECTRIC CORPORATION

Communication & Measurement Business Headquarters /Phone: (81)-422-52-6768, Fax: (81)-422-52-6624 E-mail: tm@cs.jp.yokogawa.com

YOKOGAWA CORPORATION OF AMERICA YOKOGAWA EUROPE B.V. YOKOGAWA ENGINEERING ASIA PTE. LTD. Phone: (65)-62419933, Fax: (65)-62412606

Phone: (1)-770-253-7000, Fax: (1)-770-251-6427 Phone: (31)-33-4641858, Fax: (31)-33-4641859

Plug-in Module Model Numbers⁵

Model No.	Description			
701250	High-speed 10 MS/s 12-bit isolation module (2 CH)			
701251	High-speed 1 MS/s 16-bit isolation module (2 CH)			
701255	High-speed 10 MS/s 12-bit non-isolation module (2 CH)			
701260	High-voltage 100 kS/s 16-bit isolation module (2 CH, with RMS)			
701261	Universal Module (2 CH)			
701262	Universal Module (with AAF 2 CH)			
701265	Temperature/high-precision voltage module (2 CH)			
701270	Strain module (NDIS, 2 CH)			
701271	Strain module (DSUB, Shunt-CAL, 2 CH)			
701275	Acceleration/voltage module (with AAF, 2 CH)			
701280	Frequency module (2 CH)			

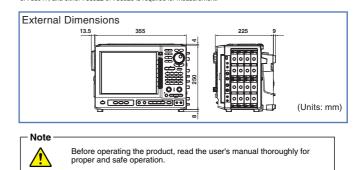
5.Probes are not included with any modules. 6. The latest firmware for the DL750 series is available on our Web site.



DL750/DL750P Accessories

Product	Model No.	Description1		
Isolated probe	700929	1000 Vrms-CATII for 701250, -51, and -60 (10:1)		
"1:1 BNC safety adapter lead (in combination with the following)"	701901	1000 Vrms-CATII for 701250, -51, and -60		
Safety mini clip (hook type)	701959	1000 Vrms-CATII, 1 set each of red and black		
Large Alligator clip (dolphin type)	701954	1000 Vrms-CATII, 1 set each of red and black		
Alligator adapter (rated volt.: 1000 V)	758929	1000 Vrms-CATII, 1 set each of red and black		
Alligator adapter (rated volt.: 300 V)	758922	300 Vrms-CATII, 1 set each of red and black		
Fork terminal adapter	758921	1000 Vrms-CATII, 1 set each of red and black		
Passive probe for DL750/750P ²	701940	Non-isolated 600 Vpk (701255) 42 V or less (other) (10:1)		
1:1 BNC-alligator cable	366926	Non-isolated 42 V or less, for 701250, -51, -55, 1 m		
1:1 Banana-alligator cable	366961	Non-isolated 42 V or less, for 701261, -62, -65, 1.2 m		
Current probe ³	701933	30 Arms, DC to 50 MHz, supports probe power		
Current probe ³	701930	150 Arms, DC to 10 MHz, supports probe power		
Current probe ³	701931	500 Arms, DC to 2 MHz, supports probe power		
Probe power ⁴	701934	Large current output, external probe power supply (4 outputs)		
Differential probe	700924	1400V pk, 1000 Vrms-CAT II		
Bridge head (NDIS, 120 Ω/350 Ω)	701955/56	With 5 m cable		
"Bridge head (DSUB, Shunt-cal 120 Ω/350 Ω)"	701957/58	With 5 m cable		
GO/NO-GO cable	366973	For GO/NO-GO I/O and start input		
Safety BNC-banana adapter	758924	500 Vrms-CATII, for 701250, -51, -55, -60		
Printer roll paper	B9988AE	DL750, A6 size (120 mm wide \times 10m), include 10 rolls		
Printer roll paper	701966	DL750P, A4 size (210 mm wide × 20m), include 6 rolls		
High-speed logic probe5	700986	8-bit, non-isolated, response speed: 1µs		
Isolated logic probe6	700987	8-bit, each channel isolated, response speed: 20 ms (for AC)		
Isolated logic measurement leads	758917	"Isolated logic measurement leads (2 per set) Alligator clip required separately. "		
Conversion adaptor	366928	BNC (jack)-RCA (plug) conversion		
Safety BNC cable (1 meter)	701902	1000 Vrms-CATII (BNC-BNC)		
Safety BNC cable (2 meters)	701903	1000 Vrms-CATII (BNC-BNC)		
Soft carrying case	701963	For DL750, with 3 storage pockets		
Soft carrying case	701967	For DL750P, with 3 storage pockets		

Actual anowable voltage is thread to be not nev ontages specified to the main unit and the capie
 42 V is safe when using the 701940 with a Non isolated type BNC input.
 The number of current probes that can be powered from the main unit probe power is limited. See the following for details. http://www.yokogawa.com/thm/probe/
 There is no limit to the number of externally powered probes that can be used.
 One of each connection lead (B9879PX and B9879XX) is included.
 758917, and either 758922 or 758929 is required for measurement.



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