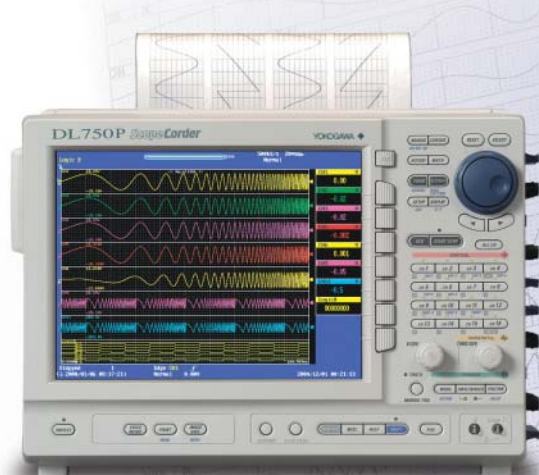


DL750P

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



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

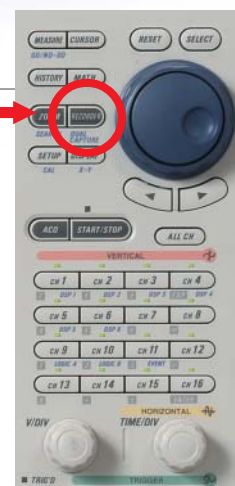
Oscilloscope: 1 GW instantaneous display(GigaZoom)
Chart Recorder: High resolution A4 thermal printer

3-Year Warranty

■ Chart Recorder Function

Access Settings Directly with the "RECORDER" Key

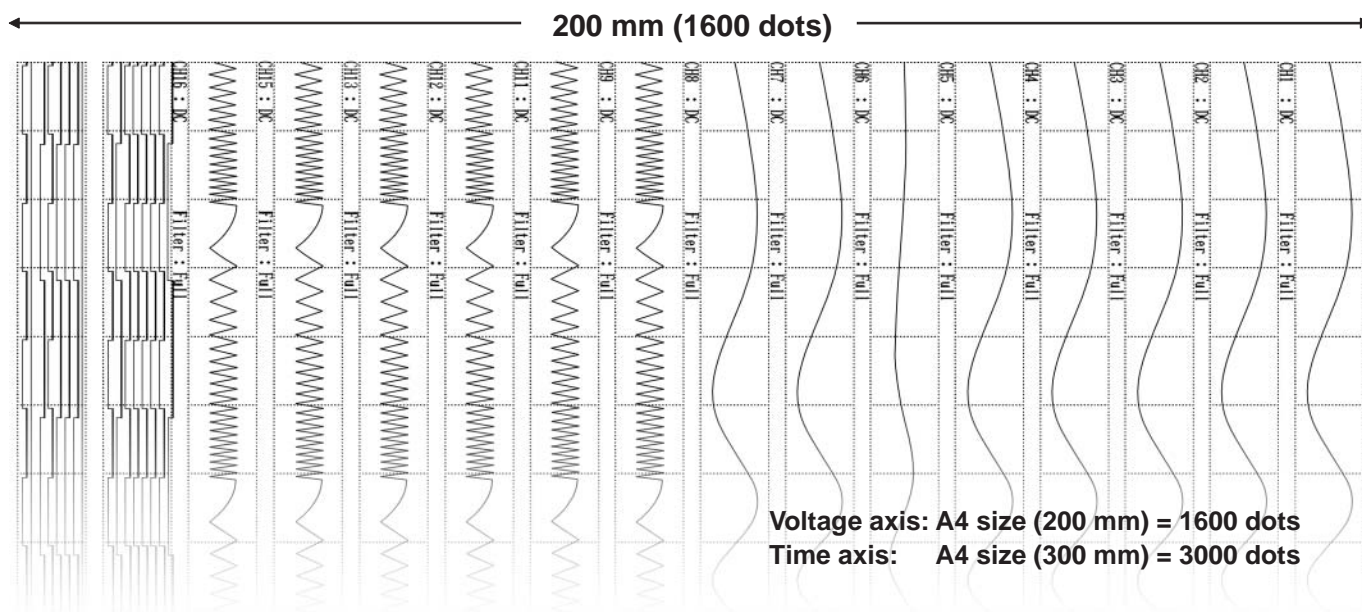
- **Set chart speed, chart length, and other settings in menu just like a chart recorder**
- **Automatic recording to memory**
During real-time printing, the DL750P also automatically records the waveforms to memory in the background. Up to approximately 10 meters (1000 div) can be saved.
- **"Reprint"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

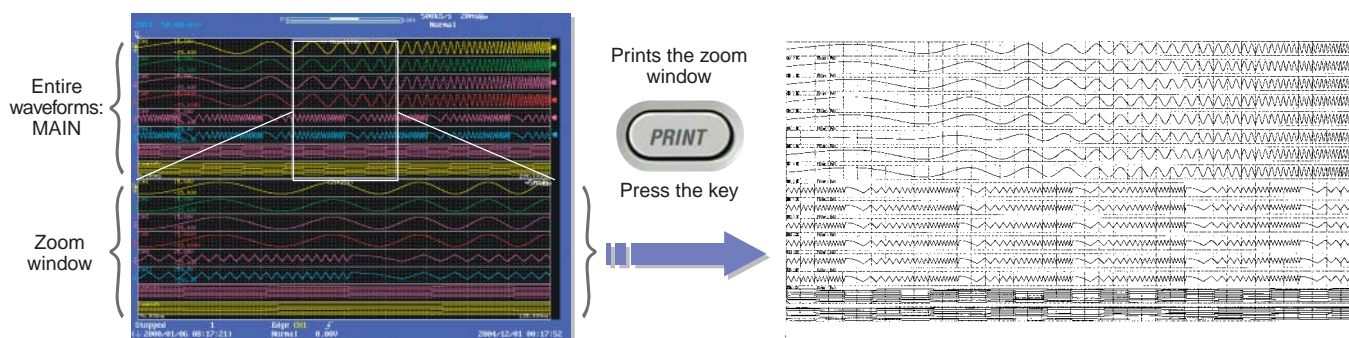
DL750P Printout Example (A4 Size, High Resolution)



GigaZoom function + A4 Printer

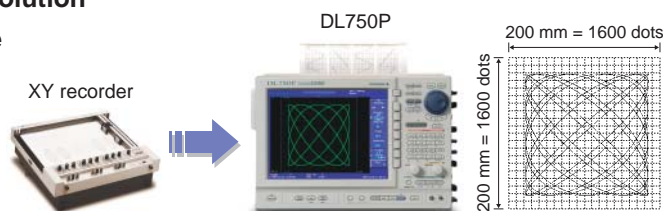
The GigaZoomEngine instantly displays up to 1 GW of data and zoom windows at the same time

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



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



Universal Modules (for Simultaneous Release with the DL750P*1)

- 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

*1. The DL750 will support these new modules via a firmware upgrade which will be made available by the 3rd quarter 2005.



Universal
701261



Universal with AAF
701262

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)

Main Unit Specifications

Basic Specifications

• Input		Plug-in module (each unit has a built-in A/D converter)
Type		8 (up to 16 channels)
Number of Slots		10 MS/s (701250/701255), 1MS/s (701251)
Maximum sampling rate ¹		100 kS/s (701260/61/62/70/71/75), 25 kS/s (701280), 500 S/s (701265)
Logic inputs		16 (8 bits × 2)
• Max. record length	Standard	2.5 MW/CH, 50 MW total
	/M1	10 MW/CH, 250 MW total
	/M2	25 MW/CH, 500 MW total
	/M3	50 MW/CH, 1 GW total
Time axis accuracy ²		±0.005%
Time axis setting range		500 ns-30 sec/div, 1 min-30 min/div, 1 h-12 h/div, 1 day-3 days/div (up to 30 days)
• Acquisition modes		Normal, Envelope, Averaging, Box average

Triggers

Modes		AUTO, AUTO LEVEL, NORMAL, SINGLE, SINGLE (n)
Simple trigger source		CH1 to CH16, DSP1 to DSP6, LINE, EXT, LOGIC, A, LOGIC, B, Time
Enhanced trigger source		A → B(n), A delay B, B > Time, B < Time, B Time Out, Period, Window, Wave Window

Display

Display ³		10.4-inch color TFT liquid crystal display (SVGA 800 × 600 dots)
Display modes	Split	CH1 to CH16, Triad, Quad, Octal, Hexadecimal (DL750P)
	Zoom	Main, Main&Z1, Main&Z1&Z2, Main&Z2, Z1 ONLY, Z2 ONLY, Z1&Z2
	XY	Single Mode (X is fixed, Y is set by user), Quad Mode (XY1, XY2, XY3, XY4)
	Accumulation	PERSIST Overlays in one color

Printer (DL750P)

• Built-in printer		
Printing method		Thermal line-dot printing
Paper		A4 size roll (210 mm (W) × 20 meters)
Effective print width		200 mm (1600 dots)
Functions		Real-time printing, XY printing, Screen printing
High resolution printing of specified range		Zoom print, Fine print (print specified range in high resolution)
Maximum printing speed		20 mm/sec (500 ms/div)
• Real-time printing (chart recorder mode)		
Functions		Print (record) waveforms in real time, and save automatically to memory (up to 1000 div) in background
Resolution	Vertical	8 dots/mm A4 size (200 mm)=1600 dots
	Horizontal	10 dots/mm A4 size (300 mm)=3000 dots
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, 5 mm/min, 2 mm/min, 1 mm/min
		100 mm/h, 50 mm/h, 25 mm/h, 20 mm/h, 10 mm/h
	Print length (shot length)	Continuous, 20 cm, 50 cm, 1 m, 2 m
	Memory length	2.5 M/CH fixed, max. 1000 div (depends on chart speed)
Numerical printing	Digital values	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
Print format	Vert. axis divisions	Select from 1, 2, 3, 4, 8, or 16
		Flexible zone function available when 1 division selected
	Vert. axis format	Select 1 div=10 div printed or 1div=10 mm printed
	Extra information	Gauge display, upper/lower limits, channel markers, time
	Annotations	CH information, messages, CH data
Reprint function		Reprints after STOP (enables resetting of format and range specification)
Print start/stop		PDF file output function
		Specified length printed upon trigger (Single mode, Repeat(Normal) mode)
• XY recorder mode		
Ext. terminal		GO/NO-GO terminal can be used for start/stop input (L=start, H=stop)
Functions		Prints XY plots in high resolution; emulates an XY plotter.
Resolution	Vertical	8 dots/mm × 200 mm=1600 dots
	Horizontal	8 dots/mm × 200 mm=1600 dots
Max. no. of recordable waveforms		Any group of 4
Sampling rate		5 kS/s max.
Memory length		1 MW/CH
Record format		XY single (fixed, T-Y not available)
• Zoom Print/Fine print function		
Functions		Waveforms can be printed in high resolution, also when not in real-time mode
	Zoom print	Quickly prints the portion zoomed with the GigaZoomEngine in high resolution
	Fine print	Prints the cursor-specified range in high resolution
Print format	Vertical	Same format as in real-time mode
	Horizontal	Print length can be specified

Screen Data Output (Image Saving)

Output formats		PNG, JPEG, BMP, PostScript
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Analysis Functions

• Ch-to-ch calculation function		Definable math waveforms: 8
Calculable record length		Up to 800 kW (MATH1 only), up to 100 KW (MATH 1-8)
Standard:	Operators	Addition, subtraction, multiplication, division, binary conversion, phase shifting, FFT
	FFT types	PS (1000, 2000, 5000, 10000, 20000, 50000, or 100000 points)
	FFT window	Rectangular, Hanning, Flattop, Exponential

User-defined math function (with /G2 option)

Operators	ABS, SQR, LOG, EXP, NEG, SIN, COS, TAN, ATAN, PH, DIF, DDIF, INTG, BIN
	P2, P3, F1, F2, FV, PWHH, PWHL, PWLL, PWXX
	FILT1, FILT2, HLB, MEAN, MAG, LOGMAG, PHASE, REAL, IMAG
FFT types	LS, PS, PSD, CS, TF, CH
Number of FFT points	1000, 2000, 5000, 10000, 20000, 50000, 100000
FFT window	Rectangular, Hanning, Flattop, Exponential

Waveform Measurement Functions

• Numerical monitoring function	Numerically displays the waveform level (instantaneous) for approximately 1 sec interval.
• Cursors	Horizontal, Vertical, Marker, Degree, H&V
• No. of auto-measured waveform parameters	24
Operations	P-P, Max, Min, High, Low, Avg, Rms, Amp, StdDiv, +Oshot, -Oshot, Rise, Fall, Freq, Period, +Duty, -Width, -Width, Pulse, Burst1, Burst2, Avg, Freq, Avg, Period, Rdelay, Fdelay, Int1TY, Int2TY, Int1XY, Int2XY
• Cycle/history statistical processing	Max. no. of cycles: 48,000 (max. no. of parameters: 48,000)
• History search functions	Zone, Parameter
• GO/NO-GO	Parameter (16), Zone (4)
Actions	Print, Save (Binary/ASCII), Beep, Mail

External I/O

• LOGIC input specifications	8 bits × 2 (26 pin connector × 2)
Maximum sampling rate	10 MS/s
Compatible probes	8-bit non-isolated (700986), 8-bit isolated (700987)
• EXT TRIG IN/EXT TRIG OUT	RCA pin jack (TTL (0 to 5 V) input)
• EXT Clock IN	RCA pin jack (TTL (0 to 5 V) input)
• USB peripheral terminal	USB mouse, USB keyboard, USB printer
(Complies with Rev1.1)	DL750P only (USB memory, USB storage)
	For control from PC via USB
• Ethernet (with /C10 option)	Complies with 100BASE-TX, 10BASE-T
• Other communication interfaces	GP-IB, SERIAL (RS232), SCSI
• GO/NO-GO I/O	Modular jack (RJ11), TTL (0-5 V input)
• Probe power terminal (with /P4 option)	
Compatible probes	Current probes: 701933 (30 A), 701930 (150 A), 701931 (500 A), others
Max. no. of current probes allowed	See: http://www.yokogawa.com/tm/probe/

Media Drives

Internal media drives	FDD/PC card	Selectable form floppy drive or PC card (Zip not available with the DL750P)
	HDD	30 GB hard drive (with /C8 option)

DSP Channel Function (with the /G3 Option)

DSP channels	6
Maximum sampling rate	100 kS/s (when exceeding 100 kS/s, the data is resampled at 100 kS/s)
Operators	■ 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 rejection function)

Real-Time Hard Disk Recording (with /C8 Option)

Max usable space per single save	1 GW
Maximum sampling rate	100 kS/s (1 CH)

DualCapture Function

This function captures the same waveform data at two different sampling rates.	
Main (low-speed)	Max. sampling rate: 100 kS/s, max. memory length: 100 MW
Sub (high-speed)	Max. sampling rate: 10 MS/s, max. memory length: 10 KW (fixed)
Sub maximum no. of captured screens	500 (/M3, /M2), 250 (/M1), 100 (with standard memory)

Voice Memo Function

• Voice memo	Stores voice data during roll mode, plays back from microphone terminal and speaker output terminal.
• Voice comment	Stores voiced comments when saving images.

Acquisition Memory Backup

Functions	Backs up acquisition memory and voice data, maintained by four AA alkaline batteries
Backup duration (reference value) ²	Approximately 10 hours (with /M3 option)

General Specifications

Rated supply voltage	100 to 120 VAC/200 to 240 VAC (automatically switched)
Rated supply frequency	50/60 Hz
Power consumption	Approximately 200 VA-MAX
Withstand voltage	1500 VAC for one minute across power supply and ground
Insulating resistance	10 MΩ or greater at 500 VDC across power supply and ground
Exterior dimensions	DL750P 355 mm (W) × 250 mm (H) × 225 mm (D) excluding handle and protrusions
Weight	DL750P Modules Approx 7.9 kg (main unit only), approx 10.3 kg (main unit + 701250 × 8)
Operating temperature range	Approximately 300 g per module (average) 5 to 40°C

1. Maximum sampling rate depends on the type of modules used.

If the sampling frequency exceeds the max. sampling rate of the module, the same data is inserted.

2. Standard operating conditions: ambient temp. 25°C ±5°C, ambient humidity 55 ±10%RH

3. Some pixels of the LCD display may be permanently illuminated or non-illuminated. Also, due to the characteristics of LCDs there may be gradients in brightness. Please understand that these phenomena do not indicate a defective display.

