Main specifications

Signal Explorer

Basic Specifications

Input channels:	4 analog (CH1 through CH4) and 16-bit digital (optional)
Input coupling settings:	AC 1 MΩ, DC 1 MΩ, GND, DC 50 Ω
Input impedance:	1 MΩ ± 1.0%, 50 Ω ± 1.0%
Voltage axis sensitivity setting range:	
	For 50 Ω input: 2 mV/div to 1 V/div (steps of 1, 2, or 5)
	For 1 MΩ input: 2 mV/div to 10 V/div (steps of 1, 2, or 5)
Maximum input voltage:	For 1 MΩ input (frequency of 1 kHz or less): 400 V (DC + ACpeak) (282 Vrms CAT II)
	For 50 Ω input: 5 Vrms or less and 10 Vpeak or less
Frequency characteristic[1] (-3 dB attenuation point for sinewave input with amplitude equivalent to ±4 div):	For 50 Ω input:1 V/div to 10 mV/div:DC to 500 MHz
	5 mV/div to 2 mV/div: DC to 400 MHz
	For 1 MΩ input: (using passive probe model 700988; specified at probe tip)
	10 V/div to 10 mV/div: DC to 400 MHz
	5 mV/div to 2 mV/div: DC to 300 MHz
A/D conversion resolution:	8 bits (24 LSB/div)
Maximum sampling rate:	Real-time sampling mode
	701430 and 701440
	Interleave mode on: 2 GS/s[2]
	Interleave mode off: 1 GS/s
	701410 and 701420
	Interleave mode on: 1 GS/s[2]
	Interleave mode off: 500 MS/s
	Equivalent time sampling mode: 100 GS/s
Maximum record length:	701440
	Interleave mode on: 16 MW/channel[2]
	Interleave mode off: 8 MW/channel
	701430
	Interleave mode on: 4 MW/channel[2]
	Interleave mode off: 2 MW/channel
	701420
	Interleave mode on: 8 MW/channel[2]
	Interleave mode off: 4 MW/channel
	701410
	Interleave mode on: 2 MW/channel[2]
	Interleave mode off: 1 MW/channel
DC accuracy[1]:	±(1.5% of 8 div + offset voltage accuracy)
Offset voltage axis accuracy[1]:	2 mV/div to 50 mV/div ±(1% of setting + 0.2 mV)
	100 mV/div to 500 mV/div ±(1% of setting + 2 mV)
	1 V/div to 10 V/div ±(1% of setting + 20 mV)
Time axis setting range:	1 ns/div to 50 s/div (for record length of 10 kW or greater)
	1 ns/div to 5 s/div (for record length of 1 kW)
Time base accuracy[1]:	±0.005%
External clock input: (EXT Clock IN)	Input frequency range: 40 Hz to 20 MHz (continuous clock signal only)

Trigger

Trigger modes:	Auto, Auto Level, Normal, Single, Single (N)
Trigger sources:	CH1 through CH4 (signals input to individual input terminals), LINE (connected utility power signal), EXT (signal input from EXT TRIG IN terminal)
Trigger types:	Edge, A → B(N), A delay B, OR, Pattern, Width, TV, Logic

Display

Screen updating speed:	Maximum 60 times per second (for 10 kW all-points display)
	Maximum 30 times per second (for 1 MW all-points display)
Display:	8.4-inch color TFT liquid crystal display

Note that an LCD may contain some pixels which always glow or never glow or may have uneven brightness due to its characteristics and that these are not failures.

Functions

● Vertical/horizontal axis setting function

Input filters:	100 MHz or 20 MHz band limits can be set independently for CH1 through CH4.
Scroll mode:	Scroll mode display on the time axes shown below when trigger mode is Auto, Auto Level, or Single
	For record length of 1 MW or less: 50 ms/div to 50 s/div (or 50 ms to 5 s/div for 1 kW)
	For record length of 2 MW: 100 ms/div to 50 s/div
	For record length of 4 MW: 200 ms/div to 50 s/div
	For record length of 8 MW: 500 ms/div to 50 s/div
	For record length of 16 MW: 1 s/div to 50 s/div

● Waveform acquisition/display functions

Acquisition modes:	Normal, Averaging, Envelope, Box Average
Zoom:	Zoom in on displayed waveforms along the time axis (one or two zoom windows with separate enlargement ratios)
X-Y display:	Two X-Y waveform displays (XY1 and XY2)

● Analysis functions

Signal analysis:	SPI
Search-and-zoom:	Edge, serial pattern, parallel pattern, pulse width, auto scroll, SPI
History search:	Zone, parameter
Cursor measurements:	Marker, Horizontal, Vertical, Degree
Automatic measurement of waveform parameters:	
	P-P, Max, Min, High, Low, Avg., Rms, +OShot, -OShot, Sdev, Rise, Fall, Freq, Period, Duty, +Width, -Width, Int1TY, Int2TY, Int1XY, Int2XY, Pulse, Burst1, Burst2, AvgFreq, AvgPeriod
	The following statistical processes can also be performed.
	Covered parameters: Those listed above.
	Statistic types: Min, Max, Avg, Cnt, Sdv
	Statistic mode: Normal, Cycle, History
Mathematical functions:	Addition, subtraction, multiplication, binary conversion, differentiation, integration, power spectrum, inversion
GO/NO-GO judgment:	Evaluation based on automatically measured waveform parameter values and waveform zones

● Screen data output

Built-in printer (optional):	Paper width: 112 mm
	Outputs hard copies of screen data.
External printers:	Output to external printers through the Centronics or Ethernet port[3]
	Supported printer commands: PostScript (only via Ethernet), ESC/P, ESC/P2, LIPS3, PCL5, BJ
Formats of data output to floppy disk/SCSI drive/network drive[3]/ATA flash memory card[4]:	PostScript, TIFF, BMP

CAN Bus Signal Analyzer Function (optional with DL7200)

Compatible bus specifications:	CAN Bus: CAN Version 2.0B
	Bit rate: 33.3, 50, 83.3, 100, 125, 250 and 500 Kbps, and 1 Mbps
Triggers:	Trigger source: CH1 (used with a differential probe)
	Trigger type: SOF trigger, ID Field trigger, selectable from 4 types of IDs, RTR trigger, Data Field trigger, configurable up to 8 bytes, Error Frame trigger, Combination trigger (based on a combination of these five types of triggers)
Analysis function:	Number of analyzable frames: 8000 maximum
	Analysis results display: Listing and waveform display of analysis results
Analysis-supporting functions:	Data search, field jump, stuff bit display
Analysis result output function:	Export of the displayed detailed analysis results to an ASCII text file having the filename extension of TXT

Rear Panel I/O

Interfaces:	SCSI, GP-IB, RS-232, Centronics, Ethernet (10BASE-T, optional)
Signal I/O:	One for external trigger input/external clock input/trigger gate input, one trigger output, one RGB video signal output (VGA)
Logic input (optional):	Measured with 700985 logic probe (8 bits)
	Number of inputs: 16 (using two logic probes)
Probe power terminals:	Output terminals: 4
	Output voltage: ±12 V

General Specifications

Power supply frequency:	50/60 Hz
Maximum power consumption:	290 VA
External dimensions:	373 mm (W) 3 210.5 mm (H) 3 306 mm (D) (when the printer cover is closed; does not include knobs and protrusions)
Weight:	Approximately 9 kg (19.8 lbs; including printer; does not include logic inputs)

[1]: Measurements are obtained following calibration with the internal clock as the time base after the warmup period under the reference operating conditions (see below).

Reference operating conditions	Ambient temperature: 23 ±2°C
	Ambient humidity: 55 ±10% RH
	Supply voltage/frequency tolerance: Within 1% of rating

[2]: When interleave mode is on, the number of available channels is half (2 ch) the installed number of channels.

[3]: Only with the /C10 option

[4]: Only with the /C9 or /C10 option

DL7100/DL7200 model and suffix codes

Model	Suffix Code	Description
701410		DL7100 digital oscilloscope with maximum 2 MW/channel memory
701420		DL7100 digital oscilloscope with maximum 8 MW/channel memory
701430		DL7200 digital oscilloscope with maximum 4 MW/channel memory
701440		DL7200 digital oscilloscope with maximum 16 MW/channel memory
Power cable	-D	UL and CSA standard
	-F	VDE standard
	-Q	BS standard
	-R	SAA standard
Options	/B5	Built-in printer
	/N1	701410 logic input (*1)
	/N2	701420 logic input (*1)
	/N3	701430 logic input (*1)
	/N4	701440 logic input (*1)
	/E2	Two additional passive probes (*2)
	/E3	Two FET probes (*3)
	/C9	PC card interface (*4)
	/C10	Ethernet and PC card interfaces (*4, 5)
	/F7	CAN bus signal analysis function (*6)

*1: Specify /N1 for model 701410; specify /N2 for model 701420; specify /N3 for model 701430; specify /N4 for model 701440. Logic probes are sold separately. Accessory logic probes (700985) must be purchased separately.
*2: The digital oscilloscope packages come standard with two passive probes (700988).
*3: The digital oscilloscope packages include power output terminals (4) for FET probes (700939) and current probes (700937).
*4: Compatible with ATA flash memory cards (Type II). Memory cards sold separately. /C9 and /C10 cannot both be specified.
*5: Specifying /C10 provides both an Ethernet port and a PC card slot.
*6: Can only be specified for models 701430 and 701440.

Standard accessories

Name	Q'ty
Power cable	1
Passive probes (700988)	2
Power fuses	2
Printer roll paper (when option /B5 is specified)	1
User's manual (one set)	1
Front cover (B9969BY)	1
Soft carrying case (for probes, etc.)	1

Optional accessories

Name	Model	Specifications
Passive probe	700988	10 MΩ (10:1) 400 MHz, 1.5 meters (one per unit)
FET probe	700939	900 MHz bandwidth
Logic probe	700985	8-bit input, toggle frequency: 80 MHz
100:1 probe	700978	100 MHz bandwidth
Front cover	701481	Transparent type, for both DL7100/DL7200
IC clip set	B9852ES	2 block clips and 8 differently colored clips

Consumables

Name	Model	Specifications	Order Q'ty
Printer roll paper	B9850NX	30 meters (1 roll per unit)	5

Differential probes

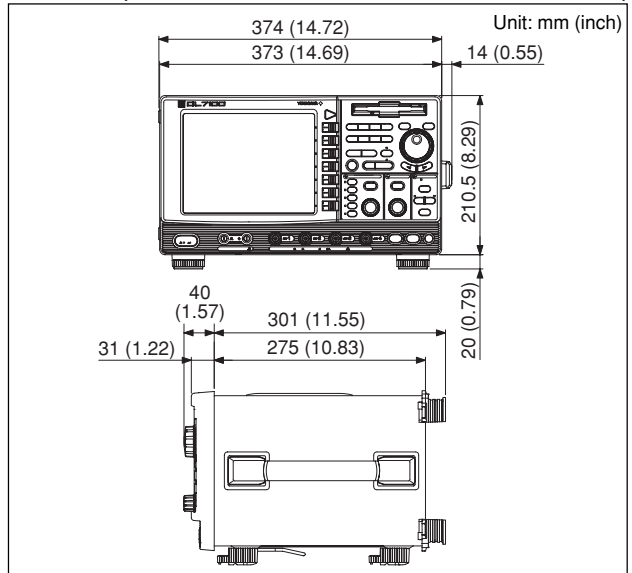| Name	Model	Specifications
Differential probe	700925	DC to 15 MHz bandwidth
Differential probe	700924	DC to 100 MHz bandwidth
Differential probe	701920	DC to 500 MHz bandwidth

Red and black pincher chips (one each) are included (standard)

Current probe

Name	Model	Specifications
Current probe	700937	DC to 50 MHz bandwidth, 15 Apeak
Current probe	701930	DC to 10 MHz bandwidth, 150 Arms

Dimensions (common for all models 701410/701420/701430/701440)

Unit: mm (inch)

374 (14.72)
373 (14.69)
14 (0.55)
210.5 (8.29)
20 (0.79)
40 (1.57)
301 (11.55)
275 (10.83)
31 (1.22)

NOTICE
● Before operating the product, read the instruction manual thoroughly for proper and safe operation.

Related models

DL1700 Series Digital Oscilloscopes

DL708E/DL716 Digital Scopes

Global environmental protection efforts

• YOKOGAWA products are developed and manufactured in facilities that have been given ISO14001 approval.
• To protect the global environment, these products are designed to satisfy the Environmentally Friendly Product Design Guidelines and Product Design Assessment Standards established by YOKOGAWA.

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