Basic Specifications

Input Channels	4
Input Coupling	1 MΩ AC, 1 MΩ DC, GND
Input Impedance	1 MΩ ±1.0%, 28 pF at 1 MHz
Sensitivity	2 mV/div to 10 V/div (in steps of 1, 2, or 5)
Maximum Input Voltage	300 V DC or 300 Vrms CAT I, 424 Vpeak
Maximum DC Offset Range	2 mV/div to 50 mV/div: ±1 V (with 1:1 probe attenuation ratio)
	100 mV/div to 500 mV/div: ±10 V
	1 V/div to 5 V/div: ±100 V
	10 V/div: ±50 V
DC Accuracy[1]	10 mV/div to 10 V/div: ±1.5% of 8 div + offset voltage accuracy
	2 mV/div to 5 mV/div: ±2.0% of 8 div + offset voltage accuracy
Offset Voltage 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)
Probe Attenuation Ratio	1:1, 10:1, 100:1, 1000:1
	Current probe (700937, 701930)
Frequency Characteristics[1]	10 mV/div to 10 V/div: DC to 200 MHz
	2 mV/div to 5 mV/div: DC to 80 MHz
	(using 700960; specified at probe tip)
Vertical Resolution	8 bits (24 LSB/div)
	High resolution mode: Maximum 13 bits
Maximum Sampling Rate	During real-time sampling: 200 MS/s
	During equivalent time sampling: 50 GS/s
Maximum Record Length	701610: 8 MW/ch (in single trigger mode)
	1 MW/ch (in other modes)
	701620: 32 MW/ch (in single trigger mode)
	4 MW/ch (in other modes)
Sweep Time	2 ns/div to 50 s/div (with 10 kW or greater record length)
	2 ns/div to 5 s/div (with 1 kW record length)
Time Base Accuracy[1]	±0.005%
External Clock Input	Input frequency range: 40 Hz to 5 MHz (continuous clock only)

Trigger

Trigger Modes	Auto, Auto Level, Normal, Single, Single (N)
Trigger Sources	CH1 to CH4, LINE, EXT
Trigger Types	Edge, A → B(N), A delay B, OR, pattern, pulse width, TV (NTSC, PAL, SECAM, 1080/60p, 1080/60i, 1080/24p, 1080/50i, 1080/25p, 1080/24sF, 720/60p, 480/60p)

Display

Display	6.4-inch TFT color liquid crystal display[2]
Screen Updating Rate	Up to 60 times per second during 100 kW all-points display
	Up to 30 times per second during 1 MW all-points display
	[2] The LCD may contain some pixels that are always off or always on. In addition, brightness may vary due to the characteristics of the LCD, but this is not an indication of any problem with the display.

Functions

• **Vertical Horizontal Functions**

Input Filter	20 MHz band limits can be set separately on CH1 through CH4.
Input Digital Filter	10 kHz to 1.28 MHz band limits can be set separately on CH1 through CH4.
Roll Mode	50 ms/div to 50 s/div (during auto, auto level, and single trigger modes)
	Note: 50 ms/div to 5 s/div at 1 kW only.

• **Waveform Acquisition/Display Functions**

Acquisition Modes	Normal, averaging, envelope, high resolution
Record Length	701610: 1 kW, 10 kW, 100 kW, 1 MW, 8 MW (Single)
	701620: 1 kW, 10 kW, 100 kW, 1 MW, 4 MW, 10 MW (Single), 32 MW (Single)
Zooming	Up to two locations can be set with separate enlargement ratios. (Display: Main, Z1 only, Z2 only, Main & Z1, Main & Z2, Main & Z1 & Z2)
History Memory	Automatically saves acquisition data of up to 16,000 records.
Display Format	The display can be split to one, two, or four windows.
X-Y Display	Two X-Y waveform displays (XY1 and XY2) can be displayed in separate windows.
Accumulate	Permits waveform overlaying (Persistence, Color)

• **Analysis Functions**

Search and Zoom	Edge, Serial Pattern, Parallel Pattern, Pulse Width, Auto Scroll
History Search	Zones, Parameters
Cursor Measurement	Marker, Horizontal, Vertical, Degree, Vertical History
Automatic Waveform Parameter Measurement	
	Peak-to-peak, Max, Min, Avg, Rms, Sdev, High, Low, +Oshot, -Oshot, Int1TY, Int2TY, Int1XY, Int2XY, Freq, Period, Rise, Fall, +Width, -Width, Duty, Burst1, Burst2, Pulse, AvgFreq, AvgPeriod, Delay (between channels)
Waveform Parameters for Statistics	
	Parameters: Listed above
	Statistics: Min, Max, Avg, Cnt, Sdv
	Statistical modes: Normal Statistics, Cycle Statistics, History Statistics
Math Function	Addition, Subtraction, Multiplication, Power Spectrum
GO/NO-GO Judgment	GO/NO-GO judgment based on waveform parameter measurement values or waveform zones

• **Screen Image Output**

Built-in Printer (optional)	112 mm paper width
	Screenshot output as hard copy or enlarged and output on multiple pages.
External Printer (optional)	Output to external printer through USB or Ethernet port ESC/P, ESC/P2, LIPS3, PCL5, and BJ commands supported.
Floppy Drive, Zip®Drive, PC Card, and Network Drive	
	Output formats: PostScript, TIFF, BMP, JPEG, PNG

Rear Panel I/O Ports

Communication Interfaces	Serial port (RS232), USB port (optional), USB-PC port (optional), GP-IB port (optional[1]), Ethernet port (complies with 100BASE-TX and 10BASE-T; optional[1])
	[1] Choose one from the Ethernet port and GP-IB port options.
Signal I/O	External Trigger Input/External Clock Input, Trigger Output, VGA video signal output, GO/NO-GO judgment I/O, CH1-OUT
Probe Power Port (optional)	Output ports: 4
	Output voltage: ±12 V

General Specifications

Rated Supply Voltage	100 to 120 VAC/200 to 240 VAC (automatically switches)
Rated Supply Frequency	50/60 Hz
Power Consumed	100 VA
Exterior Dimensions	220 × 266 × 224 mm (WHD)
	8.66 × 10.47 × 8.82 inch (WHD)
	(with printer cover closed; does not include protrusions)
Weight	Approx. 4.5 kg (10.8 lbs; with all options)
	Approx. 3.9 kg (8.6 lbs; without any options)
Operating Temperature Range	
	5°C to 40°C

1: Measurements taken based on internal clock after calibration, following warmup period under reference operating conditions (see below).

Operating Conditions	Ambient temperature: 23 ± 5°C
	Ambient humidity: 55 ±10% RH

DL1640/DL1640L Model Numbers and Suffix Codes

Model/Options	Suffix code	Description
701610		DL1640 digital oscilloscope
701620		DL1640L digital oscilloscope
	-AC	(spare suffix code)
Power cable	-D	UL and CSA standard
	-F	VDE standard
	-Q	BS standard
	-R	SAA standard
Internal media drive	-J1	Floppy drive[1]
	-J2	Zip® drive[1]
	-J3	PC card drive (Type II)[1]
Other options	/B5	Built-in printer
	/P4	Probe power (4-output)
	/C1	GP-IB + USB[2]
	/C10	Ethernet + USB[2]

The main unit comes standard with four passive probes (700960).
1 Choose one.
2 Choose one.

Standard Accessories

Accessory	Quantity
Power cable	1
Passive probe (700960)	4
Transparent front cover	1
Soft case for probes	1
Printer roll paper (when option /B5 is selected)	1
User's manual (one set)	1

Supplies

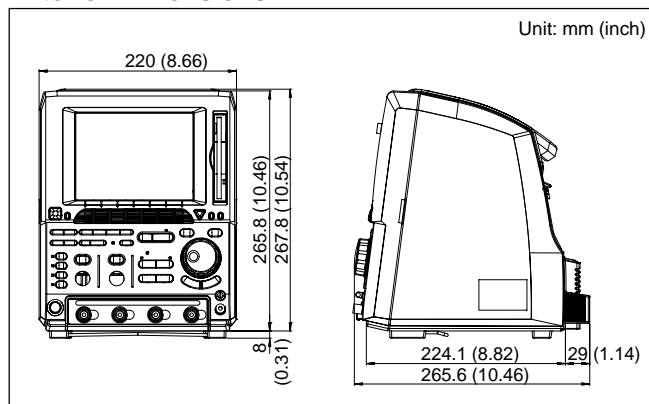| Product	Part number	Description	Order quantity
Printer roll paper	B9850NX	30-meter roll (one roll per package)	5
Passive probe	700960	10 MΩ (10:1), 200 MHz band, 1.5 meters, 1 probe per package	1
Front cover	B9989FA	For protecting LCD and front panel	1

Optional Accessories

Product	Model number	Description
100:1 probe	700978	100 MHz
Current probe	700937	DC to 50 MHz, 15 Apeak
Current probe	701930	DC to 15 MHz, 150 Arms
Differential probe	700925	DC to 15 MHz
Differential probe	700924	DC to 100 MHz
Differential probe	701920	DC to 500 MHz
50 Ω terminator	700976	Pass-through type

Exterior Dimensions

Unit: mm (inch)

220 (8.66)
265.8 (10.46)
267.8 (10.54)
8 (0.31)
224.1 (8.82)
29 (1.14)
265.6 (10.46)

Related Products

DL1740/DL1720 Digital Oscilloscopes SignalExplorer

DL750 ScopeCorder ScopeCorder

Yokogawa's Approach to Preserving the Global Environment

● Yokogawa's electrical products are developed and produced in facilities that have received ISO14001 approval.
● In order to protect the global environment, Yokogawa's electrical products are designed in accordance with Yokogawa's Environmentally Friendly Product Design Guidelines and Product Design Assessment Criteria.

[SignalExplorer is a registered trademark of Yokogawa Electric Corporation.]

NOTICE
● Before operating the product, read the user's manual thoroughly for proper and safe operation.
● If this product is for use with a system requiring safeguards that directly involve personnel safety, please contact the Yokogawa sales offices.

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