Enhanced Productivity in a Compact Instrument

DLM3000 Series
Mixed Signal Oscilloscope
Productivity at your fingertips

The new DLM3000 builds on Yokogawa’s oscilloscope legacy with new features focusing on quality, flexibility and usability to increase our users’ productivity and meet the advanced needs of today’s mechatronics designs. Integrating the latest in touchscreen operation, solid-state storage, and high speed signal processing, the DLM3000 enhances productivity by providing clean signals, extensive processing, and ease of operation.

Quality – Yokogawa is committed to measurement quality, and the DLM3000 features lower residual noise, extensive voltage ranges and a variety of real-time low pass filters to ensure the fidelity of your signals.

Flexibility – Channel count and memory depth options combined with optional Power Math and serial bus features including major automotive buses ensures an oscilloscope can be configured for a variety of needs.

Usability – The combination of a touchscreen with a traditional panel of oscilloscope controls allows users to seamlessly transition, while communication and storage options make it easy to access large data sets.
Compact & intuitive operation

Easy-to-Use & Easy-to-See Portrait design

Easy to use portrait design
The large display of a DLM3000 is located above the controls; this enables it to be nearer the eyes of the user and keeps the footprint on the bench to a minimum.
The intuitive controls are laid out so that a user can see at a glance what channels and features are switched-on and quickly make the measurements that are needed.

Easy to configure 8.4 inch display
Users can automatically or manually split the display to separate individual channel waveforms while maintaining their full resolution and dynamic range. It is therefore easy to see the details of all signals regardless of the number of channels in use. The portrait format saves space on the desk or test bench. The DLM3000 is “a compact personal oscilloscope” designed for easy viewing and ease of use.

Intuitive operation with capacitive touchscreen
Touch system user interface provides intuitive operation. Cursor, zoom box, waveform display area, and more can be set quickly by familiar drag and pinch operations.
Conventional buttons and keys are within easy reach so users have the benefits of both control styles.

Changing zoom ratio
Selecting waveform parameter items
Compact & intuitive operation

DLM3000

Large screen in a compact body
Footprint is approximately 2/3 the size of an A4 size paper (depth of approximately 200 mm)
Best-in-class long memory

Large capacity memory up to 500 Mpoints

Long memory is necessary to maintain high speed sample rates during long-term measurements.

[Basic Formula] Measuring time = Memory length/Sample rate

If 500 Mpoints (Memory expansion option /M2) is installed, up to 0.2 seconds waveform can be captured even at 2.5 GS/s sample rate while taking 2-ch Single Mode measurements.

<table>
<thead>
<tr>
<th>Sample rate</th>
<th>Maximum measuring time</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 GS/s</td>
<td>0.2 s</td>
</tr>
<tr>
<td>250 MS/s</td>
<td>2 s</td>
</tr>
<tr>
<td>25 MS/s</td>
<td>20 s</td>
</tr>
<tr>
<td>2.5 MS/s</td>
<td>200 s</td>
</tr>
<tr>
<td>250 kS/s</td>
<td>2000 s</td>
</tr>
<tr>
<td>100 kS/s</td>
<td>5000 s</td>
</tr>
</tbody>
</table>

More memory is needed to use higher sample rates and capture the most accurate waveform representation.

Zoom & search function

Find the most important data rapidly using two independent zoom locations and a variety of search functions.

Zoom two locations simultaneously

Because the two zoom locations can be set individually, you can display two events side-by-side, ideal for finding cause-and-effect relationships. Also, Use Auto Scroll to sweep the zoom window across the waveforms automatically. With Auto Scroll you can choose forward, backward, fast-forward, scroll speed, and other control options.

Zoom Search function

Use several search criteria to automatically find and zoom into features in the waveform for further inspection. The locations of the found waveforms are marked on screen (shows the current location).

- Waveform search criteria
  Edge, pattern, pulse width, time out, serial bus (only on models with the serial bus analysis option)
Original History function

Automatically save previously captured waveforms

You can replay waveforms later on, so you’ll never miss an abnormal waveform
With the DLM3000 series, up to 100,000 previously captured waveforms can be saved in the acquisition memory. With the History function, you can display just one or all of the previously captured waveforms (history waveforms) on screen.
You can also perform cursor measurement, computation, and other operations on history waveforms. Using the History function, you can analyze rarely-occurring abnormal signals even when an appropriate trigger condition is hard to find because its waveform shapes are not constant.

History search function
Various search methods are available to search up to 100,000 waveforms for events meeting your custom requirements.

Replay function
You can automatically play back, pause, fast forward, and rewind waveform history record.
Large selection of triggers and filters

Trigger function captures combined analog/digital complex waveforms

The DLM3000 series comes with a variety of easy-to-configure triggers combining analog and logic inputs such as edge, enhanced, and B triggers. By using a digital trigger system, trigger errors are minimized.

Real time filter with optimum noise reduction supports a wide range of frequencies (from 8 kHz to 200 MHz)

The DLM3000 series has two types of filters: one processed at the input circuit and one based on MATH functions. These filters are effective for rejecting unwanted signals, allowing observation of only the desired bandwidths.

<table>
<thead>
<tr>
<th>Real time filters</th>
<th>Computed digital filters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each channel has 14 low pass filters available from 8 kHz to 200 MHz. Waveforms are filtered previous to storage in memory. Cutoff frequencies: 200 MHz, 100 MHz, 20 MHz, 10 MHz, 5 MHz, 2 MHz, 1 MHz, 500 kHz, 250 kHz, 125 kHz, 62.5 kHz, 32 kHz, 16 kHz, and 8 kHz.</td>
<td>The input waveform can be filtered using an IIR filter, which is a MATH function. Filtered waveforms can be displayed at the same time as the input waveform for comparison. You can select low pass or high pass filters. Cutoff frequency setting range: 0.01 Hz to 500 MHz</td>
</tr>
<tr>
<td>Input signal</td>
<td>Computed waveform</td>
</tr>
<tr>
<td>Processing with built-in filters</td>
<td>Filtering of a PWM waveform using computation</td>
</tr>
</tbody>
</table>
Features designed for productivity

Displays trends of peak-to-peak or pulse width per cycle

**Measure function and statistics**

Twenty-nine waveform parameter measurements are included. Automated measurement of up to 30 simultaneous measurements is available. Statistical values can also be measured continuously, cycle-by-cycle or using history memory. In addition, cycle-by-cycle parameter measurement is possible to calculate fluctuations of a captured waveform.

**Measures voltage/time differences automatically**

**Cursor Measurement**

Cursors can be placed on the displayed waveform from signal data, and various measurement values at the intersection of the cursor and waveform can be displayed. There are five types of cursor; ΔT, ΔV, ΔT&ΔV, Marker, Degree Cursor.

**Keeps waveforms with one push**

**Snapshot**

By pressing the “.snapshot” key to the lower right of the screen, you can freeze a white trace of the currently displayed waveform on the screen. You can press the key repeatedly and conveniently leave traces for comparing multiple waveforms. Also, snapshot data recorded on screen can be saved or loaded as files, and can be recalled for use as reference waveforms when making comparisons.

**Has a GO/NO-GO function**

**Action on trigger**

GO/NO-GO automates pass or fail determination for trigger conditions, waveforms, measured parameters, and other criteria. Actions automate buzzer sounds, file saving, or email notification. Waveforms in which an abnormality occurred can be saved for confirmation and analysis of the phenomena at a later time.

**Can check functions with graphical online help**

Get help without having to find the user manual. Pressing the “?” key opens detailed graphical explanations of the oscilloscope’s functions.
Application-specific analysis options

Serial analysis function options (/F01 to /F05)

UART (RS232)/I²C/SPI/CAN/CAN FD/LIN/FlexRay/SENT/CXPI

Serial bus communication is ubiquitous in all kinds of applications including automotive applications. These buses are adopted everywhere from brake systems to car navigation systems. Communication between electronics control units (ECU’s), sensors and actuators is especially important to ensure proper vehicle performance. In addition to verifying the digital logic of the protocol, developing and verifying these systems also requires analog physical-layer verification of waveform quality, noise, and simultaneous measurement of sensors and actuator signals. The DLM3000 with the serial bus decode functions can display decoded bus data and physical layer waveforms simultaneously, perfect for validation and troubleshooting.

Unique auto setup

Serial bus analysis typically requires numerous settings such as bit rate, voltage threshold, logic polarity, sampling point and trigger condition. These complicated settings can make it difficult to capture data and require long setup phases. Yokogawa’s proprietary auto setup function automatically analyzes the input signal and complex parameters such as bit rate and threshold level, selecting the optimal settings in seconds. This feature not only saves time but is also a powerful debugging feature when the bit rate and other parameters are unknown.

Simultaneous analysis of up to 4 buses

Perform high-speed simultaneous analysis on up to four different serial buses operating at different speeds. Extensive search capabilities enhance the usability, allowing the user to find specific data in the very long memory. The dual-zoom facility means that different buses can be viewed and debugged alongside each other.
**User defined math option (/G02)**

**Power supply analysis option (/G03)**

Create arbitrary calculations using a suite of operations such as arithmetic, trigonometric, pulse width and more. Dedicated power supply analysis options are available for switching loss, $i^2t$, SOA analysis, harmonic analysis of power supply, and other power parameter measurement (4 ch models only).

**Switching loss analysis**

Calculate switching loss $[V(t) \times i(t)]$ over long test cycles utilizing the long built-in memory. A wide variety of switching loss analyses are supported, including turn-on/off loss calculation, loss including continuity loss, and loss over long cycles of 50 Hz/60 Hz power line.

**Power parameter measurement**

Measure power parameters automatically for up to two pairs of voltage and current waveforms, such as active power, apparent power, power factor, and more. Cycle statistics and history statistics can also be calculated.

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**Analog/logic simultaneous measurement**

**Flexible MSO input**

Four channels is not sufficient to view the functioning of digital control circuits. The DLM3000 series converts 4 ch of analog input to 8-bit logic, and functions as a 3 ch analog + 8-bit logic MSO (mixed signal oscilloscope).

**The performance of up to 11 inputs by converting to logic**

Using logic input, up to 11 input signals can be observed simultaneously as 3 ch of analog and 8-bit logic. It is not only possible to use logic input for observation of data and control signals, or as a trigger source, but also for logic input analysis of I²C, SPI and some other serial busses.
Wide range of interfaces and software

Increase work efficiency by using PC

The totally new CPU platform of the DLM3000 is equipped with Gigabit Ethernet and USB 3.0 as standard communication interfaces, handling data faster than ever.

For example, DLM3000 is 10 times faster at saving to internal storage and about 10 times faster when transferring to a PC. Get answers faster, even with large data sets.

1. USB function only. USB host function uses USB2.0 communication.
2. When /C8 option (SSD) is installed for internal storage and USB3.0 mass storage connection is used for transfer.

*2 When /C8 option (SSD) is installed for internal storage and USB3.0 mass storage connection is used for transfer.

Compare with the conventional model (DLM2000).

Broad Connectivity and Easier Control

Software Control

Free Software

**Off-line waveform display and analysis**

- **XviewerLITE** – Basic viewing –
  - Zoom, V-cursor, conversion to CSV format

**Waveform monitoring on a PC**

- **XWirepuller**
  - Remote monitor and operation
  - Transferring image files

**Data transfer to a PC**

**Command control**

- Custom software development

- **Control library “TMCTL”** For Visual Studio
  - **DL-Term** Interactive tool
  - **LabVIEW instrument driver**¹ ²

**MATLAB² ³** WDF Access ToolBox
  - Transfer data file to MATLAB

**Optional Software**

**Xviewer** – Advanced Analysis –

Advanced and useful functions are supported. Good for precise, off-line waveform analysis.

- Waveform observation and analysis
- Cursor, Parametric Measure
- Statistical Analysis
- Multiple file display
- Advanced waveform operations
- Comment, marking, printing and making report
- Optional Math computation feature
- Remote monitor
- Instruments communication function
- Transferring waveform & image files

On PCs

DLM3000’s internal storage can be recognized by a PC as an external USB storage device. Transferring files is easy even when a USB thumb drive can’t be used.

1000BASE-T/100BASE-TX/10BASE-T compliant adapters (hubs and routers)

Sends waveform, screen, and settings data

Remote control

Mail transmission (GO/NO-GO action)

On PCs

- DLM3000’s internal storage can be recognized by a PC as an external USB storage device.

- Transferring files is easy even when a USB thumb drive can’t be used.

1. USB function only. USB host function uses USB2.0 communication.
2. When /C8 option (SSD) is installed for internal storage and USB3.0 mass storage connection is used for transfer.
3. DLM3000 will be supported soon.

*1: Program development environment provided by National Instruments (NI)

*2: MathWorks’s product.

*3: DLM3000 will be supported soon.
## Specifications

### Models

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Frequency Bandwidth</th>
<th>Input Channels</th>
<th>Max. Sample Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLM3022</td>
<td>250 MHz</td>
<td>2 analog channels</td>
<td>2.5 GS/s</td>
</tr>
<tr>
<td>DLM3032</td>
<td>350 MHz</td>
<td>2 analog channels</td>
<td>2.5 GS/s</td>
</tr>
<tr>
<td>DLM3052</td>
<td>500 MHz</td>
<td>2 analog channels</td>
<td>2.5 GS/s</td>
</tr>
<tr>
<td>DLM3024</td>
<td>200 MHz</td>
<td>3 analog channels</td>
<td>2.5 GS/s</td>
</tr>
<tr>
<td>DLM3034</td>
<td>350 MHz</td>
<td>3 analog channels</td>
<td>2.5 GS/s</td>
</tr>
<tr>
<td>DLM3054</td>
<td>500 MHz</td>
<td>3 analog channels</td>
<td>2.5 GS/s</td>
</tr>
</tbody>
</table>

### Analog Signal Input

- **Input Channels**: DLM30x2: CH1, CH2; DLM30x4: CH1 to CH4 (CH1 to CH3 when using logic input)
- **Input Coupling Setting**: AC 1 MΩ, DC 1 MΩ, DC 50 Ω
- **Input Impedance**: 1 MΩ ±10%, approximately 16 pF; 50 Ω ±1.0% (VSWR 1.4 or less, DC to 500 MHz)
- **Voltage Axis Sensitivity**: Model 701989: ±40 V (DC + ACpeak) or 28 Vrms
- **Max. Input Voltage**: 1 MΩ Must not exceed 200 Vrms or 400 Vpeak; 50 Ω Must not exceed 5 Vrms or 10 Vpeak
- **Max. DC Offset Setting Range**: 50 Ω ±50 mV/div to 50 V/div ±1 V; 100 mV/div to 500 V/div ±10 V; 1 V/div to 10 V/div ±100 V
- **Input Terminals**: DLM30x2: CH1, CH2; DLM30x4: CH1 to CH4, Logic
- **Analog Input**: DLM302x: CH1 to CH4, Logic
- **Input Channels**: DLM30x4: CH1 to CH4 (CH1 to CH3 when using logic input)

### Frequency Characteristics

**Frequency Bandwidth**: 20 MHz to 100 MHz, 200 MHz, 350 MHz, 500 MHz

**Threshold Level Setting Range**: 10 mV/div to 10 mV/div ±0.1% of setting + 2 mV offset voltage accuracy

**Voltage Axis Sensitivity**: 1 mV/div to 10 mV/div ±15% of setting + 2 mV offset voltage accuracy

**Vertical-axis (voltage-axis) DC Accuracy**: 500 μA/div ±0.5% of full scale ±0.1% of vertical axis sensitivity

**Offset Voltage Accuracy**: 500 μA ±0.5 mV ±1% of setting + setting resolution ±50 mV/div ±100 V

### Display

- **Display**: 8.4-inch TFT LCD with a capacitive touch screen, 1024 × 768 (XGA)

### Functions

**Waveform Acquisition Modes**: Normal, Envelope, Average

**High Resolution Mode**: Max. 12 bit

**Sampling Modes**: Real time, Interpolation, Repetitive

**Accumulation**: Select OP, Intensity (resolution by brightness), or Color (waveform frequency by color)

**Accumulation Time**: 100 ms to 10 s, Infinite

**Zoom Mode**: Enabled at 100 mV/div to 500 mV/div (depending on the record length setting)

**Zoom Factor**: 1 x to 2.5 points/10 div (zoom area)

**Search Functions**: Search Edges, Pulse Width, Timeout, Pattern, PC (optional), SPI (optional), UART (optional), CAN (optional), CAN FO (optional), UN (optional), FlexRay (optional), SENT (optional), CXPI (optional), User Define

**History Memory**: Max. data (record length 1.25 k Points, with /M2: 100000, /M1: 50000, Standard: 20000

**History Search**: Select Rect, Wave, Polygon, or Parameter mode

**Display**: Automatically displays the history waveforms sequentially

**Snapshot**: Currently displayed waveform can be retained on screen

### Computation and Analysis Functions

**Parameter Measurement**: Max, Min, Mean, P-P, Peak, Min, Mean, Side, IntegTY+, IntegTY-, Over−, Over−, Pulse Count, Edge Count, V1, V2, ΔT, Freq, Period, Avg Freq, Avg Period, Burst, Rise, Fall, +Width, −Width, Delay

**Statistical Computation of Parameters**: Max, Min, Mean, Standard Deviation

**Statistics Mode**: Continuous, Cycle, History

**Histogram Display of Wave Parameters**: Up to 2 trend or histogram display of specified wave parameters

### Logic Signal Input (4 ch model only)

- **Number of Inputs**: 8 bit (excl. 4 ch input and logic input)
- **Maximum Toggle Frequency**: Model 701988: 100 MHz; Model 701989: 250 MHz
- **Complete Probes**: 701988, 701989 (8 bit input)
- **Min. Input Voltage**: Model 701988: 500 mVp-p, 701989: 300 mVp-p
- **Input Range**: Model 701988: ±40 V; Model 701989: ±20 V
- **Max. Nondestructive Input Voltage**: Model 701988: ±40 V (DC) ±ACpeak or 28 Vrms; Model 701989: ±40 V (DC) ±ACpeak or 28 Vrms
- **Threshold Level Setting Range**: Model 701988: ±40 V setting resolution of 0.05 V; Model 701989: ±40 V setting resolution of 0.05 V
- **Input Impedance**: 701988: Approx. 1 MΩ; 701989: Approx. 100 kΩ
Specifications

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- Computations (MATHE)
  - +, -, /, Filter Delay, Moving Avg, IR-Lowpass, IR-Highpass, Integ, Count (Edge, Rotary), user defined math (optional)
- Computable no. of traces
  - 4 (Math1 to Math4) (2 trace for 2 ch mode) (mutually exclusive with REF trace)
- Max. computable memory length
  - Same as the maximum record length
- Reference function
  - Up to 4 traces (REF1 to REF4) of saved waveform data can be displayed and analyzed (mutually exclusive with MATHE trace)
- Action-on-trigger
  - Actions: Buzzer, Print, Save, Mail

- SDIO/GIO
  - Modes: Rect, Wave, Polygon, Parameter
  - Actions: Buzzer, Print, Save, Mail
- X/Y
  - Displays XY1, to XY2 and T/Y simultaneously
- FFT
  - Number of points: 1.25k, 2.5k, 12.5k, 125k, 250k, 1.25M
  - Window functions: Rectangular, Hanning, Flat Top
  - FFT Types: PS, LS, RS, PSD, CS, TF, CH (can be added with /G02 option)
- Histogram
  - Displays a histogram of acquired waveforms
- User-defined math
  - The following operators can be arbitrarily combined in equations:
    - +, -, /, SIN, COS, TAN, ASIN, ACOS, ATAN, INT(EL), INTG, DIFF, ABS, SQRT, LOG, EXP, FLT1, FLT2
  - The maximum record length that can be computed is the same as the standard math functions.

- Power supply analysis (G03 option)
  - Power analysis
    - Selectable from 4 analysis types
    - Describing between the voltage and current waveform can be executed automatically.
  - Switching loss
    - Measurement of total loss and switching loss, power waveform display, Automatic measurement and statistical analysis of power analysis items
      (P On, P Off, P On/Off, P On/off, W On, W Off, W Total, Cycle Count)
- Safety operation area
  - Analysis by X-Y display, using voltage as X axis, and current as Y axis is possible

- Harmonic analysis
  - Basic comparison is possible with following standard
    - Harmonic emission standard IEC61000-3-2 edition 4.0,
      IEC61000-3-2 (2006), IEC61000-3-4 edition 2
- Joule integral
  - Joule integral (voltage) waveform display, automatic measurement and statistical analysis is possible
- Power measurement
  - Automatic measurement of power parameters for up to two pairs of voltage and current waveforms.
  - Values can be statistically processed and calculated.
  - Measurement parameters:

- Common Features of Serial Bus Signal Analysis Functions
- Analysis result display
  - Decoded information is displayed together with waveforms or in list form.
- Auto setup function
  - Multiple parameters
  - A threshold value, time axis scale, voltage axis scale and other bus-specific parameters such as a bit rate and recursive level are automatically detected.
  - Trigger conditions are set based on the detected result and decoded information is displayed.
- Search function
  - Search of all waveforms for a position that matches a pattern or condition specified by data information.
- Analysis result saving function
  - Analysis list data can be saved to CSV-formatted files.

- FDC Signal Analysis Functions (F01 Option)
  - Applicable bus
    - CAN Bus
      - Version 2.0A/B, Hi-Speed CAN (ISO11898), Low-Speed CAN (ISO11898-2)
  - Bit rate
    - 1 Mbps, 500 kbps, 250 kbps, 125 kbps, 63.3 kbps, 31.6 kbps, User Define
    - (an arbitrary bit rate from 10 kbps to 1 Mbps with resolution of 100 bps)
- CAN bus trigger modes
  - Data, ID, Data, ID, Error

- CAN FD Bus Signal Analysis Functions (F02 Option)
  - Applicable bus
    - CAN FD (ISO 11898-1:2015 and non-ISO)
  - Bit rate
    - Arbitration 1 Mbps, 500 kbps, 250 kbps, 125 kbps, 63.3 kbps, 31.6 kbps, User Define
    - (an arbitrary bit rate from 20 kbps to 1 Mbps with resolution of 100 bps)
- CAN FD bus trigger modes
  - User Define, Error, Frame, Message (enabled when loading physical values/symbol definitions)

- LIN Bus Signal Analysis Functions (F02 Option)
  - Applicable bus
    - LIN Rev. 1.3, 2.0, 2.1
  - Bit rate
    - 19.2 kbps, 9.6 kbps, 4.8 kbps, 2.4 kbps, 1.2 kbps, User Define
    - (an arbitrary bit rate from 1 kbps to 10 Mbps with resolution of 10 bps)

- LIN bus trigger modes
  - Break Sync, ID/Data, ID, Error, Error

- AUX signal analysis functions
  - Field jump functions

- FlexRay Bus Signal Analysis Functions (F03 Option)
  - Applicable bus
    - FlexRay Protocol Version 2.1
  - Bit rate
    - 10 Mbps, 5 Mbps, 2.5 Mbps

- FlexRay bus trigger modes
  - Frame Start, Error, ID/Data, ID OR

- SENT Bus Signal Analysis Functions (F04 Option)
  - Applicable standard
    - J2571-APR2016 and older
  - Bit rate
    - 1 ms to 100 us with resolution of 0.01 μs
  - Data type
    - Fast channel, Nibble/User Defined, Slow channel, Short/Enhanced

- SENT trigger modes
  - Every Fast CH, Fast CH Status & Communication, Slow CH Data, Slow CH ID/Data, Error

- List display items
  - Analysis no., time from trigger position [Time (ms)], Data, (Bit, Hex) display, ASCII display, Information.
Auxiliary analysis functions

Trend functions (up to 4 trend waveforms)

CXPI Bus Signal Analysis Functions /F05 Option)

Applicable bus: CXPI JASO D 015-3:2015

Bit rate: 19.2 kbps, 9.6 kbps, 4.8 kbps, User Define (an arbitrary bit rate from 4 kbps to 50 kbps with resolution of 10 bps)

Analyzable no. of frames: 10000 frames max.

List display items: Analysis no., time from trigger position [Time (ms)], ID, DLC, W/S, CT, Data, CRC, error information, Wakeup/Sleep

GP-IB /C1 Option

Electromechanical specifications

Protocol: Conforms to IEEE std. 488.2-1992

Auxiliary Input

Rear panel I/O signal: External trigger input, External trigger output, SDNO-SD output (C1 Option), Video output

Probe interface terminal (front panel): 2 terminals (DLM30x2), 4 terminals (DLM30x4)

Probe power terminal (rear panel): 2 terminals (P2 option), 4 terminals (P4 option)

Internal Storage (Standard model, /C8 Option)

Capacity: Standard model: Approx. 300 MB, /C8 option: Approx. 60 GB

Built-in Printer /B5 Option

Built-in printer: 112 mm wide, monochrome, thermal

USB Peripheral Connection Terminal

Connector: USB type A connector × 2 (front panel × 1, rear panel × 1)

Electromechanical specifications: USB 2.0 compliant

Supported transfer standards: High Speed, Full Speed, Low Speed

Supported devices: USB Printer Class Ver. 1.0 compliant HP (PCL) inkjet printers, USB Mass Storage Class Ver. 1.1 compliant mass storage devices (Usable capacity: 8 TB, Partition format: GPT / MBR, File format: exFAT / FAT 32 / FAT 16)

* Please contact your local YOKOGAWA sales office for model names of verified devices

USB-PC Connection Terminal

Connector: USB type B connector × 1

Electromechanical specifications: USB 3.0 compliant

Supported transfer standards: Super Speed, High Speed, Full Speed

Supported class: USBMTC-USB488 (USB Test and Measurement Class Ver. 1.0)

Ethernet

Connector: RJ-45 connector × 1

Transmission methods: Ethernet (1000BASE-T/100BASE-TX/10BASE-T)

Supported services: Server: FTP, VXI-11, Socket

Client: FTP, SMTP, SNTP, LPR, DHCP, DNS

General Specifications

Rated supply voltage: 100 to 120 VAC/220 to 240 VAC (Automatic switching)

Rated supply frequency: 50 Hz/60 Hz

Maximum power consumption: 180 VA

External dimensions: 226 (W) × 293 (H) × 193 (D) mm (when printer cover is closed, excluding protrusions)

Weight: Approx. 4.2 kg, With no options

Operating temperature range: 5°C to 40°C

1): Measured under standard operating conditions after a 30-minute warm-up followed by calibration.

2): Value in the case of repetitive phenomenon. The frequency bandwidth of a single shot phenomenon is the smaller of the two values, DC to sampling frequency/2.5 or the frequency bandwidth of the repetitive phenomenon.

3): When the input section is shorted, the acquisition mode is set to Normal, accumulation is OFF, and the probe attenuation is set to 1:1.

4): The LCD may include a few defective pixels (within 3 ppm over the total number of pixels including RGB).

5): GO/NO-GO terminal is included in /C1 option.

6): For 4 ch model only.
**Model and Suffix Codes**

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLM3022</td>
<td>Digital Oscilloscope: 2 ch, 200 MHz</td>
<td></td>
</tr>
<tr>
<td>DLM3024</td>
<td>Digital Oscilloscope: 2 ch, 200 MHz</td>
<td></td>
</tr>
<tr>
<td>DLM3026</td>
<td>Digital Oscilloscope: 2 ch, 500 MHz</td>
<td></td>
</tr>
<tr>
<td>DLM3034</td>
<td>Digital Oscilloscope: 4 ch, 350 MHz</td>
<td></td>
</tr>
<tr>
<td>DLM3052</td>
<td>Digital Oscilloscope: 2 ch, 500 MHz</td>
<td></td>
</tr>
<tr>
<td>DLM3054</td>
<td>Digital Oscilloscope: 4 ch, 500 MHz</td>
<td></td>
</tr>
</tbody>
</table>

**Power cord**
- D: UL/CSA Standard and PSE compliant
- F: VDE/Korean Standard
- Q: British Standard
- R: Australian Standard
- H: Chinese Standard
- N: Brazilian Standard
- T: Taiwanese Standard
- B: Indian Standard
- U: IEC Plug Type B

**Language**
- HJ: Japanese message and panel
- HE: English message and panel
- HC: Chinese message and panel
- HG: German message and panel
- HF: French message and panel
- HK: Korean message and panel
- HL: Italian message and panel
- HS: Spanish message and panel

**Option**
- LN: No switchable logic input (4 ch model only)
- BS: Built-in printer (112 mm)
- M1: Memory expansion option (4 ch model only) During continuous measurement: 25 Mpoints; Single mode: 125 Mpoints/250 Mpoints
- M2: Memory expansion option (4 ch model only) During continuous measurement: 50 Mpoints; Single mode: 250 Mpoints/500 Mpoints
- P2: 2 probe power terminals (for 2 ch model)
- P4: 4 probe power terminals (for 4 ch model)
- GP: GPIB interface = GO/NO-GO terminal
- SB: Internal storage (60 GB)
- G2: User-defined math function (4 ch model only)
- G3: Power supply analysis function (4 ch model only)
- F01: UART + F + SPI trigger and analysis (4 ch model only)
- F02: CAN + CAN FD + LIN trigger and analysis (4 ch model only)
- F03: FlexRay trigger and analysis (4 ch model only)
- F04: SENT trigger and analysis (4 ch model only)
- F05: CPRI trigger and analysis (4 ch model only)

**Standard Main Unit Accessories**
- Power cord, Passive probe, Protective front cover, Panel sheet, Soft carrying case
- Deskew correction

**Accessory Models**

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logic probe (PBL100)</td>
<td>701988</td>
<td>1 MΩ input resistance, toggle frequency of 100 MHz</td>
</tr>
<tr>
<td>Logic probe (PBL250)</td>
<td>701989</td>
<td>100 kΩ input resistance, toggle frequency of 250 MHz</td>
</tr>
<tr>
<td>Passive probe</td>
<td>701937</td>
<td>10 MΩ (10:1), 500 MHz, 1.3 mm</td>
</tr>
<tr>
<td>FET probe</td>
<td>700939</td>
<td>DC to 900 MHz bandwidth, 2.5 MΩ, 1.8 pF</td>
</tr>
<tr>
<td>100 V voltage probe</td>
<td>701944</td>
<td>DC to 400 MHz bandwidth, 1.2 m, 1000 Vrms</td>
</tr>
<tr>
<td>100 V voltage probe</td>
<td>701945</td>
<td>DC to 250 MHz bandwidth, 3 m, 1000 Vrms</td>
</tr>
<tr>
<td>Differential probe</td>
<td>701920</td>
<td>DC to 100 MHz bandwidth, max. ±12 V</td>
</tr>
<tr>
<td>Differential probe</td>
<td>701921</td>
<td>DC to 100 MHz bandwidth, max. ±700 V</td>
</tr>
<tr>
<td>Differential probe (PBDH1005)</td>
<td>701924</td>
<td>DC to 1 GHz bandwidth, 1MΩ, max. ±25 V</td>
</tr>
<tr>
<td>Differential probe</td>
<td>701926</td>
<td>DC to 50 MHz bandwidth, 5000 Vrms/7000 Vpeak</td>
</tr>
<tr>
<td>Differential probe (PBDH0150)</td>
<td>701927</td>
<td>DC to 150 MHz bandwidth, max. ±1400 V</td>
</tr>
<tr>
<td>Differential probe</td>
<td>700924</td>
<td>DC to 100 MHz bandwidth, max. ±1400 V</td>
</tr>
<tr>
<td>Differential probe</td>
<td>700925</td>
<td>DC to 15 MHz bandwidth, max. ±500 V</td>
</tr>
<tr>
<td>Current probe</td>
<td>701917</td>
<td>DC to 50 MHz bandwidth, 5 Arms, High-sensitivity</td>
</tr>
<tr>
<td>Current probe</td>
<td>701918</td>
<td>DC to 120 MHz bandwidth, 5 Arms, High-sensitivity</td>
</tr>
<tr>
<td>Current probe (PBC050)*2</td>
<td>701929</td>
<td>DC to 50 MHz bandwidth, 30 Arms</td>
</tr>
<tr>
<td>Current probe (PBC100)*3</td>
<td>701928</td>
<td>DC to 100 MHz bandwidth, 30 Arms</td>
</tr>
<tr>
<td>Current probe</td>
<td>701930</td>
<td>DC to 10 MHz bandwidth, 150 Arms</td>
</tr>
<tr>
<td>Current probe</td>
<td>701931</td>
<td>DC to 2 MHz bandwidth, 500 Arms</td>
</tr>
<tr>
<td>Deskew correction</td>
<td>701936</td>
<td>For deskew correction</td>
</tr>
<tr>
<td>Signal source</td>
<td>366973</td>
<td>For GO/NO-GO output terminal</td>
</tr>
<tr>
<td>Probe stand</td>
<td>701919</td>
<td>Round base, 1 arm</td>
</tr>
<tr>
<td>Soft carrying case</td>
<td>701964</td>
<td>With 3 pockets for storage</td>
</tr>
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</table>

**Accessory Software**

<table>
<thead>
<tr>
<th>Model</th>
<th>Name</th>
<th>Specification</th>
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<tbody>
<tr>
<td>701992-SP01</td>
<td>Xiewel</td>
<td>Standard version</td>
</tr>
<tr>
<td>701992-GP01</td>
<td>Xiewel</td>
<td>with MATH functions</td>
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</table>

**Additional Option License for DLM3000*1**

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>709811</td>
<td>-G02</td>
<td>User defined math</td>
</tr>
<tr>
<td>-G03</td>
<td>Power supply analysis function</td>
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</tr>
<tr>
<td>-F01</td>
<td>UART + F + SPI trigger and analysis</td>
<td></td>
</tr>
<tr>
<td>-F02</td>
<td>CAN + CAN FD + LIN trigger and analysis</td>
<td></td>
</tr>
<tr>
<td>-F03</td>
<td>FlexRay trigger and analysis</td>
<td></td>
</tr>
<tr>
<td>-F04</td>
<td>SENT trigger and analysis</td>
<td></td>
</tr>
<tr>
<td>-F05</td>
<td>CPRI trigger and analysis</td>
<td></td>
</tr>
</tbody>
</table>

*1: Separately sold license product (customer-installable). (4 ch model only)

**NOTICE**

Before operating the product, read the user's manual thoroughly for proper and safe operation.

This is a Class A instrument based on Emission standards EN61326-1 and EN55011, and is designed for an industrial environment. Operation of this equipment in a residential area may cause radio interference, in which case users will be responsible for any interference which they cause.

https://tmi.yokogawa.com/ YMI-KS-MI-SE06