DLM 2000 Series
Mixed Signal Oscilloscope

Lineup includes 200 MHz, 350 MHz, 500 MHz bandwidth models
Lightweight and compact
Large 8.4-inch LCD display
Long memory: Up to 250 M points (with /M3 option)
High speed sampling: Up to 2.5 GS/s (1.25 GS/s with 4 ch)

For more information, go to tmi.yokogawa.com
Test & Measurement Instruments
Usability
Compact & intuitive operation

Easy-to-Use & Easy-to-See
Easy to use. Portrait body + large screen makes display easy to see.

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

Flexibility
Switch between analog and logic channels

Flexible MSO input
Four channels is not sufficient to view the functioning of digital control circuits. The DLM2000 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.

Logic probe for the DLM2000
Example of logic probe connection

Fast data processing with ScopeCORE
With our proprietary ScopeCORE fast data processing IC, real time display is possible even when simultaneously measuring multichannel signals of 11 inputs.

ScopeCORE fast data processing IC

Switch
Large capacity memory up to 250 Mpoints
Long memory is necessary to keep high speed sample rate in long term measurement.

<Basic Formula>  Measuring time = Memory length/Sample rate

If 250 Mpoints (Memory expansion option /M3) is installed, Max. 0.2 sec waveform can be captured even at 1.25 GS/s sample rate when taking 2 ch measurements in Single mode.

<table>
<thead>
<tr>
<th>Sample rate</th>
<th>Maximum measuring time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.25 GS/s</td>
<td>0.2 s</td>
</tr>
<tr>
<td>125 MS/s</td>
<td>2 s</td>
</tr>
<tr>
<td>12.5 MS/s</td>
<td>20 s</td>
</tr>
<tr>
<td>1.25 MS/s</td>
<td>200 s</td>
</tr>
<tr>
<td>125 kS/s</td>
<td>2000 s</td>
</tr>
<tr>
<td>62.5 kS/s</td>
<td>5000 s</td>
</tr>
</tbody>
</table>

Caution is needed when using oscilloscope that does not have enough memory, which can cause lack of sample rate and possible failure capturing accurate waveform.

Zoom & search function
With 2 different zoom location at the same time and variety of search function lets you pull out and display necessary data effectively.

Zoom two locations simultaneously
Because the DLM2000 series lets you set zoom factors independently, you can display two zoomed waveforms with different time axis scales at the same time. Also, using the Auto Scroll function, you can automatically scroll waveforms captured in long memory and change the zoomed location. With Auto Scroll you can choose forward, backward, fast-forward, scroll speed, and other control options.

Waveform search using edge criterion
This function searches captured waveforms in the long memory and displays waveforms that meet the search criteria in the zoom area. The locations of the found waveforms are marked on screen (▼ shows the current location).

- Waveform search criteria
  Edge, edge (with conditions), state pattern, pulse width, state width, serial bus (only on models with the serial bus analysis option)
Automatically save previously captured waveforms

You can replay waveforms later on, so you’ll never miss an abnormal waveform

With the DLM2000 series, up to 50000 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.

![History search function](image)

**History search function**

Various search methods are available to search waveform which meet your requirements up to 50000 waveform history records.

- Searching for waveforms in zones created by moving measured waveforms up/down/left/right.
- Searching for waveforms that pass through or do not pass through a rectangular zone placed on screen.

**Example of specified waveform search**

- Can reproduce channels and their relationship which is difficult to view in accumulate display mode.

Replay function

You can automatically play back, pause, fast forward, and rewind waveform history record.
Real time filter with optimum noise reduction supports a wide range of frequencies (from 8 kHz to 200 MHz)

The DLM2000 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.

**Real time filters**

Each channel has 14 low pass filters available from 8 kHz to 200 MHz. Waveforms of limited bandwidths are stored in internal 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

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**Trigger Function capturing combined analog/digital complex waveforms**

The DLM2000 series comes with a variety of easy-to-configure triggers combining analog and logic inputs such as edge, enhanced, and B triggers.

**Edge trigger**

- Edge
- Edge OR (qualified)
- State
- Pulse width
- State width
- Serial (optional)
  - FlexRay/CAN/CAN FD/LIN/SER/N/PSI5/UART/F/C/SPI
  - (standard) user-defined
- TV
  - NTSC/PAL/SDTV/
  - HDTV/user-defined

**Enhanced triggers**

- A Delay B
- A to B(n)
- Dual bus (combination trigger of 2 serial busses)

**B triggers**

- A Delay B
- A to B(n)
- Dual bus (combination trigger of 2 serial busses)

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**Computed digital filters**

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

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**Trigger function example**

- **A to B(n) trigger**

  Example: Trigger on the 7th edge of signal on B. This is effective for measurements with shifted timing, such as non-standard video signal vertical/horizontal periods or motor reference position pulses and drive pulses.

  ![Trigger function example](image)

- **Serial pattern trigger (user defined)**

  Example: Trigger on an arbitrarily set pattern of up to 128 bits. This is effective for detecting ID/Data and other portions of proprietary communication formats.

  ![Serial pattern trigger](image)

- **Dual bus trigger**

  Example: Trigger on a combination of CAN and LIN bus triggers. I2C + SPI bus triggers, and other combinations are possible.

  ![Dual bus trigger](image)
Displays trends of peak-to-peak or pulse width per cycle

—Measure function and statistics—
Twenty-nine waveform parameters are included such as: maximum, minimum, peak-to-peak, pulse width, period, frequency, rise/fall time, and duty ratio. Automated measurement can be performed using up to 30 of these waveform parameters. Also, waveform parameters can be measured repeatedly, and the statistical values displayed (mean, maximum, minimum, standard deviation, etc.).

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.

—Trend and histogram displays—
Waveform parameters such as period, pulse width, and amplitude can be measured repeatedly and displayed in graphs. In a single screen you can observe period-by-period fluctuations, compute amplitudes every screen using multiple waveforms, and display amplitudes as trends. You can also display histograms referencing the voltage or time axis using values from repeated automated measurement of waveform parameters.

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.

Analyzes frequency spectrums
—FFT analysis—
Up to 2 FFT analyses can be performed simultaneously. FFT can be performed on computed waveforms in addition to the actual waveforms on CH1 to CH4. Analysis can be performed on limited bandwidth waveforms by filtering, periodic changes of rotary objects, and other phenomena.

Displays stored files in thumbnail format
—Thumbnails of saved files—
Thumbnails of waveform data, waveform image data, and Wave-Zone files can be displayed. The image and file names are shown so that you can view screen image contents while copying or deleting files. A file can be enlarged to confirm the data.

Can check functions with graphical online help
You can view detailed graphical explanations of the oscilloscope’s functions by pressing the “?” key in the lower left of the screen. This lets you get help on functions and operations on screen without having to consult the user’s manual.
Serial analysis function options (/F1 to /F11)

— UART (RS232)/I²C/SPI/CAN/CAN FD/LIN/FlexRay/SENT/PSI5/CXPI —

Triggers for embedded systems and in-vehicle bus signals are supported along with decode display analysis (serial bus analysis option only on 4 ch models). Trigger functions of some of the serial busses are not supported. Logic input can also be used for specific serial buses (UART, I²C, SPI, SENT).

**Intelligent serial bus auto setup:** Complicated trigger and decode settings such as bit rate and threshold level are automatically detected by DLM2000.

**Simultaneous analyses of four different busses:** Up to four busses can be analyzed simultaneously. Waveforms and analysis results from busses with different speeds can be displayed using 2 Zoom windows.

### Related Accessories

<table>
<thead>
<tr>
<th>Related Accessories</th>
<th>Power supply analysis option (/G3, /G4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBDH1000 differential probe (701924)</td>
<td>Dedicated power supply analysis options are available (4 ch models only) for switching loss, joule integral (∫i²t), SOA (safe operating area) analysis, harmonic analysis of power supply current based on EN61000-3-2, and other power parameter measurement such as active power, power factor etc.</td>
</tr>
<tr>
<td>1.0 GHz bandwidth</td>
<td>Utilizing the long memory capability, voltage and current waveforms over long cycles can be input for computation of switching loss (V(t) × i(t)). 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.</td>
</tr>
<tr>
<td>1 MΩ, approximately 1.1 pF</td>
<td>Power parameter measurement Automated measurement of power parameters for up to two pairs of voltage and current waveforms, such as active power, apparent power, power factor etc. Values can be statistically processed and calculated.</td>
</tr>
<tr>
<td>Maximum differential input voltage range: ±25 V</td>
<td></td>
</tr>
</tbody>
</table>

### Inputs supported for serial bus analysis

<table>
<thead>
<tr>
<th>Input</th>
<th>UART</th>
<th>SPI</th>
<th>UART</th>
<th>LIN</th>
<th>CAN</th>
<th>CAN FD</th>
<th>LIN</th>
<th>FlexRay</th>
<th>SENT</th>
<th>PSI5</th>
<th>CXPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog input</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Logic input</td>
<td>Yes</td>
<td>Yes</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>Yes</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Differential probe (701920)</th>
<th>DC to 500 MHz bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 kΩ, approximately 2.5 pF</td>
<td>Maximum differential input voltage range: ±12 V</td>
</tr>
</tbody>
</table>

### Switching loss analysis

<table>
<thead>
<tr>
<th>Differential probe (701926)</th>
<th>DC to 50 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000 Vrms/7000 Vpeak</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PBDH0150 Differential probe (701927)</th>
<th>DC to 150 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 Vrms/ ±1400 Vpeak</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PBC100/PBC050 Current probe (701928/701929)</th>
<th>DC to 100 MHz (701928)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC to 50 MHz (701929)</td>
<td>30 Arms</td>
</tr>
</tbody>
</table>

### Deskew correction signal source (701936)

Differential probe (701920) DC to 500 MHz bandwidth

- 100 kΩ, approximately 2.5 pF
- Maximum differential input voltage range: ±12 V
**Main Specification**

<table>
<thead>
<tr>
<th>Models</th>
<th>Frequency bandwidth</th>
<th>Input terminal</th>
<th>Max. sample rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLM2022 (710105)</td>
<td>200 MHz</td>
<td>2 analog channels</td>
<td>1.25 GS/s (interleave mode off)</td>
</tr>
<tr>
<td>DLM2032 (710115)</td>
<td>350 MHz</td>
<td>2 analog channels</td>
<td>2.5 GS/s (interleave mode on)</td>
</tr>
<tr>
<td>DLM2052 (710125)</td>
<td>500 MHz</td>
<td>4 analog channels</td>
<td>1.25 GS/s (interleave mode off)</td>
</tr>
<tr>
<td>DLM2024 (710105)</td>
<td>200 MHz</td>
<td>3 analog channels</td>
<td>2.5 GS/s (interleave mode on)</td>
</tr>
<tr>
<td>DLM2034 (710120)</td>
<td>350 MHz</td>
<td>3 analog channels</td>
<td>1.25 GS/s (interleave mode off)</td>
</tr>
<tr>
<td>DLM2054 (710130)</td>
<td>500 MHz</td>
<td>3 analog channels</td>
<td>2.5 GS/s (interleave mode on)</td>
</tr>
</tbody>
</table>

**Analog Signal input**

- **Input channels**: DLM20d2: CH1, CH2, DLM20d4: CH1 to CH4 (CH1 to CH3 when using logic input)
- **Input coupling setting**: AC, DC, DC350 n, GND
- **Input impedance**: 1 MΩ ±1.0%, approximately 20 pF
- **Voltage axis sensitivity setting range**: 1 MΩ 2 mV/div to 10 V/div (steps of 1-2-5), 50 Ω 2 mV/div to 500 mV/div (steps of 1-2-5)
- **Max. input voltage**: 1 MΩ 150 Vrms, 50 Ω Must not exceed 5 Vrms or 10 Vpeak
- **Max. DC offset setting range**: 1 MΩ 2 mV/div to 50 mV/div, 50 Ω 2 mV/div to 50 mV/div (steps of 1-2-5), 100 mV/div to 500 mV/div

**Vertical-axis (voltage-axis)**

- **DC accuracy**: ±1.5% of 8 div + offset voltage accuracy
- **Offset voltage accuracy**: ±2 mV to 50 mV/div (±1% of setting + 0.2 mV), 100 mV to 500 mV/div (±1% of setting + 2 mV), 1 V to 10 V/div (±1% of setting + 20 mV)

**Software Control**

- **XviewerLITE** – Basic check
  - Zoom, V-cursor, conversion to CSV format
- **XWirepuller**
  - Remote monitor and operation
  - Transferring image files
- **Control library “TMCTL”**
  - For Visual Studio
  - Interactive tool
- **LabVIEW instrument driver**

**Free Software**

- **MATLAB Tool Kit**
  - Remote control from MATLAB and data file importing.

**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

**Main Features**

- **Ethernet**: (optional)
- **GO/NO-GO output terminal**
- **RGB video signal output terminal**
- **USB-PC connection terminal**
- **USB peripheral connection terminal**
- **External trigger input**
- **Trigger output**
- **GP-IB connection terminal** (optional)
- **Probe power terminal** (optional)

**Performance**

- **Bandwidth limit**: 1 MHz
- **Input impedance**: 50 Ω, 1 MΩ
- **Input coupling**: 1 MΩ, DC, AC, DC350 n, GND
- **Vertical-axis sensitivity**: 1 MΩ 2 mV/div to 10 V/div, 50 Ω 2 mV/div to 500 mV/div
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**Software Development**

- **Software Control**
  - **Ethernet**
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Trigger modes | Auto, Auto Level, Normal, Single, Normal
---|---
Trigger type | Auto trigger, trigger source
A triggers | Edge CH1 to CH4, Logic, EXT, LINE
Edge OFF | CH1 to CH4
Edge Qualified | CH1 to CH4, Logic, EXT
State | CH1 to CH4, Logic
Pulse width | CH1 to CH4, EXT
State width | CH1 to CH4, Logic
TV | CH1 to CH4
Serial Bus | PC (optional), SPI (optional), UART (optional), FlexRay (optional), CAN (optional), LIN (optional), SENT (optional), UART (optional), PPS (optional), User defined (optional)
A to B/N | 1 to 10 (Edge, Edge Qualified, State, Serial Bus)
Dual Bus | Serial Bus only
Trigger level setting range | CH1 to CH4 ±0.01 div from center of screen
Trigger level setting resolution | CH1 to CH4 0.01 div (TV trigger: 0.1 div)
Trigger level accuracy | CH1 to CH4 ±0.2 div ±10% of trigger level
Window Comparator | Center/Width can be set on individual Channels from CH1 to CH4
Display | 8.4 inch TFT color liquid crystal display; 1024 × 768 (XGA)

Functions
Wavelength acquisition modes | Normal, Envelope, Average
High Resolution mode | Max. 12 bit (the resolution of the A/D converter can be improved equivalently by placing a bandwidth limit on the input signal)
Sampling modes | Real time, interpolation, repetitive sampling
Accumulation | Select OFF, intensity (wavelength frequency by brightness), or Color (wavelength frequency by color)
accumulation time: 100 ms to 100 s, Infinite
Roll mode | Enabled at 100 ms to 500 s/div (depending on the record length setting)
Zoom function | Two zooming windows can be set independently (Zoom1, Zoom2)
Zoom factor | x2 to 2.5 points/10 div (in zoom area)
Scroll | Auto Scroll
Search functions | Edge, Edge Qualified, State, Pulse Width, State Width, I, F (optional), SPI (optional), UART (optional), CAN (optional), CAN FD (optional), LIN (optional), SENT (optional), UART (optional), PPS (optional), User defined (optional)
History memory | Max. data record length: 1.25 k Points, with
History search | M1 or M2: 10000, M3: 20000, M4: 50000
Search functions | Select, Wave, Parameter, or Parallel mode
Replace function | Automatically displays the history waveforms sequentially
Display | Specified or average waveforms
Cursor Types | @T, @V, @T & @V, Marker, Degree
Snapshot | Currently displayed waveform can be retained on screen

Computation and Analysis Functions
Parameter measurement | Max, Min, P-P, High, Low, Amplitude, RMS, Mean, Side, IntegTY, Integ, IntegTYv, Ext, Ext, Over, Pulse Count, Edge Count, V1, V2, @T, Fre, Period, Avg Fre, Avg Period, Burst, Rise, Fall, Width, Duty, Delay
Statistics modes | Continuous, Cycle, History

Trend/Integrus signal display of specified wave parameters
Computations (MATH)
- +, -, ×, Filter (Delay, Moving Avg, IR, Loephaxis, IR Highpass), Integ, Count (Edge, Rotary), user defined math (optional)
Computations number of traces | 2 (Math1, Math2) (1 trace for 2 ch model)
Max. computable memory length | M1/M2: Up to 256 MPoints, M3: 125 MPoints
Reference function | Up to 2 traces (REF1/REF2) of saved waveform data can be displayed and analyzed
Action-on-trigger | Actions: Buzzer, Print, Save, Mail
GO/NO-GO | Modes: Rect, Wave, Parameter, Pattern
XY | Displays XY1 to XY2 and Y1Y2 simultaneously
FFT | Number of points: 125 k, 125 k, 125 k, 250 k, 250 k
Window functions: Rectangular, Hanning, Flat-Top
FFT Types: PS, RS, RS, PSD, CS, TF, CH are available with /G2 or /G4 option
Histogram | Displays a histogram of acquired waveforms
User-defined math (G2 and /G4 options)*1 The following operators can be arbitrarily combined in equations:
- +, -, /, SIN, COS, TAN, ASIN, ACOS, ATAN, INTEG, DIFF, ABS, SQRT, LOG, EXP, LN, BIN, DEC, P2, power of 2), PH, DA, MEAN, HILBT, PWHL, PWLL, PWHL, PWXX, PWS, DUTYH, DUTYL, FILT1, FILT2
The maximum record length that can be computed is the same as the standard math functions.
Power supply analysis (G3 and /G4 options)*1
- Power analysis
  - For Pwr1 and Pwr2, selectable from 4 analysis types
  - Describing between the voltage and current waveforms can be executed automatically.
  - Measurement of maximum sampling rate (115200 bps, 57600 bps, 38400 bps, 19200 bps, 9600 bps)
  - Measurement of logic level accuracy (approx. 3 pF/approx. 100 kΩ)
Harmonic analysis
- Brackets are possible with following standard Harmonic emission standard IEC61000-3-2 edition 2.3, EN61000-3-2 (2000), IEC61000-4-7 edition 2
- Joule integral
- Joule integral (T) 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 of maximum sampling rate (4800 bps, 2400 bps, 1200 bps, 4800 bps, 2400 bps, 1200 bps, User Define (an arbitrary bit rate from 1 k to 1 Mbps with resolution of 100 bps)

Common Features of Serial Bus Signal Analysis Functions (F1 to F11 Options)
Analysis result display
- Decoded information is displayed together with waveforms or in lists format
- Auto setup function
- A test mode, time axis scale, voltage axis scale and other bus-specific parameters such as a bit rate and recessive level are automatically detected. Trigger conditions are set based on the detected record and decoded information is displayed. (The type of a bus signal needs to be specified in advance.)
Search function
- Search all of waveforms for a pattern that matches or condition specified by data inspection.
Analysis result saving function
- Analysis result data can be saved to CSV-formatted files. Trend data can also be saved for SENT signals.
- Analysis result saving function (F0 and F3 Options)*1
- Analysis result saving function (F0 and F3 Options)*1

P/C Bus Signal Analysis Functions (F2/F3 Options)*1
- Applicable bus
  - PIC bus
  - Bus transfer rate: 3.4 MBit/s max.
  - Address mode: 7 bit/10 bit
- SM bus
  - Complies with System Management Bus
Analyzable signals
- CH1 to CH4, Logic, input, or M1 to M2
- F/C Trigger modes
  - Every Start, Address & Data, Non-Ack, General Call, Start Byte, HS Mode
- Analyzable no. of data
  - 300000 bytes max.
- List display items
  - Analysis no., time from trigger position (Time), 1st byte address, 2nd byte address, R/W, Data, Presence/absence of ACK, Information

SPI Bus Signal Analysis Functions (F2/F3 Options)*1
- Trigger types
  - 3 wire, 4 wire
- After assertion of CS, compares data after arbitrary byte count and triggers.
- Analyzable signals
  - CH1 to CH4, Logic, input, M1 to M2
- Byte order
  - MSB, LSB
- Field definition
  - Fixed size (4 to 32 bits), Enabled bit range
- Analyzable no. of data
  - 300000 bytes max.
- List display items
  - Analysis no., time from trigger position (Time), Data 1, Data 2

UART Signal Analysis Functions (F1 and F3 Options)*1
- Bit rate
  - 115200 bps, 57600 bps, 38400 bps, 19200 bps, 9600 bps, 4800 bps, 2400 bps, 1200 bps
  - User Define (an arbitrary bit rate from 1 k to 1 Mbps with resolution of 100 bps)
CH1 to CH4, logic input, or M1 to M2
Data format Select a data format from the following 8 bit (Non Parity), 7 bit Data + Parity, 8 bit + Parity
UART Trigger modes Every Data, Data, Error (Frame, Parity)
Analyzable no. of frames 300000 frames max.
List display items Analysis no., time from trigger position (Time/1000 ms), Data (Bin, Hex) display, ASCII display, and Information

CAN Bus Signal Analysis Functions ([F4], [F6], [F7] and [F8] Options)*
Applicable bus CAN version 2.0A/B, Hi-Speed CAN (ISO11898), Low-Speed CAN (ISO11519-2)
Analyzable signals CH1 to CH4, M1 to M2
Bit rate 1 Mbps, 500 kbps, 250 kbps, 125 kbps, 83.33 kbps, 33.33 kbps
User Define (an arbitrary bit rate from 20 kbps to 1 Mbps with resolution of 100 bps)
Data 8 Mbps, 5 Mbps, 4 Mbps, 2 Mbps, 1 Mbps, 500 kbps, User Define (an arbitrary bit rate from 250 kbps to 10 Mbps with resolution of 100 bps)
CAN bus Trigger modes SOF, ID/Data, ID OR, Error (Frame Error, Stuff, CRC), Message and signal (enabled when loading physical values/symbol definitions)
Analyzable no. of frames 100000 frames max.
List display items Analysis no., time from trigger position (Time/1000 ms), Frame ID, DGC, CRC, presence/absence of Ack, Information
Auxiliary analysis functions Field jump functions

LIN Bus Signal Analysis Functions ([F4], [F6], [F7] and [F8] Options) *
Applicable bus LIN Rev. 1.2, 2.0, 2.1
Analyzable signals CH1 to CH4, M1 to M2
Bit rate 19.2 kbps, 9.6 kbps, 4.8 kbps, 2.4 kbps, 1.2 kbps
User Define (an arbitrary bit rate from 20 kbps to 1 Mbps with resolution of 10 bps)
LIN bus Trigger modes Break Sync, ID/Data, ID OR, and Error trigger
Analyzable no. of frames 100000 frames max.
List display items Analysis no., time from trigger position (Time/1000 ms), ID, ID-Field, Data, Checksum, Information
Auxiliary analysis functions Field jump functions

CXPI Bus Signal Analysis Functions ([F4], [F6], [F7] and [F8] Options)* **
Applicable bus CXPI JASO D 015-3:2015
Analyzable signals CH1 to CH4, M1 to M2
Bit rate 19.2 kbps, 9.6 kbps, 4.8 kbps, 2.4 kbps, 1.2 kbps
User Define (an arbitrary bit rate from 4 kbps to 50 kbps with resolution of 10 bps)
Analyzable no. of frames 100000 frames max.
List display items Analysis no., time from trigger position (Time/1000 ms), ID, DGC, CRC, error information, Wakeup/Sleep

FlexRay Bus Signal Analysis Functions ([F5], [F6] and [F8] Options)*
Applicable bus FlexRay Protocol Version 2.1
Analyzable signals CH1 to CH4, M1 to M2
Bit rate 10 Mbps, 5 Mbps, 2.5 Mbps
FlexRay bus Trigger modes Frame Start, Error, ID/Data, ID OR
Analyzable no. of frames 50000 frames max.
List display items Analysis no., time from trigger position (Time/1000 ms), ID, DGC, CRC, set up, data, Information

SENT Signal Analysis Functions ([F9] and [F11] Options)*
Applicable standard J2716 JAN2010 and older
Analyzable signals CH1 to CH4, logic input, or M1 to M2
Clock period 1 us to 100 us with resolution of 0.01 us
Data type Fast channel Native/User Defined
Slow channel Native/Enhanced
SENT trigger modes Start of fast channel
Analyzable no. of frames 100000 frames max.
List display items Fast channel Analysis no., time from trigger position (Time/1000 ms), Sync/Cal period, Tick, Status & Comm, Data, CRC, frame length, information
**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.

*NOTE*

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