

CAN BUS

SIGNAL ANALYSIS FUNCTION
DL1640/DL1640L



701922
200 MHz Differential Probe

CAN Bus Signal Waveform Observation and Analysis

■ CAN Bus Trigger Functions

- Start-of-Frame trigger
- Identifier (ID) Field trigger: 4 IDs can be specified.
- RTR Field trigger: The trigger is activated by Remote frame.
- Data Field trigger: You can set data of 1 to 8 bytes.
- Error Frame trigger

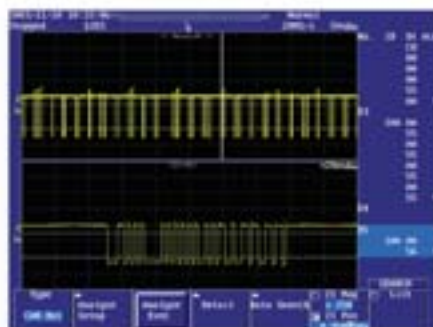
You can set trigger conditions with a combination (logical AND) of these five types of triggers. Determine bus level (recessive or dominant) by specifying the sample point as a percentage of the total bit time.

■ CAN Bus Analysis Functions

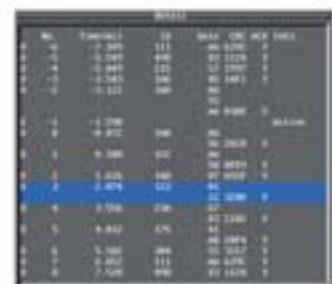
Use up to 32 megawords of memory (DL1640L) to acquire long strings of CAN bus waveform data and then analyze the data in a time-series manner. Analysis results are then listed along with the waveform. Results include: ID and Data fields, ACK field status and other information. The frame which is highlighted by the cursor on the analysis results list automatically appears in the zoom window. This feature enables you to observe the bus signal while concurrently viewing the analysis results. Thus, you can easily verify how noise or level fluctuations affect the communication data and carry out debugging work very efficiently.



Trigger Conditions Setup Menu



Waveform Display and Analysis Results



Detailed Analysis Results



Data Search Setup Menu



Stuff Bit Display

■ Data Search and Field Jump Functions

Use the high-speed data search function to search all acquired frames.

Search for user-specified ID, RTR, Data, or ACK codes.

This function can also search for error frames. A magnified view of the frame found is shown in the zoom window. This function can also search for a frame containing an Indefinite state. Even for frames comprising as few as 100 bits, the Field Jump function automatically finds the starting point of a Data or Control field and shows it in the zoom window.

The CAN cursor function displays the selected Field range, and lets you move bit-by-bit in the field for easy troubleshooting.

■ Stuff Bit Calculation Function

This function calculates and extracts the stuff bit from the frame data and represents it as a waveform. This enables you to easily confirm codes of waveforms.

■ CAN Bus Signal Analysis Function Optional Specifications

Basic Specifications

Number of input channels	4 CH1: CAN bus signal input (used with a differential probe)
Maximum sampling rate	200 MS/s
Maximum record length	701610: 8 MW/CH 701620: 32 MW/CH
Frequency characteristics	200 MHz

Supported CAN Bus Specifications

CAN Bus	CAN Version 2.0B
Bit rate:	33.3 kbps, 50 kbps, 83.3 kbps, 95.2 kbps, 100 kbps, 125 kbps, 250 kbps, 500 kbps, 1 Mbps Hi-Speed CAN (ISO11898) Low-Speed CAN (ISO11519-2)

CAN Bus Trigger Functions

Trigger source	CH1: Input from the 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)

CAN Bus Analysis Functions

Number of analyzable frames	16001 maximum
Analysis results display	Listing and waveform display of analysis results Detailed analysis list display
Auxiliary analysis functions	Data Search function Field Jump function Stuff bit calculation function CAN cursor function

SPI Bus Analysis Functions

Number of analyzable data	40000 bytes maximum
Analysis results display	Listing and waveform display Detailed analysis list display
Auxiliary analysis functions	Data Search function

DL1640/DL1640L Model Names and Suffix Codes

Model	Suffix Code	Description
701610		DL1640 Digital Oscilloscope
701620		DL1640L Digital Oscilloscope
	-AC	100–120 & 220–240 VAC
	-DC ¹	12 VDC
Power cable	-D	UL/CSA standard
	-F	VDE standard
	-Q	BS standard
	-R	AS standard
	-H	GB standard
	-Y	No power cable
Internal media drive	-J1	Floppy disk drive ²
	-J2	Zip [®] drive ²
	-J3	PC card drive (type II) ²
Other options	/B5	Built-in printer
	/P4	Probe power for 701610 and 701620
	/C1	GP-IB+USB ³
	/C10	Ethernet+USB ³
	/F5	I ² C bus analyzer ⁴
	/F7	CAN bus signal analysis function ⁴

- Specify -Y for the DC model.
- One or the other must be selected. Both cannot be specified at the same time.
- Both cannot be selected at the same time.
- The SPI analysis function is included with both the I²C bus analysis function and the CAN bus signal analysis function.

Accessories

Name	Model	Description
Differential probe	701922	DC to 200 MHz ⁵
50 Ω Terminator	700976	Feed-through type

- The 50 Ω terminator (model 700976) is required for connection.

Warning



- Read the Instruction Manual thoroughly to ensure safe use of this product.

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