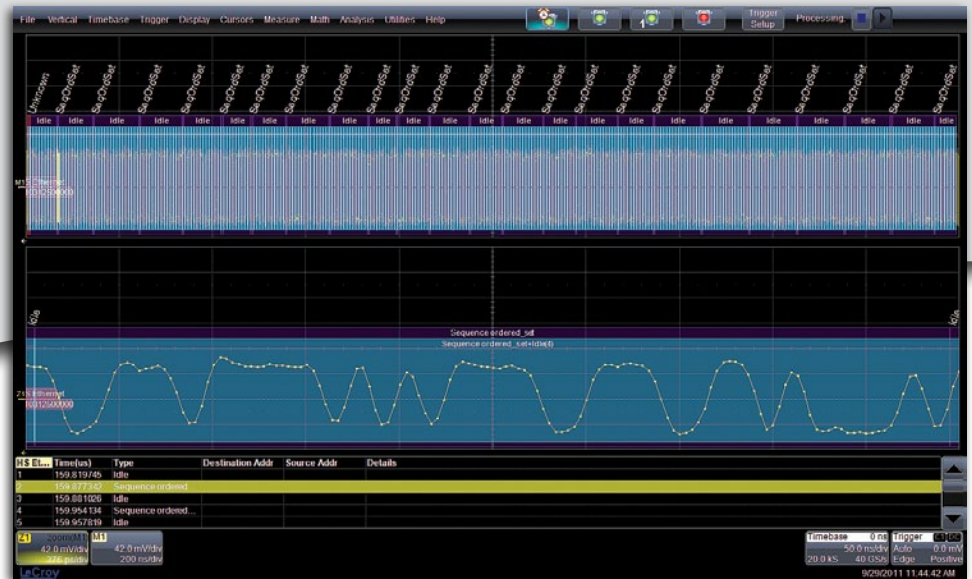


# 10 Gigabit Ethernet Link and Data Layer Protocol Decode



Ethernet 10 Gigabit decode provides protocol awareness to your oscilloscope physical layer tool.

## Key Features

- **10 Gigabit Ethernet Link and Data Layer Decode, ideal for:**
  - 10GBASE-KR (10 GbE KR)
  - 10GBASE-CR
  - 10GBASE-SR
  - 10GBASE-LR
  - 10GBASE-ER
- **Use in combination with 64b/66b decode annotation (separate option)**
- **Color-coded decode overlaid on the waveform is intuitive and easy-to-read**
- **Decode information expands as the time base is adjusted or zoomed**
- **Convenient table display with quick “zoom to message” capability**
- **Quick search capability for specific Ethernet frames**

## Decode Annotation Complements Physical Layer Views

The Ethernet 10GBASE-R link and data layer decode information is annotated on the physical layer waveform. Various sections of the protocol are color-coded to make it easy to understand. Decode annotation information condenses or expands depending on the timebase/zoom ratio setting. Additionally, 64b/66b decode annotation (a separate option) may be applied for symbol level debugging of Ethernet 10GBASE-R. The decode operation is fast—even with long acquisitions.

Decode annotation provides the ability to view protocol traffic on the oscilloscope and verify that the link is alive and transmitting properly. It also aids in debugging problems that are not solely analog or digital in nature, such as interoperability issues, uncertain error causes, and physical layer issues not evident with a Protocol Analyzer.

## Convenient Table Display and Search

Long oscilloscope acquisition memory provides long capture times of Ethernet 10G transmissions. Decoded information is conveniently shown in a table format, and specific frame types may be searched for. In addition, table data may be exported as a .csv file.

## Support on Multiple Oscilloscope Platforms

To support the range of users of Ethernet 10G, the option is available on a wide range of oscilloscope models with real-time bandwidths from 13 GHz to 45 GHz. Depending on probing location, use of EyeDrill Advanced Signal Integrity Tools may be required to de-embed signal paths or provide receiver equalizer emulation in order to obtain sufficient signal fidelity for decode.

# SPECIFICATIONS AND ORDERING INFORMATION

<b>ENET10Gbus D</b>	
<b>Definition</b>	
<b>Protocol Setup</b>	Selection for source channels. Supports Single (differential probe) or dual (two single-ended probes) input(s) for decoder. Select Show Subfields ON/OFF. Supports FEC and detects auto negotiation.
<b>Decode Capability</b>	
<b>Format</b>	Ethernet 10GBASE-R Link and Data Layer Protocol Decode (Hexadecimal or Binary)
<b>Decode Setup</b>	Selection for source inputs.
<b>Decode Input</b>	Any analog Channel, Memory or Math trace.
<b># of Decode Waveforms</b>	<b>Up to 4 unique Tx or Rx lanes may be decoded</b> at one time. In addition, zooms can be displayed (with decoded information).
<b>Location</b>	Overlaid on Ethernet 10GBASE-R physical layer waveform, on Grid.
<b>Visual Aid</b>	Color Coding for Frame, Group Primitives, Data words, Primitives words (Idle,R_RDY,ARB_val,CLS,..), Important frame fields such as Mac address, Ethertype,...Decode information is intelligently annotated based on timebase setting.
<b>Search Capability</b>	
<b>Pattern Search</b>	Search by the following: <b>ANY</b> , <b>Frame:</b> Idle, Single Ordered Set <b>Protocol Errors:</b> Any, Missed Terminate, Missed Start of Frame, Frame Length Error, Preamble Value Error, Start of Frame, Delimiter Value Error, CRC Error. <b>Unknown:</b> Any Numerous sub-types are available for each of the above.
<b>Other Search</b>	
<b>Compatible With...</b>	Fully compatible with WaveMaster® 8 Zi/Zi-A, 8000 Series; LabMaster 9 Zi-A Series. Bandwidth of oscilloscope must be equal to bit rate with a minimum oscilloscope sample rate of 4x the bit rate.

## Ordering Information

### Product Description

### Product Code

#### Ethernet 10G Decode Options

Ethernet 10G Decode Option for WaveMaster 8 Zi/Zi-A	WM8Zi-ENET10Gbus D
Ethernet 10G Decode Option for LabMaster 9 Zi-A	LM9Zi-ENET10Gbus D

#### Recommended Accessories

WaveLink 13 GHz, 1.6Vpk-pk Differential Probe System	D1305-PS
WaveLink 16 GHz, 1.6Vpk-pk Differential Probe System	D1605-PS
WaveLink 20 GHz, 1.6Vpk-pk Differential Probe System	D2005-PS
WaveLink 25 GHz, 1.6Vpk-pk Differential Probe System	D2505-PS

### Product Description

### Product Code

#### Recommended Accessories (cont'd)

Eye Doctor II Advanced Signal Integrity Tools for WaveMaster 8 Zi/Zi-A Oscilloscopes, SDA 8 Zi/Zi-A Serial Data Analyzers, and DDA 8 Zi/Zi-A Disk Drive Analyzers	WM8Zi-EYEDRII
Eye Doctor II Advanced Signal Integrity Tools for LabMaster 9 Zi-A Modular Oscilloscopes	LM9Zi-EYEDRII
64b/66b Decode Annotation Option for WaveMaster 8 Zi-A Oscilloscopes	WM8Zi-64b66b D
64b/66b Decode Annotation Option for LabMaster 9 Zi-A Modular Oscilloscopes	LM9Zi-64b66b D

#### Customer Service

LeCroy oscilloscopes and probes are designed, built, and tested to ensure high reliability. In the unlikely event you experience difficulties, our digital oscilloscopes are fully warranted for three years, and our probes are warranted for one year. This warranty includes:

- No charge for return shipping
- Long-term 7-year support
- Upgrade to latest software at no charge



1-800-5-LeCroy Local sales offices are located throughout the world.  
www.lecroy.com Visit our website to find the most convenient location.