

## TEKTRONIX

# DPO4032

The Tektronix DPO4032 is a 350 MHz, 2-channel Digital Phosphor Oscilloscope (DPO) designed for advanced troubleshooting, debugging, and serial bus analysis. Featuring a generous 10.4-inch XGA color display, a compact 5.4-inch footprint, and the Wave Inspector™ navigation system, it excels in analyzing long record lengths of up to 10 Mpoints per channel. With a 2.5 GS/s real-time sample rate on all channels, TekVPI™ probe interface support, and automated triggering/analysis for serial standards like I2C, SPI, and CAN, the DPO4032 delivers robust performance in a portable and lightweight package.

## SPECIFICATIONS

### General

|            |                                                                                                             |
|------------|-------------------------------------------------------------------------------------------------------------|
| Interfaces | USB 2.0 Host (Front/Rear), USB 2.0 Device (Rear, USBTMC), 10/100 Base-T Ethernet (RJ-45), CompactFlash Slot |
| Display    | 10.4 in. (264 mm) XGA Color TFT-LCD, 1024 x 768 pixels                                                      |

### Physical

|                       |                                                                                        |
|-----------------------|----------------------------------------------------------------------------------------|
| Power Supply          | 100 to 240 V $\pm$ 10% (50/60 Hz), 115 V $\pm$ 10% (400 Hz), < 250 W power consumption |
| Operating Temperature | 0 °C to +50 °C °C                                                                      |
| Dimensions (W×H×D)    | 439 mm × 229 mm × 137 mm mm                                                            |
| Weight                | 5 kg kg                                                                                |
| Rackmount Height      | 5U                                                                                     |
| VESA Mount            | Standard VESA 75 mm × 75 mm                                                            |

## Vertical System

|                                         |                                                                                                                                                   |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Analog Bandwidth (-3 dB)                | 350 MHz                                                                                                                                           |
| Number of Input Channels                | 2                                                                                                                                                 |
| Calculated Rise Time (10% to 90%)       | 1 ns                                                                                                                                              |
| Input Impedance                         | 1 M $\Omega$ $\pm$ 1% in parallel with 13 pF $\pm$ 2 pF, 50 $\Omega$ $\pm$ 1%                                                                     |
| Input Coupling                          | AC, DC                                                                                                                                            |
| Vertical Resolution (ADC)               | 8 bits                                                                                                                                            |
| Input Sensitivity Range (1 M $\Omega$ ) | 1 mV/div to 10 V/div                                                                                                                              |
| Input Sensitivity Range (50 $\Omega$ )  | 1 mV/div to 1 V/div                                                                                                                               |
| DC Gain Accuracy                        | $\pm$ 1.5% for 5 mV/div and above                                                                                                                 |
| Maximum Input Voltage (1 M $\Omega$ )   | 250 V RMS CAT I                                                                                                                                   |
| Maximum Input Voltage (50 $\Omega$ )    | 5 V RMS                                                                                                                                           |
| Channel-to-Channel Isolation            | $\geq$ 100:1 at $\leq$ 350 MHz                                                                                                                    |
| Hardware Bandwidth Limits               | 20 MHz, 250 MHz                                                                                                                                   |
| Vertical Offset Range (1 M $\Omega$ )   | 1 mV/div to 50 mV/div: $\pm$ 1 V; 50.5 mV/div to 500 mV/div: $\pm$ 10 V; 505 mV/div to 5 V/div: $\pm$ 100 V; 5.05 V/div to 10 V/div: $\pm$ 1000 V |
| Vertical Offset Range (50 $\Omega$ )    | 1 mV/div to 50 mV/div: $\pm$ 1 V; 50.5 mV/div to 1 V/div: $\pm$ 10 V                                                                              |
| Channel-to-Channel Deskew Range         | $\pm$ 75 ns                                                                                                                                       |

## Horizontal System

|                                 |                            |
|---------------------------------|----------------------------|
| Maximum Real-Time Sampling Rate | 2.5 GS/s on all channels   |
| Maximum Record Length           | 10 Mpoints on all channels |
| Time Base Range                 | 1 ns/div to 1000 s/div     |
| Time Base Accuracy              | $\pm$ 5 ppm                |

## Trigger System

|                                |                                                                                                        |
|--------------------------------|--------------------------------------------------------------------------------------------------------|
| Trigger Sources                | CH1, CH2, Line, External                                                                               |
| Trigger Modes                  | Auto, Normal, Single                                                                                   |
| Trigger Coupling               | DC, AC, HF Reject, LF Reject, Noise Reject                                                             |
| Trigger Holdoff Range          | 250 ns to 8 s                                                                                          |
| Edge Triggering                | Rising or falling slope on any channel                                                                 |
| Pulse Width Triggering         | Trigger on width of positive or negative pulses (4 ns to 8 s)                                          |
| Runt Triggering                | Trigger on a pulse that crosses one threshold but fails to cross a second threshold                    |
| Window Triggering              | Trigger on an event that enters or exits a window defined by two thresholds                            |
| Timeout Triggering             | Trigger on an event which remains high, low, or either for a specified time (4 ns to 8 s)              |
| Pattern Triggering             | Trigger when any logical pattern of channels goes false or stays true for specified time (4 ns to 8 s) |
| State Triggering               | Logical pattern clocked by rising or falling edge of another channel                                   |
| Setup/Hold Triggering          | Trigger on setup/hold violations between clock and data on any two input channels                      |
| Trigger Level Range            | $\pm 8$ divisions from screen center (Internal); $\pm 8$ V (External)                                  |
| Trigger Sensitivity (Internal) | 0.4 div from DC to 50 MHz, increasing to 1 div at 350 MHz                                              |
| Auxiliary Input Impedance      | 1 M $\Omega$ $\pm 1\%$                                                                                 |
| Trigger Jitter (Typical)       | < 15 ps RMS                                                                                            |
| Video Trigger Formats          | NTSC, PAL, SECAM, HDTV (480p, 576p, 720p, 875i, 1080i, 1080p)                                          |

## Acquisition System

|                       |                                                                                   |
|-----------------------|-----------------------------------------------------------------------------------|
| Acquisition Modes     | Sample, Peak Detect, Averaging, Envelope, HiRes                                   |
| Waveform Capture Rate | > 50,000 wfm/s                                                                    |
| Hi-Res Mode           | Real-time boxcar averaging reduces random noise and increases vertical resolution |
| Average Mode          | Averages selectable from 2 to 512 waveforms                                       |

## Waveform Measurements and Analysis

|                        |                                                |
|------------------------|------------------------------------------------|
| Automatic Measurements | 41 automatic measurements                      |
| FFT Window Types       | Rectangular, Hamming, Hanning, Blackman-Harris |

## Connectivity and Ports

|                       |                                             |
|-----------------------|---------------------------------------------|
| Probe Interface       | TekVPI Probe Interface                      |
| External Video Output | DB-15 female connector for external monitor |

Environmental Specifications

|                           |                                                 |
|---------------------------|-------------------------------------------------|
| Storage Temperature Range | -20 °C to +60 °C                                |
| Operating Humidity Range  | High Temp: 5% to 60% RH, Low Temp: 5% to 90% RH |
| Operating Altitude        | Up to 3,000 m (9,843 ft)                        |
| Non-Operating Altitude    | Up to 12,192 m (40,000 ft)                      |

Physical Characteristics

|             |                   |
|-------------|-------------------|
| Form Factor | Benchtop          |
| Width       | 439 mm (17.3 in.) |
| Height      | 229 mm (9.0 in.)  |
| Depth       | 137 mm (5.4 in.)  |

Auxiliary Outputs

|                          |                |
|--------------------------|----------------|
| Probe Compensator Output | 2.5 V at 1 kHz |
|--------------------------|----------------|

Interfaces

|                 |                                                             |
|-----------------|-------------------------------------------------------------|
| USB Ports       | 4x USB 2.0 Host (1 front, 3 rear), 1x USB 2.0 Device (rear) |
| LAN Port        | 1x RJ-45 (10/100Base-T)                                     |
| GPIB Port       | Optional via TEK-USB-488 adapter                            |
| USB Host Ports  | 4 USB 2.0 high-speed ports (1 front, 3 rear)                |
| USB Device Port | 1 rear-panel USB 2.0 high-speed device port                 |

Environmental

|                           |                                                 |
|---------------------------|-------------------------------------------------|
| Shock (Operating)         | 30 g, 11 ms, half-sine                          |
| Vibration (Operating)     | 0.31 g RMS, 5 Hz to 500 Hz, 10 minutes per axis |
| Vibration (Non-Operating) | 2.46 g RMS, 5 Hz to 500 Hz, 10 minutes per axis |

Display

|                    |                                                    |
|--------------------|----------------------------------------------------|
| Display Resolution | 1024 × 768 pixels (XGA)                            |
| Display Type       | 10.4 in. (264 mm) liquid-crystal TFT color display |

Power

|                        |                                                         |
|------------------------|---------------------------------------------------------|
| Power Source Voltage   | 100 to 240 V ±10%                                       |
| Power Source Frequency | 47 to 66 Hz (90 to 264 V), 360 to 440 Hz (100 to 132 V) |
| Power Consumption      | < 250 W                                                 |

Regulatory

|                  |                                                                                 |
|------------------|---------------------------------------------------------------------------------|
| Safety Standards | UL61010-1:2004, CAN/CSA-C22.2 No. 61010.1:2004, EN61010-1:2001, IEC61010-1:2001 |
|------------------|---------------------------------------------------------------------------------|

TECHNOLOGY

Digital Phosphor Oscilloscope (DPO)

## APPLICATIONS

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Electronic design, debug, serial bus analysis, power measurement, and troubleshooting

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