OSCILLOSCOPE SELECTION GUIDE





OSCILLOSCOPE SELECTOR GUIDE

Tektronix offers oscilloscopes for many different applications and uses. To help you choose the right scope for your needs, the most common criteria for selecting a scope are listed below, along with helpful tips for determining your requirements.

Bandwidth

All oscilloscopes have a low-pass frequency response that rolls off at higher frequencies. Oscilloscope bandwidth is specified as being the frequency at which a sinusoidal input signal is attenuated to 70.7% of the signal's true amplitude – the -3 dB point. Your oscilloscope must have sufficient bandwidth to capture all relevant frequency components of your signal. If you regularly work with digital signals, it may be easier to consider bandwidth by comparing signal and oscilloscope rise time specifications. Use an oscilloscope with a rise time specification five times faster than your signal rise time to keep error below 2%.

Rule: Bandwidth > 5 x Highest Signal Frequency

2 Sample Rate

The faster an oscilloscope samples, the greater the resolution and detail of the displayed waveform, and the less likely that critical information or events will be lost. Tektronix recommends at least 5X oversampling to ensure signal details are captured and to avoid aliasing.

Rule: Sample Rate > 5 x (Highest Frequency Component)

3 Record Length

Record length is the number of samples the oscilloscope can digitize and store in a single acquisition. Since an oscilloscope can store only a limited number of samples, the waveform duration – or length of "time" captured – will be inversely proportional to the oscilloscope's sample rate. A longer record length enables a longer time window to be captured with high resolution.

Rule: Captured Time = (Record Length) / (Sample Rate)

Oigital Channels and Spectrum Analyzer Input

Today's oscilloscopes offer more than just analog channels for system-level troubleshooting of complex designs.

- If you need to analyze a parallel bus or multiple serial buses, the Tektronix MSO Series of mixed signal oscilloscopes and MDO Series of mixed domain oscilloscopes offer 16 digital channels and up to 4 analog channels for analyzing multiple signals at once.
- If you are working with RF signals, the Tektronix MDO Series of mixed domain oscilloscopes offers a built-in spectrum analyzer for time-correlated analysis of analog, digital and RF signals.

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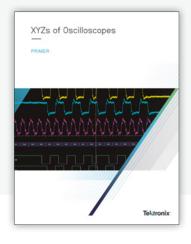
5 Features and Analysis Capability

Tektronix oscilloscopes offer a range of features and analysis capabilities. When choosing your scope, you should review available triggers, waveform search tools, automated measurements, and analysis packages such as serial bus analysis, jitter and power analysis to ensure they meet your needs.

CHOOSING YOUR OSCILLOSCOPE

Engineers, technicians and educators all have different workloads, different measurement needs, and different environments. To meet your needs Tektronix offers a wide range of oscilloscopes. This guide gives an overview of the various types of oscilloscopes currently available, along with high-level specifications that you can use for comparison.

If you need a refresher on oscilloscope specifications, download the XYZs of Oscilloscopes Primer.



TYPES OF OSCILLOSCOPES









Mixed Domain Oscilloscopes - 100 MHz to 1 GHz

The new standard for design and debug work. They offer the same capabilities as mixed signal oscilloscopes, but also offer a built-in spectrum analyzer, adding RF debugging to the analog/digital capabilities.

Mixed Signal Oscilloscopes - 70 MHz to 2 GHz

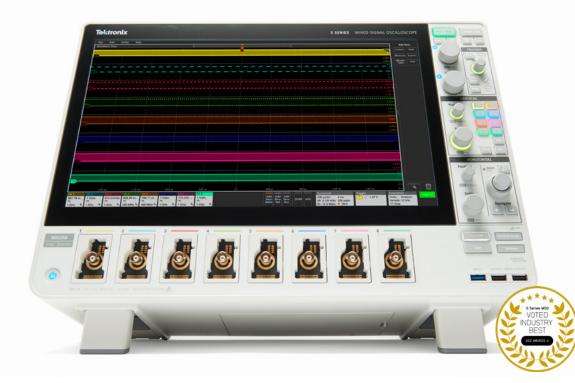
The engineer's choice for design and debug. They combine traditional oscilloscope input channels with digital input channels, long record length with powerful search features, and protocol support for serial buses.

Advanced Signal Analysis Oscilloscopes – 350 MHz to 70 GHz

The emphasis is on analysis. They provide high acquisition performance and run Windows, thus supporting a wide range of analysis software. MSO versions include digital channels. They can be equipped for serial data analysis, jitter analysis, standards testing, and serial decoding capability.

Low Profile Oscilloscopes

When performance, channel density and cost-per-channel are critical, these low-profile instruments are a great fit. They offer the same performance as bench instruments in a rack-friendly form factor.





This Changes Everything

With a remarkably innovative pinch-swipe-zoom touchscreen user interface, the industry's largest high-definition display, and 4, 6, or 8 FlexChannel[™] inputs that let you measure one analog or eight digital signals, the 5 Series MSO is ready for today's toughest challenges, and tomorrow's too. It sets a new standard for performance, analysis, and overall user experience.

LEARN MORE









Sampling Oscilloscopes - DC to 80 GHz

For very high speed signal analysis, both electrical and optical, our sampling oscilloscopes support jitter and noise analysis with ultra-low jitter acquisitions. They also perform TDR and S-parameter measurements.

Basic Oscilloscopes - 30 MHz to 200 MHz

For basic signal visualization and more, these instruments are solid performers with ample supporting materials, and generous warranties. Special features for education.

Battery Powered Oscilloscopes with Isolated Channels – 100 MHz to 200 MHz

Safely and easily make 4-channel floating measurements, including 3-phase power measurements

TDS Series Oscilloscopes – 50 MHz to 500 MHz

These capable industry-favorites have a large installed base, and thousands of companies rely on them as part of their test and measurement fleets. They continue to be fully supported.

MIXED SIGNAL AND MIXED DOMAIN OSCILLOSCOPES





MS0/DP02000B		MD03000	
Additional Resources			
Channels	2, 4 analog channels; 16 digital channels (MSO2000B)	2, 4 analog channels; 16 digital channels (MDO3MSO option) 1 spectrum analyzer input 1 Arbitrary/Function Generator (MDO3AFG option)	
Bandwidth	70 MHz to 200 MHz	100 MHz to 1 GHz	
Spectrum Analyzer Frequency Range	_	Standard: 9 kHz to Analog Bandwidth Optional: 9 kHz to 3 GHz	
Sample Rate	1 GS/s (analog); 1 GS/s (digital, only 1 pod); 500 MS/s (digital, both pods)	2.5 GS/s to 5 GS/s (analog); 121.2 ps (8.25 GS/s) MagniVu [™] (digital)	
Max Record Length	1 Mpoints	10 Mpoints	
Trigger Types	Edge, Logic, Pulse Width, Runt, Setup and Hold, Rise/Fall Time, Video, I ² C*, SPI*, CAN*, LIN*, RS-232/422/485/UART*, Parallel (MSO2000B) *Optional	Edge, Sequence, Logic, Pulse Width, Runt, Timeout, Setup and Hold, Rise/Fall Time, Video, Extended Video, I ² C*, SPI*, CAN FD*, CAN*, LIN*, FlexRay*, RS-232/422/485/UART*, I ² S/LJ/RJ/TDM*, MIL-STD-1553*, ARINC 429, USB 2.0*, Parallel (with MDO3MSO option) *Optional	
Optional Serial Bus Decode and Analysis	DPO2AUTO: CAN and LIN DPO2COMP: RS-232/422/485/UART DPO2EMBD: I ² C, SPI DPO2BND: Includes DPO2AUTO, DPO2COMP, DPO2EMBD	MDO3AERO: ARINC 429, MIL-STD-1553 MDO3AUDIO: I ² S, LJ, RJ, TDM MDO3AUTO: CAN FD, CAN and LIN MDO3COMP: RS-232/422/485/UART MDO3EMBD: I ² C, SPI MDO3FLEX: FlexRay MDO3USB: USB2.0 MDO3BND: Enables MDO3AERO, MDO3AUDIO, MDO3AUTO, MDO3COMP, MDO3EMBD, MDO3FLEX, MDO3LMT, MDO3PWR, MDO3USB	
Connectivity	USB Host, USB Device, GPIB*, Optional DPO2CONN Module: LAN (10/100 Base-T Ethernet) and Video Out *Optional	USB Host (x2), USB Device, LAN (10/100 Base-T Ethernet, LXI Core 2011 Compliant), Video Out, GPIB* *Optional	
Waveform Math and Analysis	29 Automated Measurements, Waveform and Screen Cursors: Arithmetic Waveform Math, FFT	44 Automated Measurements, Waveform and Screen Cursors, Advanced Math, FFT, Measurement Statistics, Waveform Histograms Optional: MDO3PWR: Power Analysis MDO3LMT: Limit/mask test MDO3BND: Enables MDO3AERO, MDO3AUDIO, MDO3AUTO, MDO3COMP, MDO3EMBD, MDO3FLEX, MDO3LMT, MDO3PWR, MDO3USB	
Software	PC communications software: OpenChoice® Desktop	PC Communications Software: OpenChoice® Desktop	
Upgrade	Add serial bus triggering and decode	 Increase bandwidth Add Arbitrary/Function generator Add 16 digital channels Increase spectrum analyzer maximum frequency to 3 GHz Add measurements and analysis (power, limit/mask) Add serial bus triggering and decode Add security for password control of ports and firmware updates 	

MIXED SIGNAL AND MIXED DOMAIN OSCILLOSCOPES



Additional Resources

Additional Resources	
Channels	4 analog channels; 16 digital channels (with MDO4MSO option); 1 spectrum analyzer input (with SA3 or SA6 option); 1 Arbitrary/Function Generator (with MDO4AFG option)
Bandwidth	200 MHz to 1 GHz
Spectrum Analyzer Frequency Range	Optional: 9 kHz - 3 GHz or 9 kHz - 6 GHz
Sample Rate	2.5 GS/s to 5 GS/s (analog); 60.6 ps (16.5 GS/s) MagniVu™ (digital)
Max Record Length	20 Mpoints
Trigger Types	RF Power Level**, Edge, Sequence, Logic, Pulse Width, Runt, Timeout, Setup and Hold, Rise/Fall Time, Video, Extended Video*, I ² C*, SPI*, USB*, Ethernet*, CAN FD*, CAN*, LIN*, FlexRay*, RS-232/422/485/UART*, I ² S/LJ/RJ/TDM*, MIL-STD-1553*, ARINC 429, Parallel* *Optional **With optional MD04TRIG module, RF power level can be used as source for Pulse Width, Timeout, Runt, Logic, Sequence
Optional Serial Bus Decode and Analysis	DPO4AERO: ARINC 429, MIL-STD-1553 DPO4AUDIO: I'S, LJ, RJ, TDM DPO4AUTO: CAN FD, CAN and LIN DPO4AUTOMAX: CAN FD, CAN, LIN and FlexRay DPO4COMP: RS-232/422/485/UART DPO4EMBD: I'C, SPI DPO4EMBD: I'C, SPI DPO4ENET: 10Base-T, 100Base-TX Ethernet DPO4USB: USB DPO4USB: USB DPO4BND: Enables DPO4AERO, DPO4AUDIO, DPO4AUTO, DPO4COMP, DPO4EMBD, DPO4ENET, DPO4LMT, DPO4PWR, DPO4USB, DPO4VID
Connectivity	USB Host (x4), USB Device, LAN (10/100/1000 Base-T Ethernet, LXI Core 2011 Compliant), Video Out, GPIB* *Optional
Waveform Math and Analysis	44 Automated Measurements, Waveform and Screen Cursors, Spectrum Math, FFT, Advanced Math, Measurement Statistics, Waveform Histograms Optional: DPO4LMT: Limit and Mask Testing MDO4TRIG: Adv. RF Power Level Trigger DPO4PWR: Power Analysis DPO4VID: HDTV and Custom Triggering DPO4BND: Enables DPO4AERO, DPO4AUDIO, DPO4AUTO, DPO4COMP, DPO4EMBD, DPO4ENET, DPO4LMT, DPO4PWR, DPO4USB, DPO4VID
Software	PC Communications Software: OpenChoice [®] Desktop Vector Signal Analysis Software: SignalVu-PC
Upgrade	 Increase bandwidth Add Arbitrary/Function Generator Add 16 digital channels Add or upgrade spectrum analyzer channel Add measurements & analysis (power, limit/mask, video, RF trigger) Add serial bus triggering and decode Add security for password control of ports and firmware updates

ADVANCED SIGNAL ANALYSIS OSCILLOSCOPES





	MS0/DP05000B	5 SERIES MSO
Additional Resources		
Channels	4 analog channels; 16 digital channels (MSO5000B)	4, 6, or 8 FlexChannel® inputs; 8 digital channels per FlexChannel (optional); 1 Arbitrary/Function Generator (with 5-AFG option)
Bandwidth	350 MHz to 2 GHz	350 MHz to 2 GHz
Sample Rate	5 GS/s to 10 GS/s (analog); 60.6 ps (16.5 GS/s) MagniVu [™] (digital)	6.25 GS/s (analog); 6.25 GS/s (digital)
Max Record Length	Up to 250 Mpoints	Up to 125 Mpoints
Trigger Types	Edge, Sequence, Logic, Pulse Width, Glitch, Runt, Timeout, Transition, Setup and Hold, Rise/Fall Time, Video, I ² C*, SPI*, USB (Low, Full, High)*, RS-232/422/485/UART*, USB*, Ethernet*, CAN*, LIN*, FlexRay*, MIL-STD-1553*, Parallel (MSO5000B), Visual Trigger *Optional	Edge, Sequence, Logic, Pulse Width, Runt, Timeout, Window, Setup and Hold, Rise/Fall Time, I ² C*, SPI*, USB*, Ethernet*, CAN*, CAN FD*, LIN*, FlexRay*, RS-232/422/485/UART*, I ² S/LJ/RJ/ TDM*, MIL-STD-1553*, ARINC 429*, SENT*, Parallel *Optional
Optional Serial Bus Decode and Analysis	SR-AERO: MIL-STD-1553 SR-AUTO: CAN/LIN/FlexRay SR-COMP: RS-232/422/485/UART SR-DPHY: MIPI D-PHY SR-EMBD: I ² C, SPI SR-ENET: 10/100Base-T Ethernet SR-USB: USB	5-SRAERO: MIL-STD-1553, ARINC 429 5-SRAUDIO: I°S, LJ, RJ, TDM 5-SRAUTO: CAN, CAN FD, LIN, FlexRay 5-SRAUTOSEN: SENT 5-SRCOMP: RS-232/422/485/UART 5-SREMBD: I°C, SPI 5-SRENET: Ethernet 5-SRUSB2: USB 2.0
Connectivity	USB Host (x6), USB Device, LAN (10/100/1000 Base-T Ethernet, LXI Class C Compliant), Video Out, GPIB* *Optional	USB Host (x7), USB 3.0 Device, LAN (10/100/1000 Base-T Ethernet, 1.4 LXI Core 2011 Compliant), Display Port, DVI-D, Video Out
Waveform Math and Analysis	53 Automated Measurements, Waveform and Screen Cursors, Arithmetic and Advanced Waveform Math, FFT, Measurement Statistics, Waveform Histograms, Waveform Limit Testing Optional: BRR: BroadR-Reach Compliance Test; DDRA: DDR Memory Bus Analysis; DJA: DPOJET Advanced Jitter and Eye Diagram Analysis; ET3: Ethernet Compliance Test Solution; MTM: Mask Testing; PWR: Power Analysis; SignalVu Vector Signal Analysis; USB2: USB Compliance Test Solution; MOST: MOST 50/150 Compliance Test Solution; HSIC: HSIC Electrical Validation; USBPWR: USB Power Adapter/ EPS Compliance Automated Test Solution.	 36 Automated Measurements, Waveform and Screen Cursors, Arithmetic Waveform Math, FFT, Advanced Math, Measurement Statistics Optional: 5-CMAUTOEN: Automotive Ethernet Compliance; 5-DJA: Advanced Jitter and Eye Diagram Analysis; 5-PWR: Advanced Power Measurements.
Software	Optional: TekScope Anywhere™	Optional: TekScope Anywhere™
Upgrade	 Add 16 digital channels Add extended record length, up to 250 Mpoints Add serial bus compliance testing Add measurements and analysis (power, jitter, mask, RF) Add serial bus triggering and decode 	 Add serial bus triggering and decode Add serial bus compliance testing Add digital channels with each TLP058 logic probe Add extended record length, up to 125 Mpoints Add advanced measurements and analysis (power, jitter)

ADVANCED SIGNAL ANALYSIS OSCILLOSCOPES





	DP07000C	MS0/DP070000		
Additional Resources				
Channels	4 analog channels	4 analog channels; 16 digital channels (MSO70000)		
Bandwidth	500 MHz to 3.5 GHz	4 GHz to 33 GHz Analog		
Sample Rate	10 GS/s to 40 GS/s	25 GS/s to 100 GS/s (analog); 80 ps (12.5 GS/s) (digital)		
Max Record Length	Up to 500 Mpoints	Up to 1Gpoints		
Trigger Types	Pinpoint [™] Triggering, Edge, Glitch, Pulse Width, Runt, Time-out, Transition. Setup/Hold, Pattern, State, Window, Trigger Delay (by Time and by Event), I ² C*, SPI*, USB (Low, Full)*, RS-232/422/485/ UART*, I ² C*, SPI*, USB*, Ethernet*, CAN*, LIN*, FlexRay*, RS-232/422/485/UART*, MIL-STD-1553*, Visual Trigger ★Optional	Pinpoint [™] Triggering, Edge, Glitch, Pulse Width, Runt, Time-out, Transition, Setup/Hold, Pattern, State, Window, Trigger Delay (by Time and by Event), I ² C*, SPI*, USB (Low, Full)*, RS-232/422/485/UART*, Serial Pattern*, Visual Trigger* *Optional		
Optional Serial Bus Decode and Analysis	SR-AERO: MIL-STD-1553 SR-AUTO: CAN/LIN/FlexRay SR-COMP: RS-232/422/485/UART SR-DPHY: MIPI D-PHY SR-EMBD: I ² C, SPI SR-ENET: 10/100Base-T Ethernet SR-PCIE: PCI Express SR-USB: USB	SR-AERO: MIL-STD-1553; SR-AUTO: CAN/LIN/FlexRay; SR-COMP: RS-232/422/485/UART; SR-DPHY: MIPI D-PHY; SR-EMBD: I ² C, SPI; SR-ENET: 10/100Base-T Ethernet SR-PCIE: PCI Express; SR-USB: USB; SR-810B: 8b/10b; 10G-KR: 10GBASE-KR/KR4		
Connectivity	USB Host (x5), LAN (10/100/1000 Base-T Ethernet, LXI Class C Compliant), GPIB, eSATA, DVI, VGA	USB Host (x5), LAN (10/100/1000 Base-T Ethernet, LXI Class C Compliant), GPIB, eSATA, DVI, VGA		
Waveform Math and Analysis	53 Automated Measurements, Waveform and Screen Cursors, Arithmetic and Advanced Waveform Math, FFT, Measurement Statistics, Waveform Histograms, Waveform Limit Testing Optional: BRR: BroadR-Reach Compliance Test; DDRA: DDR Memory Bus Analysis; DJA: DPOJET Advanced Jitter and Eye Diagram Analysis; D-PHY: MIPI D-PHY Essentials; ET3: Ethernet Compliance Test Solution; MTM: Mask Testing; PWR: Power Analysis; SignalVu Vector Signal Analysis; USB2: USB Compliance Test Solution; MOST: MOST 50/150 Compliance Test Solution; USBPWR: USB Power Adapter/ EPS Compliance Automated Test Solution	 53 Automated Measurements, Waveform and Screen Cursors, Arithmetic and Advanced Waveform Math, FFT, Measurement Statistics, Waveform Histograms Optional: BRR: BroadR-Reach Compliance Test; DDR Memory Bus Analysis; DPOJET Advanced Jitter and Eye Diagram Analysis; Ethernet Compliance; Waveform Limit Testing; Mask Testing; Power Analysis; USB2 and USB3 Compliance and Analysis; USB Power Adapter/ EPS Compliance Automated Test Solution; MOST 50/150 Compliance Test; SignalVu Vector Signal Analysis; HDMI Compliance Test; MIPI D-PHY and M-PHY Characterization and Analysis; SAS Testing; SFP+ Compliance and Debug; Serial Data Link Analysis; 10G-KR Compliance and Debug; PCIe Compliance and Debug; Thunderbolt Characterization, Compliance and Debug; UHS Measurements; PAM4 Transmitter Analysis Software; SignalCorrect Cable, Channel and Probe Compensation Software 		
Software	Optional: TekScope Anywhere™	Optional: TekScope Anywhere™		
Upgrade	 Trade in older DPO7000 Series models for credit toward the newest DPO7000C version (50% credit of the old scope price) Add extended record length, up to 500 Mpoints Add serial bus compliance testing Add measurements and analysis (power, jitter, mask, RF) Add serial bus triggering and decode 	 Increase bandwidth Add 16 digital channels Upgrade older platforms to the latest platforms Add extended record length, up to 1 Gpoints Add serial bus compliance testing Add measurements and analysis (jitter, DDR, mask, RF) Add serial bus triggering and decode 		

OSCILLOSCOPE SELECTION GUIDE

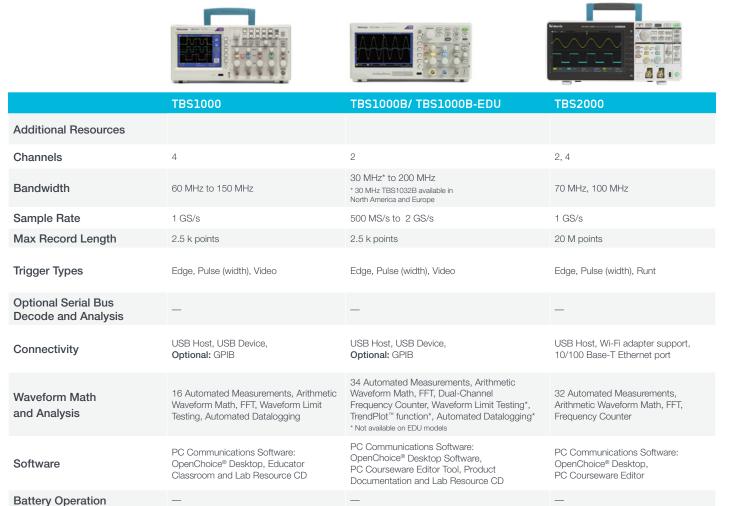
ADVANCED SIGNAL ANALYSIS AND SAMPLING OSCILLOSCOPES





	DP070000SX	DSA8300
Additional Resources		
Channels	2 or 4 analog channels	Six modules support up to 8 single-ended or 4 differential channels and/or 2 optical channels
Bandwidth	23 GHz to 70 GHz	Up to 70+ GHz Electrical bandwidth and 80+ Optical bandwidth modules available with intrinsic jitter as low as <100 fs RMS $$
Sample Rate	50 GS/s to 200 GS/s	300 ks/s Maximum sample rate
Max Record Length	Up to 1Gpoints	50 to 16,000 per channel native record length; with up to 1M points when using available IConnect Signal Integrity Software, 10M samples (100k unit intervals, 100 samples per unit interval) when equipped with available 80SJNB Jitter, Noise and BER Analysis software
Trigger Types	Pinpoint [™] Triggering, Edge, Glitch, Pulse Width, Runt, Time-out, Transition, Setup/Hold, Pattern, State, Window, Trigger Delay (by Time and by Event), Visual Trigger* ★Optional	Clock Input/Prescale Trigger, TDR clock (generated internally), Clock Recovery from Optical Sampling modules and Electrical Clock Recovery modules, and Phase Reference time base supports acquisitions Free Run mode and Trigger Direct Input for <100 fs RMS intrinsic jitter typical
Optional Serial Bus Decode and Analysis	SR-COMP: RS-232/422/485/UART; SR-EMBD: I2C, SPI; SR-ENET: 10/100Base-T Ethernet SR-PCIE: PCI Express; SR-USB: USB; SR-810B: 8b/10b	80SJNB Jitter, Noise, BER, Serial Data Link and PAM4 Analysis Software; IConnect Signal Integrity Software; 100GBASE-SR4 Transmitter & Dispersion Eye Closure (TDEC) Automation Test Solution
Connectivity	USB2.0 Host (4 on front)/3.0 Host (4 on rear), USB Device, LAN (10/100/1000 Base-T Ethernet, LXI Class C Compliant), DVI, VGA, DisplayPort (2)	3 USB 2.0 Port(s) connector on the front panel, 4 USB 2.0 Ports on the rear panel; LAN PORT, RJ-45 connector, supports 10BASE-T, 100BASE-T, 1000BASE-T on rear panel; 1 Serial Port, DB-9 COM1, COM2 ports; 1 DVI IEEE488.2 connector on rear panel; 1 DVI connector, female on rear panel, DVI to VGA 15-pin D-sub connector adapter provided; PS2 Serial Ports Mouse and keyboard inputs; Audio Ports 1/8 in. microphone input and line output
Waveform Math and Analysis	53 Automated Measurements, Waveform and Screen Cursors, Arithmetic and Advanced Waveform Math, FFT, Measurement Statistics, Waveform Histograms Optional: DPOJET Noise, Jitter and Eye Analysis Tools; Frequency Counter-Timer; PAM4 Transmitter Analysis Software; Serial Data Link Analysis; 10G/40G/100G KR4/CR4 Transmitter Compliance; DDR Memory Bus Analysis; DisplayPort 1.2/1.4 Test Software; MIPI D-PHY Transmitter Debug and Compliance Test Solution; EDP Compliance Test Package; Ethernet Compliance Testing; Fiber Channel Essentials; HDMI 2.0 Analysis and Compliance; High Speed Serial Link Training Analysis; HDMI Compliance Testing; MIPI M-PHY Debug and Compliance Test; NBASE-T TekExpress Conformance and Debug Software; PCI Express Gen1/2/3/4 TekExpress Compliance/Debug; Power Measurement and Analysis Software; SAS-3 Tx Compliance Test; SATA PHY Transmitter Test; SignalCorrect Cable, Channel, and Probe Compensation Software; SFP+ Compliance and Debug Solution; Embedded Serial Triggering and Analysis (I2C, SPI); USB 2.0/3.0/3.1 Automated Compliance Test; SignalVu Vector Signal Analysis	Over 120 automated measurements include RZ, NRZ, and pulse signal types, and the following measurement types, plus 8 math waveforms using the following math functions: Add, Subtract, Multiply, Divide, Average, Differentiate, Exponential, Integrate, Natural Log, Log, Magnitude, Min, Max, Square Root, and Filter. In addition, measurement values can be utilized as scalars in math waveform definitions; Mask support for many applications, standard masks are available as predefined, built-in masks; Automated Masked Margin based on Mask Hit Ratio as required by many standards.
Software	Optional: TekScope Anywhere™	Windows® 7 Ultimate (32-bit) Operating System; IConnect Signal Integrity Software for frequency domain analysis, S-parameter measurements, and impedance characterization 80SJNB Jitter, Noise, BER, and Serial Link analysis including Cross-Talk aware TJ (BUJ and PAM4 Analysis); 80SJARB Jitter Analysis of Arbitrary Data with J2-J9 measurements, and support for pattern lengths to PRBS31; 100GBASE-SR4 (IEEE 802.3bm) optical transmitter characterization measurements, including TDEC, signaling rate, Average Launch Power, OMA, ER, Transmitter Eye Mask
Upgrade	 Increase bandwidth Upgrade older platforms to the latest platforms Add extended record length, up to 1 G points Add measurements and analysis (jitter, mask, RF) 	 Modular architecture lets you add channels or bandwidth Add TDR, optical and electrical standards support Add advanced analysis, compliance test, frequency domain analysis software Add clock recovery trigger pickoff (CRTP) to select optical modules Enhance system jitter floor performance to <100 fs RMS

BASIC OSCILLOSCOPES





Teaching Oscilloscopes

TBS2000 and TBS1000B-EDU Oscilloscopes have unique features designed to meet the needs of schools and universities. They use an innovative courseware system that enables educators to build teaching materials into the oscilloscope. Along with a powerful PC Courseware Editor Tool and a courseware website, these oscilloscopes support a complete education ecosystem that makes it easier to teach engineering and easier to learn.

LEARN MORE

LOW PROFILE OSCILLOSCOPES



5 SERIES MSO LOW PROFILE

Additional Resources

Channels	8 FlexChannel® inputs; 8 digital channels per FlexChannel (optional); 1 Arbitrary/Function Generator (5-AFG option); Aux trigger
Bandwidth	1 GHz
Sample Rate	6.25 GS/s (analog); 6.25 GS/s (digital)
Max Record Length	125 Mpoints
Trigger Types	Edge, Sequence, Logic, Pulse Width, Runt, Timeout, Window, Setup and Hold, Rise/Fall Time, I2C*, SPI*, USB*, Ethernet*, CAN*, CAN FD*, LIN*, FlexRay*, RS-232/422/485/UART*, I2S/LJ/RJ/ TDM*, MIL-STD-1553*, ARINC 429*, SENT*, Parallel *Optional
Optional Serial Bus Decode and Analysis	5-SRAERO: MIL-STD-1553, ARINC 429 5-SRAUDIO: I2S, LJ, RJ, TDM 5-SRAUTO: CAN, CAN FD, LIN, FlexRay 5-SRAUTOSEN: SENT 5-SRCOMP: RS-232/422/485/UART 5-SREMBD: I2C, SPI 5-SRENET: Ethernet 5-SRUSB2: USB 2.0
Connectivity	USB Host (x6), USB 3.0 Device, LAN (10/100/1000 Base-T Ethernet, 1.4 LXI Core 2011 Compliant), DisplayPort, DVI-D, Video Out
Waveform Math and Analysis	36 Automated Measurements, Waveform and Screen Cursors, Arithmetic Waveform Math, FFT, Advanced Math, Measurement Statistics Optional: 5-DJA: Advanced Jitter and Eye Diagram Analysis; 5-PWR: Advanced Power Measurements
Software	Optional: TekScope Anywhere™
Upgrade	 Add serial bus triggering and decode Add digital channels with each TLP058 logic probe Add advanced measurements and analysis

BATTERY POWERED OSCILLOSCOPES WITH ISOLATED CHANNELS AND TDS SERIES OSCILLOSCOPES









	THS3000	TPS2000B	TDS2000C	TDS3000C
Additional Resources				
Channels	4 (isolated)	2, 4 (isolated)	2, 4	2, 4
Bandwidth	100 MHz to 200 MHz	100 MHz to 200 MHz	50 MHz to 200 MHz	100 MHz to 500 MHz
Sample Rate	2.5 GS/s to 5 GS/s	1 GS/s to 2 GS/s	500 MS/s to 2 GS/s	1.25 GS/s to 5 GS/s
Max Record Length	10 k points	2.5 k points	2.5 k points	10 k points
Trigger Types	Edge, Pulse (width), Event, Video, Non-interlaced	Edge, Pulse (width), Video	Edge, Pulse (width), Video	Edge, Logic (Pattern, State), Pulse (Glitch, Width, Runt, Slew Rate), Video, Optional: Extended Video, Comm
Optional Serial Bus Decode and Analysis	_	-	_	_
Connectivity	USB Host, USB Device	RS-232 (includes RS-232-to-USB Host Serial Cable), Centronics, CompactFlash	USB Host, USB Device, Optional: GPIB	USB Host, LAN (10Base-T Ethernet) Optional: TDS3GV Module: GPIB, RS-232, and Video Out
Waveform Math and Analysis	Measurements. Arithmetic		16 Automated Measurements, Arithmetic Waveform Math, FFT, Waveform Limit Testing, Automated Datalogging	25 Automated Measurements, Arithmetic Waveform Math, FFT Optional: TDS3LIM: Limit Testing, TDS3TMT: Telecom Mask Testing, TDS3VID: HDTV & Custom Video Triggering
Software	PC Communications Software: OpenChoice [®] Desktop	PC Communications Software: OpenChoice [®] Desktop	PC Communications Software: OpenChoice® Desktop	PC Communications Software: OpenChoice® Desktop
Battery Operation	One THSBAT Battery Pack Included Standard	One TPSBAT Battery Pack Included Standard	—	Requires Optional TDS3BATC Battery Pack

INTERACTIVE PROBE SELECTOR TOOL

Need help finding the right probe for your application? The online Tektronix Probe Selector Tool will guide you through a few easy questions to match your need to the right probe. Visit us anytime, anywhere at: tektronix.com/probes.



	INS PROD	UCTS SERVICES & SU	PPORT 📞 1	-800-833-9200	
be Selector 1	Tool				
Select a me	asuremen				
Current Prol	20		Low Voltage Differen	itial Probes	
High Voltag	e Differential	Probes	Low Voltage Single E	inded Probes	
High Voltag	e Single Ende	d Probes	Isolated Measureme	nt Systems	
Logic Analyz	er Probe		Passive Probe		
Select an in	strument				
DPO7000C		DPO70000SX	MDO3000	_ MDO400	DC
MSO/DPO2000B		MSO/DPO3000	MSO/DPO4000	MSO/DPO	05000
MSO/DPO7	0000	TB51000	NEW! TB52000	TD52000	
TDS3000		TDS5000	TPS2000		
					APPLY
Recommende	ed Prob	es:			5
					D
Compare	PP1000	Bandwidth	Input Range		CONFIGURE & QUOTE
	ST PRICE	1 GHz	300 V CAT II		Family Datasheet
+View Larger U	S \$996	>> Vie	w Compatible Instruments		
Compare					
Q. 1	PP0502	Bandwidth	Input Range		CONFIGURE & QUOTE
	ST PRICE S \$652	500 MHz	300 V CAT II		EFamily Datasheet
+View Larger	3 3052		w Compatible Instruments		

IsoVu® Isolated Probes See What's Been Hidden - Until Now



Common mode interference often causes engineers to design, debug, evaluate, and optimize "blind." Revolutionary IsoVu[™] technology uses optical communications and power-over-fiber for complete galvanic isolation. When combined with an oscilloscope equipped with the TekVPI interface, it is the first, and only, measurement system capable of accurately resolving high bandwidth differential signals in the presence of large common mode voltage.

LEARN MORE

OSCILLOSCOPE PROBES AND ACCESSORIES

Tektronix probes and accessories are perfectly matched to our industry-leading oscilloscopes. With over 100 choices available, you will find the probe you need. Need help finding the right probe for your application? The online Tektronix Probe Selector Tool will guide you through a few easy guestions to match your need to the right probe.





Isolated Probes

- High-resolution measurements in the presence of common mode signals or noise
- Up to 1 GHz bandwidth
- Complete galvanic isolation
- 1 Million to 1 (120 dB) of common mode rejection at 100 MHz

http://www.tek.com/isolated-

measurement-systems



Low Voltage Differential **Probes**

- Bandwidth up to 33 GHz
- · Easily measure differential signals
- Low input capacitance: down to < 0.3 pF
- High common mode rejection ratio (CMRR)
- Wide range of probe tips for easier circuit access

tek.com/differentialprobe-low-voltage



High Voltage Differential Probes

- Dynamic range to ± 6000 V
- Bandwidth up to 200 MHz
- · Most extensive set of probe accessories

tek.com/differentialprobe-high-voltage



High Voltage Single-ended Probes

- Bandwidth up to 800 MHz
- Dynamic range to 2500 V
- · Best-in-class probe loading with input capacitance as low as 1.8 pF

tek.com/high-voltage-probesingle-ended



Current Probes

- Easy to use and accurate AC/DC current measurements
- DC up to 2 GHz
- Amplitude measurements from 1 mA to 2,000 A
- Split core and solid core construction

tek.com/current-probe



Optical

- Broad Wavelength Response: 500 to 950 nm or 1100 to 1700 nm
- High-bandwidth DC up to 1.2 GHz
- High Gain 1 V/mW
- Low Noise <11 pW/√Hz
- DC to 33 GHz (DP070E1)

NEW

Optical Probe DP070E2 DC to 59 GHz

tek.com/optical-probe



Passive Probes

- · Best-in-class bandwidth up to 1 GHz
- · Best-in-class input capacitance as low as 3.9 pF, which minimizes probe loading effects
- Dynamic range to 300 V CAT II
- Rugged and reliable

tek.com/passive-probe



Low Voltage Single-ended Probes

- Bandwidth up to 4 GHz
- True signal reproduction and fidelity
- Low input capacitance: down to < 0.8 pF
- Small, compact probe heads for probing small geometry circuit elements

tek.com/low-voltage-probesingle-ended



SERIAL SUPPORT BY MSO/DPO PRODUCT SERIES AND REQUIRED OPTIONAL SOFTWARE

		MSO/DP070000C/DX Series				
	Serial Standard	Decode & Search	Serial Trigger	Compliance Test		
	I ² C	SR-EMBD	SR-EMBD	-		
Embedded	SPI	SR-EMBD	SR-EMBD	-		
mbec	RS-232/UART	SR-COMP	SR-COMP	-		
Π	I ² S	-	-	-		
	CAN	SR-AUTO	SR-AUTO	-		
	CAN FD	-	-	-		
5	LIN	SR-AUTO	SR-AUTO	-		
Iransportation	FlexRay	SR-AUTO	SR-AUTO	-		
	MOST	-	-	MOST		
ans	SENT	-	-	-		
	Automotive Ethernet	-	-	BRR		
	ARINC 429	-	-	-		
	MIL-STD-1553B	SR-AERO	SR-AERO	-		
	USB 2.0	SR-USB	SR-USB (LS, FS)	USB2		
	USB 3.0	SR-USB	-	USB3, TEKEXP Opt. USB-RMT, USB-TX		
	MIPI D-PHY	SR-DPHY	-	D-PHY, TEKEXP Opt. D-PHYTX		
Iais	МІРІ М-РНҮ	-	-	M-PHY, M-PHYTX, M-PHYRX		
ibue	PCIe	SR-PCIE	-	PCE3		
Le	DiiVA	-	-	TEKEXP Opt. DIIVA		
computer / Peripherals	DisplayPort	-	-	DP12 TEKEXP Opt. DP-SINK		
	НДМІ	-	-	HT3, HT3DS		
	MHL	-	-	MHD		
	SATA	-	-	SATA-RSG, SATA-TSG		
	SAS3	-	-	SAS3, SAS-TSG, SAS-TSGW		
	Thunderbolt	-	-	TBT-TX		
	UHS-II	-	-	UHS2		
Memory	DDR	-	-	DDRA, DDR-LP4		
	Ethernet	SR-ENET	-	ET3, XBGT2, NBASET		
E	Comm. Mask Testing	-	-	MTH		
Datacom	Fibre Channel	-	-	FC-16G		
La La	10GBASE-T KR	-	-	10G-KR		
	SFP+	-	-	SFP-TX, SFP-WDP		
s	Custom Serial	SR-CUST	-	-		
IS	8b/10b	SR-810B	-	-		
Ana	NRZ Serial	-	ST6G	-		
ee	PAM4	-	-	PAM4		
Advanced Analysis	Serial Data Link Analysis	-	-	SDLA64		
6	Jitter & Eye Diagram Analysis			DJA (DJE incl. std), DJAN		

DP07000C Series						
Decode Serial Compliance						
& Search	Trigger	Test				
SR-EMBD	SR-EMBD	-				
SR-EMBD	SR-EMBD	-				
SR-COMP	SR-COMP	_				
-	-					
SR-AUTO	SR-AUTO	-				
-	-	_				
SR-AUTO	SR-AUTO	_				
SR-AUTO	SR-AUTO					
		- MOST				
-	-					
-	_	- BRR				
-	-					
		-				
SR-AERO	SR-AERO SR-USB	-				
SR-USB	(LS, FS)	USB2				
-	-	-				
SR-DPHY	-	D-PHY TEKEXP Opt. D-PHYTX				
-	-	-				
SR-PCIE	-	-				
-	-	-				
-	-	-				
-	-	-				
-	-	-				
-	-	-				
-	-	-				
-	-	_				
-	-	-				
-	-	DDRA				
SR-ENET	-	ET3, XBGT2, NBASET				
-	-	MTM				
-	-	-				
-	-	-				
-	-	-				
SR-CUST	-	-				
SR-810B	-	-				
-	ST1G	-				
-	-	-				
-	-	-				
-	-	DJA (DJE incl. std), DJAN				

SERIAL SUPPORT BY MSO/DPO PRODUCT SERIES AND REQUIRED OPTIONAL SOFTWARE

		5 Series MSO				MS0/DP05000B Series		
	Serial Standard	Decode & Search	Serial Trigger	Compliance Test	Decode & Search	Serial Trigger	Compliance Test	
	l ² C	5-SREMBD	5-SREMBD	-	SR-EMBD	SR-EMBD	-	
lded	SPI	5-SREMBD	5-SREMBD	-	SR-EMBD	SR-EMBD	-	
Embedded	RS-232/UART	5-SRCOMP	5-SRCOMP	-	SR-COMP	SR-COMP	-	
ш	l²S	5-SRAUDIO	5-SRAUDIO	-	-	-	-	
	CAN	5-SRAUTO	5-SRAUTO	-	SR-AUTO	SR-AUTO	-	
	CAN FD	5-SRAUTO	5-SRAUTO	-	-	-	-	
tion	LIN	5-SRAUTO	5-SRAUTO	-	SR-AUTO	SR-AUTO	-	
ortai	FlexRay	5-SRAUTO	5-SRAUTO	-	SR-AUTO	SR-AUTO	-	
Fransportation	MOST	-	-	-	-	-	MOST	
Tre	SENT	5-SRAUTOSEN	5-SRAUTOSEN	-	-	-	-	
	Automotive Ethernet	-	-	5-CMAUTOEN	-	-	BRR	
	ARINC 429	5-SRAERO	5-SRAER0	-	-	-	-	
	MIL-STD-1553B	5-SRAERO	5-SRAER0	-	SR-AER0	SR-AERO	-	
	USB 2.0	5-SRUSB2	5-SRUSB2	-	SR-USB	SR-USB	USB2	
	USB 3.0	-	-	-	-	-	-	
6	MIPI D-PHY	-	-	-	SR-DPHY	-	-	
eral	MIPI M-PHY	-	-	-	-	-	-	
sriph	PCle	-	-	-	SR-PCIE	-	-	
. / Pe	DiiVA	-	-	-	-	-	-	
Computer / Peripherals	DisplayPort	-	-	-	-	-	-	
Juo	НДМІ	-	-	-	-	-	-	
0	MHL	-	-	-	-	-	-	
	SATA	-	-	-	-	-	-	
	SAS3	-	-	-	-	-	-	
	Thunderbolt	-	-	-	-	-	-	
	UHS-II	-	-	-	-	-	-	
Memory	DDR	-	-	-	-	-	DDRA	
	Ethernet	5-SRENET	5-SRENET	-	SR-ENET	SR-ENET	ET3	
_	Comm. Mask Testing	-	-	-	-	-	MTM	
Datacom	Fibre Channel	-	-	-	-	-	-	
Data	10GBASE-T KR	-	-	-	-	-	-	
	SFP+	-	-	-	-	-	-	
S	Custom Serial	-	-	-	SR-CUST	-	-	
Ilysi	8b/10b	-	-	-	SR-810B	-	-	
Ana	NRZ Serial	-	-	-	-	-	-	
ced	PAM4	-	-	-	-	-	-	
Advanced Analysis	Serial Data Link Analysis	-	-	-	-	-	-	
A	Jitter & Eye Diagram Analysis	-	-	5-DJA	-	-	DJA (DJE incl. std), DJAN	

SERIAL SUPPORT BY MDO PRODUCT SERIES AND REQUIRED OPTIONAL SOFTWARE

		MD04000C Series		
	Serial Standard	Decode & Search	Serial Trigger	Compliance Test
Embedded	I ² C	DP04EMBD	DP04EMBD	-
	SPI	DP04EMBD	DP04EMBD	-
	RS-232/UART	DP04C0MP	DP04C0MP	-
	I ² S	DP04AUDI0	DP04AUDI0	-
u	CAN	DP04AUT0	DP04AUT0	-
	CAN FD	DP04AUT0	DP04AUT0	-
	LIN	DP04AUT0	DP04AUT0	-
Transportation	FlexRay	DP04AUT0MAX	DP04AUT0MAX	-
odsi	MOST	-	-	-
Tran	SENT	-	-	-
	Automotive Ethernet	-	-	-
	ARINC 429	DP04AER0	DP04AER0	-
	MIL-STD-1553B	DP04AER0	DP04AER0	-
	USB 2.0	DP04USB	DP04USB	-
	USB 3.0	-	-	-
	MIPI D-PHY	-	-	-
rals	MIPI M-PHY	-	-	-
iphe	PCle	-	-	-
/ Per	DiiVA	-	-	-
uter ,	DisplayPort	-	-	-
Computer / Peripherals	HDMI	-	-	-
ŭ	MHL	-	-	-
	SATA	-	-	-
	SAS3	-	-	-
	Thunderbolt	-	-	-
	UHS-II	-	-	-
Memory	DDR	-	-	-
Datacom	Ethernet	DP04ENET	DP04ENET	-
	Comm. Mask Testing	-	-	DP04LMT
	Fibre Channel	-	-	-
	10GBASE-T KR	-	-	-
	SFP+	-	-	-
Advanced Analysis	Custom Serial	-	-	-
	8b/10b	-	-	-
	NRZ Serial	-	-	-
	PAM4	-	-	-
	Serial Data Link Analysis	-	-	-
	Jitter & Eye Diagram Analysis	-	-	-

MD03000 Series							
Decode	Serial Trigger	Compliance					
& Search		Test					
MD03EMBD	MD03EMBD	-					
MD03EMBD	MD03EMBD	-					
MD03C0MP	MD03C0MP	-					
MD03AUDI0	MD03AUDI0	-					
MD03AUT0	MD03AUT0	-					
MD03AUT0	MD03AUT0	-					
MD03AUT0	MD03AUT0	-					
MD03FLEX	MD03FLEX	-					
-	-	-					
-	-	-					
-	-	-					
-	-	-					
MD03AER0	MD03AER0	-					
MD03USB	MD03USB	-					
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-	-	MD03LMT					
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SERIAL SUPPORT BY MSO/DPO PRODUCT SERIES AND REQUIRED OPTIONAL SOFTWARE

		MS0 / DP02000B Series		
	Serial Standard	Decode & Search	Serial Trigger	Compliance Test
Embedded	I ² C	DP02EMBD	DP02EMBD	-
	SPI	DP02EMBD	DP02EMBD	-
	RS-232/UART	DP02C0MP	DP02C0MP	-
	I ² S	-	-	-
Transportation	CAN	DP02AUT0	DP02AUT0	-
	CAN FD	-	-	-
	LIN	DP02AUT0	DP02AUT0	-
	FlexRay	-	-	-
odsu	MOST	-	-	-
Tra	SENT	-	-	-
	Automotive Ethernet	-	-	-
	ARINC 429	MD03AER0	MD03AER0	-
	MIL-STD-1553B	-	-	-
	USB 2.0	-	-	-
	USB 3.0	-	-	-
S	MIPI D-PHY	-	-	-
eral	МІРІ М-РНҮ	-	-	-
eriph	PCIe	-	-	-
r / Pe	DiiVA	-	-	-
Computer / Peripherals	DisplayPort	-	-	-
	HDMI	-	-	-
	MHL	-	-	-
	SATA	-	-	-
	SAS3	-	-	-
	Thunderbolt	-	-	-
	UHS-II	-	-	-
		-	-	-
Memory	DDR			
Me				
	Ethernet	_	_	
Ε	Comm. Mask Testing	_	_	_
Datacom	Fibre Channel	_	_	_
Da	10GBASE-T KR	_	_	_
	SFP+	-	-	-
Advanced Analysis	Custom Serial	-	-	-
	8b/10b	-	-	-
	NRZ Serial	-	_	-
	PAM4	-	_	-
	Serial Data Link Analysis	-	_	_
		_	_	_
	Jitter & Eye Diagram Analysis			

Contact Information

Australia* 1 800 709 465 Austria 00800 2255 4835 Balkans, Israel, South Africa and other ISE Countries +41 52 675 3777 Belgium* 00800 2255 4835 Brazil +55 (11) 3759 7627 Canada 1 800 833 9200 Central East Europe / Baltics +41 52 675 3777 Central Europe / Greece +41 52 675 3777 Denmark +45 80 88 1401 Finland +41 52 675 3777 France* 00800 2255 4835 Germany* 00800 2255 4835 Hong Kong 400 820 5835 India 000 800 650 1835 Indonesia 007 803 601 5249 Italy 00800 2255 4835 Japan 81 (3) 6714 3010 Luxembourg +41 52 675 3777 Malaysia 1 800 22 55835 Mexico, Central/South America and Caribbean 52 (55) 56 04 50 90 Middle East, Asia, and North Africa +41 52 675 3777 The Netherlands* 00800 2255 4835 New Zealand 0800 800 238 Norway 800 16098 People's Republic of China 400 820 5835 Philippines 1 800 1601 0077 Poland +41 52 675 3777 Portugal 80 08 12370 Republic of Korea +82 2 565 1455 Russia / CIS +7 (495) 6647564 Singapore 800 6011 473 South Africa +41 52 675 3777 Spain* 00800 2255 4835 Sweden* 00800 2255 4835 Switzerland* 00800 2255 4835 Taiwan 886 (2) 2656 6688 Thailand 1 800 011 931 United Kingdom / Ireland* 00800 2255 4835 USA 1 800 833 9200 Vietnam 12060128

* European toll-free number. If not accessible, call: +41 52 675 3777

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