# EtherCHK kits

## ETHERNET HANDHELD TESTER UP TO 100G


EtherSAM

COMPLETE IPv6 TESTING

Wi Fi

Bluetooth™

SPEC SHEET

The EtherCHK kits are based on EXFO's MAX-800 series of easy-to-use, portable 10M-to-100G Ethernet testers. Optimize your field technicians' tasks by running up to two 100G tests simultaneously.

## KEY FEATURES AND BENEFITS

Partner kit only

### Platform highlights

- Custom-designed platform with 64 GB of onboard memory for 1G and 10G models. The EtherCHK-100G platform offers 128 GB of onboard memory.
- Micro SD card slot that allows a massive memory expansion
- Ultra-bright 8-inch multitouch screen
- Built-in connectivity—choose between Gigabit interface, WiFi, Bluetooth, and 3G or 4G LTE via USB dongle
- Connect your own device to the EtherCHK using one of the three USB ports available (two USB 2.0 and one USB 3.0)
- Lightweight and portable solution designed for field engineers or cell technicians installing, troubleshooting and maintaining backhaul Carrier Ethernet networks and data center interconnect

### Ethernet

- Dual-port testing up to 100G
- EtherSAM, RFC 2544, traffic generation and monitoring, EtherBERT, Through mode, Smart loopback and second-port loopback tool
- Pattern validation and latency measurements
- Service disruption time measurements for switching time conformity validation
- Service level agreement testing
- IPv4/IPv6 support with up to 32 simultaneous quality of service (QoS) evaluations
- Third-party interoperability for expedited tests with lower operational costs
- Very high accuracy of timing measurements

EXFO

## SETTING A NEW GUI STANDARD: UNPRECEDENTED SIMPLICITY IN CONFIGURATION SETUP AND NAVIGATION

The EtherCHK kits' intelligent situational setup guides technicians through complete, accurate testing processes (e.g., suggestion prompts and help guides). In addition, it reduces navigation by combining associated testing functions on a single screen, and offers intelligent autodiscovery enabling a single technician to perform end-to-end testing.

### Dedicated quick-action buttons

- Remote discovery to find all the other EXFO and third-party units allowing a single user to perform end-to-end testing by looping up and looping down remote devices up to layer 4
- Laser on/off
- Test reset to clear the results and statistics while running a test
- Report generation
- Save or load test configurations
- Quick error injection

### Assorted notifications

- Clear indication of link status for single or dual ports
- Negotiated speed display for single or dual ports
- Power status available at all times for single or dual ports
- Pass/fail indication at all times
- Pattern and clock synchronization
- Frequency offset with valid-range color indicator
- Overhead overwrite indicator
- Error/alarm injection
- Alarm hierarchy pinpointing the root-cause (when possible)

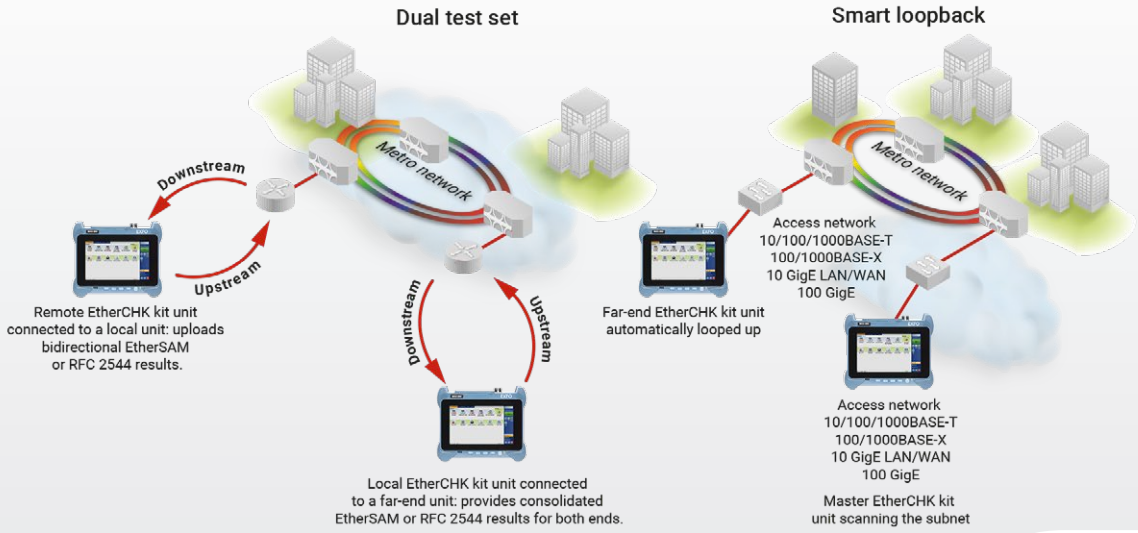
### Streamlined navigation

- Remote discovery button for EXFO and third-party devices available at all times; no reason to leave your current location to scan for a remote unit
- Testing status can be maximized to fill the entire screen by simply clicking on the alarm status button; whether the unit is in your hand or across the room, test verdicts can be easily viewed with a simple glance at the display screen
- RFC 2544 configuration is displayed on a single page, with no need to navigate through multiple screens to view individual RFC subtest results
- RFC 2544 results and graphs are also available in a single page, eliminating the need to navigate through multiple screens to view individual RFC subtest results
- Simplified test structure definition using task-based test-application selection, signal configuration, front-end and smart timeslot selection
- Centralized functions: error/alarm management, performance monitoring and overhead manipulation/monitoring

## KEY ETHERNET FEATURES

### Intelligent network Discovery mode

Using the EtherCHK kits, you can single-handedly scan the network and connect to any available EXFO datacom remote tester. Simply select the EXFO unit to be tested and choose whether you want traffic to be looped back via the Smart loopback or Dual test set for simultaneous bidirectional EtherSAM or RFC 2544 results. Additionally, from the EtherCHK kits, you can also loop up a third-party device to place it in Loopback mode. With etheir approach (Dual test set or Smart loopback), you no longer need an additional technician at the far end to relay critical information–the EtherCHK kits take care of everything. The discover remote feature also allows a user to perform end-to-end testing by looping up and looping down third-party units up to layer 4.



## Smart loopback flexibility

The Smart loopback functionality has been enhanced to offer five distinct loopback modes. Whether you are looking to pinpoint loopback traffic from a user-datagram-protocol (UDP) or transmission control protocol (TCP) layer, or all the way down to a completely promiscuous mode (Transparent Loopback mode), the EtherCHK Series has the flexibility to adjust to all unique loopback situations.

## Dual-port and Through mode testing

With dual-port testing, one technician can use a single EtherCHK kit module to launch either EtherSAM or RFC 2544, and obtain bidirectional results using just one module. With traffic generation and monitoring, as well as EtherBERT tests, the technician can set up two distinct tests, one on port 1 and the other on port 2. Both ports can also be bound to different interfaces (e.g., 10BASE-T electrical on port 1 and 10 GigE on port 2).

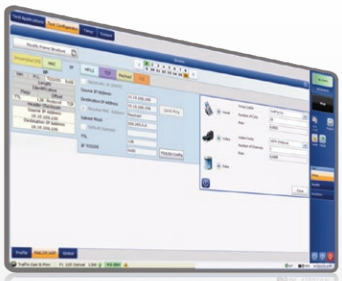
## VLAN/MPLS

Today's networks are expected to deliver high performance. To meet such high expectations, service providers must rely on various mechanisms, such as Ethernet tagging, encapsulation and labeling. Thanks to these additions, service providers can enhance security, scalability, reliability and performance. The EtherCHK kit supports virtual-local-area-network (VLAN) tags, Q-in-Q VLAN tags and multiprotocol label switching (MPLS).


## TRAFFIC GENERATION AND MONITORING

Unparalleled analog visual gauges combined with user-defined thresholds instantaneously show whether or not the test traffic is in or out of expected ranges.

The EtherCHK kit surpasses the multistream offerings of typical handheld Ethernet testing devices. Up to 32 streams of traffic can be configured by a technician in order to test just about any frame format: Ethernet II, 802.3 SNAP, IPv4, IPv6, three levels of VLANs, MPLS, UDP and TCP. Each stream has an analog visual gauge and user-definable pass/fail thresholds that instantly show whether the test traffic is in or out of the expected ranges of the SLA.




## ETHERSAM: THE NEW STANDARD IN ETHERNET TESTING

RFC 2544 used to be the most widespread Ethernet testing methodology. However, it was designed for network-device testing in the lab, not service testing in the field. ITU-T Y.1564, the new standard for turning up and troubleshooting Carrier Ethernet services, has a number of advantages over RFC 2544, including validation of critical service-level agreement (SLA) criteria such as packet jitter and quality-of-service (QoS) measurements. This methodology is also significantly faster, saving both time and resources while optimizing QoS.

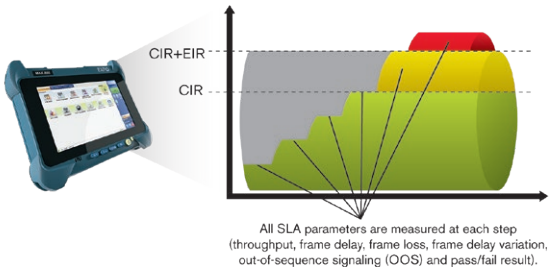
EXFO's EtherSAM test suite–based on the ITU-T Y.1564 Ethernet service activation methodology–provides comprehensive field testing for mobile backhaul and commercial services.

Contrary to other methodologies, EtherSAM supports new multiservice offerings, and can simulate all types of services that will run on the network while simultaneously qualifying all key SLA parameters for each of these services. Moreover, it validates the QoS mechanisms provisioned in the network to prioritize the different service types, resulting in better troubleshooting, more accurate validation and much faster deployment. EtherSAM is comprised of two phases: the service configuration test and the service performance test.

### Service configuration test

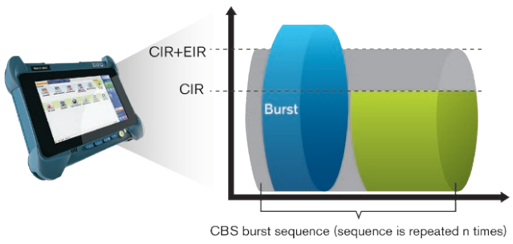
The service configuration test involves sequential testing of each service in order to validate that it is properly provisioned, and that all specific key performance indicators (KPIs) or SLA parameters are met. A ramp test and burst test are performed in order to verify the committed information rate (CIR), excess information rate (EIR), committed burst size (CBS) and excess burst size (EBS).

**Ramp test**



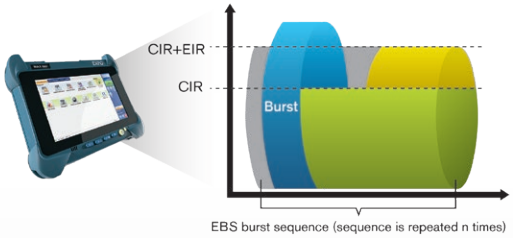

All SLA parameters are measured at each step (throughput, frame delay, frame loss, frame delay variation, out-of-sequence signaling (OOS) and pass/fail result).

**Burst test**




CBS burst sequence (sequence is repeated n times)

All SLA parameters are measured throughout the CBS burst sequence (throughput, frame delay, frame loss and frame delay variation).

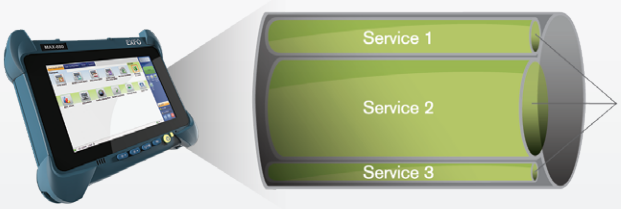



EBS burst sequence (sequence is repeated n times)

All SLA parameters are measured throughout the EBS burst sequence (throughput, frame delay, frame loss and frame delay variation).

### Service performance test

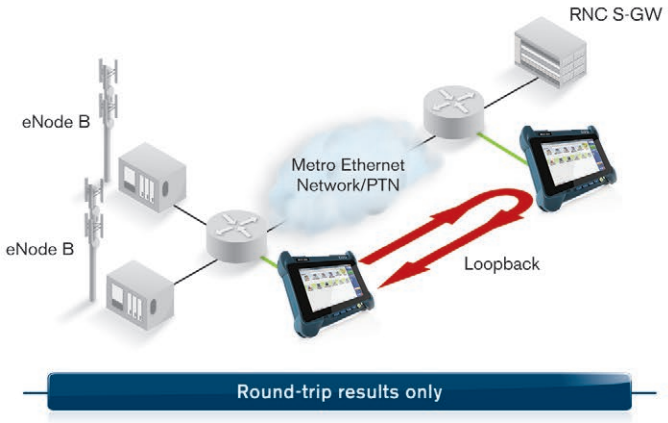
Once the configuration of each individual service is validated, the service performance test simultaneously validates the quality of all the services over time.

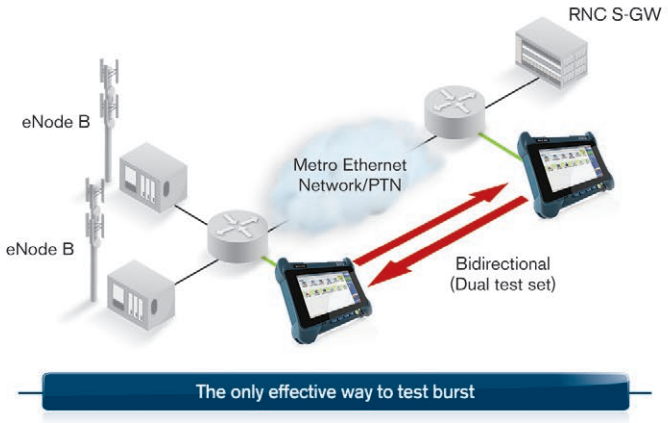



All SLA parameters are measured at each service (throughput, frame delay, frame loss, frame delay variation, OOS and pass/fail result).

## ETHERSAM BIDIRECTIONAL RESULTS

EXFO's EtherSAM approach proves itself even more powerful as it executes the complete ITU-T Y.1564 test with bidirectional measurements. Key SLA parameters are measured independently in each test direction, providing 100% first-time-right service activation—the highest level of confidence in service testing.

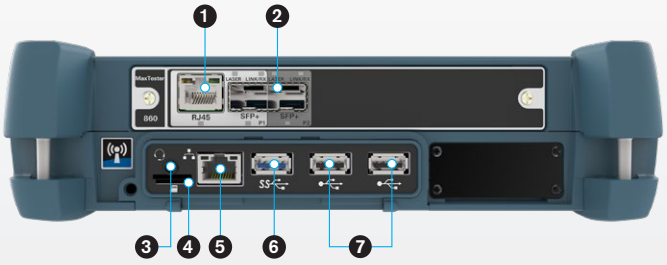


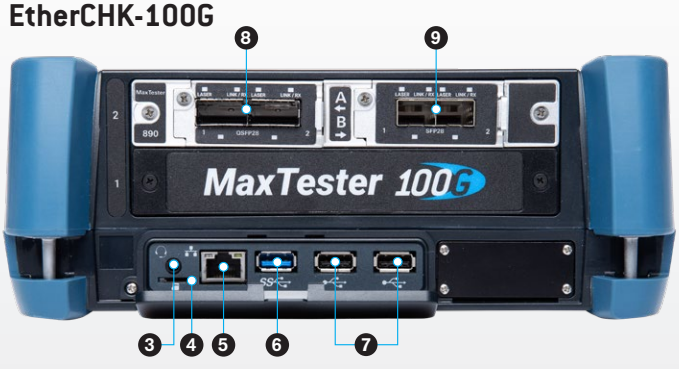

## CHOOSE THE RIGHT EtherCHK FOR YOU

| | EtherCHK-1G | EtherCHK1-10G | EtherCHK-100G |
|---|---|---|---|
| Ethernet 10/100/1000M | • | • | • |
| Ethernet 10/100/1000M and 10G | | • | • |
| Ethernet 100G | | | • |
| Dual-port option | • | • | • |
| Y.1564 (EtherSAM) | • | • | • |
| RFC 2544 | • | • | • |
| Cable test | • | • | |
| IPv6 | Optional | Optional | • |
| MPLS | Optional | Optional | • |
| EtherBERT | • | • | • |
| Multistream traffic generation | • | • | • |
| Ethernet through mode | Optional | Optional | • |

### EtherCHK-1G and EtherCHK1-10G




### EtherCHK-100G




1. **RJ45: THERNET**
   10/100/1000BASE-T
2. **SFP+/SFP: OPTICAL ETHERNET**
   Up to 10 Gbit/s
   10/100/1000BASE-T with copper SFP
   SONET/SDH up to 10G
   OTN OTU1/2
3. Microphone/Headset jack
4. Micro SD card slot
5. 1 GigE maintenance port
6. USB 3.0 port (1)
7. USB 2.0 ports (2)
8. QSFP28
   100GE
   OTU4
9. SFP/SFP+
   Up to 10 Gbit/s
   10/100/1000BASE-T with copper SFP
   SONET/SDH up to 10G
   OTN OTU1/2

# SPECIFICATIONS

## ELECTRICAL ETHERNET INTERFACES

| | One port: 10/100BASE-T half/full duplex, 1000BASE-T full duplex<br>Automatic or manual detection of straight/crossover cable | | |
|---|---|---|---|
| Model | **Connector on module** | | |
| Transceiver type | **10BASE-T** | **100BASE-TX** | **1000BASE-T** |
| Tx bit rate | 10 Mbit/s | 125 Mbit/s | 1 Gbit/s |
| Tx accuracy (uncertainty) (ppm) | ±4.6 | ±4.6 | ±4.6 |
| Rx bit rate | 10 Mbit/s | 125 Mbit/s | 1 Gbit/s |
| Rx measurement accuracy (uncertainty) (ppm) | | ±4.6 | ±4.6 |
| Duplex mode | Half and full duplex | Half and full duplex | Full duplex |
| Jitter compliance | IEEE 802.3 | IEEE 802.3 | IEEE 802.3 |
| Connector | RJ45 | RJ45 | RJ45 |
| Maximum reach (m) | 100 | 100 | 100 |

## ETHERNET TEST FEATURES

| | |
|---|---|
| EtherSAM (ITU-T Y.1564) | Perform service configuration and service performance tests as per ITU-T Y.1564, including EBS, CBS and EMIX.<br>Tests can be performed using remote loopback or Dual test set mode for bidirectional results. |
| RFC 2544 | Throughput, back-to-back, frame loss and latency measurements according to RFC 2544; frame size: RFC-defined or user-configurable between one to seven sizes |
| Traffic generation and monitoring | Traffic generation and shaping of up to 16 streams of Ethernet and IP traffic including the simultaneous monitoring of throughput, frame loss, packet jitter, latency and out-of-sequence frames. Also includes the ability to generate fixed, random and frame size sweep, as well as MAC flooding. |
| Through mode (optional) | Sectionalize traffic between a service provider's network and customer premises equipment. |
| BER testing | Up to layer 4 supported with or without VLAN Q-in-Q. |
| Round-trip latency | Simultaneous BERT and round-trip latency measurements with statistics and pass/fail verdict based on multiple different thresholds. |
| Patterns (BERT) | PRBS 2E9-1, PRBS 2E11-1, PRBS 2E15-1, PRBS 2E20-1, PRBS 2E23-1, PRBS 2E31-1 and one user pattern.<br>Capability to invert patterns. |
| Error measurement (BERT) | Bit error, bit mismatch 0, bit mismatch 1. |
| VLAN stacking | Generates up to three layers of VLAN (including IEEE 802.1ad and Q-in-Q tagged VLAN). |
| VLAN preservation | Validates that CE-VLAN tags classes of service (CoS), and that ID is passed transparently through the network. |
| MPLS | Generate and analyze streams with up to two layers of MPLS labels. |
| Cable testing | The cable test application provides test functions to diagnose UTP cables transmitting Ethernet over twisted pair.<br>It verifies connectivity errors and evaluates cabling performance. |
| Service disruption time (SDT) | Includes statistics such as longest, shortest, last, average, count, total and pass/fail thresholds. |
| IPv6 testing | Performs the following tests up to 10G over IPv6, EtherSAM, RFC 2544, BERT, traffic generation and monitoring, Through mode, intelligent auto discovery, ping and traceroute. |
| 10 GigE WAN testing | Includes WAN interface sublayer, J0/J1 trace and C2 label generation, J0/J1 trace and C2 label monitoring. |
| 10 GigE WAN alarm monitoring | Includes SEF, LOF, AIS-L, RDI-L, AIS-P, RDI-P, LCD-P, LOP-P, PLM-P, UNEQ-P, ERDI-P, WIS link down, B1, B2, B3, REI-L, REI-P. |
| 100 GigE testing | 100 GigE testing for all Ethernet test applications, including forward error correction (FEC) evaluation on both ports in dual-port topology. |
| Error measurement | Jabber/giant, runt, undersize, oversize, FCS, symbol, alignment, collision, late collision, excessive collision, IP checksum, UDP checksum, TCP checksum and 10G block error. |
| Alarm detection | LOS, link down, pattern loss, frequency, LOC, 10G local/remote fault. |
| Flow control | Inject or monitor pause frames, including frame counts of pause, abort frames and total, last, maximum and minimum pause time. |
| Batch configuration | Ability to automatically set a specific source IP address, subnet mask, default gateway, DHCP, destination MAC address or destination IP address to one or all EtherSAM services or traffic generation streams. |
| Dual port | Dual-port testing with EtherSAM (ITU-T Y.1564), EtherBERT, RFC 2544, and traffic generation and monitoring when using 10/100/1000BASE-T, 100BASE-X, GigE and 10 GigE. At 100GE, dual-port EtherBERT layer 2 is available on the EtherCHK-100G. |

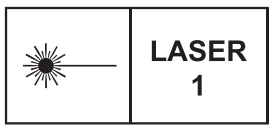
## ADDITIONAL FEATURES

| | |
|---|---|
| Power measurement | Supports power measurement at all times, displayed in dBm for optical interfaces. |
| Power-up and restore | In the event of power failure to the unit, the active test configuration and test logger are saved and restored upon boot-up. |
| Save and load configuration | Store and load test configurations to/from a non-volatile USB memory stick or internal flash. |
| Pass/fail analysis | Provides a pass/fail outcome with user-adjustable thresholds, based on bit error rate and/or service disruption time. |
| Alarm hierarchy | Alarms are displayed according to a hierarchy based on root cause. Secondary effects are not displayed. This hierarchy serves to facilitate alarm analysis. |
| Report generation | Generates test reports with customizable selections, company logos and clear pass/fail color-coded analysis in both HTML and PDF formats, and saves them directly on the unit or a USB device. Reports can be automatically generated at the end of each test. |
| Event logger | Log test results with absolute or relative time and date, details and duration of events, color-coded events and pass/fail outcome. |
| Remote control | Remote control via VNC or Remote Desktop. |
| Remote loopback | Detects other EtherCHK/NetBlazer/Power Blazer units and sets them to Smart loopback mode. It also supports interoperability with third-party units placing them in Loopback mode or receiving loop up commands and switching to Smart loopback mode. |
| Dual test set | Detects and connects to other EtherCHK/NetBlazer/Power Blazer units to perform bidirectional RFC 2544 and EtherSAM testing. |
| IP tools | Performs ping and traceroute functions. User can configure up to 1000 ping messages. |
| Smart loopback | Return Ethernet traffic to the local unit by swapping packet overhead up to layer 4. |
| Test timer | Select a predefined duration or enter start and stop times. |

## GENERAL SPECIFICATIONS [a]

| | EtherCHK-1G | EtherCHK1-10G | EtherCHK-100G |
|---|---|---|---|
| Size (H x W x D) | 210 mm x 254 mm x 66 mm (8 ¼ in x 10 in x 2 $^{5}/_{8}$ in) | 210 mm x 254 mm x 66 mm (8 ¼ in x 10 in x 2 $^{5}/_{8}$ in) | 210 mm x 254 mm x 96 mm (8 ¼ in x 10 in x 3 $^{7}/_{8}$ in) |
| Weight (with battery) | 2.1 kg (4.6 lb) | 2.6 kg (5.7 lb) | 2.99 kg (6.59 lb) |
| Temperature Operation | 0 °C to 40 °C (32 °F to 104 °F) | | |
| Temperature Storage [b] | –40 °C to 70 °C (–40 °F to 158 °F) | | |
| Relative humidity | 0 % to 95 %, non-condensing | | |
| Processing | Dual-core processor/4 GB RAM/ Windows 10 | Dual-core processor/4 GB RAM/ Windows 10 | Quad-core processor/4 GB RAM/ Windows 10 |
| Display | Multitouch, widescreen, color, 1280 x 800 TFT 203 mm (8 in) | | |
| Interfaces | RJ45 LAN 10/100/1000 Mbit/s<br>Two USB 2.0 ports<br>One USB 3.0 port<br>Micro SD card slot<br>3.5 mm headset/microphone port | | |
| Storage | 64 GB internal memory (flash) | 64 GB internal memory (flash) | 128 GB internal memory (flash) |
| Battery | Rechargeable Li-ion smart battery | | |
| Power supply | AC/DC adapter, input: ⏦ 100 – 240 V; 50/60 Hz; 2.5 A max, output: ⎓ 24 V; 3.75 A | | |

## LASER SAFETY




a. All specifications valid at 23 °C (73 °F).

b. Battery storage temperatures: –20 °C to 60 °C (–4 °F to 140 °F) for shipping, and –20 °C to 45 °C (–4 °F to 113 °F) for long-term storage.

## ORDERING INFORMATION (ETHERNET ONLY)

### EtherCHK-1G-XX-XX-XX-XX-XX

**Models**
EtherCHK-1G = Ethernet 10/100/1000BASE-T electrical and 100 Mbit/s and 1 GigE optical

**Display**
S1 = Standard display
S2 = Enhanced display for outdoor use

**WiFi/Bluetooth option**
00 = Without RF components
RF = With RF capability (WiFi and Bluetooth)

**Software options**
ETH-THRU = Enables through mode capability
IPV6 = Internet protocol version 6
IPT = Ping and traceroute functionalities
MPLS = Enables MPLS

**Inspection probe base tips** [a]
APC = Includes FIPT-400-U25MA and FIPT-400-SC-APC
UPC = Includes FIPT-400-U25M and FIPT-400-FC-SC

**Inspection probe models**
FIP-410B = Digital video inspection probe [b]
Triple magnification
FIP-420B = Analysis digital video inspection probe [b]
Automated pass/fail analysis
Triple magnification
Autocentering
FIP-425B = Wireless digital video inspection probe [b, c]
Automated pass/fail analysis
Triple magnification
Autocentering
FIP-430B = Automated analysis digital video inspection probe [b]
Automated focus
Automated pass/fail analysis
Triple magnification
Autocentering
FIP-435B = Wireless analysis digital video inspection probe [b, c]
Automated focus
Automated pass/fail analysis
Triple magnification
Autocentering

Example: EtherCHK-1G-S1-IPV6-ETH-THRU

### EtherCHK1-10G-XX-XX-XX-XX-XX

**Models**
EtherCHK1-10G = Ethernet 10/100/1000BASE-T electrical, 100 Mbit/s optical, GigE optical and 10 GigE LAN/WAN

**Display**
S1 = Standard display
S2 = Enhanced display for outdoor use

**WiFi/Bluetooth option**
00 = Without RF components
RF = With RF capability (WiFi and Bluetooth)

**Software options**
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IPT = Ping and traceroute functionalities
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Triple magnification
Autocentering
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Automated focus
Automated pass/fail analysis
Triple magnification
Autocentering
FIP-435B = Wireless analysis digital video inspection probe [b, c]
Automated focus
Automated pass/fail analysis
Triple magnification
Autocentering

Example: EtherCHK1-10G-S1-IPV6-ETH-THRU

a. Available if inspection probe is selected.
b. Includes ConnectorMax 2 software.
c. Requires RF capability (WiFi and Bluetooth hardware option).

## ORDERING INFORMATION (ETHERNET ONLY)

**EtherCHK-100G-XX-XX-XX-XX-XX**

**Models**
EtherCHK-100G = Ethernet 10/100/1000BASE-T electrical,
100 Mbit/s optical, GigE optical,
10 GigE LAN/WAN and 100 GigE

**Display**
S1 = Standard display
S2 = Enhanced display for outdoor use

**WiFi/Bluetooth option**
00 = Without RF components
RF = With RF capability (WiFi and Bluetooth)

**Software options**
IPT = Ping and traceroute functionalities

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Automated pass/fail analysis
Triple magnification
Autocentering
FIP-430B = Automated analysis digital video inspection probe [b]
Automated focus
Automated pass/fail analysis
Triple magnification
Autocentering
FIP-435B = Wireless analysis digital video inspection probe [b, c]
Automated focus
Automated pass/fail analysis
Triple magnification
Autocentering

Example: EtherCHK-100G-S1-IPT

a. Available if inspection probe is selected.
b. Includes ConnectorMax 2 software.
c. Requires RF capability (WiFi and Bluetooth hardware option).

**EXFO headquarters** **T** +1 418 683-0211 **Toll-free** +1 800 663-3936 (USA and Canada)

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