optimize!
**softing**

# Net**X**pert XG

CU  FO  

## LAN QUALIFIERS
**FROM 100MB/S TO 10GB/S ETHERNET**

**IT Networks**

itnetworks.softing.com/XG

---

**Active Remote**

- 100%
- 75%
- 25%
- BAT LOW

LINKED

PASS

FAIL

STATUS

---

Cu  FO  15:47:14  100%

Cable Test

Network Tests

11 September, 2019
**15:47:14**

Net**X**pert
XG

File Manager  Tools  Settings

# The new generation for Ethernet speed certification

New standards up to 10Gb/s Ethernet characterize the environment of the latest generation of qualifiers. In the area of WiFi access points in particular, higher and higher data rates also play an important role on the uplink port. In order to find out whether the existing cabling supports the higher data rates, operators must carry out appropriate tests before commissioning to avoid any unpleasant surprises.

**The NetXpert XG already has the solution to these new challenges!**

## NETXPERT XG SERIES: THE MODELS

**NetXpert XG - 1G**
The affordable entry-level model

**NetXpert XG - 2.5/5G**
With enhanced performance

**NetXpert XG – 10G**
For maximum speeds of up to 10Gb/s

**NetXpert XG-PLUS**
The flagship – for passive qualification and active network tests, for copper and fiber optic environments

**NetXpert XG – Fiber Extension Kit**
Turns a 10G into an XG-PLUS

## GET YOUR QUALIFIER TO TOP SPEEDS

The new NetXpert XG provides evidence of whether copper cabling supports Ethernet transmission up to 10Gb/s regardless of which cable category, patch panels or junction boxes were used. After establishing the wiring plan, the NetXpert XG makes a precise statement by automatically running three individual tests and combining these into an overall result.

The NetXpert XG uses a series of tests to check error-free data transmission up to 10Gb/s. Determination of the signal-to-noise ratio (SNR) followed by a bit error rate test (BERT) and a delay skew test qualify the gigabit transmission. Delay skew indicates the difference in the signal runtime between the wire pairs used. This must not be too big, otherwise data transmission will not be correctly interpreted by the receiver. For copper cable, BERT, delay skew, and SNR are all critical tests to prove the reliability of data transmission. For fiber optic lines, this statement of performance is determined by a bit error rate test (BERT).

## HIGHLIGHTS

**All-in-one, scalable test solution**

- NetXpert XG grows with your requirements

- Qualified and documented passive copper and fiber optic cabling

- Assists with commissioning and troubleshooting on active networks

**Project management and documentation**

- Extensive project management in the device allows for professional processing of even larger systems

- Preparation of individual test data in several file formats (csv, pdf, xml)
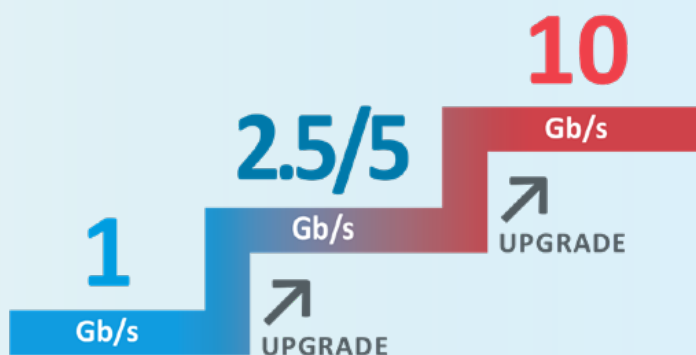


## WELL-EQUIPPED FOR THE CHALLENGES OF THE FUTURE

Secure your future in high-speed qualification with the NetXpert XG. The NetXpert XG series offers straightforward firmware upgrades. The licensing system enables subsequent upgrades for additionalfunctions.

There are currently three performance levels (1 or 2.5/5 or 10Gb/s Ethernet). The purchase of a "step-up" license extends the functionality of the device by one step.

Even if you got started with the 1Gbit copper version of the NetXpert, you can later expand it using an extension kit to become a qualifier for fiber optic lines.

# Technical properties

## PASSIVE TESTS

- Test against IEEE 802.3 compliance for data cabling at transmission rates up to 10Gb/s
- **Copper cabling**:
  - Determination of the signal-to-noise ratio (SNR)
  - Execution of bit error rate test (BERT)
  - Determination of delay skew
  - Combined length of cable measurement from TDR and capacitive measurement for more precise information and simpler troubleshooting, even with short circuits
  - Colored wiring diagram shows interruption, swap, short circuits and split pairs so they can be clearly identified
- **Fiber optic cabling**:
  - Execution of bit error rate test (BERT)
  - Evaluation of connector end faces using an optional glass fiber microscope



Standards-compliant signal-to-noise ratio and bit error rate tests (BERT) show the performance limits of cabling, both copper and fiber optic (BERT only) *(shown here)*



For network discovery, simply connect the main unit to a switch

## ACTIVE ETHERNET TESTS

- PoE load test up to 90W (class 8)
- DHCP test
- Locating the existing participants in the network (network discovery)
- Definition and storage of ping lists
- Traceroute
- LLDP/CDP detection and analysis
- WiFi scan of the available access points (2.4GHz)
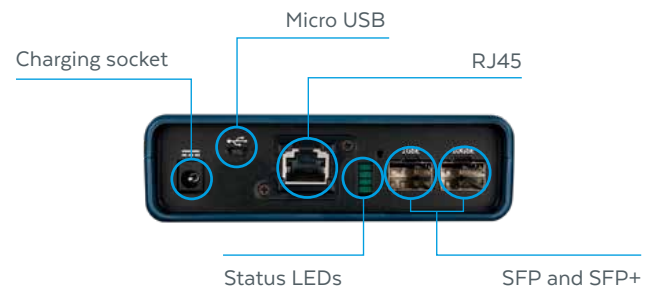- Detection and integration of VLANs

## TROUBLESHOOTING ACTIVE NETWORKS

The NetXpert XG offers an extensive toolset for troubleshooting active networks. Among other things, PoE supplies up to the highest performance class ("PoE ++") are tested for stability by stress tests, the existing participants in the network are identified (network discovery) and the relevant participants checked for accessibility (ping and traceroute).

## MAIN UNIT CONNECTIONS

Charging socket     Micro USB     RJ45

Status LEDs     SFP and SFP+

### INCLUDING PORTS FOR FIBER OPTIC TESTS

The NetXpert XG offers full flexibility regardless of whether you are testing fiber optic or copper cabling. When it comes to passive tests, a throughput test of the fiber optic cabling is also possible (with NetXpert XG-PLUS or upgrade with extension set).

### QUALIFICATION OF FIBER OPTIC CABLING

The classic installation measurements on fiber optic links only contain statements about the attenuation and the reflection behavior, but this does not allow an absolute statement of whether the Ethernet application performance can actually be achieved. The BERT test of the NetXpert XG-PLUS proves performance by running the cable links at the planned application speed. Simply choose the speed test desired, 1Gb/s or 10Gb/sec, then choose multimode or single mode, and press test to prove the speed of the link. Existing lines can also be tested as to whether they can, for example, handle an increase in the transmission speed to 10Gb/s, or if they have to be renewed.

## ACTIVE REMOTE CONNECTIONS

Micro USB     RJ45

Charging socket
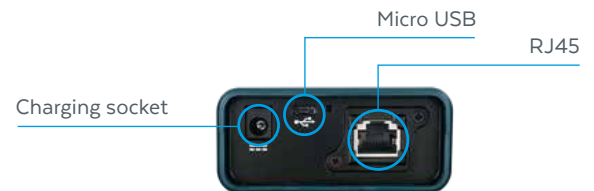
### AUTOMATED ASSESSMENT OF CONNECTOR END SURFACES GUARANTEES CONSISTENT QUALITY AND FUNCTIONALITY

In the world of data transmission via fiber optic cables, it is generally accepted that defects such as scratches or chipping, and especially dirt on the fiber end faces of connectors, are the main cause of errors and deterioration of the transmission quality on the transmission lines. In terms of measurement technology, such impairments lead to increased reflections and an increase in insertion loss over the entire line. Mechanical consequences can be scratching or even the destruction of the fiber end faces of other connectors when connecting patch cables. Examining the connector end faces of the cabling before each plug-in operation or cleaning them adequately is essential. In combination with the optionally available electronic microscope, the NetXpert XG offers the option of viewing all four connector end faces of a classic duplex cabling, evaluating them against the IEC 61300-3-35 standard and including the results in the documentation as a graphic.

The optional fiber optic microscope can be used to quickly and easily check the connector end faces and provide them an automatic "pass/fail" assessment

# Project management and reporting

The NetXpert XG offers enough internal memory for even large projects and, if requested, generates finished acceptance reports with all necessary information about the test. PDF reports are generated internally and can be transmitted via USB stick.



The file manager can be accessed directly from the home screen. NetXpert XG generates detailed result reports in PDF or CSV format

### Cable Test Detailed Report

| Project | | Site | |
|---|---|---|---|
| Date | 07 July, 2020 | Company | My Company Name |
| Time | 15:55:04 | Phone | 000-000-0000 |
| Technician | Tech Name | Email | user@email.com |

| ID | Type | Length (m) | Skew (nS) | SNR (dB) Margin | BERT | Date | Result |
|---|---|---|---|---|---|---|---|
| Cable001 | CAT6A UTP | 1.6 | 2.5 | 1.2 | 0 | 10-06-20 | ⊘10G |
| Cable002 | CAT6A UTP | 1.6 | 1.3 | 0.7 | 0 | 10-06-20 | ⊘10G |
| Cable003 | CAT6A UTP | 1.6 | 2.5 | 0.8 | 1 | 10-06-20 | ⊗ |
| Cable005 | CAT6A UTP | 1.5 | 2.5 | 0.5 | 0 | 07-07-20 | ⊘10G |
| Cable006 | CAT6A UTP | 1.5 | 1.3 | 7.3 | 0 | 07-07-20 | ⊘10G |
| Cable007 | CAT6A UTP | 1.5 | 2.5 | 0.2 | 0 | 07-07-20 | ⊘10G |
| Cable008 | CAT6A UTP | 1.5 | 2.3 | 0.2 | 0 | 07-07-20 | ⊘10G |
| Cable009 | CAT6A UTP | 1.5 | 1.0 | 0.6 | 0 | 07-07-20 | ⊘10G |
| Cable010 | CAT6A UTP | 1.5 | 1.3 | 0.5 | 0 | 07-07-20 | ⊘10G |

### Cable Test Detailed Report

| Project | | Site | |
|---|---|---|---|
| Date | 07 July, 2020 | Company | My Company Name |
| Time | 15:55:04 | Phone | 000-000-0000 |
| Technician | Tech Name | Email | user@email.com |

**Cable007**

| Pair | Length | Building | Floor | Room | Rack | Panel | Date |
|---|---|---|---|---|---|---|---|
| 1,2 | 1.6 | | | | | | 07-07-20 |

| | | Type | Shield | Skew | Margin | BERT |
|---|---|---|---|---|---|---|
| 3,6 | 1.7 | | | | | |
| 4,5 | 1.7 | CAT6A UTP | N | 2.5 | 0.2 | 0 |
| 7,8 | 1.5 | Distance | | 1.5 | Result | ⊘10G |

**Cable008**

| Pair | Length | Building | Floor | Room | Rack | Panel | Date |
|---|---|---|---|---|---|---|---|
| 1,2 | 1.6 | | | | | | 07-07-20 |

| | | Type | Shield | Skew | Margin | BERT |
|---|---|---|---|---|---|---|
| 3,6 | 1.7 | | | | | |
| 4,5 | 1.7 | CAT6A UTP | N | 2.3 | 0.2 | 0 |
| 7,8 | 1.5 | Distance | | 1.5 | Result | ⊘10G |

**Cable009**

| Pair | Length | Building | Floor | Room | Rack | Panel | Date |
|---|---|---|---|---|---|---|---|
| 1,2 | 1.6 | | | | | | 07-07-20 |

| | | Type | Shield | Skew | Margin | BERT |
|---|---|---|---|---|---|---|
| 3,6 | 1.7 | | | | | |
| 4,5 | 1.7 | CAT6A UTP | N | 1.0 | 0.6 | 0 |
| 7,8 | 1.5 | Distance | | 1.5 | Result | ⊘10G |

**Cable010**

| Pair | Length | Building | Floor | Room | Rack | Panel | Date |
|---|---|---|---|---|---|---|---|
| 1,2 | 1.6 | | | | | | 07-07-20 |

| | | Type | Shield | Skew | Margin | BERT |
|---|---|---|---|---|---|---|
| 3,6 | 1.7 | | | | | |
| 4,5 | 1.7 | CAT6A UTP | N | 1.3 | 0.5 | 0 |
| 7,8 | 1.5 | Distance | | 1.5 | Result | ⊘10G |

Copper.tst     3 of 4

### Cable Test Detailed Report

| Project | | Site | |
|---|---|---|---|
| Date | 03 June, 2020 | Company | My Company Name |
| Time | 13:42:08 | Phone | 000-000-0000 |
| Technician | Tech Name | Email | user@email.com |

**Cable002** ⊘10G

| Building | Floor | Room | Rack | Panel | Date |
|---|---|---|---|---|---|
| | | | | | 03-06-20 |

| | Fiber 1 | | | Fiber 2 | |
|---|---|---|---|---|---|
| Tx | Rx | BERT | Tx | Rx | BERT |
| 81568773 | 81568773 | 0 | 81568773 | 81568773 | 0 |

| | Value | Limit | Diff-Margin | Cable Type | OM4 |
|---|---|---|---|---|---|
| Length | < 3 m | 400 m | | Fiber Type | OM4/OM5 |
| F1 Loss | 0.46 dB | 2.9 dB | 2.4 dB | Wavelength | 850nm |
| F2 Loss | < 0.1 dB | 2.9 dB | 2.9 dB | SFP Type | FTLX8574D3BCL |

**Fiber 1a** / **Fiber 1b**

| Profile | MM (IEC-61300-3-35) | Profile | MM (IEC-61300-3-35) |
|---|---|---|---|
| Magnitude | High | Magnitude | High |
| Result | Pass | Result | Pass |

**Fiber 2a** / **Fiber 2b**

| Profile | MM (IEC-61300-3-35) | Profile | MM (IEC-61300-3-35) |
|---|---|---|---|
| Magnitude | High | Magnitude | High |
| Result | Pass | Result | Pass |

Presentation.tst     3 of 7

# Which model is right for you?

| Model | NetXpert XG 1G | | | | NetXpert XG 2.5/5G | | | | NetXpert XG 10G | | | | NetXpert XG-PLUS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Active Network Tests | | Passive Qualification | | Active Network Tests | | Passive Qualification | | Active Network Tests | | Passive Qualification | | Active Network Tests | | Passive Qualification | |
| Application/ Medium | CU | FO | CU | FO | CU | FO | CU | FO | CU | FO | CU | FO | CU | FO | CU | FO |
| **Maximum speed** | | | | | | | | | | | | | | | | |
| 10Gb/s | — | — | — | — | — | — | — | — | ✓ | ✓ | ✓ | — | ✓ | ✓ | ✓ | ✓ |
| 2.5/5Gb/s | — | | — | | ✓ | | ✓ | | ✓ | | ✓ | | ✓ | | ✓ | |
| 1Gb/s | ✓ | ✓ | ✓ | — | ✓ | ✓ | ✓ | — | ✓ | ✓ | ✓ | — | ✓ | ✓ | ✓ | ✓ |
| WiFi | ✓ | | — | | ✓ | | — | | ✓ | | — | | ✓ | | — | |

| **Accessories** | | | | |
|---|---|---|---|---|
| Compatible with digital fiber optic video microscope | ✔ | ✔ | ✔ | ✔ |

| **Reporting** | | | | |
|---|---|---|---|---|
| Internal project management | ✔ | ✔ | ✔ | ✔ |
| Creation of reports (csv, pdf, xml) | ✔ | ✔ | ✔ | ✔ |

| **Upgrades/Extensions** | | | | |
|---|---|---|---|---|
| Can be upgraded to the next speed level | ✔ | ✔ | Already at maximum speed | Already at maximum speed |
| Extension kit for fiber optic measurement | ✔ | ✔ | ✔ | Already included |

CU Copper    FO Fiber optic



itnetworks.softing.com/XG

**itnetworks.softing.com**

For more information, please contact:

v.2.0820

**IT Networks**

**itnetworks.softing.com/XG**