



# LAN NETWORK QUALIFIER

100Mb/s to 10Gb/s Ethernet

**IT Networks** 

itnetworks.softing.com/XG2



PROFILE			Device cl	lass Q QUALIFIER
Model				
	1G	2.5/ 5G	10 <i>G</i>	PLUS
Typical application	<ul> <li>Documentation</li> <li>Commissioning</li> <li>Troubleshooting</li> <li>Standard office cabling</li> </ul>	<ul> <li>Documentation</li> <li>Commissioning</li> <li>Troubleshooting</li> <li>Bandwidth tests for the integration of fast Wi-Fi access points in existing cabling systems</li> </ul>	<ul> <li>Documentation</li> <li>Commissioning</li> <li>Troubleshooting</li> <li>Standard office and backbone cabling</li> </ul>	<ul> <li>Documentation</li> <li>Commissioning</li> <li>Troubleshooting</li> <li>Standard office and backbone cabling, copper and fiber</li> </ul>
Media supported		CU FO		
Speed per medium CU FO	1 2.5 5 10 (Gb/s)	1 2.5 5 10 (Gb/s)	1 2.5 5 10 (Gb/s)	1 2.5 5 10 (Gb/s)
Performance test	CU	CU	CU	CU FO
Highlights	Delay skew BERT SNR Wiremap Performance Documenta test PDF/CS		twork Microscope ection (optional)	Live Light Real-time trend display of fiber optic attenuation

For more information on the NetXpert XG2-PLUS, visit



# Performance tester up to 10Gb/s for all Ethernet applications

#### QUALIFICATION, COMMISSIONING AND TROUBLESHOOTING -INTUITIVE, FLEXIBLE, FAST

High data transmission rates of up to 10Gb/s Ethernet and new Power-over-Ethernet applications up to 90W lead to completely new challenges in structured cabling.

NetXpert XG2 provides comprehensive active and passive network testing up to 10Gb/s for qualification, commissioning and troubleshooting on copper and fiber cabling.

With the largest touch display in its class, NetXpert XG2 guarantees easy operation and clear presentation of results.

At the same time, NetXpert XG2 offers the highest reliability of results thanks to the unique combination of up to four different test methods for the evaluation of a data link.

Complete performance qualification at the touch of a button

Reliable test results through a combination of up to four measurement methods

Finding contact problems via LiveLight<sup>™</sup> trend display of optical transmission loss

Flexible, expandable model range - upgradeable from 1 to 10Gb/s

Clear user interface with large 7 inch touch display



# YOUR ADVANTAGE ACROSS ALL APPLICATIONS

Whether troubleshooting, maintenance or servicing, the NetXpert XG2 performance tester is the optimal device for all network testing applications used by installers, system integrators and industry partners. Detailed documentation of work results in PDF or CSV format with individual logo









## NETXPERT XG2 FOR INSTALLERS

- Flexibility through upgrade options from 1Gb/s to 2.5/5Gb/s or directly to 10Gb/s, as well as to fiber qualification
- » Detailed documentation of the test results

#### Application example: MEASUREMENT OF MAXIMUM BANDWIDTH

To determine whether cabling is capable of higher data rates, you need more than just a wiremap. This information is only provided by NetXpert XG2, for example when used in SoHo installations, if proof (but no acceptance measurement according to cabling standards) is required that higher data rates are supported in order to integrate modern Wi-Fi access points.



For routine testing of an existing network, installers do not need a cost-intensive certifier. One qualifier is sufficient for a simple check of function and performance.





## NETXPERT XG2 FOR SYSTEM INTEGRATORS

- » Combination device for testing passive cabling and active networks
- » Troubleshooting tool for active networks including PoE++
- » Function and load tests with BERT
- » Detailed documentation of the test results



#### Application example: TROUBLESHOOTING

IT administrators and technicians in offices and public facilities need a tool to determine why a PC and network connection is not working. This requires both passive and active network test functions to determine connectivity problems. The NetXpert XG2 combines all this in one handy test device.





## NETXPERT XG2 FOR THE INDUSTRY

- » Adapters available for various industrial connectors such as M12
- Troubleshooting tool for passive cabling and active networks including PoE++ function and load tests
- » Detailed documentation of the test results



#### Application example: TROUBLESHOOTING

On an industrial production line, high switching voltage spikes cause electromagnetic interference, resulting in random network problems. The NetXpert XG2 helps to find the problem with long-term BERT (up to 10Gb/s) and determination of the signal-to-noise ratio (SNR).





## FUNCTIONS

High Ethernet speeds of up to 10Gb/s in modern networks require leading edge test solutions for commissioning and fault finding, both in the passive infrastructure and in the active network. The NetXpert XG2 offers full flexibility, whether you are testing fiber or copper cabling. With passive testing, throughput testing of the fiber cabling is also possible (with NetXpert XG2-PLUS or upgrade with expansion set).

BERT

SNR

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delay

skew

### PASSIVE QUALIFICATION

#### For copper networks

- Prove error-free transmission up to 10Gb/s using a bi-directional bit error rate test (BERT) based on the IEEE 802
- » Check reliability of the data transmission via signal-to-noise ratio (SNR) and the delay skew
- » Combined cable length measurement from TDR and capacitive measurement for accurate information and easy troubleshooting, also for short circuits
- » Colored wiring diagram shows interruptions, interchanges, short circuits and split pairs so that they can be clearly identified

#### For fiber optic networks

- » Prove error-free transmission up to 10Gb/s using a bit error rate test (BERT) based on IEEE 802
- » LiveLight<sup>™</sup> real-time fiber optic signal attenuation trend display
- » Cable length measurement
- » Automated evaluation and documentation of connector end faces with optional fiber optic microscope against IEC 61300-3-35 standard

仚		Cable Test	(î• °i	2:30:10 pm 100%
	Name	/ Type Result	Cable Test - sar	mple test.tst
Projects +	cable-001	UTP 10Gb	cable-003	
Reports	cable-002	CAT6A 10Gb UTP	Wiremap Length	Status Skew SNR Margir
() ()	cable-003	CATEA UTP 10Gb	1 1 8.5 ft (	Ok 1.3 ns 5.4 dB
Туре	cable-004	CAT6A	3	Ok 0.0 ns 3.6 dB
ľ	cable-005	CAT6A	4 4 8.5 ft	Ok 0.3 ns 4.9 dB
Cable Labeling	cable-005	CAT6A LITP	7 7 8.5 ft	Ok 1.3 ns 7.7 dB
	sable-007	CAT6A	s-x s	
Cable Test	cable-008	CAT6A	CAT6A UTP 72.0 NVP BERT:0 errors	$\otimes$
<b>E</b>	cable-009	CATGA	AR ID: 1	10Gb
Set Reference	Ð	$\Theta$	0	Test

#### Combination of four measuring methods achieves highest reliability

To ensure that Ethernet transmission works properly, the NetXpert XG2 qualifies fiber with BERT, signal attenuation, and length, and qualifies copper cabling with a unique combination of up to 4 test parameters:

- Bit error rate test (BERT)
- Signal to noise ratio (SNR)
- Route length
- Delay skew

Test of fiber optic cabling: Combination of BERT, signal attenuation and length measurement





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# LiveLight<sup>™</sup> - Real-time trend display of fiber optic attenuation

The device has two SFP ports for testing fiber optic links. Both SFP ports support 1Gb/s and 10Gb/s modules. Other useful functions include connector microscopy and an attenuation test (depending on the SFP module used).

Signal attenuation can be displayed either as a single value or as a continuous testfunction (LiveLight<sup>TM</sup>).

With the fiber optic microscope, the connector end faces can be quickly and easily checked and subjected to an automatic "Pass/Fail" evaluation in accordance with IEC 61300-3-35. This is automatically combined with the qualification results in a detailed test report.

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#### ACTIVE NETWORK TESTS

#### For copper, fiber, Wi-Fi networks

- » PoE load test up to 90W (class 8)
- » DHCP test with display of DHCP and DNS server addresses and assigned IP address
- » Discovery of the existing nodes in the network (Network Discovery) with graphical and tabular display
- » Definition and storage of lists with ping destinations
- » Trace Route
- » LLDP/CDP detection and display
- » Wi-Fi scan of available access points with indication of field strength and encryption modes
- » Detection and integration of VLANs
- » Identifying duplicate IP addresses
- » IPv4 and IPv6 support

## PoE load test made easy

The NetXpert XG2 has a comprehensive toolset for troubleshooting active networks. Particularly important for PoE testing is both the correct detection of the available PoE classes and voltages, and also testing the power source devices and whether they can really deliver the requested power.

The NetXpert XG2 is able to simulate PoE devices up to PoE++ (class 8) to perform a load test on the PoE switch.





#### **ACTIVE REMOTE PORTS**



#### **Replaceable RJ45 port**

RJ45 sockets are subject to wear from repeated plugging and unplugging. This lessens their transmission capacity, so that they must be replaced regularly.

The NetXpert XG2 is the only tester in the world in its class that allows you to change sockets without having to open the device or send it in. You can replace the port directly and thus avoid downtimes on the construction site due to worn measuring sockets.





#### **Extensive troubleshooting**

Various test options for copper, fiber and Wi-Fi such as ping test, traceroute, CDP, LLDP and network discovery with detailed listing of all network nodes help with Ethernet and PoE troubleshooting.

1	Network Tes	i,	<b></b>	02:56:42 pm	100%
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nk Status	F0:1F:AF:3A:7F:0A	192.168.1.167		huber-pc.dhcp.softi	HUBER-PC	Host
2	F8:0D:60:75:02:A3	192.168.1.111		can-312x-04.psiber.l		Host
DHCP	78:78:8A:D0:ED:C	192.168.1.114		No Such Name	ULRIKES-IMAC	Host
龜	00:50:86:81:26:13	192.168.1.130		wcmn.dhcp.softing	WCMN	Host
kennung	14:20:5E:04:82:18	192.168.1.117		No Such Name	ULRIKES-IMAC	Host
((0))	70:72:CF:B7:7B:0F					Switch
Ping	04:4F:4C:89:20:21	192.168.1.140		No Such Name		Host
]	00.09:0F:09:00:12	192.168.1.1		No Such Name		Router
aceroute	70:72:CF:B7:7B:08	192.168.1.10		No Such Name		Host
	00:1A:E8:65:8B:2E	192.168.1.145		No Such Name		Host
LLOP	18:60:24:4C:83:21	192 168 1 160		wfca.dhcp.softing.com		Host
(*****	2C:FD:A1:72:6D:E3	192.168.1.120		wbmr.dhcp.softing.c	WBMR	Host
CDP	84:39:BE:66:14:55	192.168.1.93		No Such Name	EXPORT-CLOUD-DE	Host
민문	B0:C0:90:18:D9:EE	192.168.1.165		whrt-w10.dhcp.softi	WHRT-W10	Host
VLAN	Add to Ping List P	Set to assive Mode	Clear	Übersicht CSV	POF	Test Stoppe

Marking duplicate IP addresses that endanger network operation



of the Link Layer Discovery Protocol (LLDP) or Cisco Discovery Protocol (CDP)

Ping           Target         To.Rx         His (ma)         Arg (ma)           www.abc.co.uk (151.101.0.01)         15/15         20         20.30           www.apoogle.com (216.239.38.120)         15/15         15         15.93           www.cnn.com (151.101.1.67)         15/15         16         16.40           www.cnn.com (151.101.1.164)         15/15         26         27.13	Ping         Inc.         Ping           V         107.5         15         15.93         16           13715         15         15.93         16         164.01         17           13715         15         16.16.40         17         16         164.01         17           13715         16         16.40         17         22         20.31         22	Network Test         11:34:13 am         Image: Second Seco	Network Test         11:34:13 am         Image: Second Seco	
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The ping function allows you to check the accessibility of network devices such as servers and printers as well as Internet connectivity.

POF

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CSV

Edit Target

LLDP

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The traceroute function shows you all intermediate steps on the way to the ping destination. This allows you to quickly and reliably locate the point of failure (internal IT or external provider) in the event of connectivity problems.



# PERFECT PERFORMANCE -PERFECTLY DOCUMENTED

With enough internal memory to document even large projects, the NetXpert XG2 generates finished acceptance reports with all necessary information. Reports are generated in the device, which can be passed on via USB stick.



The file manager can be accessed directly from the home screen. There you can find detailed result reports directly as PDF or CSV documents.

Reporting on the device makes it possible to document projects directly on site.

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	Cable006	Pair 1,2 3,6 4,5 7,8 Pair 1,2 3,6	Length 11.7 11.7 11.7 11.7 Length 9.7 10.4	Building Type CAT6A UTP Distance Building Type	Floor Shield 11.7 Floor	Room Skew 1.0 Result Room Skew 1.3	Margin 3.5 Rack Margin 6.9	BERT O Panel BERT O	07-23-21 10G Date
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	SS Cable005 1S 2S Cable006 1S SS Cable006 1S Cable007	Pair 1,2 3,6 4,5 7,8 Pair 1,2 3,6 4,5 7,8 Pair 1,2	Length 11.7 11.7 11.7 11.7 11.7 11.7 10.4 9.7 10.4 9.7 9.7 Length 10.6	Building Type CAT6A UTP Distance Building Type CAT6A UTP- Distance Building	Floor Shield 11.7 Floor Floor Floor	Room Skew 1.0 Result Room Skew 1.3 Result Room	Margin 3.5 Rack Margin 6.9 Rack	BERT O Panel BERT O Panel	07-23-21 10G Date 07-23-21
	Cable005	Pair 1,2 3,6 4,5 7,8 Pair 1,2 3,6 4,5 7,8 7,8 Pair 1,2 3,6 4,5 7,8	Length 11.7 11.7 11.7 11.7 11.7 10.4 9.7 9.7 2.7 Length 10.6 10.6	Building Type CATGA UTP Distance Building Type CATGA UTP- Distance Building Type	Floor Shield 11.7 Floor Shield 9.7 Floor Shield	Room Skew 1.0 Result Room 1.3 Result Room Skew	Margin 3.5 Rack Margin 6.9 Rack Margin	BERT O Panel BERT O Panel BERT	07-23-21 10G Date 07-23-21 01G Date
	Cableoof	Pair 1,2 3,6 4,5 7,8 Pair 1,2 3,6 4,5 7,8 Pair 1,2	Length 11.7 11.7 11.7 11.7 11.7 10.4 9.7 9.7 2.7 Length 10.6 10.6	Building Type CAT6A UTP Distance Building Type CAT6A UTP- Distance Building	Floor Shield 11.7 Floor Shield 9.7 Floor Shield	Room Skew 1.0 Result Room Skew 1.3 Result Room	Margin 3.5 Rack Margin 6.9 Rack	BERT O Panel BERT O Panel BERT O	07-23-21 10G Date 07-23-21 01G Date 07-23-21
	Cableoof	Pair 1,2 3,6 4,5 7,8 Pair 1,2 3,6 4,5 7,8 7,8 Pair 1,2 3,6 4,5 7,8	Length 11.7 11.7 11.7 11.7 11.7 10.4 9.7 9.7 2.7 Length 10.6 10.6	Building Type CATGA UTP Distance Building Type CATGA UTP- Distance Building Type	Floor Shield 11.7 Floor Shield 9.7 Floor Shield	Room Skew 1.0 Result Room 1.3 Result Room Skew	Margin 3.5 Rack Margin 6.9 Rack Margin 8.0	BERT O Panel BERT O Panel BERT O	07-23-21 10G Date 07-23-21 01G Date





For more information on the NetXpert XG2-PLUS, visit itnetworks.softing.com/XG2-PLUS



## THE MODELS

The NetXpert XG2 series consists of four device models. The difference is in the Ethernet speeds (1Gb/s to 10Gb/s) and the testable media (copper and/or fiber). All models are upgradeable, both in terms of speed and supported media.

For installers and operators of copper and fiber optic networks up to 10G





#### NetXpert XG2-PLUS

The complete solution for passive qualification and active network tests for copper and fiber environments up to 10Gb/s

For installers and operators of copper networks up to 10G



#### NetXpert XG2 - 10G

For passive network tests of copper cabling up to 10Gb/s and active network tests of copper and fiber networks up to 10Gb/s

For upgrades from old stockcabling to NBase-T (2.5/5Gb/s)



#### NetXpert XG2 - 2.5/5G

For passive and active network tests of copper cabling with 2.5 and 5Gb/s, as well as active network tests of fiber optic networks up to 1Gb/s

#### For installers of small networks



#### NetXpert XG2 - 1G

The low-cost entry-level model for passive network tests of copper cabling and active network tests on copper and fiber optic cabling up to 1Gb/s



# WHICH MODEL IS RIGHT FOR YOU?

		Active net	vork tests		Passive qualification		
Model	<b>1</b> Gb/s	<b>2.5/5</b> Gb/s	<b>10</b> Gb/s	Wi-Fi	<b>1</b> Gb/s	<b>2.5/5</b> Gb/s	<b>10</b> Gb/s
XG2 - 10 Article number <b>226737</b>				۵	CU		
XG2 - 2.5/50 Article number <b>226739</b>	CU (FO)	cu		۵	CU	œ	
XG2 - 100 Article number <b>226736</b>	CU (FO)	<b>C</b>		۵	CU	œ	CU
XG2-PLUS Article number 226735	CU (FO)	<b>C</b> U		۲	CU FO	œ	CU FO
			Copper	Fo Fiber Op	tic (1 Gb/s and 100	6b/s via SPF ports	) Wi-Fi
	NetXpert XG 1G	i2	NetXpert XG2 2.5/5G	١	NetXpert XG2 10G		pert XG2 PLUS
Main device	1		1		1		2
Remote unit	1 1 1						1
Compatible with		Fiber optic mid	roscope, CablePro	be (CP15), remo	ote or link/cable ide	entifier	
Compliant with	<ul> <li>IEE 802.3an standards to support up to 10Gb/s</li> <li>802.3af/at/bt to support PoE/+/++ tests</li> <li>Wi-Fi 802.11a/b/g/n/ac for Wi-Fi support</li> </ul>						
Reporting			ect management æst reports (csv, po	lf, xml)			
Upgrades	5G, 10G, and I	Fiber	10G and Fiber		Fiber	(comp	olete solution)
	The license syster functions at the n A distinction is m (1 or 2.5/5 or 10Gl always extends th one performance	ext higher perfo ade between th b/s Ethernet). T he functional rar	ormance level. ree performance he 'Step-Up' lice	levels nse by	2.5 1 Gb/s	/S UPGR	D b/s ADE





#### Standard scope of delivery

- 1 NetXpert XG2 main unit
- 1 Active Remote
- 2 Power supplies
- 2 RJ45 Cat 6<sub>A</sub> test cables, shielded



#### XG2-PLUS scope of delivery

- 2 NetXpert XG2 main devices
- 1 Active Remote
- 3 Power supplies
- 2 RJ45 Cat 6<sub>A</sub> test cables, shielded
- 2 OM4 LC-Duplex multimode test cables

(Please order SFP modules separately)

2 OS2 LC-Duplex

1 Hard-shell case

1 Quick start guide

- singlemode test cables 1 Copper and 2 fiber optic couplings
- 1 Hard-shell case
- 1 Quick start guide
- 2 Upgrade licenses
- per main device

# OPTIONAL ACCESSORIES

E

Upgrades	
226555 Extension kits	Upgrade license for NetXpert XG2 for one level at a time
Extension kits	
226738	NetXpert XG2 - Fiber Extension Kit - turns an XG2 - 10G into an XG2-PLUS
226538	Remote Kit - single NetXpert XG2 Active Remote for copper qualification
Warranty exte	nsion
229888	NetXpert XG2 series warranty extension from 12 months to 36 months
Fiber optic acc	cessories
400986	SFP+ Module, Singlemode, 10GBASE-LR/LW
400985	SFP+ Module, Multimode, 10GBASE-SR/SW
400982	SFP Module, Singlemode, 1000BASE-LX
400984	SFP Module, Multimode, 1000BASE-SX
General acces	sories
226581	RJ45 Remote Identifier Set (24 pcs, #1 - #24)
226745	2 x RJ45 exchange socket for main and remote device
226528	Link/Cable Identifier Set (8 pcs, #1 - #8)
226539	Fiber optic microscope for inspection of connector end faces
Industrial acce	
226630	E2E measuring cable RJ45 to Harting preLink® system (1 pc)
228154	RJ45 interchangeable plug for Harting preLink® system, IP20 CAT $6_A$ (1 pc)
228155	M12 D-coded plug for Harting preLink <sup>®</sup> system CAT 5 (1 pc)
228156	M12 X-coded plug for Harting preLink <sup>®</sup> system CAT 6 <sub>A</sub> (1 pc)
228157	M12 D-coded socket for Harting preLink® system CAT 5 (1 pc)
228158	M12 X-coded socket for Harting preLink $^{\odot}$ system CAT 6 $_{\rm A}$ (1 pc)
228159	Interchangeable V14 push-pull RJ45 plug for Harting preLink® system (1 pc)
228160	Interchangeable Han® 3 A RJ45 plug for Harting preLink® system (1 pc)
228293	IX socket for Harting preLink® system CAT 6_ (1 pc), incl. housing
228161	Opener for Harting preLink® system (5 pcs)
228162	RJ45 CAT 6 pre link jack HIFF format for Harting preLink® system, (1 pc)
228171	Soft bag for NetXpert accessories
226747	NetXpert XG2 Industrial Adapter PRO-Kit – contains the complete industrial accessories for RJ45, M12D and M12X



#### HEADQUARTERS

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