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NEOX NETWORKS NEOXPacketRaven Multimode Fiber TAPs User Manual

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Contents

Introductions and Features

Multimode Fiber TAPs are decoupling elements for passive, secure and reliable tapping of network data in optical networks. These TAPs are looped into the fibre optic line to be monitored and transmit the entire data traffic without interruption and without packet loss, while maintaining data integrity.

Using conventional SPAN ports, also called mirror ports, on the other hand, can distort the result, as this copying process works in store-and-forward mode and, for example, discards FCS/CRC faulty packets on OSI layer 2 instead of making these Ethernet frames available to the security or monitoring tool.

Our Network TAPs do not have a MAC or IP address, but work entirely on OSI Layer 1 and cannot be traced in the network without special and expensive measuring equipment. Hackers and attackers therefore have n chance. As the integrity of the outgoing data remains unaltered due to this tapping method, our Network TAPs are increasingly used in the areas of network forensics, security and monitoring.

Furthermore, Fiber TAPs do not require their own power supply and behave 100% passively in the network. Therefore, our Fiber TAPs guarantee reliable network analysis or security investigation without compromise.

This range of our PacketRaven TAPs is designed as portable TAPs. However, the TAPs can also be installed in a 19" mounting frame in data centres via a mounting kit and support network speeds from 100Mbps to 400 Gbps.

With PacketRaven Network TAPs you get permanent network access without risk and provide e.g. your monitoring tools with 100% reliable network data – without introducing a single point of failure.

Because your network security tool is only as good as the data source!

- Up to 400 Gbps
- Full Network Transparency
- No impairment of Data Traffic
- 100% Network Data
- Invisible for Attackers
- Flexible to Use
- Plug-n-Play
- Failure Protection on Power Loss
- Various Split Ratios
- Fast and Precise
- Support Jumbo Frames
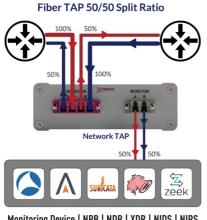
- Made in Germany

HIGHLIGHTS

- Supported network speeds: 100M, 1G, 2.5G, 5G, 10G, 25G, 40G, 50G, 100G, 200G and 400G
- Alternative to SPAN ports – mirrors 100% of traffic including FCS/CRC erroneous packets
- that may be discarded by SPANs
- Invisible on the network, no IP address, no MAC address, cannot be compromised
- Guaranteed no packet loss
- 100% passive without affecting the active network connection, no additional latency
- Available in different split ratios: e.g. 50:50, 60:40, 70:30, 80:20, 90:10
- No power supply needed, 100% passive
- Plug-n-Play – no configuration required
- Support up to 16k Jumbo Frames
- Designed, assembled, certified and tested in Germany
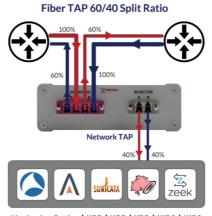
Split Ratios / Light Extraction

In order to tap data from an optical network connection, it is necessary to decouple or split off part of the available light signal.

The split ratio is the ratio of the amount of light that is still available for the fiber network connection in relation to the amount of light that is diverted or split off to the monitoring ports of the Fiber Network TAPs.
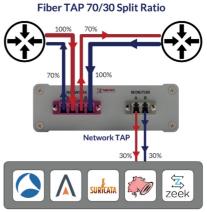
A split ratio of e.g. 70/30 means that 70% of the light is still available for the network connection and 30% is split off for the monitoring ports.

Advanced features of the Secure Fiber TAPs
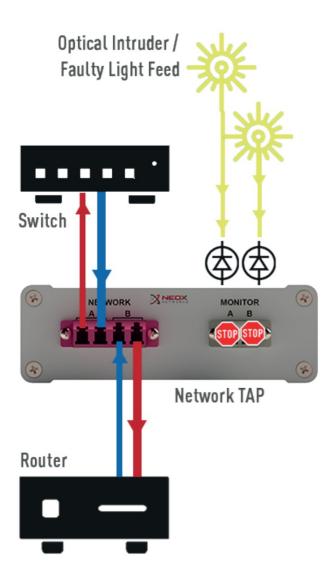

Optical Isolator

Secure Fiber TAPs have both an additional optical isolator (Data Diode Functionality) and an optical filter to ensure that unwanted incoming light signals are blocked at the monitoring port to protect the network from compromise.

Optical Filter

This protects your IT infrastructure from arbitrary or accidental tampering and ensures full data integrity.

They thus provide an additional security layer that offers increased protection against attackers and faulty configurations.
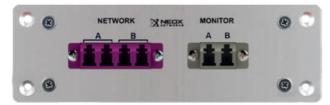
Color Coding fo the connectors

You can see from the colours of our connectors for which fibre type the respective connector of the Network port is intended. Monitoring ports are always grey or black!

OM4 = Purple   OM5 = Green   Monitoring Port LC   Monitoring Port MTP

Front Panel – mobile or mounting kit / mounting frame version

Our TAPs are available with a front panel for mobile use – as well as with mounting frames (-ERW versions) for permanent installation in our PRP-1U3 server cabinet mounting frame, which provides space for three of our portable TAPs each.

Server rack mounting frame PRP-1U3 for Portable TAPs

TAP with front panel for server rack mounting frame PRP-1U3

TAP for mobile use

Of course, TAPs with mounting frames can also be used in mobile applications!
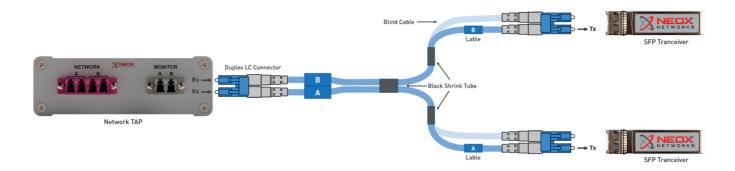
Advantages of Y-Cables

A Network TAP equipped with LC connectors has three duplex connectors, two of which are needed for looping through the network traffic to be analysed and one duplex connector for passively tapping the mirrored data for forwarding to, for example, a Network Packet Broker (NPB), an analysis system, an Intrusion Detection System (IDS), a Network Detection and Response System (NDR) or an Extended Detection and Response System (XDR).

This is the so-called monitoring port on which both the left and the right data traffic is present. These two outputs must be fed into two monitoring ports using two transceivers in order to fully receive the bi-directional traffic, as only the receive side (Rx) of the transceivers can be used for recording.

This presents a challenge because the output of the TAP is a duplex port and yet two separate ports are needed on the receive side for two individual transceivers.

To avoid this problem, it is best to use one of our special Y-cables that convert one duplex connector into two duplex connectors oriented so that the light is fed exclusively into the receiving side of the transceivers.

Connection Reliability in case of power loss

All our Fiber Network TAPs are 100% passive and do not require a power supply.
A power failure in a circuit has no effect on the TAP as it is a physical process that disconnects the network signal. Thus, there is no impairment of the network and monitoring ports, but neighbouring devices could be affected by the power failure.

Installation
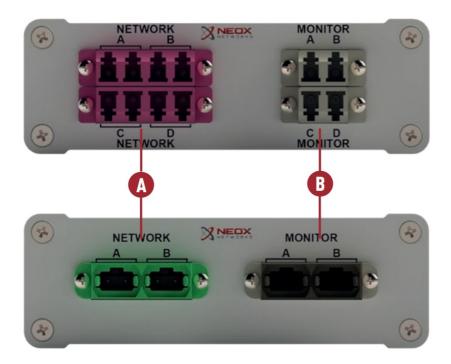
NETWORK port A is a full duplex fibre port that should be connected to one of the two network devices where network monitoring is desired.

NETWORK port B is a full-duplex fibre port that should be connected to the other side or to an adjacent network device where network monitoring is desired.

MONITOR port is a directional dual simplex port (both sides are output only) that should be connected to the input or receive side of two interfaces of one or more monitoring devices that are to capture tapped traffic.
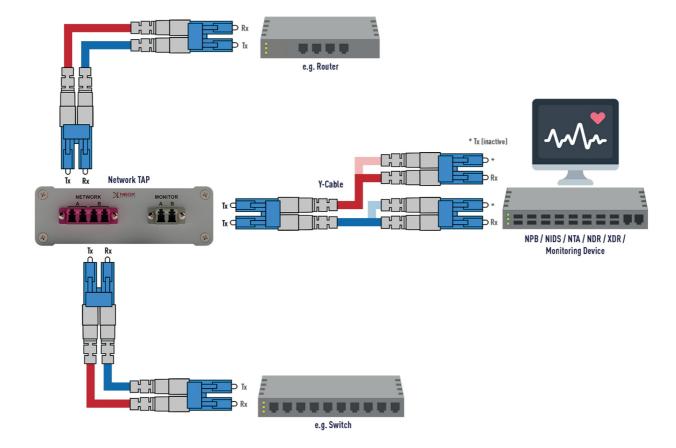
These models in the PacketRaven Network TAPs product family are designed as portable TAPs, but can also be installed in a 19" mounting frame in data centres using a mounting kit.

Front view – Connections and LEDs
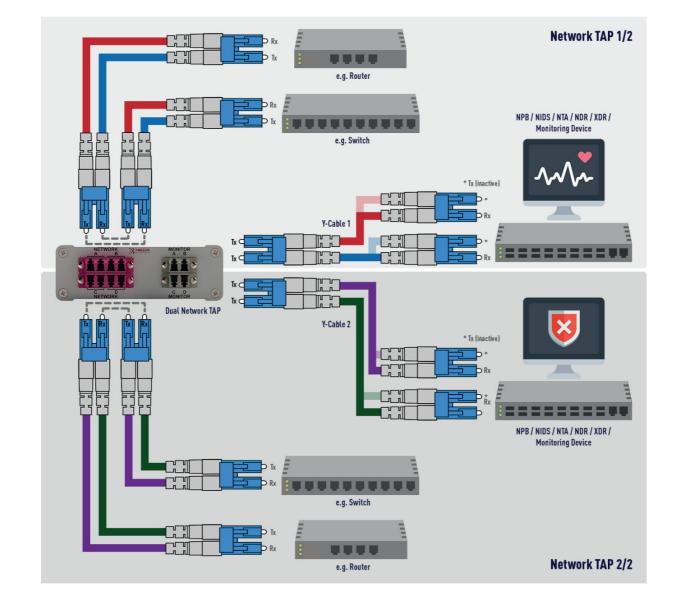
(A) LC or MTP®/MPO Network ports

(B) LC or MTP®/MPO Monitoring ports
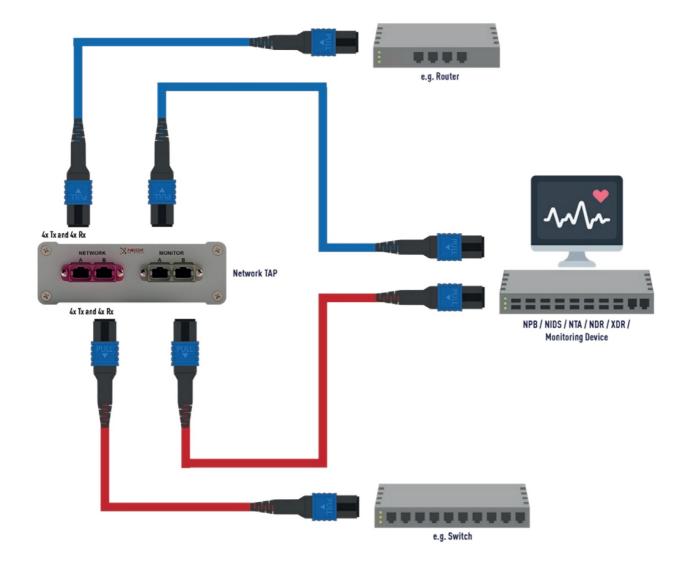
Single TAP Quad-LC/Duplex-LC:
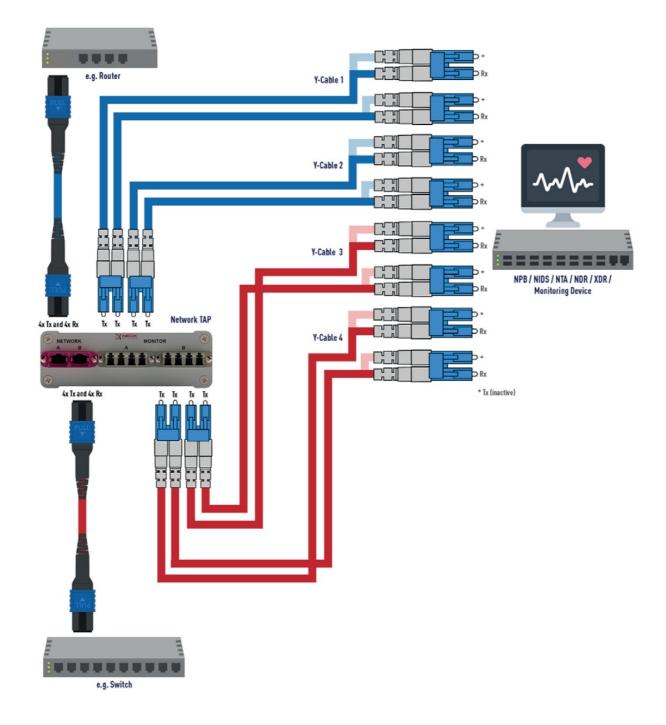
Dual TAP Quad-LC/Duplex-LC:

Single TAP Dual-MTP/Dual-MTP:

e.g. Router

4x Tx and 4x Rx

NETWORK
A   B

MONITOR
A   B

Network TAP

4x Tx and 4x Rx

NPB / NIDS / NTA / NDR / XDR /
Monitoring Device

e.g. Switch
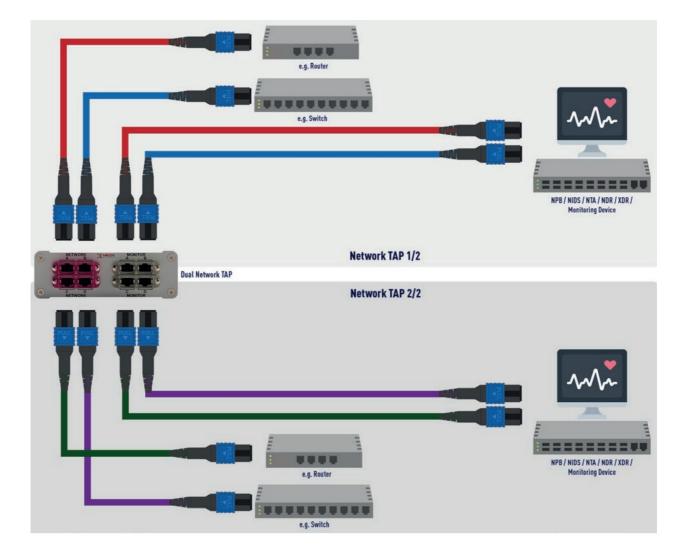
Single TAP Dual-MTP/Quad-LC:

Dual TAP Dual-MTP/Dual-MTP:

Technical Specifications

ATTENUATION VALUES			
SPLIT RATIO (OTHERS ON REQUEST)	**50:50**	**60:40**	**70:30**
Multimode OM3, OM4, OM5	3.8 dB / 3.8 dB	2.8 dB / 4.8 dB	2.2 dB / 6.1 dB

TAP			
Dimensions (WxHxD):	10.6 cm x 3.5 cm x 16.4 cm	Storage Temperature:	-40°C to 85°C
Weight:	400g	Operating Temperature:	-40°C to 70°C
Certifications:	CE, FCC, RoHS, WEEE		

Model Variants

MULTIMODE OMŁ LC FIBER TAPS – STANDARD MODELS

All TAPs for fiber type OM4 are also OM3 compatible!The TAPs whose item numbers end in „-ERW" have a special front panel to allow them to be installed in our server cabinet mounting frame!

ITEM NO.	NETWORK	FIBER TYPE	WAVE- LENGTH	CONNECTOR NETWORK	CONNECTOR MONITOR.	TAP- VERSION
PRP-OM4-SLL-*	100M/1G/10G/25G	OM4	850 nm	LC Multimode	LC Multimode	Single-TAP
PRP-OM4-SLL-*-ERW	100M/1G/10G/25G	OM4	850 nm	LC Multimode	LC Multimode	Single-TAP
PRP-OM4-DLL-*	100M/1G/10G/25G	OM4	850 nm	LC Multimode	LC Multimode	Dual-TAP
PRP-OM4-DLL-*-ERW	100M/1G/10G/25G	OM4	850 nm	LC Multimode	LC Multimode	Dual-TAP

* respective split ratio – e.g. „70" for a split ratio of 70:30, „60" for 60:40, and „50" for 50:50

MULTIMODE OMŁ LC FIBER TAPS – SECURE MODELS

All TAPs for fiber type OM4 are also OM3 compatible!The TAPs whose item numbers end in „-ERW" have a special front panel to allow them to be installed in our server cabinet mounting frame!

ITEM NO.	NETWORK	FIBER TYPE	WAVE- LENGTH	CONNECTOR NETWORK	CONNECTOR MONITOR.	TAP- VERSION
PRP-OM4-SLL-*-S	100M/1G/10G/25G	OM4	850 nm	LC Multimode	LC Multimode	Single-TAP
PRP-OM4-SLL-*-S-ERW	100M/1G/10G/25G	OM4	850 nm	LC Multimode	LC Multimode	Single-TAP
PRP-OM4-DLL-*-S	100M/1G/10G/25G	OM4	850 nm	LC Multimode	LC Multimode	Dual-TAP
PRP-OM4-DLL-*-S-ERW	100M/1G/10G/25G	OM4	850 nm	LC Multimode	LC Multimode	Dual-TAP

* respective split ratio – e.g. „70" for a split ratio of 70:30, „60" for 60:40, and „50" for 50:50

PRP-OM4-SLL-x

PRP-OM4-DLL-x

		MULTIMODE OMŁ MTP®/MPO FIBER TAPS – STANDARD MODELS					

All TAPs for fiber type OM4 are also OM3 compatible!The TAPs whose item numbers end in „-ERW" have a special front panel to allow them to be installed in our server cabinet mounting frame!

ITEM NO.	NETWORK	FIBER TYPE	WAVE-LENGTH	CONNECTOR NETWORK	CONNECTOR MONITOR.	TAP- VERSION
PRP-OM4-SML-*	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	LC Multimode	Single-TAP
PRP-OM4-SML-*-ERW	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	LC Multimode	Single-TAP
PRP-OM4-DML-*	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	LC Multimode	Dual-TAP
PRP-OM4-DML-*-ERW	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	LC Multimode	Dual-TAP
PRP-OM4-SMM-*	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	MTP® Multimode	Single-TAP
PRP-OM4-SMM-*-ERW	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	MTP® Multimode	Single-TAP
PRP-OM4-DMM-*	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	MTP® Multimode	Dual-TAP
PRP-OM4-DMM-*-ERW	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	MTP® Multimode	Dual-TAP

* respective split ratio – e.g. „70" for a split ratio of 70:30, „60" for 60:40, and „50" for 50:50

MULTIMODE OMŁ MTP®/MPO FIBER TAPS – SECURE MODELS

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PRP-OM4-SML-*-S	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	LC Multimode	Single-TAP
PRP-OM4-SML-*-S-ERW	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	LC Multimode	Single-TAP
PRP-OM4-DML-*-S	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	LC Multimode	Dual-TAP
PRP-OM4-DML-*-S-ERW	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	LC Multimode	Dual-TAP
PRP-OM4-SMM-*-S	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	MTP® Multimode	Single-TAP
PRP-OM4-SMM-*-S-ERW	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	MTP® Multimode	Single-TAP
PRP-OM4-DMM-*	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	MTP® Multimode	Dual-TAP
PRP-OM4-DMM-*-ERW	100M/1G/10G/25G/40G/50G/100G	OM4	850 nm	MTP® Multimode	MTP® Multimode	Dual-TAP

* respective split ratio – e.g. „70" for a split ratio of 70:30, „60" for 60:40, and „50" for 50:50

PRP-OM4-SML-x

PRP-OM4-DML-x

PRP-OM4-SMM-x

PRP-OM4-DMM-x

MULTIMODE OM5 LC FIBER TAPS – STANDARD MODELS

The TAPs whose item numbers end in „-ERW" have a special front panel to allow them to be installed in our server cabinet mounting frame!

ITEM NO.	NETWORK	FIBER TYPE	WAVE- LENGTH	CONNECTOR NETWORK	CONNECTOR MONITOR.	TAP- VERSION
PRP-OM5-SLL-*	100M/1G/10G/25G/40G/50G/100G	OM5	850 nm – 950 nm	LC Multimode	LC Multimode	Single-TAP
PRP-OM5-SLL-*-ERW	100M/1G/10G/25G/40G/50G/100G	OM5	850 nm – 950 nm	LC Multimode	LC Multimode	Single-TAP
PRP-OM5-DLL-*	100M/1G/10G/25G/40G/50G/100G	OM5	850 nm – 950 nm	LC Multimode	LC Multimode	Dual-TAP
PRP-OM5-DLL-*-ERW	100M/1G/10G/25G/40G/50G/100G	OM5	850 nm – 950 nm	LC Multimode	LC Multimode	Dual-TAP

* respective split ratio – e.g. „70" for a split ratio of 70:30, „60" for 60:40, and „50" for 50:50

MULTIMODE OM5 LC FIBER TAPS – SECURE MODELS

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ITEM NO.	NETWORK	FIBER TYPE	WAVE- LENGTH	CONNECTOR NETWORK	CONNECTOR MONITOR.	TAP- VERSION
PRP-OM5-SLL-*-S	100M/1G/10G/25G/40G/50G/100G	OM5	850 nm – 950 nm	LC Multimode	LC Multimode	Single-TAP
PRP-OM5-SLL-*-S-ERW	100M/1G/10G/25G/40G/50G/100G	OM5	850 nm – 950 nm	LC Multimode	LC Multimode	Single-TAP
PRP-OM5-DLL-*-S	100M/1G/10G/25G/40G/50G/100G	OM5	850 nm – 950 nm	LC Multimode	LC Multimode	Dual-TAP
PRP-OM5-DLL-*-S-ERW	100M/1G/10G/25G/40G/50G/100G	OM5	850 nm – 950 nm	LC Multimode	LC Multimode	Dual-TAP

* respective split ratio – e.g. „70" for a split ratio of 70:30, „60" for 60:40, and „50" for 50:50

PRP-OM5-SLL-x

PRP-OM5-DLL-x

MULTIMODE OM5 MTP®/MPO FIBER TAPS – STANDARD MODELS

The TAPs whose item numbers end in „-ERW" have a special front panel to allow them to be installed in our server cabinet mounting frame!

ITEM NO.	NETWORK	FIBER TYPE	WAVE- LENGTH	CONNECTOR NETWORK	CONNECTOR MONITOR.	TAP- VERSION
PRP-OM5-SML-*	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multi mode	LC Multimode	Single-TAP
PRP-OM5-SML-*-ERW	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multi mode	LC Multimode	Single-TAP
PRP-OM5-DML-*	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multi mode	LC Multimode	Dual-TAP
PRP-OM5-DML-*-ERW	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multi mode	LC Multimode	Dual-TAP
PRP-OM5-SMM-*	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multi mode	MTP® Multi mode	Single-TAP
PRP-OM5-SMM-*-ERW	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multi mode	MTP® Multi mode	Single-TAP
PRP-OM5-DMM-*	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multi mode	MTP® Multi mode	Dual-TAP
PRP-OM5-DMM-*-ERW	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multi mode	MTP® Multi mode	Dual-TAP

* respective split ratio – e.g. „70" for a split ratio of 70:30, „60" for 60:40, and „50" for 50:50

MULTIMODE OM5 MTP®/MPO FIBER TAPS – SECURE MODELS

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PRP-OM5-SML-*-S	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multimode	LC Multimode	Single-TAP
PRP-OM5-SML-*-S-ERW	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multimode	LC Multimode	Single-TAP
PRP-OM5-DML-*-S	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multimode	LC Multimode	Dual-TAP
PRP-OM5-DML-*-S-ERW	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multimode	LC Multimode	Dual-TAP
PRP-OM5-SMM-*-S	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multimode	MTP® Multimode	Single-TAP
PRP-OM5-SMM-*-S-ERW	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multimode	MTP® Multimode	Single-TAP
PRP-OM5-DMM-*-S	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multimode	MTP® Multimode	Dual-TAP
PRP-OM5-DMM-*-S-ERW	1G/10G/25G/40G/50G/100G/200G/400G	OM5	850 nm – 950 nm	MTP® Multimode	MTP® Multimode	Dual-TAP

* respective split ratio – e.g. „70" for a split ratio of 70:30, „60" for 60:40, and „50" for 50:50

PRP-OM5-SML-x

PRP-OM5-DML-x

PRP-OM5-SMM-x

PRP-OM5-DMM-x

Accessories

ITEM NO.	DESCRIPTION
PRP-1U3	Server rack mounting frame for 3 portable TAPs
PRP-1U3-BP	Blank plate for mounting frame PRP-1U3
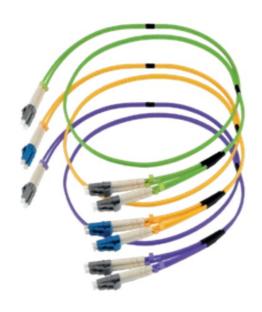
PRP-1U3-BP

PRP-1U3

Y-CABLES			
ITEM NO.	FIBER TYPE	DIAMETER	DESCRIPTION
NX-LC-Y-PC-OM4-*	OM4	3.0mm	Y-Cable / Special Patchcord LC / PC-LC / PC Duplex
NX-LC-Y-PC-OM5-*	OM5	3.0mm	Y-Cable / Special Patchcord LC / PC-LC / PC Duplex

* 1M" for 1 metre, „2M" for 2 metres, „3M" for 3 metres and „5M" for 5 metres.

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Documents / Resources

NEOX NETWORKS NEOXPacketRaven Multimode Fiber TAPs [pdf] User Manual
NEOXPacketRaven Multimode Fiber TAPs, Multimode Fiber TAPs, Fiber TAPs, TAPs

References

- ⊠ **NEOX NETWORKS - Solution Provider für Netzwerk-Monitoring & -Security Lösungen**

Manuals+,