NEOX NETWORKS
NEXT GENERATION NETWORK VISIBILITY

PacketRaven - Modular Fiber Network TAPs
FULL NETWORK TRANSPARENCY FROM 100M TO 400G | 100% PASSIVE PLUG-N-PLAY | EXTRA SECURE MODELS FOR CRITIS AVAILABLE

PACKET**RAVEN**

BiDi MODELS AVAILABLE

CRITIS APPROVED

SecurITy
made in Germany
Trust Seal
www.teletrust.de/itsmig

Fiber TAPs are passive decoupling elements for the safe and reliable tapping of network data in optical networks. These TAPs are looped into the fiber optic line to be monitored and transmit the entire data traffic without interruption.

Our optical TAPs do not require power, they are purely passive components and therefore cannot be detected in the network without expensive measuring equipment. Hackers and other attackers therefore have no chance and since the integrity of the outgoing data remains unaltered due to this tapping method, Network TAPs are increasingly used in the areas of network forensics, security and monitoring.

PacketRaven Fiber TAPs are designed for data centres and allow you to equip up to 30 network segments with TAPs using our innovative, modular 1U chassis. They support network speeds from 100Mbps up to 400Gbps. Without risk, you get permanent network access and provide your monitoring and security tools with 100% reliable network data without introducing a single point of failure.

Integrating support for tapping connections that utilize Bi-Directional (BiDi) technology based on Wavelength Division Multiplexing (WDM), some of our TAPs also accommodate both Singlemode and Multimode setups.

In addition to our standard TAPs, we also offer Secure TAPs specially protected by Data Diode functionality, which have been specially designed for business-critical applications, high-security areas and CRITIS infrastructures with high requirements for securing sensitive data.

These Secure TAPs are 100% compatible with our standard modular TAPs without Data Diode Function and can be installed together in the same chassis. On top of that, they are protocol-agnostic and compatible with all monitoring systems from leading suppliers.

HIGHLIGHTS

Supported network speeds:
100M, 1G, 10G, 25G, 40G, 50G, 100G, 200G, and 400G

Alternative to SPAN ports - mirrors 100% of traffic including FCS/CRC errored packets that may be dropped by SPANs

Invisible in the network, no IP address, no MAC address, cannot be hacked

No power source required, 100% passive

No packet loss, no additional delay, guaranteed

Plug & play, easy installation without configuration

Scalable and modular, supports installation of all TAP models regardless of media type, speed and connector type

Split ratios of 50:50, 60:40, 70:30, 80:20 and 90:10 are supported

Supporting Bi-Directional using WDM (Wavelength Division Multiplexing)

Supported fiber type recognisable by TAP colour - no need to pull out

Extra-secure models available for CRITIS

Assembled, certified and tested in Germany

CONNECTOR COLOURS & FIBER TYPES

The colours of our connectors allow you to identify the fibre types for which the respective connector is intended:

OS2 = Blue*   **OM3** = Aquamarine   **OM4** = Violet   **OM5** = Lime Green

OS2 = Green (APC)
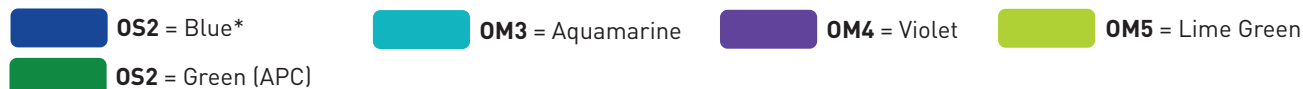
* Our TAPs are supplied with UPC polish as standard. However, TAPs with APC polish are available on request.

SUPPORTED STANDARDS

Here is an excerpt of the standards our **LC Singlemode** Fiber TAPs are supporting:*

- 100BASE-FX
- 1000BASE-EX
- 1000BASE-LX
- 1000BASE-LX10
- 1000BASE-ZX
- 10GBASE-ER

- 10GBASE-EW
- 10GBASE-LR
- 10GBASE-LRM
- 10GBASE-LW
- 10GBASE-ZR
- 10GBASE-ZW

- 25GBASE-ER
- 25GBASE-LR
- 40GBASE-ER4
- 40GBASE-FR
- 40GBASE-LR4
- 40GBASE-LX4/LM4

- 50GBASE-ER
- 50GBASE-FR
- 50GBASE-LR
- 100GBASE-DR
- 100GBASE-ER4
- 100GBASE-FR1

- 100GBASE-LR1
- 100GBASE-LR4
- 200GBASE-ER4
- 200GBASE-FR4
- 200GBASE-LR4
- 400GBASE-ER8

- 400GBASE-FR4
- 400GBASE-FR8
- 400GBASE-LR4-6
- 400GBASE-LR8
- 400GBASE-ZR

Here is an excerpt of the standards our **LC Multimode** Fiber TAPs are supporting:*

- 1000BASE-SX
- 10GBASE-SR
- 10GBASE-SW
- 25GBASE-SR
- 50GBASE-SR
- 100GBASE-SR1.2
- 100GBASE-SR SWDM4
- 40BASE-SR-BD (Bi-Di using WDM)
- 100BASE-SR-BD (Bi-Di using WDM)

Here is an excerpt of the standards our **MTP®/MPO Multimode** Fiber TAPs are supporting:*

- 40GBASE-SR4
- 100GBASE-SR2
- 100GBASE-SR4
- 200GBASE-SR4
- 400GBASE-SR4.2

* If you are considering using a standard not listed here, please contact us.

HOW DOES A SPLIT RATIO WORK?

Due to its splitting technique using a prism, attenuations naturally occur which must be taken into account when selecting the TAP.

Fiber TAPs are available in 5 different variations and differ in their split ratio. Available are devices with the "split ratio" 50:50, 60:40, 70:30, 80:20, 90:10.

A typical attenuation value of a 70:30 Fiber TAP is about 2dB on the network side and 6dB on the monitoring ports.

Here you can see an example of a 70/30 Split Ratio:

Network Packet Broker / Monitoring Device / XDR / NDR / NIDS / NIPS
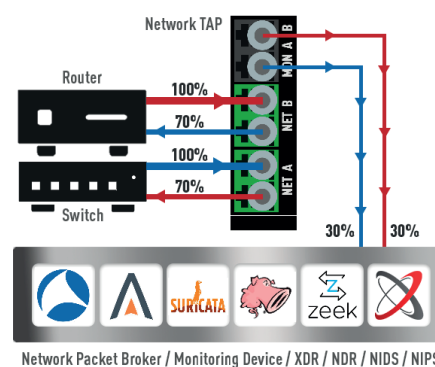
ADVANCED FEATURES OF SECURE FIBER TAPS
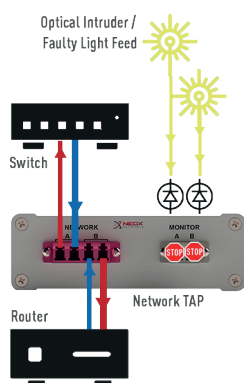
Our Secure Modular TAPs have an optical filter and an optical isolator that add a Data Diode function to the TAP.

These prevent accidental or deliberate injections of unwanted data or light signals into the active network.

Due to a very high insertion loss of up to 35dB on the return channel from the monitoring port into the productive network to be protected, an additional two-level security layer is activated.

The insertion loss of the single-mode models is ~35 dB and for our multimode models ~25 dB.

Optical isolator

Optical filter

BI-DIRECTIONAL TECHNOLOGY

Integrating support for tapping connections that utilize Bi-Directional (BiDi) technology based on Wavelength Division Multiplexing (WDM), some of our TAPs also accommodate both Singlemode and Multimode setups.

In Multimode configurations, apart from the standardized 100GBASE-SR1.2 based on IEEE 802.3bm-2015, commonly used wavelengths are in the range of 830nm to 950nm enabling efficient and secure monitoring in diverse network environments.

Additional supported wavelengths based on custom requirements are always possible, please contact our staff for further discussions.
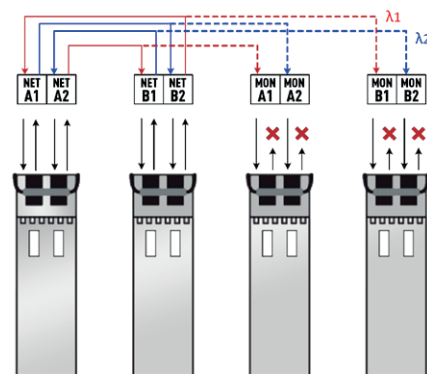
How a BiDi Network TAP works

PacketRaven TAP MODELS

PRM-OM3-LL-x   PRM-OM4-LL-x   PRM-OM5-LL-x   PRM-OM4/OM5-ML-x   PRM-OM4/OM5-MM-x

STANDARD MULTIMODE MODELS

All TAPs for fiber type OM5 are also compatible with OM4 and OM3!   All TAPs for fiber type OM4 are also compatible with OM3!

ITEM NO.	NETWORK	FIBER TYPE	WAVELENGTH	INTERFACE NET./MON.		SPLIT RATIO	SLOTS NEEDED
PRM-OM3-LL-50	1G/10G/25G/50G	OM3	850 nm	LC	LC	50:50	1
PRM-OM3-LL-60	1G/10G/25G/50G	OM3	850 nm	LC	LC	60:40	1
PRM-OM3-LL-70	1G/10G/25G/50G	OM3	850 nm	LC	LC	70:30	1
PRM-OM4-LL-50	1G/10G/25G/50G	OM4	850 nm	LC	LC	50:50	1
PRM-OM4-LL-60	1G/10G/25G/50G	OM4	850 nm	LC	LC	60:40	1
PRM-OM4-LL-70	1G/10G/25G/50G	OM4	850 nm	LC	LC	70:30	1
PRM-OM5-LL-50	1G/10G/25G/50G/100G	OM5	850 nm – 950 nm	LC	LC	50:50	1
PRM-OM5-LL-60	1G/10G/25G/50G/100G	OM5	850 nm – 950 nm	LC	LC	60:40	1
PRM-OM5-LL-70	1G/10G/25G/50G/100G	OM5	850 nm – 950 nm	LC	LC	70:30	1
PRM-OM4-ML-50	40G/100G/200G/400G	OM4	850 nm	MTP®	LC	50:50	3
PRM-OM4-ML-60	40G/100G/200G/400G	OM4	850 nm	MTP®	LC	60:40	3
PRM-OM4-ML-70	40G/100G/200G/400G	OM4	850 nm	MTP®	LC	70:30	3
PRM-OM5-ML-50	40G/100G/200G/400G	OM5	850 nm – 950 nm	MTP®	LC	50:50	3
PRM-OM5-ML-60	40G/100G/200G/400G	OM5	850 nm – 950 nm	MTP®	LC	60:40	3
PRM-OM5-ML-70	40G/100G/200G/400G	OM5	850 nm – 950 nm	MTP®	LC	70:30	3
PRM-OM4-MM-50	40G/100G/200G/400G	OM4	850 nm	MTP®	MTP®	50:50	3
PRM-OM4-MM-60	40G/100G/200G/400G	OM4	850 nm	MTP®	MTP®	60:40	3
PRM-OM4-MM-70	40G/100G/200G/400G	OM4	850 nm	MTP®	MTP®	70:30	3
PRM-OM5-MM-50	40G/100G/200G/400G	OM5	850 nm – 950 nm	MTP®	MTP®	50:50	3
PRM-OM5-MM-60	40G/100G/200G/400G	OM5	850 nm – 950 nm	MTP®	MTP®	60:40	3
PRM-OM5-MM-70	40G/100G/200G/400G	OM5	850 nm – 950 nm	MTP®	MTP®	70:30	3

PRM-OM5-BD-LL-x

PRM-OS2-LL-x

STANDARD BIDI MULTIMODE MODELS

All TAPs for fiber type OM5 are also compatible with OM4 and OM3!   All TAPs for fiber type OM4 are also compatible with OM3!

ITEM NO.	NETWORK	FIBER TYPE	WAVELENGTH	INTERFACE NET./MON.		SPLIT RATIO	SLOTS NEEDED
PRM-OM5-BD-LL-50	40G/100G	OM5	830nm - 950nm	LC	LC	50:50	3
PRM-OM5-BD-LL-60	40G/100G	OM5	830nm - 950nm	LC	LC	60:40	3
PRM-OM5-BD-LL-70	40G/100G	OM5	830nm - 950nm	LC	LC	70:30	3

STANDARD SINGLEMODE MODELS

All TAPs for fiber type OS2 are also compatible with OS1!

ITEM NO.	NETWORK	FIBER TYPE	WAVELENGTH	INTERFACE NET./MON.		SPLIT RATIO	SLOTS NEEDED
PRM-OS2-LL-50	100M/1G/10G/25G/40G/50G/100G/200G/400G	OS2	1310 / 1550 nm	LC	LC	50:50	1
PRM-OS2-LL-60	100M/1G/10G/25G/40G/50G/100G/200G/400G	OS2	1310 / 1550 nm	LC	LC	60:40	1
PRM-OS2-LL-70	100M/1G/10G/25G/40G/50G/100G/200G/400G	OS2	1310 / 1550 nm	LC	LC	70:30	1

PRM-OM3-LL-x-S

PRM-OM4-LL-x-S

PRM-OM5-LL-x-S

PRM-OS2-LL-x-S

SECURE MULTIMODE MODELS

All TAPs for fiber type OM5 are also compatible with OM4 and OM3!   All TAPs for fiber type OM4 are also compatible with OM3!

ITEM NO.	NETWORK	FIBER TYPE	WAVELENGTH	INTERFACE NET./MON.		SPLIT RATIO	SLOTS NEEDED
PRM-OM3-LL-50-S	1G/10G/25G/50G	OM3	850 nm	LC	LC	50:50	1
PRM-OM3-LL-70-S	1G/10G/25G/50G	OM3	850 nm	LC	LC	70:30	1
PRM-OM4-LL-50-S	1G/10G/25G/50G	OM4	850 nm	LC	LC	50:50	1
PRM-OM4-LL-70-S	1G/10G/25G/50G	OM4	850 nm	LC	LC	70:30	1
PRM-OM5-LL-50-S	1G/10G/25G/50G/100G	OM5	850 nm – 950 nm	LC	LC	50:50	1
PRM-OM5-LL-70-S	1G/10G/25G/50G/100G	OM5	850 nm – 950 nm	LC	LC	70:30	1

SECURE SINGLEMODE MODELS

All TAPs for fiber type OS2 are also compatible with OS1!

ITEM NO.	NETWORK	FIBER TYPE	WAVELENGTH	INTERFACE NET./MON.		SPLIT RATIO	SLOTS NEEDED
PRM-OS2-LL-50-1310S	100M/1G/10G/25G/40G/50G/100G/200G/400G	OS2	1310 nm	LC	LC	50:50	1
PRM-OS2-LL-70-1310S	100M/1G/10G/25G/40G/50G/100G/200G/400G	OS2	1310 nm	LC	LC	70:30	1
PRM-OS2-LL-50-1550S	100M/1G/10G/25G/40G/50G/100G/200G/400G	OS2	1550 nm	LC	LC	50:50	1
PRM-OS2-LL-70-1550S	100M/1G/10G/25G/40G/50G/100G/200G/400G	OS2	1550 nm	LC	LC	70:30	1

SPECIFICATIONS

SUPPORTED MEDIA TYPE		SPECIFICATIONS	
Multimode 850 nm / 1300 nm:	OM1, OM2	Height x Width x Length (Chassis):	4.80 cm x 19.40 cm x 42.50 cm
Multimode 850 nm:	OM3, OM4	Operating Temperature:	-40°C - +85°C
Multimode 850 nm - 950 nm:	OM5	Operating Humidity:	5% - 85%
Singlemode 1310 nm / 1550 nm:	OS1, OS2	Reliability:	GR-1221-CORE

MAXIMUM INSERTION LOSS			
Split Ratio (more on request)	50:50	60:40	70:30
Multimode OM1, OM2	4.0 dB / 4.0 dB	3.0 dB / 5.0 dB	2.4 dB / 6.3 dB
Multimode OM3, OM4, OM5	3.8 dB / 3.8 dB	2.8 dB / 4.8 dB	2.2 dB / 6.1 dB
Singlemode OS1, OS2	3.4 dB / 3.4 dB	2.5 dB / 4.5 dB	1.7 dB / 5.8 dB

ACCESSORIES

PacketRaven CHASSIS

PRM-CH-1U30	Supports installation of up to 30 single TAP modules (30 slots)

Y-CABLES FOR FIBER TAPS

ITEM NO.	FIBER TYPE	DIAMETER	DESCRIPTION
NX-LC-Y-PC-OS2-*	OS2	3.0mm	Y-Cable / Special patchcord LC/PC-LC/PC Duplex
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 meter, „2M" for 2 meters, „3M" for 3 meters and „5M" for 5 meters.

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