



Fiber Optic Breakout TAP Solutions **(10/100/1000, Gigabit, 10 Gigabit, OC-3, OC-12, OC-48, OC-192)**



Network Critical is the premier provider of Access Technology Solutions for today's datacenter. Our TAP solutions give you the ability to safely, securely and economically see what is happening on your network. We provide the only enterprise access solution for permanently integrating intrusion detection, analyzers, probes, sniffers, compliance, intrusion prevention, VoIP monitoring, data leakage prevention, content filtering and lawful interception tools into your network.

Fiber Optic Breakout TAP Solutions

Easily connect to all of your Network Tools!

Lawful Interception
Data Leakage Prevention
Intrusion Detection Systems
Intrusion Prevention Systems

Probes
Analyzers
Sniffers
Compliance

Features

- Fail-safe technology
- Complete Data Visibility
- Carrier-grade designs
- Does not require a power source

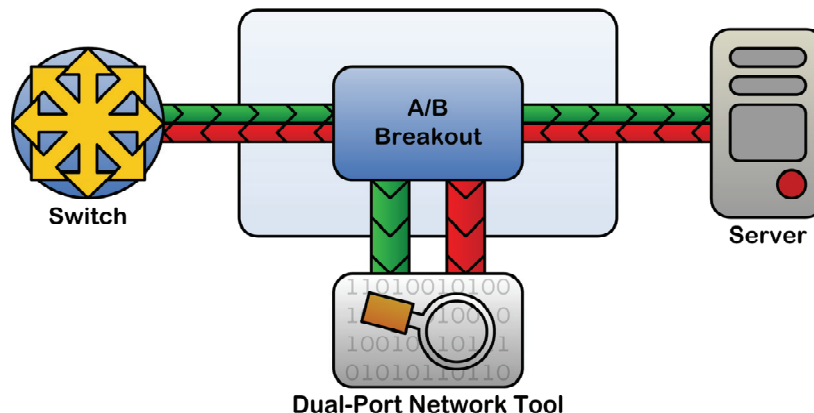
Benefits

- Link-Lock allows traffic to continue flowing across your network
- Collect 100% of network traffic – including errors
- High density designed for permanent installation – **16 TAPs in a 1U chassis**
- Reduce power costs – achieve green datacenter status



Breakout TAP Configuration

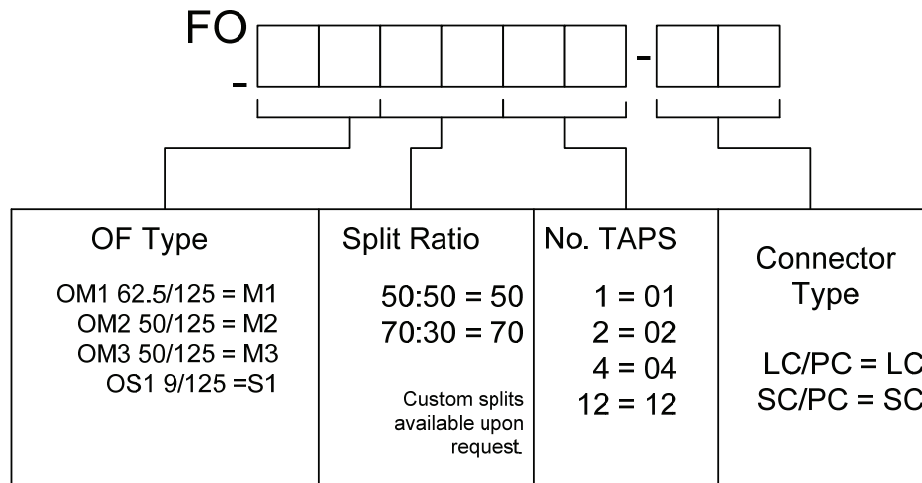
Breakout mode separates the bi-directional full duplex network traffic into incoming and outgoing streams, using one monitoring port for each stream. This mode is used when 100% guaranteed traffic collection is required and the network tool has dual ports running at the same speed as the Live Network.







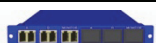


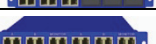
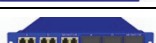
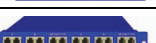
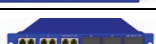
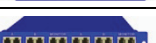

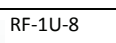
Fiber Optic Breakout TAP Solutions

Ordering Information

Part Number Explanation – Available Part Numbers Listed Below






















SlimLine Fiber Optic TAP Part Numbers

	FO-M35001-LC	SlimLine Fiber Optic TAP, 50:50 Multi-mode Fiber, 850/1310 dual wavelengths, 50 μm OM3
	FO-M35002-LC	SlimLine Fiber Optic TAPs (Dual), 50:50 Multi-mode Fiber, 850/1310 dual wavelengths, 50 μm OM3
	FO-M37001-LC	SlimLine Fiber Optic TAP, 70:30 Multi-mode Fiber, 850/1310 dual wavelengths, 50 μm OM3
	FO-M37002-LC	SlimLine Fiber Optic TAPs (Dual), 70:30 Multi-mode Fiber, 850/1310 dual wavelengths, 50 μm OM3
	FO-M15001-LC	SlimLine Fiber Optic TAP, 50:50 Multi-mode Fiber, 850/1310 dual wavelengths, 62.5 μm
	FO-M15002-LC	SlimLine Fiber Optic TAPs (Dual), 50:50 Multi-mode Fiber, 850/1310 dual wavelengths, 62.5 μm
	FO-M17001-LC	SlimLine Fiber Optic TAP, 70:30 Multi-mode Fiber, 850/1310 dual wavelengths, 62.5 μm
	FO-M17002-LC	SlimLine Fiber Optic TAPs (Dual), 70:30 Multi-mode Fiber, 850/1310 dual wavelengths, 62.5 μm
	FO-S15001-LC	SlimLine Fiber Optic TAP, 50:50 Single-mode Fiber, 1310/1550 dual wavelengths, 9 μm
	FO-S15002-LC	SlimLine Fiber Optic TAPs (Dual), 50:50 Single-mode Fiber, 1310/1550 dual wavelengths, 9 μm
	FO-S17001-LC	SlimLine Fiber Optic TAP, 70:30 Single-mode Fiber, 1310/1550 dual wavelengths, 9 μm
	FO-S17002-LC	SlimLine Fiber Optic TAPs (Dual), 70:30 Single-mode Fiber, 1310/1550 dual wavelengths, 9 μm
	RF-1U-8	Rack mount plate – holds 8 SlimLine TAPs
	RF-BP-1U-8	Rack mount blanking plate



CriticalTAP Fiber Optic TAP Part Numbers

	FO-M35001-SC (NCTFO-50-50-50)	CriticalTAP Portable, 50:50 Multi-mode Fiber, 850/1310 dual wavelengths, 50 µm OM3
	FO-M37001-SC (NCTFO-70-30-50)	CriticalTAP Portable, 70:30 Multi-mode Fiber, 850/1310 dual wavelengths, 50 µm OM3
	FO-M35004-SC (NCTFO-1U4-50-50-50)	CriticalTAP 1U 4x4 TAP, 50:50 Multi-mode Fiber, 850/1310 dual wavelengths, 50 µm OM3
	FO-M37004-SC (NCTFO-1U4-70-30-50)	CriticalTAP 1U 4x4 TAPs, 70:30 Multi-mode Fiber, 850/1310 dual wavelengths, 50 µm OM3
	FO-M35012-LC (NCTFO-1U12-50-50/50)	CriticalTAP 1U 12x12 TAP, 50:50 Multi-mode Fiber, 850/1310 dual wavelengths, 50 µm OM3
	FO-M37012-LC (NCTFO-1U12-50-70/30)	CriticalTAP 1U 12x12 TAPs, 70:30 Multi-mode Fiber, 850/1310 dual wavelengths, 50 µm OM3
	FO-M15001-SC (NCTFO-50-50-62.5)	Critical TAP Portable, 50:50 Multi-mode Fiber, 850/1310 dual wavelengths, 62.5 µm
	FO-M17001-SC (NCTFO-70-30-62.5)	CriticalTAP Portable, 70:30 Multi-mode Fiber, 850/1310 dual wavelengths, 62.5 µm
	FO-M15004-SC (NCTFO-1U4-50-50-62.5)	CriticalTAP 1U 4x4 TAPs, 50:50 Multi-mode Fiber, 850/1310 dual wavelengths, 62.5 µm
	FO-M17004-SC (NCTFO-1U4-70-30-62.5)	CriticalTAP 1U 4x4 TAPs, 70:30 Multi-mode Fiber, 850/1310 dual wavelengths, 62.5 µm
	FO-M15012-LC (NCTFO-1U12-62.5-50/50)	CriticalTAP 1U 12x12 TAPs, 50:50 Multi-mode Fiber, 850/1310 dual wavelengths, 62.5 µm
	FO-M15012-LC (NCTFO-1U4-62.5-70/30)	CriticalTAP 1U 12x12 TAP, 70:30 Multi-mode Fiber, 850/1310 dual wavelengths, 62.5 µm
	FO-S15001-SC (NCTFO-50-50-9)	CriticalTAP Portable, 50:50 Single mode Fiber, 1310/1550 dual wavelengths, 9 µm
	FO-S17001-SC (NCTFO-70-30-9)	CriticalTAP Portable, 70:30 Single mode Fiber, 1310/1550 dual wavelengths, 9 µm
	FO-S15004-SC (NCTFO-1U4-50-50-9)	CriticalTAP Portable, 50:50 Single mode Fiber, 1310/1550 dual wavelength, 9 µm
	FO-S17004-SC (NCTFO-1U4-70-30-9)	CriticalTAP 1U 4x4 TAPs, 70:30 Single mode Fiber, 1310/1550 dual wavelengths, 9 µm
	FO-S15012-LC (NCTFO-1U12-9-50/50)	CriticalTAP 1U 12x12 TAP, 50:50 Single mode Fiber, 1310/1550 dual wavelengths, 9µm
	FO-S17012-LC (NCTFO-1U12-9-70/30)	CriticalTAP 1U 12x12 TAP, 70:30 Single mode Fiber, 1310/1550 dual wavelengths, 9µm
	RF-1U-3 RF-BP-1U-3	Rack mount plate – holds 3 Portable CriticalTAPs Rack mount blanking plate

To learn more about Fiber Optic Breakout TAP Solutions, Contact Network Critical:

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Network Critical Fiber Split Ratio and Cable Length Reference Chart

(Please note that these figures are guidelines only and that the db loss can vary from installation to installation!)

What is a Split Ratio?

A split ratio is the amount of light that is re-directed from the network to the monitor ports. To determine the correct split ratio, a Loss (power) Budget should be calculated. In order to take an exact copy of the traffic passing through an optical tap the fiber is physically spliced with another fiber to make a Y shape. The light energy is split in two and travels along each arm of the Y, one going to the live port and one to the monitor port. The split ratio indicates what percentage of the light energy goes to the each port. In a 50:50 tap the split is equal, whereas in a 70:30 tap 70% goes to the live port and 30% to the monitor port.

- **50/50 split ratio is standard for enterprise applications**

What is a Loss (power) Budget and how do I calculate this?

A Loss (power) Budget is the amount of attenuation that can be tolerated on the network and monitor links before the end to end data is corrupted. To calculate this, one must know the following network link characteristics: Link Distance, Fiber Type, Launch Power, Receiver Sensitivity, number of interconnects and splices.

What Split Ratios are available from Network Critical?

Network Critical’s standard Fiber TAPs are available with the following Split Ratios: 50/50 & 70/30.

- Custom orders can be done to accommodate 60/40, 80/20 & 90/10 split ratios

This is a table listing the dB loss you can expect through each tap. You should calculate the loss of a system without the tap, and then see which splits will fit and give you the least acceptable loss.

Split Ratio	Live Port	Mon Port
50:50	4.5	4.5
60:40	3.1	5.1
70:30	2.4	8.3
80:20	1.8	8.1
90:10	1.0	11.5

Sample Network Critical Split Ratio Calculation based on GigaBit Multimode, 62.5/125 μm, 850nm wavelength

1. Calculate the Power Link Loss Budget (receiver sensitivity - transmit output power):
(-17dB) - (-9.5dB) = -7.5dB

2. Calculate the Total Cable Attenuation (Sum of Connection Losses) + (Sum of Distance Losses):
(-0.5dB) + (-0.5dB) = -1.0dB

3. Calculate the Total Coupler Loss Allowed (Sum of Power Link Loss Budget) - (Total Cable Attenuation):
(-7.5dB) - (-1.0dB) = -6.5dB Budget Window

4. Split Ratios with the Network Port Loss and Monitor Port Loss less than the total coupler loss allowed for these respective connections are viable. The optimal Split Ratio is one that maximizes the network signal.



Gigabit Multimode Fiber Tap Specs:

Max Distance: 220 meters @ 62.5/125µm, 850nm wavelength / 550 meters @ 50/125 µm, 850 wavelength

Split Ratio Network Port IL Monitor Port IL Network Distance 62.5/125µm 50 Micron Distance

50/50 < 4.5 dB < 4.5 dB 1-44 meters 1-110 meters
60/40 < 3.1 dB < 5.1 dB 44-88 meters 110-220 meters
70/30 < 2.4 dB < 6.3 dB 88-132 meters 220-330 meters
80/20 < 1.8 dB < 8.1 dB 132-176 meters 330-440 meters
90/10 < 1.3 dB < 11.5 dB 176-220 meters 440-550 meters

Gigabit Single mode Fiber Tap Specs:

Max Distance: 5 Km, 8.5/125µm, 1310nm wavelength

Split Ratio Network Port IL Monitor Port IL Network Distance

50/50 < 3.7 dB < 3.7 dB 0-1 Km
60/40 < 2.8 dB < 4.8 dB 1-2 Km
70/30 < 2.0 dB < 6.1 dB 2-3 Km
80/20 < 1.3 dB < 8.0 dB 3-4 Km
90/10 < 0.8 dB < 12.0 dB 4-5 Km

Indicated Maximum Monitoring Cable Distance for All Optical:

Split Ratio Multimode 62.5/125µm Multimode 50/125µm Singlemode 8.5/125µm

50/50 1-44 meters 1-110 meters 0-1 Km
60/40 1-28 meters 1- 75 meters 0-750 meters
70/30 1-23 meters 1- 58 meters 0-540 meters
80/20 1-17 meters 1- 44 meters 0-350 meters
90/10 1-12 meters 1- 31 meters 0-210 meters

Indicated Maximum Monitoring Cable Distance for 100/1000Mb:

1-80 meters

(Please note that these figures are guidelines only and that the monitoring cable distance can vary from installation to installation!)