The Facility Interconnect

All Signals – One Fiber – 1RU Per Site

- Fiber Transport
- Multiplexing
- Routing
- Conversion
- Distribution

BTF1-07-16

ALL SIGNALS – ONE FIBER

The Ultimate Interconnect Tool

A Multitude Of Tools In A 1-RU Package

- Route any input to any output, distribute, convert, re-clock and monitor.
- Includes full 32 x 32 router for extreme configuration flexibility.
- 16 MSA SFP cages with simultaneous I/O, 8 BNC I/O and 16-channel mux/demux in a 1RU frame.
- Advanced signal redundancy with auto-switching to any chosen input.
- Every SFP port is bi-directional & hot-swappable.
- Works with any MSA SFP; not proprietary.
- Every BNC port is input or output selectable.
- All output ports are re-clocked.
- Control via BarnStudio PC based software, Web Server interface, TELNET and SNMP or 3rd party control systems.
- Supports up to 3G-SDI, Ethernet, ASI, AES, KVM, SDTI, MADI, HDMI, DVI, CVBS, CAM-CCU (including video, audio, tally, intercom, RCP) etc.

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Barnfind USA
ALL SIGNALS - ONE FIBER

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Facility Interconnect: Route, Convert, Distribute, Multiplex & Transport

Connecting Sites Together

Depending on the number of signals to be transport, use one or more frames on each site or use a number of BarnMinis Topology largely determines which frames and/or which BarnMinis to use.
The BTF1-07-16 shown here with the built-in mux/demux allows connecting up to 16 signals (32 if using HiLo SFPs) between two sites using only ONE FIBER STRAND.

Multiplexing Fiber Feeds On One Strand

CWDM technology permits the multiplexing of up to 18 signals. By using Barnfind's HiLo SFP technology, 32 signals can be transported (2 per frequency, one in each direction.
The BTF1-07-16 shown here is equipped with a 16-channel multiplexer; it is also optionally available with an 8-channel & 1-channel multiplexer.

Feed Monitoring & Auto-Switching

Each input is monitored, and an auto-switch input can be defined for auto-switching in case of input failure. Auto switching facilities include definitions for delaying switching back to the failed input for a certain amount of time after the input has recovered.

Multiple Frames & Various Solutions

BARNIFND makes available a number of different frames in our BARNONE product line. Each frame offers a different number of BNC and SFP configurations to suit your specific needs.
As well, depending on the number of signals that need transport and their topology, our BARNMINI product line offers the most efficient way od designing a connectivity/signal transport system.

ALL SIGNALS – ONE FIBER

BTF1-07-16

8 Bi-Directional BNCs

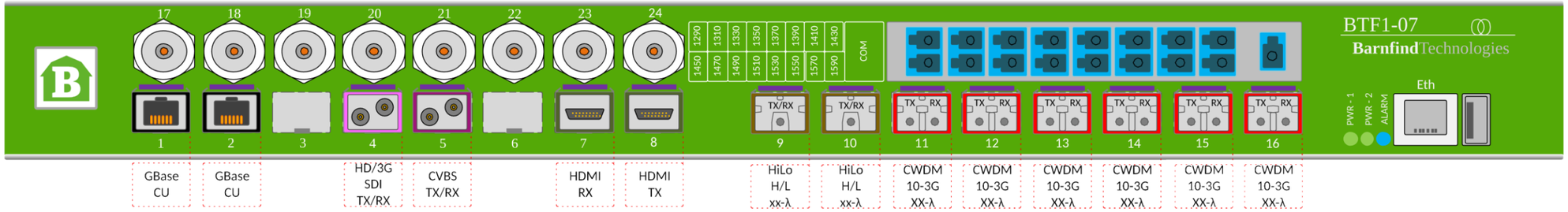
- Individually set-up as inputs or outputs.
- Handle any SDI signal up to 3Gbps.
- Route to fiber or HDMI SFPs for conversion.
- Route to other BNCs for distribution.
- Use MSA copper BNC SFPs to expand BNC connectivity.
- Advanced signal redundancy with auto-switch to any input.

16-Channel Optical Mux/DeMux

- Multiplexes/Demuxs 16 CWDM frequencies to one fiber port.
- Bi-directional operation; each of 16 signals can be transmitted in its own direction.
- Can expand to 32 channel operation by using Hi/Lo SFPs.
- 8-Channel and 18-Channel Options Available.
- Also available in separate 1-RU rackmount for larger systems; holds 4 mux/demux.

Dual Power Supply

- Two power supply inputs for redundancy.
- Frame is provided with one power supply; 2nd supply optional.
- Power is monitored and failures are reported via alarm. Frame auto-switches to available power.



Ethernet MSA SFPs

- Provide connectivity to Ethernet sources.
- Route Ethernet SFP I/O to CWDM fiber I/O to connect Ethernet to remote location.
- Facilitate Ethernet based communication as well as DMX and Intercom up to 1Gbps.
- Multiple Ethernet connections can be transmitted and kept isolated.

Copper MSA SFPs

- SDI and composite analog SFPs are available.
- Simultaneous and routable I/O operation.
- Frame handles up to 3G-SDI MSA SFPs.
- Analog SFPs can carry black-burst.

HDMI MSA SFPs

- HDMI SFPs are either transmitters or receivers.
- Use micro-HDMI connectors.
- Route HDMI receiver to CWDM SFP for conversion.
- Route Fiber SFP to HDMI transmitter for conversion.

3G-SDI MSA Fiber CWDM SFP Transceivers

- Frame accepts up to 3G-SDI transceivers; normal and CWDM.
- Simultaneous Input & Output; Routable
- Route to other SFPs or BNCs for conversion and distribution.
- CWDM SFPs available in 18 frequency ranges help facilitate CWDM mux/demux operations.
- HiLo SFPs also available in 18 frequency ranges but are bidirectional on one frequency expanding each frequency into bidirectional communications; use HiLo SFPs to expand system carrying capacity as needed.
- SFPs ordered and sold separately (not included with frame).

Ethernet Control Port

- Control via BarnStudio PC based software, Web Server interface, TELNET or SNMP.
- Also compatible/integrated with 3rd party control systems: Ross OpenGear/DashBoard, Skyline/Dataminer, ScheduALL, LAWO/VSM, BFE/KSC, DNF Control, TSL, RASCULAR, Black Magic, Axon Cerebrum, SAM SW-P-08 etc.

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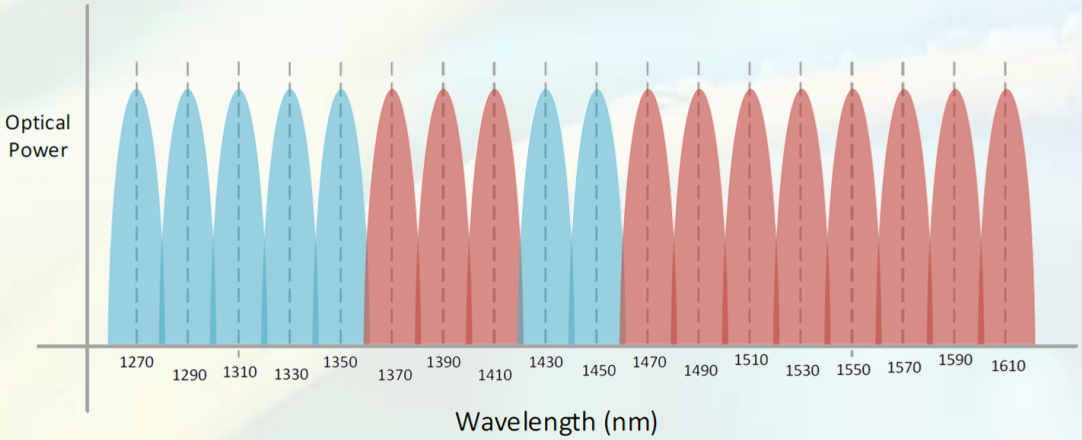
Working With CWDM

CWDM – Coarse Wavelength Division Multiplexing

Coarse Wavelength Division Multiplexing (ITU-T G694.2) allows up to 18 signals to travel on one fiber strand. Any protocol can travel beside another over the same link, as long as it is a specific wavelength. (e.g. HD-SDI @1570nm can be transported alongside 3G-SDI @1590nm and MADI @1510nm). This allows for long-term proofing of the infrastructure, because the multiplexers simply refract light at any speed/bitrate, regardless of the protocol being deployed. Channel spacing is 20nm. Each channel travels separately, does not interfere with each other and direction can be set up as needed.



	CWDM Channels	Wavelength
18 CH.	1	1270
	2	1290
	3	1310
	4	1330
	5	1350
16 CH.	6	1370
	7	1390
	8	1410
	9	1430
	10	1450
	11	1470
	12	1490
	13	1510
	14	1530
	15	1550
	16	1570
	17	1590
	18	1610

HiLo Technology Doubles CWDM Capacity

HiLo SFP technology offers the possibility to double the signal count on each fiber using standard CWDM multiplexers in combination with bi-directional HiLo SFPs.
Figure 1. shows the standardized channel spacing for CWDM. It allows totally 18 channels between 1270nm and 1610nm with 20 nm spacing.
Figure 2. Barnfind HiLo SFPs are designed to meet a need for higher density of signals in one single fiber. By using half of the spacing in each wavelength, HiLo SFPs can double the capacity of the traditional CWDM bi-directional transmission. This enables totally 18 bi-directional links (36 channels) over a single fiber strand.

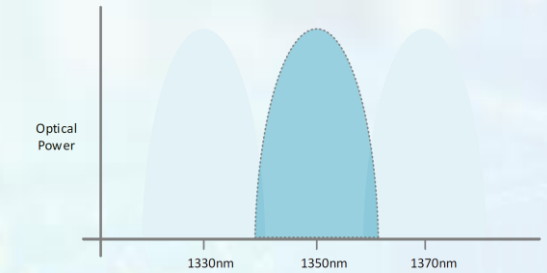


Fig 1. Standard CWDM

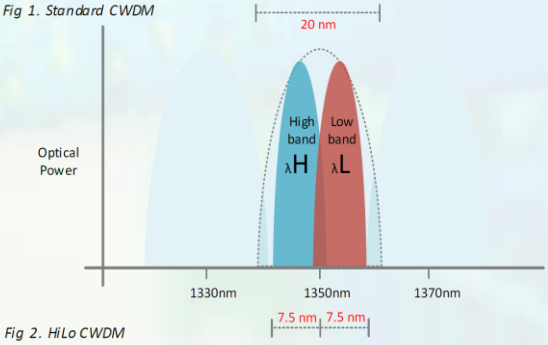
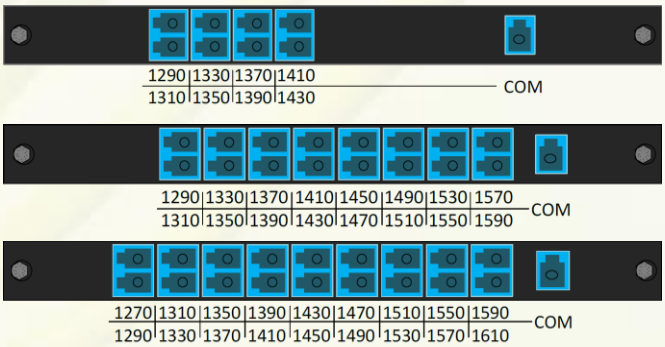


Fig 2. HiLo CWDM

Multiplexers – 8, 16 & 18 ports



Multiplexer Rackmount:
Mount up to 4 multiplexers in a 1-RU rack space. CWDM multiplexers are mux/demux and are passive devices; no power required.

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