

National Park Service Photo

# UTAH-100/XFD Fiber Distribution Platform



The UTAH-100/XFD Fiber Distribution Platform provides a uniquely flexible solution for conversion and distribution of digital video signals. The frame houses up to four FLEX-I/O modules, each of which can handle up to four independent signal channels — for a total of 16 channels in 1 RU.



**UTAH-100/XFD-1RU-2-0**



**Compact UTAH-100/XFD-1RU-2-0**

### A Format-Flexible Solution

The UTAH-100/XFD supports the full range of video and audio formats found in today's operations, including 4K/12G-SDI, dual and quad-link 4K, 3G-SDI, HD-SDI, SD-SDI, RS422, GPIO, DVB-ASI, MADI, AES audio, analog video, HDMI input, HDMI output, Gigabit Ethernet, intercom, AES, and Sony optical/electrical remote CCUs.

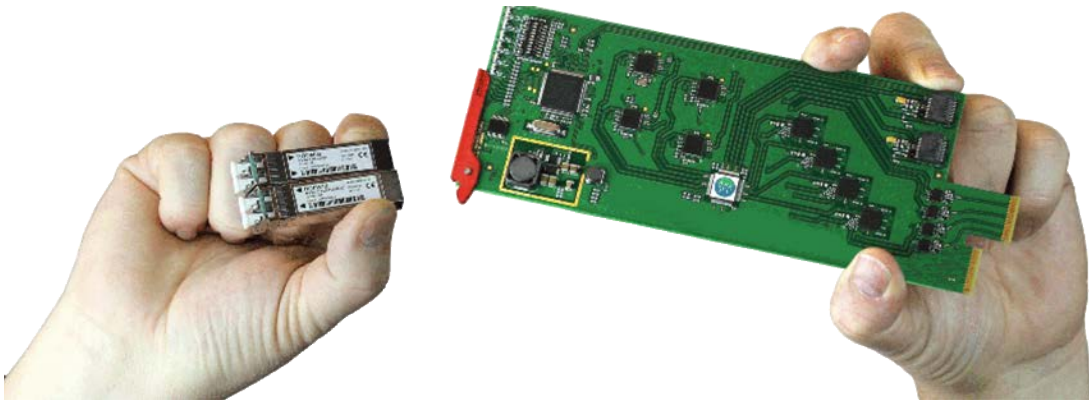
### Only From Utah Scientific: AutoSFP®



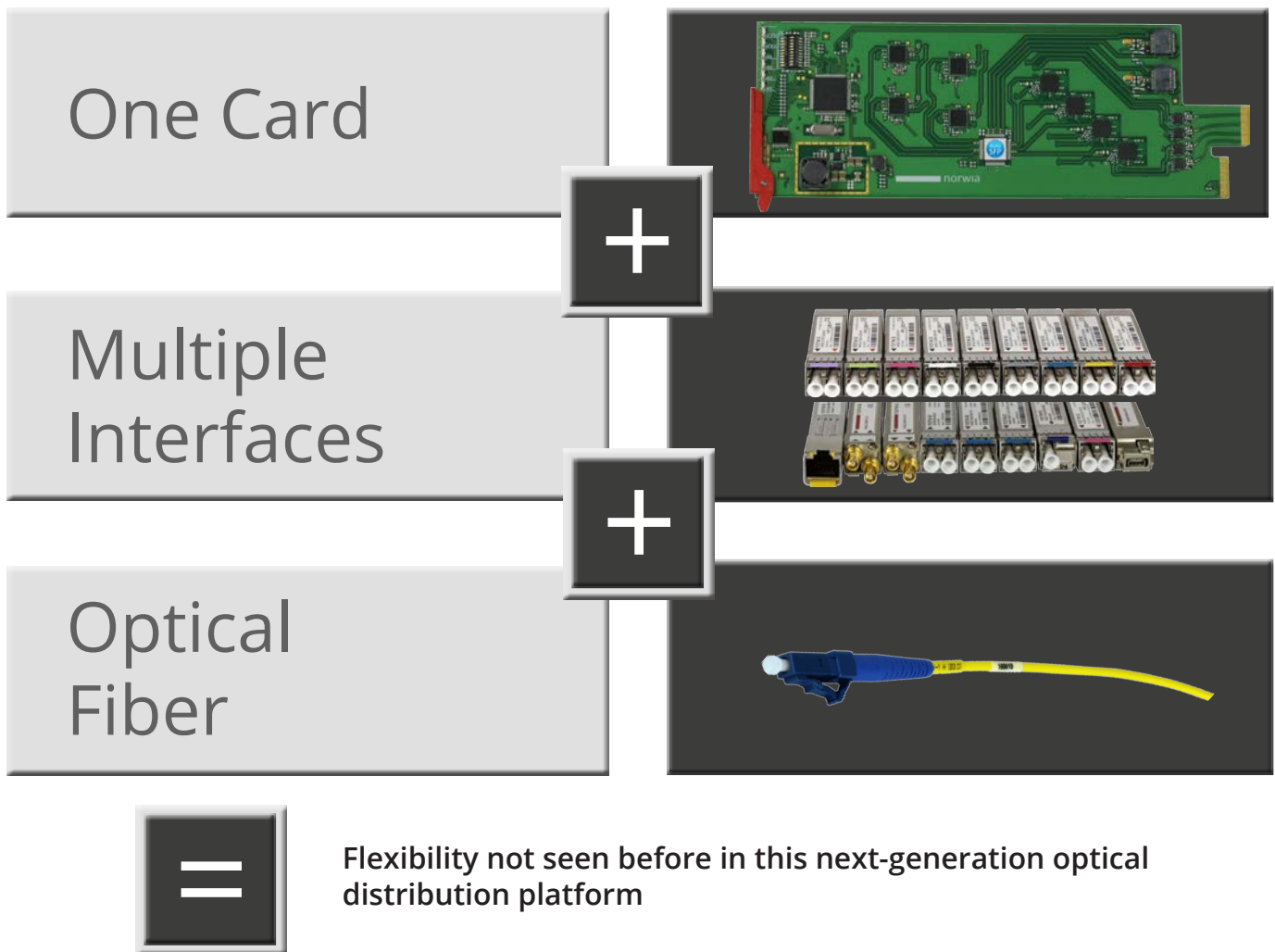
Utah Scientific's exclusive AutoSFP® technology is built into the core fabric of the UTAH-100/XFD, adding industry-leading versatility and flexibility. The AutoSFP technology is integrated into the Utah Scientific Optical Interface card hardware and software, and leverages the full range of SFPs to offer an immensely powerful platform for system design. Plus, AutoSFP offers an intuitive, easy, and automatic way of setting the UTAH-100/XFD up for a particular operation. Unique to Utah Scientific, this innovation provides immense cost-savings and enables highly efficient fiber distribution workflows.



Take the example of the Optical Interface card (OC-4B-SDI).



With a simple SFP key, you can unlock any of more than 200 powerful combinations, insert a dual optical transmitter SFP for a two-channel transmission card, or swap in a dual-channel receiver and the AutoSFP technology will automatically set up the Optical Interface card as a dual-channel optical receiver. It's that simple.



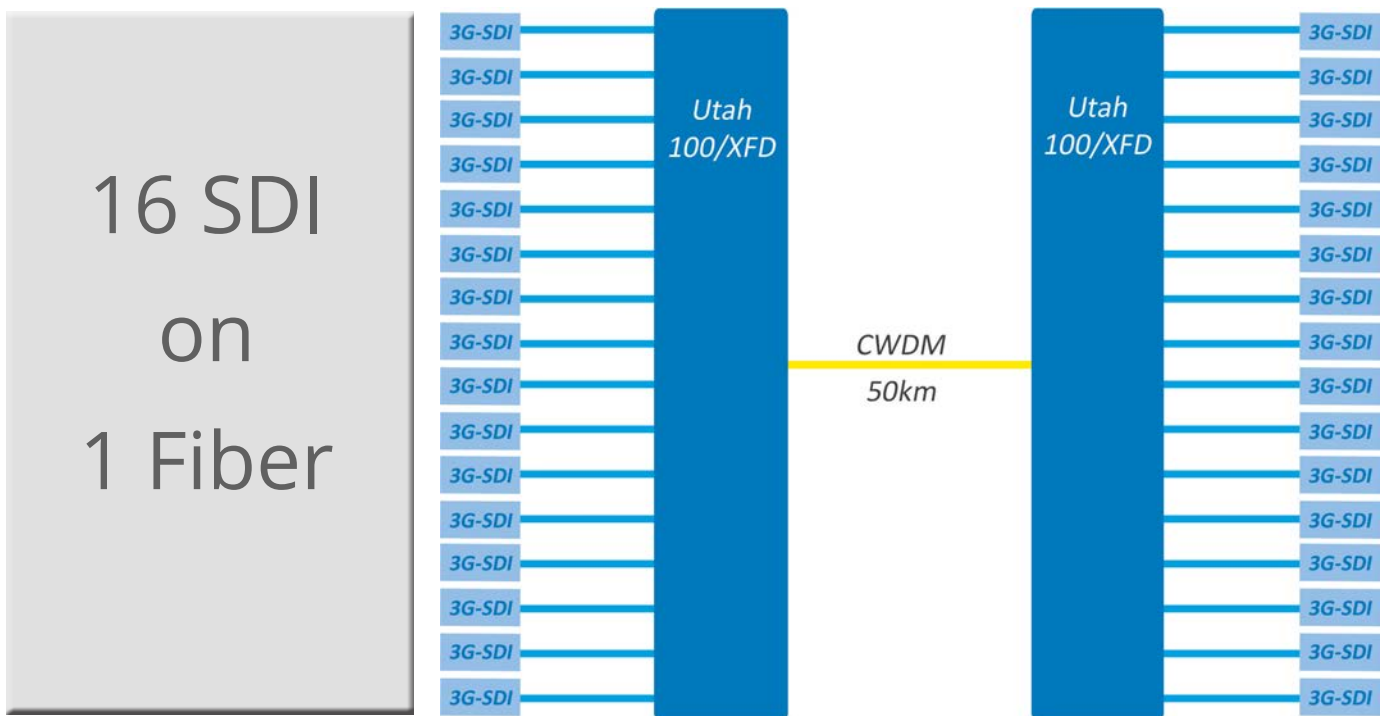
## Massive Signal Distribution

The UTAH-100/XFD offers the best density in today's market for frame- and card-based systems. Compared to other 2-RU systems, the UTAH-100/XFD can provide 32 reclocked, point-to-point 3G-SDI signals – all in a single rack unit. And compared to other compact systems, the UTAH-100/XFD offers the tremendous benefit of supporting mixed signal formats in an easy-to-maintain system. Add in Utah Scientific's exclusive AutoSFP technology, and you've got a flexible and easy way to distribute and redistribute signals to change signal direction in a matter of seconds.

## Multiple-Format CWDM Signal Distribution

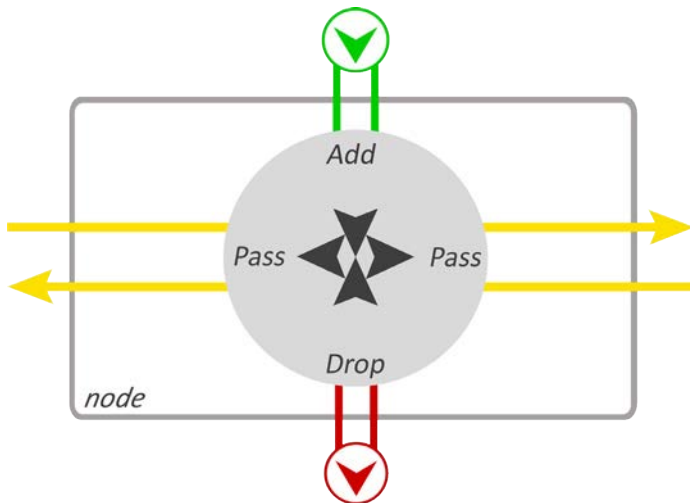
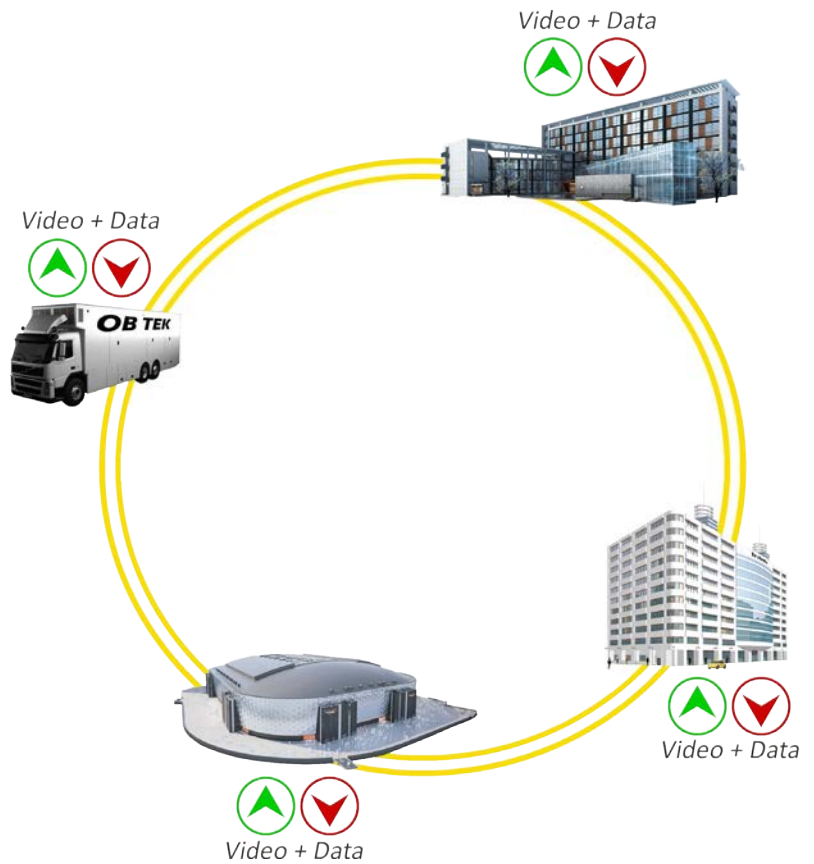
Course Wave Division Multiplexing (CWDM) offers a viable and less-costly alternative to fiber, especially in situations with low fiber counts that require additional signal density, or when the distance to be spanned is too great. With the ability to support up to 16 CWDM channels and deliver bit-for-bit quality for uncompressed signals with virtually zero latency, Utah Scientific's UTAH-100/XFD is the most cost-effective frame-based system for CWDM on the market today.

The UTAH-100/XFD can be easily adapted to support different signal formats without removing the main optical cards (but the cards can be easily removed from the front of the unit for maintenance). You can change the signal configuration on the fly simply by swapping the SFP types and letting the AutoSFP technology reconfigure the signal automatically. There are many configurations that are possible with AutoSFP, protecting your investment and helping your organization scale cost-effectively.



## Effortless Fiber Rings

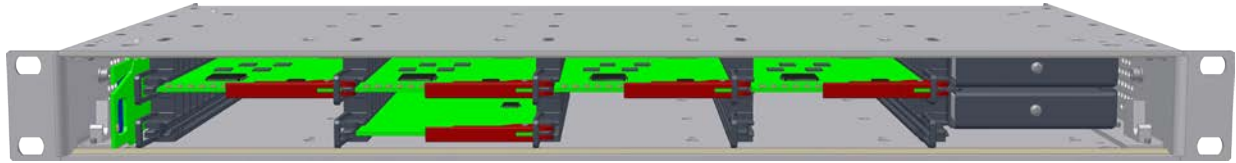
Using the Utah Scientific UTAH-100/XFD platform, you can design and implement ring-based networks with add, drop, and pass circuits for more complex applications such as metro ring systems, inter-building networks, stadiums, and outside broadcast. These optical ring structures can be designed to provide optical redundancy on two fibers (also known as east/west redundancy) and incorporate CWDM structures to minimize fiber and installation costs. You can use the system's optical changeover function to manage the network easily in case of fiber breakage. Any amount of fiber circuits can be used but most common is a fiber pair.



The Add/Drop/Pass function is a standard feature of the Optical Interface card (OC-4B-SDI). The UTAH-100/XFD node will allow you to add or drop signals coming from another node in the ring, and you can also decide to simply pass the signal through a node as required. The same UTAH-100/XFD optical distribution system is also ideal for remote production and streamlining of cable systems for cameras.

## The Utah Scientific Optical Interface Card (OC-4B-SDI)

Utah Scientific's Optical Interface card is the industry's most versatile card for fiber optical distribution, supporting everything from point-to-point links to multiple links for optical distribution, optical transponding, add/drop networking, Ethernet, RS422, GPIOs, and optical/electrical changeover.



The Optical Interface card is a truly innovative multipurpose tool for any outside-venue broadcaster, fiber network operator, or broadcast production station. In seconds, you can use the AutoSFP functionality to configure the Optical Interface card for new applications. In a single card, you can configure more than 200 combinations, each of which can be easily adapted in the field.

### Exclusive Card Locking System

Utah Scientific's Click & Go card locking gives you peace of mind that your signal path will not be interrupted by cards accidentally slipping during transportation or coming loose over time. You'll know the card is securely positioned when you hear the single "click."

### Web and Data Interface

Utah Scientific's RCONmini is the web and data interface for the UTAH-100/XFD system. RCONmini is included with the UTAH-100/XFD frame and provides a robust control and monitoring platform independent of the Optical Interface card's operations. Software upgrades are also free.



### SNMP Support

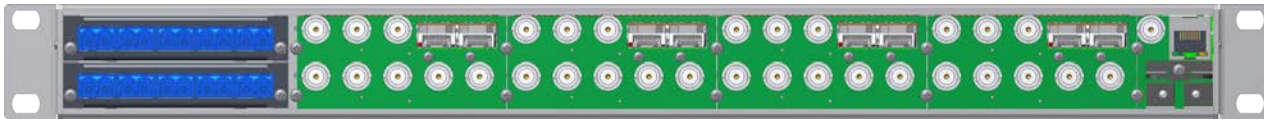
The UTAH-100/XFD platform is SNMP-enabled via the RCONmini. SNMP comes as an integrated function in all UTAH-100/XFD frames and is also available for users that have existing systems. A simple, no-cost upgrade is available on RCONmini.

### Expansion Slot for RS422/GPIOs

The UTAH-100/XFD has a single expansion slot for special applications, located under Card 2 in the sub-rack. The expansion slot is a unique way of interfacing signals onto a fiber connection. For example, you can insert the EX-8B-422 card to provide double RS422 and add eight GPIOs or eight GPOs to the Optical Interface card (OC-4B-SDI) installed in the upper card slot. The EX-8B-422 card can be also optioned for TCIP transfers through the RCONmini for GPIO connections.

## Optical Changeover

The Optical Changeover card is available in three options — 2 x 1, 2 x 2, and 2 x 1 with optical signal-level detection. The changeover card can be used for redundancy in CWDM systems or for protecting fiber circuits in bypass mode.



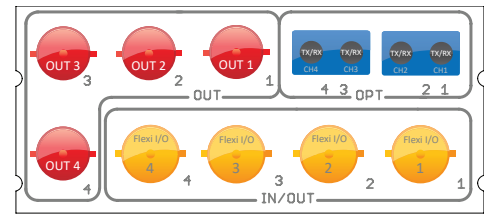
## Optical Passive Modules

The UTAH-100/XFD 1-RU 4-2 frame includes options for two optical passive modules — extending the possibilities of the platform even further by giving users the ability to add multiple four-channel CWDM filters, two eight-channel CWDM modules, or an 18-channel filter. Options are also available for up to 40 dense wavelength division multiplexing (DWDM) channels.

You can install other passive optical products, such as WDM and optical splitters, to bring even more flexibility to the UTAH-100/XFD platform. You can change your point-to-point UTAH-100/XFD fiber system into a CWDM system by adding CWDM SFPs and a CWDM multiplexer, while preserving the rest of your investment. You can choose between four-channel and 8/16/18-channel CWDM systems or change up to DWDM.

In addition to the standard range of CWDM filters, the UTAH-100/XFD ultra-low loss multiplexers are perfect for extended-distance applications or high-loss fiber circuits.

Utah Scientific provides a full suite of multiplexers including an 18-channel version and a multimode version for specialized applications.



## A Range of Power Options

A robust power supply solution has been designed into the UTAH-100/XFD system to bring ultimate flexibility, stability, and reliability to critical fiber networks. All UTAH-100/XFD systems include a single external supply with the option of a second supply. One supply is enough for a fully populated frame to operate while still running at 70 percent of its capacity.

Two supply inputs are accessible from the rear of the unit with each input totally independent in the event of a short circuit. Utah Scientific offers a full range of power units from +12Vdc to +24Vdc, enabling users to choose the power plan that meets their specific requirements — whether it's a DC battery supply or a common plant DC supply. Utah Scientific also offers an optional rack-mountable frame to house external power supplies.

A cable retention bracket comes standard with the UTAH-100/XFD to ensure that the power cable is not disconnected accidentally during operation. An LED light on the front of the UTAH-100/XFD sub-rack indicates single- or dual-supply operation.

## The Utah Scientific SFP Family

Utah Scientific offers a wide range of SFPs at various performance and pricing levels, so you can choose the best possible solution for your critical applications. All Utah Scientific SFPs come standard with Utah Scientific's exclusive AutoSFP technology built in.

Every Utah Scientific SFP has undergone extensive testing and has passed a rigorous quality control process, including measurement and documentation of testing procedures, to ensure the highest-possible quality.



**HDMI INPUT**

**NV30-HDMI-IN**

**HDMI OUTPUT**

**NV30-HDMI-OUT**

Application: HDMI Input SFP that enables encoding onto optical fiber for distribution via a fiber circuit. The HDMI output SFP can be paired with a cost-effective, high-definition PC monitor and used for proof monitoring, or it can send HDMI-formatted signals via a fiber circuit.



**ANALOG VIDEO INPUT**

**NV03-COMP-2-IN**

**ANALOG VIDEO OUTPUT**

**NV03-COMP-2-OUT**

Application: The Analog Video Input SFP is a dual SD-SDI-to-analog composite video converter for delivering analog output from a fiber circuit. The Analog Video Output SFP is a dual composite video-to-SD-SDI converter for distribution of analog video over a fiber circuit. Supported analog standards include NTSC M, NTSC J, NTSC 4.43, PAL B/G/H/I/D, PAL M, PAL N, PAL 60.



**GIGABIT ETHERNET**

**ND12-GBE1000**

Application: Gigabit Ethernet distribution over optical fiber. When paired with an optical transceiver, this SFP enables distribution over one fiber using the BiDi SFP or two separate fibers using a transceiver.



**MADI OPTICAL**

**ND01-T1300-R30-MM**

Application: Conversion between multimode optical MADI sources to incorporate them into the correct level matching for inclusion in a single-mode fiber system or for frequency shifting to a CWDM system.



**BiDi OPTICAL****ND12-T1310-R20-BiDi**

Application: Built-in WDM filter that allows for Gigabit Ethernet distribution over one fiber. This SFP can be paired with ND12-T1550-R20-BiDi for WDM operation.

**DUAL OPTICAL RECEIVER****NV30-R20-R20**

Application: A dual-optical SFP for receiving two channels from a point-to-point or CWDM system. (The CWDM application requires CWDM TX SFPs and multiplexers). This SFP is also available in a single-channel version.

**DUAL OPTICAL TRANSMITTER****NV30-T1310-T1310-10**

Application: Dual TX SFP for point-to-point optical systems. Also available in a single-channel version.

**OPTICAL TRANSCEIVER****NV30-T1310-R20-10**

Application: Two-channel SFP including TX and RX optical functions in a single package. Ideal for bidirectional distribution.

**CWDM DUAL OPTICAL TRANSMITTER****NV30-CXXXX-CXXXX-40**

Application: Dual CWDM TX SFP for CWDM-based optical systems. Ideal for point-to-point systems, this SFP is available in nine different pairs of frequencies.

**CWDM TRANSCEIVER****NV30-CXXXX-R20**

Application: ATX/RX SFP for CWDM-based optical systems. This SFP can be used for point-to-point systems and is available in 18 different frequencies.

**DWDM TRANSCEIVER****NV30-DXX-R27-40**

Application: DWDM TX/RX SFP for DWDM-based optical systems. This SFP can be used for point-to-point systems and is available in 40 different frequencies.

**SMPTE 2022-6 (Coaxial)****S61X-COAX-X**

Application: Direct conversion of SDI to SMPTE 2022-6, available in 1 or 2 channel device with as an encoder or decoder SFP. Host can be coupled with appropriate 10G Ethernet SFP via the XFD platform.



#### SMPTE 222-6 (Optical)

S61X-T850-X-MM

Application: Encoding or decoding via the XFD platform to a 10G optical interface. 1 or 2 channel encoder or decoder available.



#### 12G-SDI (Coaxial)

NV120-COAX-X

Application: Dual channel SDI conversion via SFP interface to host that can be coupled to an optical 12G SFP.



#### 12G-SDI (Optical)

NV120-T1310-T1310-5 NV120-R15-R15

Application: Dual channel Optical receiver or transmitter for 12G-SDI transport on Optical fiber. Coupled with 12G-SDI (Coaxial) SFP above.

### Other Specialized SFPs

Utah Scientific also provides specialized SFPs on a project application basis. RS422, GPOs, and GPIs are also available for interface onto optical distribution via the EX-88-422 card.

## Optical Passive Options

For point-to-point applications, the UTAH-100/XFD can be upgraded simply replacing the transmitter SFPs with CWDM or DWDM SFPs and adding the appropriate multiplexer. This capability is found nowhere else in the optical distribution market, and it's one more example of the UTAH-100/XFD's extreme ease of use and flexible format features – making it the ideal platform for all advanced installations.

Options are also available for up to 40 dense wavelength division multiplexing (DWDM) channels. You can choose between four-channel and 8/16/18-channel CWDM systems or change up to DWDM.

Simplify with easier  
cable installation

Multiple uncompressed  
signals on 1 fiber

Using fiber reduces  
production cost



WDM 2 CHANNEL

WDM-2-1310-1550-1

Application: Combines two signals onto one fiber and doubles the usability of your fiber system. The WDM 2 channel is provided in a one-filter package, but also is available with two or three filters per package.



CWDM 4 CHANNEL

CWDM-4E-1550-1610

Application: Combines four channels onto one fiber for smaller, multiplexed applications. All CWDM filters are supplied in matched pairs. The four-channel CWDM filter includes an Express port for expansion to 12 channels via an eight-channel filter.



CWDM 8 CHANNEL

CWDM-8E-1470-1610

Application: Combines eight channels onto one fiber with ability to expand to 16 channels via the express port. This module can also be used to combine eight optical signals onto one fiber with the addition of the 1310 Express port for connecting to legacy fiber systems. This module is also available in a multimode version. All CWDM filters are supplied in matched pairs.



CWDM 16 CHANNEL

CWDM-8E-1470-1610

CWDM-8E-1270-1410

Application: Combines 16 optical signals onto one fiber with two modules via the Express port.



**CWDM 8 CHANNEL ULTRA-LOW-LOSS      CWDM-8ULE-1470-1610**

Application: Combines eight optical signals onto one fiber. This multiplexer is a high-quality, low-loss filter that can be used when extra reach is required. This module can also be used to combine eight optical signals onto one fiber with the addition of a 1310 Express port for connecting to legacy fiber system; in other words, another filter block of different frequencies can be added to increase the channel count.



**CWDM 16 CHANNEL ULTRA-LOW-LOSS      CWDM-8ULE-1470-1610  
CWDM-8ULE-1270-1410**

Application: Combines 16 optical signals onto one fiber with two modules via the Express port when extra reach is required.



**CWDM 18 CHANNEL      CWDM-18-1270-1610**

Application: Combines 18 optical signals onto one fiber to deliver maximum channel count for CWDM systems.



**DWDM 8 CHANNEL      DWDM-8-CH20-CH59**

Application: Combines eight optical signals onto one fiber with the Express port, with the ability to add more modules to support up to 40 channels on one fiber.



**DWDM 40 CHANNEL      DWDM-40-A/B-CH20-CH59**

Application: Combines 40 optical signals onto one fiber to deliver maximum channel count for DWDM systems. Separate 1-RU chassis supplied.



**OPTICAL SPLITTER (TWO-WAY AND FOUR-WAY)      OS-2-50-3 and OS-4-25-2**

Application: The OS-2-50-3 splits an optical signal in two directions (package includes 3 x 2-way splitters) and the OS-4-25-2 splits a signal in four directions (package includes 2 x 4-way splitters).



**FIBER PATCH CABLES**

Application: A high-quality, class C2 fiber patch cable kit for CWDM systems that conforms to IEC 61655-1 classification.

## Frame and Power Options

With flexibility designed into the UTAH-100/XFD, Utah Scientific offers a range of frame and power options that are designed to suit the needs of today's most mission-critical broadcast and telecommunications applications. All frames can be powered redundantly and independently to allow for fault-proof operation and easy change-out. The UTAH-100/XFD can be powered via solutions ranging from battery and third-party systems to Utah Scientific's own robust power offerings.

### A Frame for Every Requirement

#### **UTAH-100/XFD**

#### **UTAH-100/XFD-1RU-4-2**

This UTAH-100/XFD frame can mount four Optical Interface cards (OC-4B-SDI) and two passive modules, and also offers one expansion card slot. Dual power inputs deliver power from a wide range of +12Vdc to +24Vdc solutions. The frame includes Utah Scientific's RCONmini for control, upgrade, and SNMP functions.

#### **UTAH-100/XFD Extended Temperature**    **UTAH-100/XFD-1RU-4-2**

This UTAH-100/XFD frame provides guaranteed operation for point-to-point applications in extreme temperatures ranging from -40°F to +149°F. This temperature range is consistent with industry specifications for telecommunications companies with outside operations. The Extended Temperature frame can mount four Optical Interface cards (OC-4B-SDI) and two passive modules, and also offers one expansion card slot. Dual power inputs deliver power from a wide range of +12Vdc to +24Vdc on each input. The frame includes Utah Scientific's RCONmini for control, upgrade, and SNMP functions. This frame also includes anti-corrosion protection for extreme environments and conforms to ATIS-0600010.01.2008 specifications.

#### **UTAH-100/XFD Compact**

#### **UTAH-100/XFD-1RU-2-0**

The UTAH-100/XFD Compact is designed and built for "re-engineered" applications, and fits perfectly in a travel case. The UTAH-100/XFD Compact can mount up to two Optical Interface cards (OC-4B-SDI), and the frame includes the RCONmini for control, upgrade, and SNMP functions.

#### **Passive**

#### **UTAH-100/XFD-1RU-0-10**

The UTAH-100/XFD Passive rack-mount unit is designed for mounting a large amount of WDM/CWDM and two- or four-way splitters in a compact space. The frame includes 10 passive slots.

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## Flexible Power Options

### 24Vdc External Power Supply (10653)

Designed specifically for the UTAH-100/XFD, this professional-grade 24Vdc power supply includes a 90-264V AC input with 60W capacity for use in applications worldwide. The power supply offers a mean time before failure (MTBF) of 200,000 hours and is certified to all relevant specifications.

### 1-RU Power Sub-Rack

Utah Scientific's sturdy 1-RU power supply frame houses up to six 10653 24Vdc external power supplies, with mechanisms for clamping of DC and AC power cables. An optical LED indicator on the front of the frame shows the status of each power supply.

### Other Power Options

Because the UTAH-100/XFD frame is designed with standard and redundant 24V inputs, you can choose from a wide range of third-party external power options. Information about these is available from the Utah Scientific sales team.

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Utah Scientific has many years of experience with optical fiber distribution systems, and our solution architects are available free of charge to show you how the innovative UTAH-100/XFD can solve your fiber distribution challenges with next-generation technologies such as AutoSFP.

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Specifications are subject to change without notice

**Warranty**  
10-year limited warranty, 24/7 service

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