

Substation Industrial Switch

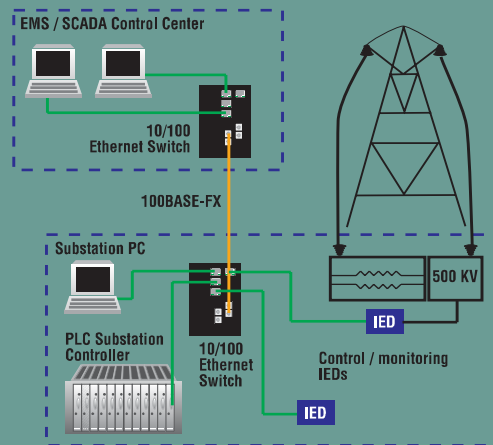


SIBTF10xx-1xx-Mx

NEW



Extend Network Distance in Substation



Transition Networks's Substation Industrial Switches are hardened devices designed to reliably operate in harsh substation environments or other hazardous environments (Class 1, Div. 2). The switches are IEEE1613 compliant and offer many, industry first features such as a Lifetime Warranty, Automatic Link Restoration, Far-End Fault, Pause and the widest selection of fiber optic ports and distances.

A wide voltage input range accommodates both AC and DC voltage inputs and the extended operating temperature range of -40°C to +75°C with no fans, offers flexibility in the mounting environment with the utmost in reliability. For mission critical applications, a dual fiber port version is offered that can be used in a redundant fiber ring or multiple path configurations.

Features

- ▶ IEEE 1613 compliant
- ▶ AutoCross™ (see next pages)
- ▶ Auto-Negotiation (see next pages)
- ▶ Link Pass Through (-110 model) (see next pages)
- ▶ Far End Fault (see next pages)
- ▶ Pause (see next pages)
- ▶ Automatic Link Restoration (see next pages)
- ▶ Redundant Fiber Ports (-130 model)
- ▶ Dry Contact Relays
- ▶ DIN-Rail, Rack or Wall Mounted
- ▶ Single or Redundant 48 – 170 VDC Power Inputs
- ▶ -40°C to 75°C operating temp
- ▶ Hazardous Location Rated (Class 1, Div. 2/Zone2)

Eliminate EMI and RFI issues or overcome distance limitations with copper based cabling by using the Industrial Switch to convert your copper based equipment over to fiber optics. The

switch can connect to either 10BASE-T or 100BASE-TX ports and provides a 100BASE-FX fiber optic connection for links up to 20km in both duplex and single fiber configurations.

Specifications

See next page for complete fiber optic connector specs.

Standards	IEEE Std. 802.3™, 802.3u™, 802.3x™, 802.3p™
Status LEDs	PRI P.G. (Power): ON = primary power connected AUX P.G. (Power): ON = auxillary power connected FAULT: ON = unit failed to initialize correctly 100M: ON = Link on fiber 100Mb/s; FLASHING = data transmitting 10M: ON = Link on copper 10Mb/s; FLASHING = data transmitting
Switches	Switch 1: Auto-Negotiation on/off Switch 2: Force 10Mb or 100Mb (copper) Switch 3: Full/Half duplex (copper) Switch 4: Full/Half duplex Switch 5: Full/Half duplex (fiber port 5, if present) Switch 6: Link Pass Through on/off (-110 models only) Switch 7: Fiber Redundancy on/off (-130 models only) Switch 8: AutoCross™ On/Off
Dimensions (-110 models)	Width: 3.38" [86 mm] Depth: 5.0" [127 mm] Height: 6.0" [152 mm]
Dimensions (-130 & -140 models)	Width: 4.13" [105 mm] Depth: 5.0" [127 mm] Height: 6.0" [152 mm]
Ingress Protection	IP 30
Input Power	48 to 170 VDC; 15W max., single or redundant inputs
Environment	-40 to +75°C operating temp; -40 to +85°C storage temp; 5% – 95% humidity non-condensing; 0 – 10,000 ft. altitude
Shipping Weight	4 lbs. [1.86 kg]
Compliance	UL/C-UL1604 Class 1, Div 2, Groups A, B, C, D; UL 60950; UL508; CSA C22.2 no 60950; CISPR22/EN55022; EN60950 Class A; FCC Class A; CE Mark; IEC 61000-4; IEC 61850-3; IEEE1613; NEMA TS-2
Warranty	Lifetime

See product manual for latest EMS and Environmental test ratings.

Ordering Info

See next page for complete fiber optic connector specs.

SIBTF1011-110-MS (single power input)
SIBTF1011-110-MR (dual power inputs)
(1) 10/100BASE-TX (RJ-45)
[100 m/328 ft.]
to (1) 100BASE-FX 1300nm MM (ST)
[2 km/1.2 mi.] Link Budget: 11.0 dB

SIBTF1011-130-MS (single power input)
SIBTF1011-130-MR (dual power inputs)
(3) 10/100BASE-TX (RJ-45)
[100 m/328 ft.]
to (2) 100BASE-FX 1300nm MM (ST)
[2 km/1.2 mi.] Link Budget: 11.0 dB

SIBTF1011-140-MS (single power input)
SIBTF1011-140-MR (dual power inputs)
(4) 10/100BASE-TX (RJ-45)
[100 m/328 ft.]
to (1) 100BASE-FX 1300nm MM (ST)
[2 km/1.2 mi.] Link Budget: 11.0 dB

SIBTF1013-110-MS (single power input)
SIBTF1013-110-MR (dual power inputs)
(1) 10/100BASE-TX (RJ-45)
[100 m/328 ft.]
to (1) 100BASE-FX 1300nm MM (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB

SIBTF1013-130-MS (single power input)
SIBTF1013-130-MR (dual power inputs)
(3) 10/100BASE-TX (RJ-45)
[100 m/328 ft.]
to (2) 100BASE-FX 1300nm MM (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB

SIBTF1013-140-MS (single power input)
SIBTF1013-140-MR (dual power inputs)
(4) 10/100BASE-TX (RJ-45)
[100 m/328 ft.]
to (1) 100BASE-FX 1300nm MM (SC)
[2 km/1.2 mi.] Link Budget: 11.0 dB

SIBTF1014-110-MS (single power input)
SIBTF1014-110-MR (dual power inputs)
(1) 10/100BASE-TX (RJ-45)
[100 m/328 ft.]
to (1) 100BASE-FX 1310nm SM (SC)
[20 km/12.4 mi.] Link Budget: 16.0 dB

SIBTF1014-130-MS (single power input)
SIBTF1014-130-MR (dual power inputs)
(3) 10/100BASE-TX (RJ-45)
[100 m/328 ft.]
to (2) 100BASE-FX 1310nm SM (SC)
[20 km/12.4 mi.] Link Budget: 16.0 dB

SIBTF1014-140-MS (single power input)
SIBTF1014-140-MR (dual power inputs)
(4) 10/100BASE-TX (RJ-45)
[100 m/328 ft.]
to (1) 100BASE-FX 1310nm SM (SC)
[20 km/12.4 mi.] Link Budget: 16.0 dB



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Fiber Optic Connector Specs

Product SKU	Min TX PWR	Max TX PWR	RX Sensitivity	Max In PWR	Link Budget
SIBTF1011-110-Mx	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SIBTF1011-130-Mx	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SIBTF1011-140-Mx	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SIBTF1013-110-Mx	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SIBTF1013-130-Mx	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SIBTF1013-140-Mx	-19.0 dBm	-14.0 dBm	-30.0 dBm	-14.0 dBm	11.0 dB
SIBTF1014-110-Mx	-15.0 dBm	-8.0 dBm	-31.0 dBm	-8.0 dBm	16.0 dB
SIBTF1014-130-Mx	-15.0 dBm	-8.0 dBm	-31.0 dBm	-8.0 dBm	16.0 dB
SIBTF1014-140-Mx	-15.0 dBm	-8.0 dBm	-31.0 dBm	-8.0 dBm	16.0 dB

Advanced Product Features



▶ Auto-Negotiation (802.3u)

Auto-Negotiation allows devices to perform automatic configuration to achieve the best possible mode of operation over a link. Devices with this feature will broadcast their speed (10Mbps, 100Mbps, etc.) and duplex (half/full) capabilities to other devices and negotiate the best mode of operation between the two devices.

- ▶ No user intervention required to determine best mode of operation
- ▶ Optimal link established automatically
- ▶ Quick and easy installation

While the inclusion of this feature is beneficial, the ability to disable it is equally beneficial. In the event of a non-negotiating end device trying to connect to a negotiating device, the mode of operation will drop to the least common denominator between the two devices (i.e. 100Mbps, half-duplex). Disabling this feature gives the user the ability to force the connection to the best mode of operation when trying to link with a non-negotiating device. Most Transition converters with Auto-Negotiation will allow you to disable this feature.

▶ AutoCross™

Automatically detects and configures the twisted pair port on the converter to the correct MDI or MDI-X configuration.

- ▶ Eliminates an entire category of troubleshooting
- ▶ No need to identify cable type—straight-through or crossover
- ▶ No user intervention required to determine correct button / switch settings

If someone tells you media conversion is a commodity product that anyone can bring to market, they probably haven't looked at the extensive product suite offered by Transition Networks. With the industry's most comprehensive offering of full-featured products, Transition's media converters stand out as "the choice" among industry IT professionals.

Generally, media converters are low-level OSI model devices with no IP or MAC addresses and therefore are transparent to the network. This "transparency" makes them very inexpensive and easy to use, but also can make troubleshooting the network very difficult. In an effort to overcome this difficulty and to make media converters "visible" to network managers, Transition has designed their full-featured products to include the most advanced features on the market today.



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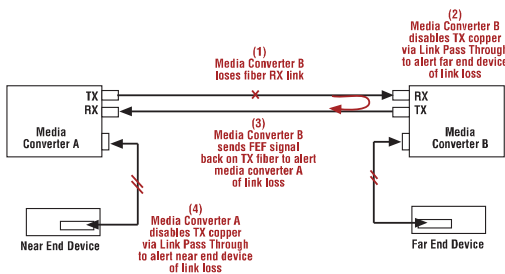


► Far End Fault (802.3u)

Far End Fault (FEF) is a troubleshooting feature that is generally used in conjunction with Link Pass Through to notify both end devices of a loss of link. In the event of a loss of the fiber RX signal on the far end converter the converter will automatically generate a Far End Fault signal and send it on its TX fiber port to notify the near end converter of a fiber link loss. Link Pass Through will then disable the copper links on both ends; alerting both end devices of network trouble (see diagram below).

- Both end devices automatically notified of link loss
- Prevents loss of valuable data unknowingly transmitted over invalid link
- Allows for quick diagnosis and resolution of network problems

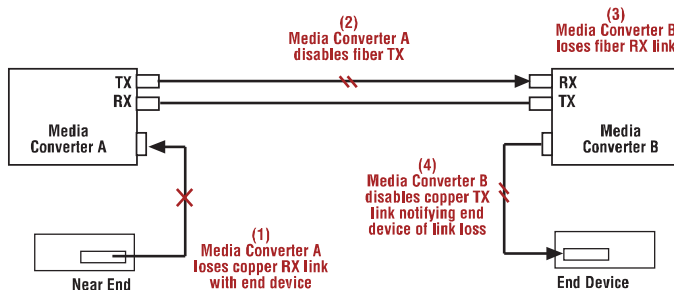
Transition Networks's media converters that include the FEF feature do not need to be used as pictured above as they will work with other network devices that support Far End Fault per IEEE standards.



► Link Pass Through

Link Pass Through is a troubleshooting feature that prevents media converters from isolating link failures and it allows end devices to be notified in the event of a loss of link. Link Pass Through provides the media converter with the ability to monitor both the fiber and the copper RX ports for a loss of signal. If a loss of RX signal occurs on one media port, the converter will automatically disable the TX signal on the other port. By shutting down the fiber TX port, the link failure is "passed through" to the remote converter and device (see diagram below).

- End device automatically notified of link loss
- Prevents loss of valuable data unknowingly transmitted over an invalid link



► Pause (IEEE 802.3xy)

PAUSE signaling is an IEEE feature that temporarily suspends data transmission between two devices in the event that one of the devices becomes overwhelmed. In the event that a device needs some time to clear network congestion, it will send out a PAUSE signal to the other end device, which will then wait a pre-determined amount of time before re-transmitting the data. Transition's converters will pass PAUSE signaling unhindered; ensuring that the message is delivered to the end device.

- PAUSE enabled devices allowed to work properly
- Prevents loss of valuable data transmission
- Reduces bottlenecks and allows for efficient use of network devices

PAUSE signaling is not standardized over fiber media. Transition's media converters will communicate this signaling over fiber between the converters to pass this signaling on to the other end device.



► Automatic Link Restoration

Transition Networks's converters will automatically re-establish link in all network conditions.

- No need to reset devices

Transition Networks's converters will automatically re-establish link when connected to switches if link was lost. With other manufacturers' converters the user must reset the converter to re-establish the link.

- Auto-Negotiation Enabled

Automatic Link Restoration allows the users to continue using Auto-Negotiation with Link Loss Notification features. With other manufacturers' converters the user must disable Auto-Negotiation and hard set the link.

- Link Pass Through Activated in both directions

Automatic Link Restoration on Transition Networks's products allows users to continue using Link Loss Notification feature activated in both directions. Many competitive solutions allow for Link Loss Notification activation only in one direction. If Link Loss feature is activated in both directions, competitive products are put in a "deadly embrace" and they cannot restore the link without resetting the converters.

