interlogix
A UTC Fire & Security Company

IFS SFP Tranceivers
User Manual

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Manufacturer	UTC Fire & Security Americas Corporation, Inc. 2955 Red Hill Avenue, Costa Mesa, CA 92626-5923, USA
	Authorized EU manufacturing representative: UTC Fire & Security B.V. Kelvinstraat 7, 6003 DH Weert, Netherlands
Version	This document applies to IFS SFP Tranceivers version 00.20.
Certification	CE N4131
FCC compliance	**Class B:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
	There is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

European Union directives	**2004/108/EC (EMC directive)**: Hereby, UTC Fire & Security declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 2004/108/EC
	2002/96/EC (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info.
Contact information	www.utcfireandsecurity.com or www.interlogix.com
Customer support	www.interlogix.com/customer-support

Safety Notices

The fiber optic SFP transceiver modules are equipped with a Class 1 laser, which emits invisible radiation. Read the following safety warnings carefully.

Note	**Class 1 Laser Product** **Complies with FDA Regulation 21 CFR 1040.10 and 1040.11**

WARNING	**Class 1 radiation is present when the device or system is powered up. Do not look directly into a laser aperture, as prolonged exposure may cause eye damage.**

WARNING	**Only trained and qualified personnel should be allowed to install or replace these SFP modules**

Content

Overview

Thank you for purchasing an IFS SFP transceiver. The IFS SFP transceiver can be installed into any IFS network equipment with a 100Base-FX or 1000Base-SX/LX mini-GBIC interface. This user guide provides an overview of the various IFS SFPs (also known as mini-GBIC) transceiver modules available from Interlogix. This user guide also provides instructions for installing, connecting and removing these transceivers. These SFP transceiver modules are hot-pluggable, which means you can insert and remove these modules into any IFS network equipment with a mini-GBIC port without interrupting the host system. The IFS SFP line also features a selection of environmentally hardened SFPs designed for operating in environments from -40~75 degrees Celsius.

Checklist

The SFP package should contain the following items:

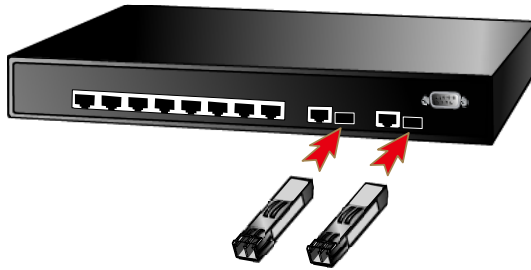- The SFP Transceiver Module x1
- This User Manual x1

If any items are missing or damaged, please consult Interlogix or the dealer/distributor from whom you purchased your SFP transceiver module.

Installing an IFS SFP Module

This section describes how to insert an IFS SFP transceiver into a mini-GBIC slot.

The IFS SFP transceivers are hot-pluggable and hot-swappable. You can insert and remove an IFS SFP transceiver in any IFS network equipment with a mini-GBIC port without having to power down the switch or media converter. As shown in Figure 1.

Figure 1: Inserting an IFS SFP tranceiver

Install the IFS SFP into an IFS network switch or media converter before connecting a cable coming from another switch, workstation or media converter.

1. Make sure both pieces of network equipment that you are connecting together are using the same media type SFP. For example: 100Base-FX to 100Base-FX or 1000Base-SX to 1000Base-SX.

2. Check to make sure that the fiber-optic cable type matches the SFP transceiver model.

   • S20 Series and S25 Series optics operate with multimode OM1, OM2 or OM3 fiber. LC type fiber connectors are required.

   • S30 Series and S35 Series optics operate with single mode fiber. LC type fiber connectors are required.
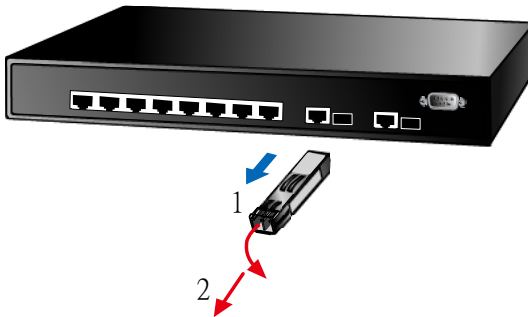
Connecting the fiber cable

1. Insert the duplex LC connector from the network fiber cable into the SFP transceiver.

2. Connect the other end of the cable to a device – i.e. switches with an SFP installed, fiber NIC on a workstation or a Media Converter.

3. Check the LNK/ACT LED of the SFP slot of the switch / converter. Ensure that the SFP transceiver is operating correctly.

4. Check the link mode of the SFP port to see if there is any link failure. With some fiber-NICs or Media Converters, setting the link mode to **"1000 Force"** or **"100 Force"** may be needed for proper operation.

Removing the SFP transceiver

1. Make sure there is no network activity by consulting with a network administrator before removing the SFP or use the switch or media converters management interface (if available) to disable the port in advance.

2. Gently remove the fiber optic cable connector.

3. Flip the wire handle of the SFP module out to a horizontal position.

4. Pull out the SFP module gently out of the mini-GIBIC slot with the wire handle.

Figure 2: Pull out the SFP transceiver

Caution: Never pull out the SFP transceiver module without using the pull handle or the push bolts on the module. Directly pulling out the SFP module with force could damage the SFP module and mini-GIBIC slot of the network device.

SFP Specifications

The IFS SFP transceivers are available in the following models.

Twisted Pair SFP	1000 Base TX	GigE	
Part #	Connector	Wire Type	Max Distance
S30-RJ	RJ 45	Cat 5e	100M (328 ft)

Fast Ethernet **100 Base FX**

Part #	Fiber Connector	# of Fibers	Fiber Type	Max Distance	Wave Length	Optical Budget (dBm)	Optical Power (dBm)	Receiver Sensitivitiy (dBm)	Operating Temperature
S20-2MLC2	LC	2	Multimode	2km (1.2mi)	1310nm	12	-20 ~ -14	-32	0 to + 50C (32 to 122F)
S25-2MLC2	LC	2	Multimode	2km (1.2mi)	1310nm	12	-20 ~ -14	-32	-40 to +75C (-40 to 167F)

Fast Ethernet **100 Base LX**

Part #	Fiber Connector	# of Fibers	Fiber Type	Max Distance	Wave Length	Optical Budget (dBm)	Optical Power (dBm)	Receiver Sensitivitiy (dBm)	Operating Temperature
S20-2SLC20	LC	2	Single Mode	20km (12mi)	1310nm	19	-15 ~ -8	-34	0 to + 50C (32 to 122F)
S25-2SLC20	LC	2	Single Mode	20km (12mi)	1310nm	19	-15 ~ -8	-34	-40 to +75C (-40 to 167F)

Fast Ethernet **100 Base BX**

Part #	Fiber Connector	# of Fibers	Fiber Type	Max Distance	Wave Length TX RX	Optical Budget (dBm)	Optical Power (dBm)	Receiver Sensitivitiy (dBm)	Operating Temperature
S20-1SLC/A-20	LC	1	Single Mode	20km (12mi)	1310/1550nm	18	-14 ~ -8	-32	0 to + 50C (32 to 122F)
S25-1SLC/B-20	LC	1	Single Mode	20km (12mi)	1550/1310nm	18	-14 ~ -8	-32	0 to + 50C (32 to 122F)

Gigabit Ethernet   1000 Base SX

Part #	Fiber Connector	# of Fibers	Fiber Type OM1 & OM2	Max Distance OM1/OM2	Wave Length	Optical Budget (dBm)	Optical Power (dBm)	Receiver Sensitivitiy (dBm)	Operating Temperature
S30-2MLC	LC	2	Multimode	220/550m (720/1800ft)	850nm	7.5	-9.5 ~ -1	-17	0 to + 50C (32 to 122F)
S35-2MLC	LC	2	Multimode	220/550m (720/1800ft)	850nm	7.5	-14 ~ -8	-17	-40 to +75C (-40 to 167F)

OM1 Multimode fiber @ 200/500MHz-km

OM2 Multimode fiber @ 500.500MHZ-km Laser Rated for GbE LANs

Gigabit Ethernet   1000 Base SX

Part #	Fiber Connector	# of Fibers	Fiber Type OM3	Max Distance OM3	Wave Length	Optical Budget (dBm)	Optical Power (dBm)	Receiver Sensitivitiy (dBm)	Operating Temperature
S30-2MLC-2	LC	2	Multimode	2km (1.2mi)	1310nm	10	-9 ~ -1	-19	0 to + 50C (32 to 122F)

OM3 Multimode fiber @ 2000/500MHz-km Optimized got 850nm VCSELs

Gigabit Ethernet   1000 Base LX

Part #	Fiber Connector	# of Fibers	Fiber Type	Max Distance	Wave Length	Optical Budget (dBm)	Optical Power (dBm)	Receiver Sensitivitiy (dBm)	Operating Temperature
S30-2SLC-10	LC	2	Single Mode	10km (6.2mi)	1310nm	18	-9.5 ~ -3	-20	0 to + 50C (32 to 122F)
S35-2SLC-10	LC	2	Single Mode	10km (6.2mi)	1310nm	18	-9.5 ~ -3	-20	-40 to +75C (-40 to 167F)
S30-2SLC-30	LC	2	Single Mode	30km (18.6mi)	1310nm	18	-2 ~ +3	-23	0 to + 50C (32 to 122F)
S35-2SLC-30	LC	2	Single Mode	30km (18.6mi)	1310nm	18	-2 ~ +3	-23	-40 to +75C (-40 to 167F)

Gigabit Ethernet 1000 Base ZX

Part #	Fiber Connector	# of Fibers	Fiber Type	Max Distance	Wave Length	Optical Budget (dBm)	Optical Power (dBm)	Receiver Sensitivitiy (dBm)	Operating Temperature
S30-2SLC-70	LC	2	Single Mode	70km (43mi)	1550nm	19*	-15 ~ -8	-34	0 to + 50C (32 to 122F)
S35-SLC-70	LC	2	Single Mode	70km (43mi)	1550nm	19*	-15 ~ -8	-34	-40 to +75C (-40 to 167F)

* Note: High Power Optic. There must be a minimum of 5dB of optical loss to the fiber for proper operation.

Gigabit Ethernet 1000 Base BX

Part #	Fiber Connector	# of Fibers	Fiber Type	Max Distance	Wave Length TX RX	Optical Budget (dBm)	Optical Power (dBm)	Receiver Sensitivitiy (dBm)	Operating Temperature
S30-1SLC/A-10	LC	1	Single Mode	10km (6.2mi)	1310/1490nm	11	-9 ~ -3	-20	0 to + 50C (32 to 122F)
S30-1SLC/B-10	LC	1	Single Mode	10km (6.2mi)	1490/1310nm	11	-9 ~ -3	-20	0 to + 50C (32 to 122F)
S30-1SLC/A-20	LC	1	Single Mode	20km (12mi)	1310/1490nm	15	-8 ~ -2	-23	0 to + 50C (32 to 122F)
S30-1SLC/B-20	LC	1	Single Mode	20km (12mi)	1490/1310nm	15	-8 ~ -2	-23	0 to + 50C (32 to 122F)

Gigabit Ethernet 1000 Base BX

Part #	Fiber Connector	# of Fibers	Fiber Type	Max Distance	Wave Length TX RX	Optical Budget (dBm)	Optical Power (dBm)	Receiver Sensitivitiy (dBm)	Operating Temperature
S30-1SLC/A-60	LC	1	Single Mode	60km (37mi)	1310/1490nm	24	0 ~ +5	-24	0 to + 50C (32 to 122F)
S30-1SLC/B-60	LC	1	Single Mode	60km (37mi)	1490/1310nm	24	0 ~ +5	-24	0 to + 50C (32 to 122F)

* Note: High Power Optic. There must be a minimum of 5dB of optical loss to the fiber for proper operation.

Appendix A

Fiber Optical Cable Connection Parameters

The wiring details are as below:

- Fiber Optical patch Cables:

Standard	Fiber Type	Cable Specification
1000Base-SX (850nm)	Multi-mode	50/125µm or 62.5/125µm
1000Base-LX (1310nm)	Single mode	9/125µm
1000Base-LX (1550nm)	Single mode	9/125µm
100Base-FX (1310nm)	Multi-mode	50/125µm or 62.5/125µm
	Single mode	9/125µm