



Haliplex
Communication Systems

HPX-1600 USER GUIDE

**Chapter 2-17
HPX-IM-1690
STM-1 & OC-3 Linear (1+1) IM**

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RECORD OF CHANGES

4.05	Addition	Section 2	Automatic Laser Shutdown settings
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1. GENERAL CHARACTERISTICS

This STM-1 & OC-3 IM is only compatible with the HPX-1600-SS models. It allows the user to transmit up to 63/84 E1/T1 circuits over a high-speed fibre plant. It transmits at speeds of 155Mb/s. This special purpose interface module provides two fibre optic transceivers and automatic protection switching support for Line Switched or MSP (1+1) protected fibre optic applications.

The two independent fibre optic transceivers are contained in hot-swappable, industry standard Small Form Pluggable (SFP) modules. The SFP is a sub-module that can be removed and replaced without removal of the complete interface module. The standard module uses 1310nm and a LC connector although there are more transmission options that will become available.



Figure 1: STM-1 & OC-3 IM

1.1. FIBRE INTERFACE OPTIONS

The STM-1 & OC-3 Fibre IM ships with a standard SFP fibre optic interface that operates at 1310nm. There is a wide range of alternative fibre optic interfaces that are available at the point of factory order.

2. IM CONFIGURATION

Configuration options for this interface module are hardware version dependent.

2.1.1. HARDWARE VERSION LESS THAN 03

There are no user configuration objects in the fibre optic interface module.

To determine fibre optic operational wavelength, hold the mouse over the port select button.

2.1.2. HARDWARE VERSION EQUAL OR GREATER THAN 03

The following Interface and automatic Laser Shutdown options are available.

2.2. INTERFACE PARAMETERS

The interface tab allows the user to view the fibre optic transceiver configuration and to power off the transceiver.

If the port enable options are “greyed out” then this indicates that this hardware does not support this option.

The **Port Enable** section is used to turn the IM ON or OFF. When the IM is disabled, all front panel LED indicators are turned off. By default, the IM is set enabled.

The “On” position enables port to become active and all IM operations perform as normal.

Initially the IM is set to “Off” where the port is not active but can be configured. Switching to the “Off” position network traffic is ignored, no traffic will pass through the IM and therefore no statistics are kept, alarm monitoring will also be disabled.

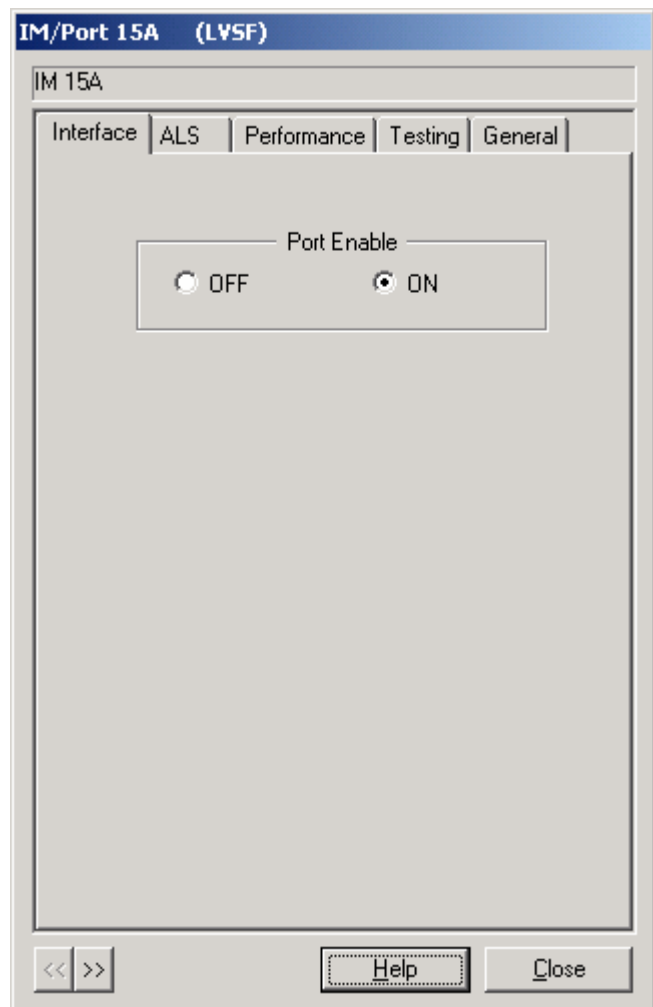


Figure 2 – STM-1 & OC-3 IM Configuration Dialog Interface Tab

2.3. AUTOMATIC LASER SHUTDOWN

The ALS tab allows the user to manage the Automatic Laser Shutdown feature. The STM-1 & OC-3 IM laser is classified as a safe Class One device and is not considered hazardous. The ALS function is provided to comply with the operating requirements of telecoms organisations, where required.

State controls the operational mode of the ALS feature. Default value is OFF. If “greyed out” then the ALS feature is not supported by this revision level of hardware.

The ALS feature automatically switches off the laser transmitter if the optic receiver detects a loss of received signal for a period of more than 500ms. The laser transmitter can be automatically or manually restarted.

The **Mode** controls Manual or Auto laser restart. In Manual mode the user clicks on the “**Manual Start**” button to initiate the start sequence. In “**Auto**” mode, the laser will be automatically started after a delay of 100seconds. The start sequence switches the laser transmitter on for the duration set by the Pulse Time control. If the optic receiver detects a received signal before expiration of the Pulse Time, then the laser transmitter resumes normal operation.

The **Pulse Time** control allows the laser transmission to be adjusted from 2secsnds in increments of 1second up to 10 seconds. This complies with section 6.3 of the standard ITU-T G.664. In order to allow automatic restart of SDH systems with line amplifiers, which are in shutdown condition, it may be necessary to increase the restart pulse length (defined in section 6.2) beyond the maximum of 2.25s (to e.g. $9 \pm 0.5s$).

Manual Restart for test as defined in the standard is supported by configuring the ALS feature OFF, which will permanently switch the laser transmitter on.

The current transmit status of the laser is reported as ON or OFF.

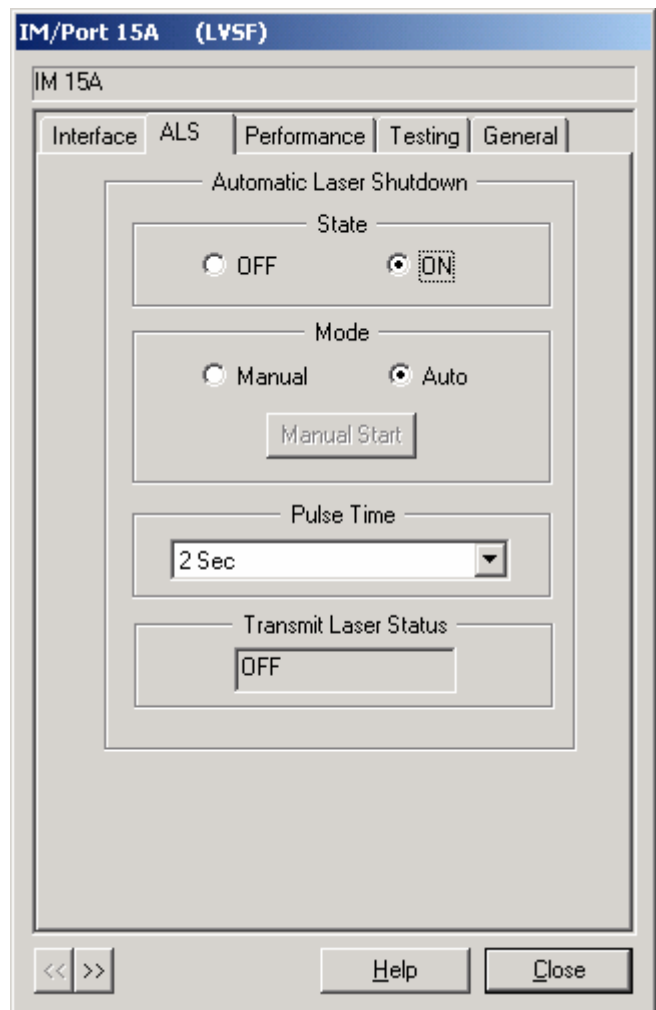


Figure 3 – STM-1 & OC-3 IM Configuration Dialog ALS Tab

2.4. TESTING

The Testing tab allows the user to loop the fibre optic receiver back to the transmitter and should only be used for diagnostic purposes

Setting the loopback mode to Line will cause a disruption to any data transmission and should never be used while the fibre link is active service use.

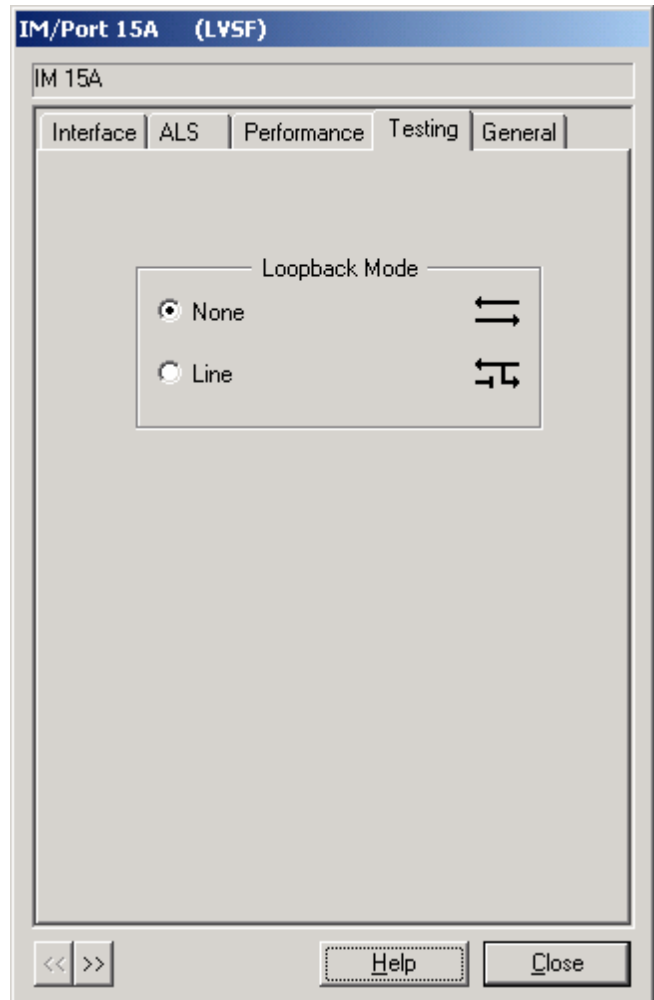


Figure 4 : Loopback mode

3. IM ALARMS

The STM-1 & OC-3 IM has a Loss of Signal alarm that can be configured and monitored via the IM alarm monitor setup window.

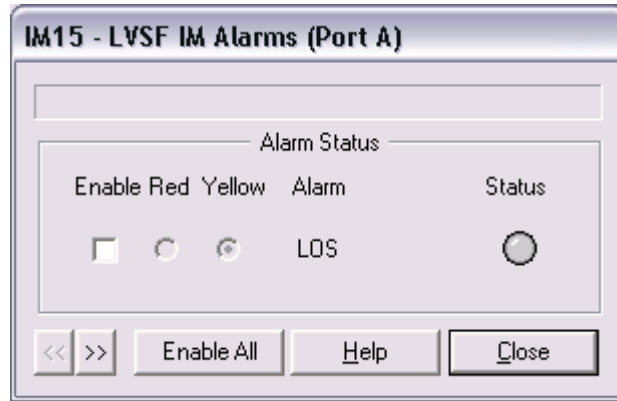


Figure 5: STM-1 & OC-3 IM Alarm Monitor Setup Window

4. IM INDICATORS

The STM-1 & OC-3 IM has a single LED for each fibre interface, which alights in green or red. The state of the LED indicates the presence of a carrier signal and when a transmit or receiver buffer overflow is occurring.

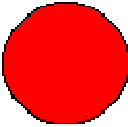
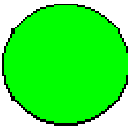
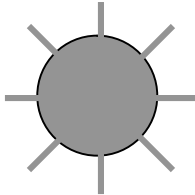
	<p>Red Steady LED: Indicates that the carrier signal is not present.</p>
	<p>Green Steady LED: Indicates that the carrier signal is present and normal data transmission is occurring.</p>
	<p>Flashing LED: Indicates that the transmit or receive buffer has overflowed.</p>

Table 1: STM-1 & OC-3 LED Interpretations

5. IM CABLES

The Fibre Optic IM is available in several variants of bandwidth. Check the model number for details. Connectors are LC. All the Fibre Optic IM models have four fibre optic connectors on the front of the IM.

Of each duplex connector pair, the top connector is used for Receive, the lower connector for Transmit.

Each Fibre Optic trunk runs in Duplex mode, and requires two Single Mode fibres.

Fibre Optic conductor specifications;
 9µm core
 125µm cladding

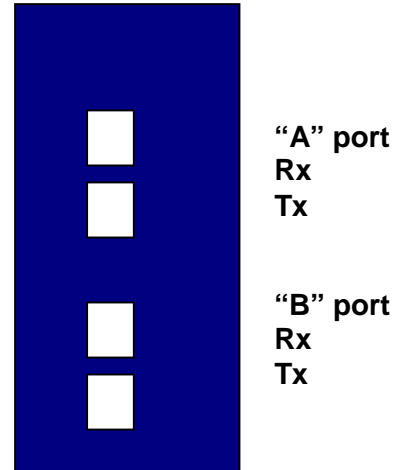


Figure 6: Fibre Optic IM

6. INTERFACE SPECIFICATIONS

Fibre connector	Duplex LC connector
Single mode optic fibre	9/125 um
Transmitter power	-8 to -15dBm
Receiver Sensitivity	-34dBm
Optical wavelength	1310nm
Laser Class	Class One
Automatic Laser Shutdown	Complies with ITU-T G.664

Table 2: Interface Specifications