USER GUIDE
HPX-1600

Chapter 2-1:
Interface Module
Overview

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1. INTRODUCTION

The HPX-1600 chassis accepts up to sixteen interface modules. An Interface Module (IM) slots into the front panel of the HPX-1600 and determines the interface type and the output characteristics of the E1/T1/E3/T3 stream or the DS0 timeslots allocated to it.

Not all IMs are accepted in all chassis types. Table 1 below lists all IMs available. Table 2 shows which IM types are compatible with which Haliplex chassis. IMs can only be inserted in certain IM slots, so the slots which accept each IM type are also shown in Table 2.

Interface Module types permitted by System Chassis				
Interface Modules	**Description**	**IA**	**EV**	**SS**
HPX-IM-1601	Dual E&M	✓		✓ *
HPX-IM-1610	Fibre optic trunk High Speed			✓
HPX-IM-1614	Fibre optic trunk Low Speed	✓		✓
HPX-IM-1620-E1	Dual E1	✓		✓
HPX-IM-1620-T1	Dual T1	✓	✓	✓
HPX-IM-1621	Dual 2 Wire foreign exchange FXS	✓		✓ *
HPX-IM-1623	Dual 2 Wire foreign exchange FXO	✓		✓ *
HPX-IM-1630-E3	Single E3			✓
HPX-IM-1630-T3	Single T3		✓[C]	✓[C]
HPX-IM-1632	Single M13 / C-bit parity Multiplexer			✓
HPX-IM-1633	Dual V.35/X.21/V.24 Data	✓[C]		✓[C]
HPX-IM-1640-E1	Octal E1			✓[C]
HPX-IM-1640-T1	Octal T1			✓[C]
HPX-IM-1670	Single Ethernet 10/100Mbps interface	✓		✓
HPX-IM-1671	Single Ethernet 10/100Mbps interface		✓	
HPX-IM-1672	Dual Ethernet 10/100Mbps interface			✓ **
HPX-IM-1680	Fibre optic trunk STM-1 / OC-3			✓
HPX-IM-1680-EL	Electrical trunk STM-1 / STS-3			✓
HPX-IM-1690	Fibre optic trunk STM-1 / OC-3 Linear 1+1			✓
HPX-IM-1638	Co-Directional G.703 64Kbps	✓		✓

Table 1: IM types available

IM slot numbers	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
HPX-1600-IA	All IM slots connect to DACCS – maximum aggregate per IM = 2 x 2.048Mbps															

IM slot numbers	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
HPX-1600-EV							Single Ethernet IM								DS3 IM Work /Prot	
	Dual T1 IM															

IM slot numbers	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
HPX-1600-SS			E3/DS3 IM connected to the ES/DS3-Mapper **must** use these slots Working: - Odd slots, Protection: - Even slots						Dual Ethernet IM connected to Ethernet-Mapper **must** use these slots						STM-1/OC-3	
	M13, HSF, Octal E1 and Octal T1 IM's **must** connect direct to E1/T1 mapper															
	Dual E1, Dual T1, MPS, and Single Ethernet IM's can **optionally** connect to DACCS **or** direct to E1/T1 mapper												Slots 13-16 do not connect to the integrated DACCS			
	LSF, COD, FXS, FXO, E&M, DSL And (nx 64Kbps) interface modules **must** connect to DACCS															

Table 2: IM slots available to each IM type by chassis type

2. AUTO DETECTION AND CONFIGURATION

The HPX-1600 automatically detects all inserted IMs and applies a default configuration. Detected IMs are displayed by HPXView. As each IM is inserted the IM type is automatically configured with the factory default settings and written to the slot memory. When the IM is removed, the configured IM type remains displayed in HPXView but as a ghosted view and the IM description displayed in text above the slot. If an IM is removed from a slot and replaced with an IM of the same type, the saved configuration is automatically loaded into the module. If the IM is replaced with an IM of a different type, then there is a mismatch with the saved slot configuration and the configuration conflict is indicated in HPXView by colouring the IM image yellow. The example in Figure 1 shows the result if an Octal E1 (8E1) module is inserted in a slot that has a saved configuration for a Dual E1 (2E1). Holding the mouse over the interface slot image displays a "mouse over" information box that contains the status, configured and active interface modules.

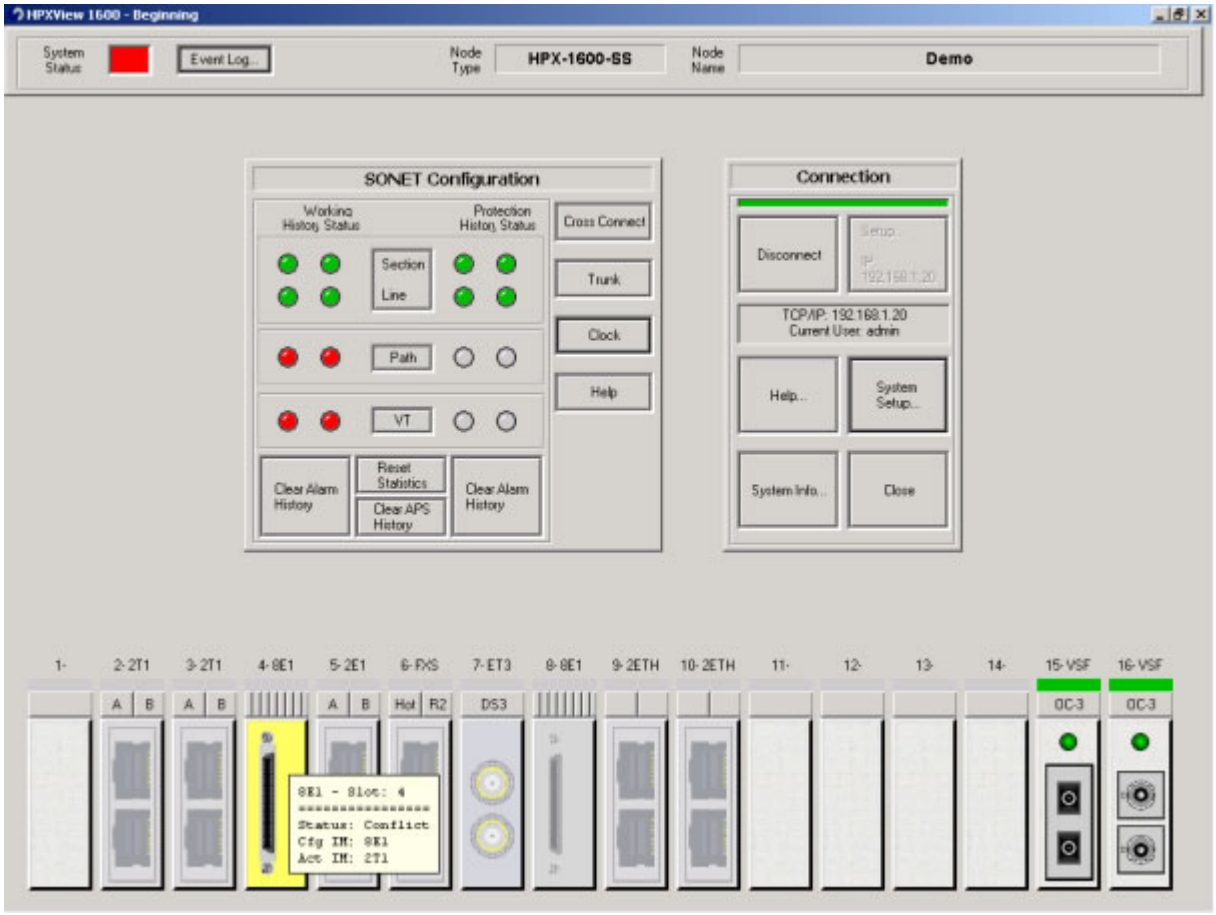


Figure 1: HPXView display of IM configuration conflict

When the installed module matches the configured module type, the interface module boots and the module image is coloured to represent the metal finish as in Figure 2.

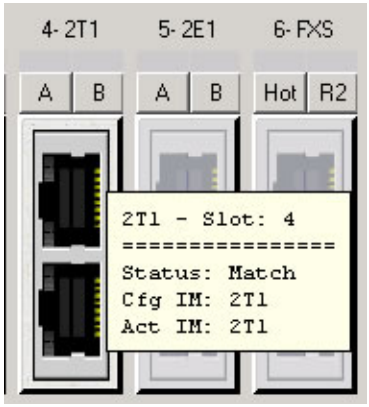


Figure 2: Active module matches configuration

Holding the mouse over a ghosted module image displays the status “missing” and the type of configured interface module, see Figure 3.

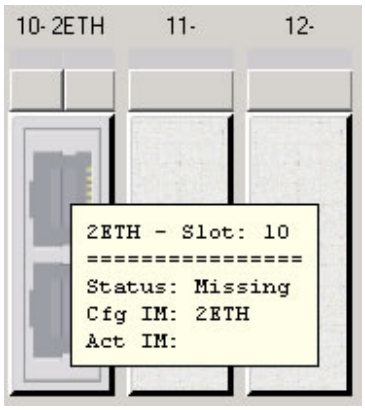


Figure 3: Mouse over missing module

2.1. RESOLVING MODULE CONFLICT

A module conflict may be resolved in one of two ways;

- install a module that matches the saved configuration
- configure the saved image to match the installed module.

A right-click of the mouse over an interface slot gives the option of selecting any interface module to be saved for the slot or simply “configure as Present” the physically inserted module. Refer to Figure 4 for screen shot example.

Configuration of interface module slots using this method can also be applied to pre-configure” an empty slot as a virtual interface module. The slot configuration is linked through to the SDH/SONET and DACCS configuration screens.

Pre-configuration of slots with virtual interface modules can be used to prepare network node configurations and accelerate deployment projects.

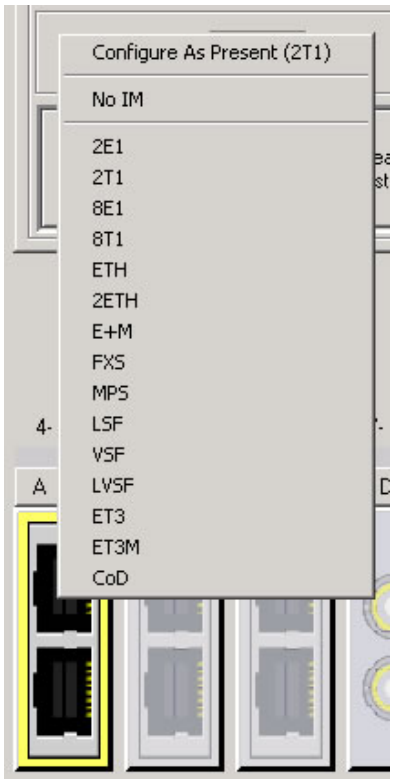


Figure 4: Configure as present

3. CONFIGURATION OF INTERFACE MODULES

To view or modify an IM configuration, click on the IM port button displayed above the IM graphic in HPXView. The graphical presentation of a multiple port IM has the left tab designated as port A which relates to the uppermost connector. The tabs increment alphabetically to the right. Physical port connector designations increment beginning at “A” from top to bottom.

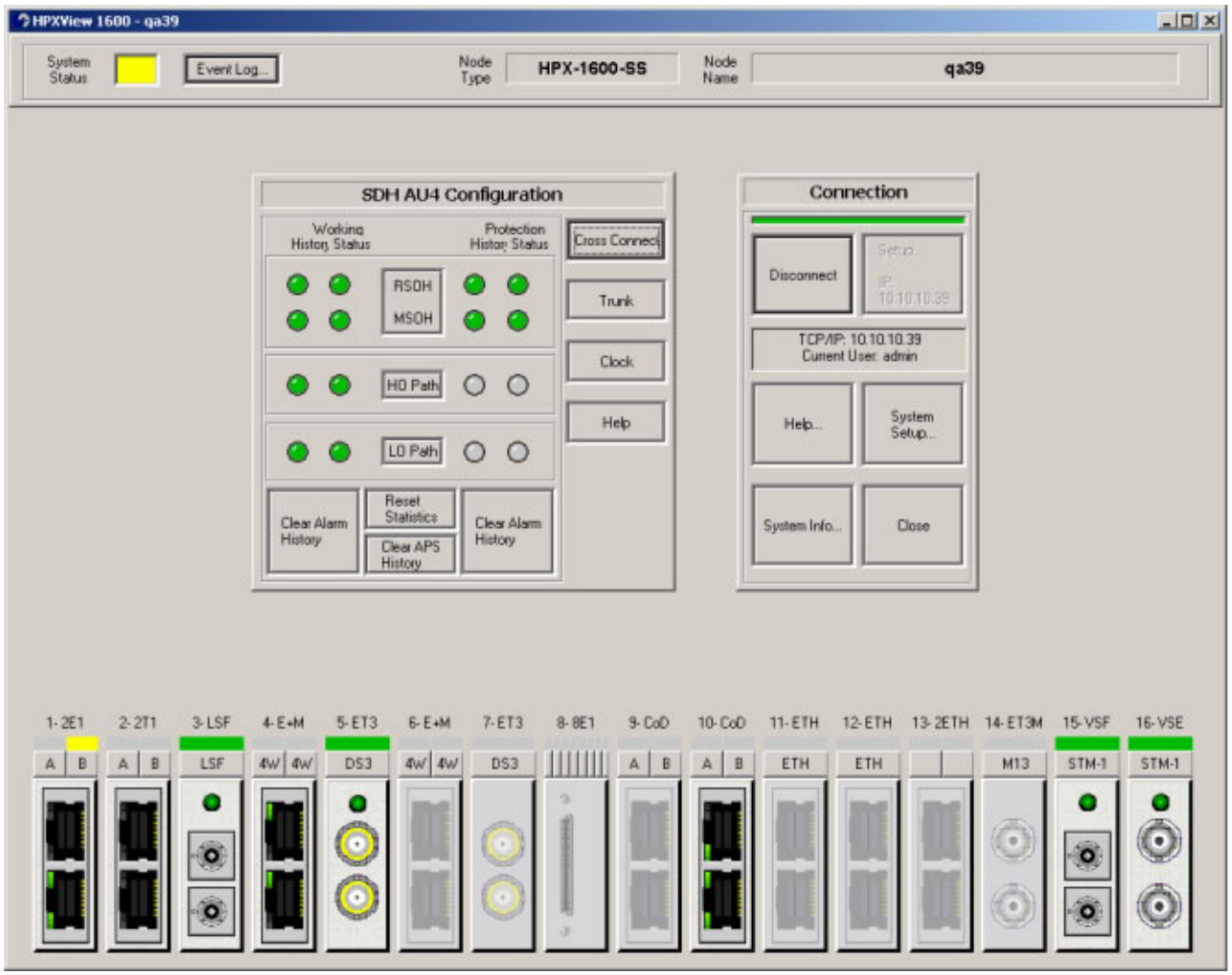


Figure 5: IM graphics displayed in HPXView

Clicking on the IM port button presents an IM configuration dialogue box. The available configuration parameters match the configured IM type.

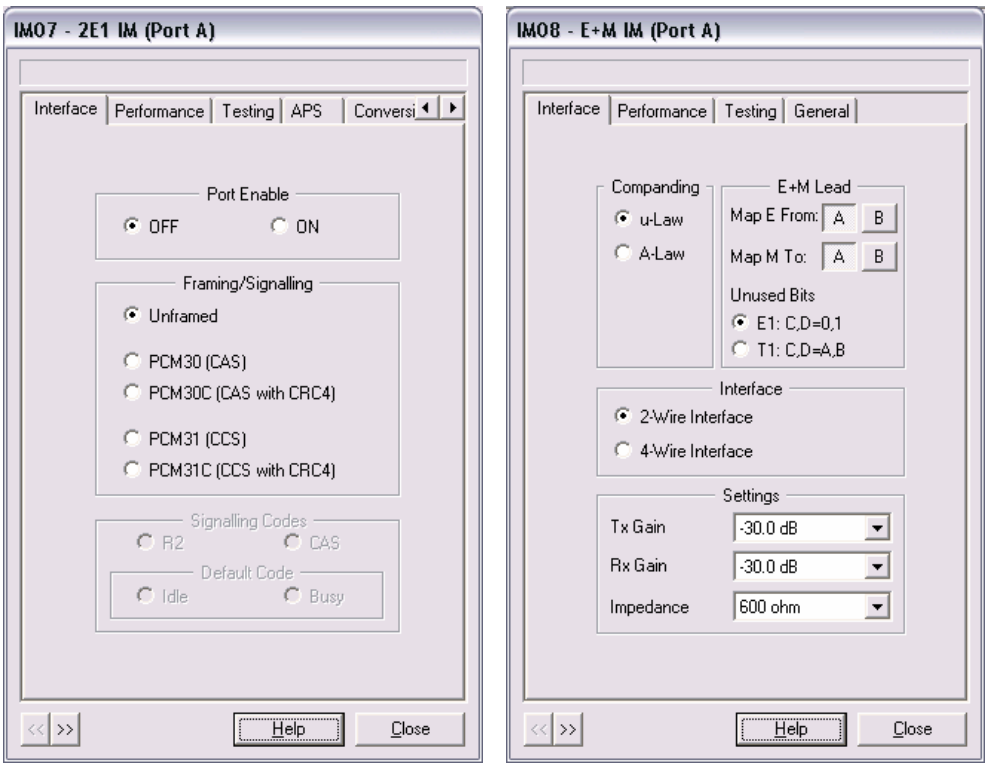


Figure 6: E&M and Dual E1 IM example configuration dialogs

4. IM ALARMS

Each IM has alarm parameters that may be set by the network administrator. The most severe alarm level that is currently active on a node is displayed on the front panel of the HPX-1600 and at the top left of the HPXView screen as “system status”.

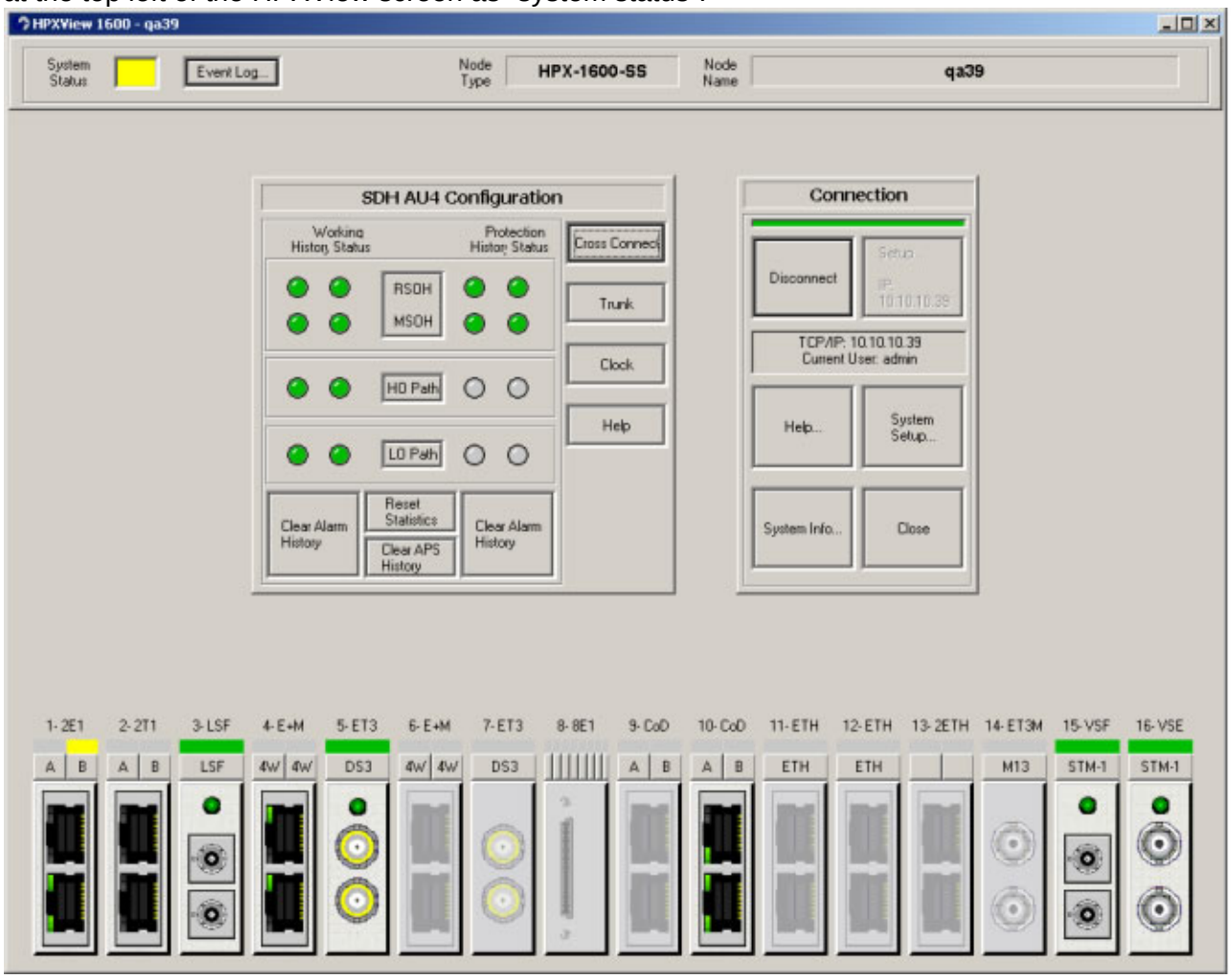
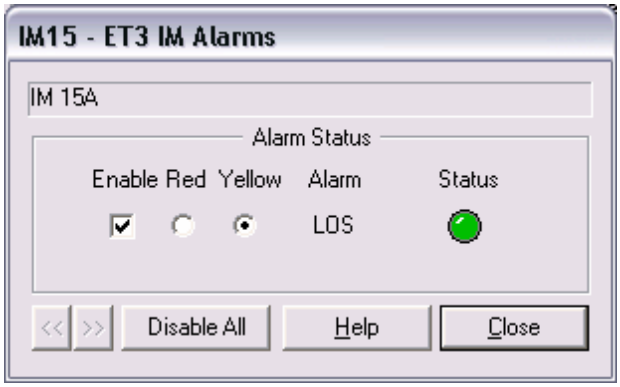


Figure 7: HPX View System Summary screen



A Left mouse Click on the IM alarm colour bar, displays the IM alarm monitor setup Window. For port of each IM slot, the network administrator can select which alarms are enabled and the severity, YELLOW or RED.

The status column to the left shows grey if the alarm is not enabled. If there is no alarm from that source, the status is green.

Figure 8: IM Alarms

5. GENERAL PARAMETER

The general tab allows the user to enter a description of the node such as the identity of the node and its connections. In the case of a connection to be disconnected, the user can identify which connection it is on the node and disconnect it without affecting any of the other connections. For example, we might have Node A connected to Node B via IM02 and Node B connected to Node C via IM03, if we want to break the connection between Node A and Node B we can identify that it is IM02 that has the connection. Figure 9 shows the general tab for the dual E1 IM, this tab appears and is consistent on all the IM's.

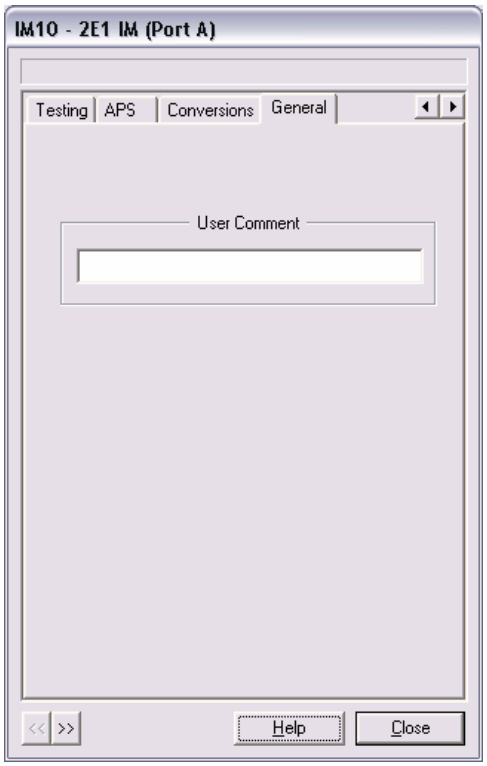


Figure 9: Dual E1 IM general tab

6. IM SPECIFICS

Each IM has different configurable parameters and available alarms. Specifics on parameters, alarms, indicators and compliances are outlined in the subsequent chapters of this section. There is one chapter for each IM type.

7. INTERFACE MODULE – INDICATOR SUMMARY

IM Display	Definition
	Normal colour display. A stored configuration exists. Interface module installed matches stored configuration and is operational.
	Ghosted display. Interface module is “missing” A stored configuration exists. The IM type of the stored image is above the interface module. More detail is available by holding the mouse over the module image.
	Yellow border display. Interface module is in “conflict” with the stored configuration. A stored configuration exists. Image is of the stored module. The IM type of the stored image is above the interface module. More detail is available by holding the mouse over the module image.
	Red border display. Interface module has failed to boot. A stored configuration exists. Image is of the stored module. The IM type of the stored image is above the interface module. More detail is available by holding the mouse over the module image.
	Purple port tab. Indicated port is configured for loop back Click on the purple port tab and refer to the relevant interface module chapter for loop back diagnostic details.