



# **HPX-1600 USER GUIDE**

**Chapter 2-13:  
HPX-IM-1640-E1  
HPX-IM-1641-E1**

**Octal E1 IM**

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Revision	Date	Description
4.07	26-06-08	Added information on HPX-IM-1641-E1 SGMC-34 Interface Connector. Added Section 8 Interface cables.

## 1. GENERAL CHARACTERISTICS

The Octal E1 is available as two variants:

- **HPX-IM-1640-E1** – with VHDCI interface connector.
- **HPX-IM-1641-E1** – with Positronic SGMC-34 interface connector.

The Octal E1 Interface Module (IM) has 8 ports that operate at 2048kB/s. Connection is via a 50 pin VHDCI, or a 34 pin SGMC-34 to equipment that supports 8 x E1. The IM is an octal port E1, which is used in the SS systems only. The Octal E1 can be connected in unframed or asynchronous mode to the SDH/SONET payload. The Octal E1 IM does not support DACS connection.

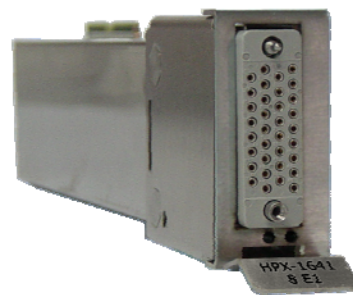
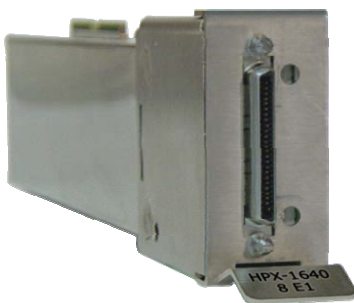


Figure 1 VHDCI Connector

Figure 2 SGMC-34 Connector

## 2. IM CONFIGURATION

The IM configuration dialog has configuration tabs as discussed below.

### 2.1. INTERFACE PARAMETERS

Asynchronous operation is the standard operation for the octal E1.

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.

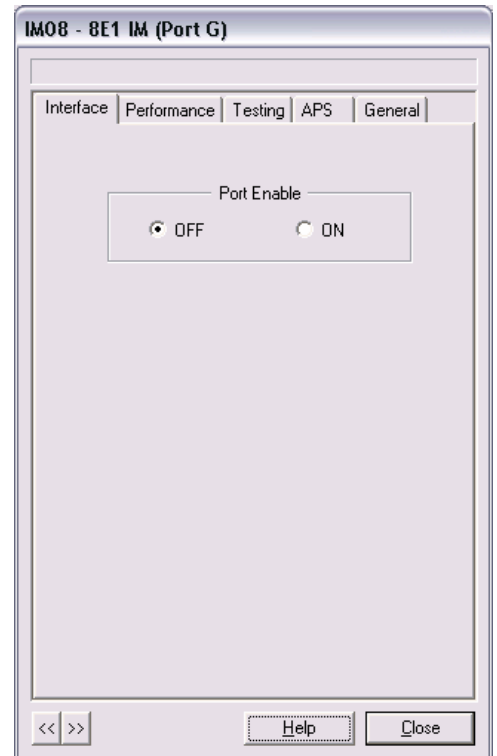


Figure 3: Octal E1 IM Configuration Interface Tab

### 2.2. PERFORMANCE PARAMETERS

There are no configurable parameters at this stage.

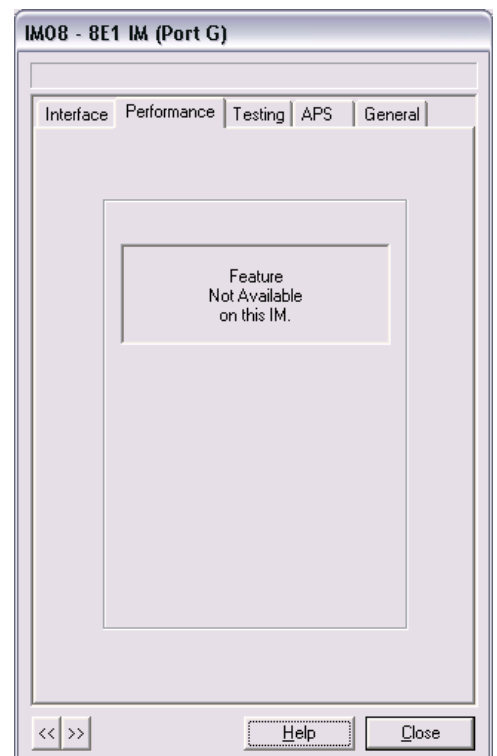
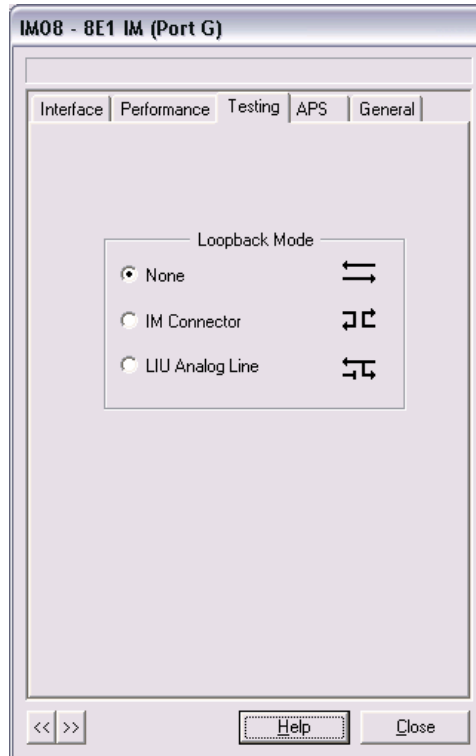


Figure 4: Octal E1 IM Configuration Dialog Performance Tab

## 2.3. TESTING PARAMETERS

The testing tab allows the user to select a loop-back mode for testing.

For more information on the loop-back options available, refer to section 3.



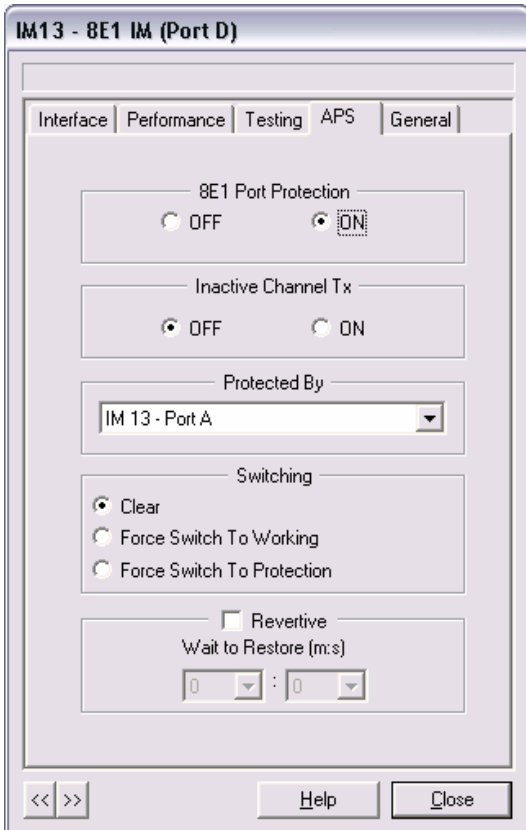
**Figure 5: Octal E1 IM Configuration Dialog Testing Tab**

## 2.4. AUTOMATIC PROTECTION SWITCHING (APS) PARAMETERS

The APS Tab allows the user to set up APS on that IM. To enable APS for the Octal E1 IM, select ON for 8E1 Port Protection. To disable APS switch the 8E1 Port Protection OFF.

### 2.4.1. INACTIVE CHANNEL TX

The APS configuration for the Octal E1 normally requires an external 'Y-Cable'. If both transmitters are connected with a 'Y-Cable' the inactive Tx must be configured as OFF.



### 2.4.2. PROTECTED BY

The IM being configured will be the path of transmission, the user can select the protection port from the drop down list. There is normal usage of the same port A to H of a second module.

### 2.4.3. SWITCHING

The switching section has a default setting to 'Clear' this allows the switching to occur based on the switching event, in the case of the Octal E1 when a LOS occurs.

The user can opt to Force Switch to Working, or Protection. The force switch uses the new path as the path of transmission and is not selected by any of the above conditions. When a force is selected the switch will apply regardless of whether there are any errors on the path.

Figure 6: Octal E1 IM Configuration Dialog APS Tab

### 2.4.4. REVERTIVE

Enable for APS to revert. If a switch has occurred, it attempts to restore itself after the specified time period, selected from the drop down list. As default, 5 seconds minimum is required.

### 3. IM TESTING

The octal E1 IM has no loop-back selected as the default setting for normal IM operation. However, for testing purposes, one of two loop-back options can be set. The two available loop-back options are illustrated below in Figure 7.

- LIU analogue line loop-back (1)
- IM connector loop-back (2)

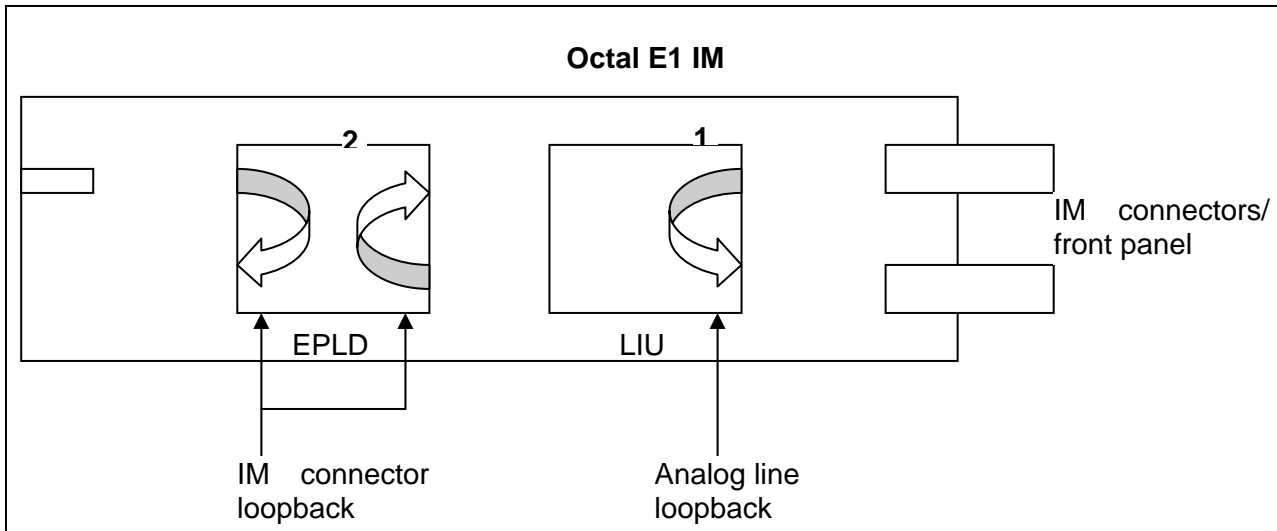


Figure 7: Octal E1 IM loop-back options

## 4. IM ALARMS

The E1 IM has a Loss of Sync alarm that can be configured and monitored via the IM alarm monitor setup window.

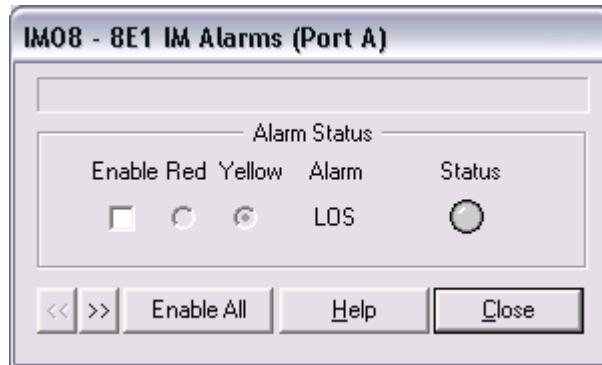
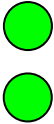
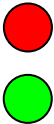
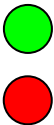
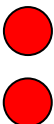
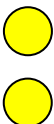




Figure 8: Octal E1 IM Alarm Monitor Setup Window

## 5. IM INDICATORS

Each Octal E1 IM has two LEDs. The state of both the LEDs indicates the status of the software load, clock configuration and the data communications for each group of four ports. The LED interpretations for the VHDCI and SMGC-34 are shown in Table 1 and Table 2.

IM LED Display		Interpretation
	Green flashing	<b>Normal Data Transmission</b>
	Green flashing	
	Red flashing	<b>Error in interface ports A to D</b>
	Green Flashing	
	Green Flashing	<b>Error in interface ports E to H</b>
	Red flashing	
	Red Flashing	<b>Error in interface ports A to D and E to H</b>
	Red flashing	
	Yellow	<b>Firmware loaded waiting for Configuration files to be loaded</b>
	Yellow	

**Table 1: HPX-IM-1640-E1 (VHDCI) IM LED Interpretations**

	Green	<b>Normal Data Transmission A to H</b>
	Red	<b>Error in interface ports A to H</b>

**Table 2 HPX-IM-1641-E1 (SGMC-34) IM LED Interpretations**

## 6. OCTAL E1 INTERFACE

### 6.1. VHDCI CONNECTOR

**Note:** Unused pins are not connected at the Octal E1 IM. The metal shell of the VHDCI socket may optionally be used as shield.

Octal E1 VHDCI pin-outs		
Port	50 pin VHDCI	Signal Name
A	27	Tx Tip
	2	Tx Ring
	26	Rx Tip
	1	Rx Ring
B	29	Tx Tip
	4	Tx Ring
	28	Rx Tip
	4	Rx Ring
C	31	Tx Tip
	6	Tx Ring
	30	Rx Tip
	5	Rx Ring
D	33	Tx Tip
	8	Tx Ring
	32	Rx Tip
	7	Rx Ring
E	35	Tx Tip
	10	Tx Ring
	34	Rx Tip
	9	Rx Ring
F	37	Tx Tip
	12	Tx Ring
	36	Rx Tip
	11	Rx Ring
G	39	Tx Tip
	14	Tx Ring
	38	Rx Tip
	13	Rx Ring
H	41	Tx Tip
	16	Tx Ring
	40	Rx Tip
	15	Rx Ring

**Table 3: Octal E1 interface pin outs**

6.2. SMGC-34 CONNECTOR

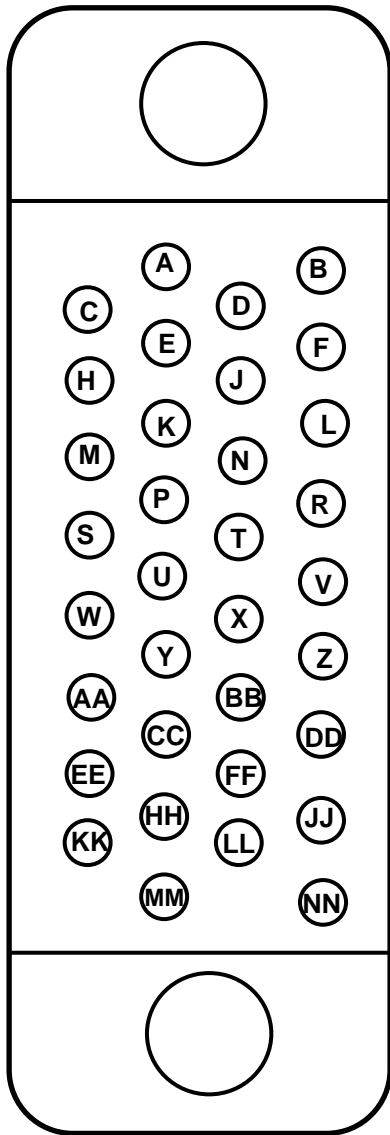


Figure 9 SMGC-34 CONNECTOR

Octal EL SMGC-34 pin-outs				
RJ 48 N°	RJ48 Pin N°	Funct	RJ48 Desc	SGMC 34 Pin N°
J1	1	RX	RX-Tip	H
	2		RX-Ring	E
	4	TX	RX-Tip	C
	5		RX-Ring	A
J2	1	RX	RX-Tip	J
	2		RX-Ring	F
	4	TX	RX-Tip	D
	5		RX-Ring	B
J3	1	RX	RX-Tip	S
	2		RX-Ring	P
	4	TX	RX-Tip	M
	5		RX-Ring	K
J4	1	RX	RX-Tip	T
	2		RX-Ring	R
	4	TX	RX-Tip	N
	5		RX-Ring	L
J5	1	RX	RX-Tip	LL
	2		RX-Ring	JJ
	4	TX	RX-Tip	FF
	5		RX-Ring	DD
J6	1	RX	RX-Tip	KK
	2		RX-Ring	HH
	4	TX	RX-Tip	EE
	5		RX-Ring	CC
J7	1	RX	RX-Tip	BB
	2		RX-Ring	Z
	4	TX	RX-Tip	X
	5		RX-Ring	V
J8	1	RX	RX-Tip	AA
	2		RX-Ring	Y
	4	TX	RX-Tip	W
	5		RX-Ring	U

Table 4 SMGC-34 Pin-outs

## 7. INTERFACE SPECIFICATIONS

HPX-IM-1640-E1 Connector	50 pin VHDCI (shared for 8 ports) 120 Ohm: interface cables convert the VHDCI to wires suitable for termination in a punch-down block.
HPX-IM-1641-E1 Connector	34 PIN SMGC-34 (shared for 8 ports) 120 Ohm.
Trunk Speed	2048kB/s
Loop-backs	Line loop-backs and Interface Module
Power Consumption	<5 Watts
Alarm Monitoring	Loss of Signal
Line Coding	HDB3
Receive Sensitivity	-12dB
Remote Management	Not Available
Standards	Electical: ITU-T, G.703 Jitter: G.823, G.742, G.736

**Table 5: Interface Specifications**

## 8. INTERFACE CABLES

The following interface cables are available for use with this interface module:

- HPX-CAB-8E1-SRJ45: HPX-1600 8E1T1 *straight through breakout cable with RJ45*
- HPX-CAB-8E1-XRJ45: HPX-1600 8E1T1 *cross over breakout cable with RJ45*
- HPX-CAB-8E1-HXRJ45: HPX-1600 8E1T1 *cross-over breakout cable for high density rectangular connector Octal modules with RJ45*

## 9. INTERNATIONAL COMPLIANCES

All HPX-1600 products have achieved the following international compliances;

- CE
- A Tick
- C Tick
- FCC part 15 class B
- UL



### FCC COMPLIANCE STATEMENT

*This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.*

#### **NOTE:**

*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. However, 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 the 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*

**Warning:** *Any changes or modifications not expressly approved by Haliplex Pty Ltd could void the user's authority to operate this equipment.*

## 9.1. ELECTROMAGNETIC COMPATIBILITY (EMC)

- CISPR 22 class B
- EN55022
- FCC part 15 class B
- AS/NZS3548
- EN300386-1

## 9.2. SAFETY

- IEC60950, UL60950, and AS/NZS60950:2000 for General safety

## 9.3. IMMUNITY

- EN61000-4-2
- EN61000-4-3
- EN61000-4-4
- EN61000-4-5
- EN61000-4-11

## 9.4. PERFORMANCE

- TS 016, G-703 TBR12, TBR13