DISCONTINUED

# Optical Access

## Local Handheld Interface Module, DSP-HHU
(Not recommended with new products)

**OPERATION MANUAL**

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## SCOPE

# 1.   Scope

This document describes how to connect and use the DSP-HHU handheld controller for use on control modules in ChromaFlex, TranScend, Chromadigm and IHUB CTLR-2 modules. A DSP-HHU-3 option is available that includes an additional cable to interface with IHUB CTLR-3 modules (which utilize a mini-display port instead of the DB-15 connector on most other products). With the introduction of an improved built in Web GUI late in 2017 all platforms have a faster response time and usability. If product is updated to the latest version that is available on ATX website under Support, then this handheld device is not necessary to setup the unit. Web GUI is recommended.

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## DISPLAY MODULE

# 2. Display Module

An optional Display Module allows the operator to monitor and control the chassis locally through a special DB15 cable or mini Display Port connector for IH-CTLR-3 modules. All readable and writeable attributes can be monitored and changeable locally via Display Module. When the Display Module is detected, I-HUB Controller disables all remote supervisory communication. The remote supervisory communication includes monitoring of Status and Alarm attributes.

The Display Module consists of a LCD display and 5 push buttons, their operation are detailed in this chapter.

## 2.1 Connecting the Display Module

Connect the Display Cable to the I-HUB Controller as shown in Figure 1 and Figure 2. The I-HUB Controller performs a quick reboot when the Display Module is connected to the I-HUB Controller. There is no impact on the application modules during any such reboot. Operator shall observe the I-HUB chassis greeting message when the reboot completes.
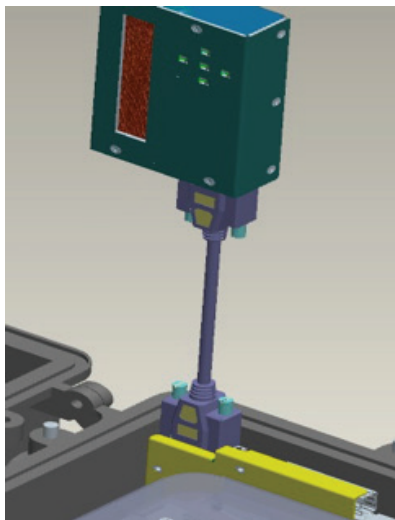


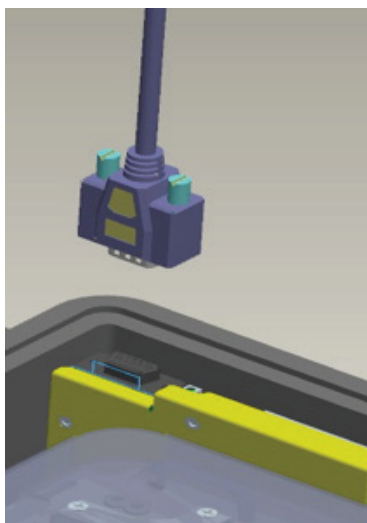*Figure 1: I-HUB Controller, Display Module & Display Cable Connection*



*Figure 2: Female Connector on I-HUB Controller & Display Cable*

## 2.2    Pushbutton Operations

There are five pushbuttons located on the Display Module. They are designated as "Up" with an upper arrow indicator, "Right" with a right arrow indicator, "Left" with a left arrow indicator, "Down" with a down arrow indicator and "Select" as the center button.

### 2.2.1    Philosophy of Button Operations

The button operations are similar to those of other systems designed and manufactured by ATX Networks.
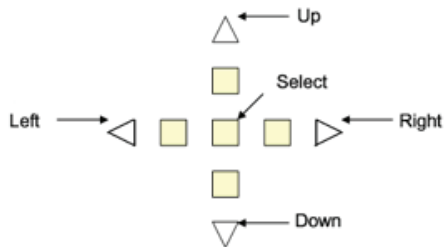


### 2.2.2    Individual Button Operations

**Up:** The cursor moves up one line

**Down:** The cursor moves down one line

**Right:** Cycle through the available options for the line where cursor is located.

If the menu is for read-only attribute, the display shows the next available interface.

Example #1:

If the current display is "#1 Optical Power", the "#2 Optical Power" shall be displayed after "Right" button is pressed.

Example #2:

If the menu is for the quantitative write attributes, the "Right" button increases the value.

In the "Gain Setting Menu", the cursor displays Gain (steps): 1, the Gain (steps): 2 shall be displayed after the "Right" button is pressed once.

**Left:** Cycle through the available options for the line where cursor is located.

If the menu is for read-only attribute, the display shows the next available interface.

Example #1: If the current display is "#2 Optical Power", the "#1 Optical Power" shall be displayed after "Left" button is pressed.

Example #2:

If the menu is for the quantitative write attributes, the left button decreases the value.

In the "Gain Setting Menu", the cursor displays Gain (steps): 3, the Gain (steps): 2 shall be displayed after "Left" button is pressed.

**Select:** There are multiple meanings to the select button.

- Select to execute the action where the cursor is located
  Example #1:
  If the cursor is located at the "Prev menu" line, the display shall change to the NEXT higher menu after the "Select" button is pressed once.

- Select to commit the option
  Example #1:
  In the "Gain Setting Menu", if the cursor is located on the "Sel Ch: 1" line, the channel #1 shall be used for gain adjustment after "Select" button is pressed.

⚠️ **NOTE:** *Only after pressing the Select button, the gain settings option is operated on the selected channel.*

- Select to commit the setting to NVRAM
  Example #1:
  In the "Gain Setting Menu", if cursor is on "Save: No (17)", user must toggle the right or left button to change the option to "Yes". Then press "Select" to commit the value, 17, in the bracket into the NVRAM.

⚠️ **NOTE:** *Only if the value is committed into NVRAM, the chassis will use the selected gain level next time the chassis recovers from power cycle.*

### 2.2.3 Combination Button Operations

The combination button operations are unique to I-HUB chassis. Each combination operation is defined strictly for their specific usage as the following definition.

**Up+Down**: When pressing and holding the Up+Down button simultaneously when traversing the local slot menu, the front panel displays current local slot number. The LCD display will restore back to the previous display once the buttons are released.

Example #1:

User is within the "Status Menu" of slot #1. By pressing and holding the Up and Down buttons, the front panel displays the current slot as 1. The "Status Menu" returns after releasing the Up + Down button combination.

## 2.3 LCD Display

### 2.3.1 Menu Tree Structure

The I-HUB chassis LCD menu is structured into bi-level trees. The top level is system related information and the second level is plug-in related information. The top level contains the menu for second level, but each has its own menu structure.

| Level 1 | Level 2 | Level 3 |
|---------|---------|---------|
| Greeting | Slot | |
| | Chassis | Temperature |
| | | Model |
| | | Hardware Version |
| | | Software Version |
| | | Serial Number |
| | | Prev Menu |
| | Status | Hub ID |
| | | Proxy Comm(Way) |
| | | Prev Menu |
| | Alarm | Power Supply |
| | | Module Temp |
| | | SFP |
| | | Prev Menu |
| | Prev Menu | |

*Table 1: I-HUB Display Module System Menu Overview*

## 2.3.2   System Menu Trees

I-HUB chassis displays the greeting message upon chassis power up.

**Greeting:**

ATX Networks
IHUB

Press "Select" button to go into the system menus. The entries in system menus are described as follows:

**Slot:**

This displays the detected plug-in module's type, or "Empty" if none is detected. Press "Right" or "Left" button to cycle through available slots. The displayed slot number corresponds to the silkscreen of backplane. Press "Select" to access the module menu or show the slot communication status. If the communication with slot establishes successfully, the display will go into the plug-in module's menu.

Conventionally the display shows the identical card type for multi-slot modules, but users can only access the module's display menu via the lowest occupied slot. For example, a dual width module is detected in slot 1, both slot 1 and 2 show occupied by this module, but user can only access the module menu through slot 1.

**Slot Status:**

**Module Greeting**: Communication is established with plug-in.

**Empty**: No module is detected in the slot.

**Failed to Switch**: Cannot establish communication with module. The module is unknown to controller.

**Multi-slot unit; Display avail on slot #**: This is the virtual slot on a multiple slot unit. User can access the module's display menu via the lowest slot of the multi slot unit. The slot # is shown.

**Chassis:**

Displays all system related information.

> **Temp(C):** Displays the module's temperature reading in Centigrade.

> **Model**: Displays the chassis' model name.

> **HW Ver**: Displays the hardware version information of TranScend chassis. **SW Ver**: Displays the software version information of TranScend chassis. **Ser #**: Displays the serial number of TranScend chassis.

**Status:**

Display all system related status.

> **HUB ID:** Displays the HUB identification. This HUB ID is determined via the front number 4-position dial. The dial position and HUB ID relationship is shown in the following table.

| Dial Configuration | HUB ID Readout | Comments |
|---|---|---|
| 0 | 1 | 1-way Proxy Communication: Required. <br> 2-way Proxy Communication: Required. |
| 1 | 2 | 1-way Proxy Communication: Must not be set. <br> 2-way Proxy Communication: Set for the I-HUB in the second position of daisy chain topology. |
| 2 | 3 | 1-way Proxy Communication: Must not be set. <br> 2-way Proxy Communication: Set for the I-HUB in the third position of daisy chain topology. |
| 3 | 4 | 1-way Proxy Communication: Must not be set. <br> 2-way Proxy Communication: Set for the I-HUB in the last position of daisy chain topology. |

*Table 2: I-HUB ID Dial Configuration*

> **Proxy Comm(Way):** Displays the communication protocol to the remote Proxy agent. 1 is 1-way communication, 2 is 2-way communication.

> ⚠️ *NOTE: The communication protocol is determined during Controller's reboot. User can plug or remove the SFP anytime, but the change is only applied during the next reboot.*

**Alarm:** Display all system related alarm status.

**Pwr Sply:** Displays the health of chassis power supplies.

**Module Temp:** Displays the health of the chassis temperature.

**SFP:** Displays the health of SFP. This alarm is only available if communication to Proxy is 2-way.

**Prev Menu:** Press "Select" will bring the Greeting Message screen back.

> ⚠️ *NOTE: "Prev Menu" exists in all menu trees as the last option. Place the cursor on this line and press the "Select" button will go back to the previous menu.*

### 2.3.2.1SFP Operation

There are two SFP slots available on the I-HUB Controller, the top SFP is for upstream remote monitoring purpose and the bottom one is for daisy chaining downstream I-HUBs.

The communication to Proxy is determined upon the detection of upstream remote monitoring SFP's presence. The 2-way communication protocol is enabled when the upstream remote monitoring SFP is present; while the 1-way communication protocol is engaged if not. The communication protocol is only determined during Controller's reboot. The change shall only take effect after the Controller's next reboot. User can read the current communication protocol via I-HUB's Status menu.

### 2.3.3   Plug-in Menu Tree

The plug-in menu display is driven by the module's card type. Each model provides its own display structure. In any sub menu, press "Select" on the **Prev Menu** line to return to the previous menu one level up.

### 2.3.3.1 AGC-EDFA

| Level 1 | Level 2 | Level 3 | Level 4 |
|---------|---------|---------|---------|
| Greeting | Status | OPT In (dBm) | |
| | | OPT Out (dBm) | |
| | | Gain (dB) | |
| | | Prev Menu | |
| | Alarm | OP In  Pwr | |
| | | OP Out Pwr | |
| | | Module Temperature | |
| | | Prev Menu | |
| | Chassis | Temperature(C) | |
| | | Model | |
| | | Hardware Version | |
| | | Software Version | |
| | | Serial Number | |
| | | Prev Menu | |
| | Prev Menu | | |
| Prev Menu | | | |

*Table 3: I-HUB AGC EDFA Front Panel Display Menu Overview*

**Greeting:**

**Greeting Message**

ATX Networks
AGC-EDFA

Press "Select" button to go into the plug-in menu.

**Prev Menu:**

Press "Select" will bring back to the System menu.

The entries in plug-in menu are described as follows:

**Status Menu:**

**OPT In (dBm):** Displays the reading of optical input power in dBm.

**OPT Out (dBm):** Displays the reading of optical output power in dBm.

**Gain (dB):** Displays the gain of optical output in respect to input power in dB.

**Alarm Menu:**

**OP In Pwr:** Displays the alarm status of the optical input power. **OP Out Pwr:** Displays the alarm status of the optical output power. **Module Temp:** Displays the alarm status of module temperature.

**Chassis Menu:**

**Temp(C):** Displays the module's temperature reading in Centigrade.

**Model:** Displays the model name of plug-in module.

**HW Ver:** Displays the hardware version information of plug-in module. **SW Ver:** Displays the software version information of plug-in module. **Ser #:** Displays the serial number of plug-in module.

**Prev Menu:**

Press "Select" will bring the plug-in's greeting message screen back.

## 2.3.3.2 EDFA

| Level 1 | Level 2 | Level 3 | Level 4 |
|---------|---------|---------|---------|
| Greeting | Status | OPT In (dBm) | |
| | | OPT Out (dBm) | |
| | | Prev Menu | |
| | Alarm | OP In  Pwr | |
| | | OP Out Pwr | |
| | | Module Temperature | |
| | | Prev Menu | |
| | Chassis | Temperature(C) | |
| | | Model | |
| | | Hardware Version | |
| | | Software Version | |
| | | Serial Number | |
| | | Prev Menu | |
| | Prev Menu | | |
| Prev Menu | | | |

*Table 4: I-HUB EDFA Front Panel Display Menu Overview*

**Greeting:**

**Greeting Message**

ATX Networks
EDFA

Press "Select" button to go into the plug-in menu.

**Prev Menu:**

Press "Select" will bring back to the System menu. The entries in plug-in menu are described as follows:

**Status Menu:**

**OPT In (dBm):** Displays the reading of optical input power in dBm.

**OPT Out (dBm):** Displays the reading of optical output power in dBm.

**Alarm Menu:**

**OP In Pwr:** Displays the alarm status of the optical input power. **OP Out Pwr:** Displays the alarm status of the optical output power. **Module Temp:** Displays the alarm status of module temperature.

**Chassis Menu:**

**Temp(C):** Displays the module's temperature reading in Centigrade.

**Model:** Displays the model name of plug-in module.

**HW Ver:** Displays the hardware version information of plug-in module. **SW Ver:** Displays the software version information of plug-in module. **Ser #:** Displays the serial number of plug-in module.
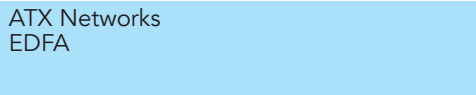
**Prev Menu:**

Press "Select" will bring the plug-in's greeting message screen back.

## 2.3.3.3 Opto-Stacker

| Level 1 | Level 2 | Level 3 | Level 4 |
|---------|---------|---------|---------|
| Greeting | Setup | Sel Chnl | |
| | | Mode Setting Menu | Mode |
| | | | Save |
| | | | Prev Menu |
| | | Attn Setting Menu | RF (dB) |
| | | | Attn (dB) |
| | | | Save |
| | | | Prev Menu |
| | | Prev Menu | |
| | Alarm | OptPower | |
| | | Syn Lock | |
| | | Laser Temp | |
| | | OPT Out Pwr | |
| | | Module Temperature | |
| | | Prev Menu | |
| | Status | OptPwr(dBm) | |
| | | Attn   (dB) | |
| | | Laser Temp (C) | |
| | | OPT  Out (dBm) | |
| | | Gain Resv (dB) | |
| | | Mode | |
| | | Prev Menu | |
| | Chassis | Temperature(C) | |
| | | Model | |
| | | Hardware Version | |
| | | Software Version | |
| | | Serial Number | |
| | | Prev Menu | |
| | Prev Menu | | |
| Prev Menu | | | |

*Table 5: I-HUB Opto-Stacker Front Panel Display Menu Overview*

**Greeting:**

**Greeting Message**

> ATX Networks
> Opto Stacker

Press "Select" button to go into the plug-in menu.

**Prev Menu:**

Press "Select" will bring back to the System menu. The entries in plug-in menu are described as follows:

**Setup Menu:**

**Sel Ch:** Press "Select" to select the channel / interface for adjustment. Press "Right" or "Left" button to cycle through available channels.

**Mode Setting Menu:**

**Mode:** Press "Right" or "Left" button to toggle among available mode selections. Press "Select" to select the displayed mode.

**Save:** Press "Right" or "Left" button to toggle between "Yes" or "No". Press "Select" to commit the value in bracket into NVRAM if "Yes" is selected. The value in bracket reflects the current NVRAM storage reading. If user presses "Select" when display is "No", no NVRAM change takes place.

**Attn Setting Menu:**

**RF (dB):** Displays the RF reading of composite input to laser in dB.

**Attn (dB):** Press "Select" to set the attenuation level. Press "Right" to increase or "Left" button to decrease the attenuation level.

> ⚠️ **NOTE:** After the attenuation level adjustment, user must press "Select" to commit the attenuation level in order for the plug-in to operate at such level and for NVRAM storage. Fail to do so, the attenuation might revert back to previous level.

**Save:** Press "Right" or "Left" button to select between "Yes" or "No". Press "Select" to commit the value in bracket into NVRAM if "Yes" is selected. The value in bracket reflects the current NVRAM storage reading. If user presess "Select" when display is "No", no NVRAM change takes place.

**Status Menu:**

**OptPwr (dBm):** Displays the optical receiver power reading in dBm.

**Attn (dB):** Displays the attenuation reading in dB.

**Gain Resv (dB):** Displays the gain reserve reading of laser driver in dB. **Laser Temp(C):** Displays the laser temperature reading in Centigrade. **OPT Out (dBm):** Displays the optical output power reading in dBm.
**Mode:** Displays the current gain mode, AGC or MGC.

**Alarm Menu:**

**OptPower:** Displays the alarm status of optical input power.

**Syn Lock:** Displays the alarm state of synthesizer lock status. Press "Right" or "Left" button to cycle through available channels. **Laser Temp:** Displays the alarm status of laser temperature.

**OPT Out Pwr:** Displays the alarm status of optical output power.

**Module Temp:** Displays the alarm status of module temperature.

**Chassis Menu:**

**Temp(C):** Displays the module's temperature reading in Centigrade.

**Model:** Displays the model name of plug-in module.

**HW Ver:** Displays the hardware version information of plug-in module. **SW Ver:** Displays the software version information of plug-in module. **Ser #:** Displays the serial number of plug-in module.

**Prev Menu:**

Press "Select" will bring the plug-in's greeting message screen back.

## 2.3.3.4 Optical Switch

| Level 1 | Level 2 | Level 3 |
|---------|---------|---------|
| Greeting | Status Menu | OPin Pwr(dBm) |
| | | Threshold(dBm) |
| | | Switch |
| | | Mode |
| | | Prev Menu |
| | Alarm Menu | OPin Pwr |
| | | Module Temperature |
| | | Switch |
| | | Prev Menu |
| | Chassis Menu | Temperature(C) |
| | | Model |
| | | Hardware Version |
| | | Software Version |
| | | Serial Number |
| | | Prev Menu |
| | Prev Menu | |
| Prev Menu | | |

*Table 6: TranScend Optical Switch Front Panel Display Menu Overview*

**Greeting:**

**Greeting Message**

> ATX Networks
> Optical Switch

Press "Select" button to go into the plug-in menu.

**Prev Menu:**

Press "Select" will bring back to the System menu. The entries in plug-in menu are described as follows:

**Status Menu:**

**OPin Pwr (dBm):** Displays the optical input power reading in dBm. Press "Right" or "Left" button to cycle through available channels.

⚠️ **NOTE:** *The primary input is marked as #1 and secondary is #2.*

**Threshold (dBm):** Displays the switching threshold settings. It reads the user settable front panel's turn dial setting.

**Switch:** Displays the optical switch position, "Primary", "Secondary" or "Faulty".

**Mode:** Displays the user settable switch control mode. It reads the user settable front panel's turn dial setting, "Primary", "Secondary", "Auto" or "Faulty".

**Alarm Menu:**

**OPin Pwr:** Displays the alarm state of optical input power.

Press "Right" or "Left" button to cycle through available channels.

**Module Temp:** Displays the alarm status of module temperature.

**Switch:** Displays the alarm status of optical switch. The alarm is raised when optical switch is in faulty state or switch position on secondary input.

**Chassis Menu:**

**Temp(C):** Displays the module's temperature reading in Centigrade.

**Model:** Displays the model name of plug-in module.

**HW Ver:** Displays the hardware version information of plug-in module. **SW Ver:** Displays the software version information of plug-in module. **Ser #:** Displays the serial number of plug-in module.

**Prev Menu:**

Press "Select" will bring the plug-in's greeting message screen back.

### 2.3.3.4.1 Optical Switch Switching Criteria

The switching decision is based on the front panel tri-position toggle switch. User can enforce manual switching by engaging the toggle switch to either "PRI" and "SEC" position.

**Toggle switch on "PRI" position**

The optical switch shall stay on primary input regardless of the health of primary and secondary signals. The PRI green LED shall light.

**Toggle switch on "SEC" position**

The optical switch shall stay on secondary input regardless of the health of primary and secondary signals. The "SEC" green LED shall light.

**Toggle switch on "Auto" position**

The optical switch shall monitor the health of primary and secondary signals for switching decision. The "AUTO" green LED shall light. The user shall expect the switch position based on the following description.

**Forward Switch - Switch from primary to secondary**

When the primary optical power drops below the user defined threshold and the secondary optical power is above the user defined threshold, the optical switch position moves over to the secondary optical power immediately.

**Recovery Switch - Recover from secondary to primary**

When the primary optical power is above the user defined threshold for at least one second, the optical switch recovers back to primary position.

**Switch alarm**

*Normal* – Green: When the optical switch is on primary

*Minor* – Yellow: When the optical switch is on secondary

*Major* – Red: When the switch is faulty or when the Forward Switch failed due the unhealthy secondary input.

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## SERVICE & SUPPORT

# 3.    Service & Support

## 3.1    Contact ATX Networks

Please contact ATX Technical Support for assistance with any ATX products.

**TECHNICAL SUPPORT**

| | |
|---|---|
| Tel: | 289.204.7800 – press 1 |
| Toll-Free: | 866.YOUR.ATX (866.968.7289) USA & Canada only |
| Email: | support@atx.com |

**SALES ASSISTANCE**

| | |
|---|---|
| Tel: | 289.204.7800 – press 2 |
| Toll-Free: | 866.YOUR.ATX (866.968.7289) USA & Canada only |
| Email: | insidesales@atx.com |

**FOR ASSISTANCE WITH AN EXISTING ORDER**

| | |
|---|---|
| Tel: | 289.204.7800 – press 3 |
| Toll-Free: | 866.YOUR.ATX (866.968.7289) USA & Canada only |
| Email: | orders@atx.com |
| Web: | www.atx.com |

## 3.2    Warranty Information

All of ATX Networks' products have a 1-year warranty that covers manufacturer's defects or failures.

**ATX Networks**

Tel: 289.204.7800   |  Toll-Free: 866.YOUR.ATX (866.968.7289)  |  support@atx.com

**www.atx.com**