Fiber Optic Hub

Product Description

The Fiber Optic Hub concentrates four fiber lines into one logical trunk for the fiber building level network (BLN) or the floor level network (FLN). The BLN and FLN trunk electrical signals are converted into light energy at the remote sites by Fiber Optic Interfaces. This device is designed to work at speeds of 300 bps to 230K bps, with a link budget of 11.5 dB.

The Fiber Optic Hub converts light energy to electrical signals and back to light energy for the outgoing fibers, which connect to the remote site Fiber Optic Interfaces' receive ports. The hub also converts electrical signals to an Inter-Hub RS-485 bus. This bus is used for inter-connecting multiple hubs at one location, for a maximum of 32 hubs.

The inter-hub trunk connection uses the standard three-terminal, removable connector found on many Siemens products. The connection can also be used to obtain a local BLN or FLN for the building in which the hub is installed.

The Fiber-Optic Hub is housed in a 1.5" × 7.3" × 6" metal enclosure. It contains one power input receptacle, eight fiber ports (four transmit and four receive), and a three-position trunk port (refer to Figure 2). The hub is powered by a 6 Vdc external power pack (included). All circuits are supervised and power limited. There are no internal settings or user-serviceable parts. ST style port connectors are included with the hub.

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
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<tbody>
<tr>
<td>Four Channel Fiber Optic Hub with ST port connectors</td>
<td>538-745 (115 Vac) 538-745E (230 Vac)</td>
</tr>
<tr>
<td>115 Vac 60 Hz (14W) input 6 Vdc 1200 mA output power pack for use with P/N 538-745</td>
<td>538-746</td>
</tr>
<tr>
<td>230 Vac 50 Hz (14W) input 6 Vdc 1000 mA output power pack for use with P/N 538-745E</td>
<td>538-747</td>
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**CAUTION:** Use only the plug-in transformer shipped with this device.

<table>
<thead>
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<th>Description</th>
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<tbody>
<tr>
<td>120 Vac transient protected duplex outlet for 538-745 (not included)</td>
<td>529-804</td>
</tr>
<tr>
<td>Three 250V Three Metal Oxide Varistors (MOV) included with P/N 538-745E</td>
<td>527-969</td>
</tr>
<tr>
<td>Optional wall mounting kit (7&quot;)</td>
<td>538-709K</td>
</tr>
<tr>
<td>Optional rack mounting kit (7&quot;)</td>
<td>538-717K</td>
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**Required Tools**

- 19-inch rack position available if using the rack mounting kit
- Small slotted screwdriver
- Wire cutters or wire strippers
- 7/16-inch (11.1mm) nut driver

**Expected Installation Time**

15 minutes
Prerequisites

**CAUTION:**

Avoid mounting the hub in a position that forces the fiber to make turns tighter than a three-inch radius. The mounting surface must also be vibration free.

- Fiber cables installed and terminated with the proper connectors.
- Individual fibers identified as Transmit and Receive.
- A report from the installer showing the loss of optic power per section of fiber cable, including all connectors. The loss must be less than the required link budget.
- Source of transient protected for 115 Vac or 230 Vac. All Field Panel outlets are protected or an MOV protected 120 Vac duplex outlet (529-804), or three 250V MOVs (527-969) connected for 230V operation (refer to Figure 6) can be ordered.
- The BLN or FLN trunk has been checked for opens, shorts, and proper shielding.
- The mounting bracket (if used), or other locally fabricated bracket, is available.

Instructions

1. If wall or rack mounting brackets are being used, refer to the installation instructions for the brackets (P/N 538-718).
2. Remove the protective cap from the transmit port and transmit fiber, and connect the fiber to the port labeled “TX1” (refer to Figure 2). Do not use any tools to tighten the connectors.
3. Remove the protective cap from the receive port and receive fiber, and connect the fiber to the port labeled “RX1” (refer to Figure 2). Do not use any tools to tighten the connectors.
4. Repeat Steps 2 and 3 for the remaining ports. Remember to keep the transmit and receive fibers together on the same numbered TX and RX ports for a remote interface.
5. Connect the DC power cord of the power pack and plug the power pack into the transient protected for 115 Vac or 230 Vac source.
6. If multiple hubs are to be configured on the same logical trunk, then repeat Steps 1 through 5 for as many trunks as required. Then use the hub inter-connect cables to connect the hubs together into one logical network.

When connecting an inter-hub trunk to an older style hub (the older style uses two RJ11 connectors) use the following pin connections: on the OUT port pin 3 is “+” and pin 4 is “-”; on the IN port pin 4 is “+” and pin 3 is “-.” Use a locally obtained RJ11 cable with one end cut to connect the OUT or IN port of the older hub to the new style hub.

Use trunk terminators at each end of the trunk when either more than two hubs are connected via the inter-hub trunk, or the inter-hub trunk connects to a local trunk.

7. Connect the earth ground wire (2’ green wire, included) from the trunk shield connection to earth ground. The ground can be either the field panel chassis using the nutdriver to put the ground terminal under the chassis mounting nut, or the electrical box which powers the interface.

The installation is now complete.
Figure 4. Multiple Unit Rack Mounting Installation.

Figure 5. Wall Mounting.

* MAX AC. (RMS) WHEN USING 527-969 (250 V) MOV = 250 VAC (RMS)

Figure 6. MOV Connections.