General Information

This document describes how to install the Head End equipment for ONE SD-LAN Active Ethernet and GPON deployments.

1 Items Required for Head End Equipment Installation

The following items are required for installing the Head End Equipment.

**ONE SD-LAN Head End Equipment/Accessories**

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Description</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>1LAN-SRV-50195L</td>
<td>Virtual Application Host</td>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td>1LAN-SDDP-48P</td>
<td>SDDP 48 Port Switch</td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td>1LAN-SDOLT-0587</td>
<td>4 Port OLT</td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td>1LAN-SDOLT-0588</td>
<td>8 Port OLT</td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td>PSU6</td>
<td>Power Supply Unit</td>
<td><img src="image5.png" alt="Image" /></td>
</tr>
<tr>
<td>PSM-I</td>
<td>Power Supply Module</td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td>DE2-CCA-1PR18-2M</td>
<td>1 pair power cross connect assembly</td>
<td><img src="image7.png" alt="Image" /></td>
</tr>
<tr>
<td>DE2-CCA-2PR18-2M</td>
<td>2 pair power cross connect “Y” assembly</td>
<td><img src="image8.png" alt="Image" /></td>
</tr>
<tr>
<td>1LAN-SFP-4305BC</td>
<td>SFP, Bi-Di, 1490Tx/1310Rx, 1Gb/s, LC/UPC Simplex</td>
<td><img src="image9.png" alt="Image" /></td>
</tr>
<tr>
<td>1LAN-SFP-3405BC</td>
<td>SFP, Bi-Di, 1310Tx/1490Rx, 1Gb/s, LC/UPC Simplex</td>
<td><img src="image10.png" alt="Image" /></td>
</tr>
</tbody>
</table>
# ONE SD-LAN Head End Equipment
## Quick Installation Guide
SD-LAN-000-HEEQUIP

## ONE SD-LAN Head End Equipment/Accessories

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Connector Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1LAN-SFP-1GB-LXLH</td>
<td>SFP, SMF, 1310nm, 10km, 1Gb/s</td>
<td>LC/UPC Duplex</td>
</tr>
<tr>
<td>1LAN-SFP-1GCU</td>
<td>SFP, Cu, 1Gb/s</td>
<td>RJ-45</td>
</tr>
<tr>
<td>1LAN-QSFPP-40GB-LR</td>
<td>QSFP+ CWDM 4X10.3125Gb/s</td>
<td>LC/UPC Duplex</td>
</tr>
<tr>
<td>1LAN-SFPP-10GB-LR</td>
<td>SFP+, SMF, 1310nm, 10Gb/s</td>
<td>LC/UPC Duplex</td>
</tr>
<tr>
<td>1LAN-SFPP-10GB-S</td>
<td>SFP+, MMF, 850nm, 10Gb/s</td>
<td>LC/UPC Duplex</td>
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<tr>
<td>1LAN-SFP-0035</td>
<td>SFP, SMF, xPON 2.5 Gb/s</td>
<td>LC/UPC Simplex</td>
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<tr>
<td>1LAN-OA-UPC</td>
<td>UPC Optical Attenuator</td>
<td>LC/UPC Simplex</td>
</tr>
<tr>
<td>020201R2131xxxF</td>
<td>LC/UPC to LC/UPC Simplex Jumper (xxx = length in ft.)</td>
<td></td>
</tr>
<tr>
<td>020202R5131xxxF</td>
<td>LC/UPC to LC/UPC Duplex Jumper (xxx = length in ft.)</td>
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</tr>
<tr>
<td>024401R2131xxxF</td>
<td>LC/UPC to SC/APC Simplex Jumper (xxx = length in ft.)</td>
<td></td>
</tr>
<tr>
<td>024402R5131xxxF</td>
<td>LC/UPC to SC/APC Duplex Jumper (xxx = length in ft.)</td>
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<tr>
<td>445801R2131xxxF</td>
<td>SC/APC to SC/UPC Simplex Jumper (xxx = length in ft.)</td>
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<tr>
<td>444401R2131xxxF</td>
<td>SC/APC to SC/APC Simplex Jumper (xxx = length in ft.)</td>
<td></td>
</tr>
<tr>
<td>004401R2131xxxF</td>
<td>SC/APC Simplex Pigtail (xxx = length in ft.)</td>
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</tr>
</tbody>
</table>
## ONE SD-LAN Head End Equipment/Accesories

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<th>Item Code</th>
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<tbody>
<tr>
<td>CCH-01U</td>
<td>Closet Connector Housing, 1RU, (2) Panels/Cassettes</td>
</tr>
<tr>
<td>CCH-02U</td>
<td>Closet Connector Housing, 2RU, (4) Panels/Cassettes</td>
</tr>
<tr>
<td>CCH-03U</td>
<td>Closet Connector Housing, 3RU, (6) Panels/Cassettes</td>
</tr>
<tr>
<td>CCH-04U</td>
<td>Closet Connector Housing, 4RU, (12) Panels/Cassettes</td>
</tr>
<tr>
<td>CCH-CP06-6C</td>
<td>Connector Panel, 6-fiber, SC/APC</td>
</tr>
<tr>
<td>CCH-CP12-6C</td>
<td>Connector Panel, 12-fiber, SC/APC</td>
</tr>
<tr>
<td>CCH-CP06-B3</td>
<td>Connector Panel, 6-fiber, LC/APC</td>
</tr>
<tr>
<td>CCH-CP12-B3</td>
<td>Connector Panel, 12-fiber, LC/APC</td>
</tr>
<tr>
<td>CCH-CS06-6C-P00RE</td>
<td>Splice Cassette, 6-fiber, SC/APC</td>
</tr>
<tr>
<td>CCH-CS12-6C-P00RE</td>
<td>Splice Cassette, 12-fiber, SC/APC</td>
</tr>
<tr>
<td>CCH-CS06-B3-P00RE</td>
<td>Splice Cassette, 6-fiber, LC/APC</td>
</tr>
<tr>
<td>CCH-CS12-B3-P00RE</td>
<td>Splice Cassette, 12-fiber, LC/APC</td>
</tr>
<tr>
<td>1LAN-D920CC-6</td>
<td>Keystone CCH Panel</td>
</tr>
</tbody>
</table>
## ONE SD-LAN Head End Equipment/Accessories

<table>
<thead>
<tr>
<th>Product Code</th>
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<tbody>
<tr>
<td>CCH-UM1-6CD6CE1116</td>
<td>1x16 Splitter, SC/APC</td>
</tr>
<tr>
<td>CCH-UM1-22D22E1116</td>
<td>1x16 Splitter, LC/APC</td>
</tr>
<tr>
<td>CCH-UM1-6CD6CE1132</td>
<td>1x32 Splitter, SC/APC</td>
</tr>
<tr>
<td>CCH-UM1-22D22E1132</td>
<td>1x32 Splitter, LC/APC</td>
</tr>
</tbody>
</table>
2 Suggested Rack Layout |

**NOTE:** Above is a suggested layout for the Head Equipment in rack. Specific deployments may require different layouts of equipment.
ONE SD-LAN Head
End Equipment
Quick Installation Guide
SD-LAN-000-HEEQUIP

3 Application Host/SDDP
Top Of Rack (TOR) Switch Set Up
Using SD-LAN as Router |

3.1 Virtual Application Host Connections

Step 1  Connect power to Virtual Application Host
Step 2  Connect a CAT 6 jumper into RJ-45 data port on the right side located on the back of Virtual Application Host. Connect other end of jumper to WAN connection

Examples:
- IPTV
- WIFI
- SECURITY
- IP PHONE
- RMS
- Etc.

Software Defined Data Plane (SDDP)

- p/n: 1LAN-SDDP-48P
- SFPs:
  - 1LAN-SFP-4305BC Bi-Di SFP, 1Gb to ONT
  - 1LAN-QSFPP-40GB-LR 40Gb SFP
  - 1LAN-SFP-10GB-LR 10Gb SFP
  - 1LAN-SFP-1GB-LXLH 1Gb SFP
  - 1LAN-SFP-1GCU Cu SFP
- Attenuator:
  - 1LAN-DA-UPC UPC Attenuator

Step 3  Using a CAT 6 jumper plug into RJ-45 data port to the left of WAN connection on the back of Virtual Application Host and route to SDDP TOR switch in rack using horizontal and/or vertical management in rack

Step 4  Using included console cable, connect serial end of cable to serial port on the back of Virtual Application Virtual Application Host and route to SDDP TOR switch.

3.2 SDDP TOR Connections

Step 1  Connect power to SDDP TOR Switch
Step 2  Insert a Copper SFP (1LAN-SFP-1GCU) into one of the SFP ports of the SDDP TOR switch
Step 3  Connect the Cat 6 jumper coming from the left side RJ-45 data port on the Virtual Application Host into the copper SFP in the SDDP TOR switch
Step 4  Connect Micro USB end of console cable coming from the back of Virtual Application Host to the Console port on the front of the SDDP TOR

Examples:
- IPTV
- WIFI
- SECURITY
- IP PHONE
- BMS
- Etc.

Virtual App Host / Server

- p/n: 1LAN-SRV-50195L

p/n: 1LAN-060005-BL CAT6 jumper, SP

To SDPP TOR

To SDDP TOR

To SDDP TOR

To WAN

Console Port

To SDDP TOR

Console Port (Micro USB)

1LAN-SFP-1GCU
3.3 Application Controller Connections

**Step 1**
Insert appropriate SFP’s into SDDP TOR switch ports. These SFP’s will correspond to the applications being managed by the Corning SD-LAN Platform.

**Step 2**
Using appropriate jumpers connect to SFP’s

**Step 3**
Connect other end of jumper to corresponding Application Controller

4.1 Virtual Application Host Connections

**Step 1**
Connect power to Virtual Application Host

**Step 2**
Connect a CAT 6 jumper into RJ-45 data port on the right side located on the back of Virtual Application Host and connect other end of jumper to external router

**Step 3**
Using a CAT 6 jumper plug into RJ-45 data port to the left of external router connection on the back of Virtual Application Host and route to SDDP TOR switch in rack using horizontal and/or vertical management in rack

**Step 4**
Using included console cable, connect serial end of cable to serial port on the back of Virtual Application Host and route to SDDP TOR switch.
4.2 SDDP TOR Connections

**Step 1**
Connect power to SDDP TOR Switch

**Step 2**
Insert a Copper SFP (1LAN-SFP-1GCU) into one of the SFP ports of the SDDP TOR switch

**Step 3**
Connect the Cat 6 jumper coming from the left side RJ-45 data port on the Virtual Application Host into the copper SFP in the SDDP TOR switch

**Step 4**
Connect Micro USB end of console cable coming from the back of Virtual Application Virtual Application Host to the Console port on the front of the SDDP TOR

4.3 Application Services from External Router Connections

**Step 1**
Insert appropriate SFP’s into SDDP TOR switch ports that corresponds to the link from external router

**Step 2**
Using appropriate jumpers connect to SFP’s in SDDP TOR switch

**Step 3**
Connect other end of jumper to corresponding ports on external router

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SFP

1LAN-SFP-1GCU

To SDDP TOR

Console Port (Micro USB)

to External Router
5 Active Ethernet Set Up |

NOTES:
- If Active Ethernet topology is being utilized, the SDDP TOR switch can be used to directly feed Access Nodes if empty ports are available on the TOR.
- If empty ports are not available an SDDP Aggregation Switch can be uplinked to the SDDP TOR switch.

Following are steps for connecting both methods:

**Step 1**
Insert a Bi-Di Fiber SFP (1LAN-SFP-4305BC) into an open port on the SDDP TOR switch

**Step 2**
Connect a 10dB attenuator into SFP

**Step 3**
Connect an LC/UPC connector jumper into the Attenuator

**Step 4**
Plug the other end into fiber patch panel that connects the fiber link to an Access Node

NOTE: The other end of the fiber jumper may be another connector type other than LC/UPC depending on patch panel. However, the connector connecting to the SFP must be LC/UPC.
5.2 Active Ethernet Connections using SDDP Aggregation Switch

**Step 1**  
Mount SDDP Aggregation Switch in rack with SDDP TOR switch

**Step 2**  
Connect power to SDDP Aggregation Switch

**Step 3**  
Insert a fiber SFP (1LAN-SFP-1GB-LXLH) into available port on SDDP TOR switch

**Step 4**  
Insert a fiber SFP (1LAN-SFP-1GB-LXLH) into available port on SDDP TOR switch

**Step 5**  
Using an LC/UPC – LC/UPC Duplex jumper, connect the SFP in the TOR switch to the SFP in the Aggregation Switch

**Step 6**  
Insert a Bi-Di Fiber SFP (1LAN-SFP-4305BC) into an open port on the SDDP Aggregation switch

**Step 7**  
Connect a 10dB attenuator into SFP

**Step 8**  
Connect an LC/UPC connector jumper to the attenuator

**Step 9**  
Plug the other end into fiber patch panel that connects the fiber link to an Access Node

6.1 OLT Connections

**Step 1**  
Mount OLT (1LAN-SDOLT-0587 or 1LAN-SDOLT-0587) in Head End equipment rack with SDDP TOR switch

**Step 2**  
Connect power leads to OLT power supply on back of unit

**Step 3**  
Power OLT on

**Step 4**  
Insert the appropriate SFP into available port on SDDP TOR switch

**NOTE:** Make sure that power supply is not on when making connections to OLT. Power supply in OLT is not hot swappable. Make sure the OLT is grounded properly.
Step 5 Insert the appropriate SFP into available port on OLT

Step 6 Using an LC/UPC – LC/UPC Duplex jumper, connect the SFP in the TOR switch to the SFP in the OLT

Step 7 Insert a fiber PON SFP into one of the PON output ports on the OLT

Step 8 Connect an SC/UPC connector jumper to the Fiber PON SFP

Step 9 Plug the other end into fiber patch panel that connects the fiber link to an Optical Splitter

7 Power Set Up |

NOTE: For detailed instructions on mounting and installing PSU6 see Coring Quick Installation Sheet CMA-477AEN.

7.1 PSU6 Connections

Step 1 Mount PSU6 in Head End equipment rack

Step 2 Insert selected quantity of power supply modules (PSM-I) into back of unit

Step 3 Plug power cord into PSU6 unit and connect to power source

Step 4 Insert power cross connect assemblies (DE2-CCA-1PR18-2M or DE2-CCA-2PR18-2M) into front power ports and connect to selected power feeds on patch panel

NOTE: The DE2-CCA-1PR18-2M assembly is used for 729x 4 port model ONT’s. The DE2-CCA-2PR18-2M assembly can be used to feed 2 Micro 8293 ONT’s
8 Fiber Set Up |

8.1 Fiber Hardware Housing Set Up

**Step 1**
Mount selected fiber hardware enclosure in Head End equipment rack

**Step 2**
Insert selected fiber panels or cassettes into housing

**NOTE:** Outgoing fiber cables can be terminated using the following methods

A. Unicam® Connectors
B. Fuselite® Connectors
C. CCH Pigtailed Splice Cassettes

**METHOD A. Unicam® Connector**

**Step 1**
Use CCH panels to interconnect Head Equipment and outgoing fiber cables

**Step 2**
Insert CCH panels into fiber housing

**METHOD B. Fuselite® Connector**

**Step 1**
Use CCH panels to interconnect Head Equipment and outgoing fiber cables

**Step 2**
Insert CCH panels into fiber housing

**Step 3**

**Step 4**
Plug terminated Fuselite® connectors into the back of the CCH panels

**Step 5**
Route fiber in back of CCH housing making sure the minimum bend radius is not exceeded and fibers are not pinched or damaged

**Step 6**
Make sure outgoing cables are routed and strain relieved properly to housing

**Step 7**
Connect jumpers from Head End Active equipment to the appropriate port on CCH panels

**Step 3**

**Step 4**
Plug terminated Unicam connectors into the back of the CCH panels

**Step 5**
Route fiber in back of CCH housing making sure the minimum bend radius is not exceeded and fibers are not pinched or damaged

**Step 6**
Make sure outgoing cables are routed and strain relieved properly to housing

**Step 7**
Connect jumpers from Head End Active equipment to the appropriate port on CCH panels

**CCH-01U** 2 CCH Panels/Cassettes

**CCH-02U** 4 CCH Panels/Cassettes

**CCH-03U** 6 CCH Panels/Cassettes

**CCH-04U** 8 CCH Panels/Cassettes
Step 6  
Make sure outgoing cables are routed and strain relieved properly to housing

Step 7  
Connect jumpers from Head End Active equipment to the appropriate port on CCH panels

**METHOD C. CCH Pigtailed Splice Cassettes**

**Step 1**  
Use CCH Pigtailed Splice Cassettes to interconnect Head Equipment and outgoing fiber cables

**Step 2**  
Terminate fiber in CCH Splice cassette using Corning standard recommended procedure  

**Step 3**  
Insert CCH splice cassettes into housing

**Step 4**  
Route fiber in back of CCH housing making sure the minimum bend radius is not exceeded and fibers are not pinched or damaged

**Step 5**  
Make sure outgoing cables are routed and strain relieved properly to housing

**Step 6**  
Connect jumpers from Head End Active equipment to the appropriate port on CCH splice cassettes