ONE SD-LAN Head End Equipment Quick Installation Guide

SD-LAN-000-HEEQUIP

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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/Accesories

1LAN-SRV-50195L	Virtual Application Host		
1LAN-SDDP-48P	SDDP 48 Port Switch		
1LAN-SDOLT-0587	4 Port OLT		
1LAN-SDOLT-0588	8 Port OLT		
PSU6	Power Supply Unit		
PSM-I	Power Supply Module		
DE2-CCA-1PR18-2M	1 pair power cross connect assembly		
DE2-CCA-2PR18-2M	2 pair power cross connect “Y” assembly		
1LAN-SFP-4305BC	SFP, Bi-Di, 1490Tx/1310Rx, 1Gb/s	LC/UPC Simplex	
1LAN-SFP-3405BC	SFP, Bi-Di, 1310Tx/1490Rx , 1Gb/s	LC/UPC Simplex	

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ONE SD-LAN Head End Equipment/Accesories

1LAN-SFP-1GB-LXLH	SFP, SMF, 1310nm, 10km, 1Gb/s	LC/UPC Duplex	
1LAN-SFP-1GCU	SFP, Cu, 1Gb/s	RJ-45	
1LAN-QSFPP-40GB-LR	QSFP+ CWDM 4X10.3125Gb/s	LC/UPC Duplex	
1LAN-SFPP-10GB-LR	SFP+, SMF, 1310nm, 10Gb/s	LC/UPC Duplex	
1LAN-SFPP-10GB-S	SFP+, MMF, 850nm, 10Gb/s	LC/UPC Duplex	
1LAN-SFP-0035	SFP,SMF, xPON 2.5 Gb/s	LC/UPC Simplex	
1LAN-OA-UPC	UPC Optical Attenuator	LC/UPC Simplex	
020201R2131xxxF	LC/UPC to LC/UPC Simplex Jumper (xxx = length in ft.)		
020202R5131xxxF	LC/UPC to LC/UPC Duplex Jumper (xxx = length in ft.)		
024401R2131xxxF	LC/UPC to SC/APC Simplex Jumper (xxx = length in ft.)		
024402R5131xxxF	LC/UPC to SC/APC Duplex Jumper (xxx = length in ft.)		
445801R2131xxxF	SC/APC to SC/UPC Simplex Jumper (xxx = length in ft.)		
444401R2131xxxF	SC/APC to SC/APC Simplex Jumper (xxx = length in ft.)		
004401R2131xxxF	SC/APC Simplex Pigtail (xxx = length in ft.)		

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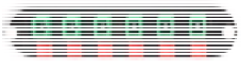
ONE SD-LAN Head End Equipment/Accesories

CCH-01U	Closet Connector Housing, 1RU, (2) Panels/Cassettes		
CCH-02U	Closet Connector Housing, 2RU, (4) Panels/Cassettes		
CCH-03U	Closet Connector Housing, 3RU, (6) Panels/Cassettes		
CCH-04U	Closet Connector Housing, 4RU, (12) Panels/Cassettes		
CCH-CP06-6C	Connector Panel, 6-fiber, SC/APC		
CCH-CP12-6C	Connector Panel, 12-fiber, SC/APC		
CCH-CP06-B3	Connector Panel, 6-fiber, LC/APC		
CCH-CP12-B3	Connector Panel, 12-fiber, LC/APC		
CCH-CS06-6C-P00RE	Splice Cassette, 6-fiber, SC/APC		
CCH-CS12-6C-P00RE	Splice Cassette, 12-fiber, SC/APC		
CCH-CS06-B3-P00RE	Splice Cassette, 6-fiber, LC/APC		
CCH-CS12-B3-P00RE	Splice Cassette, 12-fiber, LC/APC		
1LAN-D920CC-6	Keystone CCH Panel		

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ONE SD-LAN Head End Equipment/Accesories

CCH-UM1-6CD6CE1116	1x16 Splitter, SC/APC		
CCH-UM1-22D22E1116	1x16 Splitter, LC/APC		
CCH-UM1-6CD6CE1132	1x32 Splitter, SC/APC		
CCH-UM1-22D22E1132	1x32 Splitter, LC/APC		

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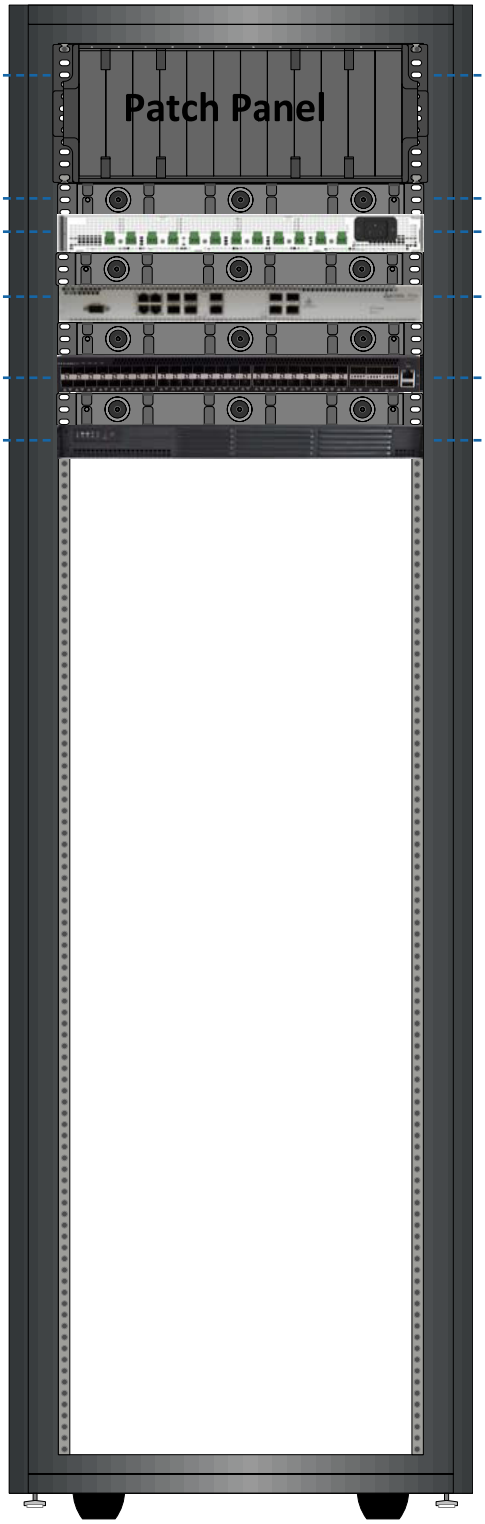
2 Suggested Rack Layout |



NOTE: Above is a suggested layout for the Head Equipment in rack. Specific deployments may require different layouts of equipment.

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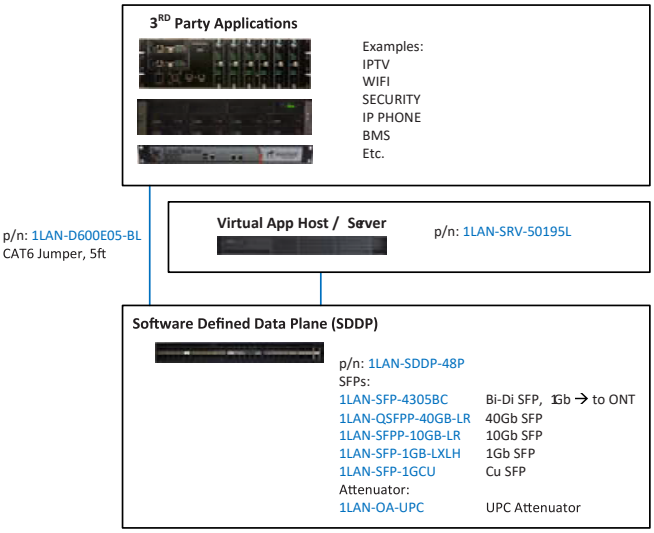
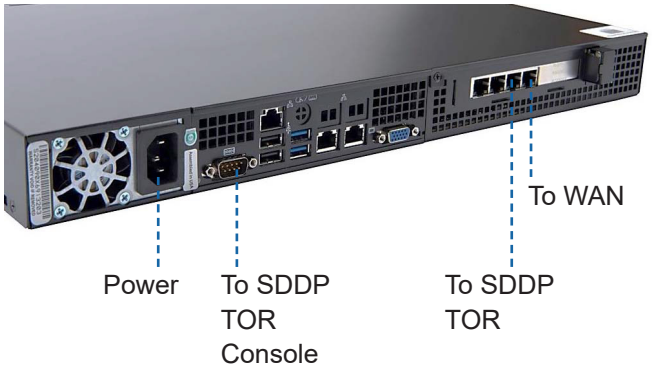
3 Application Host/SDDP Top Of Rack (TOR) Switch Set Up Using SD-LAN as Router |



3.1 Virtual Application Host Connections

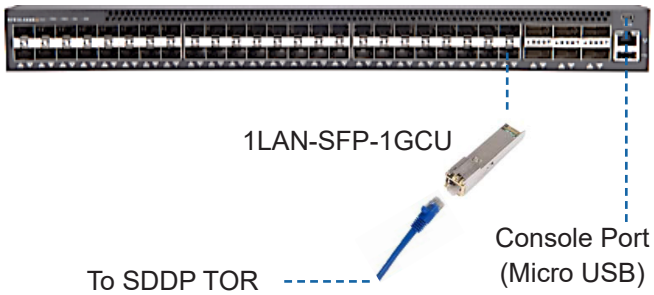
Step 1	Connect power to Virtual Application Host
Step 2	Connect a CAT 6 jumper into RJ-45 data port on the right side located on the back of Virtual Application Host. Connect other end of jumper to WAN connection



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



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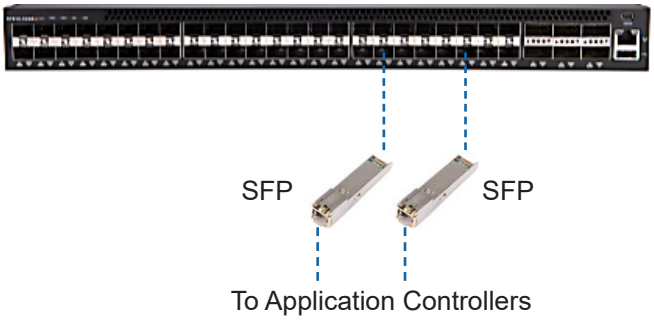
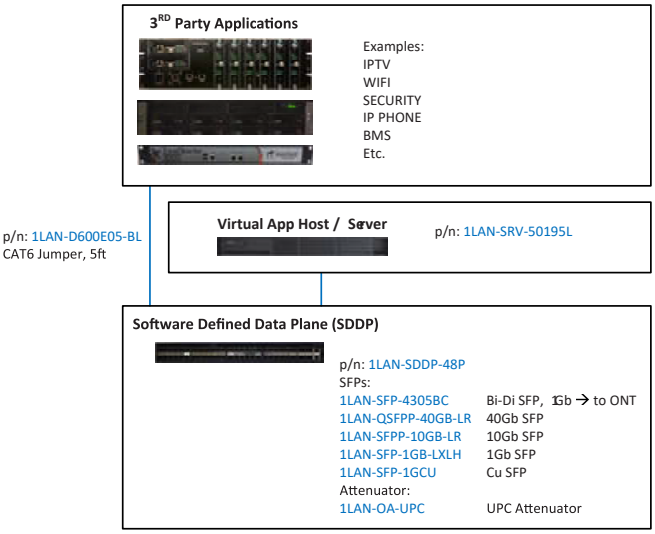
3.3 Application Controller Connections

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

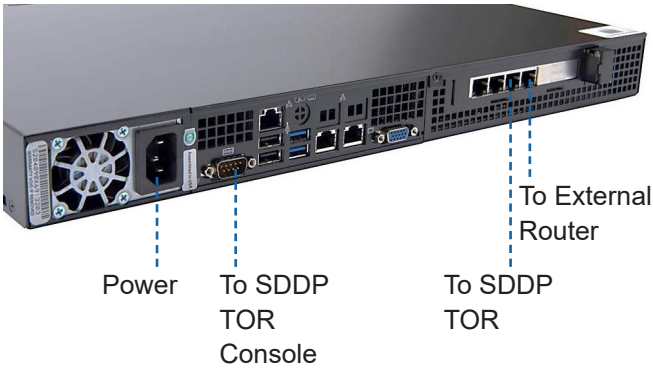


4 Virtual Application HOST/SDDP Top Of Rack (TOR) Switch Sat Up Using External Router |



4.1 Virtual Application Host Connections

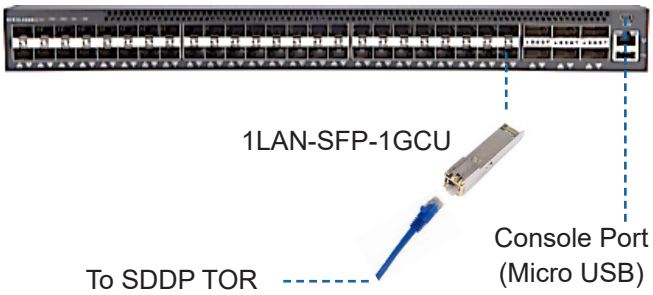
Step 1	Connect power to Virtual Application Host
Step 2	Connect a CAT 6 jumper into RJ-45 data port on the right side located on the back of Virtual Application Host and connect other end of jumper to external router



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.

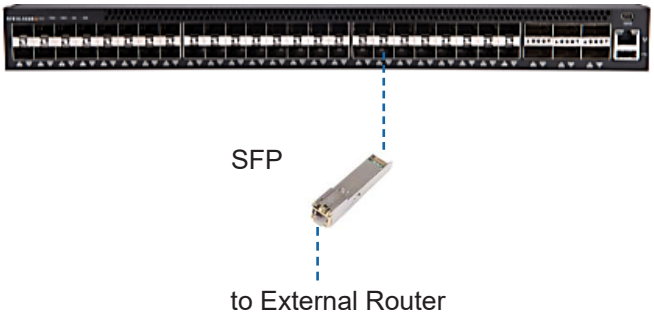
4.2 SDDP TOR Connections

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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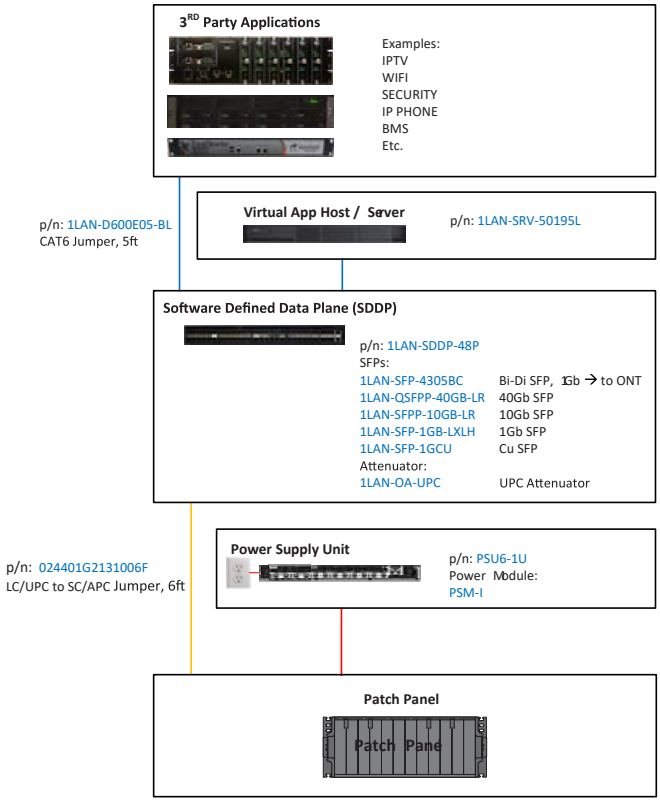
5 Active Ethernet Set Up |

NOTES:

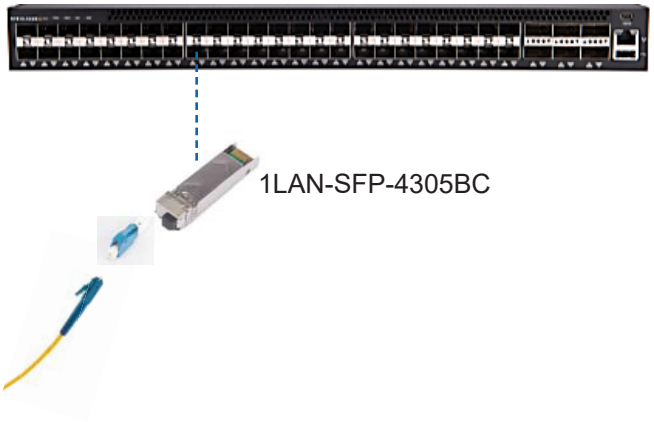
- *If Active Ethernet topology is being utilized, the SDDP TOR switch can be used to directly feed Access Nodes if empty ports are available on the TOR.*
- *If empty ports are not available an SDDP Aggregation Switch can be uplinked to the SDDP TOR switch*

Following are steps for connecting both methods



5.1 Active Ethernet Connections using SDDP TOR

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

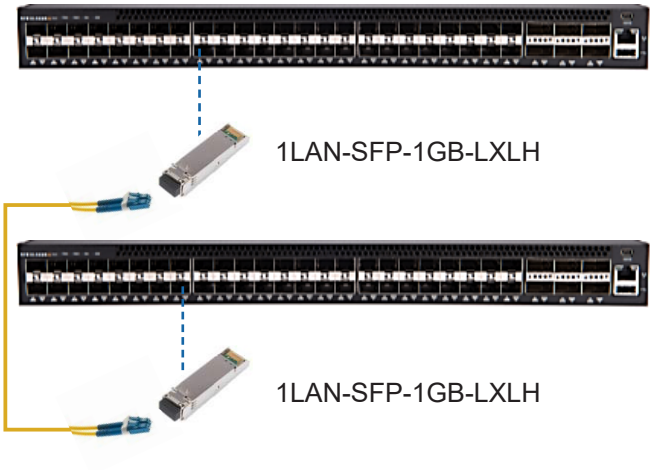


Step 4	Plug the other end into fiber patch panel that connects the fiber link to an Access Node

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

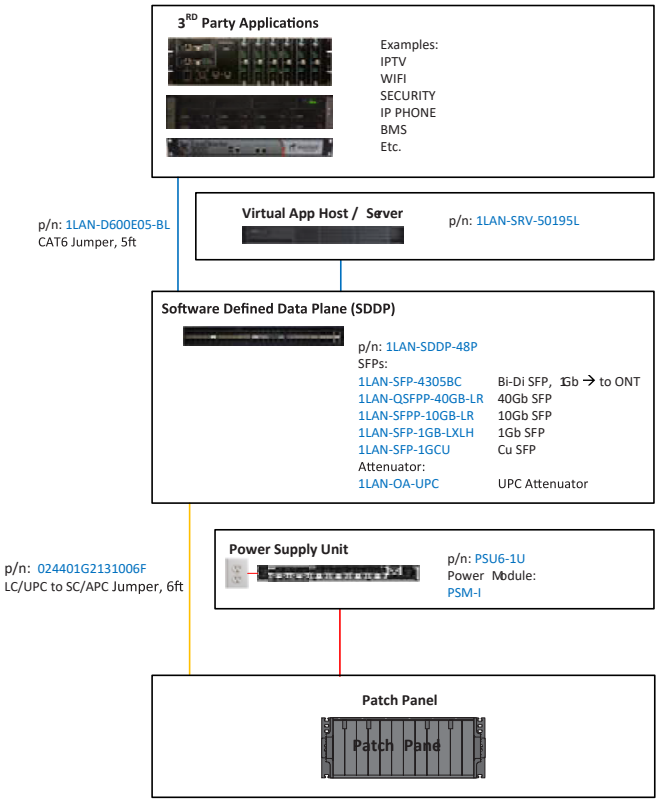
5.2 Active Ethernet Connections using SDDP Aggregation Switch

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 Aggregation 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 PON Set Up |



6.1 OLT Connections

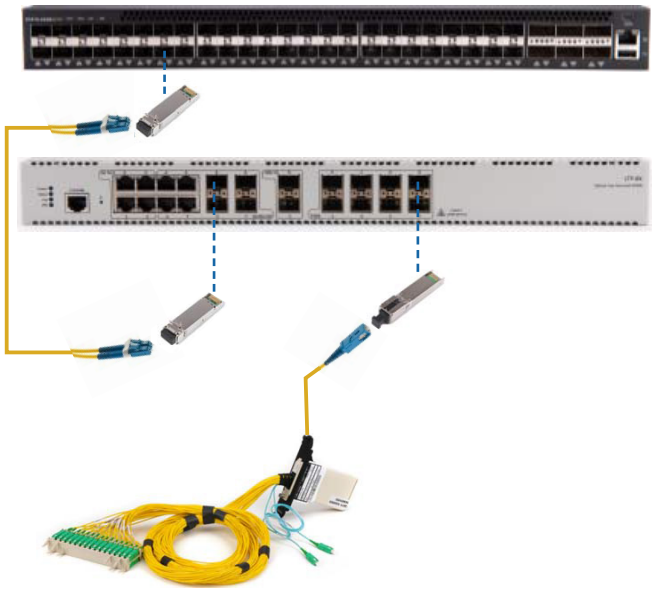
Step 1	Mount OLT (1LAN-SDOLT-0587 or 1LAN-SDOLT-0587) in Head End equipment rack with SDDP TOR switch

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

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 3	Power OLT on
Step 4	Insert the appropriate SFP into available port on SDDP TOR switch

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

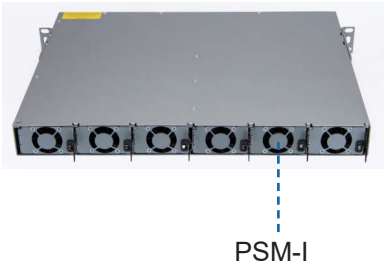


7 Power Set Up |

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

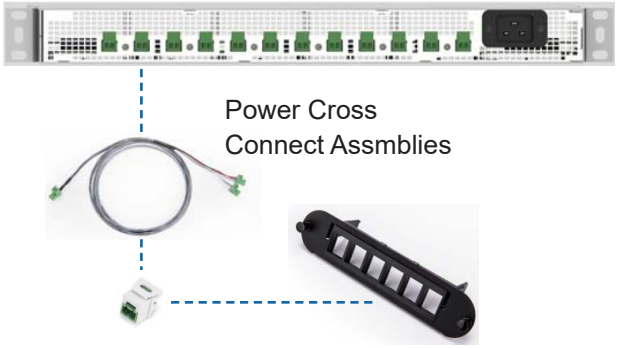
7.1 PSU6 Connections

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



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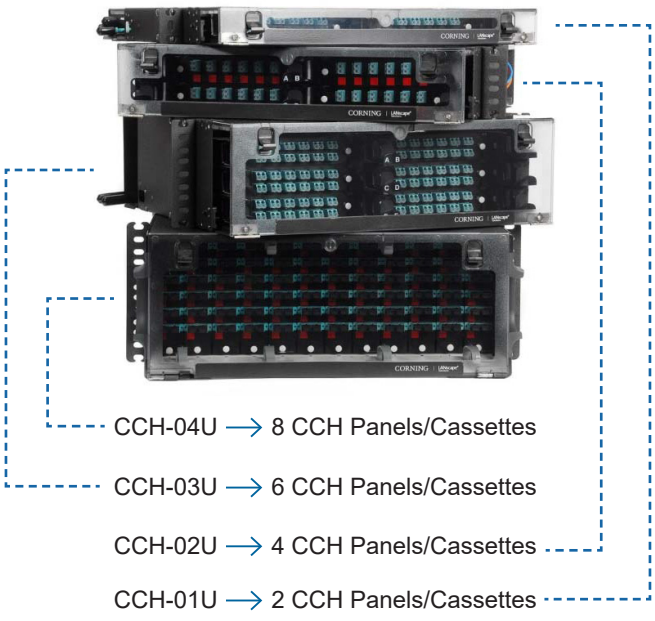
8 Fiber Set Up |

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

Step 3 Terminate outgoing fiber using Corning Unicam® standard recommended procedure (https://www.corning.com/catalog/coc/documents/standard-recommended-procedures/006-369.pdf)

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

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 Terminate fiber using Corning Fuselite® standard recommended procedure (https://www.corning.com/catalog/coc/documents/standard-recommended-procedures/LAN-1468-AEN.pdf)

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

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 (http://csmedia.corning.com/opcomm/Resource_Documents/SRPs_rl/003-895.pdf)
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