

Fiber connectivity from headend to node

Rack and splice enclosures for headends and hubs, an entrance cabinet for the largest OSP feeds, lockable wall mounts for huts and cabinets, and preterminated OSP cable to nodes. SC/APC builds, configured to order in Henderson, NV.

CABLE / MSO ENGINEERS

PON & FTTX OPERATORS

OSP CONTRACTORS

MUNICIPAL BROADBAND



FEC-6912 Fiber Entrance Cabinet, WMHD6X wall mount and a PTO- preterminated OSP cable.

OVERVIEW

Fiber deeper, more terminations at every site

Distributed access moves the PHY into the node, DOCSIS 4.0 plans shrink service groups with node splits and N+0 rebuilds, and PON overlays add OLT ports in hubs and splitter cabinets in the field. Every step adds fiber terminations at the headend, the hub and the edge. One Optics builds the passive pieces in between, with APC polish where reflections matter.

432 SC/APC
PORTS IN 9U (HD9U)

72 SC/APC
WALL MOUNT
(WMHD6X)

6,912_F
OSP CABLE PER FEC-
6912

12-144_F
PRETERM OSP
(PTO-)

WHAT WE SUPPLY

- **Headend / hub:** FEC-6912, HD3US, HD3U / HD6U / HD9U, HD1U
- **Huts and cabinets:** WMHD2X and WMHD6X lockable wall mounts
- **Cable assemblies:** PTO- preterminated OSP, PT- pigtails, SC/APC and LC/APC jumpers

SUPPLIED BY OTHERS

- CCAP cores, RPD / RMD nodes, OLTs, ONTs and optics
- PON splitters and splitter cabinets, RF and coax plant
- OSP feeder cable, splice closures, poles and conduit

THE CHALLENGE

More fiber at the edge, fewer hours in the field

CableLabs' DOCSIS 4.0 guidance assumes a distributed access architecture: the CCAP core stays in the headend, hub or regional data center while the PHY moves to a Remote PHY device at the node, and the hub-to-node link becomes digital Ethernet or PON over fiber. Node splitting and cascade reduction toward N+0 replace amplifiers with nodes, and each new node needs fiber from the nearest splice point or new wavelengths on existing fiber.

PON and RF-over-glass add OLT ports in hubs and splitter cabinets in the field. Huts and cabinets are shared and space-limited, crews splice in aerial and duct conditions, and the headend has to land ever larger OSP cables. The passive plant has to scale in the rack, on the wall and on the reel.

DESIGN NOTES

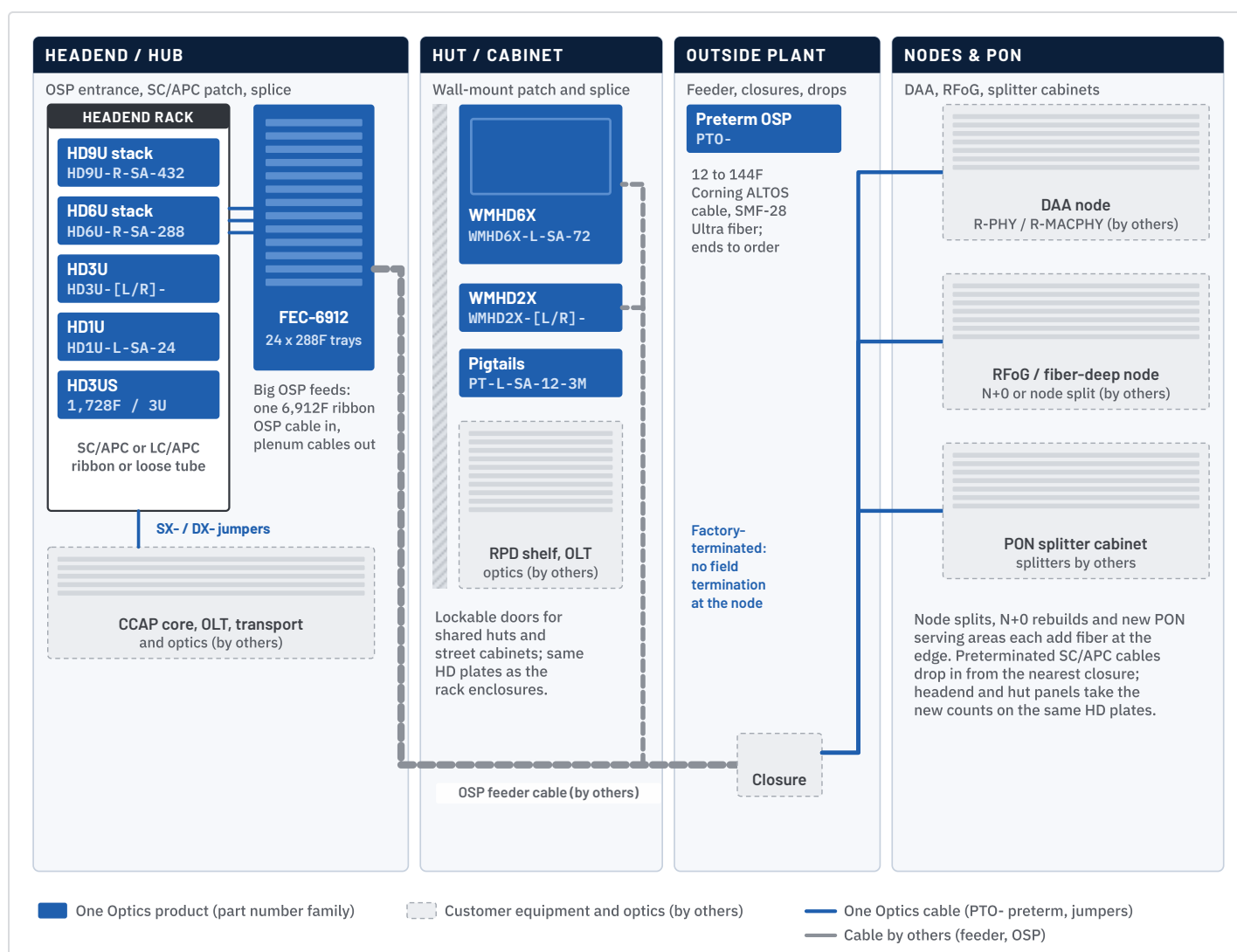
Keep APC end to end. RF video, RFoG and PON optics are sensitive to reflections; never mate UPC to APC.

Separate splice from patch. A splice-only panel (HD3US) keeps re-splicing away from live jumpers.

Leave room for the next split. Size hub panels and wall mounts for the node count after the next segmentation.

Terminate at the factory. Preterminated OSP removes field termination at the node end.

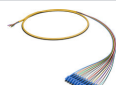
WHERE ONE OPTICS FITS · HEADEND TO NODE



Simplified, not to scale. Active equipment, splitters, closures and feeder cable are supplied by others; One Optics supplies the passive connectivity shown in blue.

PRODUCT FIT

Headend, hub, hut and node

PRODUCT	PART NUMBERS	SITE	ROLE IN THE NETWORK
 Fiber Entrance Cabinet 44.5 x 21.5 x 13.25 in, aluminum	FEC-6912 FEC-UMK	Headend entrance	Lands the customer's 6,912F armored or dielectric ribbon OSP cable; top or bottom entry, spliced to 24 x 288F or 48 x 144F plenum cables (PTP- plenum preterms) on 24 trays. Optional strut-mount kit.
 HD3US splice panel 3U, splice only	HD3US	Headend · hub	6 trays x 288F = 1,728F of splicing in 3U, kept separate from the patch field. Serves up to six HD3U.
 HD3U / HD6U / HD9U 3U, 6U and 9U rack enclosures	HD6U-R-SA-288 HD9U-R-SA-432 · HD3U-	Headend · hub	SC/APC ribbon builds: 288 ports in 6U, 432 ports in 9U. HD3U loose tube to 144F; LC/APC to 288 ribbon in 3U.
 HD1U enclosure 1U, 4 HD positions	HD1U-L-SA-24 HD1U-R-SA-24	Hub · small headend	24 SC/APC loose tube or ribbon in 1U; loose tube to 48F, ribbon LC to 96F.
 WMHD2X wall mount 2 HD positions, lockable doors	WMHD2X-[L/R]-	Hut · cabinet	Patch and splice on the wall: up to 24 SC or 48 LC. Small huts, MDU rooms and shared cabinets.
 WMHD6X wall mount 6 HD positions, lockable doors	WMHD6X-L-SA-72 WMHD6X-R-LA-144	Hut · cabinet	72 SC/APC loose tube or 144 LC/APC ribbon, with room for splice trays and slack.
 HD adaptor plates SC, LC, MTP, Cat 6 RJ45	HDP-SA-12 · HDP-LA-	Rack and wall	Green APC adaptors, the same plates in rack and wall enclosures; swap or add from the front.
 OOFc splice cassette 24 or 36 LC	OOFc-[L/R]-LA-24/36	Hub · hut	LC/APC splice-and-patch in one HD position, ribbon or loose tube.
 Preterminated OSP Corning ALTOS, SMF-28 Ultra	PTO-	Hub → node	12 to 144F, factory terminated and built to length. 12F builds use gel-free, all-dielectric loose tube cable for lashed aerial and duct runs.
 Fiber pigtails SMF-28 Ultra (G.657.A1)	PT-L-SA-12-3M PT-R-SA-12-3M	All sites	SC/APC (and LC/APC) pigtails for spliced builds, loose tube or ribbon; every assembly tested for end-face and geometry.
 Simplex / duplex jumpers Corning SMF-28 Ultra	SX- / DX-SASA-	Headend · hub · hut	SC/APC and LC/APC jumpers from patch field to CCAP, OLT and transport optics.

READING THE PART NUMBERS

HD3U-[L/R/C/A]-[LC/LA/SC/SA]-[count]

loose tube / ribbon / cassette / adaptors only · connector and polish · ports

PT-[L/R]-[LC/LA/SC/SA]-[count]-[length]

pigtails: loose tube or ribbon, e.g. PT-L-SA-12-3M

[SX/DX]-[A][B]-[NN]M

simplex or duplex jumper, end A + end B, length in meters

WMHD6X-[L/R/A]-[LC/LA/SC/SA]-[count]

same key for HD1U, WMHD2X and WMHD6X; -E = empty

PTO-[count]-[cable]-[end A]-[end B]-[length]F

preterminated OSP, 12 to 144F, length in feet

LC · LA · SC · SA

LC/UPC · LC/APC · SC/UPC · SC/APC

TYPICAL BUILDS

Three building blocks, headend to node



BUILD 01 · HEADEND ENTRANCE

A 6,912F feed from the vault, 48 cables to the frames

The largest OSP cable into the headend lands in one wall-mount cabinet instead of a row of splice panels. Bottom entry suits a feed coming up from a vault or floor conduit; the cable is spliced on 24 trays and leaves as 48 x 144F plenum cables, 24 through the top and 24 through the bottom.

FEC-6912	Fiber Entrance Cabinet, plates set for bottom OSP entry, exit configuration 48 x 144F	1
FEC-UMK	Strut-mount kit (optional)	1
PTP-144-[L/R]-[A]-U-[L]F	Plenum preterm, 144F, single end terminated (End B spliced in the cabinet), or unterminated plenum cable	48

Result: **6,912 fibers** from OSP to plenum in 44.5 x 21.5 x 13.25 in of wall.



BUILD 02 · HEADEND / HUB PATCH FIELD

432 SC/APC ports in 9U

Three HD3U on 9U brackets, 36 plates of 12 SC/APC each, ribbon pigtails spliced on trays inside each chassis. Smaller hubs take the same build in 6U at 288 ports. SC/APC jumpers connect the field to CCAP, OLT and transport optics.

HD9U-R-SA-432	9U, 432 SC/APC (36 plates x 12), ribbon pigtails, splice trays	1
HD6U-R-SA-288	6U, 288 SC/APC (24 plates x 12), ribbon pigtails, splice trays	alt
DX-SASA-[NN]M	Duplex jumper, SC/APC to SC/APC, Corning SMF-28 Ultra	as req.

Result: **432 SC/APC** patch-and-splice ports in one 9U stack.



BUILD 03 · HUT TO NODE

72 SC/APC on the wall, preterm out to the node

A lockable wall mount in the hut terminates the feeder on six 12-port SC/APC plates. New nodes from a split are fed with preterminated OSP cable built to length, so the crew pulls, lashes and plugs in rather than terminating at the pole.

WMHD6X-L-SA-72	Wall mount, 72 SC/APC, 3 m 900 µm pigtails, splice trays	1
PT0-012-[cable]-[A]-[B]-[L]F	Preterminated OSP, 12F, Corning ALTOS, built to length	per node
PT-L-SA-12-3M	12F SC/APC loose tube pigtails for added splices	as req.

Result: **72 SC/APC** in a hut wall mount; each new node fed with a factory-terminated cable.

WHY ONE OPTICS

Built to your drawing, tested before it ships

01 Built to order in Henderson, NV

Enclosures and cable assemblies are configured and built per order at our Henderson, Nevada facility, sized to your fiber counts and lengths rather than the nearest stock item, by a team with more than 30 years of experience in cable TV and data center fiber.

03 Configure-to-order part numbers

Part numbers encode fiber style, connector, polish, count, polarity and length, so the build on the drawing is the build on the purchase order.

Made in USA enclosures

HD1U, HD3U (including HD6U and HD9U stacks), HD3US, WMHD2X, WMHD6X and the Fiber Entrance Cabinet (FEC-6912).

02 Every assembly tested

Every assembly is tested before it ships; jumpers, pigtails and preterminated assemblies are tested for end-face cleanliness and end-face geometry. Test data and certificate of conformance available on request.

04 Components you can specify

Corning SMF-28 Ultra (G.657.A1) fiber in our jumpers, MPO jumpers and pigtails; Corning ALTOS cable on preterminated OSP and Corning plenum ribbon or loose tube cable on plenum preterms; US Conec MTP connectors on MPO jumpers, trunks and cassette adaptors.

Build America, Buy America (BABA)

BABA compliant, self-certified; compliance letter available on request. Applies to every product except fiber jumpers (simplex/duplex), MPO jumpers, pigtails and Cat 6 copper.

PLANNING CHECKLIST BY SITE

SITE	DECIDE EARLY	ONE OPTICS PARTS
Headend entrance	Largest OSP cable count, vault or overhead entry (bottom or top), exit cable count (24 x 288F or 48 x 144F)	FEC-6912 · FEC-UMK · PTP-
Headend / hub	Ports per frame after the next node split, SC/APC or LC/APC, splice in the chassis or in a separate splice panel	HD9U-R-SA-432 · HD6U-R-SA-288 · HD3U · HD3US · HD1U
Hut / cabinet	Wall space, fibers to terminate, lockable access for shared sites, loose tube or ribbon feeder	WMHD2X · WMHD6X · HDP-SA-12 · PT-
Node / splitter cabinet	Route length from the nearest closure, fiber count per node, aerial or duct, connector at each end	PTO- · DX-SASA- · SX-

WHAT TO SEND FOR A QUOTE

- **Port counts** per headend, hub and hut, now and after planned splits
- **Connector and polish** (SC/APC standard for RF video and PON)
- **Fiber style:** loose tube or ribbon feeder
- **Preterm routes:** length, fiber count, aerial or duct, end A / end B
- **Mounting:** rack units or wall space at each site

RELATED DATASHEETS

- Fiber Entrance Cabinet (FEC-6912) · HD3US · HD3U
- HD1U · WMHD2X · WMHD6X · HD adaptor plates
- Preterminated cables (OSP and plenum) · fiber pigtails
- Fiber jumpers (simplex / duplex) · OOFc splice cassette

Specifications are subject to change. DOCSIS is a trademark of CableLabs, referenced only to describe the application.