DATA SHEET

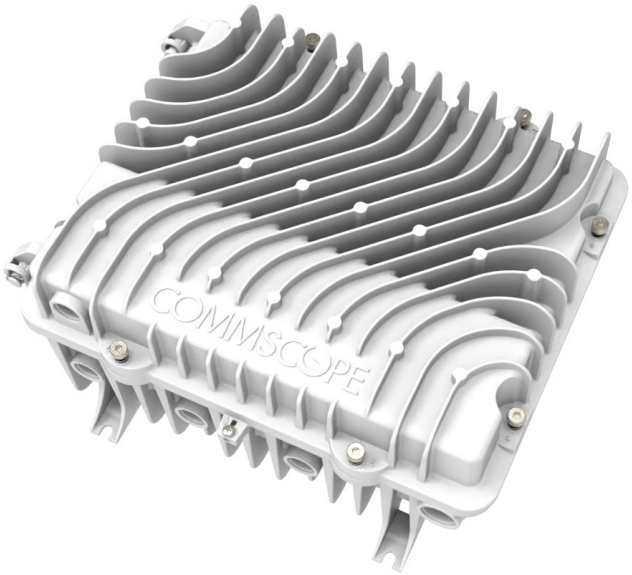
DAA Node Series

DC2180 Compact Node

with RD2312 Remote MACPHY Device (RMD)

FEATURES

- DC2180 Node: Compact cabinet-style node which houses the CommScope RD2312 RMD module (or E6000r R-PHY Shelf RPD)
- RD2312 RMD: CableLabs® compliant, 1x2 SGs, D3.1 R-MACPHY module
- RD2312 RMD: Supports D3.1*Enhanced* channel bonding for up to five (5) OFDM channels
- RD2312 RMD: Supports bonding of more than 32 downstream channels
- Single active output; internally splitable to two physical ports
- 1218 MHz downstream
- High level output 114 dBµV per 8 MHz @ 1218 MHz
- 1x2 Segmentable
- Band splits of 42/54 MHz, 65/85 MHz, 85/102 MHz, and 204/258 MHz field upgradable via pluggable diplex filters
- Electronic control & monitoring via the installed DAA module
- Integrated Fiber Management Tray
- RF Overlay supported with RD2312 RMD module
- Field replaceable Power Supply
- Housing is 1.8 GHz capable for potential DOCSIS 4.0 upgrade



The Remote MACPHY Device (RMD) and Remote PHY Device (RPD) are key components in CommScope's Distributed Access Architecture (DAA) portfolio. Both offer significant operational benefits—including increased bandwidth capacity, improved fiber efficiencies (wavelengths and distance), simplified plant operations with digital optics, and decreased loads on facility space and power systems—by extending the digital portion of the headend or hub to the node and placing the digital/RF interface at the optical/coax boundary.

The CommScope DC2180 Node is a cabinet style, compact node deployable in a street cabinet or MDU environment. This flexible compact node has been specifically designed for deploying DOCSIS® 3.1 Remote MACPHY and Remote PHY DAA networks.

For DAA D3.1 deployments, the DC2180 node supports 1x2 RD2312 RMD (or alternatively a 1x2 R-PHY Shelf RPD) with launch power up to 114 dBµV at 1218 MHz when using single RF port, or up to 110 dBµV when using two RF ports.

The DC2180 Node also provides Operators the flexibility to support their network evolution needs with field upgradable diplex filters to allow customers to upgrade to 204 MHz high split when ready as well as the ability to remotely configure downstream gain and tilt.

To support future applications, the DC2180 Node housing is designed to support up to 1.8 GHz maximum downstream frequency, as specified in DOCSIS 4.0, as well as provide for deployment of CommScope's EPON and XGS PON modules. Additionally, the Node and RF Module support a third RF port to enable additional product evolution.

SPECIFICATIONS

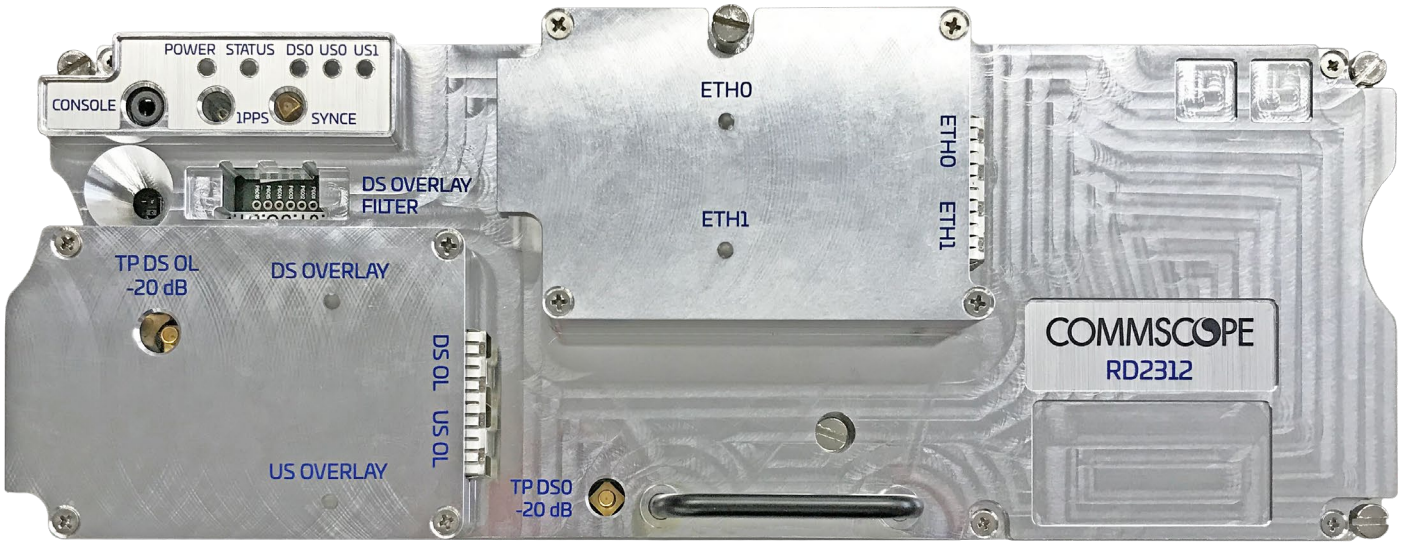
Characteristics	Specification
Service Group Configurations	1 DS-SG x 1 US-SG 1 DS-SG x 2 US-SG
CIN Connectivity	Dual 10 GbE SFP+, Path Redundancy, LAG Control/Management Plane—IPv4 Data Plane/MPEG Video—IPv4 or IPv6
Security/Encryption	802.1x Authentication & Authorization Secure Boot MACsec Encryption TACACS+ Protocol for Authentication, Authorization, and Accounting (AAA) Services RADIUS Protocol for Authentication
Proactive Network Management (PNM)	Upstream Receive Modulation Error Ratio (RxMER) per subcarrier Upstream Capture for Active and Quiet Probes (UPC) Upstream Triggered Spectrum Capture (UTSC) IdleSID Trigger Mode UTSC FreeRun Trigger Mode with Repeat Capture or Continuous Capture PNM Bulk File Transfer of PNM data files
High Split Support	OFDMA Upstream Data Profile (OUDP) scheduled grants for high split leakage detection and upstream measurement
Channel Capacity[1]	
Downstream (per downstream service group)	Annex A or B: 6x 192 MHz, configurable as SC-QAM or OFDM Annex A: 3 OFDM (up to 192 MHz each) with up to 72 Annex A SC-QAM, of which up to 32 may be DOCSIS Up to 2 OFDM (up to 192 MHz each) with up to 96 Annex A SC-QAM, of which up to 32 may be DOCSIS Annex B: 5 OFDM (up to 192 MHz each) with up to 20 video channels 4 OFDM (up to 192 MHz each) with up to 32 Annex B SC-QAM and up to 20 video channels 3 OFDM (up to 192 MHz each) with up to 96 Annex B SC-QAM, of which up to 48 may be DOCSIS Up to 2 OFDM (up to 192 MHz each) with up to 128 Annex B SC-QAM, of which up to 48 may be DOCSIS 1 OFDM (up to 192 MHz) with up to 123 Annex B SC-QAM, of which up to 63 may be DOCSIS No OFDM with up to 124 Annex B SC-QAM, or which up to 64 may be DOCSIS
Channel Bonding	D3.1*Enhanced* channel bonding for up to five (5) OFDM channels[1] More than 32 downstream channels
Upstream (per upstream service group)	12 SC-QAM and 2 OFDMA (up to 95 MHz each)
Out-of-Band[2]	Narrowband Digital Forward (NDF)—two NDF channels (with up to 3 OFDM channels) Narrowband Digital Forward (NDF)—one NDF channel (with 4 or 5 OFDM channels) Narrowband Digital Return (NDR)—one NDR channel per upstream service group Channel Widths: 25.6 MHz (NDF only); 1.28, 2.56, or 5.12 MHz (NDF and NDR); 160, 320, or 640 kHz (NDR only)
CW Tone Generation	AGC, Alignment, Leakage Detection
High Speed Data	DOCSIS 3.0, DOCSIS 3.1/3.1*Enhanced*
Video	Broadcast Video, Narrowcast Video through Video Aux Core Video Synch Mode (requires IEEE 1588 Precision Time Protocol (PTP)) Video Asynch Mode (does not require PTP) Mixed Annex: Annex A video with Annex B DOCSIS; Annex C video with Annex B DOCSIS
Designed for Compliance to CableLabs® MHAv2 Standards	CM-SP-R-PHY Remote PHY Specification CM-SP-R-DEPI Remote Downstream External PHY Interface Specification CM-SP-R-UEPI Remote Upstream External PHY Interface Specification CM-SP-R-GCP Generic Control Plane Specification CM-SP-R-DTI Remote DOCSIS Timing Interface Specification CM-SP-R-OOB Remote Out-of-Band Specification CM-SP-R-OSSI Remote PHY OSS Interface Specification CM-SP-DRFI Appendix D
RF Overlay (Optional)	
Connectivity	1 Forward SFP Receiver and 1 Return SFP Transmitter

NOTES:
1. Requires a software license to support channel bonding greater than two (2) OFDM channels.
2. Hardware is capable of up to 3 NDF channels and up to 3 NDR channels per US-SG. Listed channel values are currently enabled in software.

SPECIFICATIONS

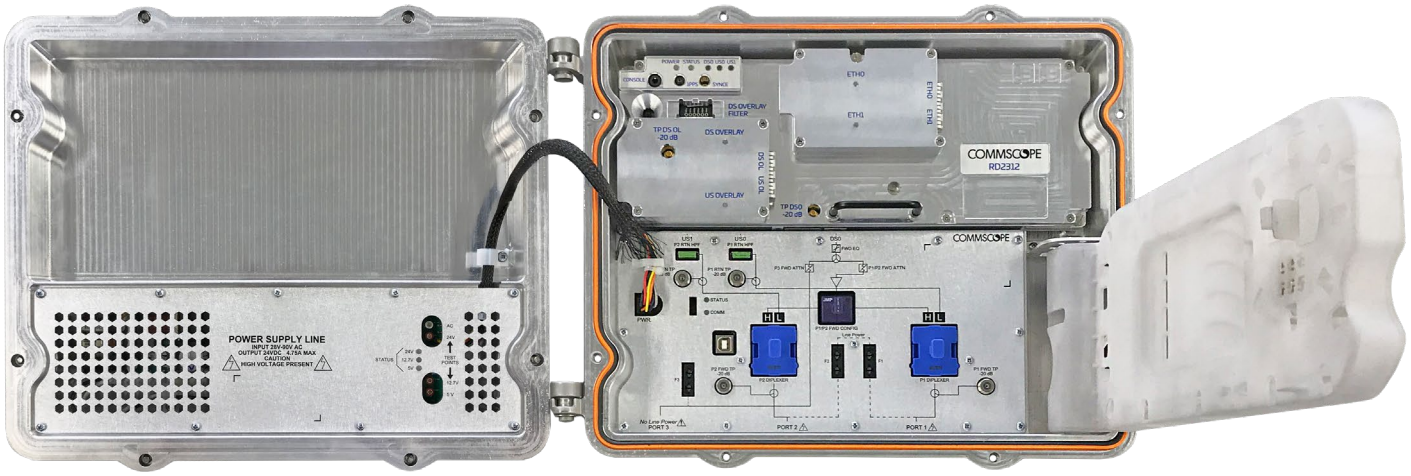
Characteristics	Specification
Forward Path	
Bandwidth	54/85/102/258 to 1218 MHz
Output Level (Virtual)[1]	1 port: 120 dBµV per 8 MHz @ 1218 MHz 2 port: 116 dBµV per 8 MHz each @ 1218 MHz
Output Level (Actual)[1]	1 port: 114 dBµV per 8 MHz @ 1218 MHz 2 port: 110 dBµV per 8 MHz each @ 1218 MHz
Tilt	5 to 19 dB (85 to 1218 MHz)
Flatness	± 1 dB
Stability	± 1.5 dB
Return Loss	16 dB
MER (at Output Level)	45 dB
BER (Pre-FEC at Output Level)	< $1x10^{-6}$
RF Port Impedance	75 Ω
Test Point	-20 dB per port, F-Female
RF Overlay Bandwidth	54/85/102/258 to 550 MHz or 54/85/102/258 to 750 MHz
Return Path	
Bandwidth	5 to 42/65/85/204 MHz
Input Level	65 to 80 dBµV per 6.4 MHz
Flatness	± 1 dB
RF Port Impedance	75 Ω
Test Point	-20 dB per port, F-Female
RF Overlay Bandwidth	5 to 42/65/85/204 MHz
Powering	
Power Supply Range	28 to 90 VAC, 50/60 Hz
Power Supply Holdup Time	> 20 ms
Power Passing	10 A per port
Power Consumption	< 100 WAC
Physical	
Dimensions[2]	35 cm x 30 cm x 18 cm (13.8 in x 11.8 in x 7.1 in)
Weight	< 12 kg (26.5 lbs)
Housing Ports	3 RF, 1 Optical
RF Port Interface	PG11
Optical Port Interface	PG16
Protection Class	IP67
Environmental	
Operating Temperature Range	-40°C to +60°C (-40°F to +140°F) external air ambient
Relative Humidity	5% to 95% non-condensing

NOTES:
1. Channel Plan all digital, 16 dB tilt 85 to 1218 MHz or 13 dB tilt 85 to 1003 MHz.
2. Including fins, hinges, mounting tabs and port interfaces.



ORDERING INFORMATION

Part Number	Description
DC2180-ALA1A22M3A0	DC2180 Node with Line Power Supply, D3.1 RF Module, 2 RF Ports, 5–65/85–1218 MHz US/DS Diplexers and RD2312 (no console) (PN 1000543) DAA Module
DC2180-ALA1A24M3A0	DC2180 Node with Line Power Supply, D3.1 RF Module, 2 RF Ports, 5–204/258–1218 MHz US/DS Diplexers and RD2312 (no console) (PN 1000543) DAA Module
DC2180-ALA1A22M3B0	DC2180 Node with Line Power Supply, D3.1 RF Module, 2 RF Ports, 5–65/85–1218 MHz US/DS Diplexers and RD2312 (with console) (PN 1000544) DAA Module
DC2180-ALA1A24M3B0	DC2180 Node with Line Power Supply, D3.1 RF Module, 2 RF Ports, 5–204/258–1218 MHz US/DS Diplexers and RD2312 (with console) (PN 1000544) DAA Module
	Ethernet SFP+ Optical Transceiver Modules
TTA1310-TL10	10 Gbps 10 km 1310 nm Transceiver, -40°C to +95°C
TTA1310-TL40	10 Gbps 40 km 1310 nm Transceiver, -40°C to +95°C
TTB1550-TL40	10 Gbps 40 km 1550 nm Transceiver, -40°C to +95°C
TTB1550-TL80	10 Gbps 80 km 1550 nm Transceiver, -40°C to +95°C
TTA1270-BIDI40	10 Gbps 40 km Bidirectional 1270 nm Tx / 1330 nm Rx Transceiver, -40°C to +95°C
TTA1330-BIDI40	10 Gbps 40 km Bidirectional 1330 nm Tx / 1270 nm Rx Transceiver, -40°C to +95°C
TTCxxxx-TL40 (xxxx = wavelength)	10 Gbps 40 km CWDM Transceiver, 8 Wavelengths Supported (1470 nm to 1610 nm), -40°C to +95°C
TTCxxxx-TL80 (xxxx = wavelength)	10 Gbps 80 km CWDM Transceiver, 8 Wavelengths Supported (1470 nm to 1610 nm), -40°C to +95°C
TTD4540-xx-PI (xx = 20–61)	10 Gbps 40 km DWDM Transceiver, 40 Wavelengths Supported (ITU Channels 20–61), -40°C to +95°C
TTD4580-xx-PI (xx = 20–61)	10 Gbps 80 km DWDM Transceiver, 40 Wavelengths Supported (ITU Channels 20–61), -40°C to +95°C
TUD4580-xx-PI (xx = 20–61)	10 Gbps 80 km DWDM Transceiver, 42 Wavelengths Supported (ITU Channels 20–61), -40°C to +85°C
1513948*	RF Overlay Plug-in Low-pass Filter, 54–550 MHz
1513949*	RF Overlay Plug-in Low-pass Filter, 54–750 MHz
	* A Plug-in Low-pass Filter is required for downstream analog overlay functionality.
	Analog RF Overlay SFP+ Modules
1511835	Analog Forward Receiver, 1260–1620 nm, 54–750 MHz
1511837-0061	Analog Return Transmitter, 1611 nm, 5–204 MHz
	RD2312 Modules
1000543	RD2312 RXD (Licensed as 1 DS-SG x 1 US-SG) for DC2180 node (Hardware capable of 1 DS-SG x 2 US-SG; 2x SFP+ cages, DS/US Overlay, No console port)
1000544	RD2312 RXD (Licensed as 1 DS-SG x 1 US-SG) for DC2180 node (Hardware capable of 1 DS-SG x 2 US-SG; 2x SFP+ cages, DS/US Overlay, With console port)



ORDERING INFORMATION

Part Number	Description
	RD2312 Licenses
1001716	RD2312 RxD US Port License – Must be purchased on the same PO as an RD2312 module or the full node with factory installed RD2312 (one per RxD). Enables 1 DS x 2 US ports for an RD2312 originally licensed for 1 DS x 1 US ports.
1001717	RD2312 RxD Upstream Port License – Enables a second US port on the "1x2 Capable" RD2312 RxD previously licensed for 1 US port operation.
1001546	RMD System Legal Intercept License
1001547	RMD System LAES License
Z1001548	RMD System CALEA License
Z1001549	RMD MAC DOCSIS 3.0 Downstream Annex A SC-QAM Channel
Z1001550	RMD MAC DOCSIS 3.0 Downstream Annex B SC-QAM Channel
1001551	RMD MAC DOCSIS 3.0 Upstream SC-QAM Channel
Z1001552	RMD MAC DOCSIS 3.1 Downstream OFDM Spectrum – Enable 1 MHz of OFDM Spectrum per License
1001553K	RMD MAC DOCSIS 3.1 Upstream OFDMA Spectrum – Enable 100 MHz of OFDMA Spectrum per License
1001639	RMD Service Group Capacity License 1 DS x 2 US – Licenses the RMD Capacity to Full DOCSIS Spectrum (D3.0/D3.1 to 1.2 GHz DS and 204 MHz US - 1 DS by up to 2 US operation
1001640	RMD Service Group Capacity License 1 DS x 1 US – Licenses the RMD Capacity to Full DOCSIS Spectrum (D3.0/D3.1 to 1.2 GHz DS and 204 MHz US - 1 DS by up to 1 US operation
1001641	RMD Service Group License Upgrade Upstream – Adds one US Service Group Capacity License to an RMD for Full DOCSIS upstream Spectrum up to 204 MHz upstream
1001662	Initial License Bundle: RMD SG Capacity License 1 DS x 1 US – Licenses Full DOCSIS Spectrum (D3.0/D3.1, 1.2 GHz DS & 204 MHz US), includes Port & HLX Domain Management License
Z1001663	Initial License Bundle: RMD SG Capacity License 1 DS x 2 US – Licenses Full DOCSIS Spectrum (D3.0/D3.1, 1.2 GHz DS & 204 MHz US), includes Port & HLX Domain Management License
1001666	Upgrade: RMD SG Capacity License 1 US (upgrade from 1x1 to 1x2) – Licenses Full DOCSIS Spectrum (204 MHz US) to 2 US, includes Port & HLX Domain Management License
1001700	Initial License Bundle: RMD SG Capacity License 1 DS X 2 US – Licenses Full DOCSIS Spectrum (D3.0/D3.1 to 1.2 GHz DS and 204 MHz US) - 1 DS by up to 2 US Operation; includes Port Licenses
1001705	Initial License Bundle: RMD Service Group Capacity License 1DS x 1US – Licenses the RMD Capacity to Full DOCSIS Spectrum (D3.0/D3.1 to 1.2 GHz DS and 204 MHz US) - 1 DS by 1 US Operation; includes Applicable Port Licenses
1001707	Upgrade: RMD SG Capacity License 1 US (from 1x1 to 1x2) – Licenses the RMD Capacity to Full DOCSIS Spectrum (204 MHz US) to 2 US; includes Applicable Port Licenses
100159600	DOCSIS 3.1E RMD System License: Enables bonding of greater than two (2) OFDM channels; applies per RMD

RELATED PRODUCTS

E6000r R-PHY Shelf	RD2322 Remote MACPHY Device
E6000® CCAP Core	10G SFP+ Options

Contact Customer Care for product information and sales:

- United States: 888-944-4357
- International: +1-215-323-2345

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Note: Specifications are subject to change without notice.

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