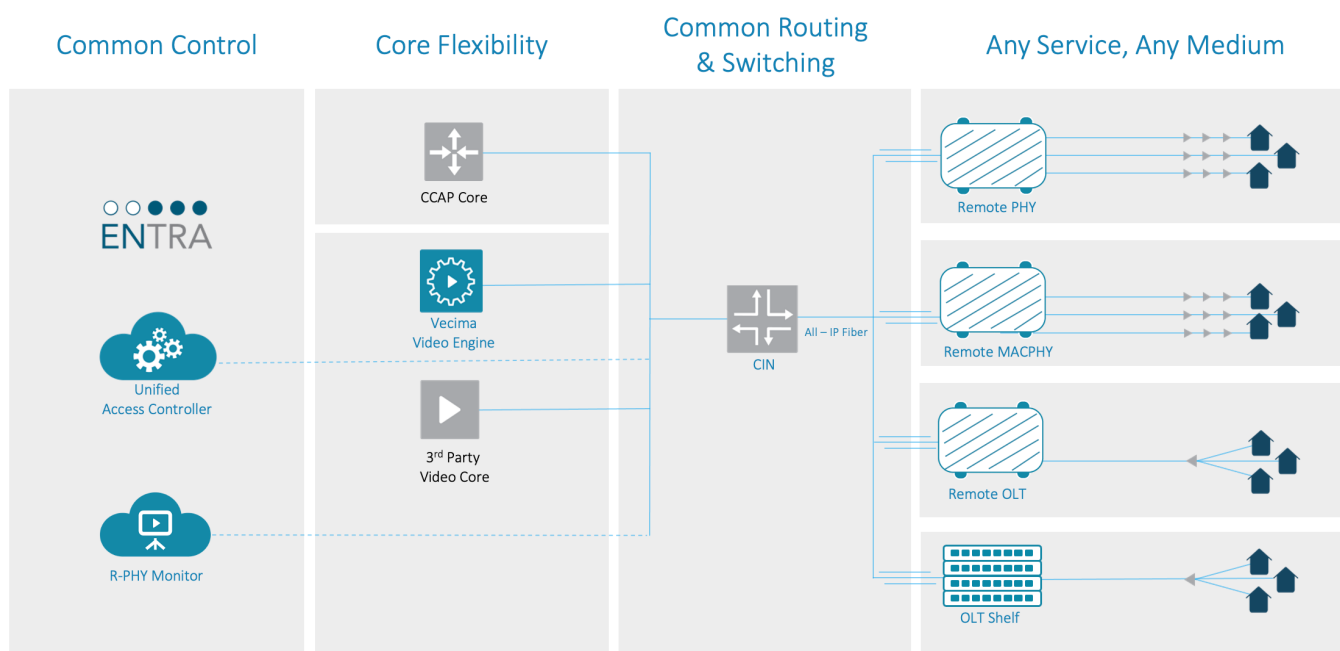


# SC-1D

DOCSIS 3.1 R-MACPHY COMPACT 4 PORT NODE

The **Entra** Distributed Access Platform is Vecima’s realization of the next generation of cable access products as optical transport moves away from analog RF distribution to all-digital Ethernet. Entra is optimized to support all distributed access architectures and facilitate the delivery of existing video and data services over hybrid fiber coax (HFC) and direct Ethernet connections.



The Entra compact SC-1D Access Node is an essential element of the Entra converged Distributed Access Architecture for cable networks which provide common control and monitoring of Vecima’s MACPHY and 10GEPON elements. The compact SC-1D Access Node performs cable-specific functions typically carried out in the Converged Cable Access Platform (CCAP) and employs a “Standards Ready” Flexible MAC Architecture (FMA).

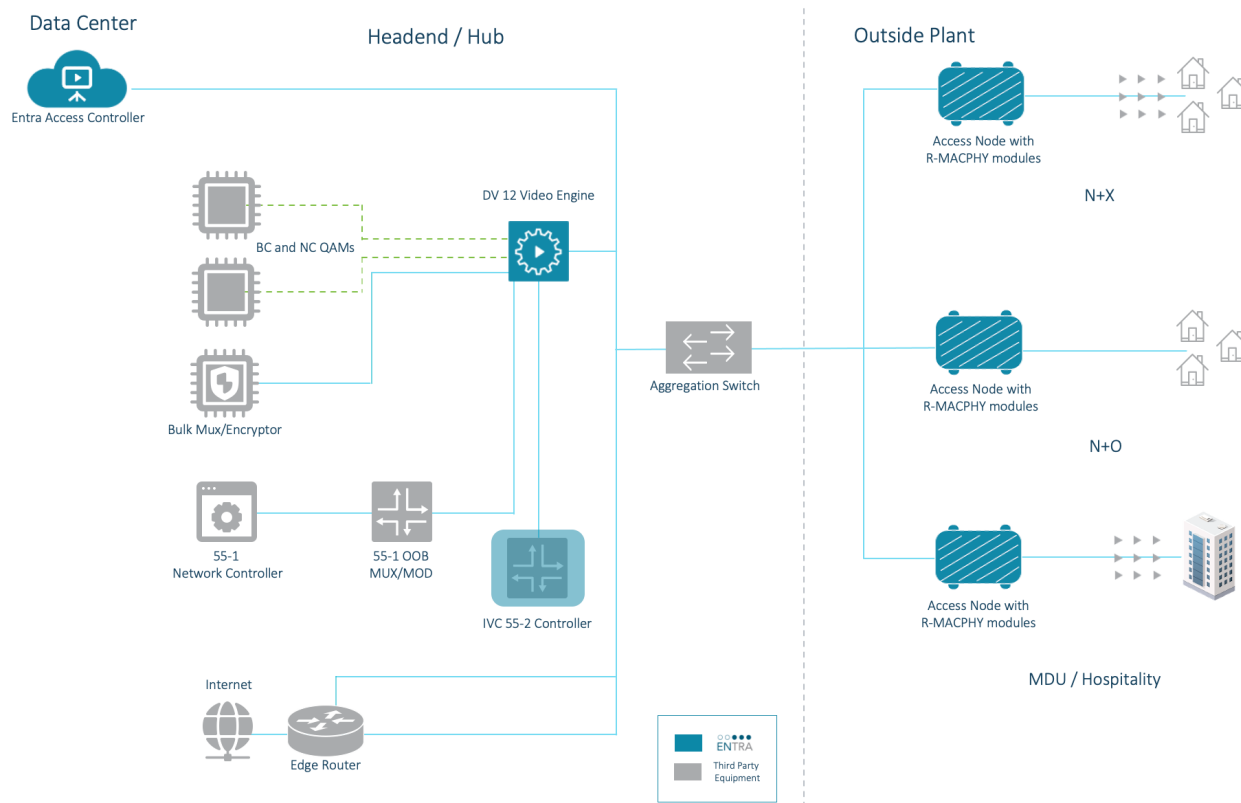
It enables operators to cost-effectively add DOCSIS channels, split nodes, and service groups. Cable operators can deliver services to all customers without adding equipment in congested hubs and headends.

The compact SC-1D Access Node supports full spectrum DOCSIS 3.1 and support for existing video services, making it ideal for high-capacity business and residential services. It features modular port configurations for 2 or 4 RF ports and supports all DS/US splits. The node also features a hot-swappable modular design for greater serviceability.

Housed in a compact, aluminum alloy die-cast enclosure, the SC-1D Access Node is designed to operate in harsh outdoor environments.

# SC-1D

DOCSIS 3.1 R-MACPHY COMPACT 4 PORT NODE



## Highlights

- Supports full spectrum DOCSIS 3.0 & 3.1
- Modular RF port configuration options (2- or 4-port) and up to 2-10 GE SFP+ interfaces
- Supports 1 downstream and up to 2 upstream DOCSIS Service Groups per node
- Supports existing video services (broadcast, VoD, SDV, nPVR), Wideband Digital Forward to broadcast RF over IP, Up to 4 NDF/NDR/OOB/HMS, Optical Receiver (Video RF Overlay)
- Hot-swappable modular design; field-replaceable components including amplifier modules, power supply unit, and main processor module
- Compact, hardened OSP enclosure, line-powered with strand and pedestal mount options
- Increased fiber capacity and management enable higher service tiers, including gigabit services
- Centrally managed and controlled by Entra Access Controller as part of the unified cable access solution
- Digital hub-to-node link dramatically improves signal-to-noise ratio (SNR) and carrier-to-noise ratio (CNR)
- Support for video services preserves legacy EQAMs and installed set-top box base
- Remote configuration and management increase operational agility in a
- Compact form

### ENTRA SC-1D

DOCSIS 3.1 COMPACT R-MACPHY ACCESS NODES



Entra SC-1D is a Software-defined universal R-MACPHY access node.

# SC-1D

DOCSIS 3.1 R-MACPHY COMPACT 4 PORT NODE

## Technical Specifications

<p><b>Interfaces</b></p> <p>Up to 4 RF ports (75 ohm) 2 ports of 10 GE Service Groups &amp; Ports: 1 forward x 2 reverse x 2 or 4 RF ports</p>	<p><b>Safety</b></p> <p>IEC/EN 60950-1 ANSI/UL 60950-1 CAN/CSA C22.2 No. 60950-1-07 IEC/EN 62368-1 ANSI/UL 62368-1 CAN/CSA C22.2 No. 62368-1</p>
<p><b>Supported SFP+ Optical Modules</b></p> <p>ER, LR, ZR, Bi-directional CWDM DWDM</p>	<p><b>Outdoor Use</b></p> <p>IEC 60950-22 CSA C22.2 No. 94.1 CSA C22.2 No. 94.2 IEC 60529</p>
<p><b>Physical Dimensions</b></p> <p>Height: 401 mm (15.8 in) Width: 345 mm (13.6 in) Depth: 222 mm (8.7 in) Weight: 15 kg (33 lb)</p>	<p><b>Corrosion Resistance</b></p> <p>GR-2873-CORE ASTM B117</p>
<p><b>Operating Environment</b></p> <p>Temperature: -40 °C to 60 °C (-40 °F to 140 °F) Relative humidity: 5% to 95% non-condensing Altitude: -196 to 13,123 feet (-60 to 4,000 meters)</p>	<p><b>IP Rating</b></p> <p>IP68</p>
<p><b>Storage Environment</b></p> <p>Temperature: -40 °C to 70 °C (-40 °F to 158 °F) Relative humidity: 5% to 95% non-condensing Altitude: -196 to 13,123 feet (-60 to 4,000 meters)</p>	<p><b>Surge</b></p> <p>ANSI/SCTE 81 ITU-T K.45 IEEE C62.41</p>
<p><b>Power Requirement</b></p> <p>Consumption: 93 W nominal with 2 ports, 117 W nominal with 4 ports, 122 W maximum Input frequency: 50 Hz/60 Hz Input voltage: 38 V to 90 VAC coax line power (quasi-squarewave)</p>	<p><b>Environmental</b></p> <p>IEC/EN 63000 Hazardous Substances: RoHS Directive 2011/65/EC Waste Electrical and Electronic Equipment: WEEE Directive 2012/95/EC Regulation (EC) No 1907/2006</p>
<p><b>Mounting Options</b></p> <p>Aerial, pedestal Wall, pole, rack mount with accessory bracket Vertical or horizontal cooking</p>	<p><b>Industry Standards</b></p> <p>CableLabs CM-SP-DRFI Downstream RF Interface Specification CableLabs CM-SP-FMA-MMI Flexible MAC Architecture MAC Manager Interface Specification CableLabs CM-SP-FMA-PAI Flexible MAC Architecture PacketCable Aggregator Interface Specification CableLabs CM-SP-FMA-OSSI Flexible MAC Architecture OSS Interface Specification CableLabs CM-SP-R-PHY Remote PHY Specification CableLabs CM-SP-R-DEPI Remote Downstream External PHY Interface Specification CableLabs CM-SP-R-UEPI Remote Upstream External PHY Interface Specification CableLabs CM-SP-R-DTI Remote DOCSIS Timing Interface Specification CableLabs CM-SP-R-OOB Remote Out-of-Band Specification CableLabs CM-SP-R-OSSI Remote PHY OSS Interface Specification SFF-8432 SFP+ Module and Cage SFF-8431 Enhanced Small Form Factor Pluggable Module SFP SFF-8472 Management Interface for SFP+</p>
<p><b>Regulatory, Industry, and Standards Compliance</b></p> <p><b>ACMA Supplier Number</b></p> <p>N594 (ACN, ABN, or ARBN 97000005363), C-Tick Mark</p> <p><b>EMC (Immunity/Emissions)</b></p> <p>EN 55024 EN 55032 EN 55035 EN 61000-3-2 EN 61000-3-3 FCC PART 15 SUBPART B ICES-003 (AS/NZS/VCCI) CISPR 32</p>	

# SC-1D

DOCSIS 3.1 R-MACPHY COMPACT 4 PORT NODE

## Technical Specifications

<b>Quality</b>	<b>Wideband Digital Forward</b>
ISO 9001	Up to 43-6 MHz/32-8 MHz channels of broadcast band transport over IP. Typical broadcast modulations 8VSB, PAL, FM, NTSC
TL 9000	CNR: 50 dB typical
ISO 14001	<b>RF Impedance</b>
OHSAS 18001	75 ohm
ESD 20.20	<b>Upstream</b>
<b>Reliability</b>	Service Groups: Up to 2
Designed for five 9s of availability (99.999%)	Channels: Up to 12 QAM; up to 2 OFDMA per Service Group
Predicted MTBF > 449,196 hrs	<b>Input</b>
<b>RF Specifications</b>	Input Levels: 27 dBmV to 7 dBmV
<b>RF Ports</b>	<b>Diagnostics</b>
Up to 4 RF ports	Test Ports: -20 dB
Operational bandwidth: 5 MHz to 1,218 MHz	Low RF level alarm per port
<b>Splits</b>	RF amplifier on/off controls per port
5 – 42 MHz/54 – 1218 MHz	RF input on/off controls per port
5 – 65 MHz/85 – 1218 MHz	Voltage and temperature monitoring
5 – 85 MHz/102 – 1218 MHz	<b>Optical Receiver Specifications</b>
5 – 204 MHz/258 – 1218 MHz	<b>Optical Input</b>
<b>Downstream</b>	1260 – 1560 nm
Service Groups: Up to 1	2 to -6 dBm AGC Dynamic Range
Channels: Up to 158 QAM J.83 Annex A/B/C; up to 2 OFDM per Service Group	SC-APC
Channel bandwidths: Up to 192 MHz OFDM	<b>RF Output</b>
<b>Output</b>	50 to 800 MHz
Total Composite Power: Up to 71 dBmV	
RF Output Level: 61 dBmV @ (virtual)	
Up to 24 dB pluggable tilt (s/w readable ID)	
<b>Out of Band Capabilities</b>	
Up to 4 channels of OOB, SCTE 55-1, SCTE 55-2, SCTE 25-1 HMS	
Up to 160 CW pilot tones	
Up to 2 leakage detection tags per Service Group	
Viavi PathTrak support	