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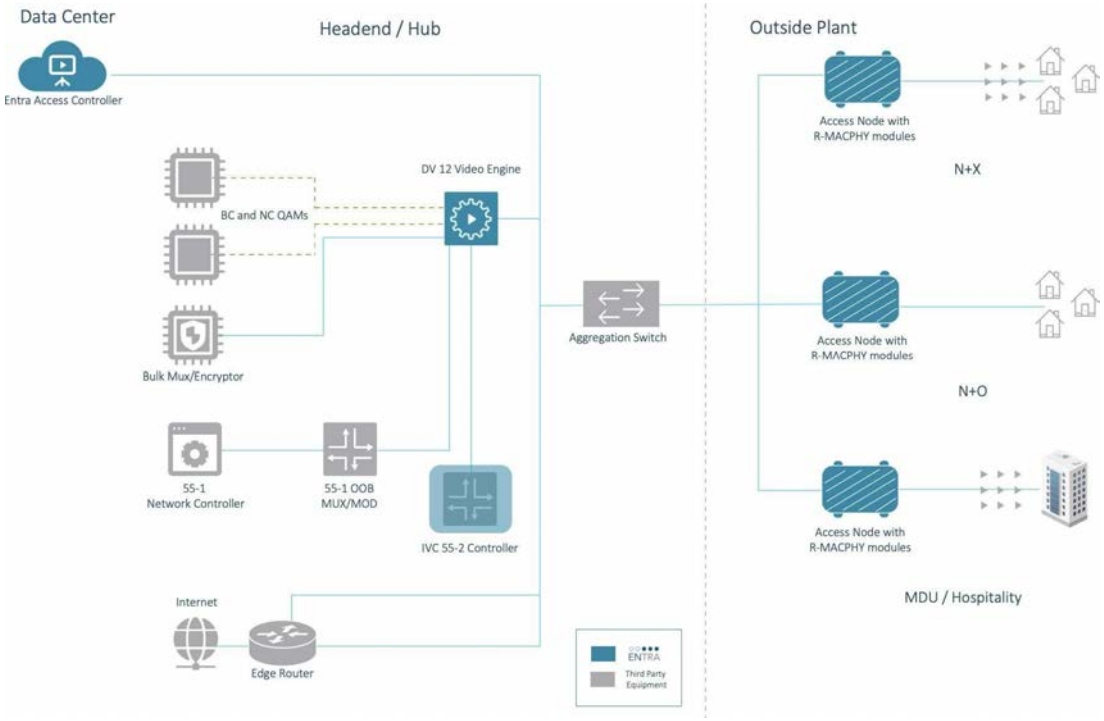
Entra® SC-2D3 Access Node

The Entra® SC-2D3 Access Node is an essential component of the Entra converged Distributed Access Architecture for cable networks that provides common control and monitoring of Vecima's MACPHY and 10G EPON elements. The SC-2D3 Access Node performs cable-specific functions that are typically carried out in the Converged Cable Access Platform (CCAP) and employs a "Standards-Ready" Flexible MAC Architecture (FMA).

It enables operators to 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 Entra SC-2D3 Access Node supports full-spectrum DOCSIS 3.0 and 3.1, and existing video services, making it ideal for high-capacity business and residential services. It features modular port configurations for two or four RF ports and is available with a variety of splits. The node also features a hot-swappable modular design for greater serviceability.

Housed in an aluminum alloy die-cast enclosure, the Entra SC-2D3 Access Node is designed to operate in harsh outdoor environments.



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Highlights

- Up to 2 ports of 10 GE SFP+ interfaces.
- Supports up to two downstream and two 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).
- Field-replaceable components, including amplifier modules, power supply unit, and main processor module.
- 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 the Entra Access Controller as part of Vecima's 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 increases operational agility.

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Specifications

Interfaces
Up to 4 RF ports (75 ohms)
2 ports of 10 GE
Service groups & ports: 2 forward x 2 reverse x 2 or 4 RF ports
Supported SFP+ Optical Modules
ER, LR, ZR, bidirectional
CWDM
DWDM
Physical Dimensions
Height: 10.4 in (265 mm)
Width: 20.8 in (529 mm)
Depth: 11 in (280 mm)
Weight: 44 lb (19.5 kg)
Operating Environment
Temperature: -40 to 60 C (-40 F to 140 F)
Relative humidity: 5% to 95%, noncondensing
Altitude: -196 to 13,123 feet (-60 to 4,000 meters)
Storage Environment
Temperature: -40 to 70 C (-40 to 158 F)
Relative humidity: 5% to 95%, noncondensing
Altitude: -196 to 13,123 feet (-60 to 4,000 meters)
Power Requirement
Consumption: 123 W nominal with 2 coax ports active, 148 W nominal with 4 coax ports active, 157 W maximum
Input frequency: 50 Hz/60 Hz
Input voltage: 38 V to 90 VAC coax line power (quasi square wave)
Mounting Options
Aerial, pedestal
Wall, pole, rack mount with accessory bracket
Vertical or horizontal cooking
Regulatory, Industry, and Standards Compliance
ACMA Supplier Number
E304 (CAN/ ARBN 84156023504), C-Tick mark
EMC (Immunity/Emissions)
EN 55032
EN 55024
EN 61000-3-2
EN 61000-3-3
FCC PART 15 SUBPART B
ICES-003
(AS/NZS/VCCI) CISPR 32

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Safety
ANSI/UL 60950-1
CAN/CSA C22.2 No. 60950-1-07
IEC/EN 62368-1
Outdoor Use
IEC 60950-22
CSA C22.2 60950-22
CSA C22.2 No. 94.1
CSA C22.2 No. 94.2
ANSI/UL 60950-22
ANSI/UL 50, 50E
IEC 60529
Corrosion Resistance
GR-2873-CORE
ASTM B117
IP Rating
IP68
Surge
ANSI/SCTE 81
ITU-T K.45
IEEE C62.41
Environmental
IEC/EN 63000
Hazardous substances: RoHS Directive 2011/65/EC, as amended by 2015/863/EU
Waste Electrical and Electronic Equipment: WEEE Directive 2012/19/EC
Regulation (EC) No 1907/2006
Industry Standards
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+

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Quality
ISO 9001
TL 9000
ISO 14001
OHSAS 18001
ESD 20.20
Reliability
Designed for five 9s of availability (99.999%)
Predicted MTBF > 327,866 hrs
Demonstrated MTBF > 750,000 hrs
RF Specifications
RF Ports
Up to 4 RF ports
Operational bandwidth: 5 MHz to 1,218 MHz
Splits
5 – 42 MHz/54 – 1218 MHz
5 – 65 MHz/85 – 1218 MHz
5 – 85 MHz/102 – 1218 MHz
5 – 204 MHz/258 – 1218 MHz
Downstream
Service groups: Up to 2
Channels: Up to 158 QAM J.83 annex A/B/C; up to 2 OFDM per service group
Channel bandwidths: Up to 192 MHz OFDM
Output
Total composite power: Up to 71 dBmV
RF output level: 61 dBmV @ (virtual)
Up to 24 dB pluggable tilt (s/w readable ID)
Out-of-Band Capabilities
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
Wideband Digital Forward
Up to 43-6 MHz/32-8 MHz channels of broadcast band transport over IP. Typical broadcast modulations 8VSB, PAL, FM, NTSC
RF Impedance
75 ohms
Upstream
Service groups: Up to 2
Channels: Up to 12 QAM; up to 2 OFDMA per service group
Input
Input levels: 27 dBmV to 7 dBmV

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Diagnostics
Test ports: -20 dB
Low RF level alarm per port
RF amplifier on/off controls per port
RF input on/off controls per port
Voltage and temperature monitoring
Optical Receiver Specifications
Optical Input
1260 – 1560 nm
2 to -6 dBm AGC dynamic range
SC-APC
RF Output
50 to 800 MHz

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