



**ENTRA®**

## ERM412/422 Remote PHY Module



### Reliable. Flexible. Simplified

The Entra® ERM412/422 Remote PHY Device (RPD) is a high-density, stand-alone DOCSIS® 4.0 module that builds on our field-proven RPD technology. The ERM412/422 is compatible with EN9000 and EN3400 Generic Access Platform (GAP) nodes, the EN8800U DOCSIS 4.0 node, as well as select legacy analog nodes.

The ERM412 and ERM422 modules share the same form factor and support one or two downstream service groups, with either two or four upstream service groups.



#### Multiple Node Compatibility

Deploy in Vecima EN9000 (GAP) or retrofit existing GS7000 nodes for DAA



#### Full Spectrum DOCSIS 4.0

Delivers maximum DOCSIS 4.0 throughput with full spectrum support up to 1.8 GHz downstream and multiple upstream options including ESD, FSD, and FDX



#### Flexible Service Groups

Supports up to 2 downstream and 4 upstream service groups



#### Legacy Digital Video Support

Support for Video SC-QAMs, SCTE OOB and DSG



#### Interoperable by Design

Flexible operation supporting multiple vendors' cores



#### Deploy with Confidence

High-reliability design with support for power holdover modules

## Specifications

RPD Module	
Timing Support	IEEE 1588v2 PTP Ordinary Clock Slave
Multicast Support	IGMP v2/v3 and MLD v1/v2
Authentication	802.1X port-based EAP-TLS
DOCSIS Operation Mode	Remote PHY
	ERM412                  ERM422
Segmentation	1x1, 1x2                  1x1, 1x2, 2x2, 2x4 (High Split)
DOCSIS 3.1 OFDM DS Channels	9 OFDM                  12 OFDM
DOCSIS 3.1 US Channels	8 OFDMA                  8 OFDMA
Maximum DS SC-QAMs	160 Annex A/B per Service Group
DOCSIS 3.0 DS Channels	160 Annex A/B per Service Group (shared with DS Video)
DOCSIS 3.0 US Channels	24 ATDMA                  24 ATDMA
Video QAM DS Channels	160 Annex A/B per Service Group (shared with DS DOCSIS)
Video QAM Input Support	MPTS over L2TPv3 (R-DEPI) 10ms de-jitter, PCR restamping, NULL insertion/deletion, Synchronous and Asynchronous mode support
US OOB	6 SCTE 55-1/2, SCTE 25-1, or NDR 2 narrowband FFTs 1 wideband FFT
DS OOB	12 SCTE 55-1/2, SCTE 25-1, or NDR

\*Specifications may be dependent on CCAP core support

Control & Management	
Primary Interface	CCAP Core, Aux Core(s)
Troubleshooting Interface	SSH

Supported Node Chassis	
Vecima	EN9000, EN3400, EN8800U
Cisco / ATX / AOI	GS7000

Module / Power / Environmental	
Dimensions (H x W x L)	46 x 171 x 239 mm (1.8 x 6.7 x 9.4 in)
Weight	< 3.62 lbs (1.64 kg)
Voltage	25V +/- 5%
Current	
ERM412 UHS-396	2.3 A Typical
ERM412 Shifted FDX	2.8 A Typical
ERM422 UHS-396	2.7 A Typical
ERM422 Shifted FDX	3.0 A Typical

Power	
ERM412 UHS-396	57 W Typical
ERM412 Shifted FDX	70 W Typical
ERM422 UHS-396	68 W Typical
ERM422 Shifted FDX	75 W Typical

DS RF Ports	4 x SMB (75 ohm)
DS RF Feedback Ports	4 x SMB (75 ohm)
US RF Ports	4 x SMB (75 ohm)
SFP+ Ports	2 x 10 / 25 GE
Temperature (Operating)	-40 to +60°C (-40 to +140°F) ambient node housing
Humidity (Operational)	5 to 95%

Mounting	
EN9000, EN3400	Direct Mounting
EN8800U	ECB Adaptor
GS7000	Direct Mounting

Regulatory, Industry, and Standards Compliance	
EMC (Immunity/Emissions)	EN 55032, EN 55035, ICES-003, FCC PART 15 SUBPART B, (AS/NZS) CISPR 32
Safety	IEC/EN 62368-1
Hazardous Substance	IEC/EN 63000: 2018, RoHS Directive 2015/863/EU
WEEE Directive	2012/19/EU
REACH	Regulation (EC) No 1907/2006