



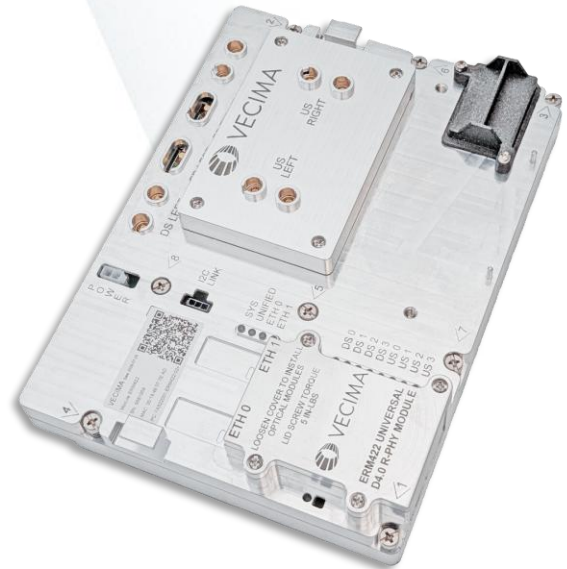
ENTRA®

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	
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