

DMN1218 TP

Remote Powered
Docsis 3.1+ RPD Digital Mini Node
including Harmonic Pebble 1
695005627

The DMN1218 TP Digital Mini Node is the industry's smallest and most energy-efficient product of its kind, with cutting-edge RF technology built around the latest generation of GaN 1.8 GHz PA's, providing unparalleled efficiency and reliability. As the first in the industry, the device is also equipped with full GaN technology in its power supply, guaranteeing the best-in-class efficiency and reliability.



The DMN1218 TP as Edge Compute Hirschmann portfolio device, enables Gigabit broadband to build an on-demand network, enabling not only 4K and 8K video services with Ultra High Service Tiers but also Commercial Off The Shelf (COTS) capability unique in the market. The combination between experience in building and managing HFC Networks, ensures a smooth but big transformation from the next generation Access Network DAA to Multi-Access Edge Cloud Strategy (MEC). To meet the ever-increasing demand for high bandwidth, large capacity and to be able to support latency sensitive traffic, the DMN1218 TP helps to unleash the potential of existing HFC infrastructures placing them in the highest value. The offered Remote Phy Devices (RPD's) are remotely segmental, which allows them to double the upstream capacity for the cable modems, enabling cable networks to provide a better service to their subscribers. Furthermore, the Digital Mini Node can be equipped with a Mini OLT, supporting both fiber and coax networks in parallel,

thus providing even more flexibility and options for cable networks. Due to its High-performance in DOCSIS 3.0/3.1/3.1+ and High-speed 10-GbE throughput with uplink redundancy, the DMN1218 TP fits all the network requirements of Converged Interconnect Network (CIN) and FttLA scenarios. The Full-featured tool set for downstream / upstream spectrum monitoring and support for DOCSIS 3.1 proactive network maintenance (PNM), add operational efficiency and introduces cable operators to unprecedented scalability, agility, and cost savings by having the smallest form factor to accommodate cabinets with limited space.

Why DMN1218 TP?

- ✓ Lowest power consumption
- ✓ Smallest Form Factor
- ✓ Controlled by a generic provisioning platform
- ✓ Harmonic Pebble-1 inside



Features	
Smallest form factor and lowest power consumption within the RPD market	xPON capability to deploy FTTB/FTTC/FTTH supporting both fiber and coax networks in parallel
Fits in either any centralized or distributed MSOs architectures	Two service groups (SGs) in the upstream direction to expand the service bandwidth from 1x1 or 1x2
Support Docsis 3.0, Docsis 3.1, and Docsis 3.1+	Compatible with generic provisioning platforms
Controlled by Pebble 1	CableOS® Core software
Proactive Network Maintenance (PNM) Capture for Active and Quiet Probe	Suitable for installing and serviceable in street cabinet volume

RF Specifications	Downstream	Upstream
Spectrum Range for SC-QAM (MHz)	85 -1006	5 - 85
Spectrum Range for OFDM (MHz)	108 - 1218	5 - 204
DOCSIS 3.0 Annex A (8MHz) channels	120	
DOCSIS 3.0 Annex B/C (6MHz) channels	158	
DOCSIS 3.0 US channels/port		12
ATDMA		12
SCDMA		4
ATDMA+SCDMA		8+4
DOCSIS 3.1 channels (OFDM)	6	2x 96MHz
D3.0 and D3.1 DS channels location, all other DS and US performances. Downstream RF Interface Specification CM-SP-DRFI-116-170111	Flexible, Programmable as specified in DRFI Annex D and R-PHY	As specified in DRFI Annex D and R-PHY
Flatness over entire spectrum range (dB)	≤ ±4.0 (*excluding filter edge)	≤ 4.0
RF port Return Loss (dB) @40 MHz (EN 60728-3)	≥ 20 - 1.5 dB/Octave	≥ 20 - 1.5 dB/Octave
US Input RF Power Level (dBμV/Ch)		64 - 110
US Attenuation control (dB) +6dB ingress control		0 - 20
Max. Composite Output Power (dBμV)	135	

NDF Specifications	
Number of NDF channels	3
Bandwidth of NDF channels (MHz)	25.6, 5.12, 2.56, 1.28
Power Level (dBc)	-30 - 3
Number of NDR channels per port	3
Bandwidth of NDR channels (MHz)	5.12, 2.56, 1.28
Power Level (dBc)	-12 - 5

NDR Specifications	
Number of NDR channels per port	3
Bandwidth of NDR channels (MHz)	5.12, 2.56, 1.28
Power Level (dBc)	-12 - 5

Environmental Specifications	
Nominal temperature range within spec. (°C)	-20 to +55
Operational temperature range (°C)	-20 to +60
Storage temperature range (°C)	-30 to +70
Protection class enclosure	IP65
Electrical Specifications	
Impedance RF ports (Ω)	75
Overtoltage protection acc. EN 61000 4-5	2 kV, 1.2 μ s / 50 μ s surge to RF-ports, every port
Transient AC power port protection	1 kV, EN 50083-2 4-7, EN 61000 4-4
ESD	4 kV, EN 50083-2 4-6, EN61000 4-2 ESD
EMC	EN 50083-2
Surge protection	6 kV, EN 50083-2, lightning protection, every RF port
Hum modulation, at 7 A, according EN 50083-3 (dB @ MHz)	> 70 dB @10-1000 MHz, > 65 dB @1000-1218 MHz
Screening according to EN 50117.2 (dB @ MHz)	> 95 @ 30 - 1000, > 85 @ 1000 - 1218

Power Specifications	
Type of PSU	Internal (modular, high efficient, incl. PFC)
Power consumption (W)	\leq 47, typical 45 incl. 1x SFP and 1x upstream
Typical efficiency (%)	> 90
Operating voltage (VAC, sinus, block, and trapezoid)	30 - 90 (\pm 10 %)
Power passing capability, Port 1 and Port 2a (A)	7
Power passing capability external power input to Port 1 and Port 2a (A)	10
Supply Frequency (Hz)	48 - 62
Transient AC power port protection	1 kV according to EN 50083-2 4-7 and EN 61000 4-4

Mechanical Specifications	
Housing material	Coated RAL 7040 silk matt
Dimensions H x W x D (mm)	234 x 222 x 136
Weight (kg)	\leq 4
Number of DS RF outputs / US RF inputs	3
Type of optical connectors / Fiber type and Colour	Dual Fiber Laser G657.A2.LC/PC - Yellow 3 slot SFP+ supporting: 1*XGSPON + 10GE
Type of connectors output	5/8" thread supporting 3.5/12, IECM14, F type coaxial adapters or jumper cables
Test sockets	F-Male
Grounding connection (mm)	AMP 6.3

Miscellaneous	
Certificates	EU-declaration of conformity / RoHS product declaration
Software / Firmware Update	Via in-band management DMN1218 TP
Configuration	CLI through Server FMA Core
Supported DOCSIS Specification	R-OSSI, GCP, R-DEPI control PHY3.1, DRFI Annex D, MHA v2, FMA
File download protocol	SCP, TFTP
SSH	Supported
SYSLOG	Over DHCP, GCP
Authentication	802.1x authentication for GCP control plane and L2TPv3 control plane
X.509 certificate profile and management	As specified in R-PHY
IPsec	GCP control plane, L2TP
L2TP Control over UDP	UDP checksum as specified in R-DEPI spec
Secure SW Download (SSD)	As defined by R-PHY, SSD section
PNM for Upstream	As defined by D3.1 PHY Capture for Active and Quiet Probe, Triggered Spectrum Analysis, Impulse Noise Statistics, Equalizer Coefficients, FEC Statistics, Histogram, Channel Power, Receive MER



Ordering information DMN1218 Series

Primary Product

Article number	Type	Description
695005627	DMN1218 TP	DMN1218 TP Remote Powered RPD Digital Mini Node
695005689	DMNPBL1 US2	DMN1218 Series Harmonic Pebble 1 with 2 x Upstream
695005690	DMNPBL1 US1	DMN1218 Series Harmonic Pebble 1 with 1 x Upstream

Filters and Splitters

Article number	Type	Description
695004994	BA1218 SPLITTER	4/4 dB in or output splitter for 1218 series
695005254	BA1218 DPF 65 85	Diplex filter 65 - 85 MHz split 1218 series
695005255	BA1218 DPF 85 105	Diplex filter 5 - 105 MHz split 1218 series
695005256	BA1218 DPF 204 258	Diplex filter 204 - 2588 MHz split 1218 series
695005314	TAP6	1/6 dB in or output splitter for 1218 series
695005315	TAP10	1/10 dB in or output splitter for 1218 series

Optical Transceivers

Article number	Type	Description
695005424	DN1218 SFP+ 10G-EPON/XGS-PON	Micro Plug OLT Transceiver
695005455	DN1218 SFP+ 10GTRX 40KM	Optical transceiver SFP+ 10GTRX 40KM
695005456	DN1218 SFP+ 10GTRX 10KM	Optical transceiver SFP+ 10GTRX 10KM

Connectors

Article number	Type	Description
695004914	Adapter 5/8" - F female	Adapter 5/8" - F female pin 12 mm
695004917	Adapter 5/8" - IEC female M14	Adapter 5/8" - IEC female M14 pin 12 mm
695005253	BLINDSTOP 58	Blindstop 5/8
695005654	Adapter 5/8" - 3.5"/12 female	Adapter 5/8" - 3.5"/12 female pin 12 mm

Optical cable glands

Article number	Type	Description
695005423	PCI PG9	Power cable inlet PG9 gland
695005693	OCGM	Optical cable gland multi fiber PG11

Fuses

Article number	Type	Description
695004941	FUSE 10A	Mini fuse
695004944	FUSE 5A	Mini fuse
695004945	FUSE 7.5A	Mini fuse