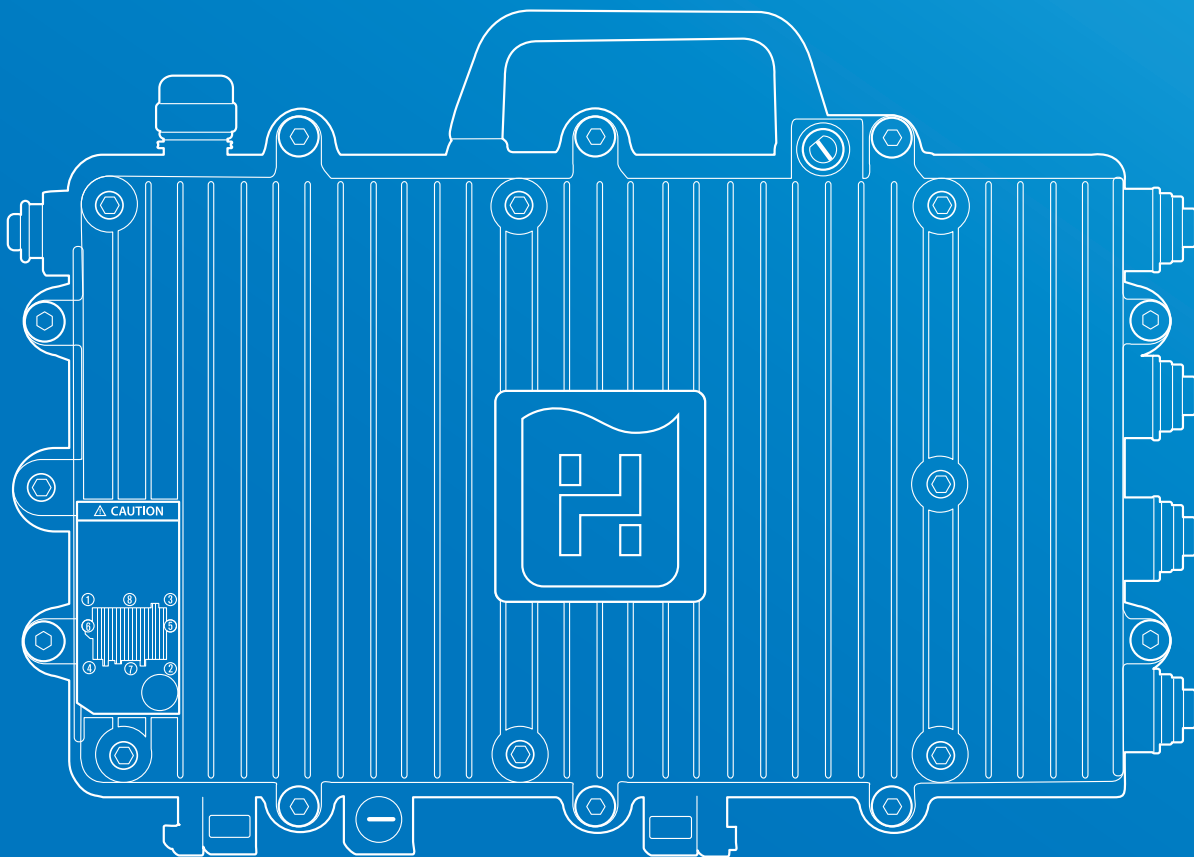


Hirschmann
DN1218

Our Distributed Access Approach

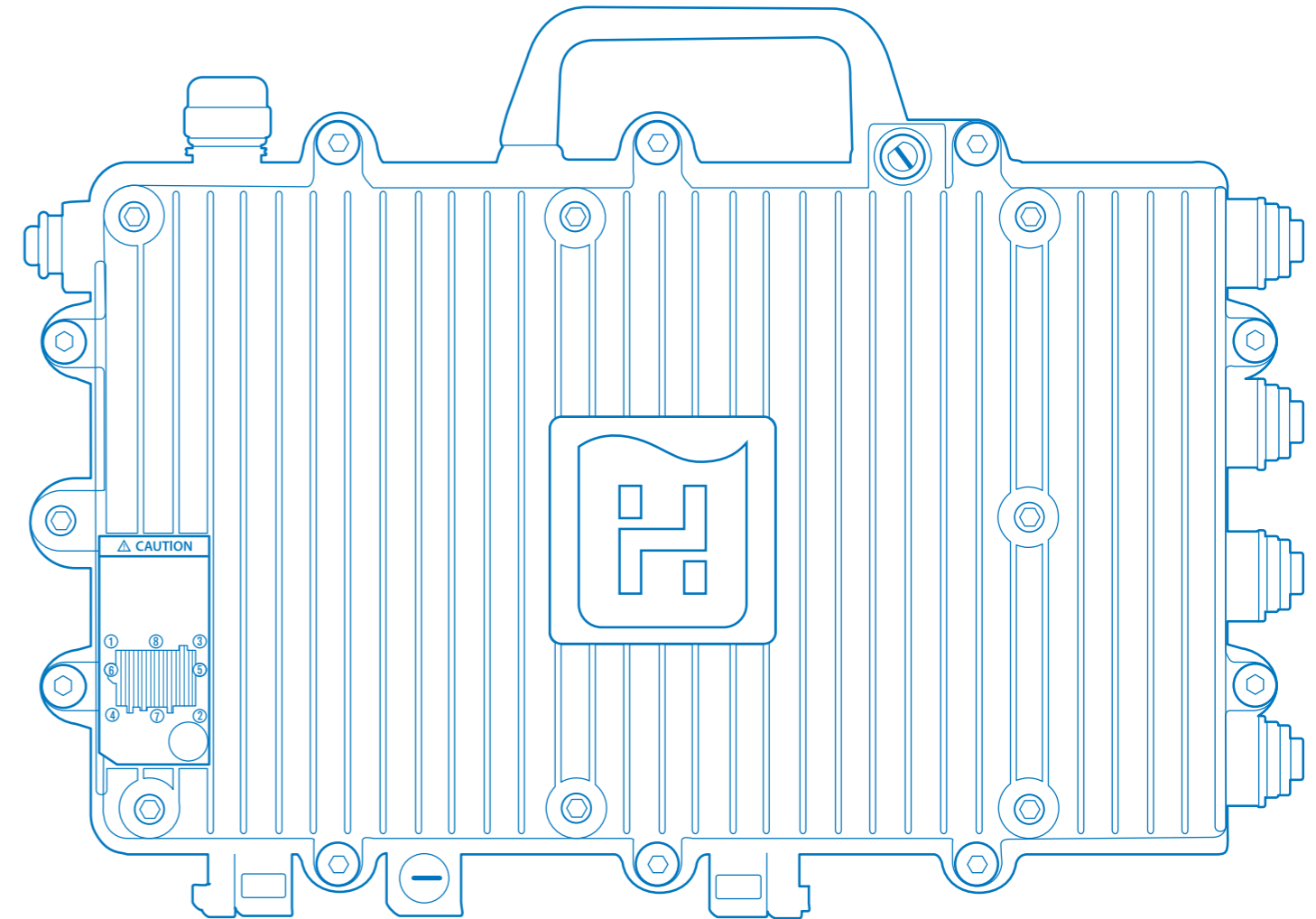


Next Generation HFC Networks – Our Solution

To meet the ever-increasing demand for high bandwidth, large capacity and to be able to support latency sensitive traffic, we deliver the DN1218 Distributed Converged Cable Access Platform (D-CCAP).

The DN1218 is a full-service, intelligent Digital Node for Cable Networks designed for fiber deep migration. With a DN1218 deployment in the Fiber Node of an HFC network, the first step to a Distributed Ccap Architecture (DCA) solution is made.

The DN1218 is optimized to deliver multi-Gigabit connectivity over any coaxial topology to each subscriber at a lower cost and without the complexity and delays associated with a centralized solution . The DN1218 is backward compatible with the current standard of DOCSIS 2.0 and DOCSIS 3.0 with a migration path toward DOCSIS 3.1 and enables converging with Fiber-to-the-Home Strategies. It also enables multiple access services and provides digital backhauling services for every last mile technology.



Now and in the Future

Our D-CCAP solution enables Gigabit broadband to build an on-demand network, enabling 4K and 8K video services and Ultra High Service Tiers. We combine our D-CCAP solution with our experience in building and managing HFC Networks to ensure a smooth transformation to a resilient next generation Access Network. We help MSO's and operators to unleash the potential of (their) existing HFC infrastructures. And we will continue to introduce even more innovative solutions in the near future.

Product Highlights

High Bandwidth

- High-performance DOCSIS 3.1 supporting 1*(6 D3.1 + 32 D3.0) and 2*(2 D3.1 + 8 D3.0) in Downstream and Upstream capacity for Fiber Node scenario.
- Capacity upstream expansion and reducing return of investment cost by adding two service groups (SGs) in the upstream direction to expand the service bandwidth.

Flexible Integration

- Internal Edge Quadrature Amplitude module (EQAM) and WDM provide saving investment and reducing the networking complexity and maintenance cost of the distribution hub.
- Thanks to its modular design, internal components can be easily replaced when a fault occurs.
- Small and new PSU size is achieve for controlling lack of space on cabinets.

Converged Services

- High-performance DOCSIS 3.1 supporting 1*(6 D3.1 + 32 D3.0) and 2*(2 D3.1 + 8 D3.0) in Downstream and Upstream capacity for Fiber Node scenario.
- Unified solution for video and data services using EQAM module, simplifying legacy networking integration.
- Broadcasting (BC) redundancy protection TV service flows. Ensuring system reliability during TV platform faults.
- 4K and 8K video are supported to increase customer video experience.

Simple Maintenance and Management

- Supports Unified Mode also known as OaDN. Under this mode the DNI218 inherently download its own configuration from an aggregation device located at the HeadEnd via OMCI.
- The DNI218 is a plug-and-play device when xPON technology is being used towards aggregation layer device.
- Simple and efficient maintenance and operations are performed on the aggregation node when Unified Mode is used.
- Upstream Spectrum Scanning function has been enabled to analyze proactively in front of any interference caused by upstream ingress noises affecting QoE.

Application Scenarios

- Provides high demand Quad-Play services (HSI, VoD, BC, VoIP) expanding MSO's service requirements at technology edges.
- Provides Business to Business technologies flexibilities such as L2VPN/L3VPN to be promoted over BSoD technology.
- WLAN hotspot backhaul service by using APs can be easily deployed.

Primary Function List

Cable Access

Channel management
Load balancing
Channel bonding
Spectrum management policy group
Upstream 2SG
Out-of-Band DS and US signals
BSoD

Dynamic Voice

PacketCable 1.0
PacketCable 1.5
PacketCable Multimedia
PacketCable 2.0

Video Service

4K and 8K video
EQAM
NGOD D6

CM Management

CM registration and management
Limitation on the number of CPEs connected to a CM
CM admission control
CM information query
Periodic statistics for CMs
CM event reporting

DOCSIS Multicast

DOCSIS multicast authentication
DOCSIS multicast encryption
DOCSIS multicast QoS

QoS

Priority processing
Traffic management
Congestion management
Access control list (ACL) policies
Traffic burst
QoS adjustment

System Reliability

GPON type B protection

IPv6

IPv6 ACL
DHCPv6 Option 18 or 37
IPv6 neighbor discovery (ND)
MLD Proxy/ MLD Snooping

User Security

DHCP Option 82
Relay agent info option (RAIO)
MAC address anti-spoofing
MAC address anti-duplication
Source address verification (SAV)
User isolation
BPI+
X.509 authentication
Message integrity check
TFTP proxy

System Security

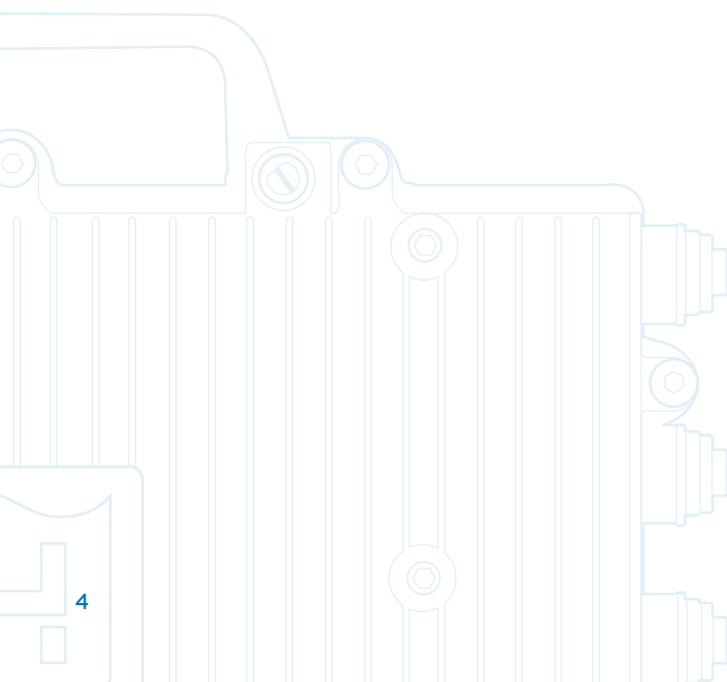
Destination IP address filtering (IP address access list)
DoS anti-attack
ICMP or IP address anti-attack
Destination MAC address filtering
Source route filtering
Firewall and blacklist
Setting of permitted or denied source IP address segments

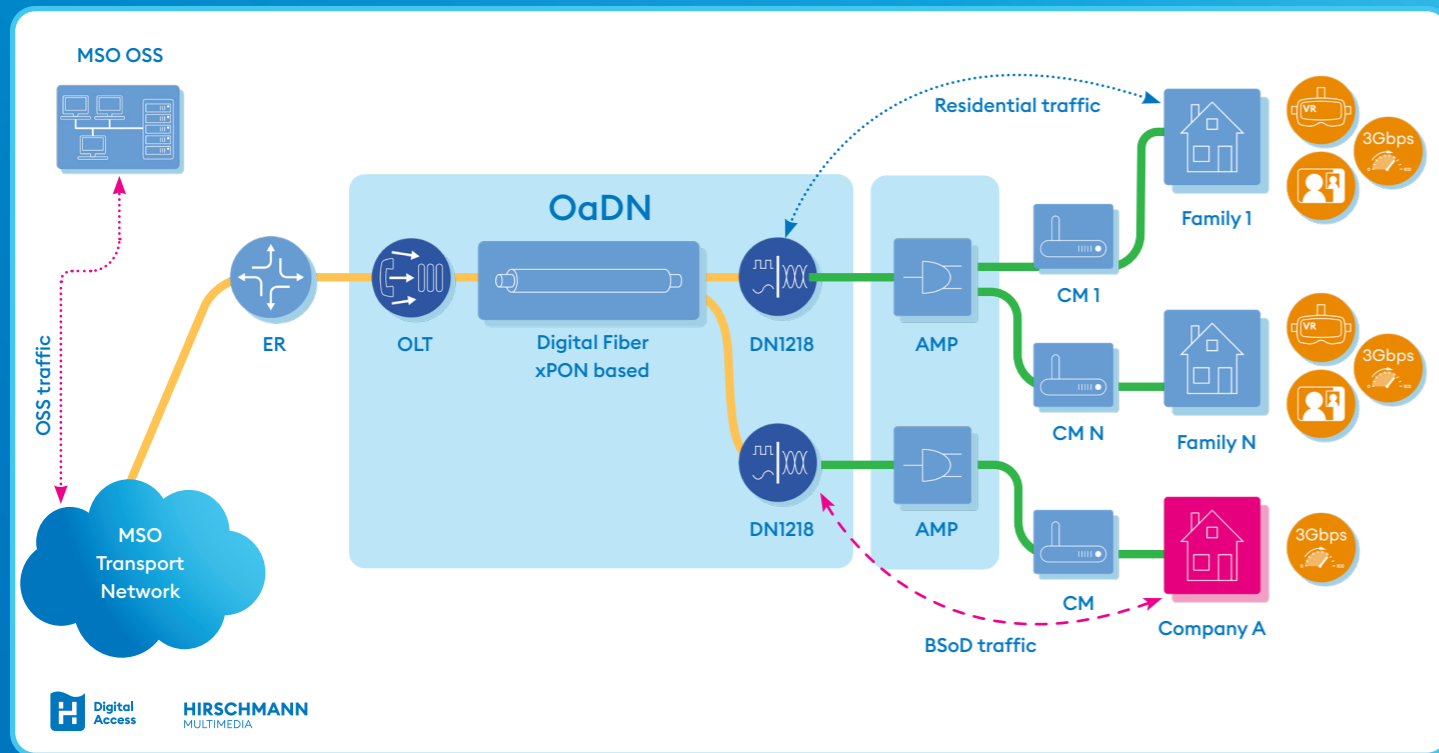
O&M Security

Simple Network Management Protocol (SNMP)
Secure shell (SSH)

Operator management

Remote connection security
Serial port shutdown
Log management
Centralized management
DHCP dialup emulation
DHCP GE upstream remote commissioning
NAC GE upstream remote commissioning





Markets

Fundamental changes in the value chain are impacting the ecosystem of the Cable MSO and Telco market. We see this as a great opportunity for our customers to leverage their unique competitive advantages in the search for new growth areas. Multi System operators (MSO's) are always affected by new trends. Therefore Hirschmann Digital Access wants to re-investigate the market and sustain a strong market position.

Our customers are Cable MSO's, Telco's and System Integrators throughout Europe and beyond. As subscribers see connectivity more and more as a utility it is important for our customers to remain relevant. Keeping up with the rapidly changing technologies while focusing on your core competencies is sometimes a challenge.

With more than a decade of experience in the Cable MSO. Operator market Hirschmann Digital Access really understand what subscribers want. We can make sure that you can deliver ultra-broadband solutions via any media, without disrupting user experience or the core network Infrastructure.

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