

FTTH solutions applied to CATV network

Before even thinking about new services and unlimited bandwidth, a key task for CATV operators is today to expand/secure existing business while lowering operational costs.

In the long-term, the use of more multimedia communication will force operators to provide new ways of communicating.

While it is today usual to rationalise networks by re-using existing HFC infrastructure, by taking the long-term view, operators may be better advised to invest, at a certain point in time, in FTTH technology that will support both their existing and future needs.

With **SUBONET**, EMC SA is offering CATV operators a pragmatic and attractive alternative for the future of cable.

Solution Overview

With **SUBONET**, EMC SA is offering a simple and cost-effective migration path to FTTH deployment.

The concept **SUBONET** is based on the idea that cable operators need to ensure compatibility and coexistence with existing infrastructure including currently deployed DOCSIS1.0/2.0 platforms, while offering the ability to accommodate new broadband applications at a convenient time.

The **SUBONET** extend the reach of the AM fiber optic trunks transmission, eliminating electronic devices be-

SUBONET supports Broadcast TV and DOCSIS and accommodates HIGH SPEED CONNECTIVITY.

tween the fiber node and the subscriber's home. That means less noise, improved reliability and lower maintenance costs.

The system can be integrated with existing network equipment to give significant benefits at reasonable cost.

Optical node converter

The EMC optical node converter NHC series is a high-density fiber-optic transmitter and receiver system designed to perform the splitting and combining functions of the CATV- based services.

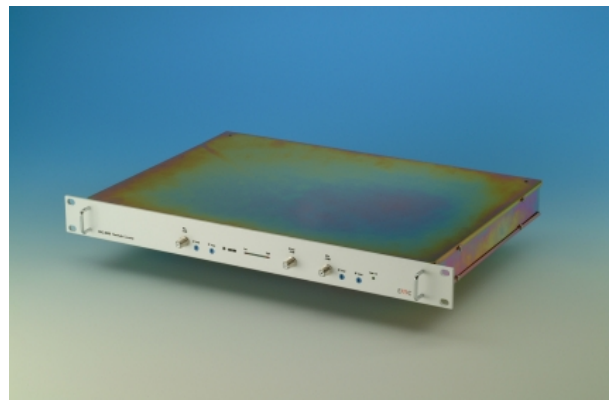


Optical node converter Ruggedized housing

The EMC optical converter NHC is typically equipped with return path signal to the headend on a single fiber. The unit can serve up to 48 home CATV transceiver units and is suitable for outdoor environment. The converter fulfills much the same purpose as a fibre node in conventional HFC architecture except that the output is fibre and not coaxial.

By deploying the NHC, it is possible to eliminate all the cost associated with deploying and servicing RF-amplifiers. It eliminates link budget adjustments and fine tuning during operation. Completely modular and fully connectorised, the NHC permits simple expansion, upgrade and facilitate repairs. The modular design of the optical node converter offers the capability to configure each subscriber directly from the NHC location avoiding intervention at subscriber's home.

Depending of network configurations, the EMC optical node converter is designed to meet two environmental parameters in the outside plant:

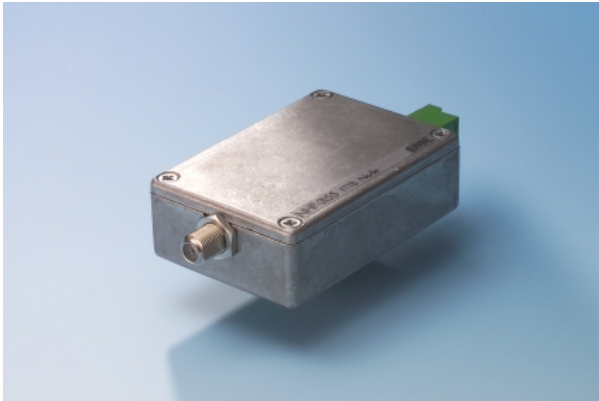


Optical node converter 19" rack mount

- NHC-0000 series built in a ruggedized cast aluminium housing for outdoor mounting.
- NHC-2000 series built in a 19" Rack mount enclosure for mounting in an environmentally controlled area.

Fiber optic transceiver system

The EMC fiber optic transceiver NHP series is a universal device that allows CATV operators to deliver CATV and DOCSIS based services to their subscribers. The NHP employs a field proven low noise receiver/transmitter module which converts the optical downstream into RF signals and transmits the upstream DOCSIS cable modem signals toward the Headend.



Fibre optic transceiver system -FTTB applications

As a FTTB device, the NHP -3100 is ideally suited for residential and small multi-family dwelling applications. The unit is typically mounted in the home termination housing and is designed to serve many subscribers.

The EMC home termination housing NHF-series serves as a demarcation point in the basement of multi-family dwelling units. Provided with a fiber splicing area, the housing is intended for rapid and easy mounting. Installation involves wall mounting of the housing and splicing the input fibers. The housing is also designed to accommodate high speed Ethernet interface connectivity at a convenient time.

Thanks to its compatibility with DOCSIS standards, familiarity to CATV HFC architectures and simplicity of deployment SUBONET appears to be a practical and cost effective alternative for access technology applied to CATV networks.

The EMC transceiver socket NHP-0000, as a FTTH device, allows CATV operators to deliver CATV

and DOCSIS based services over fiber directly to their customers.

The socket is pre-terminated for rapid and easy installation at the subscriber's apartment.



For the IP section the socket is equipped with fiber optic interface for interconnecting various CPEs (Customer Premise Equipment) allowing flexible and fast adaptation to individual needs.

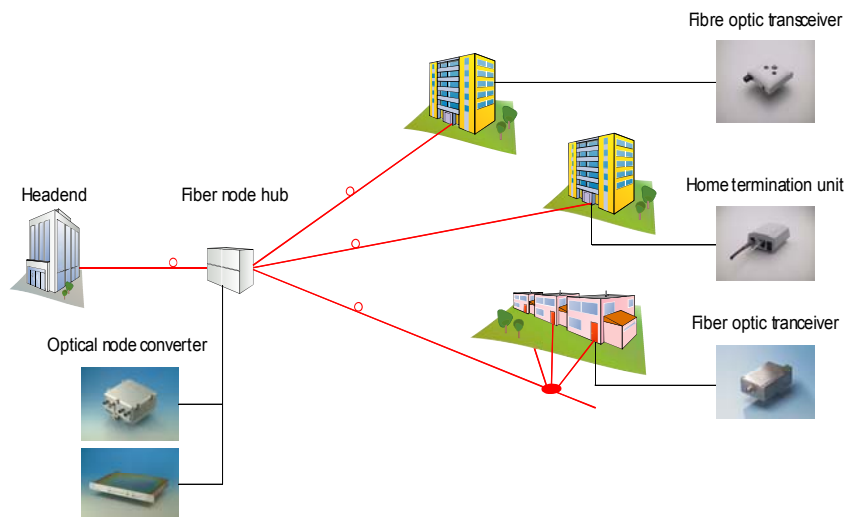


The EMC's NHP platform has been designed to meet two primary home configurations:

- ◆ NHP-0000 (FTTH) Single Family Apartment, for mounting at the apartment.
- ◆ NHP-3100 (FTTB) Single Family Home or multi-tenant applications for mounting at basement.

By implementing *SUBONET* in a favorable environment, cable operators will find an economic way of migrating their existing network architectures while improving reliability and operational expenditure of delivering legacy services. Thanks to its compatibility with

DOCSIS platforms, familiarity to CATV HFC architectures and simplicity of deployment *SUBONET* appears to be a practical and cost effective alternative for access technology applied to CATV environment.



Synopsis of *SUBONET* Features

Design/Features

Advantages

RF Video – Downstream	Existing Analog and digital broadcast television (47- 862MHz)
Return path – Upstream	Existing DOCSIS 1.0/2.0 – Based services (5-80MHz)
Ethernet connectivity	10/100Mbps bandwidth for future applications and services – Future proof.
Telephony	Either over cable modem and/or gateway box.
Familiar architecture	Its architecture is based on a HFC model – Similar to what CATV have deployed.
CPE for Ethernet	Technologically neutral –Transparency.
Hardware	No controlled environment needed – Compact and ready for field use.
Deployment	Gradual roll-out of new technology “Build as you need” concept – low risk.
Active equipment	No RF- Amplifiers – higher overall network reliability, lower maintenance costs.
Head end	Use of legacy CATV-Equipment – Differs costly investment at the HE.
Ease of operation	No link budget adjustment – Reduce installation and operational costs.
Optical fiber	One fiber for each services reduce the network overall cost.
Product design	Adaptable to most network configurations and household’s requirements.