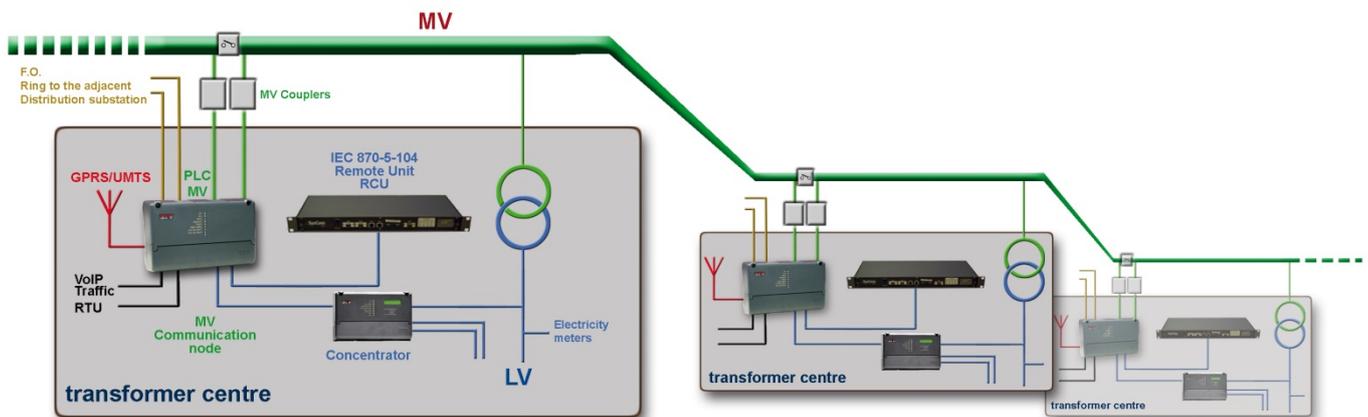# DRA-2

Universal Communication Node

DLC for urban environment.

The main purpose of the DRA-2 is data transport for services in medium-voltage Secondary Substations to a Main Substation using different communications channels.

It provides service to the equipment in the Distribution Transformer Center, such as AMR meter reading concentrators, Remote Telecontrol Units, protections, fault circuit indicators, etc.

DRA-2 technology

The variety of interfaces is one of the outstanding features of the DRA-2, providing a solution for the different topologies found in Secondary Substations.

In some Distribution Transformer Centers, PLC MV technology is the only viable solution, while in other locations, fiber optics or cable modem are also available. Wireless interfaces could be used when physical links are unavailable or unsuitable.

Main applications

- Data transmission in mid-distance levels (urban environment).

- Connectivity between Distribution Transformer Centers (DTC).

Equipment interfaces

- Base interfaces:

  - 6 Fast Ethernet ports (10/100Base-Tx).
  - 2 Gigabit Ethernet SFP bays (optical fiber).
  - 1 service port.

- Additional interfaces:

  - GPRS (2G) /UMTS (3G) cellular interface with dual SIM operation.
  - Cable modem (DOCSIS / EuroDOCSIS 1.0/1.1/2.0).
  - HPAV Broadband PLC interface.

- LEDs for status indication.

Management system

- Local and remote management through a console or built-in web server (http/https), SSH and Telnet server.

Additional services

- SNMPv1, SNMPv2c and SNMPv3.

- DHCP, NTP, management access with TACACS+, and client equipment access control with RADIUS.

- Layer 2 and Layer 3 capabilities.

Technical Information

Frequency range	2 to 30 MHz (HPAV BPLC interface)
Main characteristics	➢ Supports advanced features of Ethernet switching (L2), static and dynamic IPv4 routing (L3) and traffic management, including tunneling. ➢ OFDM modulation with 1155 useful carriers (HPAV BPLC interface).
HPAV BPLC interface	BNC connector.
Cable modem	F-type female 75 Ω RF connector
Service port	➢ DB9 female connector in DCE mode. ➢ Speed of 115200 bit/s
Transmission rate (max.)	150 Mbit/s (HPAV BPLC interface)
Distance	Up to 600 m (HPAV BPLC interface)
Mounting	➢ DIN rail installation. ➢ Dimensions: Height: 140 mm; Width: 220 mm; Depth: 94 mm. ➢ Weight: 1 kg
Power supply	➢ 16-75 V_{DC} (48 V_{DC} nominal) or multirange (80-360V_{DC}, 80-260V_{AC}) ➢ Max. consumption: 15 W
Temperature range	From -20° C to +70°C
Material	Grey (RAL 7024) Lexan 920 fire resistant (UL 94 V0) plastic