

ETHERNET OVER COPPER EoCu REPEATER ZWR2 ELCONnect®

SIMPLE

Plug&Play installation

FIELD-PROVEN

High quality and dependability

POWERFUL

Range extension for xDSL systems



ZWR 1-pair



ZWR 2-pair

THE PRODUCT

In many cases the standard DSL range is too short to reach the target business customer or the needed bandwidth for this customer can not be offered due to the physical limitations of the DSL interface. This EoCu repeater of the ELCONnect xtend ZWR2 series is the solution, which allows it to deliver the right bandwidth to such distant customers. By using of up to 4 cascaded repeaters the operating range of a standard SHDSL access between the COT / DSLAM and the NT / Customer Premises Equipment (CPE) can be quintupled. Depending on the cable diameters, cable parameters and the supported bandwidth of the equipment it becomes possible to transfer about 11.5 Mbps (2-pair model) over a distance of minimum 10 km. This is realized by regenerating the attenuated and distorted incoming SHDSL signal by the ZWR2. By using the Power back-off feature the signal level will hereby be reduced to the minimal necessary value, which results in lower interference with any other service and a reduced power consumption.

The SHDSL repeater further supports different operation modes like TDM, ATM and EFM for net data rates from 192 kbps to 5696 kbps per line pair and can therefore be used in a wide range of applications.

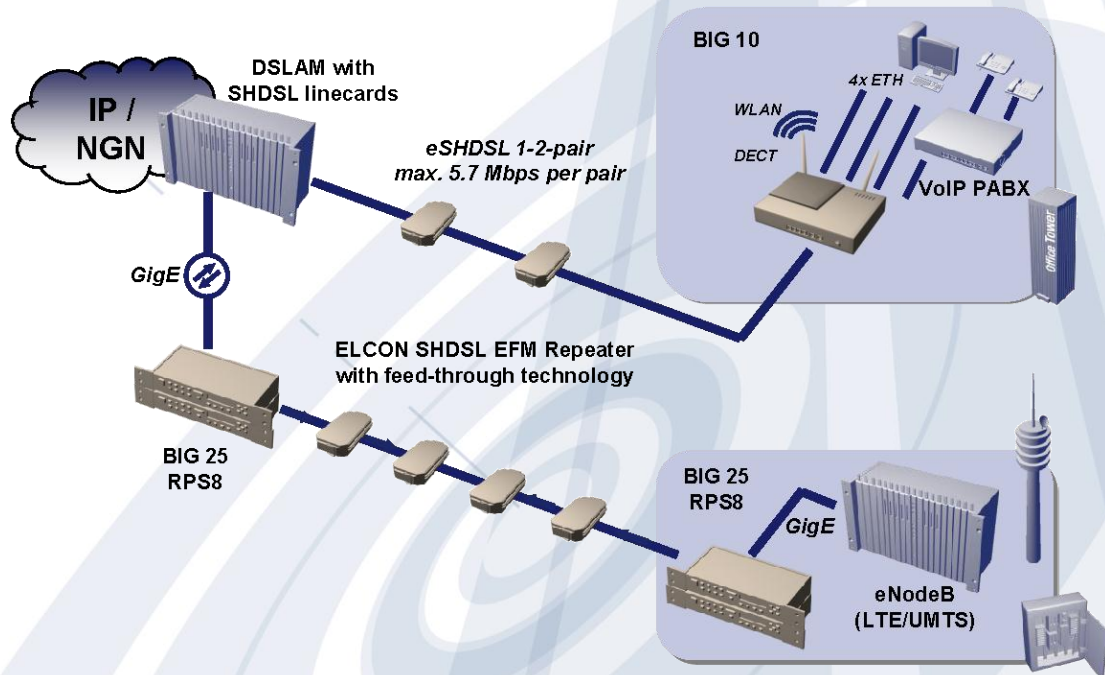
For easy, fast and flexible deployment in the network the repeater supports different power feeding options as remote feeding over the used copper wires or can use the existing local power supply. The repeater is further equipped with low power components, which consume less than 50% of comparable solutions, and allows the feed-through technology to feed a second repeater serial in line. For the use of repeaters in any location ELCON is offering different enclosures for mounting into underground places, in a manhole-, on a pole or wall and for operation in outdoor cabinets.

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APPLICATION



ZWR2MSKU 1P AND ZWR2MSKU 2P

The ZWR2MSKU is available in two versions: While the ZWR2MSKU 1P with one DSL interface has been designed for one-pair mode, the ZWR2MSKU 2P provides two DSL ports and can be optionally operated in one- or two-pair mode. Both the ZWR2MSKU 1P and 2P can either be powered remotely from the exchange (DSLAM with own integrated or external RPS8 module) or from subscriber side (BIGxx) via the optionally RPS8-module, or locally. In addition, the ZWR2MSKU 1P and 2P can transmit the remote power supply to another ZWR2MSKU 1P / 2P.

HARDWARE AND MANAGEMENT

The repeaters ZWR2MSKU 1P and 2P are accommodated in a metal casing (protected as per IP 40). All ZWR2 can be installed either in a cable fitting, in a pole- and wall-mounting box or in a repeater rack ZWRE, which is specifically designed for installation in street cabinets (KVz). Up to six ZWR2MSKU 1P or three ZWR2MSKU 2P can be placed in one repeater subrack or a cable fitting. The pole mounting box offers place for up to two repeaters.

The ZWR2 is supporting the ELCON Business Gateway's as well as many DSLAM products. The adaptation of the repeater to new and currently unsupported 3rd party DSLAM's resp. CPE's can be done optionally to achieve interoperability.

The ZWR2 can optionally be remote controlled and managed by the 3rd party DSLAM or a stand-alone SHDSL LTU (e.g. BIG 25) using the EOC channel. The local and remote management system (NMS) of the DSLAM vendor can optionally support the configuration and monitoring of the connected repeaters (if implemented).

ADVANTAGES OF THE ELCON SYSTEM

- Support of different modes of operation (TDM/ATM, EFM-, eSHDSL-Mode) in one- and two-pair operation
- Support of bit rates in steps of $n \times 64k$ from 192 kbps to 5696 kbps
- Very low power consumption (max. 3.8 W for 2-pair model) to save OPEX
- Support of different powering options (local, remote power) with Feed-Through Technology for feeding 2nd repeater in line.
- Support of different mounting options
- Integration into 3rd party equipment, if required
- Remote configuration and management by the central transmission equipment

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TECHNICAL DATA

DSL interface

- as per ETSI TS 101 524 or ITU-T G.991.2
- Net data rate: 192 kbps ... 5696 kbps per pair
- Line code: TC-16/32-PAM
- Line impedance: 135 Ω
- Degree of protection: TNV3

Power supply

- Input voltage:
 - 112 V DC ± 3 V DC (60 mA) (Remote power supply)
 - -40.5 V DC ... -75 V DC (Local power supply)
- Power consumption in case of local power supply:
 - < 2.8 W (1-pair);
 - < 4.8 W (2-pair)
- Power consumption in case of remote power supply:
 - < 2.2 W (1-pair);
 - < 3.8 W (2-pair)
- Output voltage: ~100 V (depending on the distance to the feeding source)
- Feeding range (one repeater ZWR2MSKU 1P and 2P):
 - max. 4000 m (with 1-pair PE-cable 0.4 mm);
 - max. 8000 m (with 2-pair PE-cable 0.4 mm)

Physical parameters

Dimensions (W × D × H)

- ZWR2MSKU 1P: 109.4 mm × 194 mm × 30 mm
- ZWR2MSKU 2P: 109.4 mm × 194 mm × 67.5 mm

Environmental conditions

- as per ETS 300 019
- Operation:
 - Air temperature: -25 °C ... +55 °C;
 - Rel. air humidity: 5 % ... 95 %
- Storage:
 - Air temperature: -25 °C ... +55 °C;
 - Rel. air humidity: 10 % ... 100 %
- Transport:
 - Air temperature: -25 °C ... +70 °C;
 - Rel. air humidity: 60% ... 95%

EMC & Safety

- EMC: EN 55022, class B; ITU-T K.21, enhanced level; ETSI EN 300 386; ETSI TS 201 468 OTC-Level2
- Safety: EN 60950-1

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PURCHASE ORDER INFORMATION

Product designation	Order number
ZWR2MSKU 1P (Interoperability with 3 rd party DSLAM and ELCON BIG 1x / 2x)	900247
ZWR2MSKU 2P (Interoperability with 3 rd party DSLAM and ELCON BIG 1x / 2x)	900254
ZWR2MSKU 1P (Interoperability with 3 rd party DSLAM / CPE and ELCON BIG 1x / 2x)	900258
ZWR2MSKU 2P (Interoperability with 3 rd party DSLAM / CPE and ELCON BIG 1x / 2x)	900248