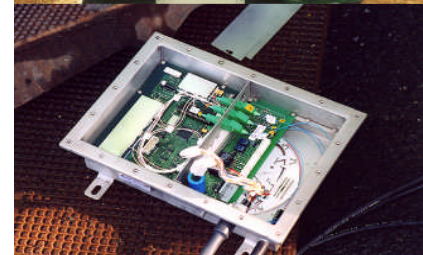# ∈ROS²

Équipement pour Réseau Optique de Sécurité

ERECA, Digital telecommunication specialist on optical fiber, offers Emergency Roadside Telephone system over optical fiber.

The architecture of the network is composed by optical bus **able to drive up to 50 couples of ECB (100 Emergency Call Boxes)**.

Each optical interface remains autonomous and the optical dynamic of the equipments capable to secure self healing on the network constituted of optical couplers.

Network interface, EROS² CE, assumes the control of the network and **the periodic test of the optical bus so the ECB optical interfaces.**

A perfect audio quality is guaranteed by the digital technology used for the treatment. This facility allows a simple first service of the Emergency call box and multi-communication on the same network.

Setting and diagnostics of interfaces (alarm level, audio output level…) are directly done on the call box through consol port.

Primary and secondary call box can be electronic free to simplify maintenance.

Protection principles are using optical couplers architecture which **warrants a continuous operation when a call box is out of service or when the optical cable is broken.**
As an option the network interface can be redundant to **secure a full operation of the network in case of failure of the head call controller.**

EMERGENCY CALL BOX

ERECA supplies a complete range of Emergency Call Box (ECB), standard, compact and mini, in accordance with European and French standard EN 60529, NF 99-250 and NF P 99-251.

Standard Call Box

Call box bodies are able to receive optoelectronic ECB interface. It is also possible to fit this interface in the underground cabinet, near to the ECBP. This configuration protects the electronic even an accident pulls out the call box, and so reduces the cost of repair.

The ECBP is containing the power supply of the electronic; this one comprises a 12 volts battery recharged by a solar panel for outside fitting or a main charger for tunnel application.

A loud speaker, microphone and push button, at the ECB door assume the communication interface between the operator and road user.

On the call box stickers will be apply following the standard or as recommendation of the particular specifications.

Compact Call Box

The compact call box type solves the disposal on narrow place (bridge or tunnel…), there is no foot for ground positioning, fixation is done directly on the wall by the bottom of the call box or with a special mounting leg adapt to the site condition.

This call box is able to receive optoelectronic interface and the two types of power supply; it is equipped of the same door as the standard one.
Standard stickers can be applying on this ECB model.

Battery solar panel power supply   Energy free

Primary call boxes are supplied with an encastrement fitting for solar panel capable to maintain the charge of the battery which powers the ECB optoelectronic interface.
This embedding at the edge of the call box assumes discretion and protection of the solar cell.

Mini Call Box

The mini call box is particularly designed for narrow place as niches and exit in tunnels.

It is equipped of the same communication door as standard call box and is also able to contain optoelectronic elements of transmission.

Integrated solution

ERECA can also provide part of call box component for integrated solution or specific option, as LED for hearing impair or day/night camera on the communication door.

EQUIPMENTS

Call Box Interfaces

Field interfaces convert the logic and analog signals (loud speaker, microphone, push button and closure contact) to digital information for transmission on the EROS² optical network.

Interfaces are housed in a waterproof box IP67, for cable chamber fitting, or in a box for integration in the call box.

Interfaces setting (audio level, alarms, diagnostics…) are done through a serial link, from the call box primary (Master) as well as secondary (Slave). A simple Hyper terminal console can control and set the interface.
Calling acknowledge can be personalized by audio messages recorded in the interface. A function to broadcast a message to all the call boxes or to a group of call boxes is possible.

As an option a radio link between primary (Master) call box and secondary (slave) offers a solution when copper cable is not present or for particular applications.

Network control Equipments

At the end of the optical network the controller modules EROS2 CE are in a 3U chassis to control fiber optic network of emergency telephones. The chassis is equipped with two redundant power supplies and is capable to receive 6 modules EROS2 CE.

One interface EROS2 CE or one couple of interface EROS2 CEP / EROS2 CES controls one EROS² network and assume up to 3 simultaneous communications.
The diagnostic of the ECB interfaces can be realized at distance through the console port of the EROS² CE interface.

The system offers the capacity to use an independent serial link point multipoint, and also a remote control of "flashing light" at ECB.

Audio channel from the EROS² CE interface are connected to the ERECA audio matrix, which manage the audio channels and the communications with the operator.
The matrix has also two connections for PABX to offer to operators a direct access to external services and the opportunity to transfer the user communication to the external service.
A copy of all communication channels is available on the matrix for audio recording purpose.

Transfer and converter modules

It is possible to plug in the chassis modules for network transfer.

The module, ERC ODA, transfers up to 2 full EROS network over one or two optical fibers.

The module ERC CVD IP converts EROS² network information (audio and data) in for the transfer of one EROS network over IP network.

Server and client Software

All the EROS² control room equipments are managed by one server solution working under Linux operating system.
For the operator of the Emergency Telephone Network, the client application assumes basic functions required for an Emergency Call network as call in progress, on hold, end of communication and offers graphical interface with geographical map with emergency telephone icons, historical, statistics, transfer through external services facilities, access to call recording,…
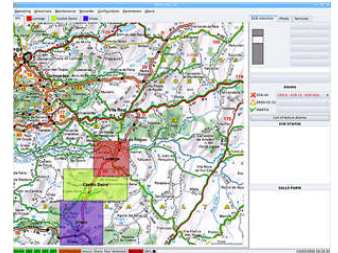
Its ergonomic and easy to use interface as well for operation as for the maintenance allow to be completely set by the maintenance operator without any difficulty.

NETWORK ACHITECTURES

The digital transmission system and the network architecture guarantee a continuous operation in case of default on an ECB interface.

The optical connection to the network is assumed by identical optical coupler; there assembly secures the operation of the network even if the interface is not working.

Standard network, EROS² SON 1: One EROS² CE interface manages field equipments
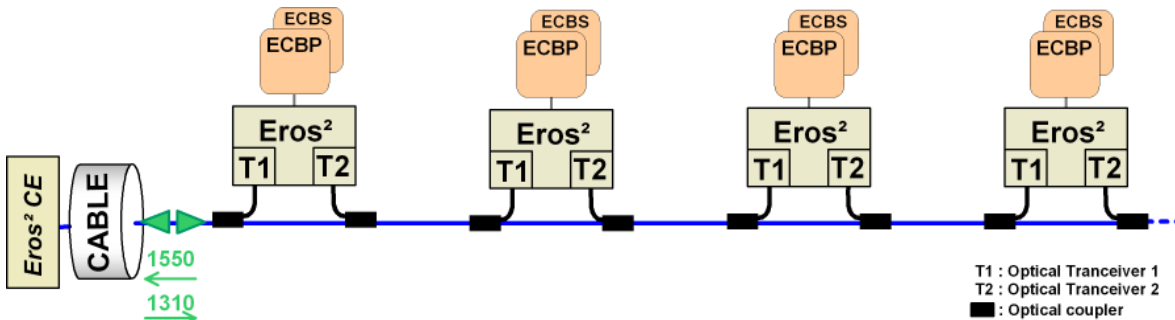
This first level of optical securization warrants network operation for ECB interface located upstream of the optical cable cut.

High optical protection network, EROS² SON 2: A couple of EROS² CEP + EROS² CES manages field equipments
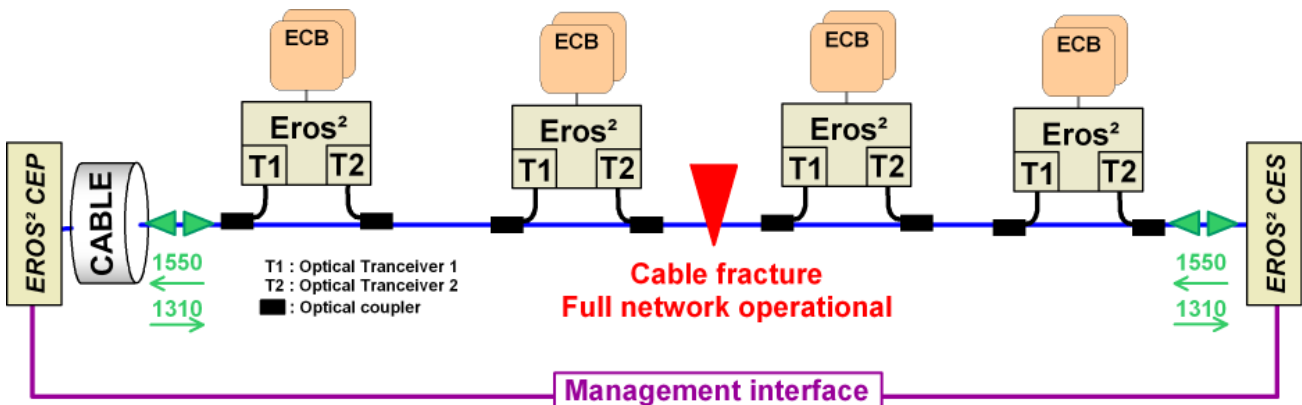
The EROS² SON 2 network guarantees the operation of the complete network in case of one cable cut, and also in case of break down of one EROS² CE(P or S) interface.
One EROS SON 21 interface assumes the management of both sides of the network, so of one EROS² CEP and one EROS² CES.

CONTACT INFORMATIONS

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