Wireless Monitoring of Valves

Wireless. Easy. Value.

System Description

ELTAV

ELTAV Wireless Monitoring Ltd

Wireless Monitoring of Valves

EMS Clients

Access to Eltav's wireless sensor network and information

GUI Client provides a view to sensors data and network status; allows configuration of remote sensors and alarms.

Connectivity client forwards Valve Device data and status to the third party PLC, DCS and SCADA. Supported protocols are: Modbus RTU, Modbus TCP/IP and OPC DA.

EMS Server

Management System Server

Central server software on the TCP/IP network which maintains the wireless network, performs data logging and publishes sensor information to clients.

PLC Adaptor

PLC/SCADA/DCS interface

Eltav's hardened connectivity device (embedded software). Adds robustness to the entire system by providing industrial-class and redundant interface to PLC, DCS and SCADA as well as network management abilities.

Preventive Maintenance

» Monitors valve opening and closing profiles
» Detects variations from reference profiles
» Creates alarms and enables predictive maintenance
» Adjustable reference profile and limits

Normal valve operation

Valve Dynamics

Dynamics Duration: 750 [msec]

Set Reference | Remove Reference

Open Reference taken on 3/31/2010
Close Reference taken on 3/31/2010

Disrupted valve operation

Valve Dynamics

Dynamics Duration: 1200 [msec]

Set Reference | Remove Reference

Open Reference taken on 3/31/2010
Close Reference taken on 3/31/2010

Incomplete valve operation

Valve Dynamics

Dynamics Duration: 600 [msec]

Set Reference | Remove Reference

Open Reference taken on 3/31/2010
Close Reference taken on 3/31/2010

TVDR

Tunneling Valve Device Router

Last hop VDR which transfers data collected from the wireless network to the management components of the TCP/IP network. Two or more TVDRs ensure redundancy.
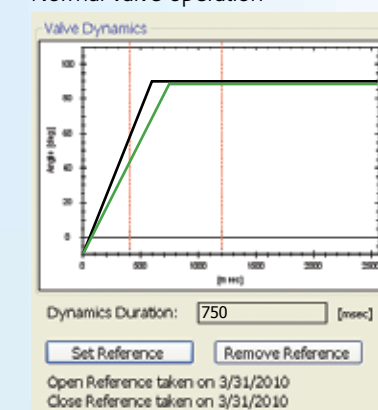
VDR

Valve Device Router

Each VDR collects and routes data from up to 32 associated VDs and nearby VDRs and transmits the information to the control center. Data transfer redundancy is assured by automatic routing of the wireless devices through a Mesh Topology.
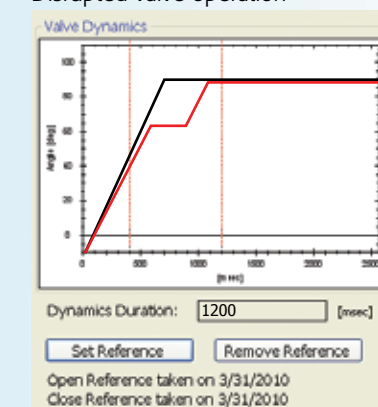
OD

Operator's Device

A hand-held wireless device that communicates with Eltav VD and network components in the field, using low frequency and zigbee one-on-one communication. The OD delivers messages and performance data to the operator and is used to support installation, configuration, provisioning, calibration and maintenance and network performance.
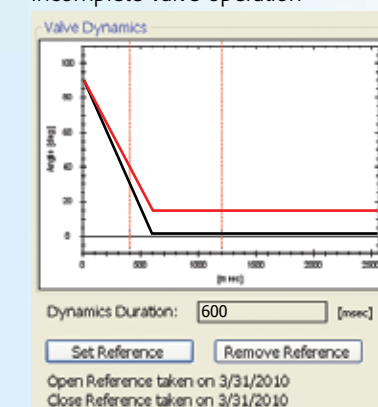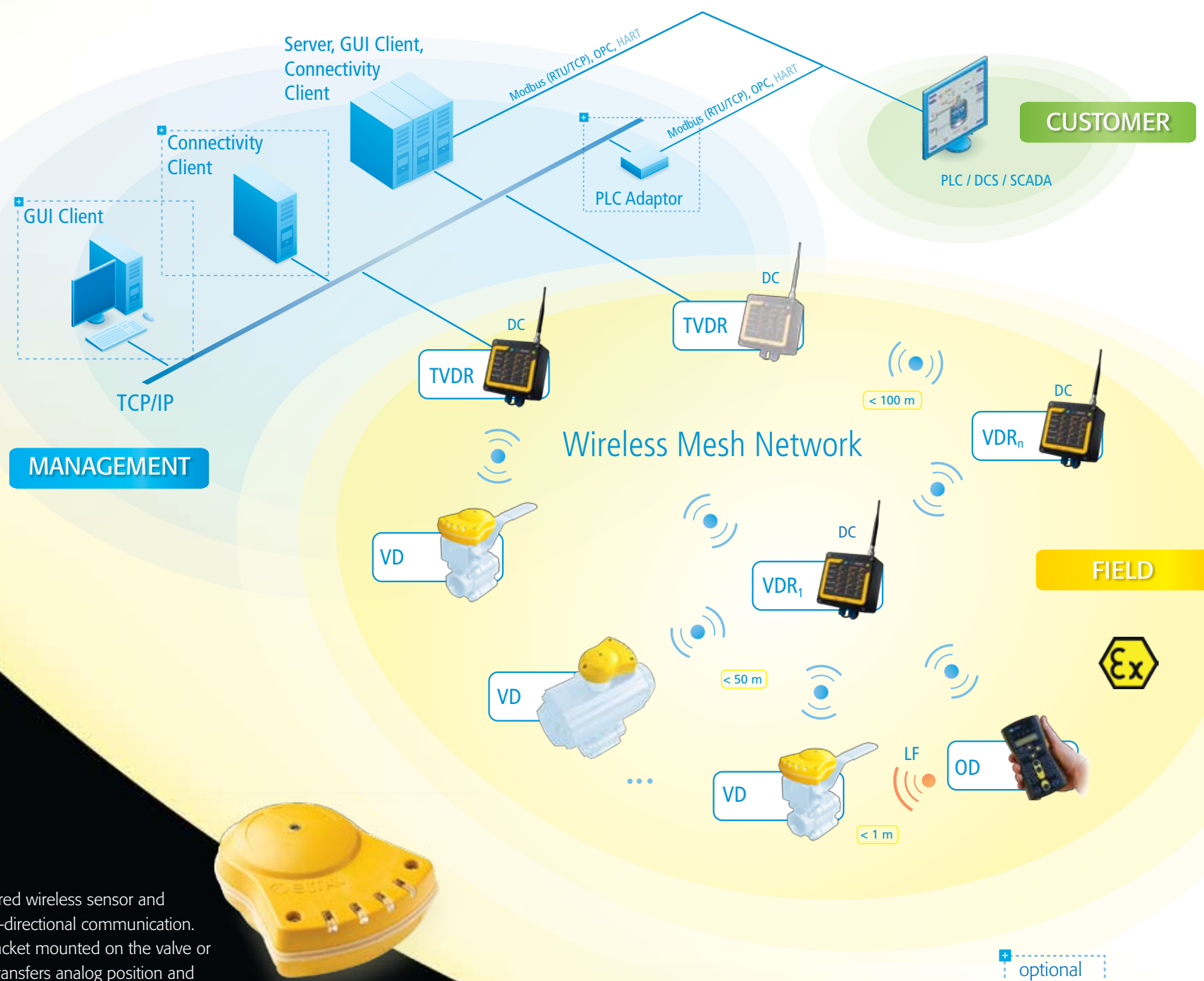
VD

Valve Device

Small, self powered wireless sensor and transceiver for bi-directional communication. The device is bracket mounted on the valve or actuator, and it transfers analog position and other vital monitoring data in real time.

Server, GUI Client, Connectivity Client

Connectivity Client

GUI Client

Modbus (RTU/TCP), OPC, HART

Modbus (RTU/TCP), OPC, HART

CUSTOMER

PLC / DCS / SCADA

PLC Adaptor

TCP/IP

MANAGEMENT

Wireless Mesh Network

FIELD

DC

TVDR

TVDR

DC

DC

VDRₙ

< 100 m

VD

VDR₁

DC

VD

< 50 m

VD

LF

OD

< 1 m

optional

The Plant

» Designed for the Process Industry and Utilities

» For existing plants and new installations

» Addresses concentrations of valves

» Certified as Zone 1 Intrinsically-Safe

The Solution

» Real time monitoring of valves

» Full range position and limit indications

» 5 year battery life

» Predictive valve failure indications

» Robust wireless system

» Redundant mesh network

» Conforms to industrial standards

» Fully integrated with all standard automation systems: PLC/DCS/ SCADA

» Easy, non-disruptive and quick implementation on hot lines

» Fraction of the cost compared to wired alternatives

The Value

» Increased yield - reduced risk

» Comprehensive monitoring added to the plant

» Preventive valve maintenance

» Eliminates unnecessary shutdowns

» Improved safety

» Enhanced operational efficiencies

» Improved plant profitability - reduced operational costs

» Improved accountability with increased automation

» Smooth implementation

» Quick ROI

Standards

» ATEX approved for Zone-1 explosion proof installations
» TUV/CE certified
» Integrated OPC interface to PLC/DCS/SCADA
» Wireless protocol Zigbee Pro

» Compatible with HART management system
» Embedded in ISA100
» IP 65

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