



Wireless Monitoring of Valves

Wireless. Easy. Value.

System Description



DOC3011 REV.A

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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EMS Clients

Access to Eltav's wireless sensor network and information

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

The **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

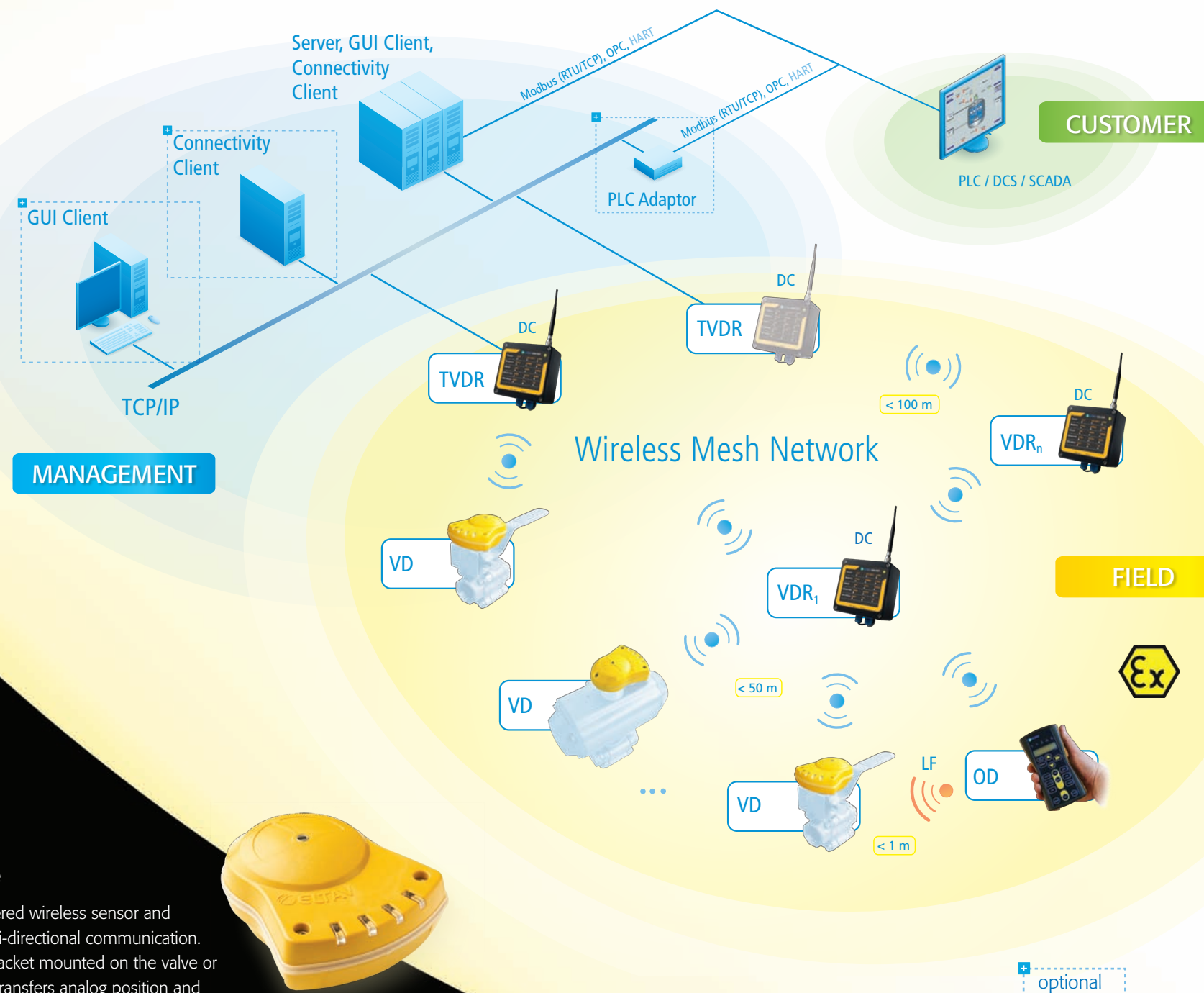
PLC/SCADA/DCS interface

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

- » Monitoring of valve opening and closing profiles
- » Detecting of variations from reference profiles
- » Creating alarms and enabling predictive maintenance
- » Adjustable reference profile and limits



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.



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

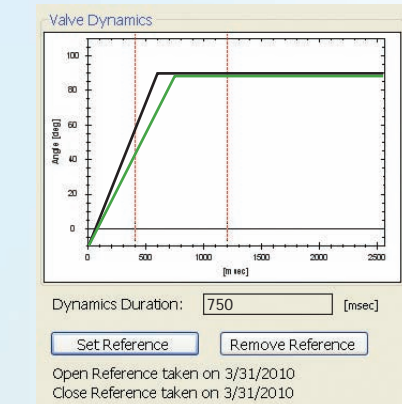
Each VDR collects and routes data from up to 32 associated VDs and nearby VDRs and transmits the information to the control center. Data transfer redundancy is assured by automatic routing of the wireless devices through a Mesh Topology.

OD

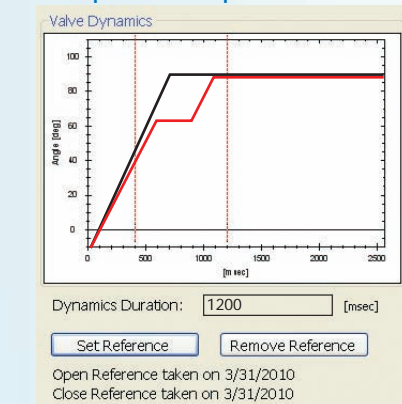
Operator's Device

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, maintenance and network performance.

Normal valve operation



Disrupted valve operation



Incomplete valve operation

