



**Characterised control valve (GUW )  
with adjustable Fluid velocity and  
presure sensor-operated flow  
control, and power and  
energy-monitoring function**

**Intelligent network control operator**

This type of valve is used to control flow and pressure. The function of this valve is to reduce the inlet pressure and keep it constant at the outlet of the valve regardless of the inlet pressure above the valve. The outlet pressure adjustment operation is performed by a component called "pilot". Pressure control in the water distribution network is of particular importance. Due to the expansion of distribution networks, defiance and constant control of these valves is one of the concerns of managers and officials of these networks. In these cases, the use of control valve is suggested as a convenient and low-cost solution.

This product consists of two parts:

- **Actuator:** This section is used to rotate the pilot adjustment screw, which includes the drive motor and the aperture positioner (Positioner).
- **Controller:** includes CPU, analog and digital inputs and outputs, communication port and display.
- All monitoring, adjustment and control operations are performed by this part of the product.

This product provides the following capabilities to the user:

- Display different values such as: inlet pressure, outlet pressure, valve opening (diaphragm), motor current load, warnings and necessary messages.
- Pressure control valve control in 4 ways:

**A) Manual:** The output pressure is adjusted using the open and close buttons on the screen.

**B) Semi-automatic:** The desired pressure is given to the controller, then the controller adjusts the output pressure if the conditions are available. Once the pressure is set, the operation ends.

**C) Automatic:** The output pressure is predetermined according to the program and is set in 4 time intervals of the day and night. Different or the same pressure can be set for each time period. This operation continues until the operator stops the program.

**D) Remote control:** The operator control is provided to the operator of the control center or secondary controller (PLC, SCADA, HMI). In this case, remote commands are applied.

**Product features:**

- Display important values on the screen
- Four-state control of pressure relief valve (manual, semi-automatic, automatic, remote)
- Full color and touch screen
- Easy usage
- Quick installation
- No need for special maintenance
- Resistant to moisture and water spray (operator)
- Internal date and time
- RS485 serial data transfer port
- Modbus RTU (Slave) communication protocol
- Detect and issue vital warnings

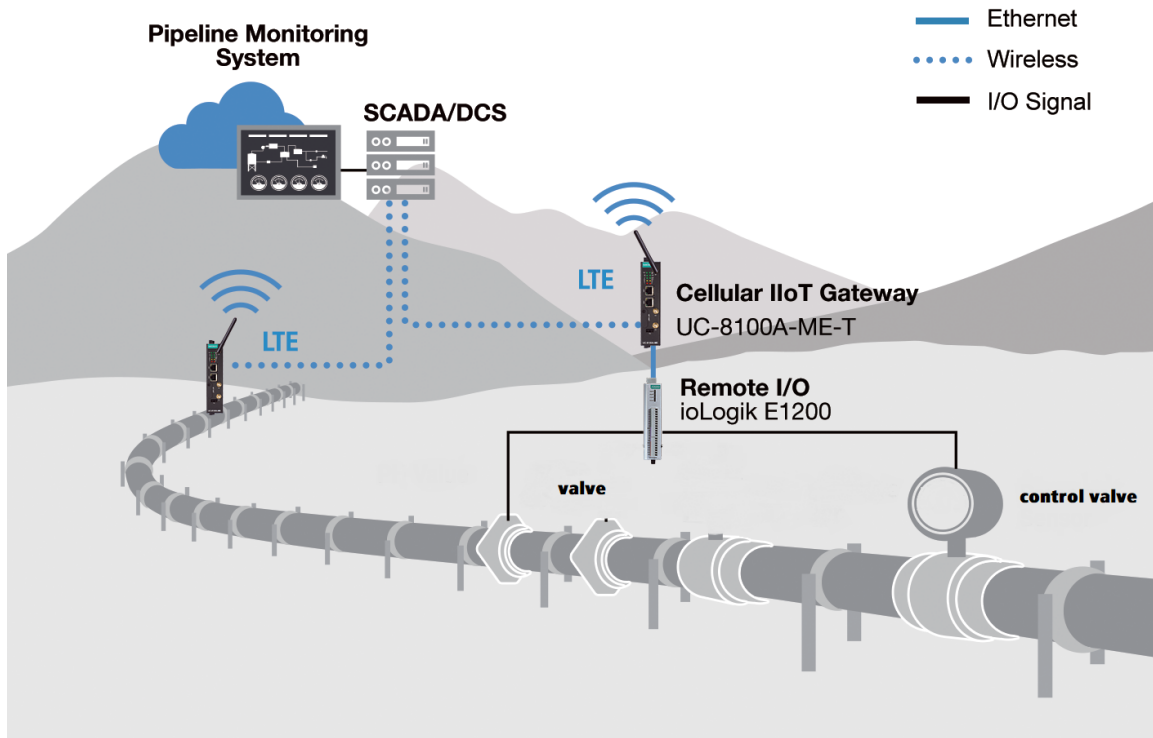
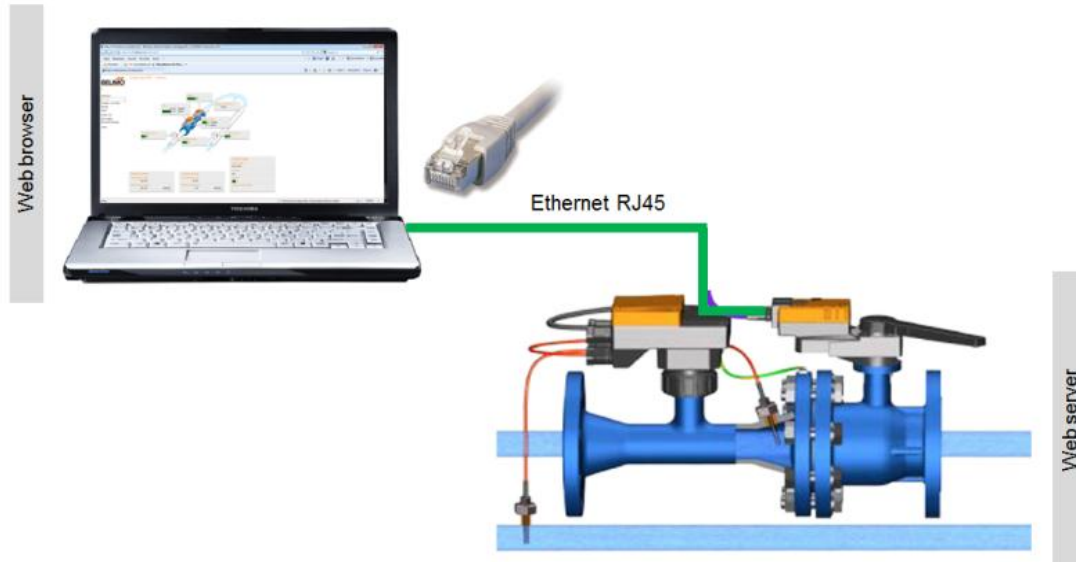
**Selected features:**

- Data logger
- Thermometer and hygrometer
- Network communication port with Modbus TCP / IP protocol
- GSM / GPRS communication module



Access to the control Valve

Connect the PC/Laptop to the Energy Valve with the RJ45 cable

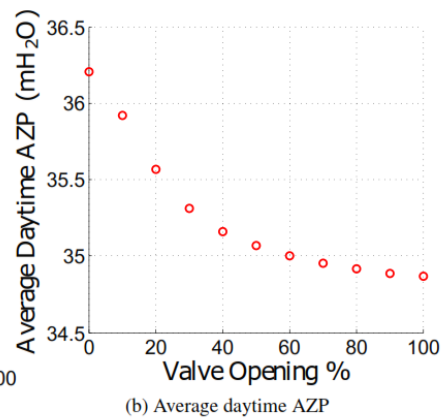
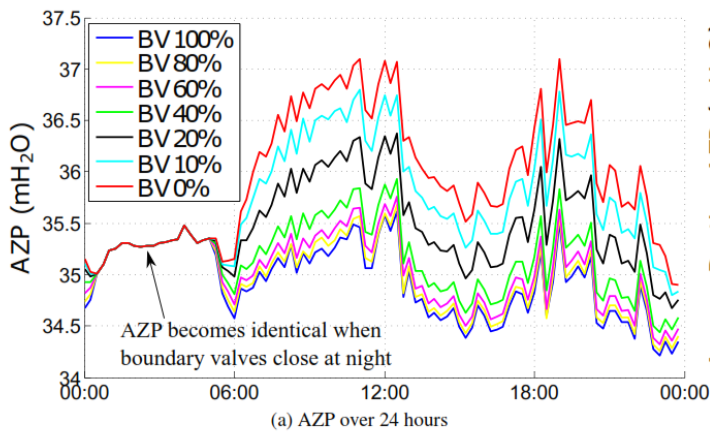
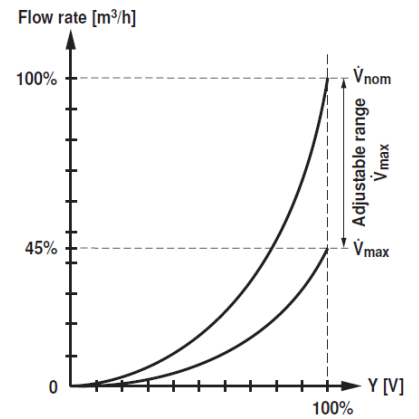


Definition of  $V'_{nom}$

Is the maximum possible flow rate and corresponds to approximately 2 to 2.4 m/s medium velocity in the connection pipe with the same DN size. (For DN 65, the cross-section is approximately  $0.065 \text{ m}^2 \times \pi / 4 = 0.0033 \text{ m}^2$  and for 2.4 m/s medium velocity, this results in 480 L/min or 28.8 m<sup>3</sup>/h)

Definition of  $V'_{max}$

Is the maximum flow rate which has been set with the greatest positioning signal (10V). The  $V'_{max}$  can be set to between 45% and 100% of the  $V'_{nom}$ .



AZP results when the SFSCP method proposed in section 3 is applied to the experimental programme network for different levels of boundary valve opening %