Your HMI & SCADA solutions in the water industry
The *winning* association
Let’s build together your HMI* and SCADA solution to supply quality water in high quantities

*HMI: Human Machine Interface

At each stage in water treatment, Schneider Electric proposes its Winning associations responding to “treatment plant” and “remote site” applications.

> **Treatment plants**
4 levels of drinking or waste water treatment plants, depending on:
- Volume of water to be treated in inhabitants equivalent.
- Complexity of technique and its constraints:
  - Input water quality, environment (plant size, pollution).
  - Output water expected quality (taste, clarity).

> **Remote sites**
3 levels of lifting, pumping, overpressure or reservoir remote sites, depending on:
- Volume of water to be pumped (number of pumps).
- Complexity of pumping treatment (availability of technique).

<table>
<thead>
<tr>
<th>Treatment plants</th>
<th>Remote sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhabitants equivalent</td>
<td>No. of pumps</td>
</tr>
<tr>
<td>1000</td>
<td>1 pump</td>
</tr>
<tr>
<td>10 000</td>
<td>2 pumps</td>
</tr>
<tr>
<td>100 000</td>
<td>4 pumps</td>
</tr>
<tr>
<td>500 000</td>
<td>N pumps</td>
</tr>
</tbody>
</table>
| 1 500 000 | }
Your solutions

HMI and SCADA
...to guarantee life
source water
HMI and SCADA solution
Treatment plant
5 000 inhabitants equivalent

> Compact and independent plant
adapted to treatment of low water volume.

> Your objective
Low-cost operation solution, without on-site personnel.

Winning associations
- Remote supervision system.
- Local HMI connected to controller by serial link.
- Twido controller or Modicon M340 PLC.
- W@de RTU module (remote communication module).
- Motor starters and speed drives connected on CANopen or Modbus serial link.
- Less than 200 inputs/outputs.

Your benefits
- Complete range for an optimised solution precisely meeting requirements.
- Independent solution with local data storage.
- Solution with easily integrated hardware and software.
Operator dialogue solution

> Magelis XBT N, R and RT compact terminals

- Simplified display of Magelis XBT RT semi-graphic terminal.
- Single connection of Magelis XBT N, R or RT Optimum version by communication cable to Modicon M340 PLC, integrating terminal power supply.

> Magelis XBT GT, GK, GTW graphic terminals

- Magelis XBT GT, GK, GTW.
- USB connection direct to Modicon M340 PLC.
- Wide choice: screen size 3.8” to 15”, touch screens, keypads and embedded Windows XP versions.
- Performance of Vijeo Designer software.
- Multilanguage, trends, recipes and scripts, local data recording (USB key).
- Integrated diagnostics of Modicon M340 PLCs.
- Extendable to Magelis iPC.
- Same cut-out.
- Common configuration software: Vijeo Designer.
- Data storage on hard disc with Magelis Compact iPC.

> Example

Treatment plant, Mexico.
HMI and SCADA solution
Treatment plant
50 000 inhabitants equivalent

> Optimised plant
with all functions integrated.

> Your objective
Solution reducing maintenance costs, with automation islands dedicated to each functional unit (lifting, screening, primary treatment, biological treatment, sludge treatment).

Winning associations
- Modicon M340 or Premium PLC for the complete plant.
- Single-station supervisor.
- One HMI per functional unit (option).
- Small local control HMIs.
- Ethernet network between functional units.
- Less than 800 inputs/outputs.

Your benefits
- Open solution on Ethernet TCP/IP.
- Low-cost, but with all the capacity of supervision software.
- Integrated solution, validated in the Schneider Electric offer.

Lifting stations
GSM/ADSL/RTC/Radio
Control station

Lifting, screening, primary treatment
Biological treatment
Sludge treatment

Merlin Gerin
Square D
Telemecanique

Schneider Electric
Building a New Electric World
Efficiency of hardware and software solutions for operator dialogue

Benefit from total compatibility of control and display solutions combining flexibility, integration and availability.

A Worldwide presence

**Constantly available**
- More than 5,000 points of sale in 190 countries.
- You can be sure to find the range of products that are right for you and which complies fully with the standards in the country where they are used.

**Technical assistance wherever you are**
- Our technicians are at your disposal to assist you in finding the optimum solution for your particular needs.
- Schneider Electric provides you with all necessary technical assistance, throughout the world.

www.schneider-electric.com
HMI and SCADA solution
Treatment plant
200,000 inhabitants equivalent

> Flexible, simple diagnostics plant
> Your objective
Solution facilitating renovations and extensions (e.g., new settling tank installation), simple diagnostics and high availability.

Winning associations
- Modicon Premium or Quantum PLC (Hot Standby redundancy if required).
- UAG software (Unity applications generator) and its “water” application object library.
- Supervisor at control room level corresponding to local supervisors by functional units solution.
- “Transparent Ready” Ethernet communication between functional units.
- Around 5,000 inputs/outputs.

Your benefits
- Flexible and modular thanks to different supervision and HMI solutions.
- High-level remote diagnostics by Web on each operator station.
- Efficient plant management by storage and detailed analysis of data.

Merlin Gerin
Square D
Telemecanique

Schneider Electric
Building a New Electric World
Two solutions possible: a solution based on association of supervision and operator dialogue, and a solution based solely on supervision.

Solution 1
Supervisor in control room + operator dialogue per unit

> 1 Vijeo Citect at control room level

- Client/server supervisor in control room.
- Single data entry of PLC and supervision variables by SpeedLink.
- Transparent Web access to Magelis iPC by Web Gate.
- Detailed data analysis with integrated “Process Analyst” tool and transfer to ‘Microsoft Excel’.
- Secure supervisor remote access by Internet.

> Vijeo Designer on Magelis iPC

- Compact and reliable solution (Magelis Smart without hard disc).
- Screen size 8.4", 12", 15" and soon 19”.
- Same cut-out than Magelis XBT GT.
- 2 Ethernet ports
  - 1 port for application loading, HMI data sharing, Web Gate and Web diagnostics,
  - 1 port to field products.
- Windows capabilities (eg. PDF, Internet Explorer, wireless USB key, IP video, Webcam...).
- Magelis Compact iPC hard disc.

> 3 Magelis XBT for local control

Solution 2
Supervisors, global and on each unit

> 1 Vijeo Citect

- Vijeo Citect application at control room level as global supervisor of local Vijeo Citect applications on each functional unit.

> 2 Vijeo Citect on Magelis iPC

- All the advantages of modular and compact iPCs at functional unit level.
- Cost optimisation with iDisplay screens associated with office system PCs.
- Independent of global supervision level.

> 3 Magelis XBT for local control

> Example

Water treatment plant, India, 5 000 variables and 2 supervision licenses.
HMI and SCADA solution
Treatment plant
1 million inhabitants equivalent

Your objective
Extremely high performance, high availability plant

Your benefits
- High performance in terms of number of supervision clients and managed variables.
- High-level availability in terms of redundant supervision servers and client stations.
- Optimum return on investment by detailed event management.

Winning associations
- Redundant supervision servers with plant client stations on industrial PC.
- Up to 100 PLCs total. Platforms Modicon M340, Hot Standby Premium or Quantum per process line.
- Automatic application generation by UAG.
- Opening to instrumentation networks.
- Up to 1,000 motor starters and around 10,000 inputs/outputs.
Redundant supervisor solution

> **Vijeo Citect on redundant servers**
- Redundant architecture integrating 2 servers and multiple clients.
- Storage and analysis reports by Vijeo Historian SQL servers.
- MES connection for complete operation management.

> **Magelis /PC as Vijeo Citect client**
- Industrial station as supervision client.
- 2 Ethernet ports for redundant connections or flow separation (e.g. control and video data on IP).

> **Magelis XBT for local control**

> **Example**

Advanced water treatment plant, Singapore.
HMI and SCADA solution

Solutions for remote sites

3 remote site levels communicating with a Vijeo Citect central supervision system

- **P1**: Small lifting or pumping site
  - Your objective: compact, low-cost solution
  - **Winning associations**
    - Magelis XBT N, R or RT compact terminals.
    - Ready-to-use.
    - 2 pumps.
    - Wilde RTU W320 module and controller.

- **P2**: Pumping or overpressure site
  - Your objective: optimum pumping solution.
  - **Winning associations**
    - Magelis XBT GT, GK graphic terminals.
    - Energy efficiency.
    - 4 pumps.
    - Wilde RTU module and Altivar 61 with water solution card.
    - Opening to DNP3 and IEC 870 communication with supervisor.

- **P3**: Complex overpressure site or extended remote station
  - Your objective: modular and upgradable solution.
  - **Winning associations**
    - Magelis XBT GT, GK or Magelis iPC graphic terminals.
    - N pumps.
    - Pre-treatment.
    - Opening to DNP3 and IEC 870 communication with supervisor.

**Your benefits**

- A complete offer responding to the specific requirements of each type of remote site (flexibility, diagnostic capacity, compactness, efficiency, reliability, cost...)

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**Schneider Electric**

*Building a New Electric World*
Magelis and Vijeo Designer solution

> Magelis XBT N, R and RT compact terminals
- Simple configuration with Vijeo Designer Lite.
- Modbus serial link communication.

> Magelis XBT GT, GK graphic terminals
- Performance of Vijeo Designer software.
- Multilanguage, trends, recipes and scripts.
- Data management and recording.
- Integrated diagnostics of Modicon PLCs.
- Modbus serial link or Modbus TCP/IP communication.

> Magelis XBT GT, GK, GTW or Magelis iPC
- Extendable to iPCs with Windows.
- Same cut-out than Magelis XBT GT.
- Common software: Vijeo Designer.
- Data storage on hard disc with Magelis Compact iPC.
- Connection USB, Modbus serial link, Ethernet, Modbus TCP 1 or 2 ports.

> Example

66 water distribution remote sites in Nova Scotia, Canada.

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Due to evolution of standards and equipment, characteristics indicated in texts and images in this document are binding only after confirmation by our departments.

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Stand alone supervisor + operator dialogue solution

> Vijeo Citect Lite single-station supervisor
- Optimised, but offering all supervision functions (alarms, curves, data storage...).
- Transparent Web access to Magelis XBT GT, GK by Web Gate.
- Integration validated in the Schneider Electric offer.
- Combined offer with Magelis rPCs.
- Simple evolution to Vijeo Citect.

> Magelis XBT GT graphic terminal per functional unit (option)
- Integrated Ethernet connection.
- Data sharing between functional unit terminals.
- Local data recording and management.
- Local video.

> Magelis XBT N, R or RT compact terminals for local control
- RJ45 serial link or dedicated cable to Modbus slaves
  (Advantys STB, TeSys U intelligent motor starters and speed drives ...).

> Example

Waste water treatment plant for 28 000 inhabitants equivalent, South of France.