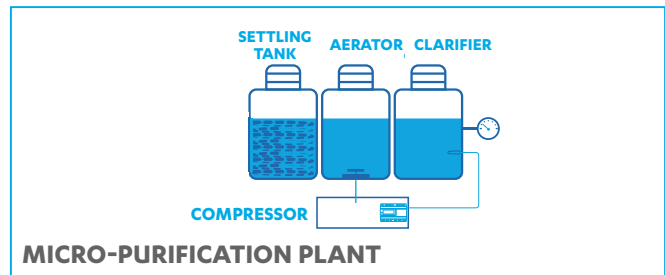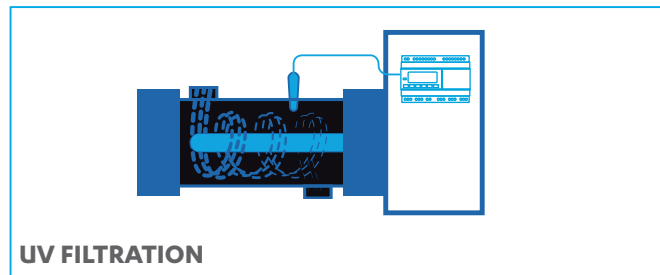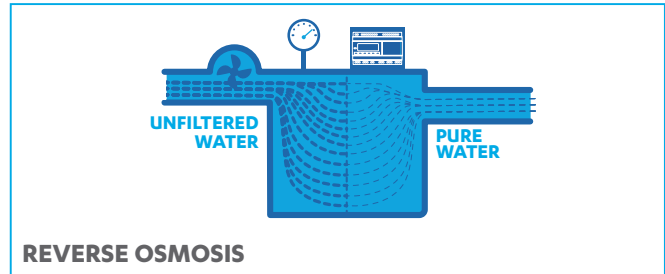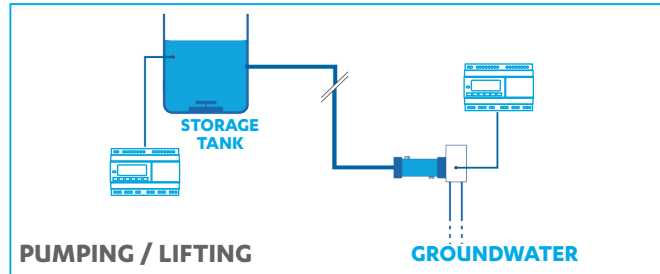# CROUZET AUTOMATION
WATER & WASTE TREATMENT INDUSTRY

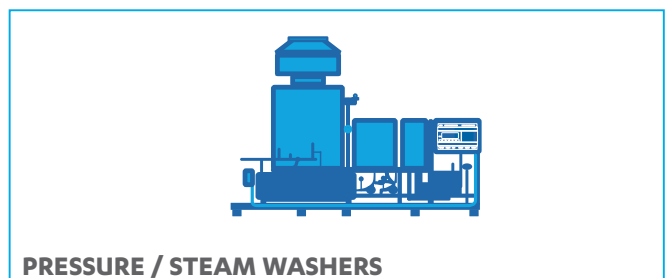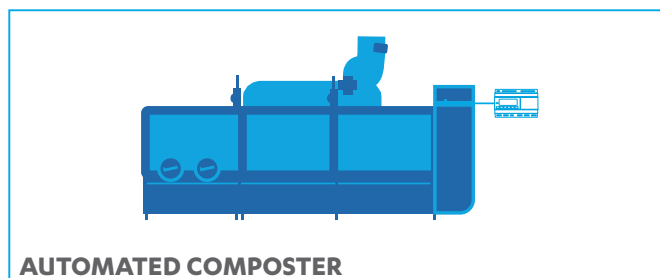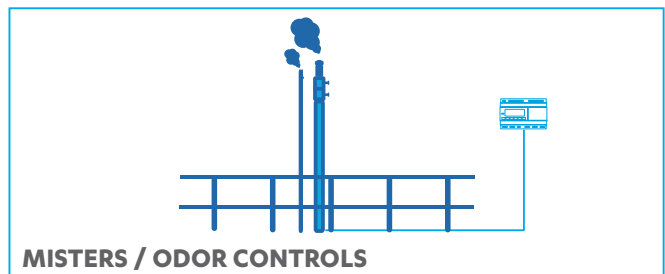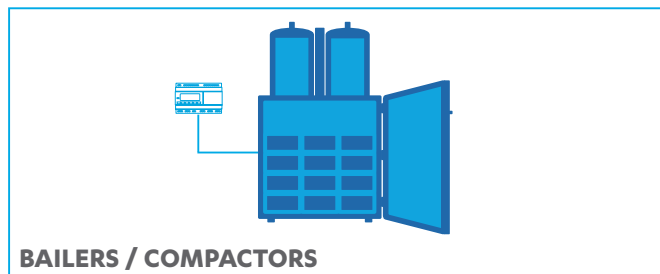**CROUZET AUTOMATION**

A BRAND OF INNOVISTA SENSORS
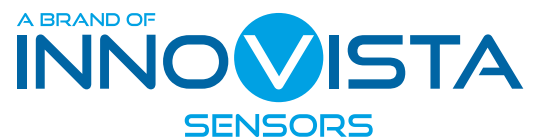
CROUZET AUTOMATION: PERFECTLY MATCH ALL OF YOUR REQUIREMENTS

Of the various water and waste treatment applications, Crouzet Automation has identified eight major applications for which **Millenium 3** and e**m4** are particularly suitable.

WATER TREATMENT

PUMPING / LIFTING

STORAGE TANK

GROUNDWATER

REVERSE OSMOSIS

UNFILTERED WATER

PURE WATER

UV FILTRATION

MICRO-PURIFICATION PLANT

SETTLING TANK   AERATOR   CLARIFIER

COMPRESSOR

WASTE TREATMENT

BAILERS / COMPACTORS

MISTERS / ODOR CONTROLS

AUTOMATED COMPOSTER

PRESSURE / STEAM WASHERS

1 CONTROL

› Operating control of pumps and fans
› Pressure, level and flow regulation
› No-load operating control
› Control of motors, valves, heaters and pumps
› Indicator lights
› Auto start-up and stop

2 MEASUREMENT

› Flow rate
› pH/redox
› Current consumption
› Fluid levels
› Hydraulic pressure
› Temperature

3 MONITORING

› Production monitoring
› Alarm management (overflow, current draw)
› Remote diagnostics
› Temperature, aeration and humidity
› Limit and door switches
› Remotely set parameters

4 DATALOG

› Pressure
› Temperature
› Flow rate
› Power consumption
› Running and stopping times
› Tank levels

SOLUTIONS FOR WATER AND WASTE TREATMENT

The **Millenium 3** logic controller and the e**m4** nano-PLC are the easiest to use programmable modules in the water and waste treatment industry. With simple and intuitive software, controlling and monitoring of machines and automation installations is incredibly simple.
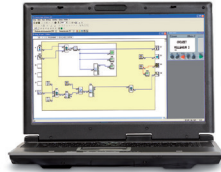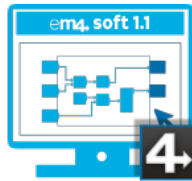
Millenium 3

› Multiple configuration options thanks to an extensive product range with up to 50 I/O
› Enhanced visibility due to the highly contrasted blue display
› Easy implementation via the M3 Soft programming software
› Application-specific solution thanks to dedicated function blocks

em4 remote PLC

› Attractive designs that are easy to integrate up to 46 I/O
› Expandable
› High accuracy and performance
› e**m4** soft, the most intuitive PLC software on the market
› On board connectivity from SMS to Internet

With em4 remote, your equipment gets the simplest access to the Internet of Things

em4 web

Your e**m4** fleet available anywhere, anytime

The e**m4 web** provides you with a powerful **device management** web-based platform.
There is no need to configure the communication: log on, identify your e**m4** remote and instantly get connected!

It allows you to easily manage your e**m4** fleet on demand:
› manage your access rights, as well as your customers
› **download** your **application** program or firmware
› **monitor** and **control** your devices
› **localize** them on a map
› display your **data history**
› receive **event notifications** by email and SMS

Last but not least, it implements the latest security systems and protocols.

Geolocation
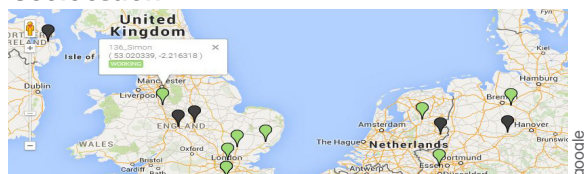
em4 app

The e**m4** simply enters your smartphone

Mobile complement to the e**m4** web, the e**m4** app is the ultimate way to control and monitor your e**m4** from your smartphone.

It uses a **fully secured** and **optimized infrastructure** to ensure total protection of your data.

Simply log in, scan the QR code on the product, and instantly begin **monitoring** and **controlling** your device.

Download it on the App store and Google Play!

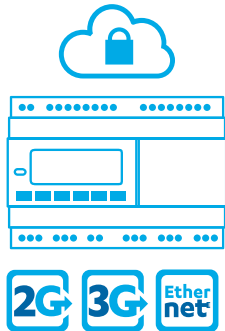# THE RIGHT SOLUTION THAT YOU NEED!

The **em4** remote and the **em4** alert are the best remote management solutions supported by best-in-class tools. Select your **em4** depending on your remote management needs!

em4 remote

The first all-in-one solution to bring your application into the Internet of Things

› First PLC capable of fleet management including map localization

› Highly secured solution, using e-banking practices and infrastructure

› Only one device to program via a unique software, **em4** soft

2G **3G** **Ethernet**

+

Remote management of fleets of pump houses without adding external modules

› Inter-site communication links the reservoir and the pumping station that supplies it

› Devices communicate with one another

› The reservoir sends pumping commands to the station according to the water level

em4 toolbox

em4 soft   **em4 web**   **em4 app**

Machine / Equipment fleet management	Manage, classify your equipment, use filters to select it, manage the application programs
Secured platform and connections	Use highly secure protocols and infrastructure to manage data and machines / equipment
Advanced data history	Graphically display the history of data values in your process, download it in .csv
Device maintenance & management	Remotely download the new version of an application program and/or firmware to a set of em4 remote
Advanced event management	Receive and manage notifications when an event occurs in your application with an app/web platform
Advanced monitoring and control functions	Remotely display or control data values with an app/web platform

em4 alert

Nano-PLC that can alert you via SMS and email

› Only one device to program via a unique software, **em4** soft

› Needs only GSM network to operate (SMS)

› From a unique and trusted supplier

› Secured solution, only users identified in the PLC can interact

2G **3G**

+

Monitoring via SMS and email of a reverse osmosis installation

› Pump houses send alerts if an event occurs

› Receipt of datalogs

› Messages can be exchanged between different machines

em4 toolbox

em4 soft

| Event management via SMS and email	Receive an email and/or an SMS when an event occurs in your application
Data report via SMS and datalogs via email or FTP	Periodically receive reports by SMS or email, or .csv files via email or FTP
Monitoring and control functions via SMS	Remotely display or control data values with SMS
PLC to PLC SMS communication	Exchange data by SMS from one PLC to another
Remote directory management	Remotely manage phone numbers and email adresses with SMS
Remote application program update	Remotely update your application program with FTP server and SMS commands
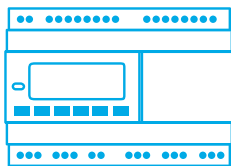
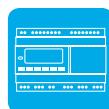# em4 local

The em4 for stand alone use or local area network

› The most compact and powerful of its category

› Includes highly accurate 4-20mA analog inputs for industrial sensors

› Attractive design for an easier integration

Ether net

➕ **Easily swap from one version to another version (remote and alert), enabling the upgrade of the equipment**

em4 toolbox

em4 soft

PLC with local functions only		Powerful stand alone PLC or locally connected with the Ethernet
0-10V 4-20mA	**Embedded configurable 0-10V / 4-20 mA accurate analog inputs**	Use industrial sensors with 1%
Modbus TCP/IP	**Modbus TCP/IP**	Easy client and server networking with touch panel and other equipment
Modbus RS485	**Modbus RS485 slave option interface**	Easy connection with touch panel and other equipment
em4 soft	**The most intuitive graphical function block language**	Use FBD and SFC for efficient programming

---

Millenium 3 Smart

To control and monitor machines or automation installations with up to 50 I/O

› Simple, straight-forward programming

› The most compact expansion on the market (72 mm)

➕ **The same PLC controls the physical filtration and chemical treatment function**

Millenium 3 toolbox

M3 soft

Compact range

CD20

CB20

› **Application-specific solutions** thanks to dedicated and easy to use specific function blocks

CD12

CB12

› **Enhanced visibility** on the display with high contrast, blue back lit LCD screen

Expandable range

XD26

XB26

› **Multiple configuration options** derived from an extensive product range with numerous accessories

XD10

XB10

› **Simplified connectivity** making integration of communication systems easy

› **Easy implementation** supported by free, user-friendly programming software (M3 Soft)

Millenium 3 Essential

To tackle simpler applications that still require a powerful logic controller, Crouzet Automation offers the **Millenium 3 Essential** range.

The 12 VDC or 24 VDC **Millenium 3 Essential** range includes a variety of versions and is compatible with a large range of accessories.

It is the right solution for simple needs.

CD20

XD20

M3 SOFT

M3 Soft is the easiest programming software to use on the market. It is also incredibly powerful and user-friendly. Thanks to the most comprehensive library of application-specific function blocks in the industry, it allows you to customize water applications very easily.

M3 soft
Function blocks

eM4 SOFT

em4 soft integrates all the remote management features in a single tool. Based on our strong experience in Millenium programming software development, **em4** soft is the new easy-to-use programming tool dedicated to **em4**.

em4 soft
Function blocks

SL In / SL Out
Allows easy monitoring of your application using a MTP Touch Panel

Event
Allows up to 24 events SMS/email messages including 2 attached analog values

Data Logging
Allows up to 3 blocks of 8 values to be logged at a specified time interval or on command signal.

Pump management
No more time involved to write extensive programs to set up auto pump rotation

Level
Easy set up for tank level readings and control

Monitoring
Allows easy remote monitoring and control of your application

Filtration
Allows for automatic filtration time based on water temperatures

32 bit function blocks
Allows high speed count, tachometer, power management, calculation with 32 bit values

Flow
Quickly calculate flow and control with set thresholds

M3 soft

Display
Large 4x18 character display allows user to visualize text, status, times and control values in the program

Gain
Easy analog calculation to convert analog values (scale, offset)

em4 soft

PID Regulator
Will interface with water booster drives for pressure needs based on demand

PWM Output
Proportional output for easy valve control

Time Prog
Easily schedule time events based on calendar
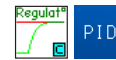
Timer
Any timing function needed for optimizing control
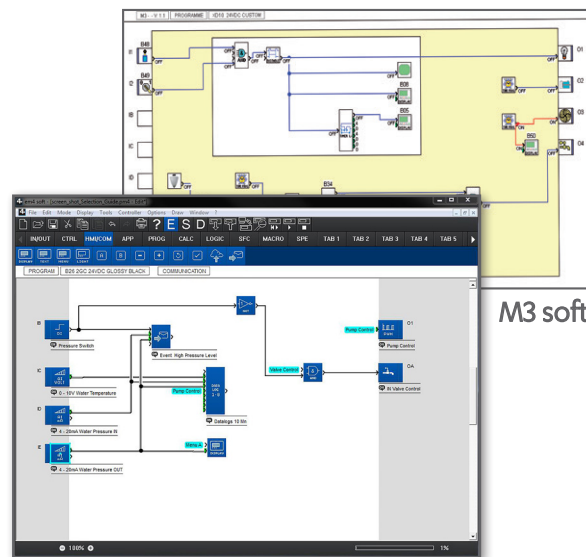
WHICH SOLUTION DO YOU NEED?

Our products are specifically suited for integration in a wide range of applications in water and waste treatment.

em4

› Save time designing your application and remote functions using the most intuitive graphical function block language on the market

› Accurately measure your high end industrial sensors with the embedded configurable analog inputs (including 4-20 mA)

› Easily integrate one of our three high tech designs in your machine

› Adapt your application during its lifecycle thanks to the enhanced controlling performances

Millenium 3

› Highly visible blue LCD with 4 lines of 18 characters and configurable backlighting

› Allow the use of the entire library of specific function blocks of the software workshop

› Extended temperature range (-20°C to +70°C)

› Analog inputs 0-10 VDC, Potentiometer, NTC, LDR (0-20 mA/Pt100 with converters)

Glossy Black

Smart   Essential

	Millenium 3 range	em4 range
Power Supply	12 V⎓, 24 V⎓	24 V⎓
	24 V∿, 100 → 240 V∿	
Highly Visible HMI	Blue (Smart) or Green (Essential)	Black and white / white and black
	4 rows of 18 characters	
Versions	Compact versions: 12 and 20 I/Os Expandable versions: 10 and 26 I/Os up to 50 I/Os	Expandable version: 26 I/Os up to 46 I/Os
Inputs on the base	Digital, High speed 6kHZ	Digital, High speed 60kHz
	Analog 0-10V 5%, Potentiometer, NTC, LDR	Analog 0-10 V, 4-20 mA 1%, Potentiometer, NTC, LDR
Outputs on the base	Relays 8 A or 5 A	Relays 8 A or 6 A
	Static Digital or PWM	Static Digital or PWM
Inputs on expansions	Digital	Digital
	Analog 0-10V 2%	Analog 0-10 V 1%
	4-20 mA 1%	4-20 mA 1%
	PT100 1,5°C	
Outputs on expansions	Relay 8 A or 5 A	Relay 8 A or 6 A
	0-10V 5%	0-10 V 1%
	Static Digital or PWM	4-20 mA 1%
		Static Digital or PWM
Programming interface	USB cable	USB interface
		Ethernet port
		Remote download
Ethernet /Com	Ethernet Modbus TCP/IP (server)	Ethernet version: on base (Modbus TCP/IP server & client)
	Modbus RS485 (slave) on expansion	Wireless 2G and 3G versions
Interface	USB, Bluetooth, memory, RS232	USB, Modbus RS485 (slave)
Programming language	FBD/SFC or LD	FBD/SFC
	400 Function Blocks	1000 Function Blocks
	200 Ladder lines	
Temperature range	-20 °C +55 °C (Essential range)	-20 °C +60 °C
	-20 °C +70 °C (Smart range)	
Real time clock backup	10 years	

COMPLETE YOUR EXPERIENCE

The **Millenium 3** and e**m4** accessories offer solutions to control your automation systems with the greatest ease of use. They include expansions, remote screens and communication accessories.

Millenium 3

SPECIFIC ANALOG EXPANSIONS

Ref.	Main characteristics
XA03	3 Pt100 temperature inputs (-25 to +125°C)
XA04	2 inputs: 0-10 V / 0-20 mA / Pt100 2 outputs: 0-10 V / PWM
XA04W	Pt100, pH, ORP and 4-20 mA inputs Allows direct connect for pH, ORP and other sensor inputs to the logic controller

MILLENIUM VIRTUAL DISPLAY

Main characteristics
Smartphone/Tablet control
Control your Millenium via Bluetooth without having to open the enclosure
Android application available on Google Play
Bluetooth interface

Accessories compatible with e**m4** & **Millenium 3**

MTP PROGRAMMABLE TOUCH PANEL

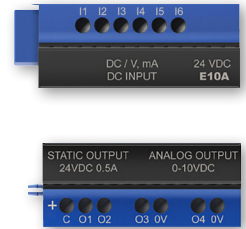| Main characteristics |
|---|
| TFT/LCD compact resistive touchscreens |
| Text, data, graphic and animation display |
| 65536 colors, LED backlight |
| Wide 70 degree viewing angle |
| Processing of alarms and recipes |
| 400 MHz core logic, 64 MB RAM |
| Direct connection to the controller (Millenium 3) or via Modbus RS485 or Ethernet TCP/IP |
| 4.3" and 7" screens |
| MTP 6/50 - MTP 8/50 and MTP 9/70 |

e**m4**

ANALOG EXPANSIONS

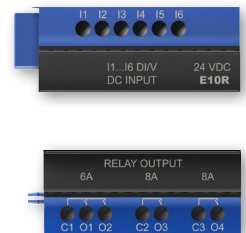| Ref.	Main characteristics
E10A	6 24VDC digital inputs 12 bit analog inputs (0-10V +/-0.8%) 11 bit analog inputs (0-20 / 4-20mA +/-1.2%)
	2 Static 24VDC 0.5A digital outputs 10 bit PWM 24VDC analog outputs (0-10V or 4-20mA with an external converter)
	2 10 bit 0-10V analog output (+/-1%)

Accuracy of analog inputs and outputs @25°C

DIGITAL EXPANSIONS

Ref.	Main characteristics
E10R	6 24VDC digital inputs 12 bit analog inputs (Potent. or 0-28.8V +/-2%) for NTC, LDR 11 bit analog inputs (0-10V +/-1.2%)
	2 Relay 250VAC / 6A digital outputs
	2 Relay 250VAC / 8A digital outputs

Accuracy of analog inputs and outputs @25°C

MODBUS RS485 SLAVE INTERFACE

Main characteristics
Control or supervise one or several e**m4** via Modbus RS485

NTC TEMPERATURE PROBES

Main characteristics
Direct connect with no converter on analog inputs
Easy to use, low cost temperature control
Large temperature ranges (-25 to +180°C)

ABOUT CROUZET AUTOMATION

Supported by an experienced technical team, Crouzet Automation is a pioneer in the simplification of programming. The brand offers the easiest-to-use and most adaptable alternative automation solution for specialized and demanding needs.
Crouzet Automation is a brand of InnoVista Sensors™.

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E-mail: AutomationSales@crouzet.com

Contact us!

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InnoVista Sensors™: your trusted partner of choice to face industrial challenges of today and tomorrow.

InnoVista Sensors™ is a worldwide industrial specialist of sensors, controllers and actuators for automated systems.

Through its brands, Crouzet Aerospace, Crouzet Automation, Crouzet Control, Crouzet Motors, Crouzet Switches and Systron Donner Inertial, InnoVista Sensors™ offers a wide range of reliable, efficient and customizable components dedicated to the Aerospace & Defence, Transportation and Industrial market and segments.

Thanks to the recognized expertise of its teams and a strong innovation policy, InnoVista Sensors™ brings performance enhancing solutions to its customers worldwide.

www.innovistasensors.com