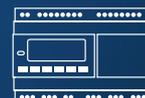


# em4

▶ REMOTE PLC

## SELECTION GUIDE



The smartest and easiest way to remotely manage equipment and generate new business

- › Select your em4 depending on your remote management needs
- › Discover our remote management capabilities with em4 web and em4 app
- › Check out our new em4 soft including remote function blocks
- › Choose the right solution for you with expansions and accessories



Configure your product online

# WHICH em4 DO YOU NEED?

## Select the em4 that fits your needs

|  |                                             |                                                                                            |  |                                                    |                                                                                                    |
|--|---------------------------------------------|--------------------------------------------------------------------------------------------|--|----------------------------------------------------|----------------------------------------------------------------------------------------------------|
|  | <b>Machine / Equipment fleet management</b> | Manage, classify your equipment, use filters to select it, manage the application programs |  | <b>Advanced event management</b>                   | Receive and manage notifications when an event occurs in your application with an app/web platform |
|  | <b>Secured platform and connections</b>     | Use highly secure protocols and infrastructure to manage data and machines / equipment     |  | <b>Advanced data history</b>                       | Graphically display the history of data values in your process, download it in .csv                |
|  | <b>Device maintenance &amp; management</b>  | Remotely download the new version of application program and/or firmware to a set of em4   |  | <b>Advanced monitoring and control functions</b>   | Remotely display or control data values with an app/web platform                                   |
|  | <b>Map localization</b>                     | Localize your fleet on a map                                                               |  | <b>Advanced remote services for your customers</b> | Create specific web interfaces well adapted to your application                                    |
|  | <b>Automatic clock synchronization</b>      | The em4, or the fleet of em4 is always at the right time to better control equipment       |  | <b>Customizable web interface</b>                  | Personalize your customers web interface with your specification (additional services)             |

|  |                                                |                                                                     |  |                                                       |                                                  |
|--|------------------------------------------------|---------------------------------------------------------------------|--|-------------------------------------------------------|--------------------------------------------------|
|  | <b>Basic event management via SMS or email</b> | Receive an SMS or an email when an event occurs in your application |  | <b>Basic monitoring and control functions via SMS</b> | Remotely display or control data values with SMS |
|  | <b>Basic data report via SMS or email</b>      | Receive periodically simple reports by SMS or email                 |  | <b>PLC to PLC SMS communication</b>                   | Exchange data by SMS from one PLC to another     |

|  |                                      |                                                        |
|--|--------------------------------------|--------------------------------------------------------|
|  | <b>PLC with local functions only</b> | Stand alone PLC or locally connected with the Ethernet |
|--|--------------------------------------|--------------------------------------------------------|

**Connection technology**

|                 |                                                      |                                                     |                                                                      |
|-----------------|------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------|
| Stand alone PLC | Usable where 2G (GPRS) cellular network is available | Usable where 3G or 2G cellular network is available | Ethernet for local connection, Internet access needed for em4 remote |
|-----------------|------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------|

**em4 toolbox**

|                                                                |                                                                      |                                                                  |
|----------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------|
| <b>em4 soft</b><br>The most intuitive PLC programming software | <b>em4 web</b><br>Web platform, to get full access to your equipment | <b>em4 app</b><br>Mobile app, to access your equipment on the go |
|----------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------|



## 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**



SIM card (2G & 3G versions) & remote management subscription included for one year (em4 web, em4 app - see page 4 & 5)

Connection technology



em4 toolbox

em4 soft

em4 web

em4 app

Note: the em4 remote offer can be implemented in Europe, USA or in Canada. For other countries please contact us.



## em4 alert

Nano-PLC that can alert you via SMS or 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



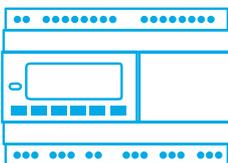
No need to perform complicated integration between the PLC and a modem/gateway

Connection technology



em4 toolbox

em4 soft



## 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



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

Connection technology



em4 toolbox

em4 soft



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

- Simply manage a fleet of machines, check the status of all devices at a glance
- Monitor and control your application from your smartphone or your PC
- Update the application program of multiple devices
- Archive your data and access it remotely
- Offer advanced services to your customers



Check out the **em4 web overview**

# em4 web

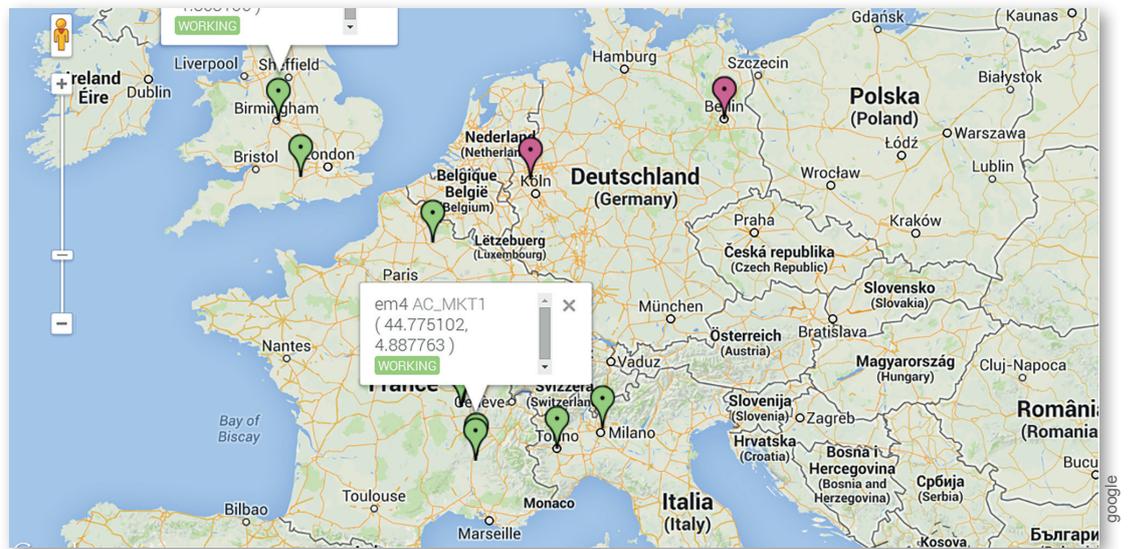
## GET FULL ACCESS TO YOUR EQUIPMENT!

The **em4 web** provides you with a powerful device management web-based platform, allowing you to manage the access, the devices, the data and your application remotely.

### User management

Manage your account and your customers' accounts

### Device management



#### Manage your device

Add, edit, remove, classify equipment and manage software (application program and firmware)



#### Alarm

Get notified of your devices internal alarms and support your customers remotely



#### Status

Check your **em4** availability, monitor your daily data consumption



#### My em4 info

Get a summary of all relevant information at a glance (versions, status, application name,...)



| Category | Picture | Label   | Classes                                               | Actions |
|----------|---------|---------|-------------------------------------------------------|---------|
| em4      |         | AC_MKT1 | Boiler control, South East area                       |         |
| em4      |         | AC_MKT2 | Energy & Temperature, North East area, Boiler control |         |
| em4      |         | AC_MKT3 |                                                       |         |

### Application management

- Provide your end customers with simple dashboards
- Choose the data remotely accessible to your end customer

## Data management

Display the data that has been defined with em4 soft in the application program

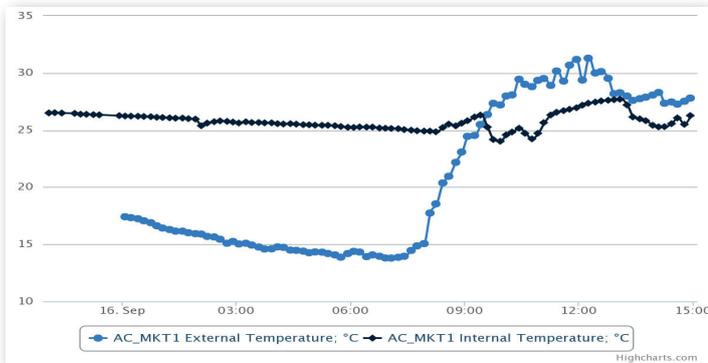
### Event

Get notified of all the events on your application (in push mode for em4 app)

| Device  | Date                | Number | Label        | Data 1                       | Data 2 | Acknowledged |
|---------|---------------------|--------|--------------|------------------------------|--------|--------------|
| AC_MKT1 | 06/08/2014 09:41:22 | 0      | Pump Failure | : 0.00                       | : 0.00 | Acquitter    |
| AC_MKT1 | 25/07/2014 08:28:19 | 0      | Pump Failure | : 0.00                       | : 0.00 |              |
| AC_MKT2 | 07/08/2014 11:28:52 | 2      | Alarm Boiler | Boiler Temperature: 90.01 °C | : 0.00 | Acquitter    |
| AC_MKT2 | 06/08/2014 11:13:20 | 2      | Alarm Boiler | Boiler Temperature: 90.04 °C | : 0.00 | Acquitter    |
| AC_MKT2 | 26/07/2014 10:26:36 | 2      | Alarm Boiler | Boiler Temperature: 90.01 °C | : 0.00 |              |
| AC_MKT3 | 06/08/2014 11:55:43 | 2      | Alarm Boiler | Boiler Temperature: 90.03 °C | : 0.00 | Acquitter    |
| AC_MKT3 | 24/07/2014 09:05:23 | 2      | Alarm Boiler | Boiler Temperature: 67.42 °C | : 0.00 |              |

### Datalog

Display collected data, trend tables or graphs and download them easily



### Monitoring & Control

Check the equipment main parameters and modify application settings remotely

| XBOUT Read Bits |                   |        |        | XBIN Read/Write Bits |                          |        |          |
|-----------------|-------------------|--------|--------|----------------------|--------------------------|--------|----------|
| N°              | Labels            | Status | Action | N°                   | Labels                   | Status | Action   |
| 1               | Boiler T° Control | ON     |        | 1                    | Switch on the loads 10Mn | ON     | Inverser |
| 2               | Boiler T° Alarm   | ON     |        |                      |                          |        |          |

| XWOUT Read Words |                      |          | XWIN Read/Write Words |                    |          |             |
|------------------|----------------------|----------|-----------------------|--------------------|----------|-------------|
| N°               | Labels               | Values   | N°                    | Labels             | Values   | Action      |
| 1                | Internal Temperature | 25.24 °C | 1                     | Setup Boiler T°    | 70.00 °C | 0.0 Envoyer |
| 2                | External Temperature | 27.75 °C | 2                     | Setup Alarm Boiler | 90.00 °C | 0.0 Envoyer |
| 3                | Boiler Temperature   | 69.32 °C |                       |                    |          |             |
| 4                | Light                | 247 LUX  | 8                     | Time for Log       | 600 s    | 0.0 Envoyer |

# em4 app

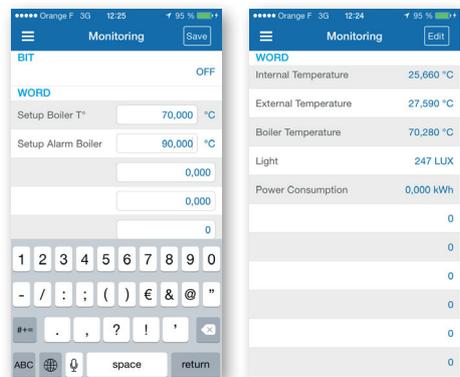
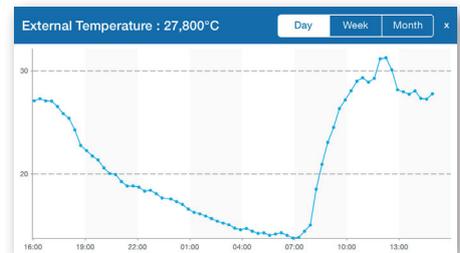
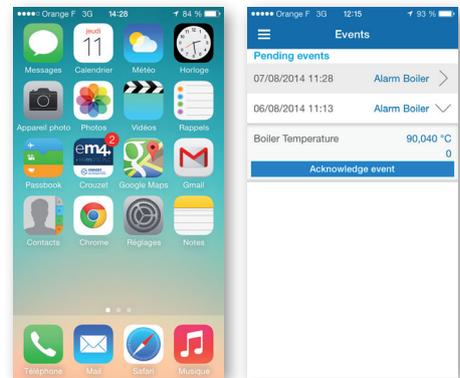
## ACCESS YOUR EQUIPMENT ON THE GO!



em4 app is the ultimate way to control and monitor your em4 from your smartphone! This is a free application included in your em4 remote PLC.

### Select my em4

- ▶ Login with your em4 web account to easily access all your available equipment
- ▶ Use the application name or simply flash the QRcode

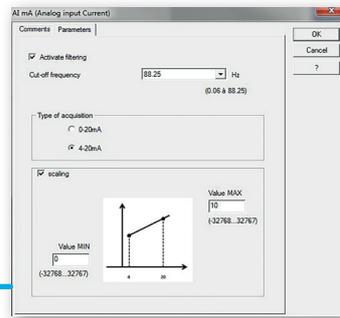


# em4 soft TRY OUR FREE SOFTWARE



**Most intuitive programming software on the market, em4 soft now integrates all the remote management features in a single tool**

- › Improved easiness and intuitive features of M3 Soft
- › FBD and SFC language with more than 100 powerful function blocks
- › Import M3 Soft FBD programs
- › Connect to em4 with USB or Ethernet
- › New look in line with the mechanical design of em4 range



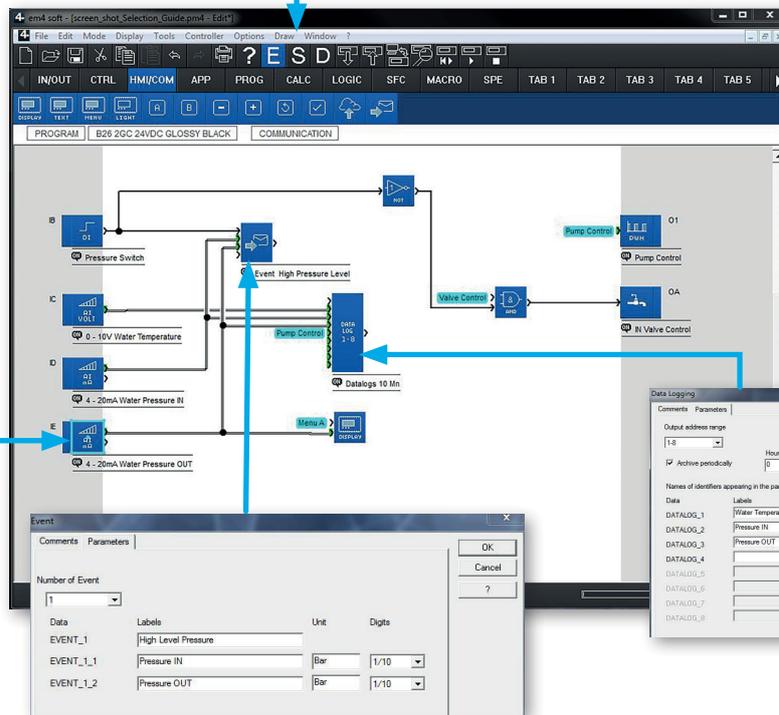
## Smart analog inputs

- › Analog I/Os FB implement an easy scaling and filtering function



## Easy integration

- › Edition, Simulation and Debug modes allow you to easily setup an application program



## Datalog management

- › Up to 3 datalog function blocks to record a history of 8 values, each at different periods of time that are fully controlled by the application program

## Event management

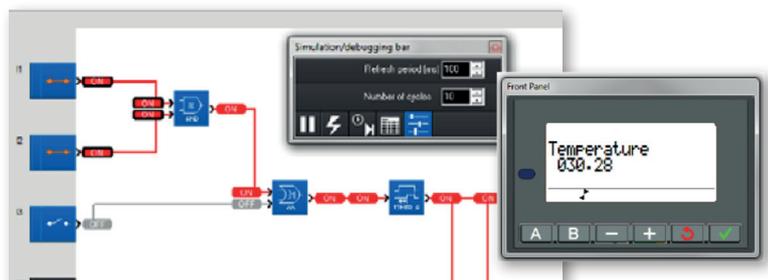
- › Up to 24 event function blocks to push an alert message embedding up to two data from the application program

## Monitoring & control management

- › XBIN, XWIN function blocks to remotely change set points, XBOU, XWOUT to remotely read data values

## Simulation and Debug mode

- › Optimized simulation mode
- › Colors clearly indicate the active signals
- › The display window is always visible on the top



# em4 MAKE UP YOUR OWN SOLUTION

| Product description                  | Connection type |   |   |            | Design     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                  | Details                                           |
|--------------------------------------|-----------------|---|---|------------|------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
|                                      |                 |   |   |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| <b>Bases</b>                         |                 |   |   |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Common characteristics:</b>                    |
| em4 remote 2G*                       | ✓               |   |   | 88 981 153 | 88 981 154 | 88 981 152 | <ul style="list-style-type: none"> <li>- <b>Supply:</b> 24VDC</li> <li>- <b>Inputs:</b> 16 digital inputs (including 4 high speed, 8 analog 0-10 V / potentiometers and 4 analog 0-10V / 4-20mA)</li> <li>- <b>Outputs:</b> 10 digital outputs (including 2 static 0.5A PWM, 2 relays 6A and 6 relays 8A)</li> </ul>                                                                                                             |                                                   |
| em4 remote 3G*                       |                 | ✓ |   | 88 981 163 | 88 981 164 | 88 981 162 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| em4 remote Ethernet*                 |                 |   | ✓ | 88 981 173 | 88 981 174 | 88 981 172 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| em4 alert 2G                         | ✓               |   |   | 88 981 113 | 88 981 114 | 88 981 112 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| em4 alert 3G                         |                 | ✓ |   | 88 981 123 | 88 981 124 | 88 981 122 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| em4 local                            | ✓               |   |   | 88 981 103 | 88 981 104 | 88 981 102 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| em4 local Ethernet                   |                 |   | ✓ | 88 981 133 | 88 981 134 | 88 981 132 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| <b>Starter kits</b>                  |                 |   |   |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>An em4 starter kit includes:</b>               |
| Starter kit em4 remote 2G*           | ✓               |   |   | 88 981 156 | 88 981 157 | 88 981 155 | <ul style="list-style-type: none"> <li>- The em4 remote nano-PLC</li> <li>- The standard 3 m antenna</li> <li>- The USB interface</li> <li>- The USB programming cable</li> </ul>                                                                                                                                                                                                                                                |                                                   |
| Starter kit em4 remote 3G*           |                 | ✓ |   | 88 981 166 | 88 981 167 | 88 981 165 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| Starter kit em4 remote Ethernet*     |                 |   | ✓ | 88 981 176 | 88 981 177 | 88 981 175 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| Starter kit em4 alert 2G             | ✓               |   |   | 88 981 116 | 88 981 117 | 88 981 115 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| Starter kit em4 alert 3G             |                 | ✓ |   | 88 981 126 | 88 981 127 | 88 981 125 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| Starter kit em4 local                | ✓               |   |   | 88 981 106 | 88 981 107 | 88 981 105 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| Starter kit em4 local Ethernet       |                 |   | ✓ | 88 981 136 | 88 981 137 | 88 981 135 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| <b>Evaluation cases</b>              |                 |   |   |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>The ready-to-use evaluation case includes:</b> |
| Evaluation case em4 remote 2G*       | ✓               |   |   | 88 980 185 | -          | -          | <ul style="list-style-type: none"> <li>- The starter kit (description above)</li> <li>- The power supply 110-230VAC with Europe and US adaptor</li> <li>- The simulator PCB for the 16 Inputs with switches, potentiometers and terminals to connect your sensor for evaluation</li> <li>- The simulator PCB for the 10 Outputs with 11 LEDs and terminals to connect the 2 static outputs to a device for evaluation</li> </ul> |                                                   |
| Evaluation case em4 remote 3G*       |                 | ✓ |   | 88 980 186 | -          | -          |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| Evaluation case em4 remote Ethernet* |                 |   | ✓ | -          | 88 980 187 | -          |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| Evaluation case em4 alert 2G         | ✓               |   |   | 88 980 181 | -          | -          |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| Evaluation case em4 alert 3G         |                 | ✓ |   | 88 980 182 | -          | -          |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| Evaluation case em4 local            | ✓               |   |   | 88 980 180 | -          | -          |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| Evaluation case em4 local Ethernet   |                 |   | ✓ | -          | 88 980 183 | -          |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |

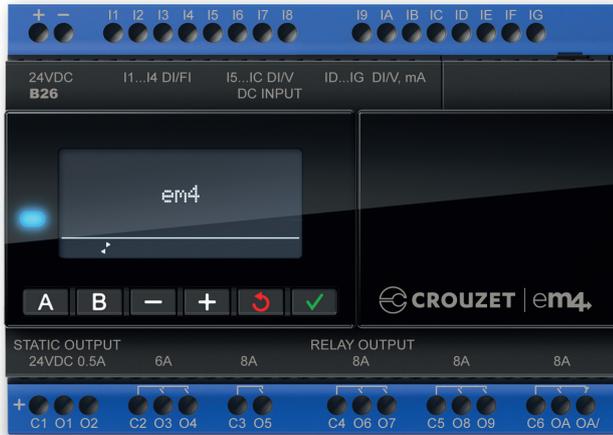
\* em4 remote 2G, 3G and Ethernet include the first year of subscription to em4 remote access (em4 web & em4 app), with a SIM card for the 2G and 3G versions. The 3G and Ethernet versions will be available during the course of 2015.

| Product description        | Inputs                                                           | Outputs                                          | Glossy black | Glossy white | Robust     |
|----------------------------|------------------------------------------------------------------|--------------------------------------------------|--------------|--------------|------------|
| <b>Expansions</b>          |                                                                  |                                                  |              |              |            |
| em4 digital expansion E10R | 6 digital inputs (configurable as analog 0-10V or potentiometer) | 4 digital outputs (2 relays 6A and 2 relays 8A)  | 88 982 113   | 88 982 114   | 88 982 112 |
| em4 analog expansion E10A  | 6 digital inputs (configurable as analog 0-10V / 4-20mA)         | 4 outputs (2 static 0.5A PWM and 2 analog 0-10V) | 88 982 213   | 88 982 214   | 88 982 212 |

|                | Product description                    | Part number | Description                                  | Key features                                                                                                                                   | Part number |
|----------------|----------------------------------------|-------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Interfaces     | em4 USB interface black                | 88 980 110  | Programmable touch panels                    | MTP6/50 user kit for em4                                                                                                                       | 88 970 692  |
|                | em4 USB interface white                | 88 980 111  |                                              |                                                                                                                                                |             |
|                | em4 interface RS485 Modbus slave black | 88 980 120  |                                              |                                                                                                                                                |             |
|                | em4 interface RS485 Modbus slave white | 88 980 121  |                                              |                                                                                                                                                |             |
| Accessories    | em4 Set of I/O simulator for bases     | 88 980 150  | MTP8/50 user kit for em4                     | - 4.3" color touch panel<br>- Modbus RS232/RS485 serial port<br>- Ethernet TCP/IP port<br>- MTP to em4 RS485 Modbus interface cable            | 88 970 694  |
|                | Antenna 3 m standard                   | 88 980 160  |                                              |                                                                                                                                                |             |
|                | Antenna 3 m int/ext flat               | 88 980 161  |                                              |                                                                                                                                                |             |
|                | Antenna 10 m ext                       | 88 980 162  | MTP8/70 user kit for em4                     | - 7" color touch panel<br>- 2x Modbus RS232/RS485 serial port<br>- USB port, Ethernet TCP/IP port<br>- MTP to em4 RS485 Modbus interface cable | 88 970 696  |
|                | USB cable 3 m B type                   | 88 980 170  |                                              |                                                                                                                                                |             |
|                | em4 soft (USB key)                     | 88 980 140  |                                              |                                                                                                                                                |             |
| Power supplies | Modular power supply 24VDC 7.5 W       | 88 950 303  | MTP6/50 - MTP8/70 programming kit (USB)      | - USB - Mini USB cable<br>- EB Software (CD)                                                                                                   | 88 970 501  |
|                | Modular power supply 24VDC 15 W        | 88 950 304  |                                              |                                                                                                                                                |             |
|                | Modular power supply 24VDC 30 W        | 88 950 307  | MTP8/50 - MTP8/70 programming kit (Ethernet) | - Ethernet crossover cable<br>- EB Software (CD)                                                                                               | 88 970 502  |
|                | Modular power supply 24VDC 60 W        | 88 950 302  |                                              |                                                                                                                                                |             |

# em4 TECHNICAL OVERVIEW

## em4 nano-PLC



## em4 base general data

| Item              | Main characteristics                                                                       |
|-------------------|--------------------------------------------------------------------------------------------|
| Power Supply      | 24VDC (-15% / +20%) 4W-6.5W                                                                |
| Temperature       | Operation: -20°C to 60°C                                                                   |
| HMI               | 4 rows x 18 characters (black & white)<br>6 keys                                           |
| Programming       | FBD (including SFC)<br>Large application program area ~1000 functions blocks               |
| RTC               | Backup with internal recyclable battery (10 years)                                         |
| Connection        | Cellular or Ethernet network                                                               |
| Option Interfaces | USB, Modbus RS485 slave                                                                    |
| Protection        | IP20 on I/Os terminals<br>IP40 on front panel for Glossy<br>IP50 on front panel for Robust |
| Certification     | CE, cULus listed                                                                           |

## em4 base inputs

| # | Main characteristics                                                                                                              |
|---|-----------------------------------------------------------------------------------------------------------------------------------|
| 4 | 24VDC digital inputs<br>Fast digital encoder (20kHz or 40kHz), high speed counters (60kHz), tachometer, chronometer, period meter |
| 8 | 24VDC digital inputs<br>12 bit analog inputs (Potent. or 0-28.8V +/-2%) for NTC, LDR<br>11 bit analog inputs (0-10V +/-1.2%)      |
| 4 | 24VDC digital inputs<br>12 bit analog inputs (0-10V +/-0.8%)<br>11 bit analog inputs (0-20mA / 4-20mA +/-1.1%)                    |

Accuracy of analog inputs @25°C

## em4 base outputs

| # | Main characteristics                                                                                              |
|---|-------------------------------------------------------------------------------------------------------------------|
| 2 | Static 24VDC 0.5A digital outputs<br>10 bit PWM 24VDC analog outputs (0-10V or 4-20mA with an external converter) |
| 2 | Relay 250VAC / 6A digital outputs                                                                                 |
| 6 | Relay 250VAC / 8A digital outputs<br>Including one with NO/NC contact                                             |

## em4 expansions

### E10A analog expansion 0-10V

| # | Main characteristics                                                                                              |
|---|-------------------------------------------------------------------------------------------------------------------|
| 6 | 24VDC digital inputs<br>12 bit analog inputs (0-10V +/-0.8%)<br>11 bit analog inputs (0-20 / 4-20mA +/-1.2%)      |
| 2 | Static 24VDC 0.5A digital outputs<br>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



### E10R digital expansion

| # | Main characteristics                                                                                                         |
|---|------------------------------------------------------------------------------------------------------------------------------|
| 6 | 24VDC digital inputs<br>12 bit analog inputs (Potent. or 0-28.8V +/-2%) for NTC, LDR<br>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



# 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 Custom Sensors & Technologies (CST).  
www.crouzet.com

### North America contact:

Tel.: +1 619-210-1617

Fax: +1 800-677-3865

E-mail: AutomationSales@crouzet.com

Contact us!



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Custom Sensors & Technologies (CST) is a specialist in designing and manufacturing sensing, control and motion products.

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