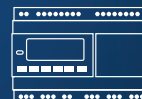


# em4

▶ 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

# 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 |
|---|--------------------------------------|--|






Configure your product online

### Connection technology

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

---

### em4 toolbox

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



## 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

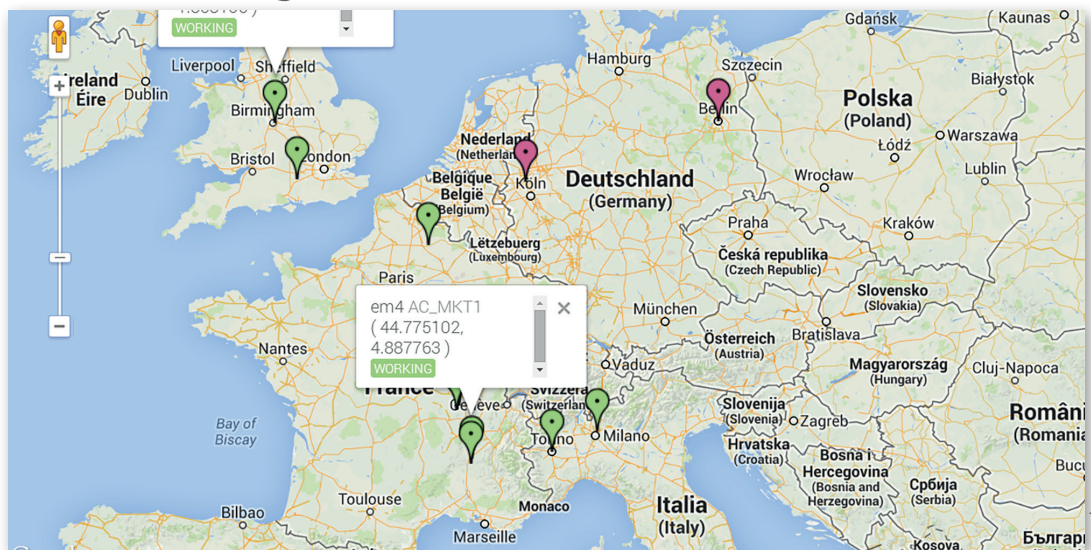
## GET FULL ACCESS TO YOUR EQUIPMENT!

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

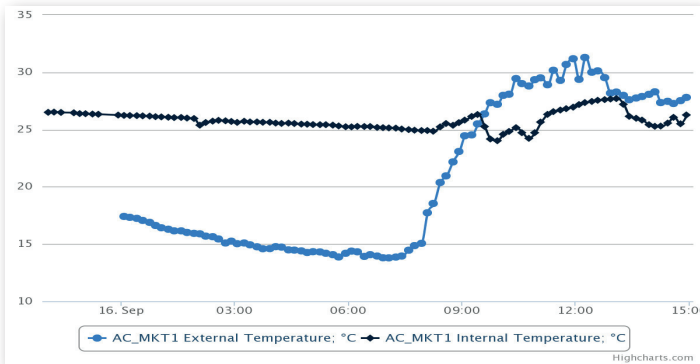
### Event

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 | 09/08/2014 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: 90.04 °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 | 09/08/2014 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            | N°                   | Labels                   |
| 1               | Boiler T° Control | 1                    | Switch on the loads 10Mn |
| 2               | Boiler T° Alarm   |                      |                          |

| XWOUT Read Words |                      | XWIN Read/Write Words |                    |
|------------------|----------------------|-----------------------|--------------------|
| N°               | Labels               | N°                    | Labels             |
| 1                | Internal Temperature | 1                     | Setup Boiler T°    |
| 2                | External Temperature | 2                     | Setup Alarm Boiler |
| 3                | Boiler Temperature   | 8                     | Time for Log       |
| 4                | Light                |                       |                    |

# em4 app

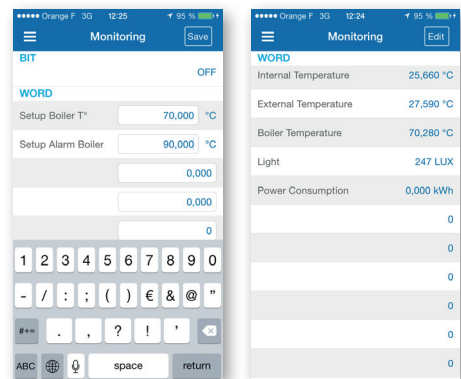
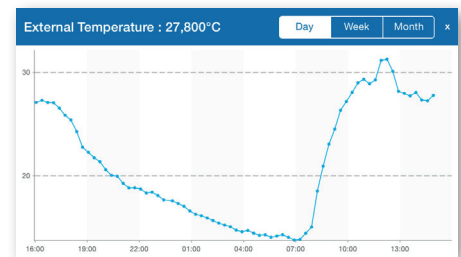
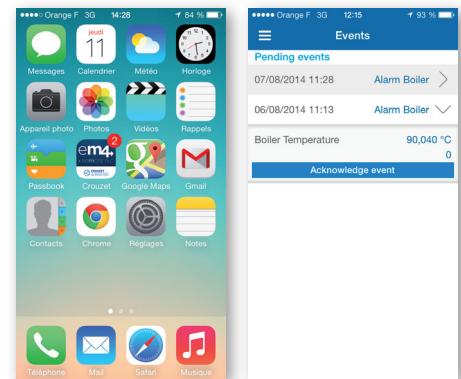
## ACCESS YOUR EQUIPMENT ON THE GO!



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



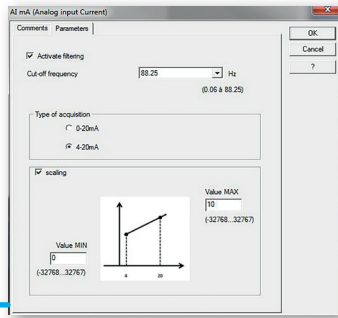


# em4 soft TRY OUR FREE SOFTWARE



**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

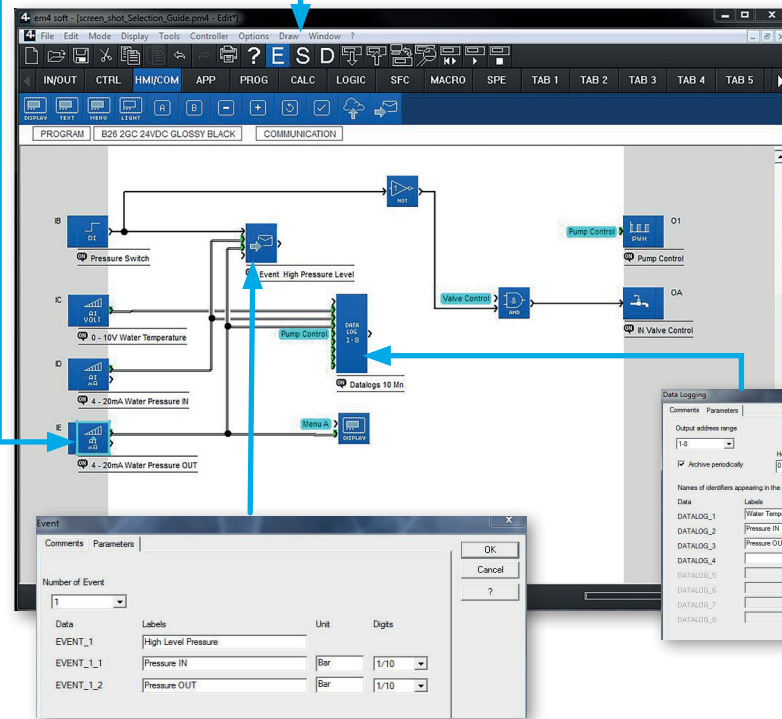


## Smart analog inputs

- › 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

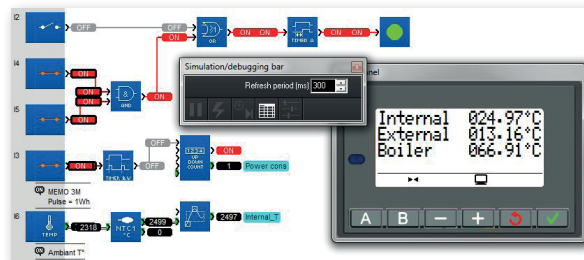
- › Up to 24 event function blocks to push an alert message embedding up to two data from the application program

## Monitoring & control management





- › XBIN, XWIN function blocks to remotely change set points, XABOUT, 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   |
|--------------------------------------|---|---|---|---|--------------|--------------|------------|---|
|                                      |  |  |  |  | Glossy black | Glossy white | Robust     |   |
| <b>Bases</b>                         |   |   |   |   |              |              |            | <b>Common characteristics:</b><br>- <b>Supply:</b> 24VDC<br>- <b>Inputs:</b> 16 digital inputs (including 4 high speed, 8 analog 0-10 V / potentiometers and 4 analog 0-10V / 4-20mA)<br>- <b>Outputs:</b> 10 digital outputs (including 2 static 0.5A PWM, 2 relays 6A and 6 relays 8A)  |
| em4 remote 2G*                       |   | ✓   |   |   | 88 981 153   | 88 981 154   | 88 981 152 |   |
| 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><br>- The em4 remote nano-PLC<br>- The standard 3 m antenna<br>- The USB interface<br>- The USB programming cable<br>- The em4 remote nano-PLC<br>- The Ethernet cable<br>- The em4 alert nano-PLC<br>- The standard 3 m antenna<br>- The USB interface<br>- The USB programming cable<br>- The em4 local nano-PLC<br>- The Ethernet cable<br>- The em4 soft (USB key)         |
| Starter kit em4 remote 2G*           |   | ✓   |   |   | 88 981 156   | 88 981 157   | 88 981 155 |   |
| 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><br>- The starter kit (description above)<br>- The power supply 110-230VAC with Europe and US adaptor<br>- The simulator PCB for the 16 Inputs with switches, potentiometers and terminals to connect your sensor for evaluation<br>- The simulator PCB for the 10 Outputs with 11 LEDs and terminals to connect the 2 static outputs to a device for evaluation |
| Evaluation case em4 remote 2G*       |   | ✓   |   |   | 88 980 185   | -            | -          |   |
| 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   | -          |   |

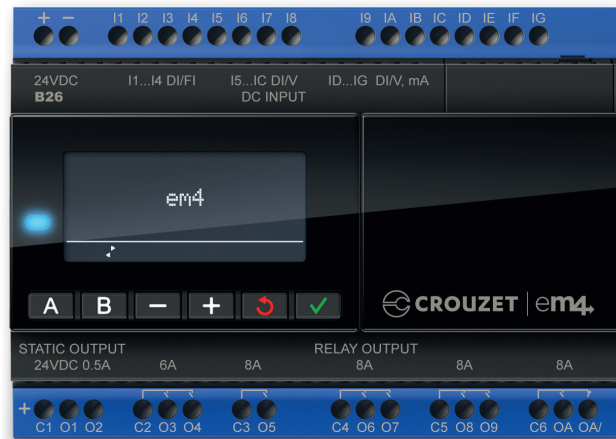
\* em4 remote 2G, 3G and Ethernet include the first year of subscription to em4 remote access (em4 web & em4 app), with a SIM card for the 2G and 3G versions. The 3G and Ethernet versions will be available during the course of 2015.

| 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                    | - 4.3" color touch panel<br>- Modbus RS232/RS485 serial port<br>- USB port<br>- MTP to em4 RS485 Modbus interface cable             | 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                       |  |   |             |
|                                 | 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 |  |   |             |
| Modular power supply 24VDC 15 W |  | 88 950 304                       |  |   |             |
| Modular power supply 24VDC 30 W |  | 88 950 307                       |  |   |             |
| Modular power supply 24VDC 60 W |  | 88 950 302                       |  |   |             |
|                                 |  |                                  | MTP8/50 - MTP8/70 programming kit (Ethernet) | - Ethernet crossover cable<br>- EB Software (CD)  | 88 970 502  |

# 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

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