



### Features

- 2 universal inputs (Thermistor/0-10V/VFC/Pulse counting)
- 3 relay outputs
- Bus interconnect for easy system expansion
- Remotely upgradable
- Pre-configured with universal applications

**CE** fully EMC tested and manufactured by an ISO 9000 accredited UK company

### Description

E-CONTROL manages the plant control at the automation level of E-MAGINE. It has numerous control strategies already programmed into its long-term memory. E-CONTROL interfaces to local devices through a number of I/O points, with each module providing 3 digital outputs and 2 universal inputs. As a result, E-CONTROL can be installed and configured quickly and easily.

In applications where more I/O points are required or there is a specific need for analogue outputs, a plug-in expansion module (E-XPAND) can be used. Each E-XPAND supports an additional 4 universal inputs, 2 digital outputs and 3 analogue outputs. It is possible to cascade up to 7 expansion units giving a maximum of 17 digital outputs, 21 analogue outputs and 30 inputs.

During installation and commissioning, an E-CONTROL unit is selected with the initial configuration i.e. Air Handling Unit (AHU), Boiler, Heat Source, Cool Source and Zone. Functions, such as pump changeover and pre-heater, are all contained within E-CONTROL and can be enabled or not, depending on requirements.

### Specification

Power	
CPU	ARM Cortex M3
Speed	12Mhz Xtal (clocked up to 100Mhz)
Cycle time	10mS
Flash	512K
Ram	64K
Supply voltage	24VDC
Supply current	90mA
Battery	3V Lithium cell
Clock accuracy	1s per day (typical)

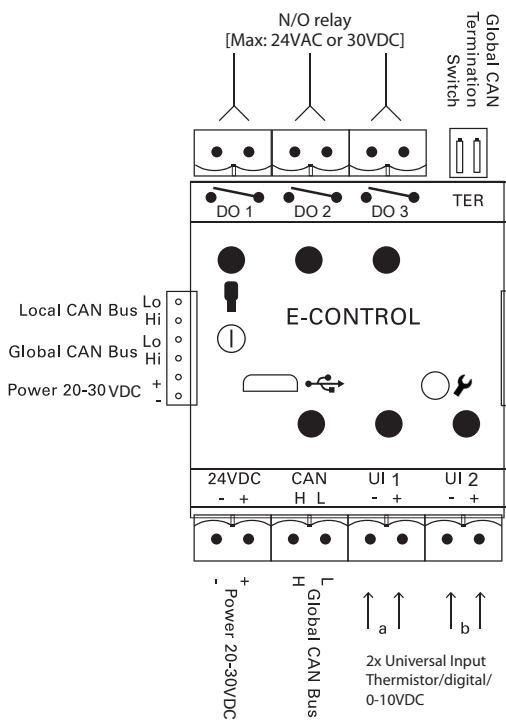
Inputs and outputs	
2 universal inputs with the following options:	
Analogue voltage (V)	0 to 10V, input resistance >600k, accuracy 100mV equivalent to $\pm 1\%$ of span.
Analogue current (I)	0 to 20mA, input resistance 240R, accuracy 1% of span (i.e. 200 $\mu$ A). Loop powered input supply is 20 to 36VDC.
Thermistor (T)	Thermistor input scaled for 10K3A1 sensors, accuracy 1% of span.
Digital (D)	Volt free contact, open collector (or drain), or logic input. Count rate 100Hz (minimum pulse width of 5ms). 5V supply. Status LED per channel.
3 digital outputs:	
Digital relays (D)	Relay outputs with LED (Green) status indication per channel. Single pole n/o relays. Outputs rated at 1A maximum for 24VDC/AC.

Display	
Inputs	Red/Green LEDs indicating if the input is configured for use and if a valid input is present.
Outputs	Green LEDs indicate digital outputs are on.
Status	Temperature symbol shows red for heating, green is satisfied and orange for cooling.
Occupancy LED	Occupancy LED is illuminated if occupied and flashed red to indicate a fault.

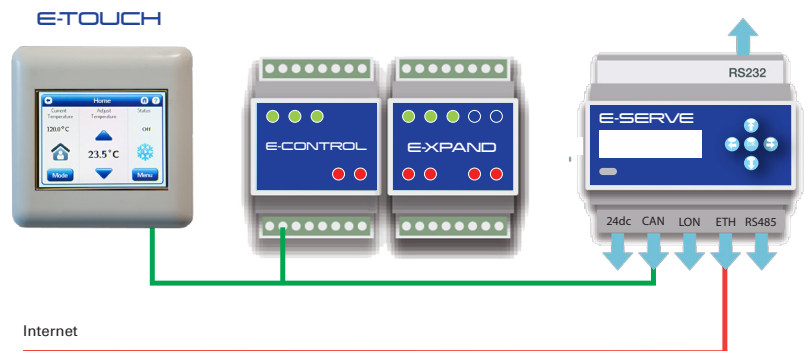
Construction	
Enclosure	DIN rail (EN 60715) mounting according to DIN 43880
Dimensions	91mm x 54mm x 63mm (HxWxD)
Materials	Self-extinguishing PPO
Colour	Grey RAL 7035
Weight	104g

Environmental	
Emissions	EN61000-6-2
Immunity	EN61000-6-3
EU	EN60950 (Installation Category III – fixed installations)
Protection	IP20, NEMA1
Storage	-10°C (14°F) to +50°C (122°F)
Operating	0°C (32°F) to 45°C (113°F)
Humidity	0 to 90 %RH non-condensing

## Connection diagram



## Network diagram



**Installation / Commissioning:** Please follow guidelines in the E-MAGINE Installation and Commissioning documents (available separately).

**Wiring precautions:** Always follow electrical installation guidelines and latest regulations for the relevant country of installation.