

A	OP1+	RLY1 A	OP1
B	OP2+	RLY2 A	OP2
C	OP3+	RLY3 A	OP3
D	OP4+	RLY4 A	OP4
E	OP5+	RLY5 A	OP5
F	OP6+	RLY6 A	OP6
G	OP7+	RLY7 A	OP7
H	OP8+	RLY8 A	OP8
I	OP9+	RLY9 B	OP9
J	OP10		
K	OP11		
L	OP12		
M	OP13		
N	OP14		
O	OP15		
P	OP16		
	OP17		
	OP18		
	OP19		
	OP20		

Legend Function

ISOLATION
 ■ Channel to Channel - 42V
 ■ Channel to system - 42V

Note: AO4 supports Channels 1 to 4 only in Slot 4 only.

AO8/AO4 - Analog Output
 Output current - 0 to 20mA.
 360 ohm max load.

Note: AO4 supports Channels 1 to 4 only in Slot 4 only.

RL8 - Relay Output
 Contact voltage/current - 264Vac/2A RMS max., 360 ohm max load.
Note: 8 Normally Open contacts in Slots 2 and 3 only.

ISOLATION
 ■ Channel to Channel - Reinforced
 ■ Channel to system - 264Vac basic

Note: Protective conductor MUST be used if this is fitted.

Legend Function

AO8/AO4 - Analog Output

Note: AO4 supports Channels 1 to 4 only in Slot 4 only.

ISOLATION
 ■ Channel to Channel - 42V
 ■ Channel to system - 42V

Note: Protective Earth connection is required. ALWAYS ensure that the protective Earth is fitted first and disconnected last.
 RL8.
 Voltages in excess of 42V dc must NOT be applied to any terminals other than the Relay Module.
 The Mini8 Controller is intended for operation at safe low voltage levels, except the Relay Module.
 Do NOT replace the battery. Return the unit to the factory if replacement is required.

Installation Safety Requirements
 Various symbols used on the instrument are described below:

Caution (refer to the accompanying documents) Functional (ground) earth Protective earth terminal

INSTALLATION CATEGORY AND POLLUTION DEGREE
 This unit has been designed to conform to BS EN61010 installation category II and pollution degree 2. These are defined as follows:

- Installation category II.** The rated impulse voltage for equipment on nominal 230V ac mains is 2500V.
- Pollution degree 2.** Normally, only non-conductive pollution occurs. However, occasionally a temporary conductivity caused by condensation shall be expected.

PERSONNEL
 Installation MUST only be carried out by qualified personnel.

ENCLOSURE OF LIVE PARTS
 To prevent hands or metal tools touching parts that may be electrically live, the unit must be installed in an enclosure.

WIRING
 It is important to connect the unit in accordance with the data on this sheet, ensuring the protective Earth connection is ALWAYS fitted first and disconnected last. Wiring MUST comply with all local wiring regulations, i.e. UK, the latest IEE wiring regulations (BS7671), and USA, NEC Class 1 wiring methods. Only use copper conductors for connections. Terminal tightening torque 0.4Nm max.

Caution
Do not connect AC supply to low voltage sensor input or other low level inputs and outputs.

POWER ISOLATION
 The installation must include a power isolating switch or circuit breaker. This should be in close proximity (1 meter) to the unit, in easy reach of the operator and marked as the disconnecting device for the unit.

OVERCURRENT PROTECTION
 It is recommended that the power supply to the system is fused appropriately to protect the cabling to the unit.

CONDUCTIVE POLLUTION
 Electrically conductive pollution, i.e. carbon dust, MUST be excluded from the enclosure in which the unit is installed. To secure a suitable atmosphere in conditions of conductive pollution, fit an air filter to the air intake of the enclosure. Where condensation is likely, include a thermostatically controlled heater in the enclosure.

OVER-TEMPERATURE PROTECTION
 When designing a control system it is essential to consider the consequences should any part of the system fail. In temperature control applications the primary danger is the heating will remain constantly on. This could spoil the product, but more seriously damage the process machinery being controlled, or even cause a fire.

If the heating remains constantly on the

- temperature sensor is detached from the process
- thermocouple wiring has short circuited
- unit fails with the heating output constantly on
- external valve or actuator is sticking in the heating condition
- unit setpoint is set to high

Where damage or injury can occur, it is recommended that a separate over-temperature protection unit, and independent temperature sensor, to isolate the heating circuit, is fitted.

Note: Alarm relays within the unit will not indicate all failure conditions.

INSTALLATION REQUIREMENTS FOR EMC
 To comply with European EMC directive certain installation precautions are necessary:

- General guidance. Refer to *EMC Installation Guide*, Part no. HA025464.
- Relay outputs. It may be necessary to fit a suitable filter to suppress conducted emissions. Filter requirements depend on the type of load. Typical applications may use Schaffner FN321 or FN612.
- Table top installation. If using a standard power socket, compliance to commercial and light industrial emissions standard is usually required. To comply with conducted emissions standard, a suitable mains filter must be installed, such as Schaffner FN321 or FN612.

Legend Function

ISOLATION
 ■ Channel to system - 42V with independent supply

Note: * - Linked internally.

ISOLATION
 ■ Channel to system - N/A
 ■ Channel to Channel - N/A

Note: Requires 24Vdc supply.

D08 - Logic Output

Legend Function

ISOLATION
 ■ Channel to system - 42V with independent supply

Note: Isolation provided by current transformers.

ISOLATION
 ■ Channel to system - N/A
 ■ Channel to Channel - N/A

Current Transformer Input

Legend Function

ISOLATION
 ■ Channel to system - 42V
 ■ Channel to Channel - 42V

Note: ON requires > 10.8V with 2mA drive, 30V max.

D18 - Logic Input

Legend Function

ISOLATION
 ■ Channel to system - 42V
 ■ Channel to Channel - 42V

Note: max.

ISOLATION
 ■ Channel to system - 42V
 ■ Channel to Channel - 42V

Legend Colour Function Action

On - Running Green Indicate Run mode

Blinking - Standby/Config Off - Not Running

On - Running Green Indicate Configuration activity

Blinking - Config Traffic Off - N/A

On - Connected Green Indicate Field Comms activity

Blinking - Ready Off - N/A

(DeviceNet/CANopen) or

On - N/A Blinking - Field Comms Traffic

Off - N/A Blinking - Field Comms Traffic

Off - N/A

ROUTING OF WIRES
 To minimise interference from electrical noise, low voltage DC connections and sensor input wiring must be routed away from high-current power cables. If this is not practical, use shielded cables, shield grounded at both ends, and keep cable lengths to a minimum.

General
 This unit is intended for Industrial Temperature and Process Control applications, within the requirements of the European Directives on Safety and EMC.

Warning
The Safety and EMC protection provided can be seriously impaired, if the instrument is not used in the manner specified. The installer MUST ensure the Safety and EMC of all installations.

UNPACKING AND STORAGE
 The packaging contains the unit, this sheet, and a CD. If on receipt, the packaging or unit are damaged, do NOT install, but contact the supplier. If being stored before use, protect from humidity and dust in an ambient temperature range of -30°C to +75°C.

Caution: Electrostatic discharge
Always observe all electrostatic precautions, before handling the unit.

SERVICE AND REPAIR
 The unit has no serviceable parts. Contact the supplier for repair.

CLEANING
 Use Isopropyl Alcohol to clean label. Labels will become illegible if water or water based products are used. A mild soap solution can be used to clean other exterior surfaces.

Declaration of Conformity

Manufacturer's name:	Eurotherm Limited
Manufacturer's address:	Faraday Close, Worthing, West Sussex BN13 3PL, United Kingdom
Product type:	Process controller and programmer
Model(s):	Mini8 Status level A1 and above
Safety specification:	EN61010-1
EMC emissions specification:	EN61326 Class A
EMC immunity specification:	EN61326 Industrial locations

Eurotherm Limited hereby declares that the above products conform to the safety and EMC specifications listed. Eurotherm Limited further declares that the above products comply with the EMC Directive 89 / 336 / EEC amended by 93 / 68 / EEC, and also with the Low Voltage Directive 73 / 23 / EEC.

Signed: *William Davis* Dated: *5th August 2004*

Signed for and on behalf of Eurotherm Limited
 William Davis
 (Technical Director)

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Legend Function

ISOLATION
 ■ Channel to system - 42V
 ■ Channel to Channel - 42V

Note: TC4 supports Channels 1 to 4 only.

Thermocouple Input

Legend Function

ISOLATION
 ■ Channel to system - 42V
 ■ Channel to Channel - 42V

Note: max.

ISOLATION
 ■ Channel to system - 42V
 ■ Channel to Channel - 42V

D18 - Logic Input

Legend Function

ISOLATION
 ■ Channel to system - 42V
 ■ Channel to Channel - 42V

Note: max.

ISOLATION
 ■ Channel to system - 42V
 ■ Channel to Channel - 42V

Legend Function

ISOLATION
 ■ Channel to system - 42V
 ■ Channel to Channel - 42V

Note: max.

ISOLATION
 ■ Channel to system - 42V
 ■ Channel to Channel - 42V

D18 - Logic Input

Legend Function

ISOLATION
 ■ Channel to system - 42V
 ■ Channel to Channel - 42V

Note: max.

ISOLATION
 ■ Channel to system - 42V
 ■ Channel to Channel - 42V

Standard I/O Connectors

Legend Function

D1 Digital Input 1
 D2 Digital Input 2
 C Digital Input Common
 A1 Relay A n/open
 A2 Relay A n/closed
 A3 Relay A Common
 B1 Relay B n/open
 B2 Relay B n/closed
 B3 Relay B Common

Note: Digital Inputs: ON requires greater than 10.8V with 2mA drive, 30V max.
 Relay Contacts: 1 Amp max., 42V dc max.

POWER SUPPLY SPECIFICATION

Legend Supply

24V 0V Ground
 24V dc 0V Ground
 24V dc 0V Ground

Power supply voltage: 17.8Vdc min to 28.8Vdc max
Power consumption: 1.5W max

This terminal can accept wire sizes 0.2 - 2.5mm (24 - 12 awg).

Mini8™ CONTROLLER

INSTALLATION AND WIRING INSTRUCTIONS

What is the Mini8 Controller?

The Mini8 Controller is a compact DIN Rail mounting 16 loop PID controller and data acquisition unit. It offers a choice of I/O and field communications.

Power Supply

I/O Connection Terminals

Standard I/O Connection Terminals

Communications Connection Terminals

The Mini8 Controller is mounted on a 35mm Top Hat DIN Rail. It is pre-assembled in the factory, configured with sufficient I/O required for the application as specified in the order code. With standard applications the Mini8 Controller is also supplied as a configured instrument. Alternatively it can be configured using the iTools configuration suite running on a personal computer.

Part No. HA028497

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