EUROTHERM® FLEXIBLE SOLUTIONS

Mini8®

CONTROLLER

MAXIMISE YOUR PLC...

EUROTHERM®

invensys®
EUROTHERM®

16 CONTROL LOOPS
32 CHANNEL DATA ACQUISITION
SEAMLESS COMMUNICATIONS

...with the best control algorithm in the world

Maximise your process with the Mini8® Controller

MULTI-ZONE OVENS AND FURNACES

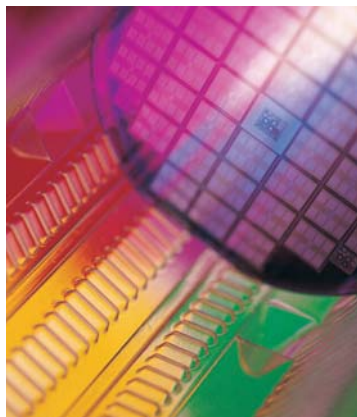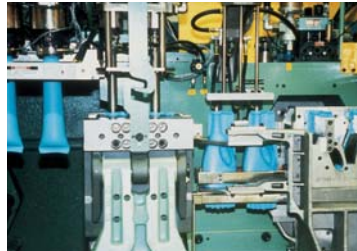**SEMICONDUCTOR CVD AND MBE**

THERMOFORMING

PLASTICS EXTRUSION

PACKAGING MACHINES

TEXTILE MACHINERY

BAKING OVENS

GLASS LEHRS

Features and benefits

- Ideal partner to your PLC
- World class control algorithm
- Accurate analogue measurement
- Flexible communications
- Guaranteed performance
- Modular build, compact size
- Reduction in panel real estate
- Reduces total system costs

Designed to integrate seamlessly with programmable logic controllers, and other supervisory control and monitoring systems, the Eurotherm® Mini8® controller offers a compact high performance solution at an affordable cost.

The Mini8 controller offers modularity both in terms of hardware and software functions. Its four plug-in slots can accommodate a variety of IO modules, and its feature set, ranged to suit simple multi-loop and data acquisition applications up to complex strategies including setpoint programming, mathematical and logical operations.

The Mini8 controller can multi-drop on either serial, fieldbus or Ethernet and offers a real cost effective alternative to performing analogue measurement or control loops in a PLC. By implementing these functions in the Mini8 controller the PLC hardware cost is reduced and is relieved of the extra processing burden of analogue control, often improving its digital performance or enabling a lower specification processor to be used.

Control

- *4, 8 or 16 PID Loops*
- *Dual Channel Output*
- *Autotune*

Data Acquisition

- *32 Thermocouple, mV*
- *16 RTD*

4 IO Modules

- *4 Ch. Thermocouple/mV*
- *8 Ch. Thermocouple/mV*
- *4 Ch. RTD*
- *8 Ch. Logic Output*
- *8 Ch. Logic Input*
- *3 Ch. CT input*
- *8 Ch. Relay Output*
- *4 Ch. 4-20mA Output*
- *8 Ch. 4-20mA Output*

Communications

- *Modbus RTU*
- *DeviceNet® network*
- *CANopen*
- *Profibus DP network*
- *Modbus TCP*

Toolkit Functions

- *Maths*
- *Combinational Logic*
- *Timers*
- *Totalisers*
- *Counters*
- *Real Time Clock*
- *Multiple Input (Avg, Max, Min)*

8 SP Programmer

- *1 Ch./Programmer*
- *8 Events/Programmer*
- *16 Segments/Programmer*

Alarms

- *High, Low Deviation*
- *Heater Failure*
- *Sensor Break*

Special Functions

- *Humidity*
- *8 Recipes*
- *Load Failure Detection*
- *Zirconia*

Improve your PLC with the Mini8® Controller

Mini8 Controller

- Reduces PLC hardware
- Easy and quick set-up
- Improves control performance
- Improves PLC performance
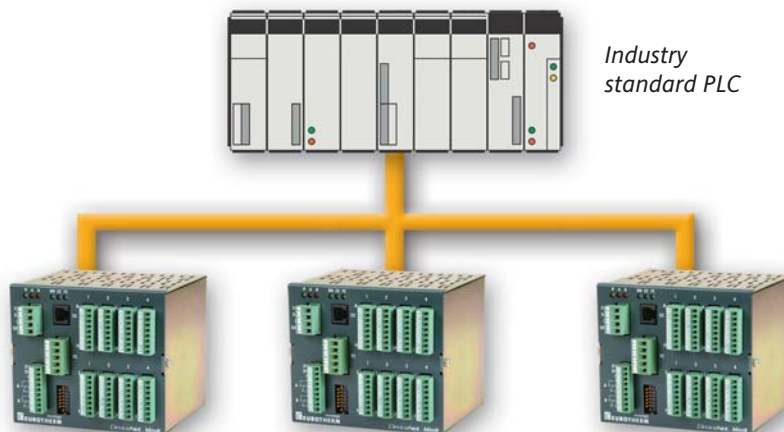- Minimises signal conditioning hardware

The Mini8 controller is an ideal partner to a PLC in multi-loop PID applications such as plastics extrusion and multi-zone furnaces. By devolving loop control to the Mini8 controller the PLC can concentrate on providing fast and effective logic control without the burden of running complex control algorithms. The Mini8 controller is a very cost effective alternative to implementing control loops in PLC. Providing not only better control performance and easy configuration the Mini8® controller offers the same deterministic response and autotune feature as Eurotherm's panel mount controllers. Eurotherm's open approach to communication, supporting serial, fieldbus and Ethernet protocols, makes it easy to interface to intelligent masters such as a PLC.

VT505

- 5.7" touchscreen LCD
- 128 user pages, 320 x 240 pixel resolution
- Modbus RTU master
- 128 Recipes
- Process alarms
- Standard configurations

The VT505 operator terminal uses touchscreen technology to provide an extremely easy and flexible interface to the Mini8 controller. Standard configurations can be pre-ordered to suit different applications or users can use the VT505 configuration tools to create their own customised view of their process.

Industry standard PLC

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The Mini8® Controller

- 16 PID control loops
- Flexible and standard configurations
- 110ms PV sampling
- Setpoint programmer
- Maths and logic functions
- Process alarms
- Heater failure detection
- OEM security

Control and measurement

Combining high quality multi-channel analogue measurement with Eurotherm's proven PID algorithm the Mini8 controller achieves performance equal to that normally reserved for conventional discrete controllers. The same analogue input circuitry and control features found in Eurotherm's latest panel mount controllers are also available in the Mini8 controller.

Setpoint programmer

The Mini8 controller can run up to 8 programmer function blocks, to follow a user defined series of ramp and dwell segments. Each Programmer is capable of running a program of up to 16 segments with 8 event outputs. The event outputs can be used internally within the configuration soft wiring or to external digital or relay outputs.

Heater failure detection

Utilising a unique cycling algorithm, and current transformer input module, the Mini8 controller can automatically scan electrical heaters connected to its logic or relay control outputs and indicate heater partial load failure, over current or SSR short and open circuit. Heater current readings are also available within the controller to calculate power delivered to the load and make this information available to a supervisory system. Heater failure detection is compatible with both single or three phase load installations.
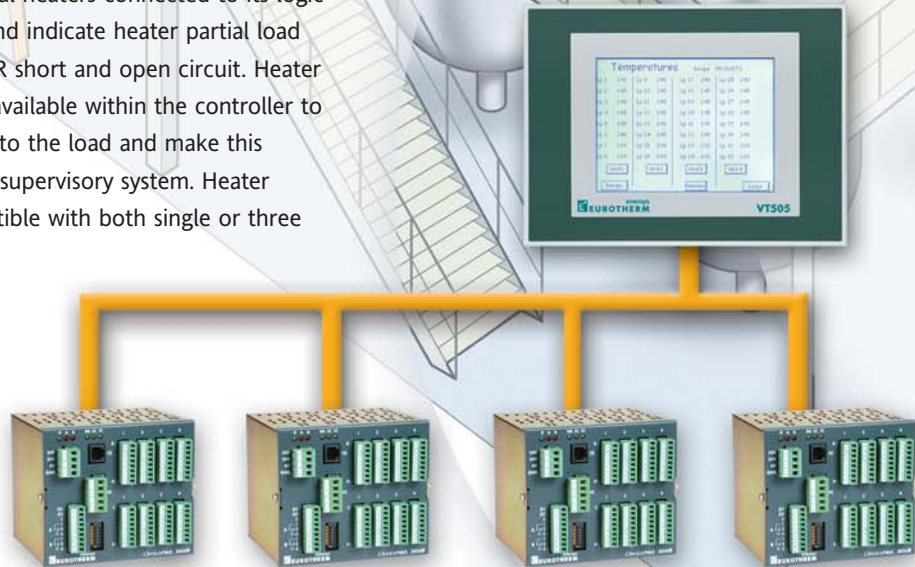
Creating custom solutions

A wide range of toolkit functions, including Maths and Logic blocks, can be used to create custom solutions and small machine controllers. Timing functions include a range of timers, counters and totalisers as well as a non-volatile real time clock. Using the iTools graphical wiring editor these strategies can easily be created and documented.

OEM security

Users can protect their intellectual property by using the OEM security feature. This prevents unauthorised copying of configurations without first entering a user defined password. This ensures that the full commercial benefit of a custom solution can be realised.
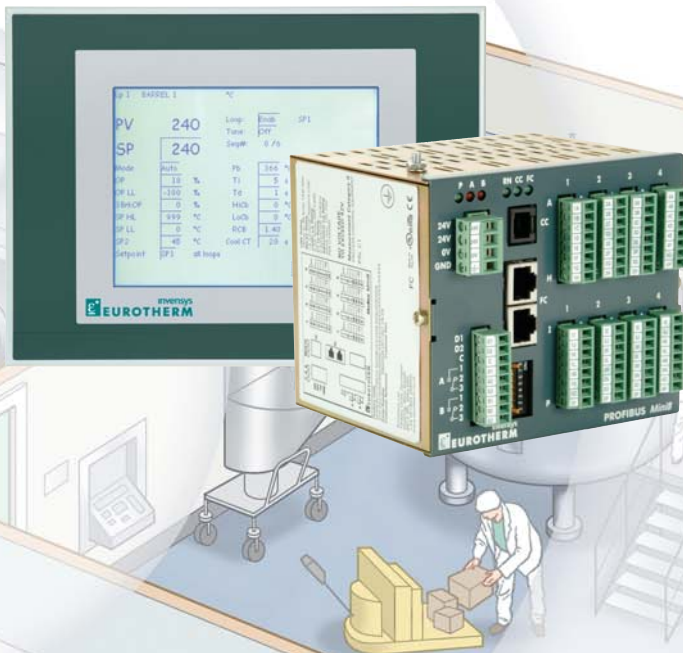
Communications

The Mini8 controller utilises a fixed Modbus address table providing easy integration into PLC, SCADA and other 3rd party systems. This fixed table makes communication to intelligent masters very easy to accomplish. Parameter addresses are fixed in one location and do not move depending on how the unit is configured. Modbus RTU, DeviceNet®, Profibus, CANOpen and Ethernet Modbus protocols are supported.

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Maximise PID control with the Mini8® Controller

The Mini8 controller can be supplied with pre-loaded configurations to suit standard applications. It is also a very flexible controller capable of implementing complex control strategies. Eurotherm's iTools software suite provides a graphical function block view of strategies configurations making creation, editing and debugging easy to accomplish.
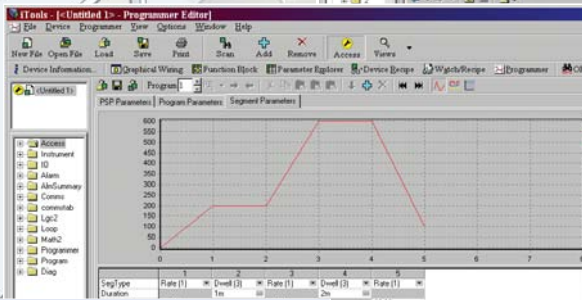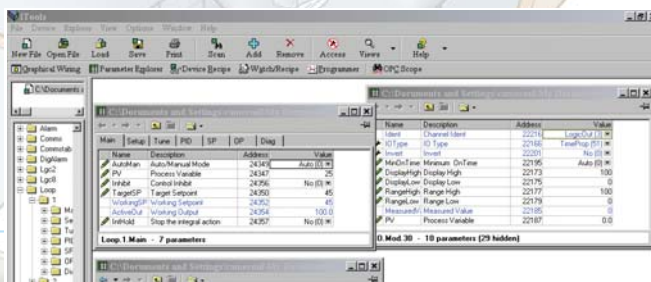
A remote touchscreen LCD panel, supplied with standard Mini8 controller operator screens, can be used to supervise multiple controllers. Standard screens enable 'Out of Box' operation but still allow users to adapt screens, therefore enhancing visibility and ease of use, to suit their own process.
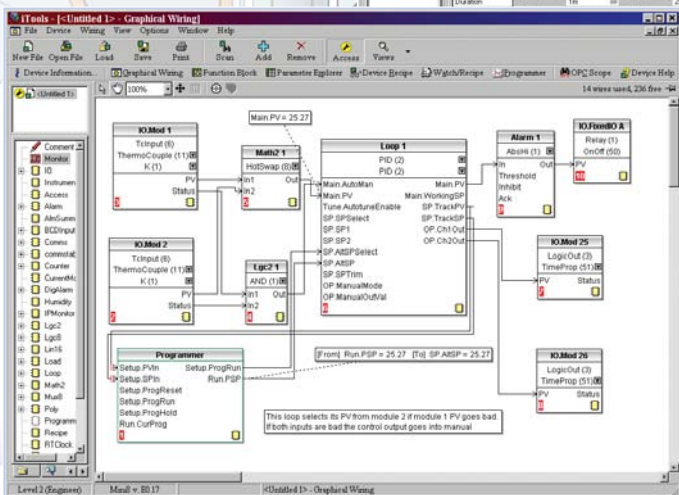
Configuration tools

EUROTHERM iTools

iTools

Setpoint Program editor
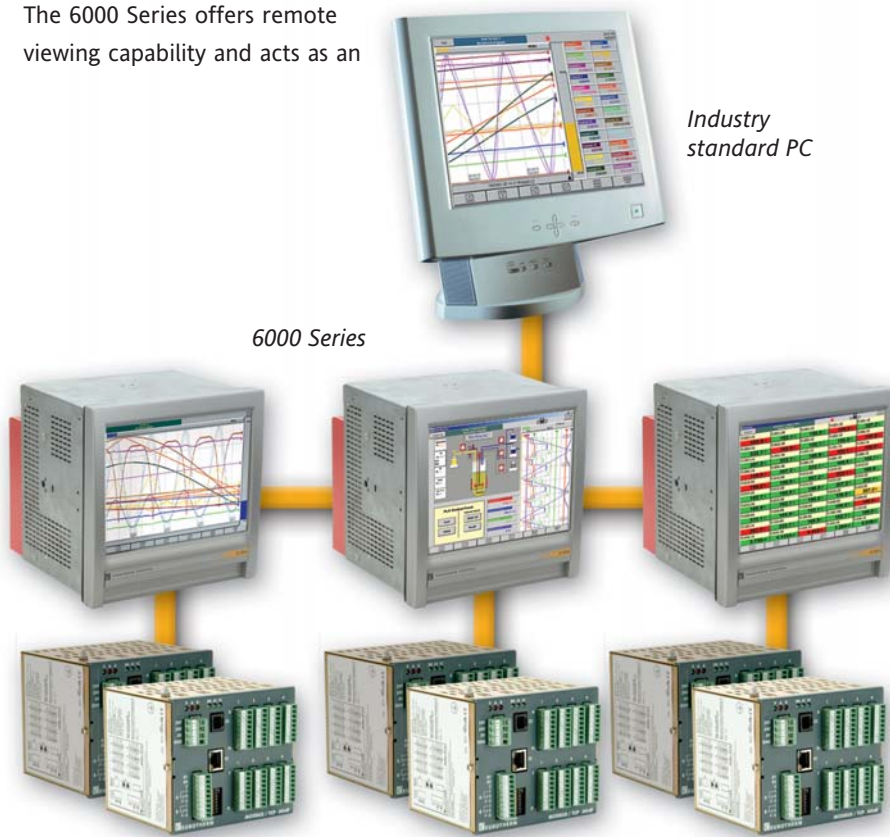
iTools Graphical editor

Data acquisition with the Mini8® Controller

The Mini8 controller high density analogue inputs combined with Eurotherm's 6000 Series paperless graphics recorders provide unsurpassed local and network access to your process.

The 6000 Series offers remote viewing capability and acts as an

HMI for the Mini8 controller utilising Master Communications. The user can control and view information from the Mini8 controller from either the 6000 TFT touch screen display or from any PC connected to the network.

- 32 Analogue channels per Mini8 controller
- Multiple batch functionality
- Master communications
- Alarm notification via Email
- Secure storage of data
- Easy to use networking
- Auditor features
- Up to 48 universal inputs direct into the 6000
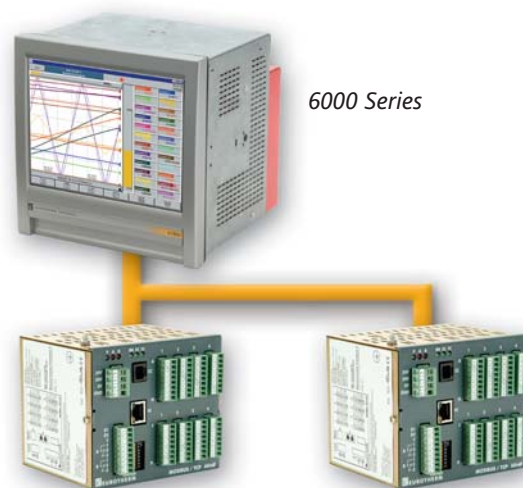
Industry standard PC

6000 Series

Eurotherm 6000 Series

The 6000 Series is designed to provide powerful, yet easy to use, network and communication options. Whether a local connection is required or access from the other side of the world, the 6000 Series provides secure access to process data when and where you need it.
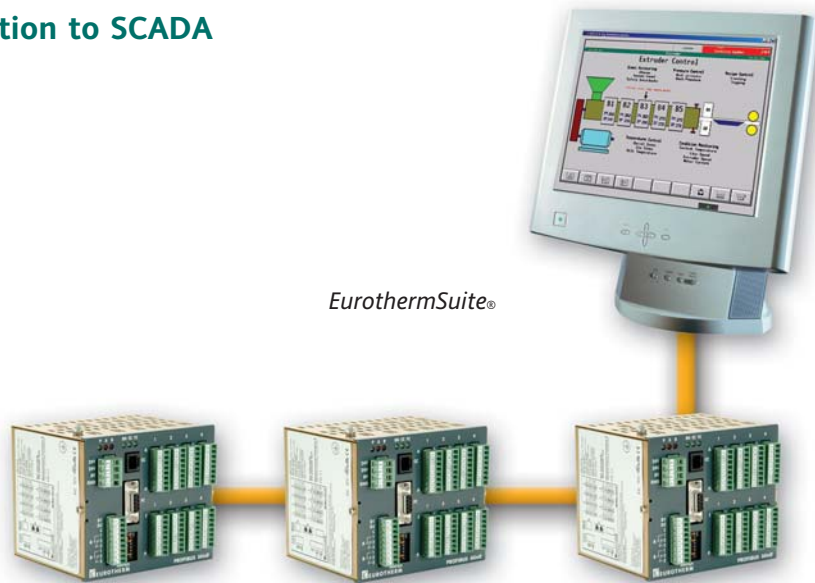
The Mini8® Controller connected to a 6000 in a control system

The 6000 Series supports Modbus Master communications over Ethernet and Serial connections. Powerful features from within the 6000 Series - such as user defined screens, remote access and Auditor features – can now be applied to other plant equipment. Whether you need to securely record data from other instruments or provide a centralised HMI for an operator to view and modify control loop parameters within the Mini8 controller – the 6000 Series offers a simple, powerful solution.

6000 Series

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The Mini8® Controller connection to SCADA

The Mini8 controller can be installed as a control or data acquisition component of larger installations. Eurotherm are able to provide solutions from 'simple' SCADA using Eurotherm iTools or Specview to more demanding applications using EurothermSuite® or Wonderware®. The open communications nature of the Mini8 controller makes communication to third party equipment easy to achieve.

EurothermSuite®

Mini8® Controller specifications

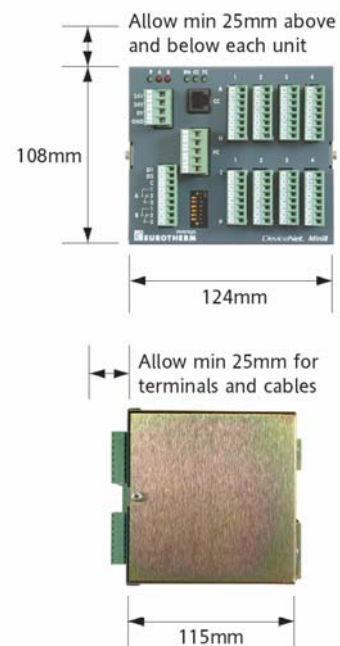|	
Control features	4, 8 or 16 Loops with autotune, Dual Channel OP with various cooling modes, PID, OnOff, Auto/Man, Feedforward, 3 PID sets, Remote SP, Forced manual, Sensor break OP, SP ramp, OP rate limit, Heater failure detection
Communications	Network: Modbus RTU (EIA485), Modbus TCP, Profibus DP, DeviceNet®, CANopen Config: Modbus RTU (EIA232), can be used as second network port
Standard IO	2off 24Vdc Logic inputs with 42Vac/dc system isolation, 2off 1Amp Change over relays (42Vac/dc max)
TC4 /TC8 Module	4/8 Channels, Range: –77mV to 77mV, Accuracy ±1°C ±0.1% of reading, TC types: C, J, K, L, R, B, N, T, S, LINEAR, Custom, CJC >30:1, 42Vac/dc Channel isolation, Input impedance >100M
RT4 Module	2, 3, or 4 wire input, PT100 RTD or linear
DO8 Module	8 Channels, Supply: 15vdc-30Vdc, On/Off, Time Proportioning, Common 42Vac/dc system isolation
DI8 Module	8 Channel logic input with 42Vac/dc system isolation
CT3 Module	3 Channels, Range 0-50mA, Accuracy: +2% of span, No isolation, Overload current: 300mA
RL8 Module	8 Channel form a relay (NO) max 2A @ 264Vac
AO4/AO8 Module	4 or 8 Channels, Range 0-20mA, 360R load, 42Vac/dc channel isolation
SP Programmer	8 Programmers, 16 Segments and 8 Events each, External Run, Hold, Reset, Skip Segment, Advance segment
Maths & Logic	24 x 2 Input Maths, 24 x 2 Input Logic, 4 x 8 Input logic, 4 x 8 input multiplexor, 32 User Values, 4 x 8 Multiple Input
Recipes	8 Recipes, 24 tags in each
Timer Functions	8 Timers, 2 Counters, 2 totalisers, Non-volatile real time clock
Power Supply	17.8Vdc-28.8Vdc, Power consumption 15W max, 10W typical
Approvals	EMC: EN50081-2, EN50082-2. Safety: EN61010, C-UL

Mounting information

The Mini8 controller is intended to be horizontally mounted on symmetrical DIN rail to EN50022-35
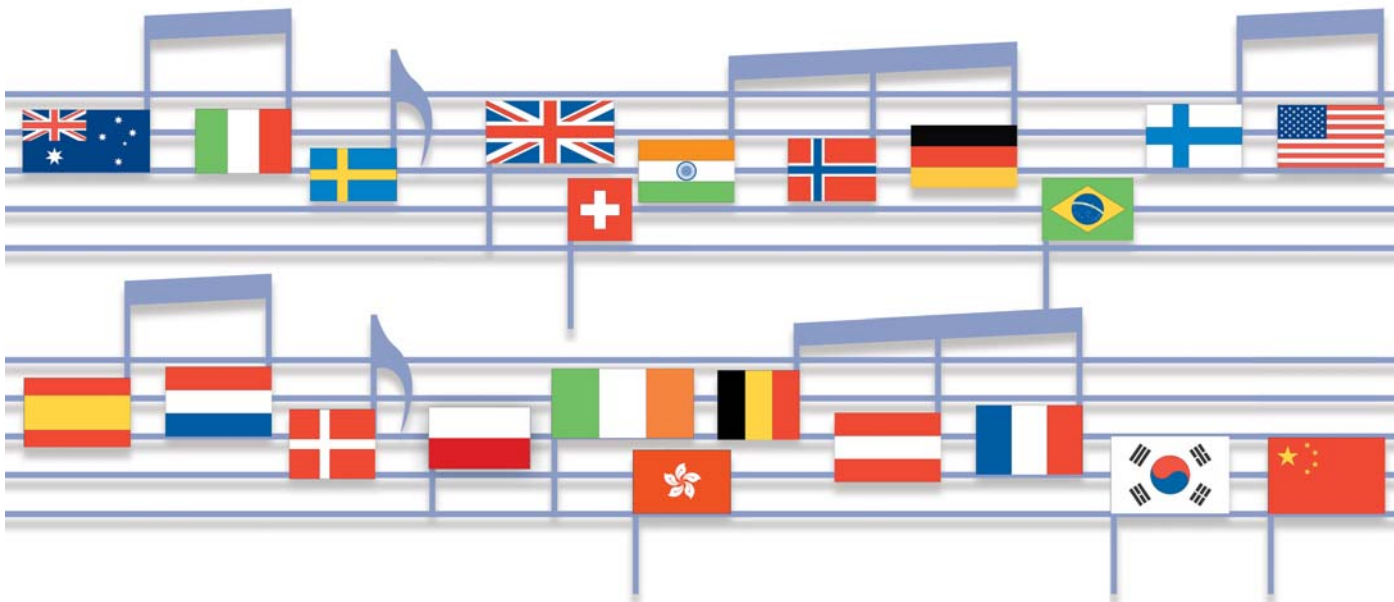
Environmental requirements

Operating Temperature
  Minimum   0°C
  Maximum   55°C

Humidity (non condensing)
  Minimum   5% RH
  Maximum   95% RH

Allow min 25mm above and below each unit

108mm

124mm

Allow min 25mm for terminals and cables

115mm

www.eurotherm.com/mini8

Eurotherm: International sales and service

Understanding and providing local support is a key part of Eurotherm's business. Complementing worldwide Eurotherm offices are a whole range of partners and a comprehensive technical support team… to ensure you get a service you will want to go back to.

AUSTRALIA *Sydney*
Eurotherm Pty. Ltd.
T (+61 2) 9838 0099
F (+61 2) 9838 9288
E *info.au@eurotherm.com*

AUSTRIA *Vienna*
Eurotherm GmbH
T (+43 1) 7987601
F (+43 1) 7987605
E *info.at@eurotherm.com*

BELGIUM & LUXEMBOURG *Moha*
Eurotherm S.A/N.V.
T (+32) 85 274080
F (+32) 85 274081
E *info.be@eurotherm.com*

BRAZIL *Campinas-SP*
Eurotherm Ltda.
T (+5519) 3707 5333
F (+5519) 3707 5345
E *info.br@eurotherm.com*

DENMARK *Copenhagen*
Eurotherm Danmark AS
T (+45 70) 234670
F (+45 70) 234660
E *info.dk@eurotherm.com*

FINLAND *Abo*
Eurotherm Finland
T (+358) 22506030
F (+358) 22503201
E *info.fi@eurotherm.com*

FRANCE *Lyon*
Eurotherm Automation SA
T (+33 478) 664500
F (+33 478) 352490
E info.fr@eurotherm.com

GERMANY *Limburg*
Eurotherm Deutschland GmbH
T (+49 6431) 2980
F (+49 6431) 298119
E *info.de@eurotherm.com*

HONG KONG & CHINA
Eurotherm Limited *North Point*
T (+85 2) 28733826
F (+85 2) 28700148
E *info.hk@eurotherm.com*

Guangzhou Office
T (+86 20) 8755 5099
F (+86 20) 8755 5831
E *info.cn@eurotherm.com*

Beijing Office
T (+86 10) 6567 8506
F (+86 10) 6567 8509
E *info.cn@eurotherm.com*

Shanghai Office
T (+86 21) 6145 1188
F (+86 21) 6145 1187
E *info.cn@eurotherm.com*

INDIA *Chennai*
Eurotherm India Limited
T (+91 44) 24961129
F (+91 44) 24961831
E *info.in@eurotherm.com*

IRELAND *Dublin*
Eurotherm Ireland Limited
T (+353 1) 4691800
F (+353 1) 4691300
E *info.ie@eurotherm.com*

ITALY *Como*
Eurotherm S.r.l
T (+39 31) 975111
F (+39 31) 977512
E *info.it@eurotherm.com*

KOREA *Seoul*
Eurotherm Korea Limited
T (+82 31) 2738507
F (+82 31) 2738508
E *info.kr@eurotherm.com*

NETHERLANDS *Alphen a/d Rijn*
Eurotherm B.V.
T (+31 172) 411752
F (+31 172) 417260
E *info.nl@eurotherm.com*

NORWAY *Oslo*
Eurotherm A/S
T (+47 67) 592170
F (+47 67) 118301
E *info.no@eurotherm.com*

POLAND *Katowice*
Invensys Eurotherm Sp z o.o.
T (+48 32) 2185100
F (+48 32) 2177171
E *info.pl@eurotherm.com*

SPAIN *Madrid*
Eurotherm España SA
T (+34 91) 6616001
F (+34 91) 6619093
E *info.es@eurotherm.com*

SWEDEN *Malmo*
Eurotherm AB
T (+46 40) 384500
F (+46 40) 384545
E *info.se@eurotherm.com*

SWITZERLAND *Wollerau*
Eurotherm Produkte (Schweiz) AG
T (+41 44) 7871040
F (+41 44) 7871044
E *info.ch@eurotherm.com*

UNITED KINGDOM *Worthing*
Eurotherm Limited
T (+44 1903) 268500
F (+44 1903) 265982
E *info.uk@eurotherm.com*
www.eurotherm.co.uk

U.S.A. *Leesburg VA*
Eurotherm Inc.
T (+1 703) 443 0000
F (+1 703) 669 1300
E *info.us@eurotherm.com*
www.eurotherm.com

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Algeria	*Malaysia*
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