

Eurotherm 5000B

Data Acquisition Unit



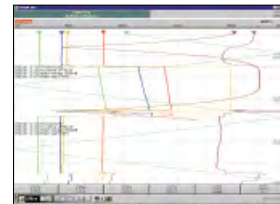
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The unique data management solution
providing security with confidence

Eurotherm Chessell 5000 B

Flexible, secure acquisition
for data that has value



Eurotherm Chessell's latest data acquisition instrument, the 5000B, is designed for maximum security of data and for flexible functionality. It has 16 Mbyte of non-volatile Flash memory for historical data storage with a logging and archiving strategy that protects the data from loss or tampering. Data is stored in a proprietary, binary format and written to the Flash at a configurable recording interval.

- Parallel sampling without compromise - 125ms all channels, all groups
- High noise rejection and isolation
- Designed for network use
- Live, remote data viewing
- Multiple Batch functionality
- Review and Bridge software as standard
- Time sync

Input Channels	Relay Outputs	Events Inputs	Ethernet Network Connection	Master Comms	Slave Comms	Serial Comms	ASCII Printer Support	Email	CSV Output	SNTP
6 or 12	1 to 7	6 or 12	Standard	Serial and Ethernet	Serial and Ethernet	Modbus or ASCII	Available	Available	Available	Unicast server and client

Complete Data Management

The 5000B is a versatile solution for many data acquisition requirements. From simple monitoring requirements to batch and validated processes, its security, communications and powerful visualisation



tools make the 5000B more than just a recording device. The compact unit can be wall or panel mounted and provide data in varying formats to suit different department needs.

The Bridge software can be installed on as many remote stations as required - from PCs to PDAs. It uses Java as its runtime environment and, as such, provides multi-platform compatibility. Up to 4 users can view a single instrument at any one time. With the correct security permission users can view live data, access historical information, perform operations (such as starting a batch or adding a comment to the record) and change the configuration of the instrument. With the Master Comms option the user can also view, operate and configure other remote instruments throughout the plant.

As data is sampled and logged in the 5000B, historical files are created in the 16Mbyte of internal Flash memory. The instrument can be configured to automatically pass these files over the network to a server for longer term archiving. In case of problems with the main server a secondary, back-up server can also be specified. The files are in a secure format to protect them from tampering. Review software is supplied with the 5000B for reading of these files at a later date. Review software can be configured to automatically pull files from the 5000B and store them

in its database. Within the Review the user can re-create charts from the secure data, format them for the clearest view and, if necessary, add comments. The user can search through the Review database for files either by time and date or, if using the batch option, by a specific batch name.

Report

Report is an add-in for Excel that will directly access the encrypted files in the Review database. This package gives the user total flexibility to automatically create reports in formats to suit every department - removing human error and saving time. Report templates can be created to suit every need without affecting the secure, primary, archive files.

Review Full

Review Full software provides additional functionality and flexibility for the user. Data can be viewed in a spreadsheet format or a whole chart copied to the clipboard for direct pasting into another document. A complete batch chart can be automatically printed to a specified printer without the need for operator intervention.

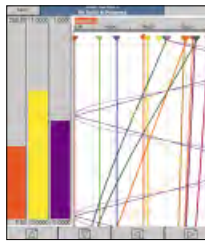
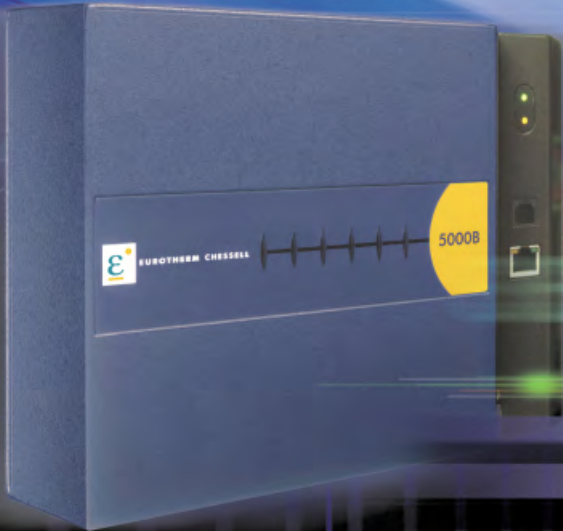


- ☐ Spreadsheet view of data
- ☐ Automatic printing of batches
- ☐ Copy chart to clipboard

User Screens Compatible	Bridge	Batch	Groups	Maths, Totalisers, Counters	Timers	Auditor Features	Security Manager	Custom Messages	Adaptive Recording
Available	Yes	Available	1 or 6	up to 84	12 available	Available	Available	24	Standard

Bridge

The seamless interface
from the plant floor to your PC.



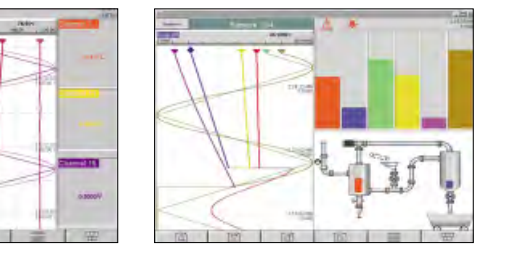
seamless in
BRIDGE

Bridge offers the user the remote capability to:

- Completely configure the 5000B
- View all process data - live and historical
- Download or save configurations
- Start and stop batches
- Configure archiving strategies or to demand an immediate archive of the process data
- Create custom views

Bridge is a powerful, yet easy-to-use, software package giving total access to the 5000B - including viewing of data, operation and configuration of the unit. Bridge gives you a connection between a 5000B and any PC anywhere in the world - using a Local Area Network, dial-up connection, Intranet or the Internet. No longer do you need to be near to the process to access live or historical data, view and acknowledge alarms - or even to change the configuration of your data recording. Bridge is powerful and flexible but does not compromise the security of your data. Each user can have a specific User Name and Password with customised security access - allowing anything from just viewing data to controlling batches or full configuration permissions. If required, the Auditor features can be enabled to provide the most advanced data security and traceability available.





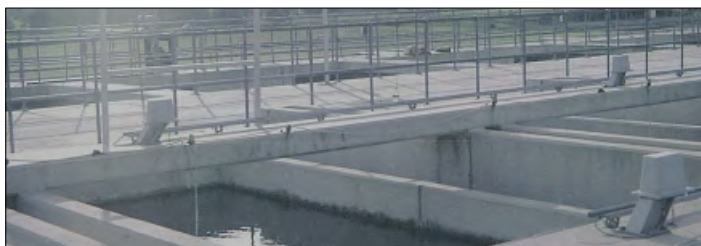
Integration

As with many other standard PC software packages, a single PC can have multiple Bridge windows open giving views and operation of multiple 5000Bs on the plant floor. A single 5000B can be viewed and operated by up to four PC connections at any one time - allowing multiple users and supervisors to view the process.

User defined graphical display -

The 5000B has vertical trend, horizontal trend, vertical bar graph, horizontal bar graph and numeric standard displays. Bridge can also be used with the Screen Builder feature,

enabling the user to create process specific displays so that data can be viewed in the most interpretable format. Up to 24 additional views may be created to best reflect the given process. Information from multiple Groups of data may be placed on a single display giving the operator a view of multiple processes (and multiple batches) on a single screen. Plant mimics may be created or images downloaded as backgrounds to show the process most clearly. Screen Builder truly makes a standard product into a process specific special.



Audit Trail 21 CFR Part 11 Traceability Security

Auditor Features

Auditor features on the 5000B have been specifically designed to protect data - providing comprehensive data security and traceability. These features are designed for industries where data security is of utmost importance - from Pharmaceutical to Heat Treatment, Auditor features keep valuable, and critical data safe.

Secure Audit Trail

Secure, embedded, time-stamped audit trail to record operator details, time, date and all actions taken.

Electronic Signing and Authorising

Requires operator to re-enter user name and password before an action is taken. Authorising requires a second signature with correct security permissions.

Signed Operator Notes

Free form text notes added to the electronic data confirmed with user name and password entry.

Password Ageing

Automatic password expiry after a configurable length of time.

Failed Login Account Disabling

User account disabled after 3 failed login attempts.

Minimum Length Password

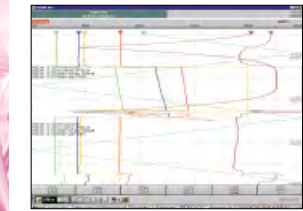
From 1 to 20 alphanumeric characters.

Timed Logout

Operators will be automatically logged out after a programmable time period.

Recorded Logins

Record operator user ID, time and date of login.



Security Manager

Security Manager is a centralised security system where User Names, Passwords and Access Permissions can be controlled from a central PC or multiple designated PCs. Designed to assist with Federal Regulation 21CFR Part 11 for the Pharmaceutical Industry.



Time Synchronisation

In today's age of secure Electronic Records, accurate time stamps are an important part of the information recorded. The FDA asks for time-stamped audit trails and, for Electronic Signatures, the date and time that the signature was executed.

The 5000B support Simple Network Time Protocol (SNTP). This protocol allows networked devices to set their time to that of a server - a known time source. The 5000B can retrieve the time from such a server, or indeed act as a time server itself for other instruments. The unit will update its time every 15 minutes - keeping time and date accurate to a known standard and ensuring authenticity and integrity of time stamp information with records.

Environment Monitoring

Q. I need to continually record environment conditions and alarm on any anomalies. Is the 5000B a suitable instrument for this?

A. Yes! The 5000B is ideal for environment monitoring. The 5000B offers secure recording capabilities combined with flexible maths functionality. The user can easily configure the unit to alarm on any condition that is appropriate to the application. As a local display is often not necessary in the 'environment', the 5000B is a secure and cost-effective solution to this application.

For pharmaceutical applications, the 5000B has a Mean Kinetic Temperature function (MKT) for the kinetic effects of time-temperature distribution. This function uses a configurable sample period, the number of sample periods used with the equation and the Heat of Activation.



Connections made easy

Master Communications

Q. I have existing equipment on site using serial communications, can I use the 5000B to access data from these instruments remotely?

A. Yes! The 5000B can act as a master for up to 16 slave devices, reading up to 96 process variables. This data can then be made available in the same ways as any other information contained within the 5000B - via the intranet, Internet or even using a wireless, mobile PDA device. The 5000B can also be used as a method of remotely writing data to plant instrumentation.

The 5000B supports Modbus Master Communications over both Ethernet and serial connections. Up to 16 slave devices can be connected to each unit and information from these recorded and visualised in a way that could transform legacy devices. Users can define how data is displayed from the 5000B - creating interactive plant mimics and application specific views of data.

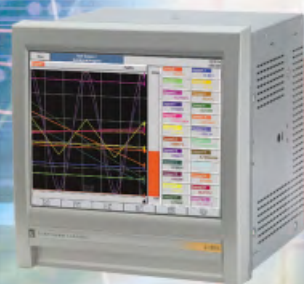
Product Support

The 5000B contains pre-configured parameter listing for many Eurotherm devices. When such devices are connected, the 5000B will offer a selection of commonly used parameters from the slave device. Total flexibility is also met as the user can still define a specific Modbus address for reading or writing.

Master communications on the 5000B will support any Modbus device - if the instrument is not a recognised profile the user can manually configure the parameters required for reading and writing of data.

Autoscan networked devices

The 5000B will scan a user-defined selection of addresses and auto-detect devices on the network.



It is designed for simple connectivity and ease of operator use.

E-mail

Both the 5000 and 6000 Series range of Data Acquisition units offers alarm notification via E-mail for up to 50 recipients. Implementing the widely recognised (SMTP) Simple Mail Transfer Protocol the 6000/5000 Series are able to send text messages to both E-mail and SMS accounts, thus providing instantaneous information regarding the status of the process.

Remote monitoring Autoscan network Serial to Ethernet



Serial to Ethernet Gateway

As the 5000B supports both serial and Ethernet communications, the unit can be used to communicate with serial, legacy instrumentation on the plant and transfer information onto the Ethernet network.

Flexibility is one of the 5000Bs most powerful features:

- ☐ Data read from a slave device can be viewed remotely.
- ☐ Slave data can be used in the many maths functions within the 5000B.

- ☐ All data is recorded and can be audited for total traceability and security.
- ☐ Data from legacy devices can be visualised in a way to best meet the operators' needs using the Screen Builder functionality.
- ☐ Using the Report software, data is automatically transferred into a customised template to meet all reporting requirements.

Remote Acquisition

The 5000B is ideal for data acquisition at remote sites. Its flexible communications combined with large data storage capability make it a useful tool to ensure that data can be accessed remotely or stored safely until access is possible.

**CONNECTIONS
MADE EASY**



Eurotherm 5000 B



Providing industry leading functionality

As well as security and reliability, the 5000B offers a multitude of additional functionality. These additional features make a standard instrument best fit a specific process. Data can be grouped and displayed as required; Events can be set to occur when a condition is met e.g. activate a relay on high alarm, start a timer on batch start or add a message to the display on a comms channel timeout; Maths functions can be performed, and much more.

FEATURE	DESCRIPTION
Groups	The ability to group data to best suit the process requirements. Any of the input or Maths channels can be added to any of the six groups (no limitation on number of channels per Group). Each of the Groups can be set up individually so they can have different views, recording rates, trend speeds and archiving strategies.
Batch	Batch software enables the user to enter information specific to a batch and to record this information with the process data. Batch can be configured with up to six operator entry fields. These free format fields may include data such as Batch Number, Job Number, Customer Name, Cycle Number etc. Operator details will be logged with the rest of the batch data on start and/or stop of batch, providing complete traceability of operations.
Screen Builder	With Screen Builder the operator can view data in a format that best suits the process. Whether it is simply a screen that shows multiple group trends or a graphic picture of the process, Screen Builder offers total flexibility.
Maths	Up to 84 Maths channels. Select from 42 different functions.
Totalisers	Multiple Totalisers allow the user to maintain a running total of any input or Maths channel. Totalisers can be configured to reset or pre-set to a specific value on an event e.g. alarm or operator button press.
Counters	Counters can increment or decrement a value and be reset or pre-set to a specific value on an event.
Timers	Timers can be set to start at a specific date and time. They run for a configurable length of time and then stop or repeat. Timers can be initiated manually or upon a specific event within the instrument e.g. when a channel reaches a certain temperature.
Custom Messages	Pre-defined messages can be added as text to the trend or appear as a pop-up dialogue box on the screen when a certain event occurs e.g. when a channel goes into alarm.
Operator Notes	Operators can add a free-form text note to the trend at any time. This simple option gives total flexibility to add information at any point in time that will be embedded within the data file and as such stored with the process data for the lifetime of the file.
Adaptive Recording	Adaptive recording shows the minimum and maximum of a value at 8Hz even if the 5000B is recording data at a slower interval. Recording intervals can be slowed to save historical data storage space while any spikes or anomalies can still be seen between the recorded points.
ASCII Printer Output (Reports)	Configure up to 10 simple reports that can be directed to an ASCII printer.
Time Synchronisation	SNTP (Simple Network Time Protocol) ensures accurate time and date information.
Modbus Master	Connect up to 16 other instruments to your 5000B using Ethernet and/or Serial Modbus communications
Modbus Slave	Write data values over Serial and Ethernet Modbus communications to the 5000B (Modbus TCP/RTU).
A/B Switching	Switch channel or Group settings on a user-defined event.
Log Scale and Scientific Format	Configurable log scales and gridlines with scientific number notation.
Message Log	View and sort Group messages on a single page - historic alarms, notes, audit trail. Select a specific message on the display to jump to that point in the trend history.
Alarm Summary	View all active alarms for a Group on a single page.
Auditor	Enhance the security of the 5000B with features designed in accordance with 21 CFR Part 11.
Events	Configure the 5000B to manage different Events - up to 96 Events can be configured, each with up to two sources, linked by Boolean logic functions.
Event Buttons	Event buttons placed on a user-defined screen can be used for the operator to manually trigger an event.
Email	Triggered by internal events or operator buttons, alarm notification messages can be sent directly to email accounts or mobile phone users.
Security Manager	Provides a process wide solution to security management. Passwords and user IDs are maintained in a centralised database.
CSV Output	Allows data files to be archived in Comma Separated Variable format for use with standard spreadsheet packages.

extensive functionality

High visibility

Current and historic data sets



125ms sample rate
Cost effective solution

Maths Multiple Maths channels are available with functions including:

Constant	Linear Mass Flow	Group latched minimum	Add	Root Mass Flow
Group latched maximum	Subtract	Saturated Steam Mass Flow	Sample and hold	Multiply
Saturated Steam Heat Flow	Square Root	Divide	Saturated Steam Heat Consumed	High Select
Master Comms	Rolling Average	Low Select	Slave Comms	MKT (Mean Kinetic Temperature)
10 ^x	Stopwatch	Group MKT	Log ₁₀	Copy
Channel Maximum	Log _e	Polynomial	Channel Minimum	e ^x
fValue	Channel Average	O ₂ Correction	Switch	Group Average
Relative Humidity	Modulus	Group Maximum	Zirconia Probe	Time Stamp
Group Minimum	Rate of change			

Universal inputs
Unmatched Accuracy



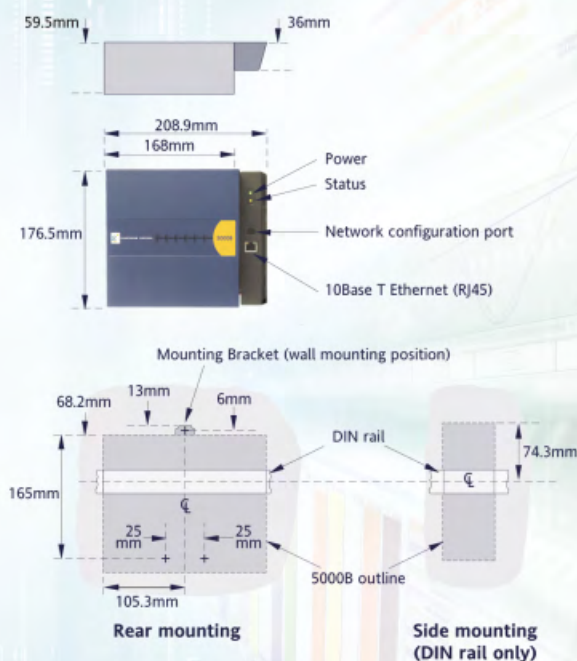
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Security and Flexibility

Sample Rate Inputs	125ms parallel sampling on all channels Universal dc V, dc mV, dc mA, TCs, RTD, Contact closure 32Mbyte Flash 16.25Mbyte for data storage (1.6 million samples)
Power Mounting	18 - 30V; 10W max DIN Rail or Wall Mounting

Data Archiving

The 5000B is designed to securely acquire, log and archive process data. The acquired data is logged in the internal, non-volatile Flash memory. This data is then archived, either automatically or on demand, over the network. The 5000B can be configured with a primary and, for further integrity, a secondary server address for automatic transfer of data for long term storage.



5000P - Mains power supply unit

The 5000P is a DIN rail mounting switch mode power supply suitable for use with the 5000B. Each unit is fitted with an LED indicator, which provides and instant indication of the health of the unit.

- Supply voltage:
85 to 264Vac, 85 to 375Vdc
- Supply frequency:
47 - 63 Hz
- Supply current:
Nominal <0.6A @ 100Vac <0.35A @ 240Vac



5000B Standard Software

Full Bridge - Standard with every 5000B

Included for use on your PC for live viewing, configuration and operation of the instrument.

FTP (File Transfer Protocol) - Standard with every 5000B

The 5000B has FTP client and server as a standard communication protocol. FTP can be used to transfer files into Review software or as a means of obtaining any file from the 5000B instrument over the network - using either a specific FTP package or Internet Explorer.

Review - Standard with every 5000B

Review software is included with every 5000B instrument. This PC application acts as an efficient and secure library for data from which charts can be reviewed, printed and exported to other PC packages if required. Logged files from the 5000B are stored in a tamper resistant, binary format and Review uses this format to enable chart view on a PC - ensuring integrity of both historical and new data.

- Chart print capability
- Time compression - compress time periods or expand them to focus in on specific detail
- 125ms resolution
- Text messages can be displayed and exported
- Data can be obtained directly from the 5000B via the network either automatically or on demand
- Batch search facility

Configuration Editor - Standard with every 5000B

An offline configuration editor package is included with every 5000B. Configurations can be created and stored on a PC and easily loaded onto a 5000B as required.

Review Full

Additional functionality is available with the Review Full software package.

- Spreadsheet view of data
- Automatic printing of batches
- Copy chart to clipboard

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