



ABB

The Company

We are an established world force in the design and manufacture of instrumentation for industrial process control, flow measurement, gas and liquid analysis and environmental applications.

As a part of ABB, a world leader in process automation technology, we offer customers application expertise, service and support worldwide.

We are committed to teamwork, high quality manufacturing, advanced technology and unrivalled service and support.

The quality, accuracy and performance of the Company's products result from over 100 years experience, combined with a continuous program of innovative design and development to incorporate the latest technology.

The UKAS Calibration Laboratory No. 0255 is just one of the ten flow calibration plants operated by the Company and is indicative of our dedication to quality and accuracy.

EN ISO 9001:2000



Cert. No. Q 05907

EN 29001 (ISO 9001)



Lenno, Italy – Cert. No. 9/90A

Stonehouse, U.K.



Electrical Safety

This equipment complies with the requirements of CEI/IEC 61010-1:2001-2 'Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use'. If the equipment is used in a manner NOT specified by the Company, the protection provided by the equipment may be impaired.

Symbols

One or more of the following symbols may appear on the equipment labelling:

	Warning – Refer to the manual for instructions		Direct current supply only
	Caution – Risk of electric shock		Alternating current supply only
	Protective earth (ground) terminal		Both direct and alternating current supply
	Earth (ground) terminal		The equipment is protected through double insulation

Information in this manual is intended only to assist our customers in the efficient operation of our equipment. Use of this manual for any other purpose is specifically prohibited and its contents are not to be reproduced in full or part without prior approval of the Technical Publications Department.

Health and Safety

To ensure that our products are safe and without risk to health, the following points must be noted:

1. The relevant sections of these instructions must be read carefully before proceeding.
2. Warning labels on containers and packages must be observed.
3. Installation, operation, maintenance and servicing must only be carried out by suitably trained personnel and in accordance with the information given.
4. Normal safety precautions must be taken to avoid the possibility of an accident occurring when operating in conditions of high pressure and/or temperature.
5. Chemicals must be stored away from heat, protected from temperature extremes and powders kept dry. Normal safe handling procedures must be used.
6. When disposing of chemicals ensure that no two chemicals are mixed.

Safety advice concerning the use of the equipment described in this manual or any relevant hazard data sheets (where applicable) may be obtained from the Company address on the back cover, together with servicing and spares information.

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1 Introduction

The recorder's batch recording function enables:

- storage of archived data in batch format
- the operator to identify the batch data by name and/or number
- the operator to enter essential batch information that is then is recorded with the data
- the operator to start and stop batch recording from the front panel or via remote signals
- the operator to archive the internally recorded values so that the data for each batch can be easily retrieved and reviewed
- the retrieval of data from the recorder based on its batch identity

In addition, using the Company's DataManager data analysis software package, batched data can be:

- located and retrieved using its batch identity

Note. The majority of the views in this manual are of the configuration screens of the SM3000 but the screens from the SM1000 and the SM2000 are similar.

1.1 Batch Archive Filenames

Batch archive filenames for channel data files are formatted as follows:

```
Start Time<HHMMSS> Start Date<DDMMYY> Channel  
<Group>_<Channel;> Analog/Digital <Anlg|Dig>  
<Instrument Tag>{-DS}{_n}.Vnn
```

for example: 22454105Sep06Ch1_1AnlgSM3000-DS.V00

An additional batch log archive file is created that contains all the identification data for each batch. These have a filename formatted as follows:

```
Start Time<HHMMSS> Start Date<DDMMYY>  
<Instrument Tag>{-DS}{_n}.Xnn
```

The Alarm Event Log archive files also contain details of all batch start and stop events.

2 Operation

2.1 Overview

Batch recording can be started and stopped either automatically using a digital signal source (see page 9) or manually from any of the vertical or horizontal chart view operator menus.

Batch start and stop events are recorded in the Alarm Event Log. The  icon is displayed in the log when a batch is started and the  icon is displayed when a batch is stopped. If 'Field 1' is defined during configuration (see page 10) and the operator has entered text in the field (see below), that text is displayed in the 'Event Tag' field of the Alarm Event Log. The batch number or label is displayed in the 'Source Tag' field. The date and time of the event are also displayed.

If 'Chart Annotation' is enabled, batch start and stop events are also displayed in the selected chart view in the format <icon> <time> <Field 1 text> <batch no.>, for example:  16:56:00 195_R13 Energy Tyre 14.

2.2 Starting a Batch Manually

Note. A batch can be started only from the vertical or horizontal chart view operator menus. Press the  key to open the menu.



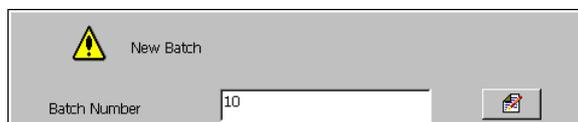
Start Batch

Note. This menu item is displayed only if batch recording has been enabled during Group configuration **and** only if a batch is not running.

Select to start batch recording. A dialog box is displayed to enable the operator to edit the batch details.

Note.

- **SM1000 and SM2000 only** – if 'Security system' is set to 'Advanced' (see Section 3.1, page 6) **and** the operator has the necessary access rights (see Section 3.2, page 7) **and** 'Operator login' is set to 'Start' or 'Start and Stop' (see page 10), a password entry dialog box is displayed. The correct operator password must be entered to enable the batch to be started.
- **SM3000 only** – if the operator has the necessary access rights (see Section 3.3, page 8) **and** 'Operator login' is set to 'Start' or 'Start and Stop' (see page 10), a password entry dialog box is displayed. The correct operator password must be entered to enable the batch to be started.

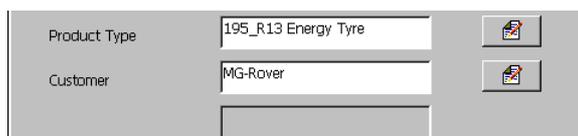


Enter or edit the batch number or label.

If 'Batch Number' is set to 'Automatic' during configuration (see page 9), this field increments automatically by one each time a batch is started. A number entry pad is displayed when the edit button is selected to enable the batch number to be edited manually.

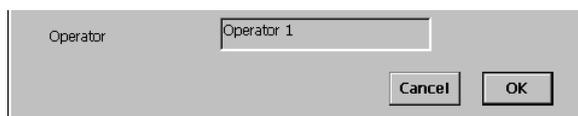
If 'Batch Number' is set to 'Off' during configuration, this field is blank. A number entry pad is displayed when the edit button is selected to enable a batch number to be entered manually.

If 'Batch Number' is set to 'Text' during configuration, this field is blank. A text entry keyboard is displayed when the edit button is selected to enable a batch label to be entered manually (max. 20 characters).



Note. These fields are editable only if defined during configuration – see page 10.

Select the relevant edit button to modify each field. A list box is displayed to enable to operator to either select a previously defined entry (max. 10) or to define a new entry (max. 18 characters per field [SM1000 and SM2000] or 20 characters per field [SM3000]).



The operator's name is displayed if 'Operator login' is not set to 'Disabled' – see page 10.

Select 'OK' to accept changes and start batch recording. Select 'Cancel' to return to the chart view without starting batch recording.

2.3 Stopping a Batch Manually

Note. A batch can be stopped only from the vertical or horizontal chart view operator menus. Press the  key to open the menu.



Stop Batch

Note. This menu item is displayed only if batch recording has been enabled during Group configuration **and** only if a batch is running.

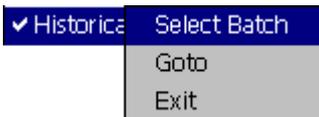
Select to stop batch recording. A confirmation dialog box is displayed. Select 'Yes' to stop the batch or 'No' to allow the batch to continue.

Note.

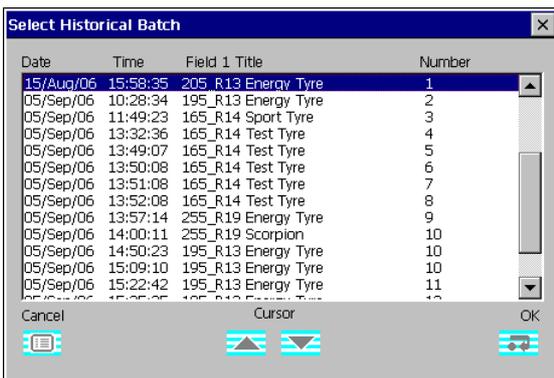
- **SM1000 and SM2000 only** – if 'Security system' is set to 'Advanced' (see Section 3.1, page 6) **and** the operator has the necessary access rights (see Section 3.2, page 7) **and** 'Operator login' is set to 'Start and Stop' (see page 10), a password entry dialog box is displayed. The correct operator password must be entered to enable the batch to be stopped.
- **SM3000 only** – if the operator has the necessary access rights (see Section 3.3, page 8) **and** 'Operator login' is set to 'Start and Stop' (see page 10), a password entry dialog box is displayed. The correct operator password must be entered to enable the batch to be stopped.

2.4 Historical Review

If the instrument is in Historical Review mode, any previously recorded batch can be reviewed provided the data is still in internal memory.



Select 'Select Batch' to move to data recorded in the instrument's onboard memory for a specific batch.



Select the batch to be reviewed from the list.

The data is displayed from the start of the batch.

3 Configuration

3.1 Enabling Batch Security – SM1000 and SM2000 Only

Note. Batch security can be enabled only if the 'Security system' parameter is set to 'Advanced'. Refer to Section 4.4.4 in the relevant User Guide (IM/SM1000 or IM/SM2000). If the 'Security system' parameter is set to 'Basic', batch security is automatically disabled and cannot be enabled.

To enable batch security, access Common Configuration (refer to Section 4.4 in the relevant User Guide (IM/SM1000 or IM/SM2000)) and select the 'Security' tab.



Set to 'Advanced' to enable batch security.

3.2 Configuring Batch Access Privileges – SM1000 and SM2000 Only

To enable operators to manually control batches, access Common Configuration (refer to Section 4.4 in the User Guide – IM/SM1000 or IM/SM2000) and select the 'User ' tab.

The screenshot shows a configuration window with tabs: Setup, Screen, Time, Security, User, Logs, and --->. The 'User' tab is active. It contains two rows of configuration fields. The first row is for 'User 1', with 'User 1 Name' set to 'Operator 1' and 'User 1 Access' set to 'Config (Full), Setup, ...'. Each field has a small icon to its right.

Select 'User 1 Access'.

The 'Access' dialog box is shown with a dark blue header. It contains three checked checkboxes: 'Electronic Signature', 'Setup', and 'Batch'. An 'OK' button is located at the bottom right of the dialog.

Ensure the 'Batch' field is ticked to allow User 1 to start and stop batches – see Section 2, page 3.

The screenshot shows the same configuration window as above, but now showing 'User 2'. The 'View/Edit Other Users' field is set to 'User 2', 'User 2 Name' is 'Operator 2', and 'User 2 Access' is 'Disabled'. Each field has a small icon to its right.

Repeat as required for other Users.

Refer to page 10 to set the required type of batch recording security.

3.3 Configuring Batch Access Privileges – SM3000 Only

To enable operators to manually control batches, access Common Configuration (refer to Section 4.4 in the User Guide – IM/SM3000) and select the 'Security' tab.

The screenshot shows a configuration window with tabs: Setup, Security, Logs, Operator Messages 1-6, 7-12, 13-18, 19..24, and --->. Under the Security tab, there are three input fields: 'User 1 Name' with the value 'Operator 1', 'User 1 Access' with the value 'Config (Full) , Setup, e-Sign...', and 'User 1 Password' with the value '****'. Each field has a small icon to its right.

Select 'User 1 Access'.

The screenshot shows a dialog box titled 'ACCESS'. It contains three checked checkboxes: 'Electronic signature', 'Setup', and 'Batch'. There is an 'OK' button at the bottom right of the dialog.

Ensure the 'Batch' field is ticked to allow User 1 to start and stop batches – see Section 2, page 3.

The screenshot shows the same configuration window as above, but with the 'View/Edit other users' tab selected. It shows three input fields: 'View/Edit other users' with the value 'User 2', 'User 2 Name' with the value 'Operator 2', 'User 2 Access' with the value 'Disabled', and 'User 2 Password' with the value '****'. Each field has a small icon to its right.

Repeat as required for other Users.

Refer to page 10 to set the required type of batch recording security.

3.4 Batch Configuration

To configure batch recording, access Process Group Configuration (refer to Section 4 of the relevant User Guide), select the required Process Group and select the 'Batch' tab (SM1000 and SM2000) or the 'Archive' tab (SM3000).

SM1000 and SM2000

Recording Chart Bar Process Digital Archive Batch

Enable Batch Recording On

Set to 'On' to enable batch recording for the selected process group.

SM3000

Recording Chart Bar Process Digital Archive

Archive file format Binary format

Archive file enables *.b, *.e, *.t, *.a

Wrap On

Enable Batch Recording On

Note. The following parameters are displayed only if this parameter is set to 'On'.

Start/Stop Batch Source None

Select a digital signal source to start batch recording on a rising edge and stop batch recording on a falling edge.

Batch Number Automatic

Note. If 'Batch Number' (see below) is set to 'Off' or 'Text' and a batch is started using a digital signal, the contents of the 'Batch Number' and batch identification fields (if configured – see next page) are copied automatically to the new batch. If 'Batch Number' is set to 'Automatic', the content of the 'Batch Number' field is incremented by one, automatically.

Select the required batch numbering system:

- Automatic – the batch number increments automatically when a new batch is started, up to a maximum batch number of 9,999,999,999
- Off – a batch number is not assigned automatically but may be entered manually by the operator
- Text – enables the operator to identify the batch with a text string (max. 10 characters)

Note. If set to 'Automatic' or 'Off', this parameter enables the operator to enter a batch number when starting a batch from the operator menu – see Section 2.2, page 3.

Field 1 Title	Product Type	
Field 2 Title	Customer	
Field 3 Title		

Enter up to three identifying labels for the batch, maximum 20 characters per field.

Note.

- Configured fields are shown on the 'New Batch' dialog box that is displayed when the operator starts a batch from the operator menu. This enables the operator to enter further details to identify the batch both on the recorder and when analyzing the archived data using DataManager.
- It is important to configure Field 1 because it is used, together with the batch number, to identify a batch:
 - on chart annotations
 - in the alarm event log
 - during historical review
 - in the DataManager display/search functions

Operator Login	Disabled	
----------------	----------	---

Select the type of batch recording security required:

- Start – the operator is required to enter a password to start batch recording
- Start and Stop – the operator is required to enter a password to start and stop batch recording
- Disabled – batch recording security is disabled

Note.

- **SM1000 and SM2000 only** – batch recording security can be enabled only if 'Security system' is set to 'Advanced' (see Section 3.1, page 6), If 'Security system' is set to 'Basic' this parameter is set automatically to 'Disabled' and the edit button is not displayed.
- If this parameter is set to 'Disabled' no security is required to start or stop batch recording and the operator name is not displayed.

Exit and save the configuration.

Notes

PRODUCTS & CUSTOMER SUPPORT

Products

Automation Systems

- for the following industries:
 - Chemical & Pharmaceutical
 - Food & Beverage
 - Manufacturing
 - Metals and Minerals
 - Oil, Gas & Petrochemical
 - Pulp and Paper

Drives and Motors

- AC and DC Drives, AC and DC Machines, AC Motors to 1kV
- Drive Systems
- Force Measurement
- Servo Drives

Controllers & Recorders

- Single and Multi-loop Controllers
- Circular Chart and Strip Chart Recorders
- Paperless Recorders
- Process Indicators

Flexible Automation

- Industrial Robots and Robot Systems

Flow Measurement

- Electromagnetic Flowmeters
- Mass Flowmeters
- Turbine Flowmeters
- Wedge Flow Elements

Marine Systems & Turbochargers

- Electrical Systems
- Marine Equipment
- Offshore Retrofit and Refurbishment

Process Analytics

- Process Gas Analysis
- Systems Integration

Transmitters

- Pressure
- Temperature
- Level
- Interface Modules

Valves, Actuators and Positioners

- Control Valves
- Actuators
- Positioners

Water, Gas & Industrial Analytics Instrumentation

- pH, Conductivity and Dissolved Oxygen Transmitters and Sensors
- Ammonia, Nitrate, Phosphate, Silica, Sodium, Chloride, Fluoride, Dissolved Oxygen and Hydrazine Analyzers
- Zirconia Oxygen Analyzers, Katharometers, Hydrogen Purity and Purge-gas Monitors, Thermal Conductivity

Customer Support

We provide a comprehensive after sales service via a Worldwide Service Organization. Contact one of the following offices for details on your nearest Service and Repair Centre.

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United States of America

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Client Warranty

Prior to installation, the equipment referred to in this manual must be stored in a clean, dry environment, in accordance with the Company's published specification.

Periodic checks must be made on the equipment's condition. In the event of a failure under warranty, the following documentation must be provided as substantiation:

1. A listing evidencing process operation and alarm logs at time of failure.
2. Copies of all storage, installation, operating and maintenance records relating to the alleged faulty unit.

ABB has Sales & Customer Support expertise
in over 100 countries worldwide

www.abb.com

The Company's policy is one of continuous product
improvement and the right is reserved to modify the
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