User Guide Supplement –
Ethernet Communications Option

IM/SMENET   Issue 5

Videographic Recorders
SM1000 and SM2000

ABB

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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.

Contents

1 Introduction

The optional Ethernet module enables the instrument to be connected to computer networks for remote monitoring and data access. The module contains an embedded web server enabling the instrument's data and status to be viewed remotely using an internet browser on a PC. The web server supports up to eight independent connections.

1.1 Ethernet Communications

Ethernet is a form of electronic communication that has been adopted as a worldwide networking standard. Each device on an Ethernet acts independently from other stations on the network, that has no central controller.

There are a number of media that can be used for Ethernet interconnections, e.g. coaxial cable, unshielded twisted pair (UTP) cables and air transmission. The Ethernet module fitted to the instrument supports the 10BaseT standard that uses UTP cable to connect nodes. UTP cable comprises four pairs of wires twisted together into a single cable.

Ethernet signals are transmitted serially, one bit at a time, over a shared signal channel to every station attached to the network. When a station has data to transmit, it 'listens' to the channel to wait until the channel is idle then transmits its data as an Ethernet frame or packet. After each frame transmission all stations must contend equally for the next frame transmission opportunity. This ensures that no station can lock out the other stations on the network.

Access to the network channel is determined by the Medium Access Control (MAC) mechanism embedded in the Ethernet interface of each station. This mechanism is based on a Carrier Sense Multiple Access with Collision Detection (CSMA/CD) system.

Each Ethernet frame contains the source and destination addresses for the frame, a variable size data field and an error-checking field that checks the integrity of the frame content to ensure that it has been delivered intact. The address fields, called physical or MAC addresses, are each 48-bits long. Every station on the network has a unique, pre-assigned MAC address programmed into its Ethernet Option board.

1.2 Higher Level Protocols

Data can be transmitted over an Ethernet network using higher level protocols that overlay the Ethernet infrastructure. The higher level protocol packets are contained within the data field of Ethernet packets. The instrument uses the Transmission Control Protocol/Internet Protocol (TCP/IP); this is a worldwide standard that was used to create the Internet.

The Internet Protocol (IP) routes the packets of information to their destination devices. The routing is performed using an IP address embedded in the header attached to each packet. The IP address is a 32-bit number divided into four sections (called octets) that are shown as decimal values. A typical example is 192.168.1.1.

The Transmission Control Protocol (TCP) establishes a connection between the two devices before any data is transmitted; this enables confirmation of receipt of all transmitted packets, so that any lost packets can be re-transmitted.

Other protocols that operate at the same level are the Address Resolution Protocol (ARP) and the Internet Control Message Protocol (ICMP).

Above the TCP and IP layers there are a number of application protocols that perform a range of tasks. Typical examples are File Transfer Protocol (FTP) and HyperText Transfer Protocol (HTTP).

These layers fit together to provide a full data transfer system:

Application Protocols	File Transfer Protocol (FTP)	HyperText Transfer Protocol (HTTP)	
Low Level Network Protocols	Transport Control Protocol (TCP)		
	Internet Protocol (IP)	Address Resolution Protocol (ARP)	Internet Control Message Protocol (ICMP)
Data Link	Ethernet		
Physical Media	Twisted Pair		

Table 1.1 Protocol Layers

FTP provides a reliable mechanism for the transfer of files between a client and a server – see Fig. 1.1.
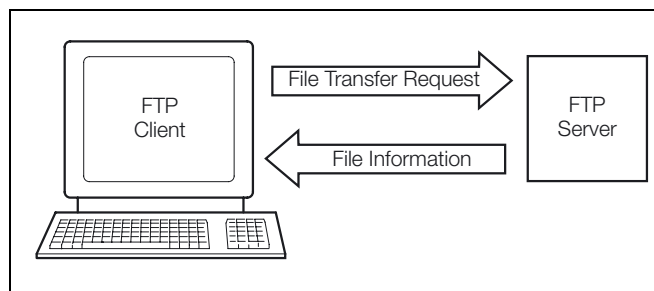

Fig. 1.1 Typical FTP Transfer

HTTP enables the transfer of hypertext files such as web pages and allows a web browser to access pages within a web server – see Fig. 1.2.
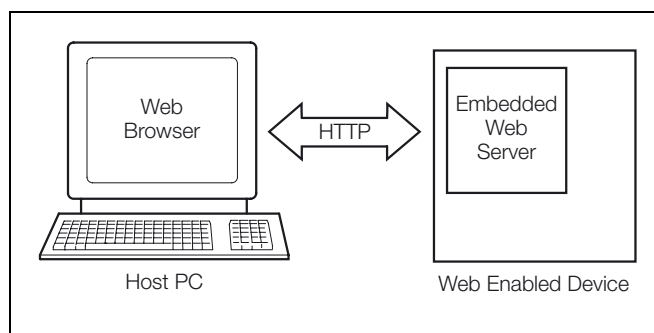

Fig. 1.2 Typical HTTP Transfer

2 Installation

2.1 General

> **Note.** Ensure that permission has been granted for installation of new devices on the network. If in doubt, consult the System Administrator before connecting the instrument.

To connect the instrument into an Ethernet network, use a single network cable to link it to the network hub. The connection is made using a standard RJ45 connector at the rear of the unit on module C – see Fig. 2.1.
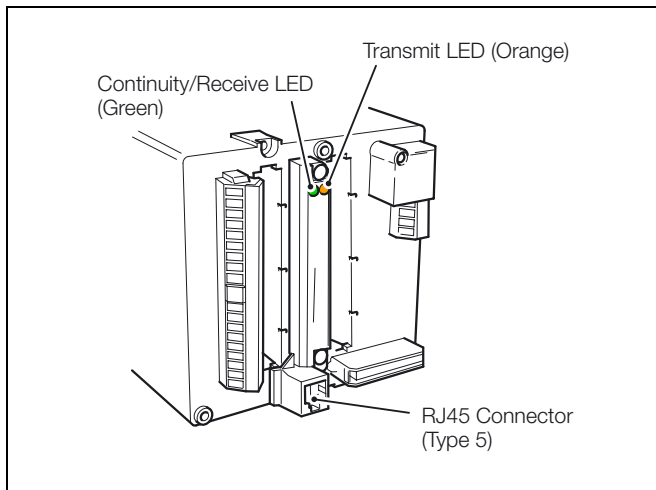

Fig. 2.1 Ethernet Connector

Table 2.1 shows the signals carried by each pin of the connector.

Pin Number	Signal
1	TD+
2	TD–
3	RD+
4	Unused
5	Unused
6	RD–
7	Unused
8	Unused

TD = Transmit Data   RD = Receive Data

Table 2.1 Ethernet Connector Signals

> **Note.** To prevent signal degradation, the maximum cable length between 10BaseT network devices is limited to 100m. If longer cable runs are required between devices, repeaters or gateways must be used to boost signal strengths.

The instrument uses standard Ethernet and web standards and can be connected in a number of network configurations including:

- Direct connection to a computer – see Fig. 2.2
- Connection to a network hub – see Fig. 2.4
- Connection to a dial-up router – see Fig. 2.5
- Connection to an internet gateway – see Fig. 2.6

2.2 Direct Connection to a Computer – Figs. 2.2 and 2.3

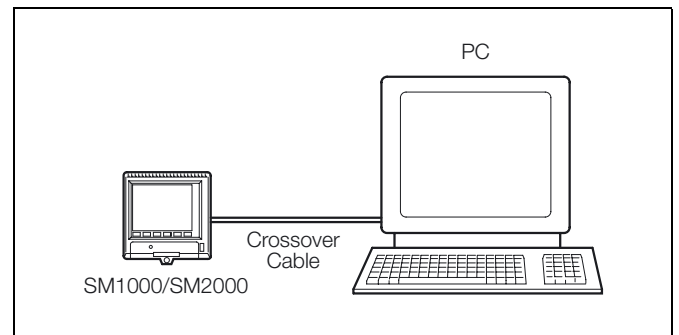> **Note.** A crossover cable is required for this configuration. See Fig. 2.3 for connection details.
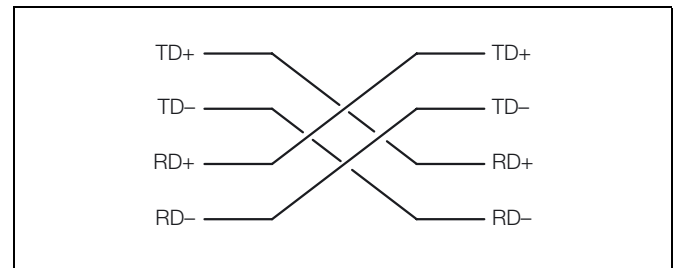

Fig. 2.2 Direct Connection

Fig. 2.3 Crossover Cable Connections
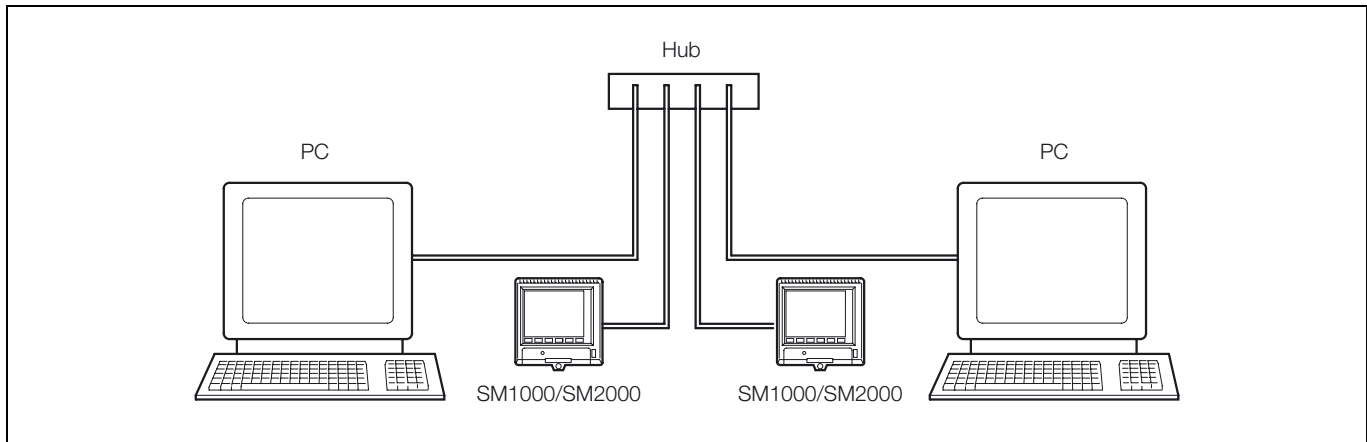
2.3 Connection to a Network Hub – Fig. 2.4

Fig. 2.4 Connection to a Network Hub

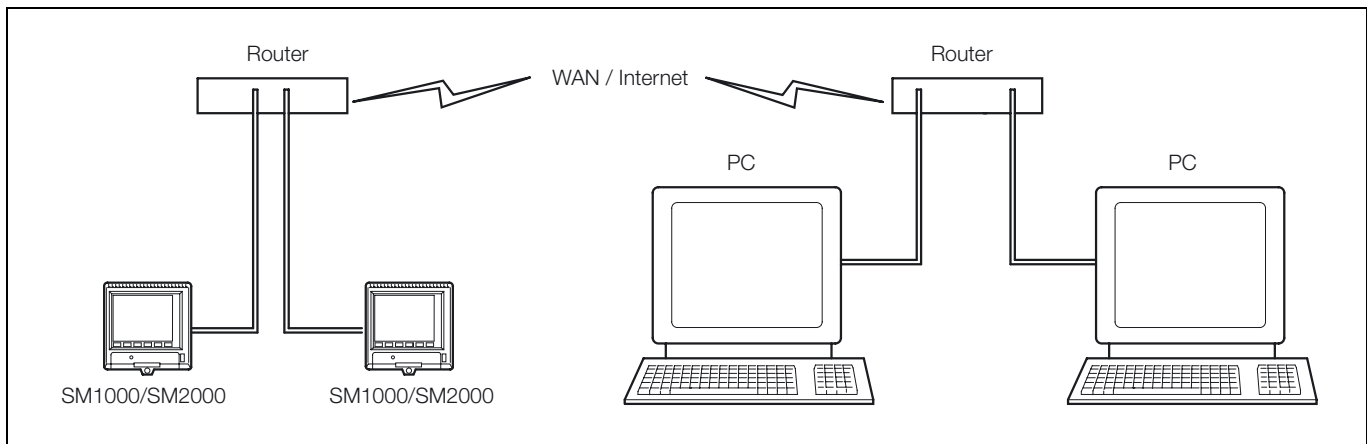## 2.4 Connection to a Dial-Up Router – Fig. 2.5

Fig. 2.5 Connection to a Dial-Up Router

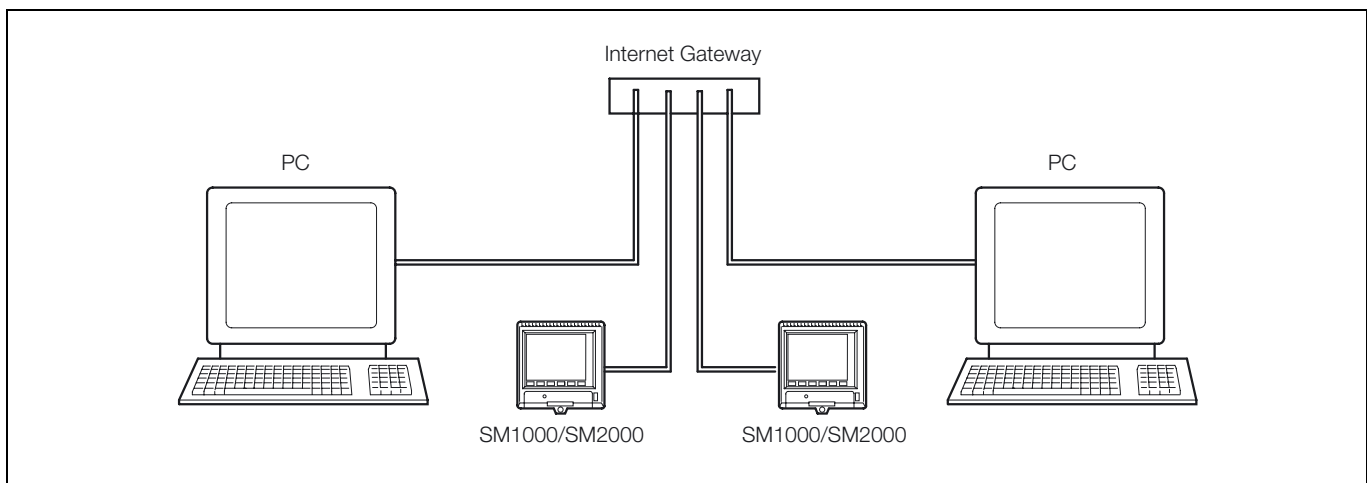## 2.5 Connection to an Internet Gateway – Fig. 2.6

Fig. 2.6 Connection to an Internet Gateway

3 Configuration

3.1 Configuring the Instrument

> **Note.** Changes to the IP address, subnet mask and default gateway are implemented only after the instrument has been restarted. Change the addressing parameters, exit and save the configuration, wait until the 'Please Wait' message disappears then power down and restart the instrument.

**SM1000 only** – from the 'System Configuration' screen, access the Ethernet Module:
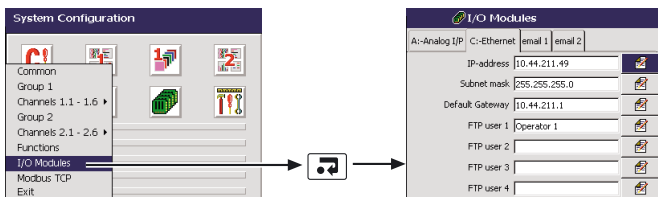
**SM2000 only** – from the 'System Configuration' screen, access the Ethernet Module:
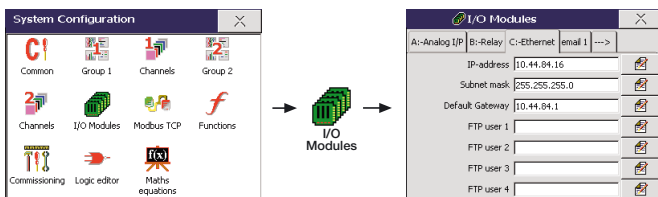
Set the IP-address to be assigned to the instrument. The IP address is used by the TCP/IP protocol to distinguish between different devices. The address is a 32 bit value expressed with four values (0 to 255), each separated by a period (.).


The subnet mask is used to indicate which part of the IP address is for the network ID and which is for the host ID. Set as '1's each bit that is part of the network ID, e.g. 255.255.255.0 indicates first 24 bits are for the network ID.
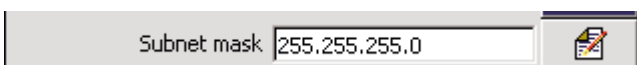
Set the IP address for the 'Default gateway' (router, switch etc.) required to communicate with other networks. This setting may not be required. The default setting is '0.0.0.0'
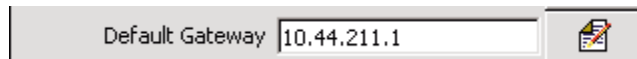
The 'FTP User' name and password are used during logon to enable the FTP server. Access for up to four different users is provided. These passwords can also be used to allow access to some functionality provided by the web server.
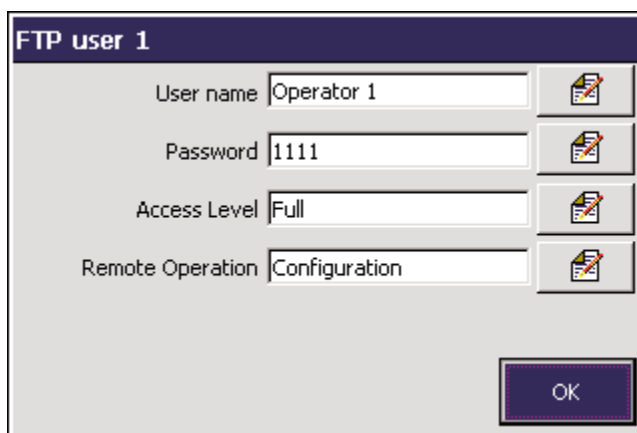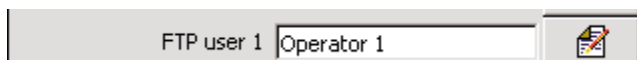
Enter the name of the user granted FTP access.

Enter the password of the user granted FTP access.

Select whether this FTP user has full access (i.e. the ability to read, write and delete files) or read-only access.

> **Note.** If a user is given full access via FTP, that user is able to delete both data and configuration files. This could result in erroneous operation of the instrument.

Select the level of remote operation access granted to this user:

None – the user is unable to log on to the instrument remotely using a web browser

Operator – the user can acknowledge alarms and start/stop totalizers using a web browser

Configuration – in addition to operator functions, the user can load configurations and change the instrument's internal clock using a web browser

3.2 Testing a Network Connection

With the instrument connected to an Ethernet network (see Section 2, page 3) and configured for use (see Section 3.1, page 5), use the MS-DOS® 'ping' command to test its operation:

1. On the PC, click the 'Start' button on the task bar and select 'Run'.

2. In the 'Open:' field, type 'cmd' then click the 'OK' button. This displays a DOS window with the cursor at the default drive prompt:
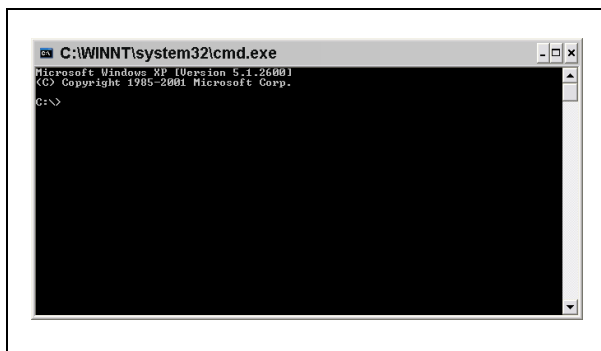

Fig. 3.1 DOS Window

3. Type 'ping' followed by the IP address assigned to the instrument and press Enter. A message is displayed in the window indicating that a ping operation is sending 32 bytes of data to the specified address. If the connection and address are correct, four replies are received, e.g.:

   Pinging 192.168.1.1 with 32 bytes of data:
   Reply from 192.168.1.1: bytes = 32 time<10ms TTL=128
   Reply from 192.168.1.1: bytes = 32 time<10ms TTL=128
   Reply from 192.168.1.1: bytes = 32 time<10ms TTL=128
   Reply from 192.168.1.1: bytes = 32 time<10ms TTL=128

4. If a valid response is not received, check that the correct IP address was entered and that the host PC has an IP address with the same network ID as defined by the subnet mask. If that is correct, check the connecting cable and confirm that the green continuity LED on the instrument's Ethernet module indicates that a connection has been made – see Fig. 2.1.

3.3 Configuring FTP Access

The FTP server in the instrument is used to access its file system from a remote station on the network. This requires an FTP client on the host PC. Both MS-DOS® and Microsoft® Internet Explorer version 5.5 or later can be used as an FTP client.

A File Transfer Scheduler Program (FTSP) is available that enables archive and configuration files to be transferred automatically to a PC using FTP. The transferred files can be stored either on the local drive of the PC or on a network drive for easy access and secure back-up.

To obtain the FTSP (FTS.exe), enter the following (without spaces) in a web browser's address bar:

http://search.abb.com/library/ABBLibrary.asp?DocumentID=FTS.exe&LanguageCode=en&DocumentPartId=&Action=Launch

To obtain the FTSP User Guide (IM/SMFTS), enter the following (without spaces) in a web browser's address bar:

http://search.abb.com/library/ABBLibrary.asp?DocumentID=IM/SMFTS&LanguageCode=en&DocumentPartId=&Action=Launch

3.3.1 FTP Access via MS-DOS

To use FTP access:

1. If the DOS window is not open, click the 'Start' button on the task bar and select 'Run'.

2. In the 'Open:' field, type 'cmd' and click the 'OK' button. A DOS window is displayed with the cursor at the default drive prompt.

3. Type 'ftp' and press Enter. The ftp prompt is displayed.

4. Type 'open' followed by the IP address assigned to the instrument and press Enter. If connection is successful, a confirmation message is displayed, e.g. the following is displayed for a device with IP address 192.168.1.1:

   Connected to 192.168.1.1
   220 WinCE GkWare FTP Service (Version 1.3 May 6 2003)
   User (192.168.1.1: (none):

5. Enter the FTP User name for the instrument (see Section 3.1, page 5) and press Enter. The following is displayed:

   331 OK, password required
   Password:

   > **Note.** Users with read-only access cannot proceed beyond this point and a password is not required.

6. Type the device password and press Enter. The following is displayed:

   230 OK
   ftp>

   > **Note.**
   > - When typing the password, the cursor does not move and nothing appears in the DOS window.
   > - An audit log entry is created for each FTP logon giving details of the logon user name and type of access (full or read-only), e.g:
   >
   > | 07 | FTP Login | Oper 1 | 09/03/02 | 12:55:02 |

The link is now open.

The following FTP commands are used to communicate with the instrument:

Cd	Change directory on the server
Close	Terminate the data connection
Del	Delete a file on the server
Dir	Display the server directory
Get	Get a file from the server
Help	Display help
Ls	Lists contents of the remote directory
Mget	Get several files from the server
Mput	Send several files to the server
Open	Connect to the server
Put	Send a file to the server
Pwd	Display the current server directory
Quote	Supply an internal FTP command directly
Quit	Terminate the FTP session

For example, to view the contents of the root directory, type 'dir' at the ftp prompt and press Enter. A list of folders is displayed:

   ftp> dir
   200 PORT command successful.
   150 Opening ASCII mode data connection for /bin/ls.
   01-01-1998 00:00AM<DIR>Flash_Disk
   01-01-1998 00:00AM<DIR>Storage_Card
   11-05-2001 02:45PM<DIR>www
   11-05-2001 02:45PM<DIR>My Documents
   11-05-2001 02:45PM<DIR>Program Files
   11-05-2001 02:45PM<DIR>Temp
   11-05-2001 02:45PM<DIR>Windows
   226 Transfer complete.
   ftp: 188 bytes received in 1.07 seconds (0.18Kbytes/sec)

To view the contents of a folder, type 'cd [Folder Name]' and press Enter, then type 'dir' and press Enter. A similar list is displayed showing the contents of the folder.

> **Note.** The contents of the Storage_Card folder are accessible only if archiving is set to 'On-line' in the instrument's Setup menu – see Section 3.3 of the relevant User Guide (IM/SM1000 or IM/SM2000).

To copy a file from the instrument to the PC's local or network drive, type:

   get '[File Name]'

…at the ftp prompt and press Enter. A confirmation such as the following is displayed:

   ftp> get'10_00 051101Process Group 1.D00'
   200 PORT command successful.
   150 Opening ASCII mode data connection for 10_00 051101Process Group 1.D00
   226 RETR command successful.
   ftp: 11876 bytes received in 0.70Seconds 16.94 Kbytes/sec.
   ftp>

3.3.2 FTP Access via Internet Explorer

> **Note.** Internet Explorer version 5.5 or later is required for FTP access via Internet Explorer.

Before data can be accessed via FTP, Internet Explorer must be configured with the appropriate options.

To ensure that the latest data file is copied, Internet Explorer must be set to check for newer versions of stored pages on every visit to a page. If this check is not performed, the browser may use data stored in the cache of the local PC rather than retrieve the current data over the network from the remote device.

1. Start Internet Explorer, select 'Tools' from the menu bar and select 'Internet Options'.


2. In the 'General' tab of the displayed dialog box, click the Settings button in the 'Temporary Internet Files' grouping.

3. From the options for 'Check for newer versions of stored pages:', select 'Every visit to the page' and click 'OK'.

4. To enable FTP access, select the 'Advanced' tab of the 'Internet Options' dialog box, ensure that the 'Enable folder view for FTP sites option' under the 'Browsing' heading is selected and click 'OK'.
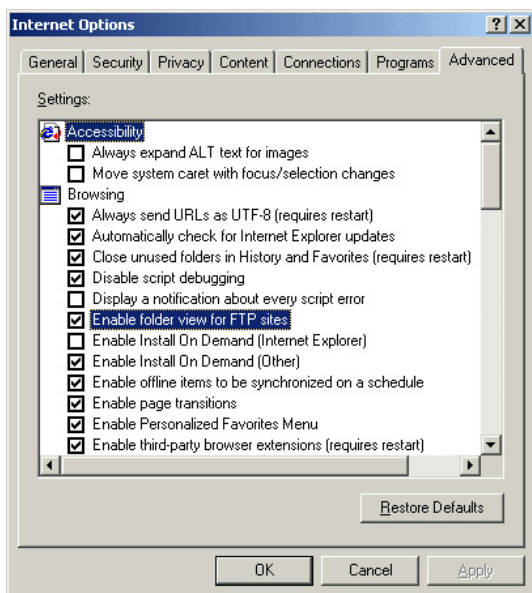
> **Note.** Step 5 is applicable only to PCs equipped with Windows XP Service Pack 2.
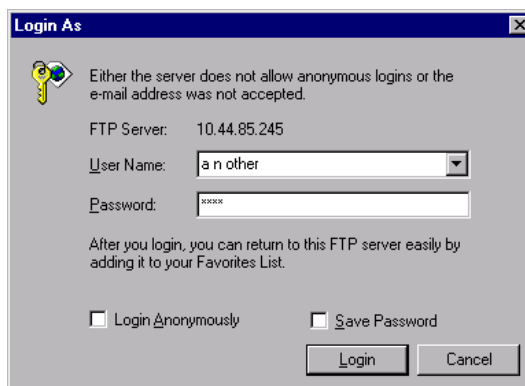
5. On the 'Advanced' tab of the 'Internet Options' dialog box, scroll down and ensure that 'Use Passive FTP' (for firewall and DSL modem compatibility) is NOT ticked.
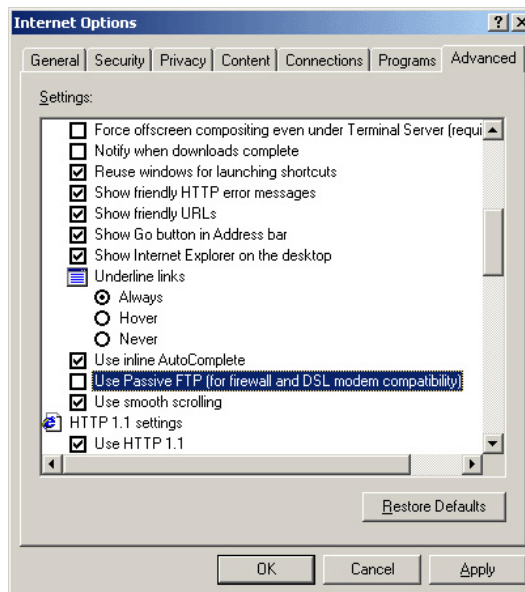

Accessing Data via FTP

To access data:

1. Start Internet Explorer.

2. In the 'Address' bar, enter 'ftp://' followed by the IP address of the instrument from which the files are to be copied. The following is displayed:

3. Enter the 'User Name:' and 'Password:' for the instrument (see Section 3.1, page 5), and click on 'Login'. The contents of the instrument, that looks similar to the following, is displayed:
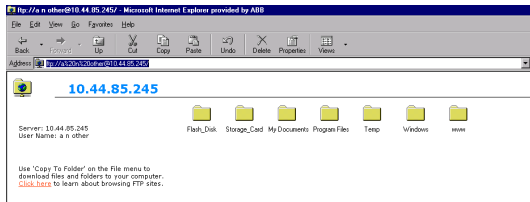

4. Open the folder containing the file to be displayed. The files within the folder can be displayed in any standard format (small icon, large icon, list or details) by selecting the appropriate option from the 'View' menu.

> **Note.** The contents of the Storage_Card folder are accessible only if archiving is set to 'On-line' in the instrument's Setup menu – see Section 3.3 of the relevant User Guide (IM/SM1000 or IM/SM2000).

5. Select the file or files to be copied. The 'Shift' and 'Ctrl' keys can be used to select more than one file.

6. Click the right mouse button to display the following option menu:
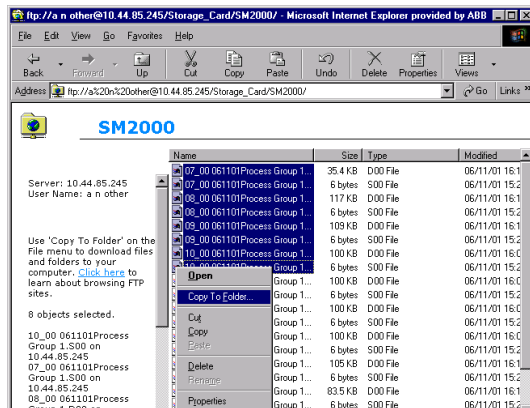
7. Select the 'Copy To Folder' option. The 'Browse for Folder' window is displayed:
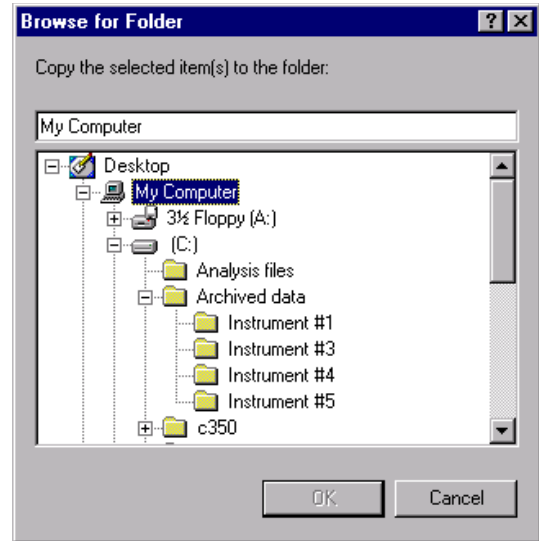
8. Select the drive and folder to which the file is to be copied.

9. Click on OK. The file is copied into the selected folder.

> **Note.**
> ■ An audit log entry is created for each FTP logon giving details of the logon user name and type of access (full or read-only), e.g:
>
>
>
> ■ When Internet Explorer is used as the FTP client, two logons are performed at the start of each session resulting in two log entries.

3.4 Using FTP Access with DataManager

DataManager can be used with FTP to access data files that have been saved to the archive media (SmartMedia or Compact Flash card) inserted in the instrument. For full details of how to configure DataManager for use with FTP access, refer to the DataManager User Guide, IM/DATMGR.

> **Note.** The content of the archive media is accessible only if archiving is set to 'On-line' in the instrument's Setup menu – see Section 3.4 of the relevant User Guide (IM/SM1000 or IM/SM2000).

3.5 E-Mail

The instrument can be configured to send e-mails to a maximum of 6 recipients in response to certain events. The addressees can all subscribe to the same SMTP server or the instrument can be configured to send e-mails via 2 different SMTP servers to a maximum of 3 addressees per server.

Up to 10 independently configurable triggers may be enabled to generate an e-mail when the selected source becomes active.

When a trigger source becomes active, an internal 1 minute delay timer is started. At the end of that minute, an e-mail is generated that includes, not only the event that initiated the delay timer, but every other event that occurred during the delay period together with any enabled reports. The data returned in the e-mail therefore reflects the real-time alarm state at the time the e-mail was generated, not the state when the first trigger source became active.

Each e-mail includes a link to the instrument's embedded web server enabling the instrument's data and status to be viewed remotely using an internet browser on a PC – see Section 5, page 17.

3.5.1 Configuring the Instrument
Enter the IP address of the SMTP server through which e-mails are to be routed.

Enter the address(es) of the e-mail recipient(s).

Select the options to enable.

Channels Report

When selected, a summary of all enabled channels together with their instantaneous values is included in the e-mail.

Totalizers Report

When selected, a summary of all enabled totalizers together with their instantaneous values is included in the e-mail.

External Media Report

When selected, a summary of the condition of the external media (if any) and archiving status is included in the e-mail.

Fig. 3.2 is an example of a reports e-mail.

> **Note.**
>
> ■ Reports, when enabled, are included only on an e-mail generated as a result of a real time alarm event unless the 'Reports in ALL emails' box is ticked, in which case enabled reports are included on every e-mail generated.
>
> ■ Triggers 6 to 10, if enabled (see below), may be 'inverted', i.e. an e-mail is generated when the trigger source becomes inactive instead of active. Event trigger source types that cannot be inverted are: Alarm acknowledge, Any alarm and New alarm.

Select up to 10 event source types to generate an e-mail.
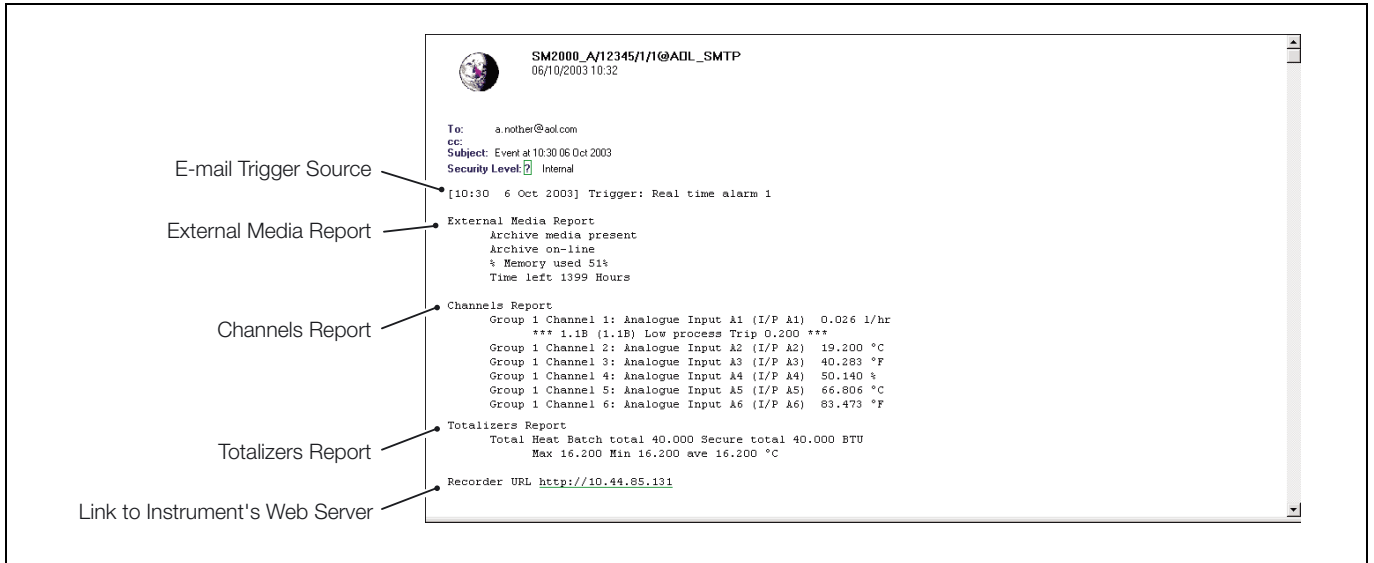Fig. 3.3 is an example of an event triggered e-mail.
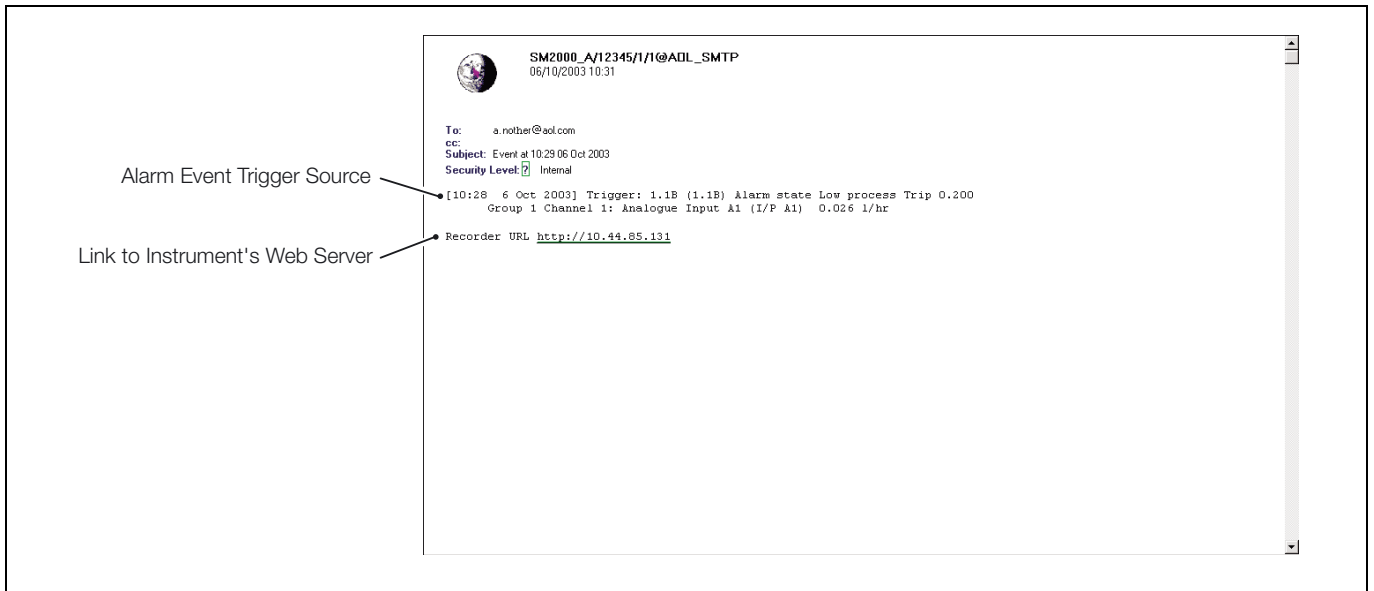
Fig. 3.2 Reports E-Mail Example

Fig. 3.3 Event Trigger E-Mail Example

4 Modbus TCP

4.1 Introduction

Modbus TCP enables Modbus TCP devices to communicate via an ethernet network transferring Modbus messages via TCP/IP. Communication with standard, serially connected, Modbus RTU devices is also possible through a Modbus TCP Gateway.

The instrument can be configured to act as either a Modbus TCP Server (Slave) or a Modbus TCP Client (Master) device on a Modbus TCP network.

If configured as a Server, the recorder responds to Modbus queries transferred via the Modbus TCP protocol for the registers described in Appendix B of the relevant instrument's User Guide, IM/SM1000 or IM/SM2000. The recorder can be configured for unrestricted access or access can be restricted to a maximum of 6 Modbus TCP Clients, from defined IP addresses.

If configured as a Client, the recorder collects data from Modbus TCP Servers (or RTUs via a gateway) into its 24 Comms Analog and 24 Comms Digital Channels. Each analog and digital input can be individually configured to any register within any slave device. The configuration allows for receipt of data in most commonly used data formats
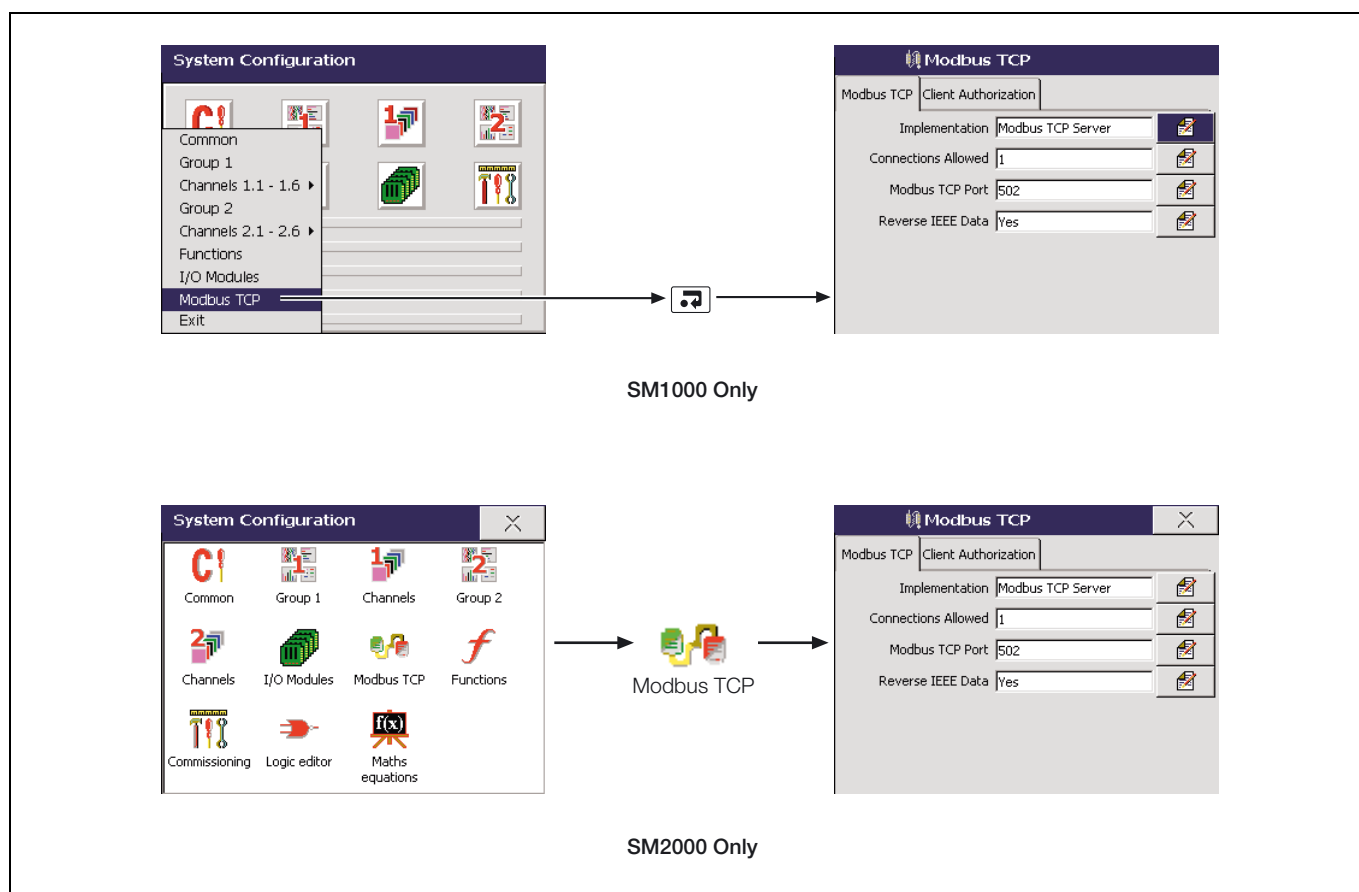
4.2 Configuration

Fig. 4.1 Selecting Modbus TCP Configuration

Note.   The Modbus TCP icon is displayed only if the instrument is fitted with the optional ethernet module.

4.2.1 Modbus TCP

Select the required Modbus TCP configuration.

Disabled – Modbus TCP disabled.

Modbus TCP Server – instrument acts as a Modbus Slave

Modbus TCP Client – instrument acts as a Modbus Master

Note. Displayed only if 'Implementation' **is not** set to 'Disabled'.

Select the maximum number of simultaneous TCP/IP connections permitted, min. 1, max. 9.

Note. Displayed only if 'Implementation' **is not** set to 'Disabled'.

Set the TCP/IP port-through used by the Modbus TCP network – normally port 502.

Note. Displayed only if 'Implementation' is set to 'Modbus TCP Server'.

All analog data is read from the instrument in IEEE format contained in adjacent registers representing the data in high word, low word order.

Select 'Yes' to reverse the IEEE data, otherwise select 'No'.

Note. Displayed only if 'Implementation' is set to 'Modbus TCP Client'.

Set the poll rate in milliseconds – min. 0, max. 3600000.

Note. Displayed only if 'Implementation' is set to 'Modbus TCP Client'.

Set the number of successive polls permitted to fail before the data is marked as a failed input – min. 0, max. 4.
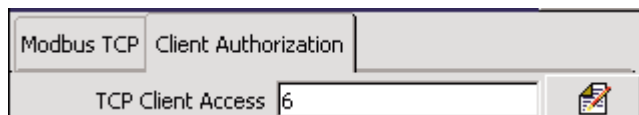
Note. Displayed only if 'Implementation' is set to 'Modbus TCP Client'.

Set the timeout time in milliseconds for a single poll – min. 0, max. 60000.

Note. If any RTU devices connected through a gateway are polled, set a response time that is long enough to allow for the normal turn around time from these devices. The configuration allows for only one setting for all devices connected to the network.

4.2.2 Client Authorization

Select the number of Modbus TCP Client (Master) devices permitted to poll the instrument for data:

Unrestricted– any Modbus TCP Client device is permitted to poll the instrument.

1 (to 6) – only the Modbus TCP client device(s) whose IP address(es) is(are) entered in the 'Authorized IP 1' (to 'Authorized IP 6') parameter(s) (below) is(are) permitted to poll the instrument

Enter the IP address(es) of the Modbus TCP Client (Modbus Master) device(s) that is(are) permitted to poll the instrument for data.

4.2.3 Comms Analog Input

> **Note.** This tab is displayed only if 'Implementation' is set to 'Modbus TCP Client' – see Section 4.2.1, page 13.

Select the comms analog input to hold the data from the nominated slave device.

Select the communications protocol to be used by the instrument to communicate with the nominated slave device:

    None – comms analog channel unused

    TCP – Modbus Transmission Control Protocol

    RTU – access a Remote Terminal Unit (RTU) via Modbus TCP gateway

Note. Displayed only if 'Protocol' is set to 'RTU'.

Enter the RTU address assigned to the remote unit (1 to 247).

Notes.

■ Displayed only if 'Protocol' is set to 'RTU'.

■ This setting is always required to access a RTU via Ethernet.

Set the IP address for the Modbus TCP gateway required to communicate with the RTU.

Note. Displayed only if 'Protocol' is set to 'TCP'.

Enter the IP address assigned to the slave device.

Note. Displayed only if 'Protocol' is set to 'TCP' or 'RTU'.

Enter the register number to be read in the slave device.

Note. Displayed only if 'Protocol' is set to 'TCP' or 'RTU'.

Select the register type, 'Holding Register' or 'Input Register'.

Note. Displayed only if 'Protocol' is set to 'TCP' or 'RTU'.

Select the format of the data to be read from the slave device:

    Sint16   – signed, 16 bit integer

    Sint32   – signed, 32 bit integer, transmitted in high/low order

    rev. Sint32 – signed, 32 bit integer, transmitted in low/high order

    IEEE   – 32 bit floating point number, transmitted in high/low order

    Rev. IEEE – 32 bit floating point number, transmitted in low/high order

4.2.4 Comms Digital Input

> **Note.** This tab is displayed only if 'Implementation' is set to 'Modbus TCP Client' – see Section 4.2.1, page 13.

Select the comms digital input to hold the data from the nominated slave device.

Select the communications protocol to be used by the instrument to communicate with the nominated slave device:

    None – comms digital channel unused

    TCP – Modbus Transmission Control Protocol

    RTU – access a Remote Terminal Unit (RTU) via Modbus TCP gateway

Note. Displayed only if 'Protocol' is set to 'RTU'.

Enter the RTU address assigned to the remote unit (1 to 247).

Notes.

- Displayed only if 'Protocol' is set to 'RTU'.

- This setting is always required to access a RTU via Ethernet.

Set the IP address for the Modbus TCP gateway required to communicate with the RTU.

Note. Displayed only if 'Protocol' is set to 'TCP'.

Enter the IP address assigned to the slave device.

Note. Displayed only if 'Protocol' is set to 'TCP' or 'RTU'.

Enter the register number to be read or written to in the slave device.

Note. Displayed only if 'Protocol' is set to 'TCP' or 'RTU'.

Select the register type, 'Input Status' or 'Coil Status'.

5 Operation

5.1 Web Server – Figs 5.1 to 5.9
Figs. 5.1 to 5.9 are examples of the page views available from the instrument's web server.
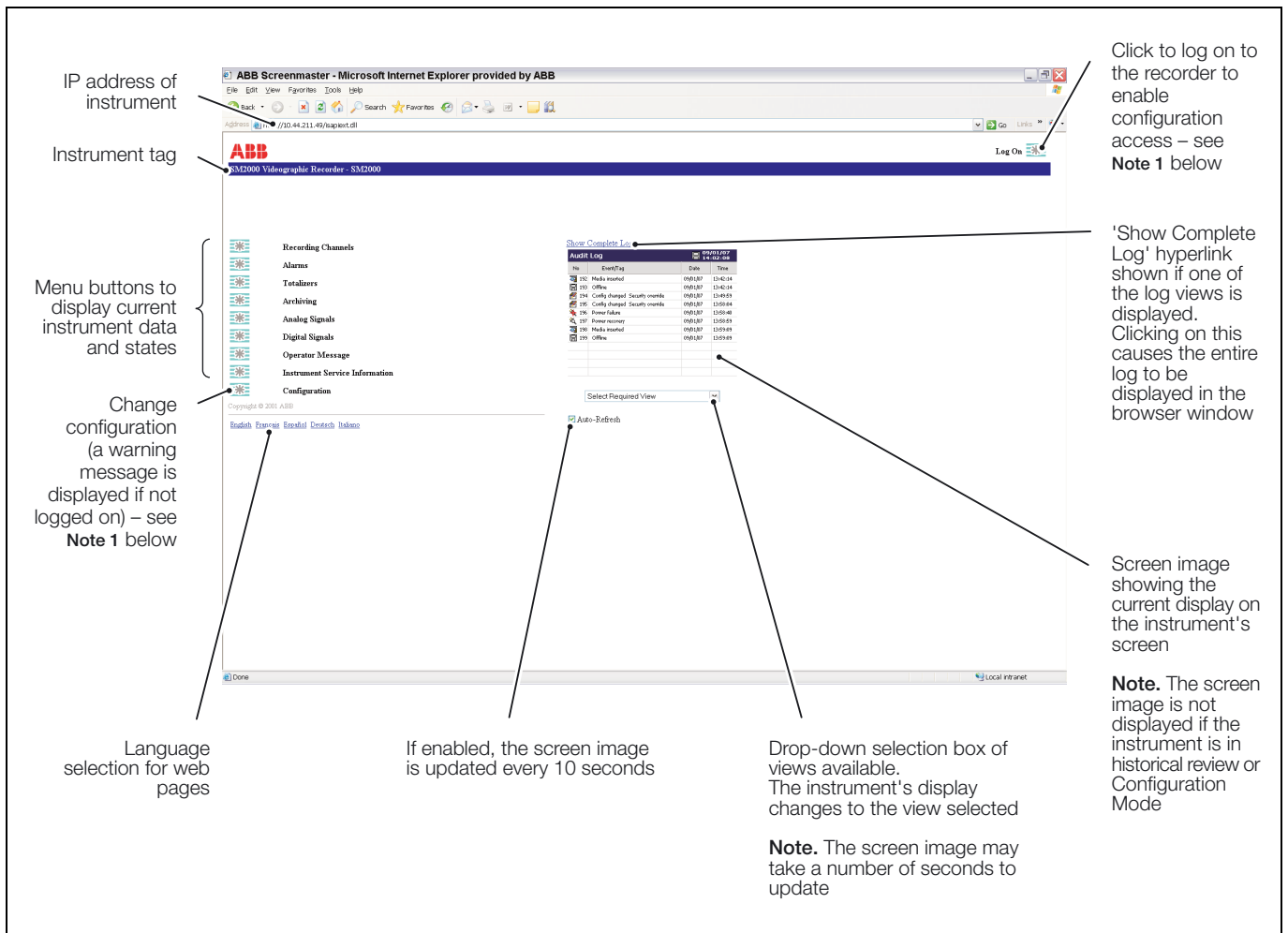

Fig. 5.1 Home Page

Note.

1. The 'Log On' and 'Configuration' buttons are displayed only if a user has been configured for remote operation access – see Section 3.1, page 5.

2. The Current Display view is not available if the recorder is in historical review or configuration mode.
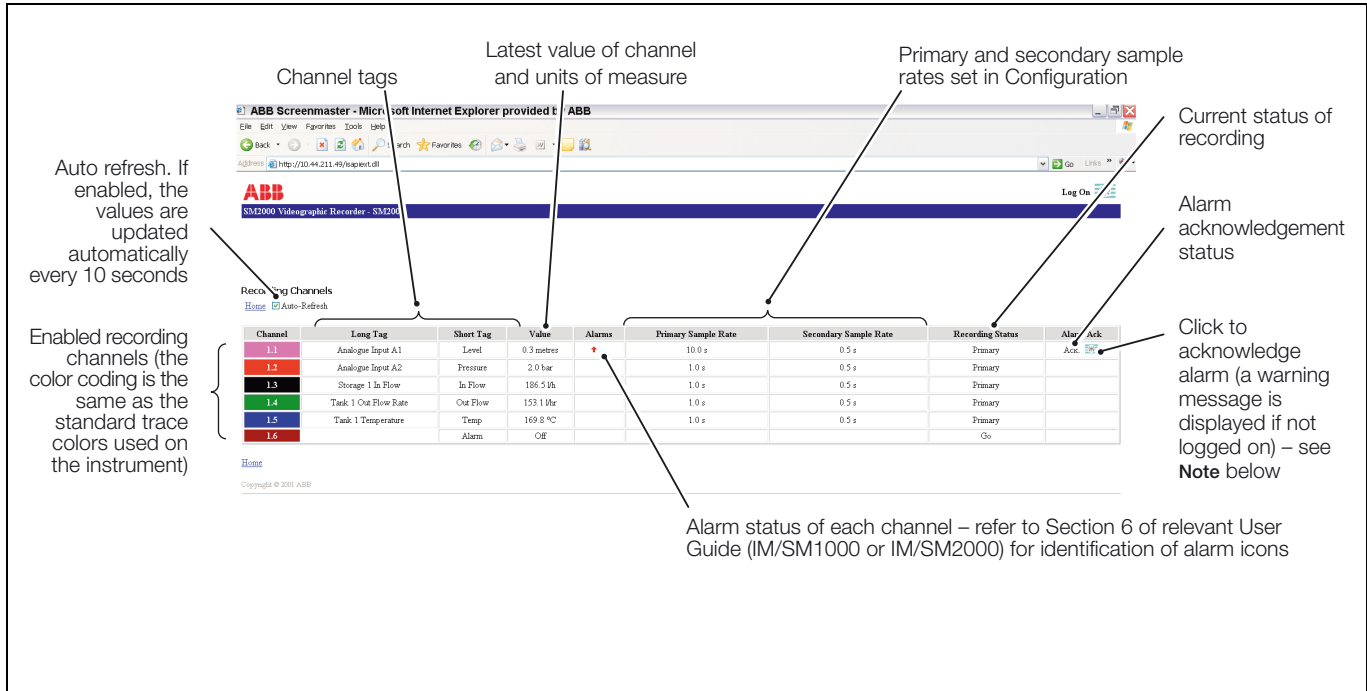

Channel tags

Latest value of channel and units of measure

Primary and secondary sample rates set in Configuration

Current status of recording

Alarm acknowledgement status

Auto refresh. If enabled, the values are updated automatically every 10 seconds

Enabled recording channels (the color coding is the same as the standard trace colors used on the instrument)

Click to acknowledge alarm (a warning message is displayed if not logged on) – see **Note** below

Alarm status of each channel – refer to Section 6 of relevant User Guide (IM/SM1000 or IM/SM2000) for identification of alarm icons

Fig. 5.2 Recording Channels Page

Note. Alarm acknowledgement is enabled only if a user has been configured for remote operation access – see Section 3.1, page 5.
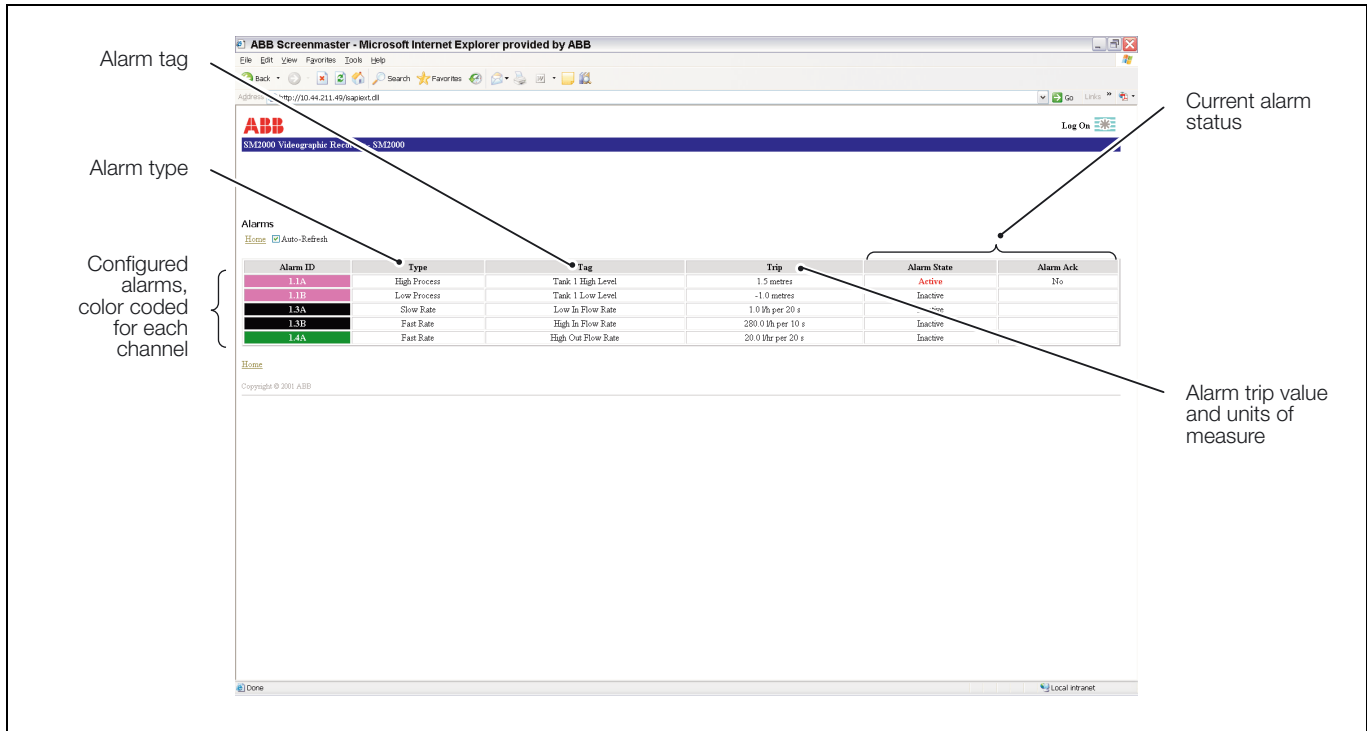
Alarm tag

Alarm type

Current alarm status

Configured alarms, color coded for each channel

Alarm trip value and units of measure

Fig. 5.3 Alarms Page

Fig. 5.4 Totalizers Page

Note. Totalizer control is enabled only if a user has been configured for remote operation access – see Section 3.1, page 5.
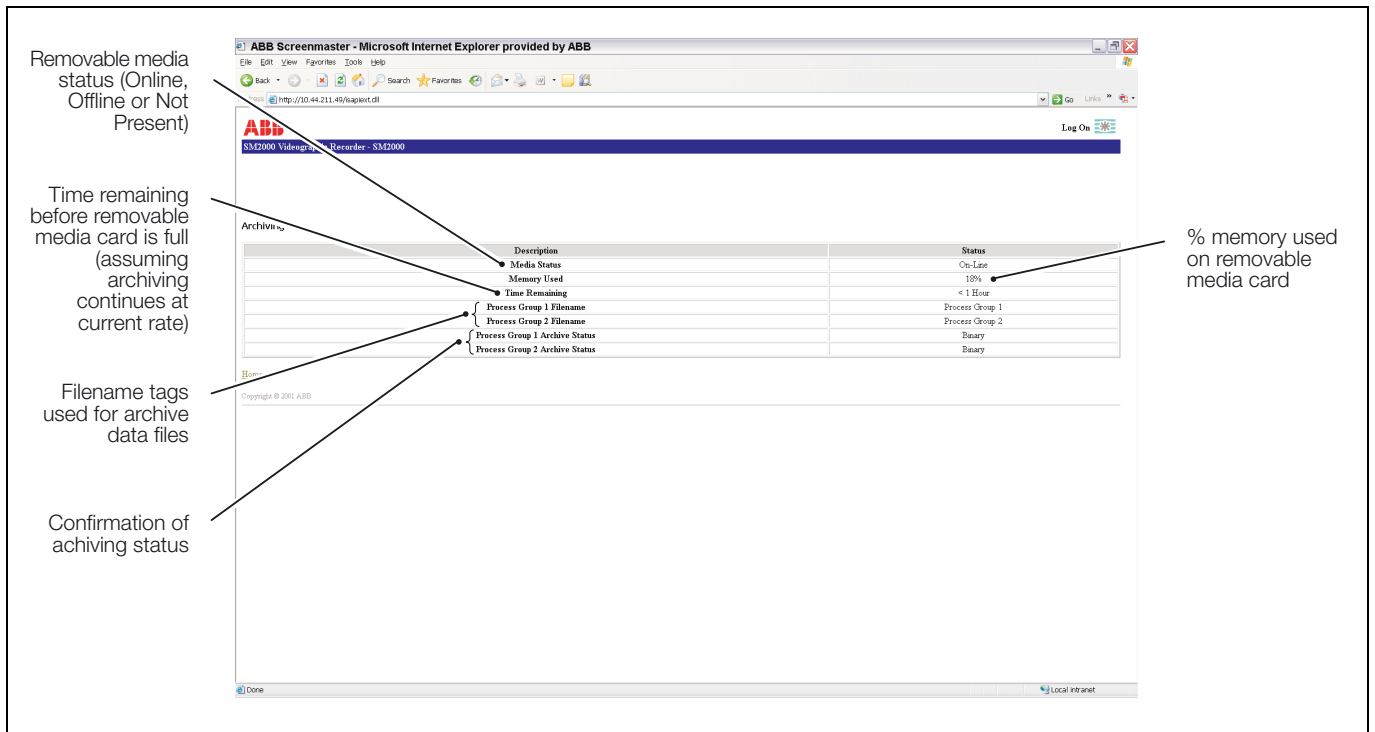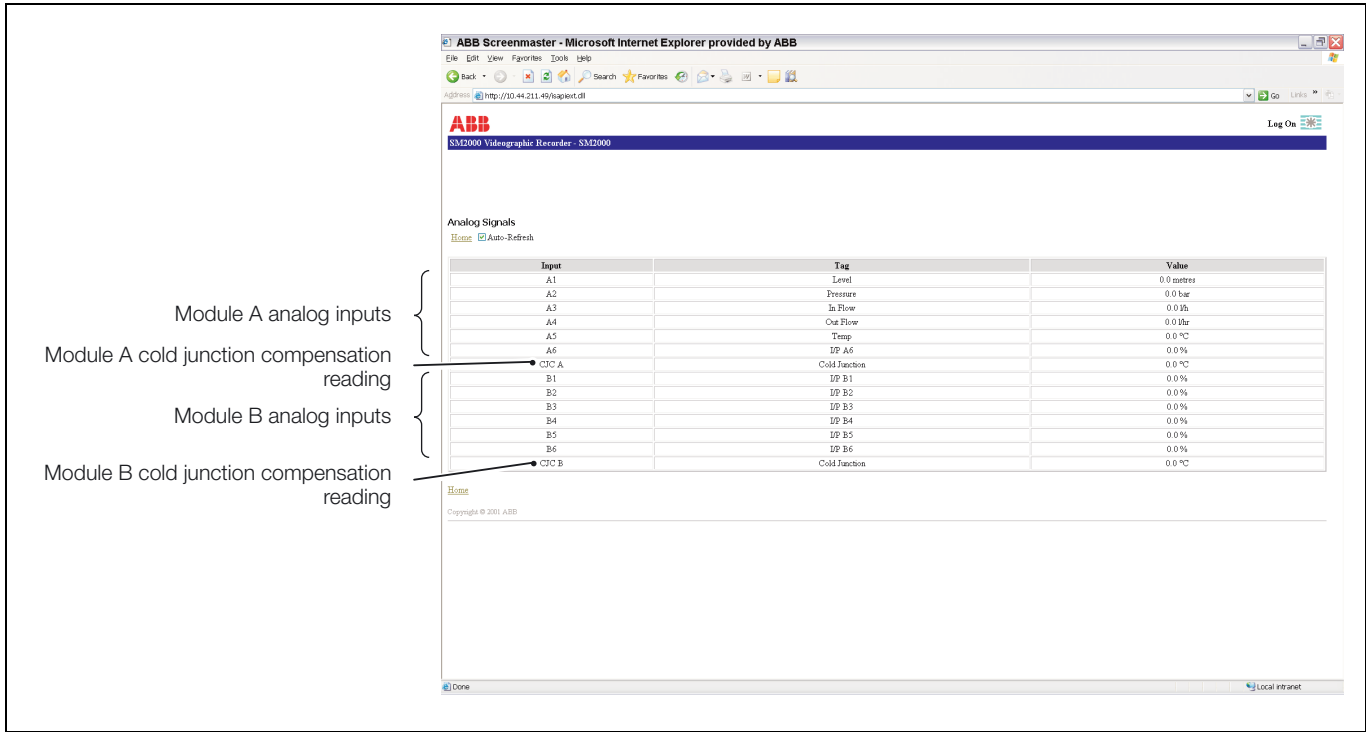
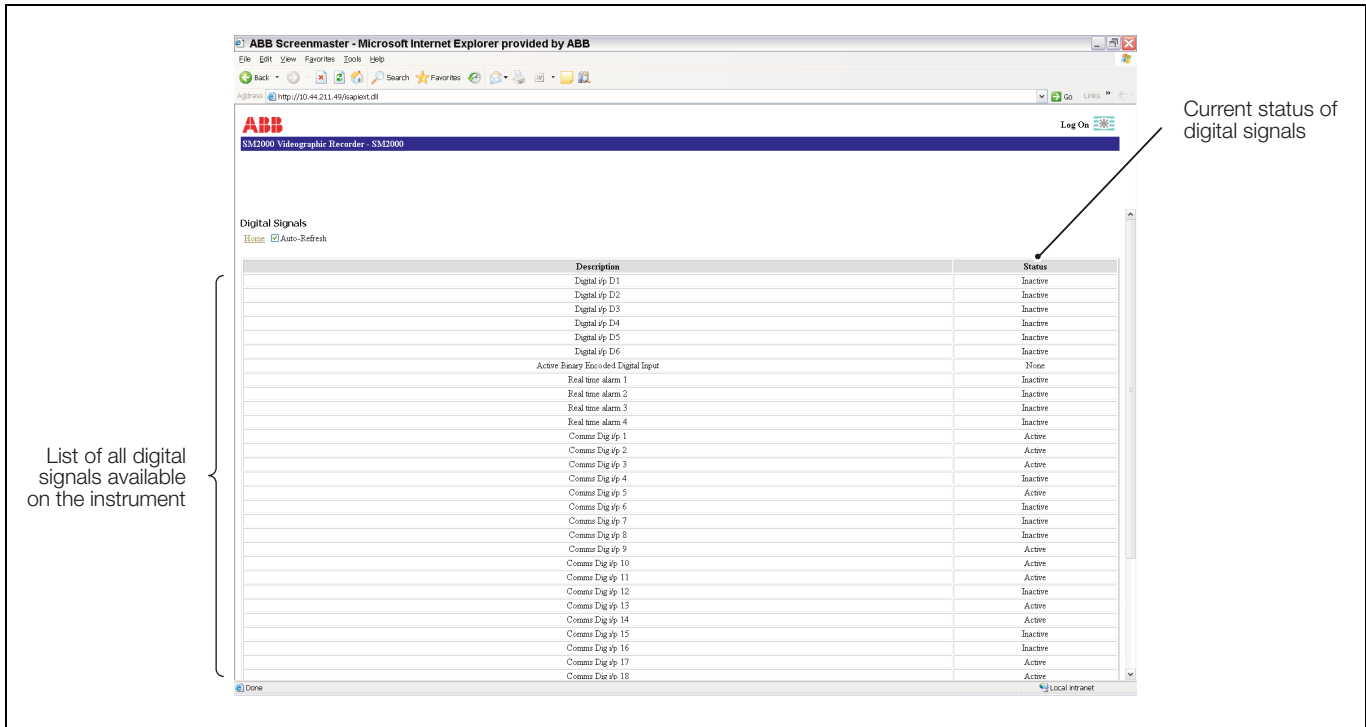

Fig. 5.5 Archiving Page

Fig. 5.6 Analog Signals Page

Fig. 5.7 Digital Signals Page

Enter a valid FTP username –
see Section 3

Enter an associated FTP password

Enter an Operator Message to be sent
to the recorder (maximum 20 characters)
OR
Enter an Instruction to be sent to the
Operator (maximum 160 characters)

Assign an Operator Message to a specific
group or groups

Click on button to send the Message or
Instruction.
An Operator Message is stored in the
recorder's alarm event log and if
enabled, it is displayed in the chart view
An Instruction is displayed in a message
box on the recorder's screen until the
Operator acknowledges it by pressing
the ⬛ key

Fig. 5.8 Operator Message Page

Instrument identification

Software revision and options

Hardware fitted

Fig. 5.9 Service Information Page

Change or retain security configuration

Select a configuration previously saved to internal storage or select a QuickStart template

Change the recorder's current date and time setting
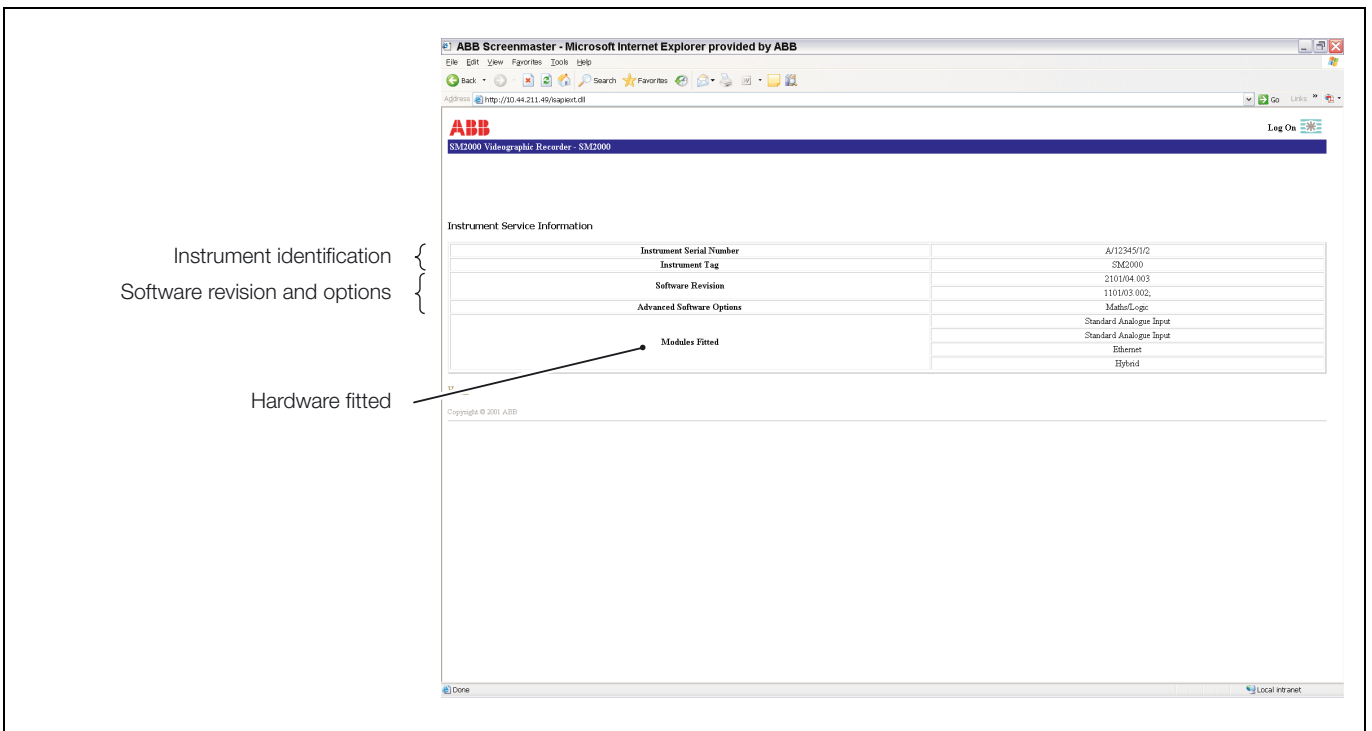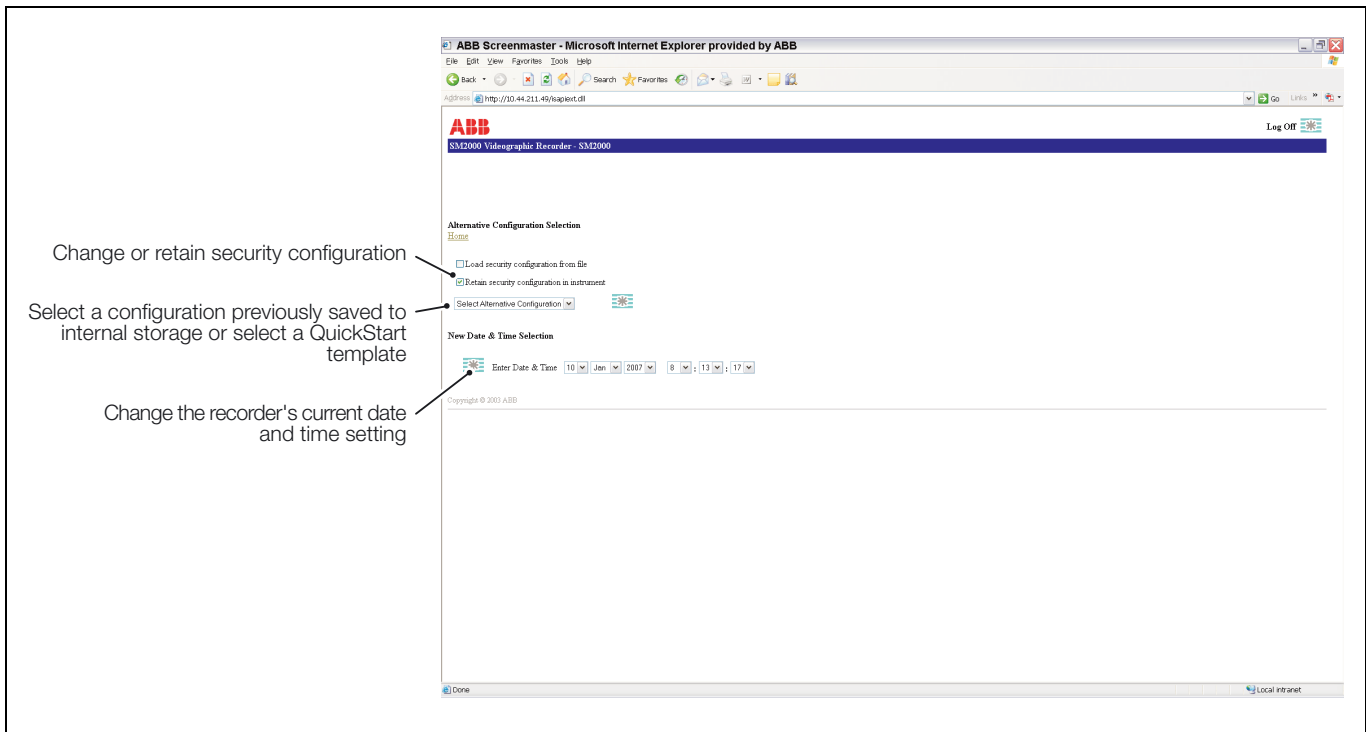
Fig. 5.10 Alternative Configuration Selection

Note. Alternative Configuration Selection is available only if a user has been configured for remote operation access with Configuration access rights – see Section 3.1, page 5.

Appendix A − Glossary

The following terms have specific meanings within the Ethernet environment:

10BaseT
A definition of the cable type and transmission rate of the network. The '10' represents a transmission rate of 10Mbps and the 'T' for unshielded twisted pair cable.

100BaseT
A higher speed version of 10BaseT with a transmission rate of 100Mbps.

ARP
Address Resolution Protocol. Converts between IP addresses and MAC (hardware) addresses on the network.

Default gateway
The IP address of the gateway (router, switch etc.) that is used to communicate with other networks.

FTP
File Transfer Protocol. A TCP/IP suite application that provides an efficient and reliable means of transferring files between a remote server and a client.

HTTP
HyperText Transfer Protocol. Used for the transfer of web pages.

ICMP
Internet Control Message Protocol. An Internet protocol sent in response to errors in TCP/IP messages. It is an error reporting protocol between a host and a gateway.

IP address
Internet Protocol address. This is the unique address given to each computer on a TCP/IP network (including the Internet).

LAN
Local Area Network. A group of computers and associated devices that share a common communications line or wireless link and, typically, the resources of a single processor or server within a small geographic area (for example, within an office building). Usually, the server has applications and data storage that are shared in common by multiple computer users. A LAN may serve as few as two or three users (e.g., in a home network) or as many as thousands of users (e.g., in a large office).

MAC address
Media Access Control address, also called the hardware or physical address. This is a unique address given to each Ethernet interface that is used in an Ethernet packet to identify the source and destination of the data being sent.

Open system
A system conforming to specifications and guidelines that are 'open' to all. This allows any manufacturers' equipment that comply with these standards to be used interchangeably on the standard network.

Router
Links a local network to a remote network. For example, your company's network probably uses a router to connect to the Internet. Can be used to connect a LAN to a LAN, a WAN to a WAN, or a LAN to the Internet.

Subnet mask (or Sub-Network Mask)
A mask used to determine what subnet an IP address belongs to (an IP address has two components, the network address and the host address).

TCP/IP
Transmission Control Protocol/Internet Protocol. The language all computers on the Internet, LANs and WANs use to communicate with each other.

UTP
Unshielded Twisted Pair. The type of wire that is used in 10BaseT Ethernet communications.

WAN
Wide Area Network. A geographically dispersed telecommunications network. The term distinguishes a broader telecommunication structure from a local area network (LAN). A WAN may be privately owned or rented, but the term usually implies the inclusion of public (shared user) networks.

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

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