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CHAPTER 1 DATA RECORDING AND ARCHIVING

Data Recording and Data Archiving is used to create a record of selected fields from an instrument. The recorded field values can be archived and displayed at a later date. The purpose is to provide

- General audit records (for subsequent analysis with MS Excel, for instance)
- Quality control of product and plant
- Performance monitoring

The main sections are how to

- Data recording in the instrument strategy
- Data archiving in the instrument strategy

The recorded data can then be displayed on a chart using Review.

Note The following instructions assume the FTP Server has already been installed. However, instructions for installing an FTP Server are supplied in Appendix A.

1.1 WHAT ARE DATA RECORDING AND DATA ARCHIVING?

Recording data is the process of writing groups of values, data recording groups, of selected block fields in the database to Data Recording files, .uhh, in an instrument’s non-volatile internal flash memory. This memory is maintained during a power outage. The data stored in the .uhh files can be examined using Review.

Note The Data Recording configuration is only applied after the configuration has been downloaded with the database file, .dbf.

Archiving data is the process of pushing the recorded values from the internal flash memory to .uhh files in an archive directory on an FTP Server. FTP is a commonly used file transfer mechanism. An instrument will operate as an FTP Client to up to three FTP Servers for the purpose of transferring .uhh files from the instrument to a remote computer using FTP. Archived .uhh files can be automatically imported in to Review from the directory on the configured FTP Server, see FTP (File Transfer Protocol) Server section.

Displaying data is the process of creating a chart from the .uhh files stored in the FTP Server. A chart can be output as an electronic file, and/or a printed hard copy providing a physical record of the selected field values recorded in the instrument.

Note Review can be configured to pull files directly from the instrument, but this is not recommended.
1.2 QUICK START TO DATA RECORDING

These instructions assume that the instrument firmware and the required Licence (D10 to D90) are already installed.

To configure the instrument data recording,

1. Open the database file, .dbf, of the instrument using LINtools Engineering Studio. Click

   Start > Programs > ... > LINtools Engineering Studio

   *Note* The *Get me started* dialog may appear if LINtools was not opened via a .dbf. This dialog allows you to use one of the more common options when starting LINtools.

   When the .dbf opens, the blocks are displayed on the worksheet and the **Data Recording Configurator** icon appears in the Contents pane, and allows more precise configuration of fields.

2. Open the block to display the block fields in the **Object Properties** pane. Select the required field and right-click to display the context menu.
   - Alternatively, select the **Block** containing the fields that you want to record, and right-click to display the context menu.

3. Select the **Add to Data Recording** command, then the **New Group** command from the context menu.

4. A **New Group** dialog appears. Enter a name and press **OK** to confirm.
   
   The name is used to identify the data recording group when displaying selected values.

5. When the group name is confirmed, the **DataRec** compound automatically appears on the .dbf worksheet. It contains all the blocks required for Data Recording, an RGROUP block used for controlling and managing the associated data recording group, and two diagnostic blocks used to help if problems occur.
   - If a specific field was selected, it will be recorded in this group.
   - If a block was selected, a default selection of its’ fields will be recorded in this group.

6. Select the **Data Recording Configurator** icon, then the **Fields** page to show the fields that will be recorded, as below.
1.2 QUICK START TO DATA RECORDING (Cont.)

Data Recording and Data Archiving are configured using LINtools Engineering Studio. The Data Recording features are enabled in LINtools when data recording is supported by the instrument. Additional Groups can be added using a context menu from a Block or Field in the database, or via the Groups page in the Data Recording grid. Fields are added to Data Recording Groups using a context menu command in the database editor or from the Blocks page, or Field page in the Data Recording Configurator. The completed configuration is saved and automatically downloaded with the database file, .dbf.

*Note* The context menu also allows a selected Data Recording Group to be deleted or a data value to be removed from a data recording group.

To support Data Recording, a DataRec compound is automatically created when the first field(s) is selected. It contains all blocks required for data recording, an RGROUP block, an RARCDIAG block and an RMEMDIAG block.

- The RGROUP block provides run-time control and monitoring of the Data Recording, and identifies an individual Data Recording Group. Each group of recorded values is associated with a single RGROUP block.
- The RARCDIAG block provides monitoring and diagnostics information for both primary and secondary modules of an I/O subsystem when archiving recorded data to a specified FTP Server via FTP.
- The RMEMDIAG block provides monitoring and diagnostics information about the flash memory in both primary and secondary modules of an I/O subsystem used for historical storage of recorded data.

The Data Recording and Data Archiving process is shown below.

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Figure 1-1 Data Management Configuration
### 1.3 QUICK START TO DATA ARCHIVING

The image shown here is an example of how the Instrument Options page should appear when finally configured.

To configure the instrument data archiving,

1. Select the Instrument configuration folder in the Contents pane in LINtools Engineering Studio, and right-click to display the context menu. Select the Properties command to open the Instrument Properties dialog.

2. The Instrument Properties dialog appears. Select the Instrument Options page to display the configuration parameters for various aspects of the instrument, e.g. HMI settings, Modbus or Profibus ports configuration, etc.

3. Select the Archiving category. This shows parameters associated with archiving configuration.

Define the FTP Servers as required, i.e. FTP Server 1, FTP Server 2 and FTP Server 3.

- Enable the Use FTP Server 1. Set this TRUE to enable the recorded values to be archived to the FTP Server configured at the specified IP address (HostIP), see FTP (File Transfer Protocol) Server section.
- Set the Host IP. This is the IP address of the FTP Server.
- Set the Directory path. This is the directory path to the archive directory in the defined FTP Server.
- Set the User Name. This is the user name required to access the archive directory in the defined FTP Server. This is used in conjunction with the password configured below (Password).
- Set the Password. This is the password associated with the corresponding User Name required to access the archive directory in the FTP server. This displays the Enter New Password dialog.

**Note** The example shows a Tom Smith Windows User account is being used to access the FTP Server when archiving the .uhh files.
1.3 QUICK START TO DATA ARCHIVING (Cont.)

4 Press OK to confirm the changes to the instrument configuration. Before the Instrument Properties dialog can close further dialogs appear.

- A dialog is displayed requesting that the changes are downloaded to the instrument. Press Yes to confirm.

Note: Inspect the RARCDIAG block in the DataRec compound to diagnose problems that occur when archiving, see Troubleshooting section.

The following image is an example of how the .dbf and Instrument Properties dialog should appear.
1.4 HOW TO...

In this section, you will be guided through additional tasks used to configure the recording. These tasks will help you when configuring the data recording in the instrument, and include instructions for changing how a field will appear when displayed on a chart, and creating a chart.

1.4.1 Add fields to a data recording group

Further fields can be added to existing data recording groups, or to new groups. As fields are added and new groups are created the recording time of each group in the instrument will reduce, as shown in the (Est.) Memory Duration column on the Groups page of the Data Recording grid.

The Add to Data Recording command is available on a context menu when,

- single or multiple compounds or blocks are selected in the Function Block Diagram, or the Block list view
- A field is selected in the Object Properties pane
- single or multiple compounds, blocks, or fields are selected in the Find dialog

Default fields and specific fields can also be added to a data recording group using a picklist available from the Blocks page and Fields page of the Data Recording grid, respectively.

If the command is selected from a compound or block, a default selection of fields from the block(s) will be added to the specified data recording group. The default selection will always include all the Alarms in the block. You can also add all the default selection of fields from multiple blocks by selecting multiple compounds or blocks.
1.4.1 Add fields to a data recording group (Cont.)

If the command is selected from a field in the **Object Properties** pane, only the selected field will be added to the data recording group.

Using the **Find** dialog allows you to quickly find and select a field with the same or similar name in multiple blocks and add them to the data recording configuration. This is an easy way to quickly add many fields to the recording, e.g. after finding all the PV fields in the database, you can add them all to the recording with one click. This allows you to add the,

- default fields of blocks that matched the search criteria
- only specific fields that matched the search criteria

**Note** You can also add blocks and fields to the recording using the Blocks page or Fields page of the Data Recording Configurator, as appropriate.
1.4.1 Add fields to a data recording group (Cont.)

When the Data Recording grid is open, you can use the Blocks page to add default fields to the first available data recording group.

- Select the Blocks page to show information about each block in the recording.
- **Block Name** column shows the names of recorded blocks.

Click the Add block field and select the required block from the picklist displayed. This adds a default selection of the blocks’ fields.

When the required block is selected, the Recorded Alarms shows All. This indicates that all Alarms for this block will be recorded. Recorded Alarms is set to All by default, but specific alarms can be configured by editing fields on a dialog displayed when the Recorded Alarms field is selected.

The associated block information is displayed in the Object Properties pane.

When the Data Recording grid is open, you can use the Fields page to add specific fields to the first available data recording group.

- Select the Fields page to show individual display information about each specific block in the recording.
- **Field Name** column shows the names of recorded block fields.

Click the Add field field and select the required block field from the picklist displayed. This adds the block field to the data recording, for the first Data Recording Group available.

**Note** While this page is displayed, you may want to configure the appearance of the selected field when it is displayed on a chart.

You can remove fields from the data recording configuration by right-clicking the field in the Object Properties pane or the Find dialog and selecting Remove from Data Recording command. You can also select compounds and block in the Function Block Diagram, or the Block list view and use the Remove from Data Recording command to remove all the selected blocks’ fields from the specified data recording group.
1.4.2 Change the data recording group

When the Data Recording grid is open, you can use the Blocks page, see below, to change the data recording group of default fields.

- Select the Blocks page to show information about each block in the recording.
- Group column lists all Data Recording Groups in the instrument strategy. Click the associated Group field and select the required Data Recording Group from the picklist displayed. The fields will be recorded in the specified group after the configuration has been downloaded.

When the Data Recording grid is open, you can use the Fields page, see below, to change the data recording group of a specific field.

- Select the Fields page to show individual display information about each specific block in the recording.
- Group column lists all Data Recording Groups in the instrument strategy. Click the associated Group field and select the required Data Recording Group from the picklist displayed.

1.4.3 Configure the recorded Alarms

The Blocks page of the Data Recording Configurator in LINtools provides the ability to edit the block configuration, to specify which alarms should be recorded for each group.

- Select the Blocks page to show information about each block in the recording.
- Select the relevant Recorded Alarms field to reveal the Select alarms to record dialog. This dialog provides the selection of individual Alarm parameters from the selected block.

Set Record All [✓] to indicate that all Alarms will be recorded.

Set individual Alarm parameters [✓] to indicate that only the defined Alarms recorded.

This column shows the Alarm parameters that will be recorded for this block.
1.4.4 Configure the appearance of recorded field

The Fields page of the Data Recording Configurator contains parameters used to configure the default appearance of a recorded field, when displayed on a chart.

Editing the parameters on this page allows you to define how you want the trend to be displayed in Review.

*Note* These parameters may not have to be configured because LINtools and Review automatically layout the trends with default parameters.

- **Field Name** column shows the names of recorded block fields. Use the relevant field to change or add a field to the recording.
- **Group** column shows the Data Recording Group in which each field is recorded. Use the relevant field to change the data record group of the field to the recording.
- **Description** fields show a description used to identify the associated field value when displayed in Review. The description can be up to 16 characters, but must be unique within a group. You can change the default block.field name by clicking this field and entering a the required text.
- **Format** fields show the format of the associated field value when displayed in Review. The format selection is dependant on the block.field type. You can change this by clicking this field and selecting the required format from the picklist.
- **Colour** fields show the colour of the field value (trend) when displayed in Review. You can change this by clicking this field and selecting the required colour from the picklist.
- **MinMax** fields enable (On) or disable (Off) the MinMax recording for the field. This operates by measuring the input signal each time the block is updated, and saving the maximum and minimum values at the end of the period of trend update. When the trend is updated, both maximum and minimum values are traced on the chart, i.e. two traces are produced for the value.

You can use MinMax to record the minimum and maximum values of a field over the sample period rather than a sample at the end. If MinMax is OFF, during slow recording speeds it is possible that the field, between samples will pick up a spike or brief disturbance in the value, but that this disturbance will not be recorded, even though it may trigger an alarm.

If MinMax is On, recording intervals can be slowed while any spikes or anomalies in the field will still be recorded. However, the associated value counts as two trends in Review and uses twice as much memory as normal recording.
1.4.4 Configure the appearance of recorded field (Cont.)

The following example shows the SpanLow and SpanHigh, and ZoneLow and ZoneHigh parameters configured for TC001.PV. SpanLow and SpanHigh is set from -10°C to 50°C showing the span of the recorded value, and the ZoneLow and ZoneHigh is set from 50% to 100% showing the trace is displayed in the top half of the chart.

- **SpanLow** and **SpanHigh** fields define the span, in engineering units, displayed in **Review**. SpanLow values are displayed at ZoneLow, and SpanHigh values are displayed at ZoneHigh. If required, SpanLow can be configured with a higher value than SpanHigh to invert the trace.

- **ZoneLow** and **ZoneHigh** fields define the zone on the chart that the trace will be restricted to in **Review**.

- **Active** and **Inactive** fields define text strings to represent the digital zero (0) or non-zero (1) recorded value. This is only relevant to fields recorded in a digital format. By default Active is set TRUE and Inactive to FALSE. You can change these to any 16 character value.

1.4.5 Configure the visualisation options

The **Options** page contains parameters used to allow customisation of individual values in the Data Recording Configuration.

- Configure the **Show Visualisation Parameters for fields**. Use this to display additional parameters that provide control of visualisation parameters that appear on the **Fields** page.

- Configure the **Instrument area name** fields. These options are used to identify the Data Recording Groups configured in this instrument. The **Instrument area name** configuration is shown in **Review** when creating a chart.

When **Use default name for instrument area** is selected, the data recording group name shown in the **Name** field in the RGROUP block remains as the name entered when the data recording group was created, but during run-time it is prefixed with the network name, node address, and Configuration (Header) block name, e.g. ELIN_01:14:T2550_14.

When **Use custom name** is selected, the associated entry precedes the data recording group name shown in the **Name** field in the RGROUP block, and the name entered when the data recording group was created. This provides a greater level of identification of the parameters selected for data recording when using **Review**.
1.4.6 Chart recorded data

Data Recording files, .uhh, can be displayed as a trend chart using Review.

Note Review can be used to generate graphics and/or .csv files for display and printing of .uhh files, see Review Help file, Part no. HA 027 962 and/or the User Guide for full details.

Review can be configured to transfer .uhh files to a Review database at scheduled intervals. The Review database provides a means of displaying multiple .uhh files containing the recorded data values.

To configure the scheduled transfer of .uhh files

1. Launch Review. Click Start > Programs > ... > Review

   Note ‘...’ denotes the default installation path.

2. Select File > Transfer > Scheduled Transfer... to display the Scheduled Transfer from Folders dialog used to configure the transfer of .uhh files.

   - Set Run as Service TRUE. This will run Review in the background automatically adding the .uhh files to the database. The computer user name and password will be requested for the account to be used to run the service.

   - Configure the Source Archive Folder. For a local FTP directory, use the full path; for example, \c:\inetpub\ftproot, by default if using IIS FTP Server, but this may also include an additional folder used to identify the instrument. Use the Browse button to select a local directory rather than typing the path.

   - Enable the transfer of .uhh files. Set TRUE to allow the transfer of .uhh files from the defined Source Archive Folder to the Review database to be carried out automatically using the criteria defined in the AUTOMATE area.

   - Configure the AUTOMATE section parameters. Enter the Next Run period. This is the day number and time for the first transfer to occur, automatically updating after each transfer, according to Repeat every, i.e. in the example scheduled transfers occur every day at 1 a.m., starting on the 14th of the month. Set the Repeat every period, to define the repeat period for Scheduled Transfer, starting from the time and day number specified in Next Run. Set Also run immediately new file detected TRUE if required. This causes Review to check the instrument, every minute, for new files. If a new file is detected, a transfer occurs immediately, irrespective of the automatic repeat rate setting.

   Note If Repeat every is set to 0, and Also run immediately new file detected is TRUE, a transfer occurs only when a file is closed and a new one opened, and only the closed file(s) transferred. This means that each file is transferred (and .csv files generated) only once. If Repeat every is not set to 0 and Also run immediately... is TRUE, the scheduled transfer causes all files (including open ones) to be transferred, but intermediate transfers, triggered by new file detection, transfer only closed files.

3. Press OK to confirm the configuration, and display the Service Logon dialog. Enter the computer user name and password of the account to be used to run Review as a service and, press OK to confirm this information. This will add the Review icon to the system tray on the computer.
1.4.6 CHART RECORDED DATA (Cont.)

To produce a chart:

1. Select **File > New Chart...** The **Chart Setup** dialog is displayed and provides parameters used to configure the new chart.

2. Press the **Add Point** button to display the **Select Point** dialog. This allows the selection of the instrument, data recording (Log) group and individual recorded values.
   - Select the **Instrument**. This is the instrument containing recorded values that can be displayed. Select the instrument from the menu. This is derived from the default instrument name or the custom name configured on the **Options** page in the Data Recording Configurator in LINtools.
   - Select the **Log Group**. This is the data recording group in the instrument containing recorded values that can be displayed. Select the data recording group from the menu.
   - Select the **Point ID(s)**. These are the recorded fields in the specified data recording group of the defined instrument. Select the recorded fields that you wish to display, using the <CTRL> key to select multiple recorded fields, or the <Shift> key to select a group of recorded fields and confirm using the **OK** button, or press the **Add All** button to select all the recorded fields and automatically confirm the selection.

3. Press the **OK** button to confirm the changes, then press **OK** to confirm the display of the chart.
1.5 TROUBLESHOOTING

Most data recording and data archiving problems can be resolved by inspecting the RMEMDIAG block and the RARCDIAG block.

**Note** Most of the following instructions can be tried and applied during online reconfiguration. If configuring the instrument strategy offline, remember it must be saved and downloaded to the instrument before confirming the operation.

**Q** Why does the Data Recording Configurator not appear in LINtools?

**A** This is probably because you are upgrading an instrument. The Data Recording Configurator will only appear if the instrument firmware version supports data recording. To resolve this,

- Ensure the instrument firmware version 4.0 or later is installed in the base unit.

**Note** If updating from an existing .dbf, remember to change the instrument header block. Simply delete the existing header block, then drag and drop a Tactician type Configuration block, version 4.0 or later to the worksheet. Finally, rename the new header block to match the name used by the header block that was deleted. Build and download the instrument strategy.

**Q** Can I change the recording rate of a data recording group?

**A** The recording rate is configured using the UpdateA field in the RGROUP block in the .dbf, and applies to all fields in that data recording group. To change this,

- Open the Database configurator, find and select the RGROUP block corresponding to the data recording group. Edit the UpdateA field value, and press <CR> to confirm the changes. Changing this value adjusts the intended time period between recording samples.

**Q** Can I record fields that change rapidly while recording at a slow update rate?

**A** If you have decreased the update rate of a data recording group, and have fields that change rapidly, short duration spikes (for example) may not be recorded. Enabling the MinMax function, ensures that these fields can be recorded at slow recording speeds. If you want to record fields that change rapidly at slow recording speeds,

- Open the Data Recording Configurator and select the Fields page, then select the MinMax field associated with the required value to display a picklist, and select ON to enable this function.

When MinMax is enabled the minimum and maximum values of the field are recorded and saved at the end of each recording period. When the trend is shown in Review, both maximum and minimum values are displayed on the chart, i.e. two traces are produced for specified field.

When enabled, this counts for 2 of the 127 maximum trends in Review.

**Q** What do the question mark and asterisk characters in a message appearing in Review mean?

**A** These characters are used to indicate that the time value in a message is derived from a remote instrument and may potentially be unreliable. The remote instrument does not provide a date. The * characters appear because you are recording alarms of a block cached from an instrument that is not time synchronised to the local instrument.
1.5 TROUBLESHOOTING (Cont.)

Q  Can I define the position and limits of a recorded field when displayed in Review?

A  In Review, a chart is divided into zones that can be displayed adjacent or overlaid, depending on the configuration defined in the dialog displayed when the Settings command from the Options menu is selected. The Point Properties dialog shows the position and limits of a recorded field. These are derived from the SpanHigh and SpanLow, and ZoneHigh and ZoneLow columns configured in the Data Recording Configurator.

- ZoneHigh and ZoneLow specifies the position of the trend on the chart, e.g. settings of 50% and 100% cause the trend to appear in the top half of the chart.
- SpanHigh and SpanLow specifies the limits, in engineering units, of the zone to which the selected trace will be scaled.

Note  If an inverted 0 is required then set SpanLow larger than SpanHigh. This will invert the trend in the zone.
1.5 TROUBLESHOOTING (Cont.)

Q Why is data recording not working?

A This could be due to one of many problems, some depending on whether configuring a new or existing database.

Use this flow chart to diagnose the problem.

1. Define block fields that are to be recorded. Ensure the fields appear in the Data Recording Configurator.

2. Open the RGROUP block.
   - Is RGROUP.Enabled.TOO TRUE?
     - No: Set RGROUP.Enabled.TRUE, or enable recording via the Enable Recording field in the Data Recording Configurator.
     - Yes: Set RGROUP.Id greater than 0 (zero). 0 disables the operation of the data recording group.

3. Are any alarms in the RGROUP block TRUE?
   - No: Are any other RGROUP.Alarms bitfields TRUE?
     - No: Are any RMEMDIAG.Alarms bitfields TRUE?
       - No: Is the required update rate configured?
         - No: Set RGROUP.UpdateA (or RGROUP.UpdateB if RGROUP.SelectB is TRUE) ≥ RGROUP.ActUpdat
         - Yes: You are now recording. Check the archive configuration.
       - Yes: The alarms in this block show the condition of the hardware and flash memory, see LIN Block Reference Manual.
     - Yes: Any other alarm will not affect the Data Recording, see LIN Block Reference Manual.
   - Yes: Install valid hardware, valid licence (see OPT_DIAG block), and create a recording group corresponding to the Id.

4. Are any RGROUP.Alarms.Config TRUE?
   - No: Are any RGROUP.Alarms.MenHW TRUE?
     - No: The hardware does not support Data Recording and must be replaced.
     - Yes: Reset alarm flags. Set each RMEMDIAG.Reset subfield TRUE.
   - Yes: The alarms in this block show the condition of the hardware and flash memory, see LIN Block Reference Manual.

5. Reset alarm flags. Set each RMEMDIAG.Reset subfield TRUE.

6. You are now recording. Check the archive configuration.

See data archiving flowchart, if you are recording but files are not appearing in the archive directory.
1.6 TROUBLESHOOTING (Cont.)

Data Archiving

- **Is the FTP Server installed?**
  - Yes: Open the installed FTP Server archive directory.
  - No: Install and configure the FTP Server, see FTP (File Transfer Protocol) Server.

- **Do data recording files (.uhh) appear in the archive directory?**
  - Yes: Repeat this for each alarm subfield (Alarms.PrHst1 to Alarms.SeHst3) as it occurs.
  - No: Archiving configured in the Instrument Properties dialog?
    - Yes: Are any alarms in the RARCDIAG block TRUE?
      - No: See data recording flowchart, if you are not recording.
      - Yes: If RARCDIAG.Alarms.PrHst1Er is TRUE, check subfields in RARCDIAG.PrError1.

- **Is Archiving configured in the Instrument Properties dialog?**
  - Yes: Are any alarms in the RARCDIAG block TRUE?
    - No: See data recording flowchart, if you are not recording.
    - Yes: Repeat this for each alarm subfield (Alarms.PrHst2 to Alarms.SeHst3) as it occurs.

- **Are any alarms in the RARCDIAG block TRUE?**
  - No: IP address in Instrument Properties dialog cannot be found on network. Consult the engineer who configured the FTP Server.
  - Yes: **Is RARCDIAG.PrError1.BadPing TRUE?**
    - No: IP address in Instrument Properties dialog cannot be found on network. Consult the engineer who configured the FTP Server.
    - Yes: Check FTP Server is running. Consult the engineer who configured the FTP Server.

- **Is RARCDIAG.PrError1.Connect TRUE?**
  - No: Invalid Login details in Instrument Properties dialog. Consult the engineer who configured the FTP Server.
  - Yes: **Is RARCDIAG.PrError1.Dir TRUE?**
    - No: Invalid archive directory path in Instrument Properties dialog. Consult the engineer who configured the FTP Server.
    - Yes: Archive directory is read-only. Enable Write access. Consult the engineer who configured the FTP Server.

- **Is RARCDIAG.PrError1.Access TRUE?**
  - No: The FTP Server failed while writing files. Consult the engineer who configured the FTP Server.
  - Yes: Files were deleted before being archived. Slow the Update rate (RGROUP) or increase the Interval rate, see Archiving.

- **Reset error flags.**
  - Set RARCDIAG.RstDiags TRUE.

If problems persist, contact help desk.

You are now archiving. Check the Review configuration, see Chart Recorded Data.
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CHAPTER 2 SETPOINT PROGRAM

This section describes the Setpoint Programmer facility supported by this instrument.

The purpose of a Setpoint Programmer is to control and manage the target value that an automatic control system, e.g. PID controller, will aim to reach.

Example

A boiler control system might have a temperature Setpoint, that is a temperature the control system aims to attain in the system.

The main topics covered are as follows:

- Setpoint Program Configuration (section 2.1)
- Quick Start To Configuring Setpoint Programming Blocks (section 2.2)
- Quick Start To Configuring A Channel Profile (section 2.3)
- Quick Start To Controlling A Program (section 2.4)
- How To... (section 2.5)
- Troubleshooting (section 2.6)

2.1 SETPOINT PROGRAM CONFIGURATION

The Program Template file (.uyw) describes the structure of a Programmer, the number of Channels and corresponding names, the number of Digital Events, Wait Conditions, Exit Conditions, and User Values, and how each Channel is presented in the Programmer Editor. The description contained in the Program Template file is then used to ensure the Program file (.uyy) corresponds to each Programmer’s structure. The names of individual process variables (Profiled Channels), digital event outputs and user values defined in the Program Template file are all shown in the Programmer Editor used to generate the Program. The Program Template file must be modified using the Programmer Wizard in LINtools.

The Program Template file can be referenced by a local instrument or any other instrument on the same network. This allows the same Program Template file to apply to multiple instruments.

The following diagram shows all system configuration components required for a Programmer application.

Note: This configuration could equally apply to the T820 Controller variant.
2.1.1 Programs

This instrument supports single and multi-channel Programs. This is defined by the number of Name entries in the Profiled Channels page of the Programmer Wizard. The Chart pane in the Programmer Editor shows a maximum of three Profiled Channels, the first two Name entries in the Programmer Wizard correspond to the two most upper Profiled Channels the other Profiled Channel displayed in the lowest Chart position is the one selected in the Segment grid. The lowest Chart position can also show a Digital Event Output, or User Values by selecting it from the Properties pane, see below.

- A single channel Program, i.e. the control of one input value from the plant/system, supports Step, Dwell, RampRate, RampTime, and End Segment types. The Profiled Channel appears in the upper most Chart position, allowing Digital Event Output, and User Values to be displayed in the remaining Chart positions.

- A multi-channel Program, i.e. the control of more than one input value from the plant/system over an identical time period, supports Step, Dwell, RampTime, and End Segment types, but does not support RampRate Segment type. The first two Profiled Channels always appear in the upper most Chart positions in the order defined in the Programmer Wizard, and in the lowest Chart position displays the selected information as stated above.

The following image shows a multi-channel program.
2.2 QUICK START TO CONFIGURING SETPOINT PROGRAMMING BLOCKS

These instructions assume that the instrument is correctly wired to the plant/system and is operating normally, the database file, .dbf is already open, and all existing blocks and compounds are displayed on the worksheet.

Note  For the purpose of this exercise, we will only configure one PID control loop to one Profiled Channel. If using multiple PID control loops in the strategy, wire each PID control loop to a PROGCHAN block.

1. Launch the Programmer Wizard from the Tools menu.

   The Programmer Wizard is used to configure a Program Template file and create and edit the blocks in the PROG_WIZ compound.

   Note  Block fields are described using blockname.page.field.subfield format. Pages have been used in some blocks to increase the number of required fields, but are only visible in the Object Properties pane.

2. Complete each page, providing as much information as necessary to configure the Program Template file and the PROG_WIZ compound. For the purposes of this exercise set:

   Make new PROGCTRL block to SP01
   Program Template file to T2550_14
   3 Profiled Channels (My_PV01, My_PV02, and My_PV03)
   4 User Values (UserVal_01 to UserVal_04)
   16 Digital Events (Dig_Event_01 to DigEvent_16)
   8 Wait Conditions (Wait_01 to Wait_08)
   8 Exit Conditions (Exit_01 to Exit_08)
   RampBack power fail recovery action

The Program Template file defines the constraints of a Program file for an instrument and how each channel profile is presented in the Programmer Editor and instrument.

The PROG_WIZ compound contains 1 PROGCTRL block, up to 8 PROGCHAN blocks, and up to 8 SEGMENT blocks per PROGCHAN block.

Note  All blocks created using the Programmer Wizard are automatically named using the prefix defined on the PROGCTRL Name page.

IMPORTANT  To prevent erroneous Program Template file configuration always use the wizard to edit the blocks in the PROG_WIZ compound. Changing the number of Profiled Channels, Digital Events, or User Values will invalidate any Program files created with the previous version.
2.2 QUICK START TO CONFIGURING SETPOINT PROGRAMMING BLOCKS (Cont.)

3 Connect the control loop to the appropriate Setpoint Program Channel. Start with the PV output from the LOOP_PID block to the PROGCHAN block.

   i) Select the LOOP_PID block and display the Object Properties pane. Click the PV field to reveal the context menu shown.

   ii) Select the Connect output to... command to display the picklist of available blocks.

   iii) Locate and expand the PROGCHAN block, then select the PV field.

4 Add the remaining wiring connections shown below. Table 2-1 lists all the source and destination fields that should be interconnected in this strategy, and summarises their functions. Repeat for each Program channel.

   Note The following table uses a (Block type) blockname.page.field.subfield format to show source and destination wiring. Pages have been used in some blocks to increase the number of required fields, but are only visible in the Object Properties pane.

<table>
<thead>
<tr>
<th>Source</th>
<th>Destination</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Loop configuration</td>
<td>(AI_U1O) PV.PV</td>
<td>Process Variable (PV) from the T2550 input module in to the LO O P_PID block. For testing purposes, this can be sourced from the PV field of a SIM block.</td>
</tr>
<tr>
<td>(LO O P_PID) loop_pid.M ain.W rkO P</td>
<td>(AO_U1O) O P.O P</td>
<td>PID control output O P to the T2550 output module</td>
</tr>
<tr>
<td>Programmer configuration</td>
<td>(LO O P_PID) loop_pid.M ain.SP</td>
<td>PID control loop PV in to the Programmer channel (PRO G CHAN) block for using the control loop PV</td>
</tr>
<tr>
<td>(LO O P_PID) loop_pid.M ain.W SP</td>
<td>(PRO G CHAN ) SP01C1.M onitor.SP</td>
<td>PID working setpoint in to the Programmer channel (PRO G CHAN) block for the operating setpoint of the control loop</td>
</tr>
<tr>
<td>(PRO G CHAN ) SP01C1.M onitor.CurrSP</td>
<td>(LO O P_PID) loop_pid.SP.AISP</td>
<td>Current setpoint generated by the locally-running setpoint program in to the LO O P_PID block’s remote setpoint input</td>
</tr>
<tr>
<td>(PRO G CHAN ) SP01C1.M onitor.StateFlg.ChActive</td>
<td>(LO O P_PID) loop_pid.SP.AISPEn</td>
<td>Enables the use of a setpoint. This is not a setpoint configured locally in the LO O P_PID block.</td>
</tr>
</tbody>
</table>

Table 2-1 Strategy wiring data
2.2 QUICK START TO CONFIGURING SETPOINT PROGRAMMING BLOCKS (Cont.)

5 Edit the block fields. The following table lists the fields that should, as a minimum, be edited from their default values. Most PROG_WIZ compound block fields are automatically populated via the Programmer Wizard. For completeness, all edited fields are shown in the table.

**Note**  For the purpose of this exercise, we will only configure one PID control loop to one Profiled Channel. Repeat this for each PID control loop as required.

<table>
<thead>
<tr>
<th>Block.Page.Field.Subfield</th>
<th>Value</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>(LOOP_PID) loop_pid.PID.TI1</td>
<td>5.00</td>
<td>Sets the PID integral time constant to 5 seconds, to improve control</td>
</tr>
<tr>
<td>(LOOP_PID) loop_pid.Alarms.Lo</td>
<td>20.00</td>
<td>Sets the loop_pid’s PV output ‘low absolute’ alarm at 20. The loop_pid.Main.Alarms.Lo is asserted when loop_pid.Main.PV falls below 20.</td>
</tr>
<tr>
<td>(LOOP_PID) loop_pid.Main.Alarms.Lo</td>
<td>1</td>
<td>Enables the ‘low absolute’ alarm on the loop_pid’s PV output</td>
</tr>
<tr>
<td>(PROGCTRL) SP01.File.ProgFile</td>
<td>T2550</td>
<td>Shows the name of the Program file associated with the Program Template file shown in (PROGCTRL) SP01.File.TmplFile.</td>
</tr>
</tbody>
</table>

Table 2-2  Values for non-default block fields

The following figure shows a single PID control loop and the wiring to a PROGCHAN block within the PROG_WIZ compound. This represents a single Profiled Channel in the Programmer Editor.

You should now have configured the database to control the setpoint of one PID loop.
2.3 QUICK START TO CONFIGURING A PROGRAM

These instructions assume that the database file, .dbf is already open, and all existing blocks and compounds are displayed on the worksheet.

1 Launch the Programmer Editor from the Tools menu in LINtools. Alternatively, use
   Start > Programs > ... > Programmer Editor > Programmer Editor

   - If the Program file does not exist, select File > New to display the Choose a Program Template dialog. Navigate to the required Program Template file (in an instrument folder) and press Open to create a null operation Program file.
   - If the Program file already exists, select File > Open. Navigate to the required Program file and press Open.

   Remember: You can also use the context menu in the Object Properties pane to create and open a Program file.

2 Configure the Channel Profile. Start by creating the required number of Program segments using the Insert Segment button in the Toolbar. The following figure shows 4 or more segments have been created. The last Segment is always a read-only END segment.

   i) Configure the Segment type.
   Select the method used to control the setpoint value from the menu.

   ii) Configure the duration of each segment.
   Not applicable to RampRate segments.
   Enter a duration in hours, minutes, seconds (49 days, 17 hours, 02 minutes, 47 seconds max).

   iii) Configure the target setpoint value. This is the value at which the next segment will start.

   Tip! If the duration should be 1 day or more, enter a number greater than 24, and then edit the field as required.

<table>
<thead>
<tr>
<th>Segment type</th>
<th>Graphic</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step</td>
<td><img src="image1.png" alt="Segment Graphic" /></td>
<td>The setpoint steps instantaneously from its current value to a new value.</td>
</tr>
<tr>
<td>Dwell</td>
<td><img src="image2.png" alt="Segment Graphic" /></td>
<td>The setpoint remains constant for a specified period.</td>
</tr>
<tr>
<td>RampTime/ RampRate</td>
<td><img src="image3.png" alt="Segment Graphic" /></td>
<td>The setpoint ramps linearly, from its current value to a new value, either at a set rate (RampRate, single channel Programs only), or in a set time (RampTime).</td>
</tr>
</tbody>
</table>

Table 2-3 Segment types
2.3 QUICK START TO CONFIGURING A PROGRAM (Cont.)

5 Configure the Program Properties. The Program Name should, as a minimum, be edited from the default value. Further configuration depending on the application may be required, but is beyond the scope of this section, see How to... section.

i) Select the Program Name parameter and enter a name used to identify the Program.

ii) see How to... section

6 Save the Program file, and return to LINtools. The Program file should look something like the figure below.

7 In LINtools, save the database file to update the download list, and download the instrument configuration using the Download button in the Contents pane. The Program Template file and the Program file will automatically be downloaded to the instrument along with the database file.
2.4 QUICK START TO CONTROLLING THE PROGRAM

These instructions assume that the database file, .dbf, the Program Template file, .uyw, and the Program file, .uyy, have already been downloaded to the instrument, and the database is running.

In the Programmer Editor

1. Connect to instrument using Connect command. This will attach to instrument and reveal a number of buttons below the Segment grid and Status page.
   
   Note The configured segments will not be displayed until the Program is started.

2. In LINtools, set PROGCTRL.File.Load TRUE. This will load the Program file defined in PROGCTRL.File.ProgFile.

3. Press the Start button to run the Program, see Programmer Editor Help file. Observe as the Program Status area changes to Green to indicate the Program is running. A scrolling vertical bar is used to show the current position of the Program.

   As the Program starts each segment, the Program History area records the configuration applied to the segment, and any configured operations and user interactions, i.e. a configured Wait condition, or the HOLD button is pressed. A date and time reference is included with each operation.

   Note The Channel Setpoints area shows the current segment type in operation.

4. Use the buttons to control the Program currently running. Press

   □ HOLD to freeze the current setpoint value and the Program at its current position. The Program Status area changes to Amber to indicate the Program is in a HELD state.

   □ RESTART to remove the HELD status and continue the Program from the current setpoint value and its current position in the Program. The Program Status area returns to Green to indicate the Program is running.

   □ SKIP to move to the next segment immediately using the current setpoint value.

   □ ADVANCE to move to the next segment immediately setting the current setpoint value equal to the target setpoint.

   □ JOG to display a list of time periods used to change the current position of the segment. This can be used to increase or decrease the length of the current Dwell or Step segment. This is only enabled if the setpoint value in all segments are not ramping.

   □ REDO to repeat the current segment. This is enabled if the Program is in a Held state.

   □ ABORT to terminate the current Program. The Program Status area returns to Grey to indicate the Program is in Idle state.
2.5  HOW TO...

In this section, you will be guided through additional tasks used to configure elements of a Program. These tasks will help you when configuring the strategy in the instrument, and include instructions for displaying asserted Program alarms on an Eycon Visual Supervisor.

2.5.1  Organise the display of Program alarms in an Eycon

When the Eycon is used to display the control of a Program in a T2550, it is possible to show the Programmer alarms. Alarms asserted in the Programmer blocks can be automatically added to the list of Alarms shown on the Monitor display of an Eycon by using the cached PROGCTRL block and the cached PROGCHAN block as shown. These blocks will already be cached in the Eycon because this instrument may be used as the overall control of the Program.

*Note*  If a AREA block is not configured, the Eycon Alarms button on the Monitor display will only show PROGCTRL block alarms and events.

To configure the display of Program alarms

1. In LINtools, add an AREA block and a GROUP block (Organise category) to the worksheet. Name the blocks.
2. In the GROUP block populate the Disp1 - Disp16 fields with the PROGCTRL block and the PROGCHAN block.
3. In the AREA block, populate a Group1 - Group16 field as required with the relevant GROUP block name.
4. Save, download and run the databases in the corresponding instruments.

Any asserted alarm will now appear on the Monitor display of the Eycon when the Alarms button is pressed.

*Note*  This also applies to any other process critical block.
2.5.2 Write User Values, and Digital Events Outputs

Configuring User Values, and Digital Events allows a specified value to be written to a wired destination as the segment is started.

- User Values are a general purpose analogue values within the limits defined in the Programmer Wizard that can be written to any Engineering Unit field (Eng).
- Digital Events are a general purpose digital values that can be written to any Digital field.

To write values in the database

1. In LINtools, wire the blocks as shown in the table below.

<table>
<thead>
<tr>
<th>Source</th>
<th>Destination</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Value configuration</td>
<td>(AN_CONN) an_conn.PV1</td>
<td>W rites the value configured in the corresponding User Value field for the required Segment of the Program to the destination block field when the segment is initiated.</td>
</tr>
<tr>
<td>User Value configuration</td>
<td>(AN_CONN) an_conn.PV2</td>
<td>W rites the value configured in the corresponding User Value field for the required Segment of the Program to the destination block field when the segment is initiated.</td>
</tr>
<tr>
<td>User Value configuration</td>
<td>(AN_CONN) an_conn.PV3</td>
<td>W rites the value configured in the corresponding User Value field for the required Segment of the Program to the destination block field when the segment is initiated.</td>
</tr>
<tr>
<td>User Value configuration</td>
<td>(AN_CONN) an_conn.PV4</td>
<td>W rites the value configured in the corresponding User Value field for the required Segment of the Program to the destination block field when the segment is initiated.</td>
</tr>
<tr>
<td>Digital Event configuration</td>
<td>(DG_CONN) W Field1.Bit0</td>
<td>W rites the On/Off configured in the corresponding Digital Event field for the required Segment of the Program to the destination block field when the segment is initiated.</td>
</tr>
<tr>
<td>Digital Event configuration</td>
<td>(DG_CONN) W Field1.Bit1</td>
<td>W rites the On/Off configured in the corresponding Digital Event field for the required Segment of the Program to the destination block field when the segment is initiated.</td>
</tr>
<tr>
<td>Digital Event configuration</td>
<td>(DG_CONN) W Field2.Bit0</td>
<td>W rites the On/Off configured in the corresponding Digital Event field for the required Segment of the Program to the destination block field when the segment is initiated.</td>
</tr>
<tr>
<td>Digital Event configuration</td>
<td>(DG_CONN) W Field2.Bit1</td>
<td>W rites the On/Off configured in the corresponding Digital Event field for the required Segment of the Program to the destination block field when the segment is initiated.</td>
</tr>
</tbody>
</table>

Note: (Block type) blockname.page.field.subfield format.

Table 2.5-2 Writing User Value and Digital Event outputs

Remember You can use the context menu in the Object Properties pane to wire to and from other blocks in the database.

2. In the Programmer Editor, enter the User Value, or select the Digital Event in the required segments of the Program. These are the values that will be written to the wired destination.

When attached to the instrument, select the User Value or Digital Event to show the configured action as applied in the Program in the lowest plot in the Chart pane.

Note: The User Value limits and the user configured Digital Event enumeration are defined using the Programmer Wizard in LINtools.

3. Save, and download the Database file, Program Template file and Program file.

Note: If using a Project you may also have to build the Instrument folder.
2.5.3 Configure a Wait (or Exit) condition

Configuring a Wait (or Exit) condition controls the Program in order to ensure specific conditions are achieved before the Program can continue (or terminate).

Note If a Wait condition has been applied, the Advance and Skip buttons can be used to proceed to the next segment.

To configure the required Wait (or Exit) condition

1 In the Programmer Editor, set the required Wait (or Exit) conditions to On or the corresponding user configured enumeration. Only conditions set accordingly will react to changes in the strategy.

Note Exit conditions can only be applied to segments that are not ramping the setpoint, i.e. Dwell and Step.

When attached to the instrument, select the Wait (or Exit) conditions to show the configured action as applied in the Program in the lowest plot in the Chart pane.

Note The user configured enumerations are defined using the Programmer Wizard in LINtools.

2 In LINtools, wire the blocks as shown in the table below.

Note The SP01C1.Monitor.CurrCond.Waitn and SP01C1.Monitor.CurrCond.Exitn subfields can be wired to an appropriate block type for the strategy.

<table>
<thead>
<tr>
<th>Source Destination Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programmer configuration</td>
</tr>
</tbody>
</table>

Note The rules specified using the SP01C1.Monitor.Cond.Waitn (or Exitn) and SP01C1.Monitor.InvCond.Waitn (or Exitn) subfields determine how the Program will react if a Wait (or Exit) condition is enabled in a segment, see LIN Block Reference Manual.

3 Save, and download the Database file, and Program file.

Note If using a Project you may also have to build the Instrument folder.
2.5.4 Configure Algorithm data

Algorithm data can be configured using a combination of the Algorithm File field in the Programmer Editor and the wiring of the PROGCTRL block to the SFC_CON, RECORD, RCP_SET (and RCP_LINE), or DR_REPRT blocks. These blocks hold the data used to populate the required algorithm.

The example below shows how the RECORD block can be used to read and write values to/from the Record file.

**Table 2-5-4a Wiring Algorithm data control**

<table>
<thead>
<tr>
<th>Source</th>
<th>Destination</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>(PROGCHAN) SP01C1.Monitor.EventOut.Event3</td>
<td>(RECORD) rec_01.Put</td>
<td>This will write the values from this block to the specified RecordNo field in the Record file (.rcd) when the Digital Event is set TRUE.</td>
</tr>
<tr>
<td>(PROGCHAN) SP01C1.Monitor.EventOut.Event4</td>
<td>(RECORD) rec_01.Get</td>
<td>This will read the values from the specified RecordNo field in the Record file (.rcd) when the Digital Event is set TRUE.</td>
</tr>
</tbody>
</table>

**Table 2-5-4b Values for non-default block fields**

<table>
<thead>
<tr>
<th>Block.&lt;Page&gt;.Field.Subfield</th>
<th>Value</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>(PROGCTRL) SP01.Config.AlgBlk</td>
<td>rec_01</td>
<td>This is the RECORD block name used in conjunction with the Algorithm File field configured in the Programmer Editor.</td>
</tr>
<tr>
<td>(RECORD) rec_01.FileN ame</td>
<td>record01</td>
<td>Enter the name of the Record file (.rcd) used. The Record file can only be written to or read by the Record block.</td>
</tr>
<tr>
<td>(RECORD) rec_01.RecordNo</td>
<td>1</td>
<td>Enter the number indexing the values from this block in the Record file (.rcd).</td>
</tr>
</tbody>
</table>

To configure the algorithm data

1. In the Programmer Editor, set the Algorithm File field as required, i.e. record01, and save the Program.
2. In LINtools, configure the database.
   i) Add and wire the blocks for this example as shown below.

   ![Diagram of Algorithm data control]

   **Figure 2-5-4 Algorithm data control**

   **Note** The Algorithm file specified in the Programmer Editor is loaded via the RECORD block. RECORD.Put can be used to write values to the Record file (.rcd) at the users discretion. RECORD.Get can be used to read values from the Record file (.rcd) at the users discretion.

3. Save and download the files to the instrument.

   **Note** You can also use the Network Explorer if connected, to transfer files between the instrument and the computer.
2.6 TROUBLESHOOTING

Most Program problems can be resolved by inspecting the PROGCTRL block and the PROGCHAN block.

Note Most of the following instructions can be tried and applied during online reconfiguration. If configuring the instrument strategy offline, remember it must be saved and downloaded to the instrument along with the Program Template file and Program file where applicable before confirming the operation.

Q Why does the Programmer Editor only show one END segment of the Program?

A This is probably because the Program file did not successfully load before connecting to the instrument from the Programmer Editor.

To resolve this, in the Programmer Editor, simply close the connection to the instrument, ensure the Program file is loaded (PROGCTRL.Monitor.State indicates an initialised state, e.g. Idle, not Unloaded) and then press Online Connect again. The Program file will be displayed as expected because it loaded before connecting to the instrument.

Q Why is PROGCTRL.File.Alarms.Oob asserted?

A This is the Out of bounds alarm. It is used to show that a PV value in the Program has exceeded the Low and/or High Alarm value, as determined by the rules specified by the PROGCHAN.Monitor.HbType subfields in conjunction with the Holdback + Alarm Value configured in the Programmer Editor.

Note An Out of bounds alarm remains asserted until the Program is reset, and the Program is in the Idle state.
2.6 TROUBLESHOOTING (Cont.)

Q Why does the Program file fail to load?

A This is probably because a problem exists somewhere in the Program configuration, e.g. an error exists in the Program file, an invalid PROG_WIZ compound, or Program configuration.

Use this flow chart to diagnose problems.

Note Refer to the LIN Block Reference Manual for details about the PROGCTRL.File.FileErr field.
APPENDIX A  FTP (FILE TRANSFER PROTOCOL) SERVER

If the instrument is connected, as part of a Ethernet Network, the Data Recording files, .uhh, can be archived to a defined FTP Server. Using the Instrument Properties dialog, .uhh files are pushed from the instrument to an archive directory configured in a specified FTP Server.

Note A number of FTP Servers are available. This section describes the installation and configuration using the default settings of the Internet Information Services (IIS) FTP Server supplied with the Windows XP Operating system, see Microsoft IIS Documentation help file for details.

A1.1 ADDING AN FTP SERVER

For the purpose of these instructions, we will assume that the computer is using a Windows XP Operating System and has an IP Address of 192.168.111.254.

To install an FTP Server

1. Launch the Windows Control Panel. Click Start > Control Panel.
2. Open the Add/Remove Programs dialog, then select Add/Remove Windows components from the left column. This launches the Windows Component Wizard.
3. Select the Internet Information Services (IIS).

Note Ensure the File Transfer Protocol (FTP) Service is selected, by pressing the Details button to display the Internet Information Services (IIS) dialog used to select this service.

4. Use the Next button to continue the Windows Component Wizard. This launches the install process and displays a confirmation dialog when complete. This installation creates the default file structure required for FTP.
A1.1 Adding AN FTP SERVER (Cont.)

Now that the server has been installed, it must be configured

1. Launch the Windows Control Panel. Click **Start** > **Control Panel**.
2. Open **Administrative Tools**, then launch the **Internet Information Services (IIS)**.
3. Expand the **Local Computer** icon and the FTP Site icon to display the **Default FTP site** folder.
4. Select the **Default FTP site** folder to show the context menu and select **Properties** to display a dialog. Use this dialog to set the identification parameters for your server. The server and domain names and the IP address are optional.
   - Select the **FTP Site** page. This allows you to configure the identification for the FTP Site.
     - **Description.** This name is primarily for identification and organizational purposes, and does not need editing.
     - **IP Address.** This is the IP address of the local computer connected to the network.
     - **TCP Port.** This determines the port on which the service is running.

   **IMPORTANT** The **TCP Port must be set to 21.**

   - Select the **Security Accounts** page. This allows you to configure remote access to your specified FTP Server.
     - **Allow Anonymous Connections.** Set **Allow Anonymous Connections** FALSE to only allow connections to the FTP Server from Windows User accounts that exist on this computer. When FALSE all parameters are disabled, greyed out.

   **Note** Anonymous connections, Allow Anonymous Connections set TRUE, are permitted, but not recommended

   - Select the **Home Directory** page. This allows you to configure the path to the FTP directory or destination URL. The syntax must match the selected path type,
     - For a local FTP directory, use the full path; for example, c:\inetpub\ftproot, by default. Use the **Browse** button to select a local directory rather than typing the path.
     - For a network share, use a Universal Naming Convention (UNC) server and share name; for example, \Webserver\Htmlfiles.

   **Note** The Write box must be set TRUE.

5. Press **OK** to confirm the changes to the configuration of the FTP Site and to close the **Properties** dialog.
1.4 Adding AN FTP SERVER (Cont.)

Check to see if files are transferring.

1. Open Windows Explorer. Click Start > Programs > Accessories > Windows Explorer.

2. Locate and open the FTP directory configured in the Home Directory page of the Default FTP Site Properties dialog. This will be at `c:\inetpub\ftproot` if the default was used.

3. Open the folder used to identify the instrument generating .uhh files, as configured in the Instrument Properties dialog, and the folder identifying the group of values recorded in this .uhh file.

4. With the `c:\inetpub\ftproot` FTP directory open, .uhh files appear as they are transferred from the instruments’ internal flash memory.

Note: Sub folders can be created in the default `c:\inetpub\ftproot` FTP directory, but this must also be configured in the Directory field of the Archiving category in the Instrument Properties dialog.

<table>
<thead>
<tr>
<th>Address</th>
<th>C:\inetpub\ftproot\FTPserver1\T2550_14\group1!064+CA4000000020</th>
</tr>
</thead>
</table>

**IMPORTANT** If the .uhh files are not appearing in the configured archive directory, open LINtools and inspect the RARCDIAG block. This will provide information for diagnosing why the .uhh files are not being archived.
Intentionally left blank
Index

Symbols
.dbf file ................................................................. 1-1, 2-3
.uhh files ..................................................................... A1-1
.uyw file ..................................................................... 2-1
.uyy file ..................................................................... 2-1

A
Active ........................................................................... 1-11
Add/Remove Programs dialog ........................................ A1-1
Archiving ..................................................................... 1-1, 1-4, A1-1

B
Block
See also Function Block

C
Chart ................................................................. 1-12
Chart Setup dialog ..................................................... 1-13
Colour ........................................................................ 1-10

D
Data Archiving .................................................. 1-1
Data Charting ............................................................ 1-12
Data Recording .................................................. 1-1
Data Recording files .............................................. A1-1
Database ..................................................................... 1-1, 1-2, 1-14, 1-16, 2-3, 2-9
Block ......................................................................... 2-3, 2-9, 2-10, A1-3
block ........................................................................ 1-10
Block field .............................................................. 2-4, 2-5
block fields ........................................................... 1-10
Description .................................................................. 1-10
Digital Event ............................................................. 2-1
Display trends .......................................................... 1-1, 1-3
Review ........................................................................ 1-1

E
EUIN
See also Ethernet
Ethernet Network ...................................................... A1-1
Exit Condition .......................................................... 2-1

F
File Transfer Protocol (FTP) ........................................... A1-1
Find dialog ................................................................. 1-6, 1-8
Format ......................................................................... 1-10
FTP Client .................................................................. 1-1
FTP Server .................................................................. 1-1, 1-4, 1-12, A1-1

G
Group .......................................................................... 1-10

I
IIS Properties dialog .................................................. A1-2
Inactive ......................................................................... 1-11
Internet Information Services (IIS) .................................. A1-1
IP Address ..................................................................... A1-1

L
LN Blocks
See also Function Block
LN Database
See also Database
LN tools ..................................................................... 1-2, 1-10, 2-1

M
MinMax ........................................................................ 1-10

N
New Chart .................................................................... 1-13

O
Object Properties pane .............................................. 1-6, 1-8

P
PID control loop ......................................................... 2-5
Profiled Channel .......................................................... 2-1
PROGCHAN block ...................................................... 2-3
PROGCTRL block ....................................................... 2-3
Program file ............................................................... 2-1
Program Template file ................................................ 2-1
Programmer Editor ...................................................... 2-1

R
Recording ....................................................................... 1-1
Review ......................................................................... 1-10, 1-12

S
SEGMENT block .......................................................... 2-3
Setpoint ....................................................................... 2-1
SpanHigh ...................................................................... 1-11
SpanLow ...................................................................... 1-11

T
Trends ........................................................................... 1-10

U
Universal Naming Convention (UNC) ................................ A1-2
User Values ............................................................... 2-1

W
Wait condition .......................................................... 2-1, 2-8

Z
ZoneHigh ...................................................................... 1-11
ZoneLow ...................................................................... 1-11