invensys
Foxboro

LIN
Programmer Editor

User Guide

HA029850

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Contents

1 Introduction

The purpose of this document is to allow users to quickly access information concerning a particular point of interest in the Programmer Editor.

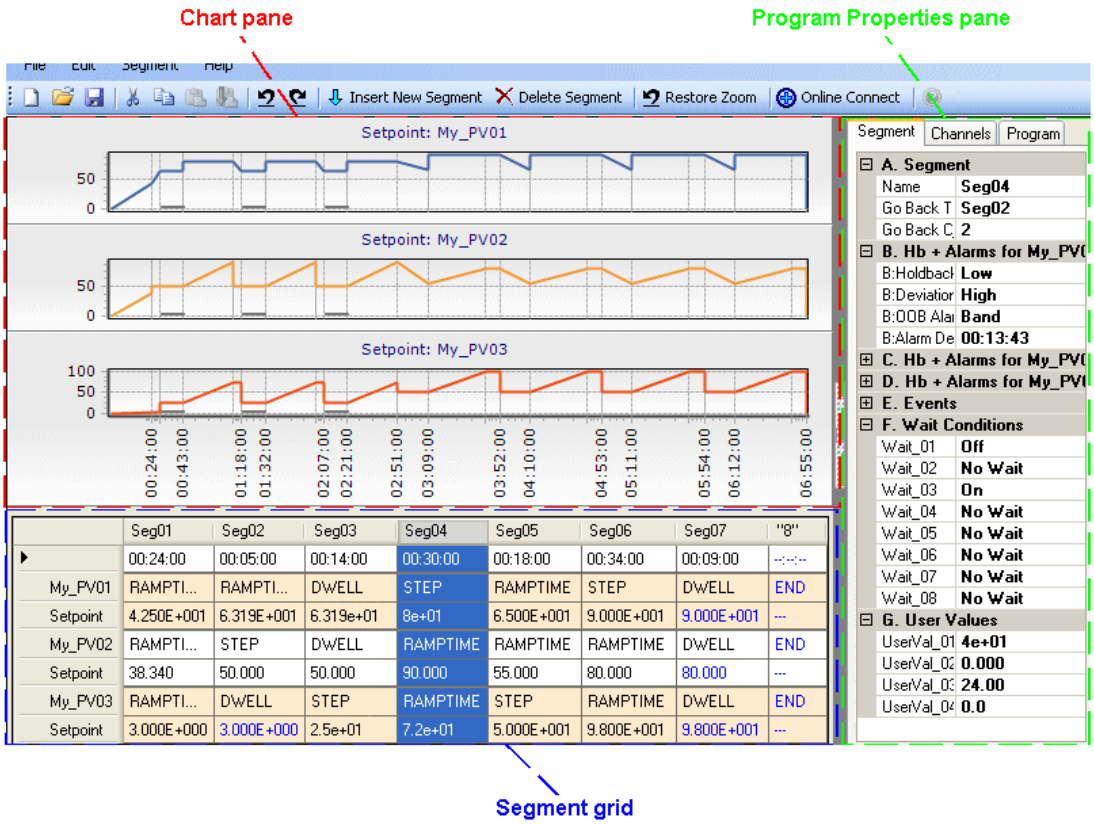
The Programmer Editor is a Windows based tool that lets you create single channel or multiple channel setpoint programs (Profiles) for LIN instruments.

This editor enables a customer to create and edit programs stored on the local machine. It outputs a complete setpoint program as a binary file within the constraints defined in the Program Template file, ready for direct downloading to the target instrument.

2 What is Setpoint Programming ?

Setpoint Programming is the control configuration of a selected instrument output value (channel), typically a setpoint (SP), over a specified period of time.

The Setpoint Program information is generated by this editor and held in a Program file (.uyy). The Program file is produced from a previously configured template defined in a Program Template file (.uyw). This Program Template file is created using the Programmer Wizard available from the Tools menu in LINtools.



	Seg01	Seg02	Seg03	Seg04	Seg05	Seg06	Seg07	"8"
	00:24:00	00:05:00	00:14:00	00:30:00	00:18:00	00:34:00	00:09:00	--:--:--
My_PV01	RAMPTI...	RAMPTI...	DWELL	STEP	RAMPTIME	STEP	DWELL	END
Setpoint	4.250E+001	6.319E+001	6.319e+01	8e+01	6.500E+001	9.000E+001	9.000E+001	---
My_PV02	RAMPTI...	STEP	DWELL	RAMPTIME	RAMPTIME	RAMPTIME	DWELL	END
Setpoint	38.340	50.000	50.000	90.000	55.000	80.000	80.000	---
My_PV03	RAMPTI...	DWELL	STEP	RAMPTIME	STEP	RAMPTIME	DWELL	END
Setpoint	3.000E+000	3.000E+000	2.5e+01	7.2e+01	5.000E+001	9.800E+001	9.800E+001	---

The Program Template file defines a suite of blocks that includes the PROGCTRL block, PROGCHAN and SEGMENT blocks, held in a PROG_WIZ compound. These blocks provide access to all parameters in the Setpoint Program that are used to configure the values in the Program file and control the Profile of the Setpoint, Events and User Values in the instrument.

What is a Setpoint ?

Setpoint is the target value that an automatic control system, e.g. PID controller, will aim to reach. For example, a boiler control system might have a temperature setpoint that is a temperature that the control system aims to meet.

Setpoint Programming - Overview

The purpose of a Setpoint Program is to control and manage the target value that an automatic control system, e.g. PID controller, will aim to reach. For example, a boiler control system might have a temperature Setpoint, i.e. a temperature the control system aims to attain in the system.

The Setpoint Program is a set of defined values for a Single Channel Program or a Multi-Channel Program stored in a Program file (.uyy). A Program file is generated using this editor within the specification defined in a Program Template file (.uyw), generated using the Programmer Wizard.

Remember
Editors can be launched using the appropriate command available from the Tools menu in LINtools.

To create a Program, a Program Template must first be produced using the Programmer Wizard in LINtools. The resulting Program Template file can then be used by this editor to create the Setpoint Program. The Programmer Wizard creates blocks that can only control Programs produced using this editor.

Remember
Use the Programmer Wizard in LINtools to generate or edit a Program Template file and create the PROG_WIZ compound. Make sure the required input values and output values to/from the plant/system are wired to the block in this compound.

1 Launch this editor by,

- Selecting Start > Programs > ... > Programmer Editor > Programmer Editor, or

Note
'...' denotes the default installation path.

- in LINtools open the PROG_WIZ compound, and the PROGCTRL block to show the **Object Properties pane**. Enter a name in the *ProgFile* field, and select the **Open Program file (.UYY)** command from the context menu. If the file already exists the Program file opens in this Editor, but if it does not the Program file is created after pressing Yes to confirm that a new file is required, or
- alternatively, select **Tools** > **Programmer Editor** from LINtools.

Then, select the Open command to open an existing Program file, or the New command to create a Program file. If creating a new Program file, select the Program Template file used to define the properties of the Program. This must from the location specified in the Programmer Wizard. A Program file is opened and displays up to 3 Profiled Channels with any remaining channels being selectable.

2 Configure a Program. This will produce a pattern of control for each Profiled Channel, and show how the setpoint is controlled through the Program.

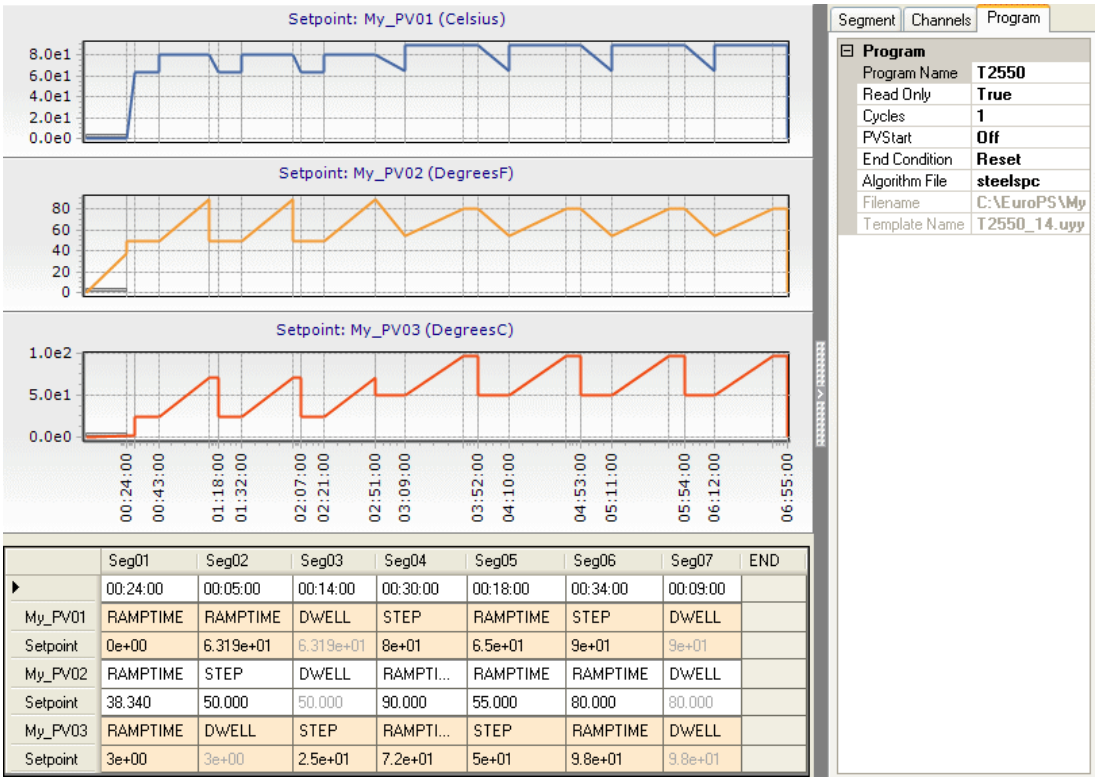
3 Control a Program. This will allow the user to control the Program currently running in the instrument after the Online Connect command is pressed.

Multi-Channel Program

A Multi-Channel Program is suitable for applications that require more than one Setpoint to be profiled, e.g. environmental chambers that control temperature and humidity.

The Program type is pre-defined in a Program Template file that is generated by the Programmer Wizard in LINtools. A Multi-Channel Program creates a Profile for each Channel Name defined in the Programmer Wizard.

Exit conditions can only be configured to occur in segments that are not ramping the setpoint, i.e. Dwell and Step. All Profiled Channels must be Step or Dwell segments in order to meet this condition, see Seg03 below.

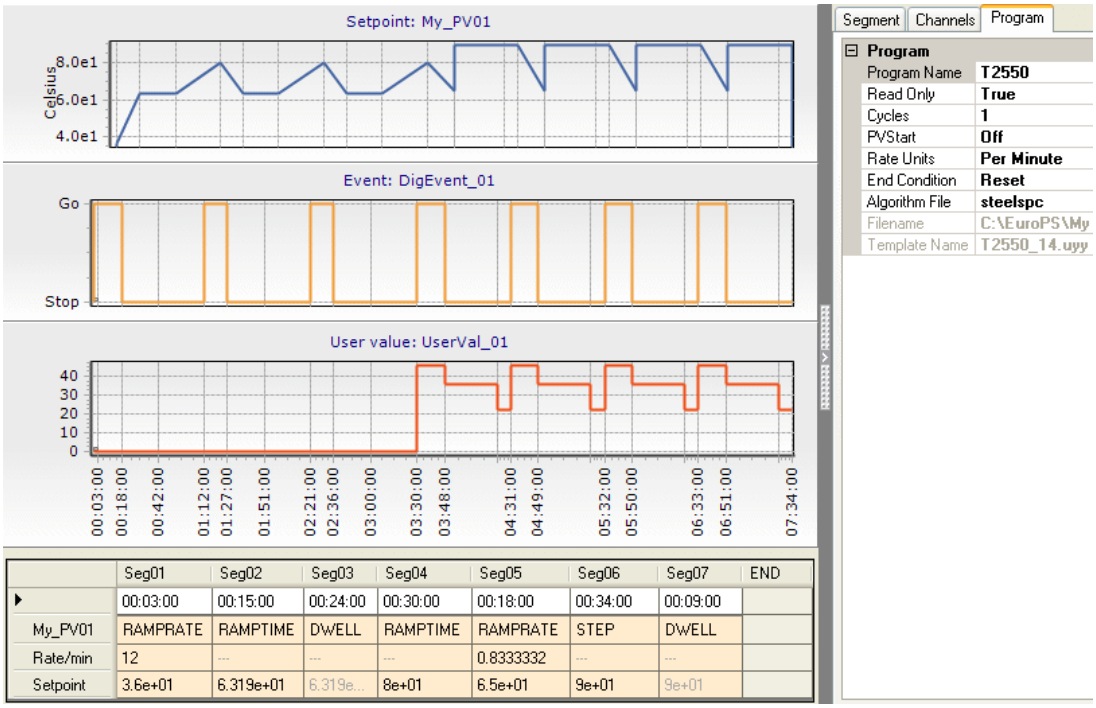


	Seg01	Seg02	Seg03	Seg04	Seg05	Seg06	Seg07	END
▶	00:24:00	00:05:00	00:14:00	00:30:00	00:18:00	00:34:00	00:09:00	
My_PV01	RAMPTIME	RAMPTIME	DWELL	STEP	RAMPTIME	STEP	DWELL	
Setpoint	0e+00	6.319e+01	6.319e+01	8e+01	6.5e+01	9e+01	9e+01	
My_PV02	RAMPTIME	STEP	DWELL	RAMPTI...	RAMPTIME	RAMPTIME	DWELL	
Setpoint	38.340	50.000	50.000	90.000	55.000	80.000	80.000	
My_PV03	RAMPTIME	DWELL	STEP	RAMPTI...	STEP	RAMPTIME	DWELL	
Setpoint	3e+00	3e+00	2.5e+01	7.2e+01	5e+01	9.8e+01	9.8e+01	

Single Channel Program

A Single Channel Program is suitable for applications that require a single Setpoint to be profiled, e.g. heat treatment or firing ceramics materials.

The Program type is pre-defined in a Program Template file that is generated by the Programmer Wizard in LINtools. A Single Channel Program creates a single Profile for the Channel Name defined in the Programmer Wizard.



	Seg01	Seg02	Seg03	Seg04	Seg05	Seg06	Seg07	END
	00:03:00	00:15:00	00:24:00	00:30:00	00:18:00	00:34:00	00:09:00	
My_PV01	RAMPRATE	RAMPTIME	DWELL	RAMPTIME	RAMPRATE	STEP	DWELL	
Rate/min	12	---	---	---	0.8333332	---	---	
Setpoint	3.6e+01	6.319e+01	6.319e...	8e+01	6.5e+01	9e+01	9e+01	

What is a Program Template file ?

This file is used to define a template for the number of channels and segments available to the Program in this instrument. It contains the information generated from the Programmer Wizard that creates a pre-configured a suite of blocks that includes the PROGCTRL block, PROGCHAN blocks and SEGMENT blocks, held in the PROG_WIZ compound.

Note
The compound will automatically layout the blocks in a logical order.

The blocks in the compound provide access to all parameters in the Setpoint Program that are used to control the operation of the Setpoint in the instrument.

Note
The Program Template file is automatically downloaded to the instrument along with the database.

What is a Program file ?

This file holds the Program information used to control a one or more instrument output values (channels) over a specified period of time. It is generated by this Editor and is based on a Program Template file, generated using the Programmer Wizard available from the Tools menu in LINtools.

Note
The Program file is automatically downloaded to the instrument along with the database.

What is LIN?

Local Instrument Network or LIN is a communications protocol providing a token-passing masterless Network which allows peer-to-peer communications and file transfer between instruments. It is supported via Ethernet, Arcnet and Serial communications connections.

A LIN Database groups data into blocks of related data. For example, a function block can represent an input, an output, a controller, and so on. The LIN configuration tool (LINtools) and display packages (i.e. User Screen Editor) recognise different types of function block, and handle them appropriately.

Communications between LIN and Modbus instruments require a Gateway. This is an interface between the LIN communications protocol and the Serial communications protocol, generally provided by blocks in the database. It involves the mapping of data from the LIN Database to the Modbus registers and digitals.

What is a LIN Database ?

A **LIN Database** (.dbf) is a database that runs in a LIN instrument providing data and rules, also known as a 'Strategy'. It is loaded by the LIN Instrument at runtime and allows the instrument software to control and monitor signals from sensors in the plant/system, e.g. an industrial plant, and then output the signals back to actuators.

The cycle of signal input, signal processing, and signal output to the entity is repeated continuously while the database is run in the instrument.

More than one LIN instrument can be involved in controlling a single entity, but only one LIN Database can run in a single LIN instrument at a time.

A LIN Database can be configured as a standard LIN Database or blended LIN Database, both operating in conjunction with one or more LIN Sequences running in the LIN instrument. It can also make use of LIN Actions stored in action files in the LIN instrument.

In LINtools, a LIN Database is represented and configured graphically as an arrangement of connected LIN function blocks, where input to output links, are represented as wires between blocks.

What is a LIN function block ?

LINtools uses a block-structured approach to configuring a control strategy, where a variety of ready-made **function blocks** perform the processing required. Any strategy can use a combination of LIN block, Control Module block and Application block to create a strategy suitable for the instrument.

A function block is an instance of a reusable module of program code, called a template, dedicated to a particular type of processing operation - e.g. the ADD2 template adds two numbers. In general, function blocks take in analogue and/or digital signals via their inputs, process them in a variety of ways, and then pass the results on via their outputs. You ’r;wire’ the function blocks together so that the signals can flow between them to execute the control strategy.

Note

For ease of use, some blocks divide the fields into pages. Fields in blocks with paged parameters are referenced using a *block.page.field.subfield*.

3 Menus

Menus

This section provides a summary of the functions of all toolbar buttons and menus displayed in the Programmer Editor.

It is intended to be a quick reference to support particular button or menu item functions.

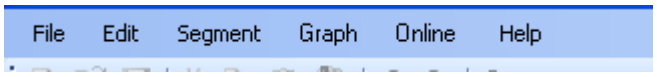
Note
A 'tooltip' will appear when first locating the cursor over a toolbutton.

The Menus can be divided into command and information areas.

Menu bar

The Menu Bar is a special toolbar that contains the pulldown commands. Each pulldown displays a further list of commands.

The Menu bar contains the following items,



Click menu to get help!

Toolbars

The Toolbars contain buttons that enable quick access to a number of commands used to configure the Program file.

- Toolbar

The Toolbar hosts icon buttons that enable quick access to a limited number of File commands.

Click Toolbutton to get help!

- Monitor Toolbar

The Monitor Toolbars contain buttons that enable quick access to a number of commands used to control the Program.

Click Toolbutton to get help!

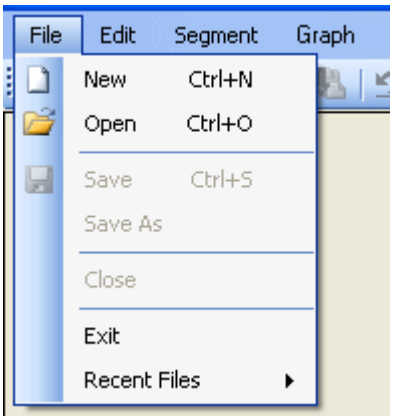
Status bar

The Status Bar displays setpoint limits associated with the Profiled Channel. It is displayed along the foot of the screen.

Click message to get help!

File menu

The File menu enables the control of an individual Program application file using the following commands.



Click command to get help!

New Program file command

<Ctrl> + <N>

Click this to launch the **Choose a Program Template File** dialog. This permits the user to browse and open a specific Program Template file from the dialog displayed.

Open Program file command

<Ctrl> + <O>

Click this to display the **Open** dialog. This permits the user to browse and open a Program file from the dialog displayed.

Save command

<Ctrl> + <S>

Click this to display the **Save** dialog. Click this to automatically save the active file with its current file name, location, and file format.

Save As Program file command

Click this to display the **Save As** dialog. This permits the user to save the current Program file with a different filename and/or location.

Close command

Use this to terminate the current Program file. If any unsaved changes exist, the user can cancel this command, save or discard the changes, and then repeat this command.

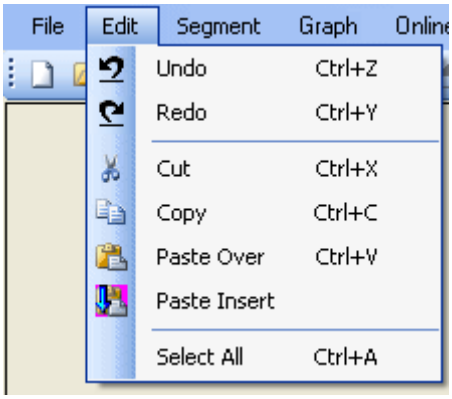
Exit command

Click this to close this editor. If any unsaved changes exist, the user can cancel this command, save or discard the changes, and then repeat this command.

Open Recent Program files command

Click this to open one of the most recently saved Program files in this window.

Edit menu



The Edit menu provides commands used to manipulate an individual Program file.

Click command to get help!

Undo command

<Ctrl> + <Z>

Click this to reverse the last command.

All operations can be undone back to the last saved version by clicking this button (or <**Ctrl+Z**>). Click the adjacent redo button to restore the undone operations.

Redo command

<Ctrl> + <Y>

Click this to reverse the action of the **Undo** command.

All operations can be redone by clicking this button. Click the adjacent undo button to undo actions that have been redone.

Cut command

<Ctrl> + <X>

Click this to remove the selected segments and place them on the Clipboard.

Copy command

<Ctrl> + <C>

Click this to copy the selected segments and place it on the Clipboard.

Paste Over command

<Ctrl> + <V>

Click this to overwrite the selected Segment with the contents of the Clipboard. This command is available only if you have cut or copied an object, text, or contents of a cell. The number of segments selected in the Segment grid must correspond to the number of segments that were cut/copied to the clipboard.

Paste Insert command

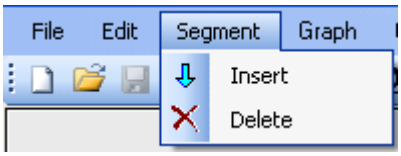
Click this to insert the Segments on the clipboard after the selected segment. This command is available only if you have already cut or copied a segment.

Select All command

Click this to select all the segments displayed in the Segment pane.

Segment menu

The Segment menu contains entries for inserting and deleting segments.



Click command to get help!

Insert Segment command

Use this to add a new segment with a default configuration that will not impact the Program. This will appear before the selected segment with a default name, e.g. "3", duration, and profile command, ready to be configured.

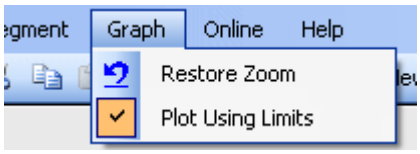
The information configured in the segment will appear on the corresponding Segment page of the appropriate SEGMENT block in LINtools when connected to the instrument.

Delete Segment command

Use this to delete the selected segment. This will remove the configured segment from the Program.

Graph menu

The Graph menu offers a commands that control the display of the plots.



Click command to get help!

Restore Zoom command

Use this to restore the default display of the Chart pane after using the zoom feature.

Tip!

You can Zoom in to a specific section of the Chart pane by dragging the left mouse button to select a length of time from left to right, and Zoom out using the same button in the opposite direction to return to the default Chart pane display. The right mouse button can be dragged to change the time period shown in the zoom.

Plot using Limits command

This is used to configure the limits of the display for the plots in the Chart pane.

When enabled each plot in the Chart pane will extend to the limits configured in the Programmer Wizard. However, 0 (zero) will always be included in the plot, i.e. a plot will always extend from 0 (zero) Deg.C to 1200 Deg.C if the Programmer Wizard limits are configured as 10 Deg.C to 1200 Deg.C.

When disabled each plot will be displayed will extend to the specific limits configured in the Programmer Wizard, i.e. a plot will extend from 10 (zero) Deg.C to 1200 Deg.C if the Programmer Wizard limits are configured as 10 Deg.C to 1200 Deg.C

This setting is retained when the Programmer Editor is closed.

Programmer Wizard		***Plot using limits***	***Profiled Channel***		***Plot (Y-axis)***	
Low Limit	***High Limit***		***Low Limit***	***High Limit***	***Low Limit***	***High Limit***
-10.000	1500.000		-2.500	1235.000	-2.500	1235.000
-10.000	1500.000	✓	-2.500	1235.000	-10.000	1500.000
0.000	1500.000		0.000	1235.000	0.000	1235.000
0.000	1500.000	✓	0.000	1235.000	0.000	1500.000
+10.000	1500.000		+12.500	1235.000	+10.000	1235.000
+10.000	1500.000	✓	+12.500	1235.000	0.000	1500.000

Online menu

The Online menu offers a command that provides a connection to the instrument.

Click command to get help!

Online Connect command

Click this to attach to the instrument where one or more Programs can run, corresponding to the database associated with this Program file.

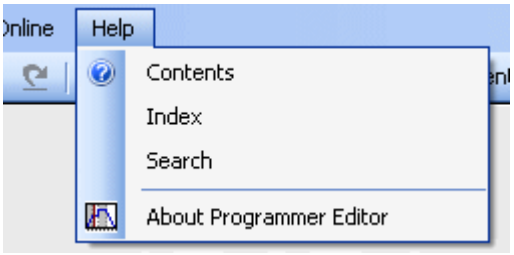
A dialog will appear if more than one PROGCTRL block is compatible with the current Program Template file. This dialog will allow you to select the required Programmer blocks in the instrument.

Help menu

The Help menu enables the user to display details about this editor using the following commands. It is divided into 2 sections.

- Documentation (including Contents, Index, and Search for Help on)
- Editor (About)

Any of the first 3 options opens the on-line help documentation with the selected as the priority command.



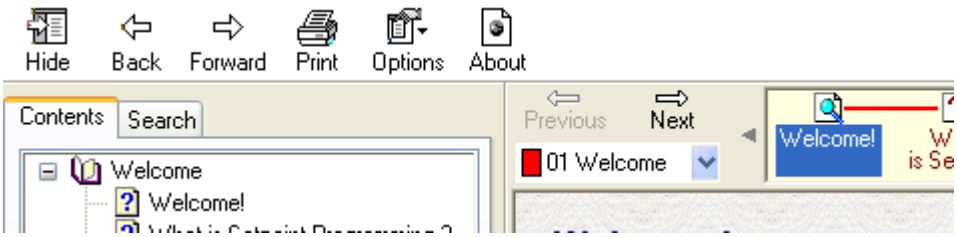
Click command to get help!

Help Topics command

Click this to open the help documentation.

- Select Contents to open the 'Help' file, displaying the 'Contents' page as the priority.
- Select Index to open the 'Help' file, displaying the 'Index' page as the priority.
- Select Search to open the 'Help' file, displaying the 'Search' page as the priority.

Help browse buttons



In the Help file, click the **Back** and **Forward browse buttons** to move from one topic to the next, or previous in a logical order.

The Previous and Next buttons can be used to browse between topics in a particular sequence.

About command

Click this to display a dialog, showing the software version number.

4 Program File Window

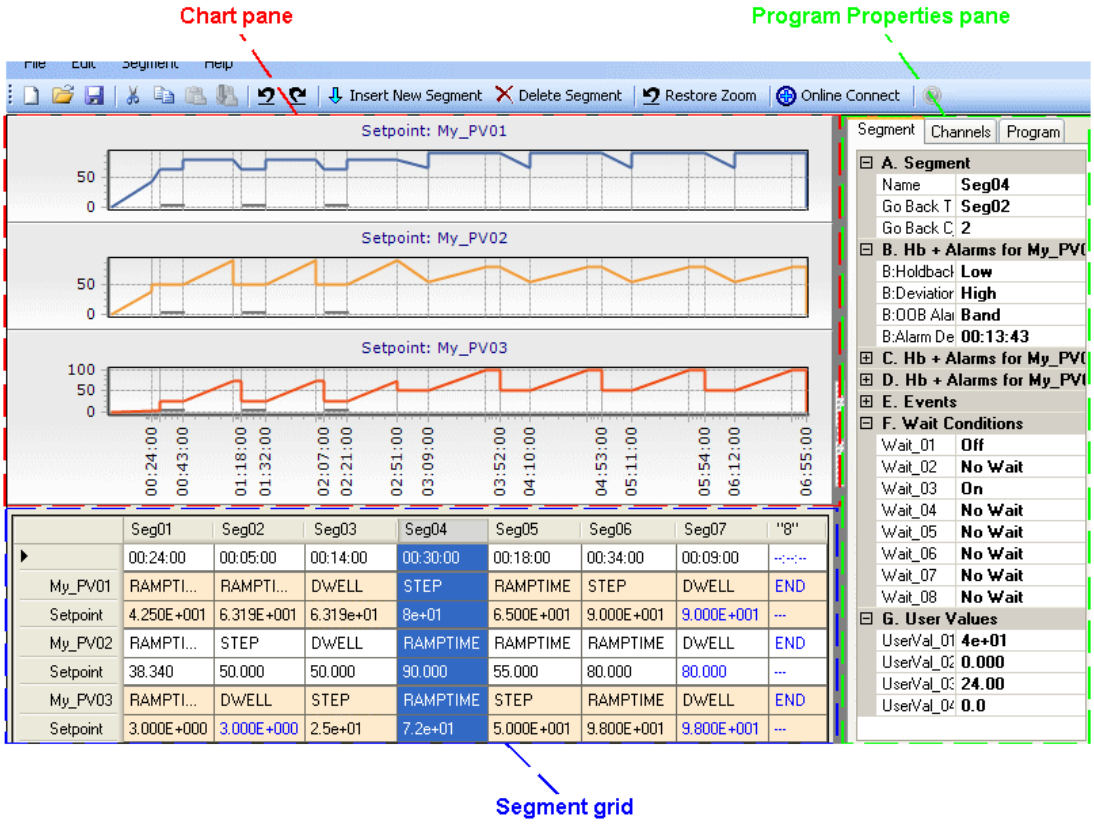
Program File Window

The window is normally divided into three resizeable panes,

- the chart pane
- the program properties pane
- the segment grid

The Chart pane and Segment grid present an alternative view drawn from the same file data. The Program Properties pane provides parameters used to configure the operation of the Program, Channel and each segment as it is executed.

You can alter the relative sizes of the panes, and select various parts of the Program file in the different panes, to make the views clearer, or to edit the highlighted objects.



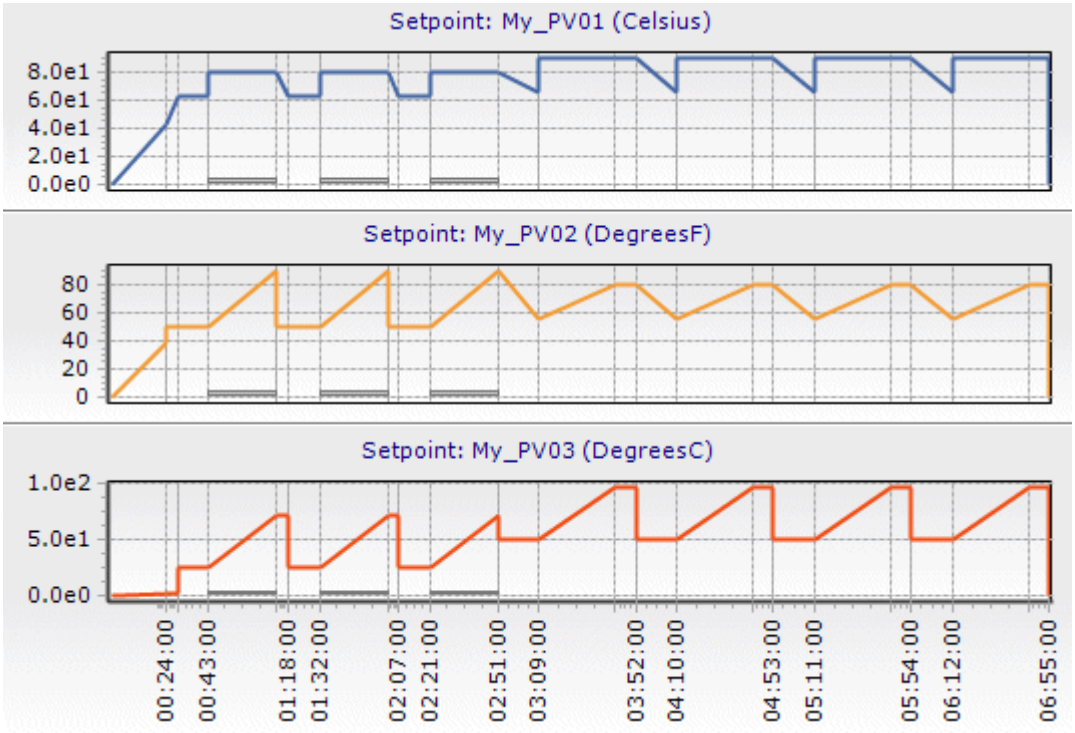
	Seg01	Seg02	Seg03	Seg04	Seg05	Seg06	Seg07	"8"
	00:24:00	00:05:00	00:14:00	00:30:00	00:18:00	00:34:00	00:09:00	--:--:--
My_PV01	RAMPTI...	RAMPTI...	DWELL	STEP	RAMPTIME	STEP	DWELL	END
Setpoint	4.250E+001	6.319E+001	6.319e+01	8e+01	6.500E+001	9.000E+001	9.000E+001	---
My_PV02	RAMPTI...	STEP	DWELL	RAMPTIME	RAMPTIME	RAMPTIME	DWELL	END
Setpoint	38.340	50.000	50.000	90.000	55.000	80.000	80.000	---
My_PV03	RAMPTI...	DWELL	STEP	RAMPTIME	STEP	RAMPTIME	DWELL	END
Setpoint	3.000E+000	3.000E+000	2.5e+01	7.2e+01	5.000E+001	9.800E+001	9.800E+001	---

What is the Chart pane ?

Chart pane - Offline

The Chart pane displays the setpoint program as one or more plots. In the example below, three analogue setpoints ('My_PV01', 'My_PV02', 'My_PV03') are charted. It can display up to 3 Profiled Channels. The upper two Charts always show the first two Profiled Channels configured using the Programmer Wizard, but the lowest of the three Charts can be used to display any other configured Profiled Channel, Digital Event or User Value when selected in the Program Properties pane or the Segment pane.

Each Chart shows one Profiled Channel and a selected Segment, indicated by the heavy bar displayed on the Low Limit line. If a Go Back sequence is configured, the heavy bar appears on each occurrence of the segment as specified by the Go Back Cycles field on the Segment page of the Program Properties pane, i.e. the heavy bar is shown 3 times if the Go Back Cycles is 2, two occurrences as part of the Go Back Sequence plus the initial occurrence of the segment.



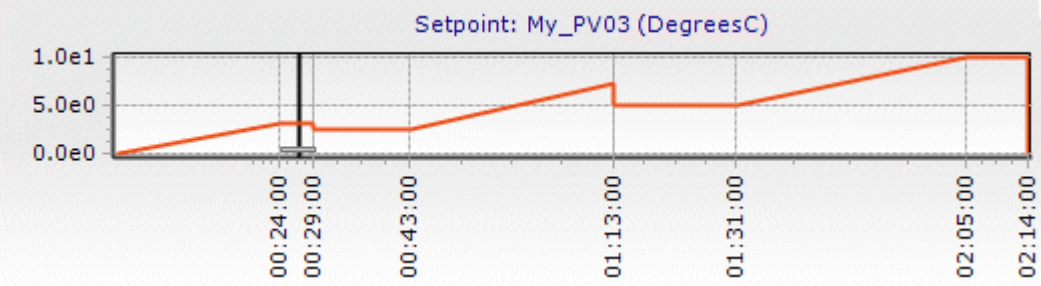
The Y-axis on the chart displays analogue setpoint units as configured in the Programmer Wizard in LINtools. The X-axis on the chart shows the start of each segment, i.e. Seg01 is configured to take 24 minutes to Ramp to the configured setpoint and the whole Program will last 6 hours and 55 minutes.

Tip!

You can Zoom in to a specific section of the Chart pane by dragging the left mouse button to select a length of time from left to right, and Zoom out using the same button in the opposite direction to return to the default Chart pane display. The right mouse button can be dragged to change the time period shown in the zoom.

Chart pane - Online

After pressing the Online Connect command and connecting to the instrument, the Chart pane displays the running Program. A moving vertical bar, initially positioned at the left side of the plot, is used to indicate the current progress of the Program when it is running.



Pane Separator

This separator can be used to reduce the size of the Program Properties pane. Manually drag the solid bar to reduce the size, or press the button to completely collapse or expand the Program Properties pane as appropriate.

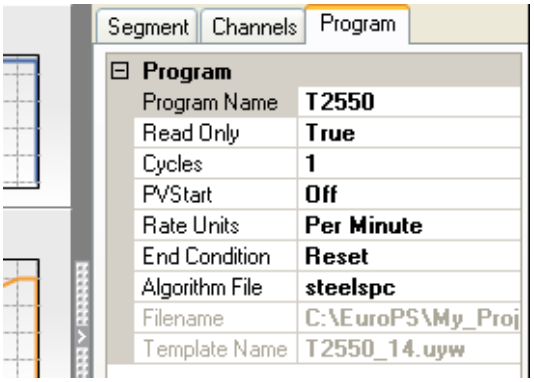
What is the Program Properties pane ?

The Program Properties pane is used to set Program and Channel properties as well as individual Segment parameters.

Note

The Program Properties pane can be minimised by pressing the button in the centre of the pane separator, or manually reduced by dragging the separator.

The Program tab of this pane provides overall Program parameter configuration.



Program Name

Used to identify a Program.

Note
The Program Name may not necessarily be the same as the Filename.

Read Only

This is used to configure the read/write permissions of the Program file after it has been downloaded to the instrument.

- TRUE provides write protection to the file.

Cycles

Used to define the number (1 - 999) of times the Program will run. Using 0 will cause the Program to repeat continuously.

PV Start

This is used to configure the starting point of the Program. This allows the Program to automatically advance to a point in a Profile corresponding to the current PV.

- Off will start the Program at the starting point of the first Segment
- Rising will start the Program at the first rising Segment equal to the current PV value
- Falling will start the Program at the first falling Segment equal to the current PV value

Rate Units

This is used to configure the time unit (Seconds/Minutes/Hours/Days) applied, by default, to all RampRate segment types in the Program.

End Condition

This is used to configure the action taken when the last Segment (END segment) in a Program has completed if Cycles is configured to a value more than 0 (zero).

- Reset will automatically return to the Idle state when the Program has completed.
- Dwell will control the PV at the current value constantly until the Program is reset using the Reset button.

Algorithm File

This is used to define the Algorithm file used in the Program. An Algorithm file contains data values that are written to the Algorithm block when the Program is loaded, i.e. recipe values.

Note
This file is loaded via the *AlgBlk* field in the PROGCTRL block in the database.

Filename

This shows the location and name of the .Program file which is currently open.

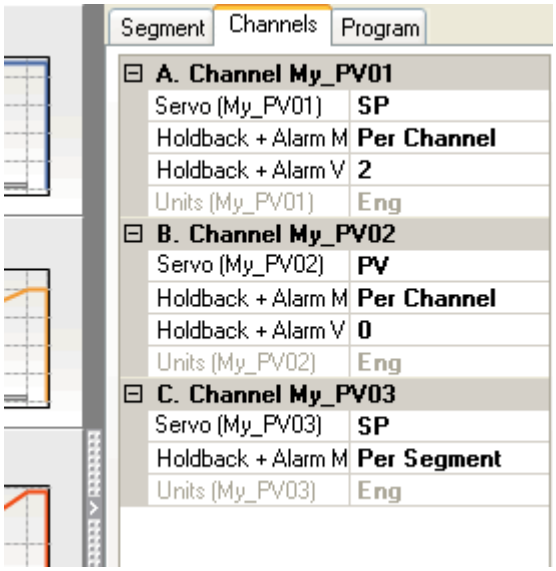
Note
The Filename may not necessarily be the same as the Program Name.

Remember
Both Program Template file and Program file must be at the location defined here.

Template Name

This shows the Program Template file used to define the template for the Program file shown in Filename.

The Channels tab of this pane provides parameter configuration for each Channel in the Program.



Channel Name

This shows the name used to identify the Profiled Channel.

This is the Name on the Profiled Channels page of the Programmer Wizard launched from LINtools.

Servo

Used to determine the starting point of the Program.

- PV will start the Program from the current PV value in conjunction with PVStart field on the Program page.
- SP will start the Program from the current SP value. This configuration will be ignored if PVStart is set to Rising or Falling.

Holdback + Alarm Mode

This is used to configure the application of the Holdback operation in the Program.

- Off will disable the Holdback operation in the Program.
- Per Channel will apply the Holdback value to all Segments in the channel.
- Per Segment will apply the Holdback value given in each individual Segment. When Per Segment is selected the **Holdback and Alarm Value** is configured on the Segment tab.

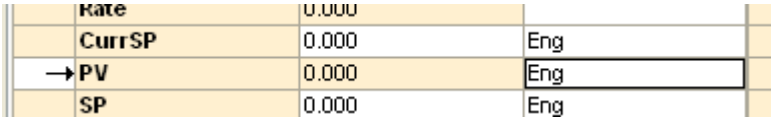
Holdback and Alarm Value

This is used to configure the deviation threshold value between SP and PV that is used to stop the Setpoint ramp when the PV is unable to react to the changing Setpoint.

- When Per Channel is selected this value is configured on the Channel tab.
- When Per Segment is selected this value is configured on the Segment tab.

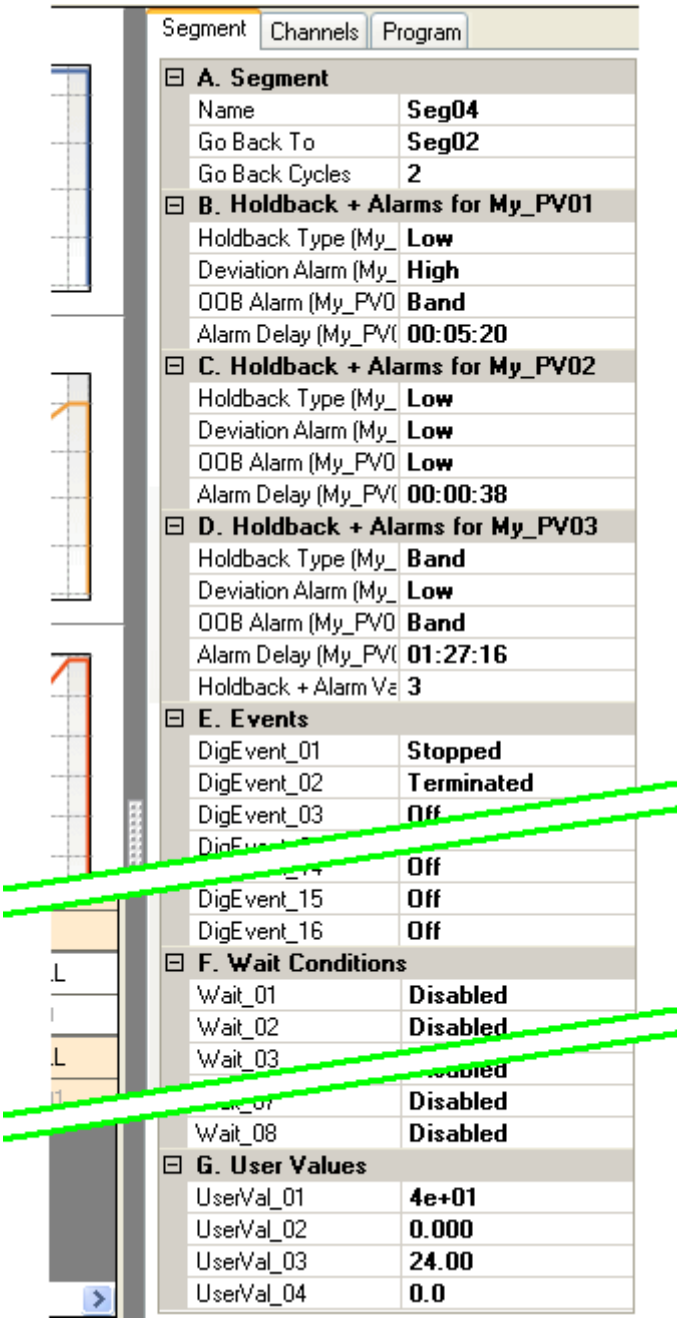
Units

Used to show the units of this Profiled Channel, i.e. Eng (Engineering Units), Deg.C, Deg.F, K or R. These units appear along the Y-axis of each Profiled Channel.



The Segment tab of the this pane provides Segment parameter configuration

Note
All parameters are read only when connected to the instrument.



Segment Name

This is the name used to identify the selected segment.

A name of up to 16 characters in length can be entered on the Segment tab of the Program Properties pane and is shown at the top of the corresponding Segment in the Segment pane.

Go Back To

This is used to configure the next non-sequential Segment that will be executed when this current Segment is complete. This will be the name of the first Segment in a Go Back Sequence.

The segment initiating the Go Back sequence is considered as the last segment in the sequence. This allows the segments to be repeated the number of times specified in Go Back Cycles. If there are multiple Go Back Sequences they cannot jump back over a previous Go Back Sequence.

Note
Select 'Don't go back' to remove the Go Back Sequence.

Go Back Cycles

This is used to configure the total number of times the Go Back Sequence will be executed.

Holdback Type

This is used to configure the type of Holdback used to assert the corresponding alarm and initiate the configured Holdback operation.

- None will disable the application of a Holdback action in this Segment.
- Low will trigger the Holdback action when the measured PV is below the SP by more than the Holdback value.
- High will trigger the Holdback action when the measured PV exceeds the SP by more than the Holdback value.
- Band will trigger the Holdback action when the measured PV is either below (Low) or exceeds (High) the SP by more than the Holdback value.

Deviation Alarm

This is used to configure the how the deviation alarm will be asserted.

- None will disable the Deviation alarm in this Segment.
- Low will trigger the Deviation alarm when the measured PV is below the SP by more than the Holdback value.
- High will trigger the Deviation alarm when the measured PV exceeds the SP by more than the Holdback value.
- Band will trigger the Deviation alarm when the measured PV is either below (Low) or exceeds (High) the SP by more than the Holdback value.

Note
To display a deviation alarm, the corresponding Alarm Priority value must be configured in the database.

Out Of Bounds (OOB) Alarm

This is used to configure the how the OOB (Out Of Bounds) alarm will be asserted.

- None will disable the OOB alarm in this Segment.
- Low will trigger the OOB alarm when the measured PV is below the SP by more than the Holdback value.
- High will trigger the OOB alarm when the measured PV exceeds the SP by more than the Holdback value.
- Band will trigger the OOB alarm when the measured PV is either below (Low) or exceeds (High) the SP by more than the Holdback value.

Note
To display a Out Of Bounds alarm (PROGCTRL.File.Alarms.Oob), the corresponding Alarm Priority value must be configured in the database.

Alarm Delay

This is used to configure the delay in time, up to 12 hours, between detecting and asserting the alarm condition. The delay period is configured via the Alarm Delay dialog and provides a filter for nuisance alarm conditions.

Events

This is used to set the On/Off states of 0 (zero) or more Digital Events for the duration of the selected segment.

Each Digital Event name and enumeration is defined in the Program Template file.

Wait/Exit conditions

This is used to configure the operation of the Program when the segment has executed.

Each segment shows a list of 0 (zero) or more Wait condition names, Exit condition names and the corresponding enumeration values indicating 3 different states (No Wait/No Exit, Off or user configured enumeration, and On or user configured enumeration) of an input value. All the values are defined in the Program Template file.

Note
Exit conditions can only be applied to segments that do not contain ramping control of the setpoint.

User Values

This is used to write the configured user defined value to an appropriate output, typically an AO_UIO block, when the segment has executed.

Each segment shows a list of 0 (zero) or more User Value names and the corresponding general purpose analogue values that will be written. The User Value name, Low and High limits, and Decimal place notation are defined in the Program Template file.

What is the Segment grid ?

The Segment grid shows each of the segments in the order of execution from left to right. The maximum number of segments is defined in the Program Template file selected when creating the Program file.

Note

After Online Connect is pressed, this grid is displayed on a tab in read-only form and is accompanied by a Status tab.

When configuring a Multi-Channel Program the Name, Duration, Type and Setpoint value are displayed as grid rows for each channel. If configuring a Single Channel Program then a Rate/(units) row is also displayed. All other segment configuration parameters are available on the Segment page of the Program Properties pane.

Note

Each segment corresponds to a single page of a SEGMENT block in the database.

	Seg01	Seg02	Seg03	Seg04	Seg05	Seg06	Seg07	END
▶	00:24:00	00:05:00	00:14:00	00:30:00	00:18:00	00:34:00	00:09:00	
My_PV01	RAMPTIME	RAMPTIME	DWELL	STEP	RAMPTIME	STEP	DWELL	
Setpoint	4.25e+01	6.319e+01	6.319e+01	8e+01	6.5e+01	9e+01	9e+01	
My_PV02	RAMPTIME	STEP	DWELL	RAMPTIME	RAMPTIME	RAMPTIME	DWELL	
Setpoint	38.340	50.000	50.000	90.000	55.000	80.000	80.000	
My_PV03	RAMPTIME	DWELL	STEP	RAMPTIME	STEP	RAMPTIME	DWELL	
Setpoint	3e+00	3e+00	2.5e+01	7.2e+01	5e+01	9.8e+01	9.8e+01	

Segments are inserted before the selected segment using the Insert Segment command. Each Segment is inserted with a default configuration that will not impact the Program.

The final segment in the Program is always the END segment. This is a read only segment that signify one cycle of the Program has completed.

Note

When connected to the instrument the current segment is highlighted as it starts.

Segment Name

This is the name used to identify the selected segment.

A name of up to 16 characters in length can be entered on the Segment tab of the Program Properties pane and is shown at the top of the corresponding Segment in the Segment pane.

Duration

This is used to configure the time taken (dd,hh:mm:ss) for the measured PV to attain the setpoint configured in the Setpoint field using the control specified in the Channel field.

Tip!

Adding a duration to a Step segment will cause a dwell at the target setpoint for the configured time period.

Name

This shows a name identifying an individual Profiled Channel as defined in the Program Template file.

Note
A Profiled Channel is the pattern of control for a single setpoint value.

Setpoint

This is used to configure the Target Setpoint.

Note
If the next segment does not start as expected, Wait conditions may have been configured and have not been satisfied.

The value is displayed using the decimal place notation corresponding to the Channel Name as specified in the Program Template file.

Segment Type

This is used to configure the type of setpoint control executed in this segment.

- STEP ( ) will change the operating setpoint to the configured Target Setpoint value at the start of the Segment.
- DWELL ( ) will inherit the setpoint from the previous Segment and retain it at that value for a specified period.
- RAMPTIME ( ) will ramp the operating setpoint to a defined Target Setpoint value over a specified time period.
- RAMPRATE ( ) will ramp the operating setpoint at a desired rate of change until a defined Target Setpoint value is obtained.

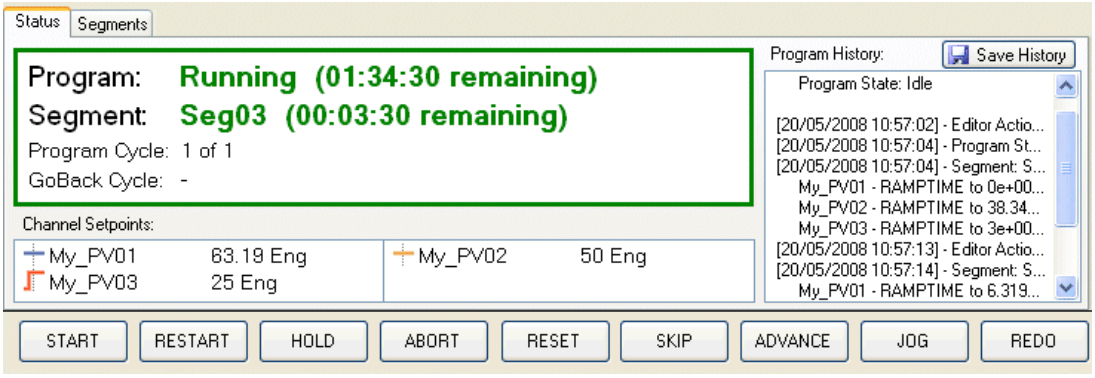
Note
RAMPRATE is only available for a single channel Setpoint Program.

- END is read only and signifies the last Segment of the channel.

What is the Status tab ?

The Status tab provides the current status of the running Program when this editor has attached to the instrument after pressing the Online Connect command.

Note
Only displayed when connected to the instrument. All buttons enabled for clarity.



It is divided in to 4 areas,

- Current status

This area displays the current status of the Program, e.g. **Program: Loading (00:00:00 remaining)** (corresponding to the *PROGCTRL.Monitor.StateFlg*), **Segment: Seg01 (00:00:00 remaining)** (corresponding to the name of the current segment in operation as highlighted on the Segment tab), **Program Cycle: 1 of 2** (corresponding to the number of times the Program has run), and **GoBack Cycle: 2** (corresponding to the number of times the Go Back Sequence has run). It is colour coded in conjunction with the Program state, i.e. Idle is Grey, Running is Green, Hold is Amber and Complete is Cyan.

- Channel Setpoints

This area displays the information about each of the Profiled Channels, including the Segment Type as indicated by the icon, the name of the Profiled Channel, according to the name entered in the Programmer Wizard in LINtools, and the Target Setpoint for the current segment in the units configured in the Programmer Wizard.

Note
Selecting a Profiled Channel in this area will change the focus in the Chart pane, and will also change what is displayed in the lowest of the three plots.

- Program History

This area displays a list of changes applied to the segment as it is initiated and a record of operations applied to the Program at runtime, including date and time references and is cleared each time a Program is started.

The Save History button used to save the list of actions applied to the currently operating Program as a text file (.txt).

- Program Control

This area offers buttons that control a Program at runtime. Each button corresponds to a *PROGCTRL.Monitor.Command* subfield in the database.

Save History button

Used to save the list of actions applied to the currently operating Program as a text file (.txt).

The text file can be used to review how the Program was run.

5 How to...

Configure a Program

Each Program configuration is determined by the Program Template file configured using the Programmer Wizard in LINtools.

Configure the parameters in the Segment grid to determine the setpoint control, and the parameters in the Program Properties pane to determine the operation of the Program as each Segment is executed.

1 Configure the Program parameters. Configuring values for the parameters on the Program tab of the Program Properties pane will define the properties of the Program.

- Select the read/write permission of the Program file in the Read Only parameter. This controls write access to the Program file when it is in the instrument.
- Enter the number of cycles the Program must run in the Cycles parameter. This is the number of times the Program is repeated.
- Select the starting control for the Program in the PV Start parameter. This controls the starting point of the Program in conjunction with the Servo parameter on the Channel page. If not set to OFF it will automatically advance to a point in the Profile corresponding to the current PV and start the Program.
- Select the action when the Program is complete in the End Condition parameter. This is the action applied when the last cycle of the Program is complete.
- Enter the algorithm file name in the Algorithm File parameter. The algorithm file contains values that are written to the Algorithm block when the Program is loaded.
- Filename and Template Name parameters are read-only and display the location of the Program file and the Program Template file relating to the open file, respectively.

2 Configure the Channel parameters. Configuring values for each Channel parameter on the Channel tab of the Program Properties pane will define the operation of the Channel when started.

- Select the starting point operation of the Program in the Servo parameter. This controls the starting point of the Program in conjunction with the PV Start parameter on the Program Properties page. It will automatically advance and start the Program from the initial setpoint or the current PV accordingly.
- Select the Holdback mode, and enter the HbVal. This is how the Holdback action will be applied when the measured PV deviates from the SP by more than a configured amount, according to the configured the Holdback Type.
- Units parameter is read-only and displays the value configured in the Programmer Wizard.

3 Configure a Segment. Configuring values for the parameters below will create a pattern of control for each Profiled Channel, and show how the setpoint is controlled through the Program.

- Enter the duration of the segment. This applies across all Profiled Channels, but is disabled when RampRate is selected as the segment type in a Single Channel Program.
- Select the Segment type from the list. The Segment type determines how the current setpoint is driven to the specified Target Setpoint.
- Enter the Target Setpoint. This is the value of setpoint which the measured PV of the control loop is aiming to reach.
- Enter the Rate/(Units) (Single Channel Programs only). This is the rate at which the setpoint will ramp to the Target Setpoint in units specified in the RateUnits parameter on the Program page of the Program Properties pane.

4 Configure the Segment parameters. Configuring values for each Segment parameter on the Segment page of the Program Properties pane will define the operation of the Segment when executed.

- Enter the Name for the selected Segment. This will simplify the identification of the Segment currently being executed.
- Select the Segment to go back to in the Go Back To parameter to identify the first Segment in a Go Back sequence, and enter the number of times this Go Back sequence must be executed in the Go Back Cycles parameter.
- Select the type of Holdback in the Holdback Type parameter that will cause Holdback to occur. This determines that Holdback will occur when a measured PV deviates from the SP in the defined direction by more than a configured amount.
- Select the type of deviation alarm in the Deviation Alarm parameter that will be asserted if PV deviates from the SP in the defined direction by more than a configured amount.
- Select the type of boundary alarm in the OOB Alarm parameter that will be asserted if PV deviates from the SP in the defined direction by more than a configured amount.
- Enter the time delay period in the Alarm Delay parameter that will be applied when an alarm condition is detected. This provides a filter for nuisance alarm conditions.
- Enable the required digital events in the corresponding Event parameter. This will write the event state when the Segment is executed.
- Select the condition state used to prevent the Program proceeding to the next segment until a specific configuration is met when the Segment is executed in the corresponding Wait Conditions parameter.
- Select the condition state used to cancel the Program if a defined state has occurred when the Segment is executed in the corresponding Wait Conditions parameter.
- Enter the general purpose analogue values that will be selected when the Segment is executed.

Configure a Segment

Each Segment in a Program defines a specific operation to the setpoint requiring a defined target setpoint, the value of setpoint at which the measured PV of the control loop is aiming, the type of control used to attain this value, and the time period for that segment.

Note
Single Channel Programs include the Rate parameter for each segment.

To configure a segment

1 Insert the appropriate number of segments using the Insert Segment command. Each Segment is inserted with a default configuration that will not impact the Program. Any Segments that are not used can be deleted later using the Delete Segment command. The number of segment columns in the Segment pane increases as each segment is inserted.

	Seg01	Seg02	Seg03	Seg04	Seg05	Seg06	Seg07	END
▶	00:24:00	00:05:00	00:14:00	00:30:00	00:18:00	00:34:00	00:09:00	
My_PV01	RAMPTIME	RAMPTIME	DWELL	STEP	RAMPTIME	STEP	DWELL	
Setpoint	4.25e+01	6.319e+01	6.319e+01	8e+01	6.5e+01	9e+01	9e+01	
My_PV02	RAMPTIME	STEP	DWELL	RAMPTIME	RAMPTIME	RAMPTIME	DWELL	
Setpoint	38.340	50.000	50.000	90.000	55.000	80.000	80.000	
My_PV03	RAMPTIME	DWELL	STEP	RAMPTIME	STEP	RAMPTIME	DWELL	
Setpoint	3e+00	3e+00	2.5e+01	7.2e+01	5e+01	9.8e+01	9.8e+01	

2 In the Segment pane, select the required segment. The selected Segment is indicated by the heavy bar displayed on the Low Limit line of the Chart.

- Edit the duration of the selected segment to define the time taken for the current setpoint to attain the next Target Setpoint by entering the total number of hours, minutes and seconds as a numerical string.

To define a period that is more than one day, enter a value greater than 24hrs. This will automatically convert the duration in to the dd,hh:mm:ss format..

Tip!
Adding a duration to a Step segment will cause this segment to dwell at the target setpoint for the configured time period.

- Configure the Segment type by selecting the setpoint control from the dropdown list. This will define the type of control used to attain the next Target Setpoint.
- STEP will change the operating setpoint to the configured Target Setpoint value at the start of the next Segment.
- DWELL will inherit the setpoint from the previous Segment and retain it at that value for a specified period.
- RAMPTIME will increase the operating setpoint to a defined Target Setpoint value over a specified time period.
- RAMPRATE will increase the operating setpoint at a desired rate of change until a defined Target Setpoint value is obtained.

Note
RAMPRATE is only available for a single channel Setpoint Program.

- END is read only and signifies the last Segment of the channel.

Note
The END segment is read-only and provides an a flag that indicates the end of the Program cycle. It is included in the count of the total number of segments in the Program, see PROGCHAN.Monitor.NumSegs in the database.

- Configure the Target Setpoint by entering the value as a numerical string. This will define the target value that an automatic control system will aim to reach.
- In single channel Programs, configure the Rate parameter for each RampRate Segment. The units are determined by the Rate Units configured on the Program page of the Program Properties pane.

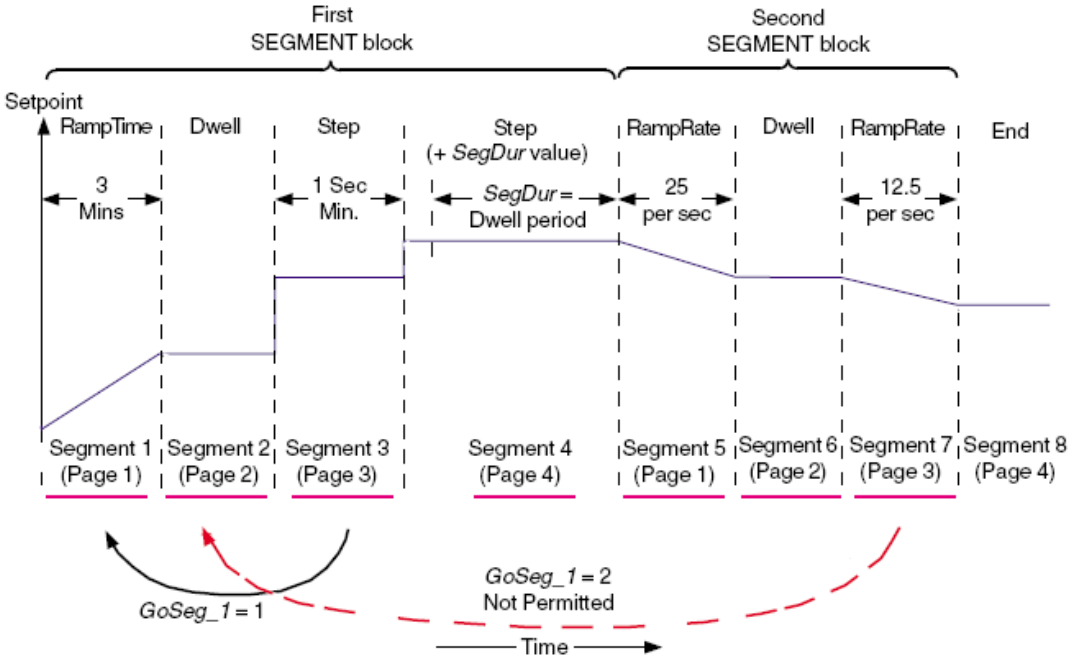
3 In the Program Properties pane, select the Segment tab.

- Configure a User Values for each Segment in the Program
- Configure a Exit and/or Wait conditions for each Segment in the Program

Remember...
In Single Channel Programs only, also configure a Rate Unit for each Segment on the Program tab

Configure a Go Back Sequence

Configuring a Go Back Sequence can reduce the total number of Segments in the Program. It allows a contiguous set of segments to be repeated a specified number of times, as configured in the Go Back Cycles field.



To configure the Go Back Sequence

1. Select the Segment used to complete the Go Back Sequence in the Segment pane and then show the Segment page of the Program Properties pane.
2. Select the first Segment in the Go Back Sequence in the Go Back To field using the dropdown.
3. Enter the number of times the Go Back Sequence is to be executed in Go Back Cycles.

Tip!
If multiple Go Back Sequences are configured this value must not return to a segment before the previous Go Back Sequence.

Configure a Holdback

Holdback provides a means of controlling the duration of a segment if a measured PV (process variable) deviates from the SP (setpoint) by more than a configured amount in a specific direction.

Note
Holdback can be used to configure a Guaranteed Soak period during a Dwell segment.

It will extend the duration of all segment types to allow a measured PV to 'catch up' with the SP, or freeze the time during a dwell segment. When Holdback is configured to occur during a Dwell segment it is described as a Guaranteed Soak period. The Program will remain in Holdback until the measured PV returns to a value within the configured Holdback Value. The correct soak period for a product is maintained during the Holdback period.

Specifically, if at any time during a segment the PV differs from the SP by more than the Holdback Value, in a direction specified by Holdback Type, then the program execution engine enters a hold state until the condition no longer applies. In this Holdback state, this ramping segment is 'frozen', but ramping segments in other Channels continue.

To configure a Holdback action

1 In the Segment pane, select the segment corresponding to the time period at which the Holdback needs to be applied.

2 Select the Channel page on the Program Properties pane to display a section for each Profiled Channel.

Press the ⊞ to maximize the required Profiled Channel section. Other Profiled Channel sections can be minimised by pressing the ⊟, as appropriate

Tip!
The Program Properties pane can be shown or hidden by pressing the button in the centre of the frame dividing it from the Chart pane and Segment pane.

3 Configure how the Holdback mode will be applied.

- To disable Holdback select **Off**. Holdback will not be applied if PV deviates from the SP.
- If the Holdback value is to apply to all segments in the Profiled Channel, select **Per Channel**. The amount the PV is allowed to deviate from the SP is configured in the **Holdback + Alarm Value** field on the Channel page of the Program Properties pane.
- If the Holdback configuration is to apply to an individual Segment only, select **Per Segment**. The amount the PV is allowed to deviate from the SP is configured in the **Holdback + Alarm Value** field on the Segment page of the Program Properties pane.

4 Select the Segment tab on the Program Properties pane to display a section for each Profiled Channel that will apply the Holdback mode, as configured on the Channel page.

5 Configure the value for the deviation threshold beyond which holdback is triggered for this setpoint in the **Holdback + Alarm Value** field on the Channel Page or Segment Page depending on the Holdback mode configuration.

6 Configure the type of deviation from the SP to cause the Holdback to occur.

- None will disable Holdback mode in the segment.
- Low will trigger Holdback mode when the measured PV is below the SP by more than the Holdback value.
- High will trigger Holdback mode when the measured PV exceeds the SP by more than the Holdback value.
- Band will trigger Holdback mode when the measured PV is either below (Low) or exceeds (High) the SP by more than the Holdback value.

Note
A alarm can be delayed using the corresponding Alarm Delay field. Select the field and press the  to reveal a duration entry dialog.

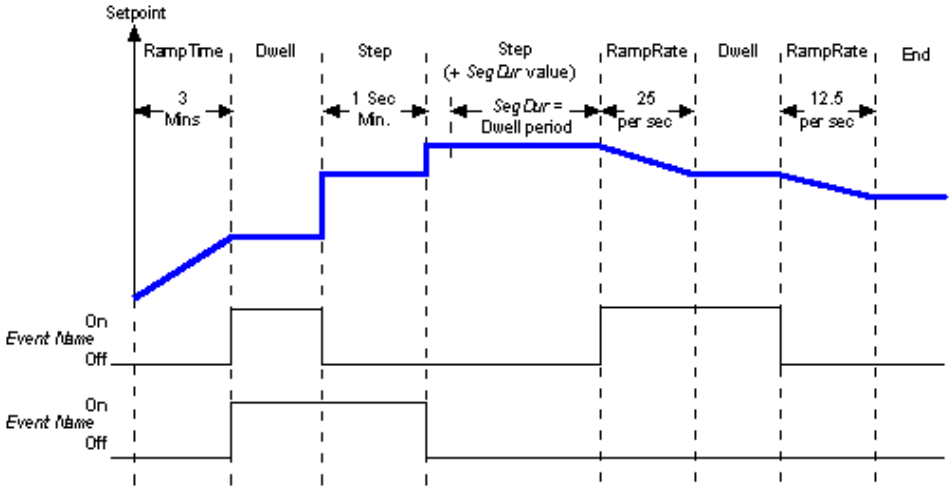
Guaranteed Soak

This is the same as configuring a Holdback to occur during a Dwell segment, except that the user can define a Holdback value for the segment.

Configure an Event

Sometimes at particular times during the operation of the Program it may be necessary to activate external devices. These Event fields can be programmed to operate when a segment is executed and will remain on for the duration of the segment.

A different Event can be configured in each segment to control external devices at particular times during the operation of the Program.



Note

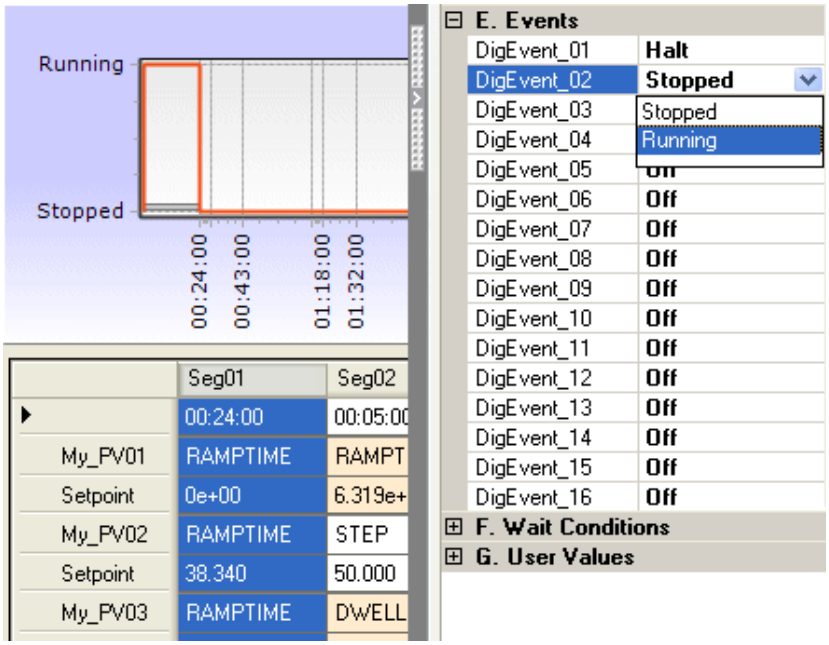
When connected to the instrument, any change to Digital Events triggered when the segment is initiated is recorded in the Program History.

To configure an Event

1 In the Segment pane, select the segment corresponding to the time period at which the Event will occur.

2 On the Segment page of the Program Properties pane, select the Event that will be applied when the segment is executed corresponding to the Event name and select the required enumeration from the picklist.

- Off (or user configured enumeration, e.g. Stopped) can be used to indicate an Event will not occur when the Segment is executed.
- On (or user configured enumeration, e.g. Running) can be used to indicate an Event will occur when the Segment is executed.



Remember

The Program Template file is configured using the Programmer Wizard in LINtools. This wizard is used to define the Event names and enumerations.

Configure a User Value

User Values can be used to write the configured value to an appropriate output in the database when the segment has executed.

A different user defined value in each segment can be wired to a field in the instrument database for use in a particular application, e.g. a different output value in each segment can be written to an output by wiring *PROGCHAN.Monitor.UValn* to an output block, typically an AO_UIO block.

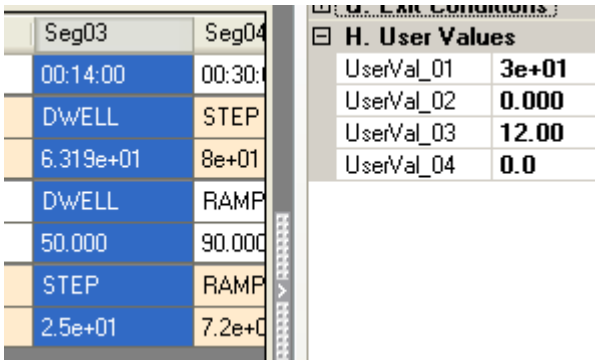
Note
When connected to the instrument, any User Value written when the segment is initiated is recorded in the Program History.

To configure a User Value

1 In the Segment pane, select the segment corresponding to the time period at which the User Value needs to be written.

2 On the Segment page of the Program Properties pane, select the User Value that needs to be written to the output when the segment is executed corresponding to the User Value name, and then input the required numerical value.

When a valid value is confirmed, the decimal place notation is determined by the Program Template file.



Remember
The Program Template file is configured using the Programmer Wizard in LINtools. This wizard is used to define the constraints of each User Value.

Configure a Wait/Exit condition

Wait and Exit conditions are used to control the Program in order to ensure specific conditions are achieved before the Program can continue or terminate respectively.

Note
When connected to the instrument, any Wait/Exit condition applied when the segment is initiated is recorded in the Program History.

A different Wait condition can be configured in each segment to prevent the Program proceeding to the next segment until a specific configuration is met.

A different Exit condition can be configured to terminate the Program when a defined state has occurred in any segment that is not ramping the setpoint, i.e. Dwell and Step. This applies to all Channels in a Multi-Channel Program, i.e. all Profiled Channels must be running a current Step or Dwell segment.

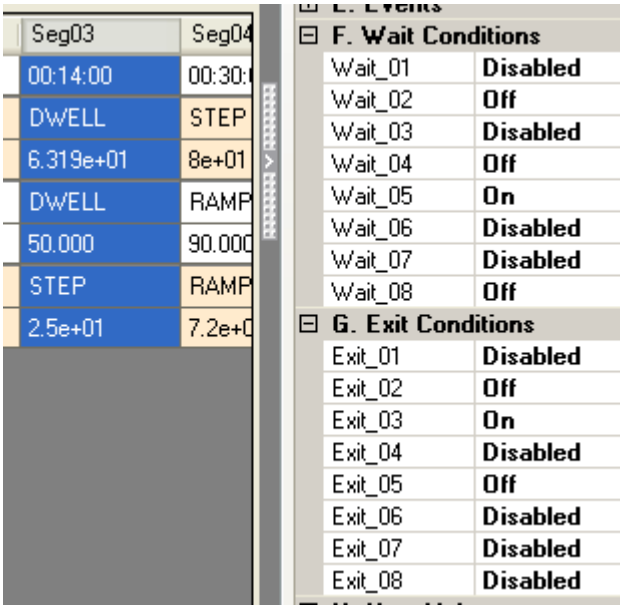
Note
The total number of Wait conditions and Exit conditions is determined by the Program Template file.

To configure a Wait/Exit condition

1 In the Segment grid, select the segment corresponding to the time period at which the Wait/Exit condition needs to be applied.

2 On the Segment tab of the Program Properties pane, select the Wait/Exit condition that will be applied when the segment is executed corresponding to the Wait/Exit condition name and select the required enumeration from the picklist.

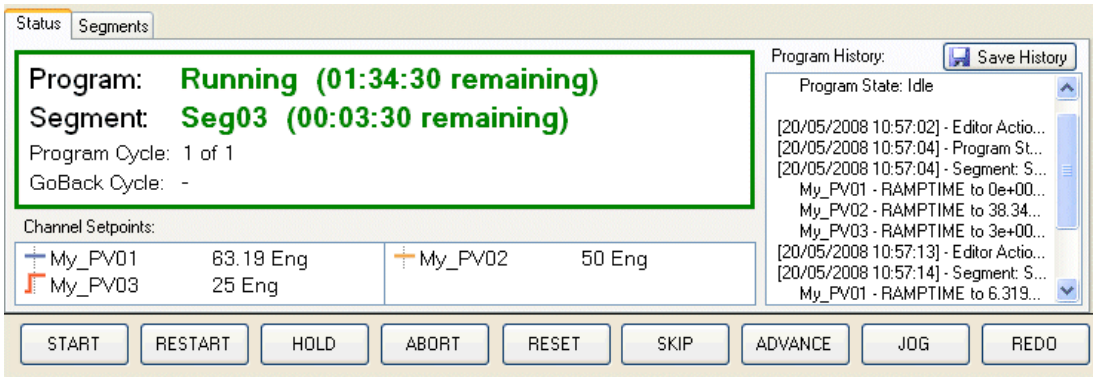
- No Wait/No Exit indicates that a Wait/Exit condition is not applied to this segment.
- Off (or user configured enumeration) can be used to indicate a Wait/Exit condition will not occur when the Segment is executed. The program can continue because it does not rely on a specific configuration to continue.
- On (or user configured enumeration) can be used to indicate a Wait/Exit condition will occur when the Segment is executed. The Program is waiting/exiting because a specific configuration is required before it can continue.



Remember
The Program Template file is configured using the Programmer Wizard in LINtools. This wizard is used to define the Wait/Exit condition names and enumerations.

Control a Program

This provides runtime control of a Program using the buttons below the Segment pane.



Note
Only displayed when connected to the instrument. All buttons enabled for clarity.

Each button causes a configured control action that is applied to the Program currently running in the instrument.

1 Connect to instrument using Connect command. This will attach to instrument and reveal a number of buttons below the Segment pane.

Note
The configured segments will not be displayed until the Program is started.

2 Control the Program using the buttons providing the following commands.

When any button is pressed, a record of the control is added to the Program History.

Note
These buttons are internally linked to the *PROGCTRL.Monitor.Command* subfields in the database.

START Button

Used to start the loaded Program from an Idle state. It can also be used to start a Program that is currently in an Inhibited State, if this state is first cleared in the database.

RESTART Button

Used to restart the loaded Program from a Held state caused by pressing the Hold button.

HOLD Button

Used to pause the loaded Program, the remaining time is frozen, and hold the operating setpoint at the current value in the currently active Program. This control can only be applied to a currently active Program, or to an running Program that is currently in Holdback.

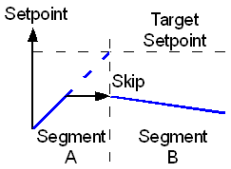
ABORT Button

Used to abort the currently active Program.

RESET Button

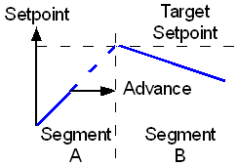
Used to reset the current running Program that has been completed, when End Condition is set to Dwell. This will cause the Program to return to the Idle state.

SKIP Button



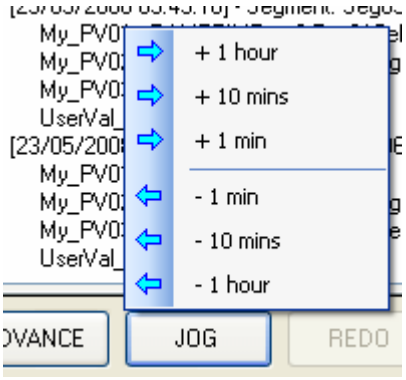
Used to start the next segment from the current operating setpoint, ignoring existing Wait Conditions.

ADVANCE Button



Used to set the operating setpoint equal to the Target Setpoint and advance to the next segment, ignoring any existing Wait Conditions.

JOG Button



Used to manually change the position in the Program of a current dwell segment by the defined period.

Pressing this button displays time periods of 1 min, 10 mins and 1 hour for both extending (+), e.g. **Program: Running (01:34:30 remaining)** changes to **Program: Running (02:34:30 remaining)** if **+ 1 hour** is selected, and reducing (-), e.g. **Program: Running (01:34:30 remaining)** changes to **Program: Running (00:34:30 remaining)** if **- 1 hour** is selected, the time remaining in the current dwell segment.

In Multi-Channel Programs, a Jog time will cease when the segment is complete if a Dwell segment runs in parallel to a RampTime segment.

REDO Button

Used to repeat to the current Dwell or Step segment, when the Program is in a Held state.

This extends the period of the segment in order to ensure the operating setpoint attains the Target Setpoint.

Show the setpoint limits on the Chart

The Program can be configured to display plots that are

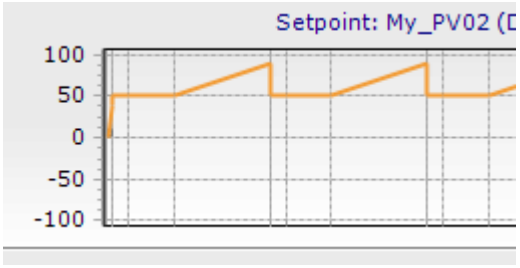
- extended to the limits configured in the Programmer Wizard, always including 0 (zero)
- extended to the specific limits configured in the Programmer Editor

Programmer Wizard		*Plot using limits*	*Profiled Channel*		*Plot (Y-axis)*	
Low Limit	*High Limit*		*Low Limit*	*High Limit*	*Low Limit*	*High Limit*
-10.000	1500.000		-2.500	1235.000	-2.500	1235.000
-10.000	1500.000	✓	-2.500	1235.000	-10.000	1500.000
0.000	1500.000		0.000	1235.000	0.000	1235.000
0.000	1500.000	✓	0.000	1235.000	0.000	1500.000
+10.000	1500.000		+12.500	1235.000	+10.000	1235.000
+10.000	1500.000	✓	+12.500	1235.000	0.000	1500.000

To change the display of the setpoint limits,

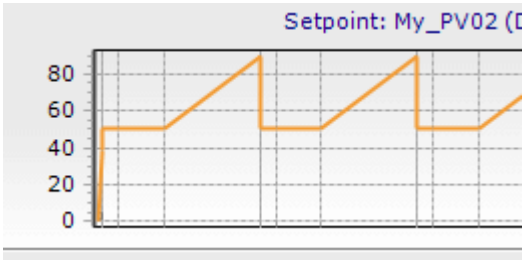
- Enable (✓ - checked) the Plot Using Limits command.

  This will cause the Y-axis of each plot to display the limits specified in the Programmer Wizard.



  When 'Plot Using Limits' is enabled the plot will always include 0 (zero), as described in the table above.

- Disable (- unchecked) the Plot Using Limits command.



  This will cause the Y-axis of each plot to display the limits specified in the Programmer Wizard.

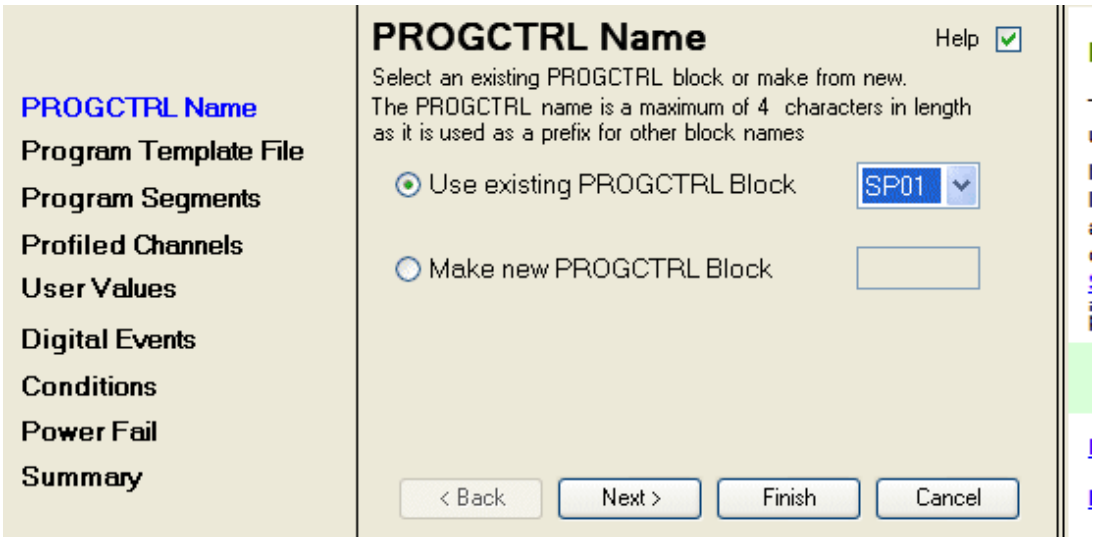
Configure the Program Template file

Use the Programmer Wizard

The Programmer Wizard is used to generate or edit a Program Template file and create a PROG_WIZ compound in the database. It will define individual channels that can be profiled alongside digital events and user values The total number of digital events and user values is only limited by the size of the .dbf. Additional PROGCHAN blocks are automatically created if further digital events and user values are requested. and the maximum number of segments available to the Program.

IMPORTANT NOTE

The Programmer Wizard creates blocks that can only control Programs produced using this editor.



Note

Context help will be displayed when the 'r;*Help*' check box is set .

To generate or edit a Program Template file,

1 Launch the Programmer Wizard. Select **Tools** > **Programmer Wizard**.

2 Progress through the wizard until all appropriate fields are complete, when the Finish button appears.

3 Press the Finish button to finalise the operation, and automatically generate the PROG_WIZ compound.

The PROG_WIZ compound contains, 1 PROGCTRL block, up to 8 PROGCHAN blocks one for each profiled channel, and up to 8 SEGMENT blocks per channel, providing a maximum of 32 program segments (each SEGMENT block offering 4 program segments).

It will automatically layout the blocks in a logical order.

6 Getting specific help

Open the Help File

To access this help file, pull down the Help menu and click **Contents**, **Index**, or **Search**. The help file opens with the selected option in focus.

- If already open, the help topic last accessed remains displayed.

Use the help window's **Contents**, **Index**, or **Search** tabs to get help on any topic.

If you want to step from one topic to the next in a logical order, press the browse buttons in the required direction.

Index

H

L

M

N

O

P

R

S

T

U

V

W

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