Honeywell

Process Controller Designer Software Specifications

51-52-03-43, 21 April 2017

Description

Process Controller Designer software for the HC900 Controller is an easy-to-use Windows-based application that is operable over Ethernet, a serial port or modem connection to simplify controller configuration. When used with the C70 series CPUs with dual Ethernet capability, Process Controller Designer software supports verification of both communication ports and may be used with either port.

It provides advanced monitoring functions for debug, allows RUN/PGM-mode configuration changes, uploads the complete, annotated graphic controller control strategy, plus supplies an array of reports for enhanced documentation.

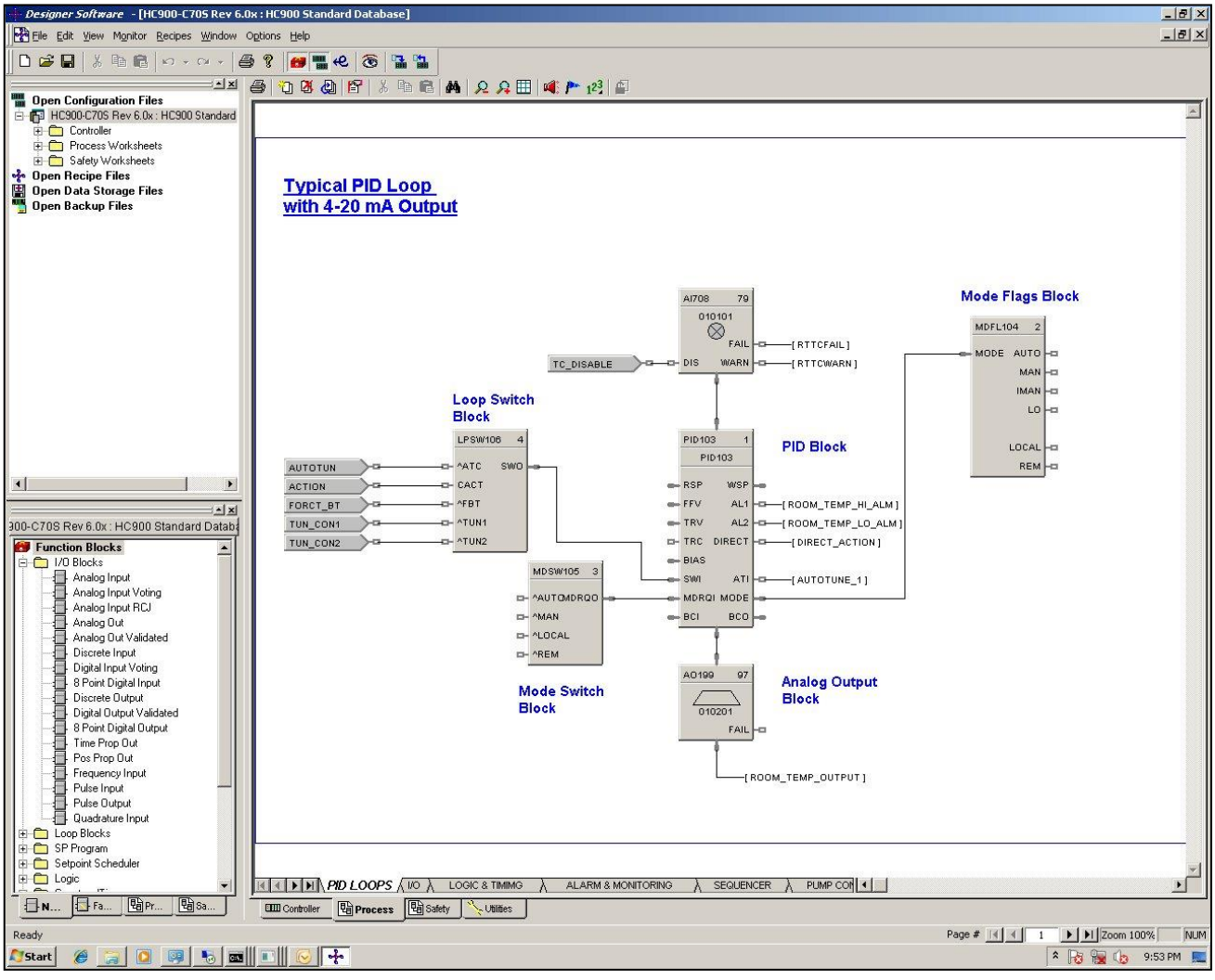


Figure 1 - Process Controller Designer

Features

- Graphic drag and drop, soft-wire configuration
- Supports configuration edit downloads in RUN mode
- Version Control System
- User Library Creation
- Configures:
  - Controller
  - Peer-to-peer data exchange (Peer and safety peer communication)
  - Recipes, SP profiles,
  - SP Schedules, Sequences
  - Alarms, events, e-mail alarms/events
  - Modbus Serial and Modbus TCP Master communications
- Graphic function block configuration and annotations
- Allows graphic configuration partitioning for Process and Safety
- Extensive on-line monitoring features including:
  - User defined and pre-defined watch windows
  - Power flow indication
  - Function block pin values
  - Multiple function block access
  - Signal trace-back to source
- 5 Zoom levels for detail viewing
- On-line diagnostic windows for analyzing controller, I/O, network host and controller peer connections
- Windows™ 7 (32 and 64 bit OS)
- Windows™ 8.1 (32 and 64 bit OS)
- Windows 10 (32 and 64 bit OS)
- Supports Ethernet, RS 485 direct connection to access controller

The HC900 Process Controller Designer provides separate functional tabbed worksheets for:

- Controller hardware setup
- 559 Operator interface setup
- Function block configuration for Process
- Function block configuration for Safety
- Utilities, communication ports setup and other diagnostic support.
- Custom Modbus Map

The user-friendly graphic function block development environment allows partitioning of the control strategy into up to 40 “worksheets” of 20 pages each.

This allows the configuration to be organized according to Process and Safety function, providing faster configuration access, and improved documentation. In addition, OEMs may apply additional security to specific worksheets to prohibit access to proprietary operations while allowing their customers to modify unprotected worksheets. For maximum security, the default password access feature for worksheets may be disabled.

Function Blocks are selected from a categorized list, dropped on a selected worksheet page, and soft-wired to other blocks directly or via tag references. Index numbers allow users to read or write data within the block when the data type is not brought to an output pin of the object. Editing tools such as box copy and paste speed development. You may also copy and paste portions of strategies from other configurations. The Undo feature provides a convenient method to reverse incorrect or undesired actions.

Configuration Management

The controller configuration file may be imported directly into Station Designer software for configuring 900 Control Station operator interfaces. Maintaining controller and operator interface configuration files that match the actual configuration being executed in the controller is a simple task with Process Controller Designer’s configuration upload capability. When a PC with Process Controller Designer software is in communication with the controller, the Upload feature reads the configuration from the controller’s memory and back-builds an exact configuration file in the PC, including all text annotations used to describe functional areas. This file can then be saved to disk as a back-up and downloaded when needed to simplify maintenance.

New versions of Process Controller Designer software may be used to develop configurations for older controller versions. Configurations developed for early firmware versions of HC900 Controllers are automatically converted to be compatible with newer controller versions when saved as the desired version level. All controllers in the HC900 product line are supported with the same software. Configurations developed with Control Builder software version 5.0 for UMC800 Controllers may also be converted for use with HC900 controllers.

Configuration Edits-RUN Mode

Configuration changes such as block additions or substitutions and soft-wiring can be transferred to the controller during the RUN/PRGM mode, avoiding initialization. All outputs and status are held during a minimal transfer time after which processing continues at the start of a scan. Changes requiring I/O module updates require additional time. The amount of time the outputs will be held, typically several seconds, is presented to the user at the time of download along with options to proceed.

Configuration changes downloaded to the controller while the controller is in the Program mode, or if cold start is selected while in the Run mode, all controller outputs are turned off and a re-initialization of the controller database is executed.

Configuration File Properties

Configuration file properties are maintained during configuration development identifying the date of initial file creation and the date of the last file modification. Areas are provided to include a configuration name and the name of the author. During configuration, a Statistics summary (Figure 2) indicates the amount of controller resources used by the configuration and the amount of resources available. Security is provided via password entry to limit access to the entire configuration or to only user specified configuration worksheets.

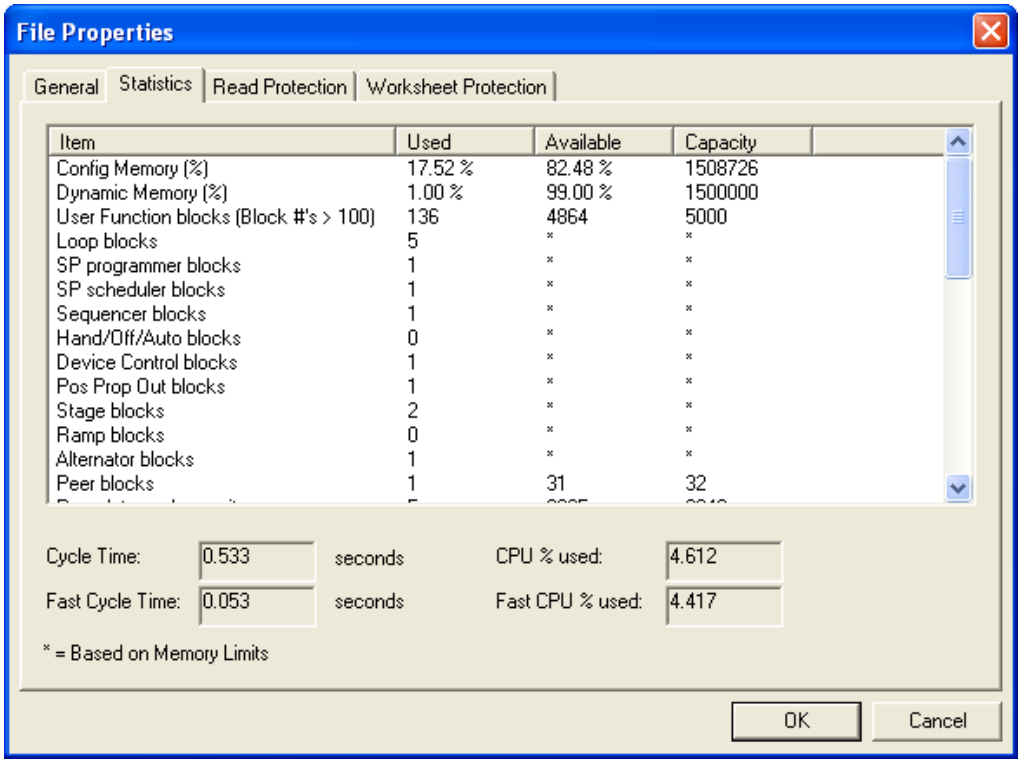
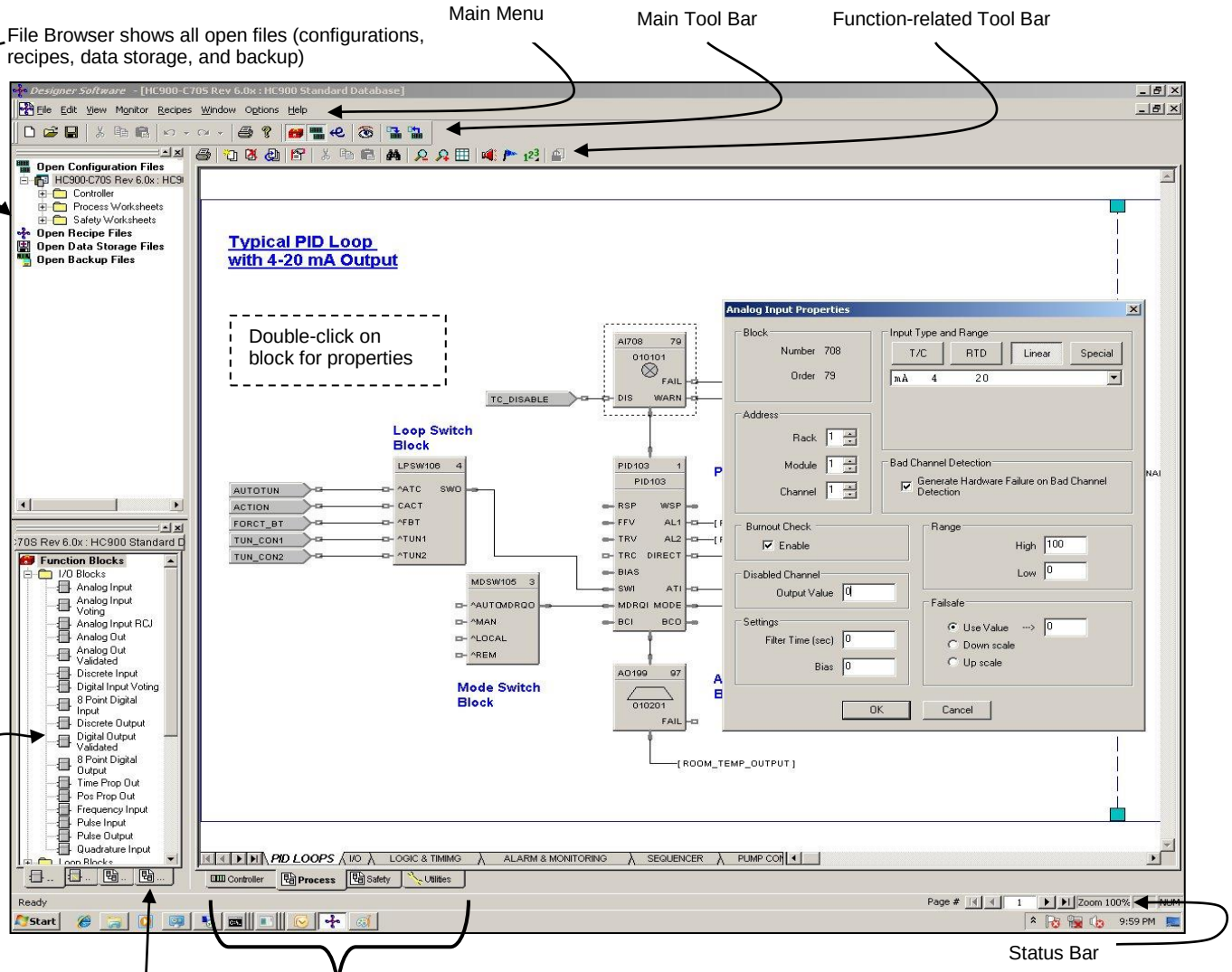


Figure 2 - File properties

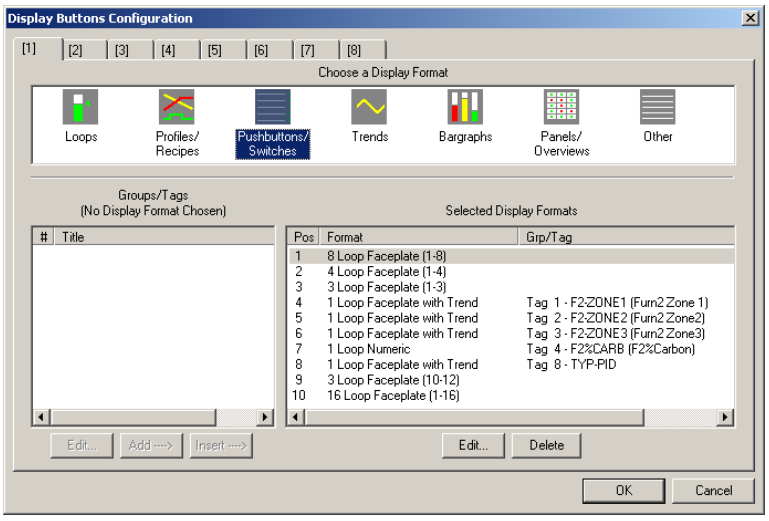
Edit mode Overview



Functional Tabs (left to right) (see page 21 for details):
Controller - lists I/O used, e-mail alarms
Display - format select, tag assignment, F-key assignment (limited to versions prior to 6.0)
Function Blocks - graphic configuration (shown above)
Modbus Map – shows custom Modbus addresses
Utilities - setup for ports, data storage, time, calibration and diagnostics

Config tab lists all configured blocks, click on any block to find.

Worksheet Toolbox lists available Function Blocks and software tools, categorized by tabs Normal/Fast Scan & by block type.



On-Line Monitoring Features

Process Controller Designer on-line monitoring tools allows quick analysis of configuration problems. Tools include:

1. **Multiple function block monitor access on a single display from multiple worksheets.** Most internal parameters are available for read/write plus block outputs may be forced including I/O and logic blocks. Principle blocks such as PID, Setpoint Programmer and Sequencers have dialog boxes to allow operation and test. Stored profiles or sequences may also be selected on-line.

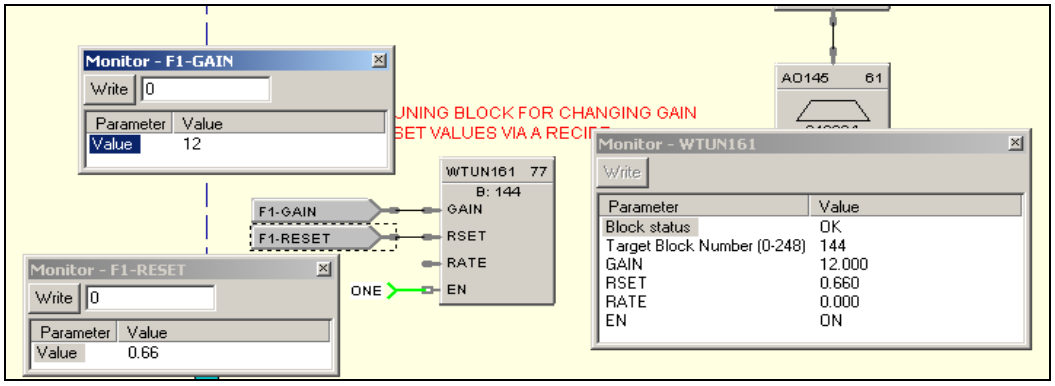


Figure 3 - Multiple function block monitoring

2. **Logic Power Flow indication**. You can choose solid green = ON/dotted red = OFF or solid red = ON/dotted green = OFF to indicate power flow.

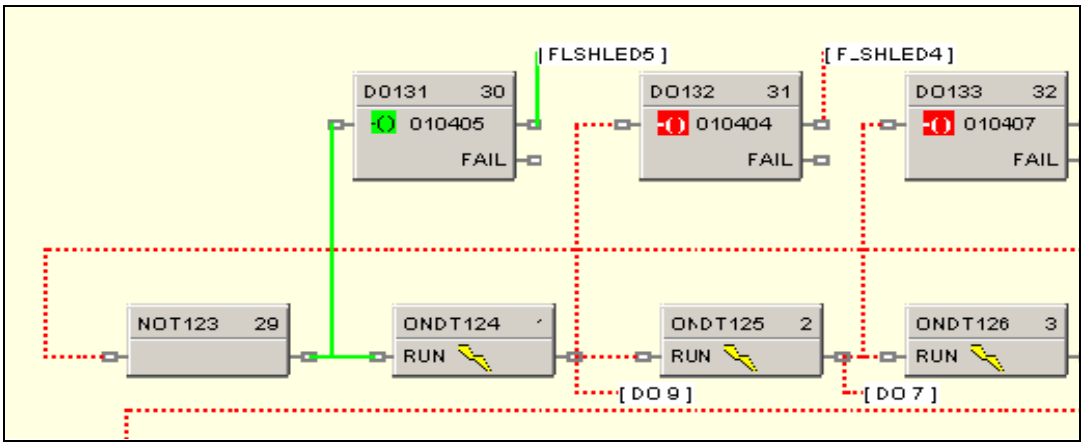
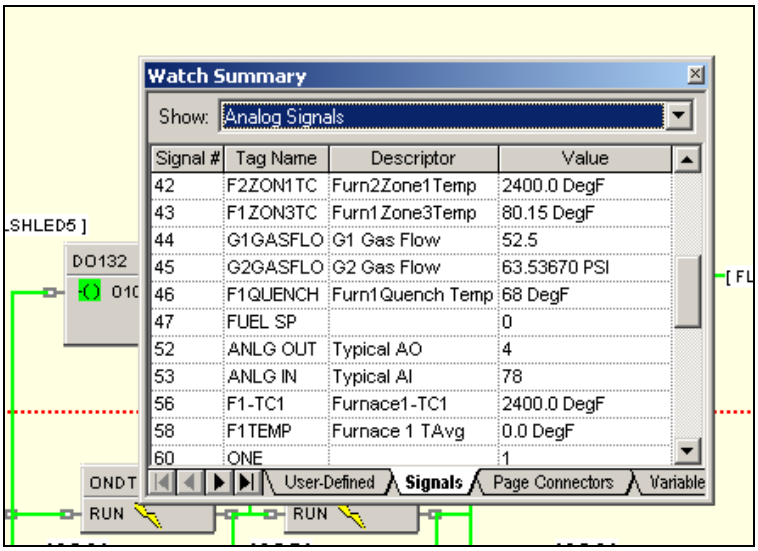


Figure 4 - Logic power flow

On-Line Monitoring Features (cont'd)

3. **User-selected Watch Window.** Allows access to digital and analog I/O, Signal Tags, Variables), and custom display data groups by tab selection. A custom Watch Window may also be created by selecting parameters from the configuration diagram. Write capability from Watch Windows is supported. Variables on the safety worksheet



must be enabled and restricted to non-critical safety functions for writing while operating in the safe mode. Writes are then enabled utilizing the associated Write Variables function (WVAR) located on the process worksheet.

Figure 5 - User defined watch window

4. **Dynamic function blocks input and output values.** Provided when monitoring the function blocks of the configuration diagram, the dynamic value presentation may be limited to a single pin, a single function block, or it may encompass the entire display window.

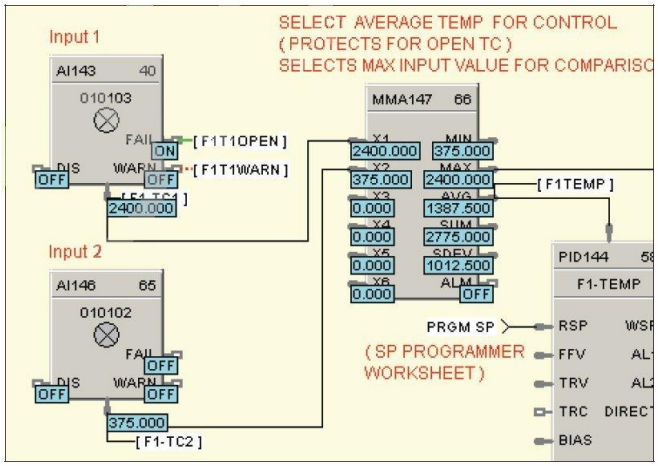


Figure 6 - Dynamic function block values

5. **Signal Trace-back for any function block input.** Used to find the signal source for quick identification of potential errors.
6. **FIND**. A FIND function allows location of multiple instances of specific tags across all worksheets.

7. **Recipe Management**. A separate Recipe Management feature allows creating, editing, copying and exporting recipes, profiles, schedules and sequences to allow transferring this information between configurations and controllers.

On-Line Monitoring Features (cont'd)

8. **Diagnostic Monitoring.** Provided in the Utilities section of the software to view controller status, I/O rack status and communication port diagnostics status for both serial and network ports. A search function to locate/force/unforce function blocks is also provided.

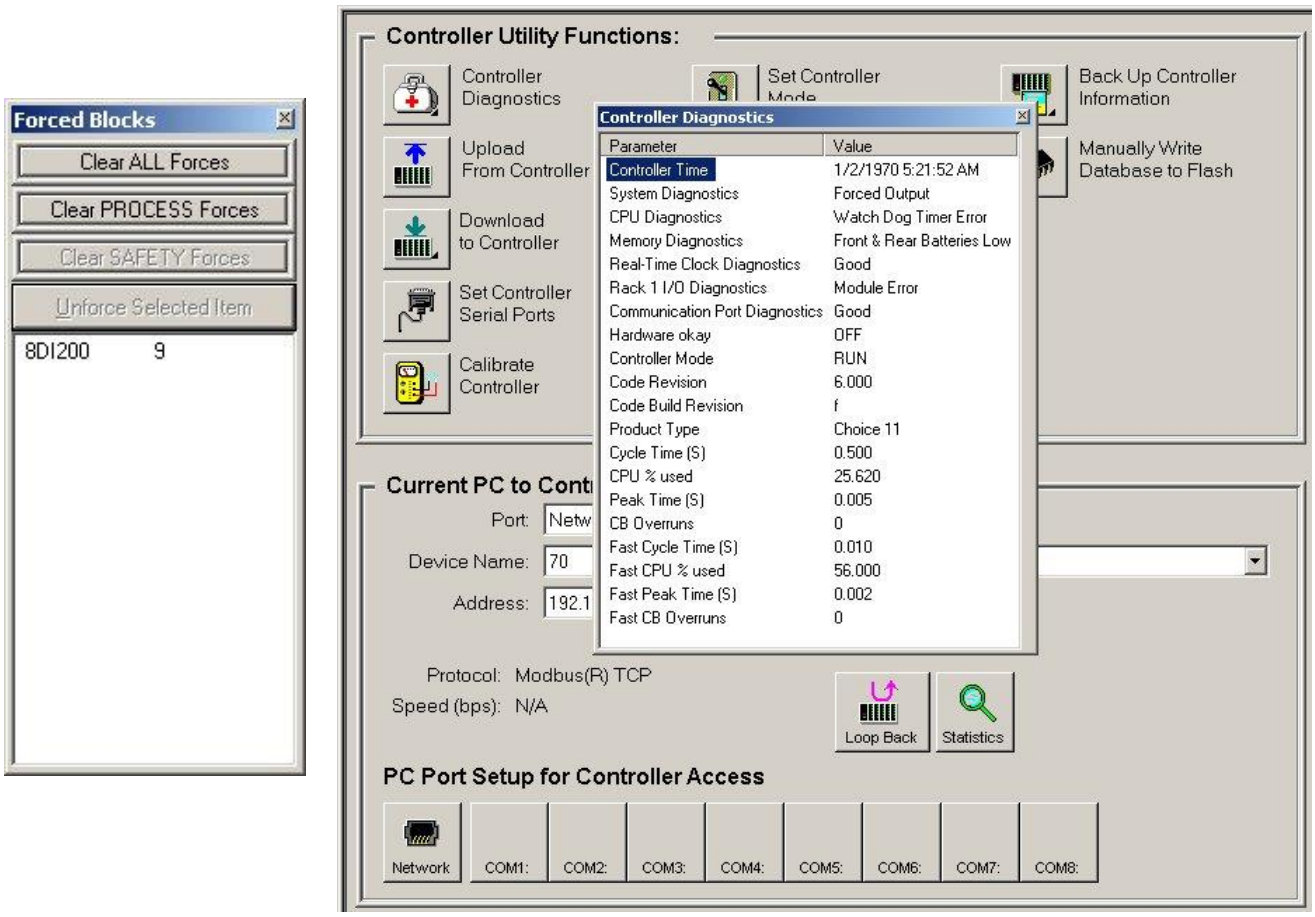


Figure 7 - Forced blocks window (left), Diagnostic monitoring window

900 Control Station

When configuring 900 Control Station, the configuration file from Process Controller Designer is imported into Station Designer software to simplify database management when building displays. Database mismatches between the controller and operator interface configurations are detected at run-time of the interface.

Remote Access

Process Controller Designer software supports remote access to HC900 Controllers via Modem using Modbus Protocol or Honeywell's ELN Protocol. To support this function, an external modem must be connected to the serial port of the remote controller. Process Controller Designer software provides a calling list facility to simplify access. Selecting Modem communications from the Utilities tab and requesting a dial up operation provides the user with a calling list to access the appropriate controller. Once communications is established, the configuration of the controller may be uploaded to the PC and edited or monitored remotely.

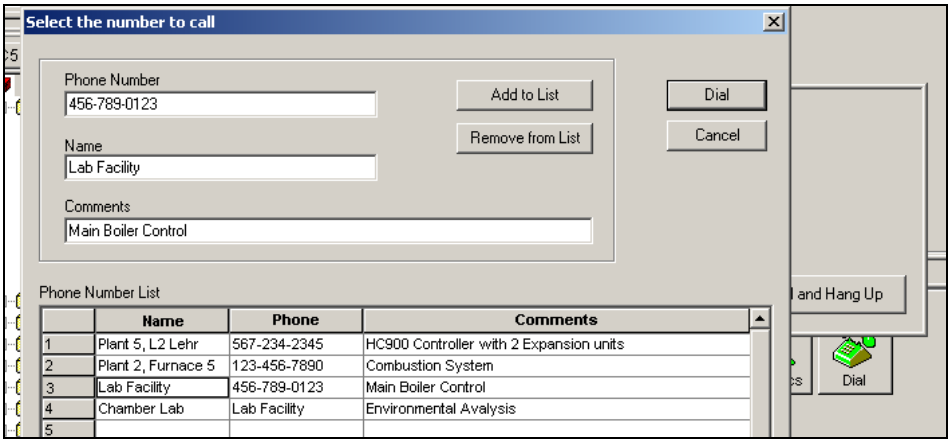


Figure 9 - Remote access dialup

File Export for database transfer

When interfacing the HC900 controller to PC software programs or 3rd party operator interfaces, a time saving service is provided to export tag and variable definitions in CSV or tab delimited formats. In addition, the Modbus addresses of each configured data parameter may also be exported to a file.

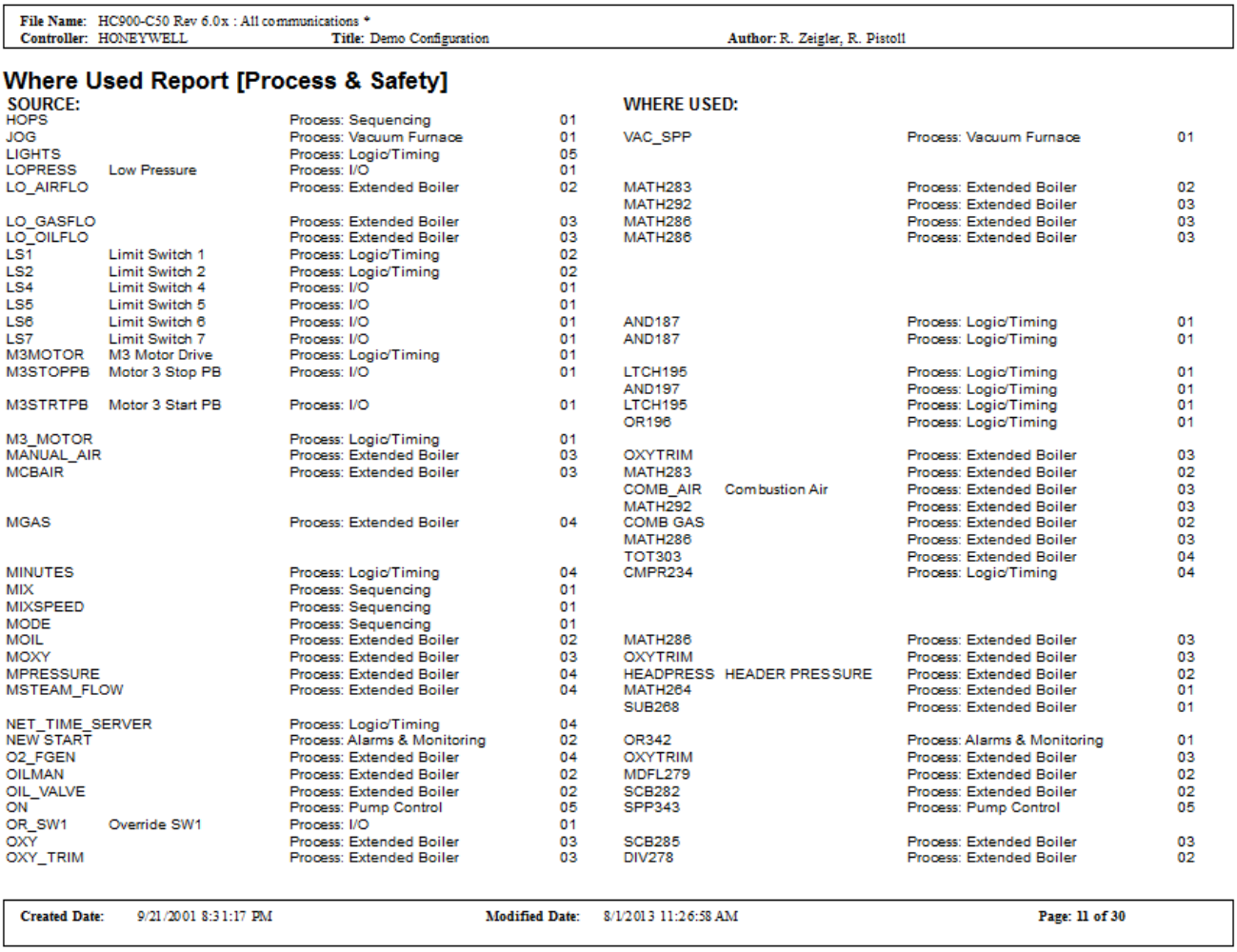
A11 fx Hex Addr

	A	B	C	D	E	F	G	H	I	J
1	RevisionID:	5500.0032.0005.0002.0008								
2	File Name:	HC900-C70 Rev 4.1x : HC900 Standard Demo C70_4.1.cde *								
3	Controller Name:	FURNACE1								
4	Title:	Demo Configuration								
5	Author:	R. Zeigler, R. Pistoll								
6	Created Date:	########								
7	Modified Date:	########								
8										
9	Report Title:	All Modbus Registers Report								
10										
11	Hex Addr	Dec Addr	Partition Name	Tag Name	Description	Type	#	Data Type	Access	EU
12	0x0000	1	Misc__Parameters	Instrument_Mode		System Register		unsigned 16	R/W	
13	0x0002	3	Misc__Parameters	Load_Recipe		System Register		unsigned 16	W	
14	0x0004	5	Misc__Parameters	Reserve_Status___C70R_Only		System Register		unsigned 16	R	
15	0x0040	65	Loops_1_24	F2_ZONE1.PV	PV	PID		float 32	R	
16	0x0042	67	Loops_1_24	F2_ZONE1.RSP_SP2	RSP SP2	PID		float 32	R/W	
17	0x0044	69	Loops_1_24	F2_ZONE1.WSP	WSP	PID		float 32	R/W	
18	0x0046	71	Loops_1_24	F2_ZONE1.Output	Output	PID		float 32	R/W	
19	0x0048	73	Loops_1_24	F2_ZONE1.PV__B_	PV (B)	PID		float 32	R	
20	0x004C	77	Loops_1_24	F2_ZONE1.Gain_1_Prop_Band_1	Gain 1 Prop Band 1	PID		float 32	R/W	
21	0x004E	79	Loops_1_24	F2_ZONE1.Direction	Direction	PID		float 32	R	
22	0x0050	81	Loops_1_24	F2_ZONE1.Reset_1	Reset 1	PID		float 32	R/W	
23	0x0052	83	Loops_1_24	F2_ZONE1.Rate_1	Rate 1	PID		float 32	R/W	
24	0x0054	85	Loops_1_24	F2_ZONE1.Scan_Cycle_Time	Scan Cycle Time	PID		float 32	R	
25	0x0056	87	Loops_1_24	F2_ZONE1.PV_Low_Range	PV Low Range	PID		float 32	R	
26	0x0058	89	Loops_1_24	F2_ZONE1.PV_High_Range	PV High Range	PID		float 32	R	
27	0x005A	91	Loops_1_24	F2_ZONE1.Alarm_1_SP1	Alarm 1 SP1	PID		float 32	R/W	

Figure 10 - File Export

Process Controller Designer Reports

Documenting your configuration is supported through a variety of report formats. Each can be print-previewed. A few of these include a summary of the controller I/O used, function block worksheet selection (each page of diagram worksheet printed as 8.5 x 11” sheet), function block properties, tag parameters, recipe listings, setpoint profile listings, sequencer listings, setpoint scheduler listings, OI display groups, and controller setup. For signal tracing, a Where Used list is also provided.



File Name: HC900-C50 Rev 6.0x : All communications *
Controller: HONEYWELL **Title:** Demo Configuration **Author:** R. Zeigler, R. Pistoll

Where Used Report [Process & Safety]

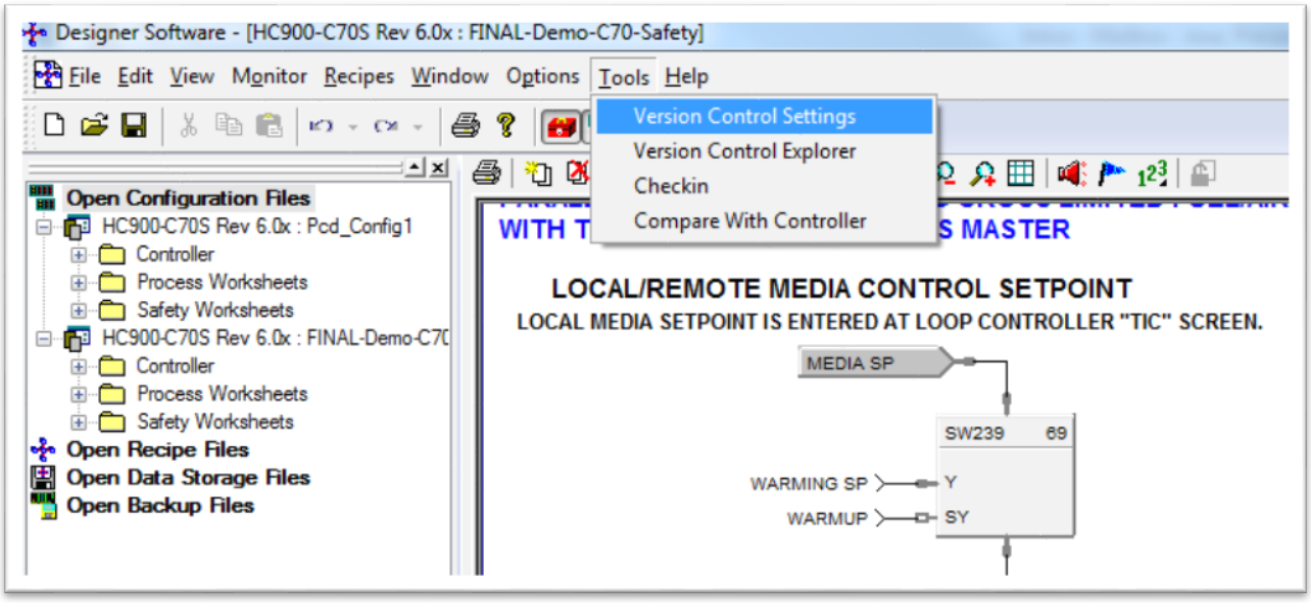
SOURCE:				WHERE USED:			
HOPS		Process: Sequencing	01				
JOG		Process: Vacuum Furnace	01	VAC_SPP		Process: Vacuum Furnace	01
LIGHTS		Process: Logic/Timing	05				
LOPRESS	Low Pressure	Process: I/O	01				
LO_AIRFLO		Process: Extended Boiler	02	MATH283		Process: Extended Boiler	02
				MATH292		Process: Extended Boiler	03
LO_GASFLO		Process: Extended Boiler	03	MATH286		Process: Extended Boiler	03
LO_OILFLO		Process: Extended Boiler	03	MATH286		Process: Extended Boiler	03
LS1	Limit Switch 1	Process: Logic/Timing	02				
LS2	Limit Switch 2	Process: Logic/Timing	02				
LS4	Limit Switch 4	Process: I/O	01				
LS5	Limit Switch 5	Process: I/O	01				
LS6	Limit Switch 6	Process: I/O	01	AND187		Process: Logic/Timing	01
LS7	Limit Switch 7	Process: I/O	01	AND187		Process: Logic/Timing	01
M3MOTOR	M3 Motor Drive	Process: Logic/Timing	01				
M3STOPPB	Motor 3 Stop PB	Process: I/O	01	LTCH195		Process: Logic/Timing	01
				AND197		Process: Logic/Timing	01
M3STRTPB	Motor 3 Start PB	Process: I/O	01	LTCH195		Process: Logic/Timing	01
				OR196		Process: Logic/Timing	01
M3_MOTOR		Process: Logic/Timing	01				
MANUAL_AIR		Process: Extended Boiler	03	OXYTRIM		Process: Extended Boiler	03
MCBAIR		Process: Extended Boiler	03	MATH283		Process: Extended Boiler	02
				COMB_AIR	Combustion Air	Process: Extended Boiler	03
				MATH292		Process: Extended Boiler	03
MGAS		Process: Extended Boiler	04	COMB GAS		Process: Extended Boiler	02
				MATH286		Process: Extended Boiler	03
				TOT303		Process: Extended Boiler	04
MINUTES		Process: Logic/Timing	04	CMPR234		Process: Logic/Timing	04
MIX		Process: Sequencing	01				
MIXSPEED		Process: Sequencing	01				
MODE		Process: Sequencing	01				
MOIL		Process: Extended Boiler	02	MATH286		Process: Extended Boiler	03
MOXY		Process: Extended Boiler	03	OXYTRIM		Process: Extended Boiler	03
MPRESSURE		Process: Extended Boiler	04	HEADPRESS	HEADER PRESSURE	Process: Extended Boiler	02
MSTEAM_FLOW		Process: Extended Boiler	04	MATH264		Process: Extended Boiler	01
				SUB268		Process: Extended Boiler	01
NET_TIME_SERVER		Process: Logic/Timing	04				
NEW START		Process: Alarms & Monitoring	02	OR342		Process: Alarms & Monitoring	01
O2_FGEN		Process: Extended Boiler	04	OXYTRIM		Process: Extended Boiler	03
OILMAN		Process: Extended Boiler	02	MDFL279		Process: Extended Boiler	02
OIL_VALVE		Process: Extended Boiler	02	SCB282		Process: Extended Boiler	02
ON		Process: Pump Control	05	SPP343		Process: Pump Control	05
OR_SW1	Override SW1	Process: I/O	01				
OXY		Process: Extended Boiler	03	SCB285		Process: Extended Boiler	03
OXY_TRIM		Process: Extended Boiler	03	DIV278		Process: Extended Boiler	02

Created Date: 9/21/2001 8:31:17 PM **Modified Date:** 8/1/2013 11:26:58 AM **Page: 11 of 30**

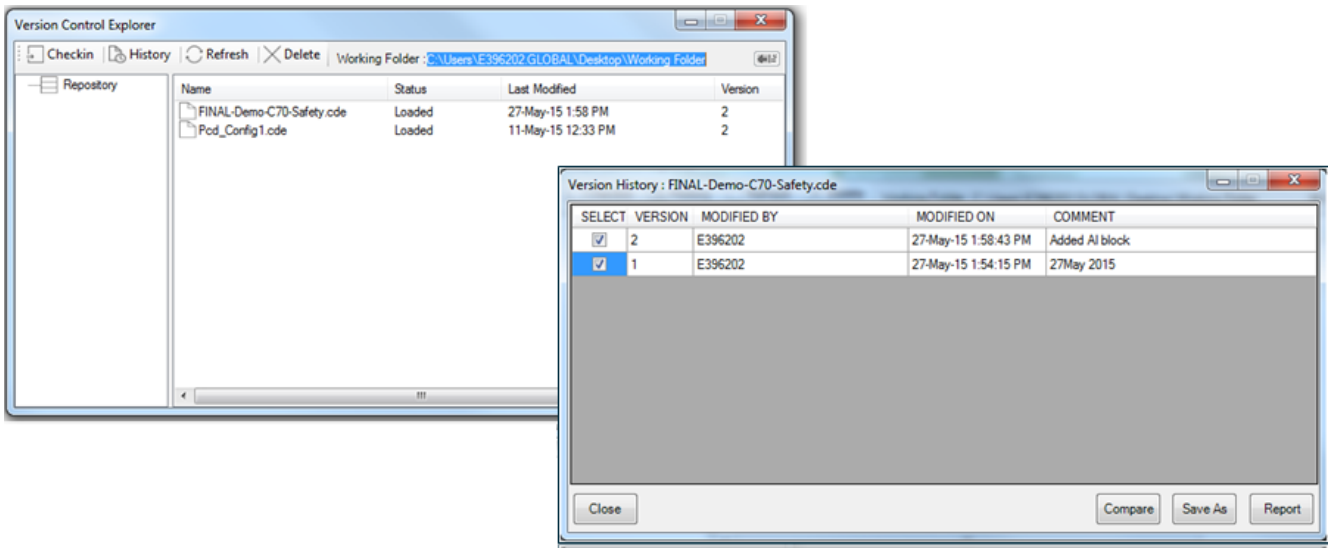
Figure 11 - Sample Where Used Report

Version Control

The Version Control System provides capabilities to save changes made to the cde and non cde files over time and creates repositories to manage different versions.

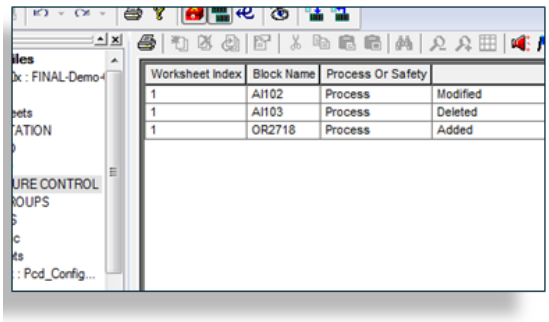


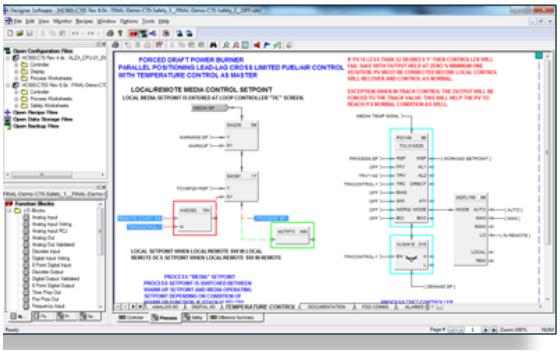
This helps to manage, track, and compare differences between two revisions.

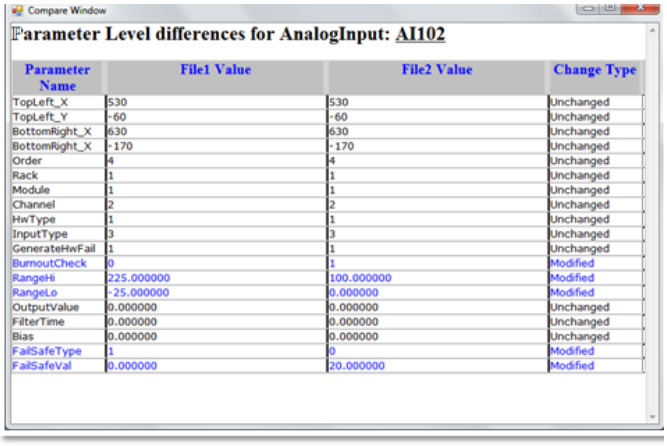


Report summary

The report provides details of compared data between two files or versions. The data is classified and presented under different categories such as Controller, Process, Safety, and Difference Summary. This report can be exported to Microsoft Excel file and used for future references.

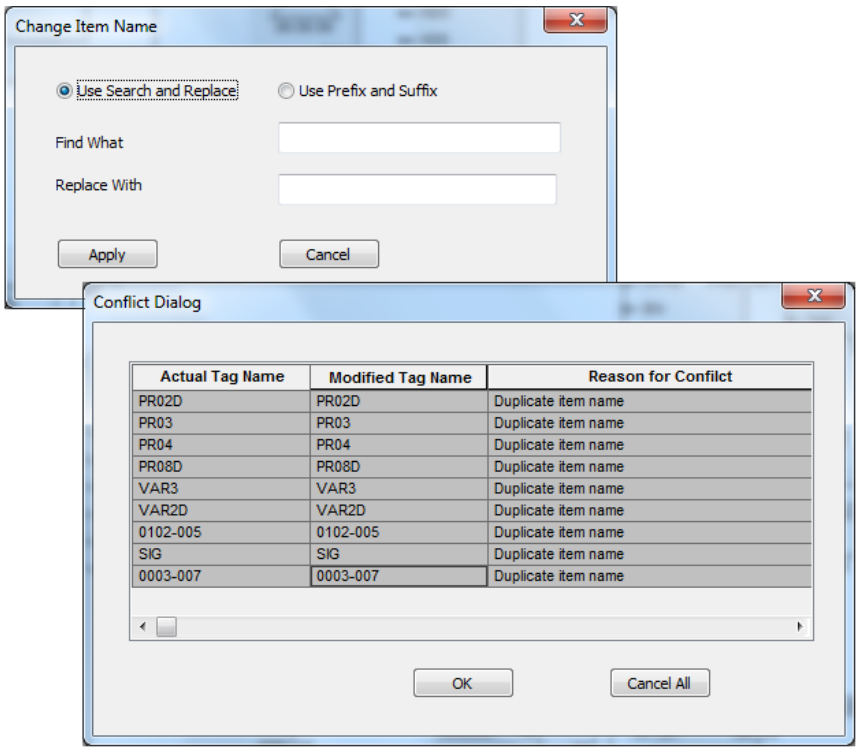






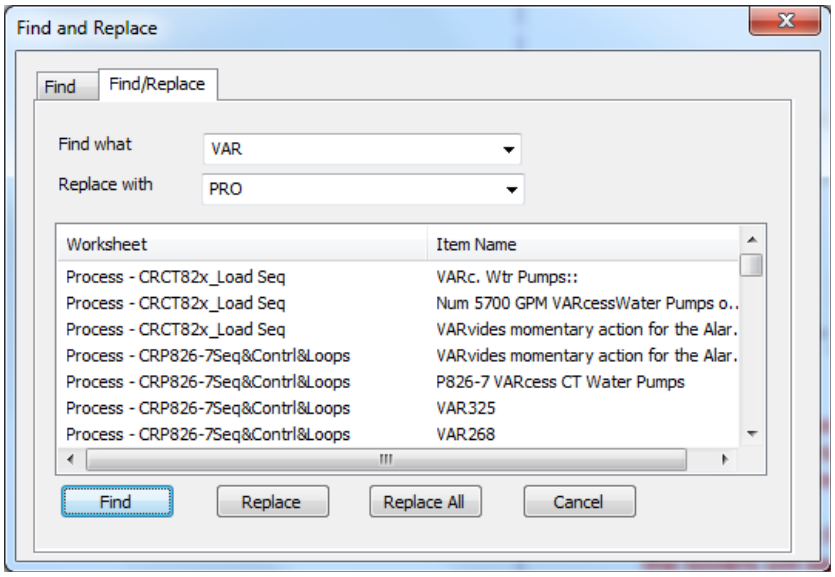
Paste special functionality

This window allows the user to find and replace text and add a prefix or suffix to the item names. This will help to maintain consistency across the item names.



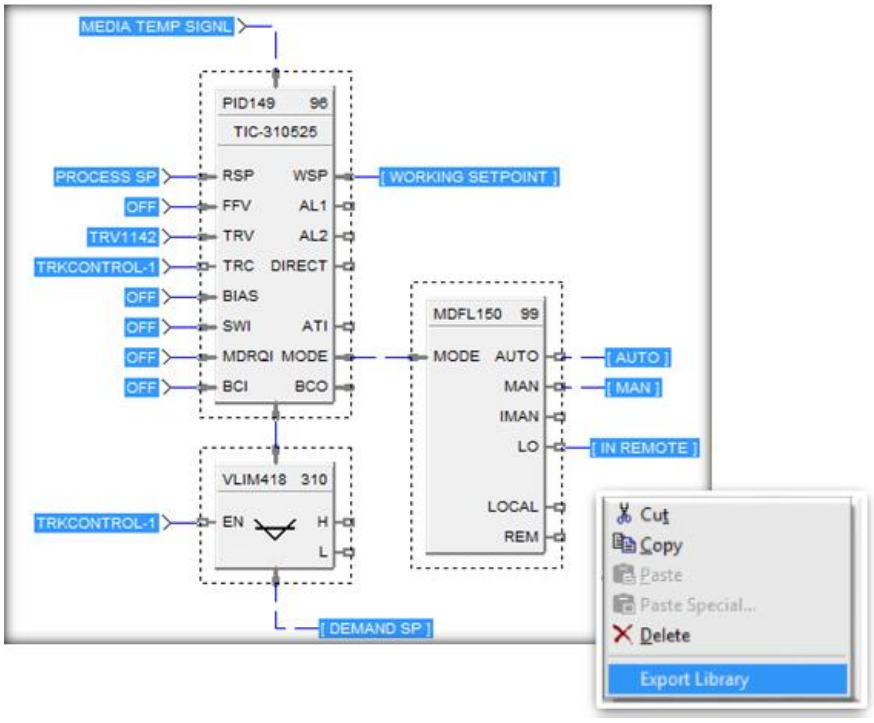
Find and Replace

The **Find and Replace** feature allows the user to identify specific tags and replace them in all instances at the same time.



Library Functionality

This functionality helps to export a group of the control logic and thereby save to a location. These groups can be imported in the worksheet whenever required. This saves time spent in recreating the control logics again. It is easy to share and reuse by other users via the designer software.



Help

Process Controller Designer provides extensive user help in the form of topical help information that may be accessed from the Help selection on the main menu. Help information in this section cover subjects from how to get started to extensive detail on each function block. See Figure 12.

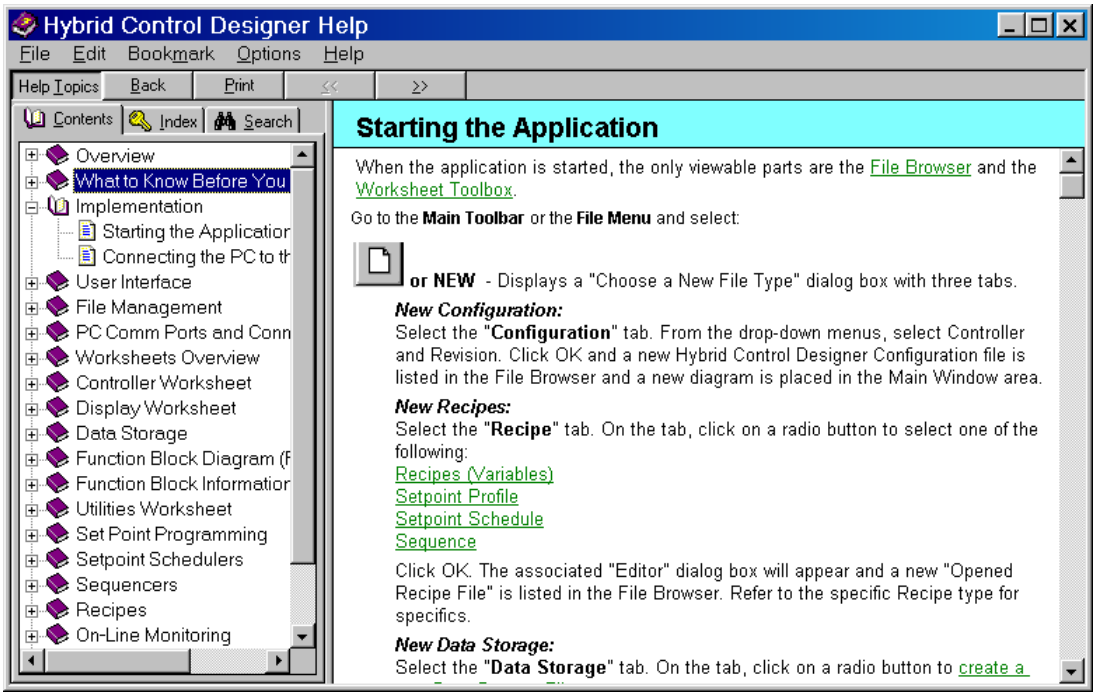


Figure 12 - Topic help

Topic help specific to each function block is available. See Figure 13.

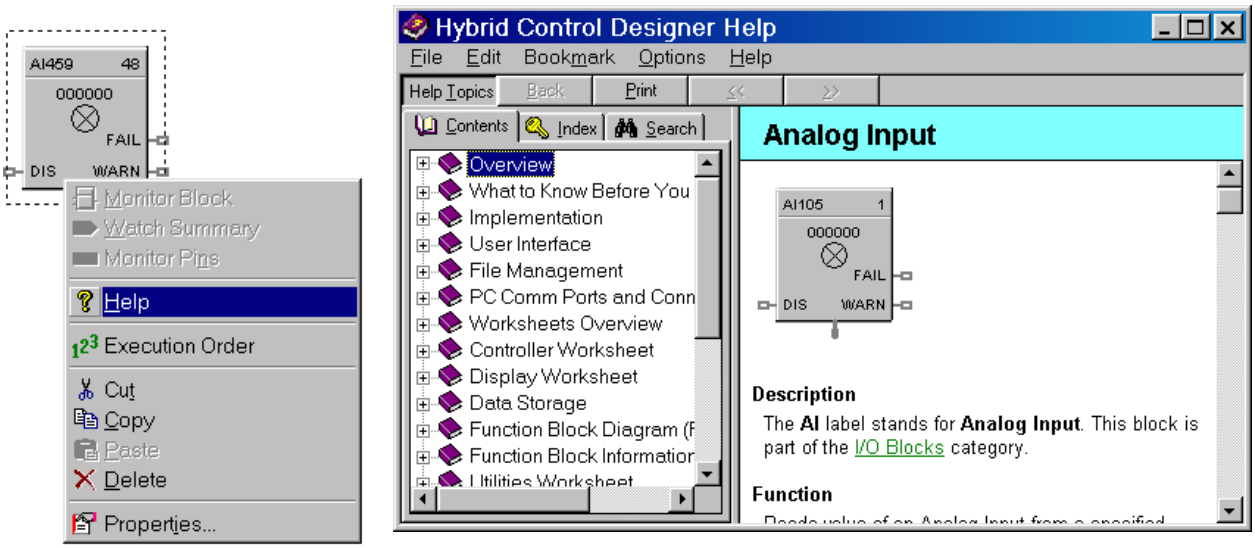


Figure 13 - Right-clicking on an AI block (L) to access its help (R)

Help (Continued)

Popup help for entry fields is available. See Figure 14.

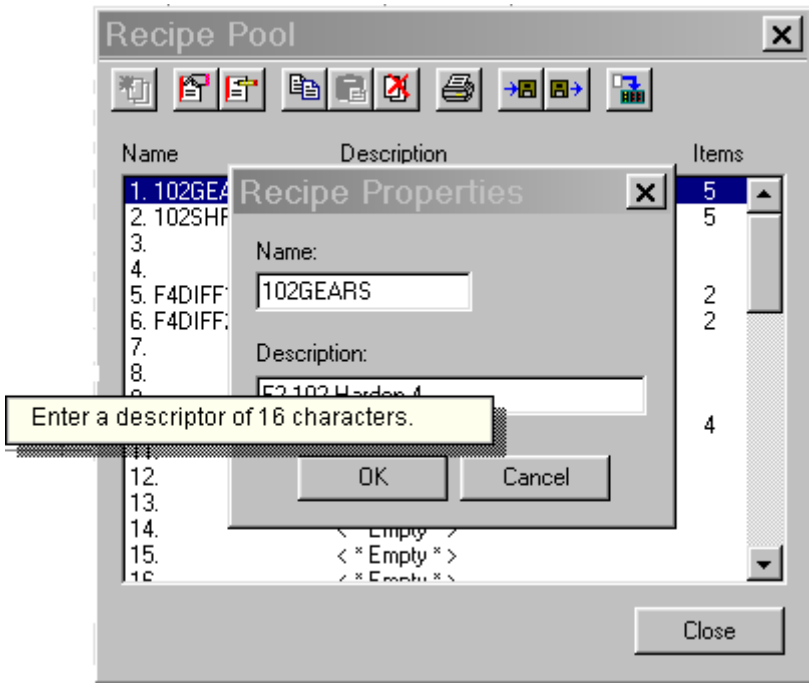


Figure 14 - Right-clicking on a recipe description to see its popup help

HC900 Process Controller Utilities Software

HC Utilities is a separate optional PC software application that provides many of the user maintenance and diagnostic functions of HC Designer software but restricts configuration changes. This software is an ideal program for OEMs and Integrators who wish to provide a maintenance program to their customers without the risk of unauthorized changes to the controller's program.

Files created in HC Utilities for Recipes, and Data Storage schedules may be loaded into the system via serial communications, network communications.

The serial and network interface capabilities also allow users to download new controller configurations or perform equipment firmware upgrades.

Features include:

- Recipe development: (Variables, Setpoint Profiles, Setpoint Schedules, Sequences)
- Data storage schedules
- Set controller communication ports
- Calibrate controller I/O
- Configuration reloads
- Firmware Upgrades
- View controller diagnostics
- Monitor controller configurations of unlocked worksheets

Specifications

TABLE 1 – HC900 Process Controller Designer & Process Controller Utilities Software Specifications	
Design	
PC Requirements	Software runs on Windows™ 7 (32 & 64 bit OS) or Windows 10 (32 & 64 bit OS) Minimum—Pentium Class 1.5 GHz with 1 GB of RAM (2.5 GHz with 2GB recommended) Screen resolution – SVGA (1024x768 recommended) or better CD ROM drive (for loading software)
Configuration (HC Designer only)	Off-line configurations with optional on-line (Run mode) configuration download.
Monitoring	On-line monitoring allows user to test the developed configuration.
System Interconnection	Connected to controller through its Ethernet 10/100 Base-T host ports, RS485 port. *Maximum Distance for Ethernet Connection:* Not limited, per user network topology *Cable termination:* RJ-45
Modem	*PC Interface:* Supports Microsoft Windows Telephony API (TAPI) device independent modem communications. Baud rate = 1200 to 56.6KB selectable *Controller Interface:* Connects to the controller configuration port. *Most commercially available modems with equivalent specifications to those validated should function with the HC900 controller.* The following modems have been validated: 3COM US Robotics 56K Data/Fax External Modem, Zoom 56K Dualmode External Modem, Best Data 56SX Data Fax External Modem The modem must have the following capabilities: • Auto answer • Can operate at 1200 baud, 8 data bits, 1 stop bit, and no parity • Hardware handshaking can be disabled • Software handshaking can be disabled • Data Terminal Ready (DTR) input can be disabled • Result codes can be suppressed • Echo can be disabled • Must be equipped with non-volatile memory (NVRAM) so that settings that are configured using command strings can be retained during a power-outage • Must be able to load the NVRAM settings automatically on power-up

TABLE 2 HC900 Process Controller Designer & Process Controller Utilities Software Functions	
Controller CPUs supported	C30, C50, C70 and C75
Controller Firmware Version Supported	Software version number must be equal to or a higher number than the controller firmware version number
Configuration File Conversions	Can convert between certain versions or CPU types.
Recipe Development	Recipes may be developed for Setpoint Profiles, Setpoint Schedules, Variables and Sequences. Recipes may be stored as separate files, downloaded to a controller and/or printed for a hard copy record.
Data Storage Schedules	Data Storage schedules in the controller may be developed using a dedicated type of function block. Data files are accessed via communications using HC Historian software. HC900 Supports History Backfill when used along with Experion HS • Benefit:- Critical Data Protection and Compliance • Target:- customers with critical data needs; aerospace manufacturing for complete records of the complete manufacturing process, food & beverage where accurate data on manufacturing and warehousing is required, pilot plants for accurate data retention of processes for new product documentation, data centres. • Secures critical customers from: – Network outage or communication glitches – Experion HS server outages, shutdowns, MS updates • At all other times, the Experion HS history database remains the master • Backfills ONLY occur when plant data is missing
Security	Password security may be applied to the entire configuration file and/or to individual worksheets within a file. Default security may be disabled for worksheets.
Concurrent operation	One instance of HC Designer or HC Utilities per PC at a time
Printing	The following are available for printing: Controller (hardware and email assignments) Function Block diagram (Process and/or Safety worksheets, block parameters, Modbus registers, tags, where-used list, statistics) Display (display settings, help screens, display key assignments, data storage schedule) Recipes (variables, setpoint profiles, setpoint schedules, sequences) Alarm and Event groups
Export Files	Format – CSV, Comma delimited or Tab delimited Types: Controller – (I/O) Function block Modbus Register Map Function block tags Recipes
Controller maintenance	Calibration – Analog Input Modules TC Cold junction Analog Output Modules Position Proportional Output function blocks Set controller time Serial Port setup Perform controller firmware upgrades

TABLE 3 Summary of HC900 Process Controller Designer & Process Controller Utilities Software Main Window Menu Selections	
Main Menu Selection	**Description**
File	• *New:* Provides dialog box • *Open:* Opens an existing Process Controller Designer configuration. • *Close:* Closes the active window. • *Save:* Saves the active configuration. • *Save As:* Can name the active configuration, select the target CPU type and revision and select the directory where file is to be stored. • *Download:* Alternate selection for download of saved configuration • *Upload:* Alternate selection for upload of complete configuration in controller including graphic pages, text annotations, stored recipes/profiles/schedules/sequences, OI display assignments, OI data storage setup • *Upload Recipes:* Uploads individual recipe files for variables, setpoint profiles, setpoint schedules and sequences. (Allows print, save, edit or download.) • *Backup controller:* Saves backup configuration file .cbk. • *Properties:* File properties, statistics (capacity usage), file read protection, worksheet protection (password access to individual worksheets) • *Write Protect File:* Can enter and confirm a password for the selected file. • *Print Report:* Provides report printout selections for documentation including configured I/O list, worksheets, block parameters, tag list, display listing, recipes, SP profiles, SP schedules, sequences, alarms and event list. • *Print Report Preview:* Provides print preview of report selection plus print selection • *Printer Setup:* Can select printer, paper type, and orientation. • *Exit:* Exits the Process Controller Designer application.

TABLE 3 Summary of HC900 Process Controller Designer & Process Controller Utilities Software Main Window Menu Selections	
Main Menu Selection	**Description**
Edit (HC Designer only)	• *Undo/redo*: undo/redo last edit • *Cut, Copy, Paste:* Editing functions for function block diagram items. • *Delete:* Deletes the currently selected item on the function block diagram. • *Append FBD (Function Block Diagram) Worksheet:* Adds a worksheet • *Delete FBD Worksheet:* Deletes a worksheet and its contents • *Reorder FBD*: Allows the sequence of worksheets to be changed. • *Worksheet properties*: Adds title and description for worksheet • *Unlock Worksheet*: Allows entry of password to unlock protected worksheet • *Block and Tag Order*: Shows list for ordering block sequence (fast and normal scan rates), ordering of major blocks such as control loops for display purposes • *Loop Mode Priority*: Lets you select which has priority: Manual Mode or Tracking Mode. • *Alarms*: Displays alarm groups for setup or changes • *Events*: Shows tag listing for assignment and annunciation as reportable events • *Edit Fixed Modbus Register Map*: Allows limited editing of pre-assigned (fixed) Modbus addresses. • *Configure Modbus Map Type*: For extensive Modbus address editing, select this to change from fixed map to custom map. • *Defragment Function Block List*: Frees up memory consumed by previously deleted function blocks. • *Find*: Directs to area of diagram for tagged variables and blocks. • *Go To*: Can enter the page number of Worksheet to which you want to go. • *Options*: Warning Level: Can enable or disable the Open Input and Unassigned I/O warnings on download. Default Annotation Attributes: Sets the default text attributes for annotation entries.
View	• *Toolbar:* Displays or hides the toolbar in the top of the Main window. • *Status Bar:* Displays or hides the status bar at the bottom of the Main window. • *File Browser:* Displays all open files (configurations, recipes, data storage) • *Worksheet Toolbox:* Enables function block diagram tool category listing • *Trace Window:* Shows listing of connection routing for selected input pin to function block • *Phone Book:* Shows editable list of phone numbers • *Grid:* Can place a grid in the function block diagram. • *Zoom Out:* Can zoom out to see more of a document, (5 levels). • *Zoom Normal:* Returns object to normal size (Zoom In).

TABLE 3 Summary of HC900 Process Controller Designer & Process Controller Utilities Software Main Window Menu Selections	
Main Menu Selection	**Description**
Monitor	• *Monitor Mode:* Enables monitor mode Enables toolbar for monitoring selections • *Monitor Toolbar:* Disables/Enables monitoring toolbar • *Set Update Rate*: Provides monitoring update rate selection – ¼ sec., ½ sec., 1 sec., and 5 sec. • *Set Logic State Colors*: Select a color scheme for indicating the on/off status of digital wires, digital signal tags, page connectors, and logic inversion. • *Watch Summary Window:* Enables watch window with tabbed selection of I/O, Signal Tags, Variables (write-capable), and display groups (write-capable) . Writes are restricted from running in Safe "RUN" mode unless enabled for non-critical safety functions located on the safety worksheet. Writes are preformed using the Write Variable (WVAR) on the process worksheet and connected to the associated variable in the safety worksheet. • *Controller Diagnostics:* Displays controller diagnostics. • *Rack Diagnostics:* Displays rack and I/O diagnostics. • *Controller Ports Diagnostics:* Provides menu selection of all ports for displaying diagnostic status including Ethernet port, RS-485 port, Host connections, Expansion Rack port, Peer to peer connections • *Modbus Port Diagnostics* • *Monitor Function Block:* Alternate selection for enabling function block monitoring • *Forced Blocks:* Displays all blocks with force conditions • *Show/Hide All Function Block Windows:* Allows monitored blocks to be disabled/enabled for viewing • *Show/Hide All Pin Data:* Displays monitoring values (numeric or On/Off state) at any input or output pin • *Show/Hide All Monitor Windows:* Allows all monitoring windows to be disabled/enabled for viewing

TABLE 3 Summary of HC900 Process Controller Designer & Process Controller Utilities Software Main Window Menu Selections	
Main Menu Selection	**Description**
Recipes	• *Allocate Recipe Memory:* Allocates memory in controller to allow for more or fewer recipes in the four pools below. • *Recipes (Variables):* Displays recipe pool, allows stored recipe review, supports recipe development, recipe printout is selectable • *Setpoint Profiles:* Displays setpoint profile pool, allows stored profile review, supports profile development, profile printout is selectable • *Setpoint Schedules:* Displays setpoint schedules, allows stored schedule review, supports schedule development, schedule printout is selectable • *Sequences:* Displays sequence pool, allows stored sequencer review, supports sequencer development, sequence printout is selectable
Window	• *Cascade:* Arranges windows so that they overlap. • *Tile Horizontally:* Arranges windows over and under each other. Each window is visible and none overlap. • *Tile Vertically:* Arranges windows side by side. Each window is visible and none overlap. • *Arrange All:*
Version Control	• *Version Control Settings:* Creates or uses existing repository and working folder. • *Version Control Explorer:* Shows the folder structure and status of the files in the working folder. • *Checkin To Version Control:* Stores the changes from the working folder to repository folder. • *Compare:* Compares differences between two revisions of the cde file.
Help	• *Help Topics:* Calls up the top level Help Contents page. • *About Help:* Displays copyright and software version information.

TABLE 4 HC900 Process Controller Designer Functional Tabs	
Tab	**Description**
Controller	Displays the I/O used in configuration by rack, module, channel. Supports configuration of: • Controller name (for network peer addressing) • E-mail alarm setup
Display (for support of legacy 559 and 1042 OI functionality) Available for configurations prior to version 6.000	Displays the 559 and 1042 operator interface setup. Supports configuration of: • Operator interface displays (for example: trends, horizontal or vertical bars) • Alarms • Events • Operator interface security • Filenames • Help displays • Startup display
Function Blocks	Supports configuration of control and data acquisition strategy using function blocks available from category tree. Up to 40 named worksheets with 20 pages each can be assigned.
Modbus Map	Appears when using a custom Modbus map. Custom Modbus map lets you assign blocks and parameters to custom addresses rather than pre-assigned fixed Modbus addresses.
Utilities	Supports configuration of: • PC communications ports (Com1 – Com8), selectable controller IP addresses • Controller communications ports and IP address setup with auto-detect/verification selection • Real-time clock, controller mode • Other functions: • Controller, I/O, controller communications port, peer controller diagnostics • Analog I/O calibration • Slidewire calibration (Position Proportional Output) • Show I/O force conditions (HC Designer only) • Upload, Download and Loop-back check functions

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Sales and Service

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Specifications are subject to change without notice

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