May 2008

UPGRADE DETAILS

What's New for SIL Solver® Version 5.01

SIL Solver® Version 5.01 builds upon features introduced in Version 4.0. For the benefit of those users upgrading from Version 4.0 to 5.01, the features introduced since Version 4.0 are attached.

To upgrade previous installation using CD

1. If using the installation CD, SIL Solver® Version 4.0 must be uninstalled first, using Windows Add/Remove Programs.
2. Uninstalling your current version will not affect your project files. It will delete your SIL Solver® database. If you have your own datasheets, follow the internet instructions below. And, as always, we recommend backing up your SIL_Data folder prior to any installation.
3. After uninstall is complete, insert the Version 5.01 CD to install SIL Solver® Version 5.01. You must have full administrative rights to the installation location.
4. Contact your SIL Solver® administrator or SIS-TECH for CD.

To upgrade from Version 5.01 using the internet

1. Internet website: www.silsolver.com
2. Select: **DOWNLOADS**
3. Read thoroughly: Upgrade 5.01 Installation Procedure
4. Open or Run: SIL Solver Ver 5.01 Update
5. Read: SIL Solver Technical Manual Version 5.01

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The following provides a summary of feature changes from SIL Solver® Version 4.0 to Version 5.01.

SUMMARY OF FEATURE CHANGES BETWEEN 3.7.1 AND 5.01

Managing Projects

Added ability to delete a project (version 4.1)
Added ability to copy a project (version 5.0)
Added ability to rename a project (version 5.0)
Removed disconnect (version 5.0)

User Interface Improvements

Auto-connect (version 5.0)
SIL Solver® project folders are automatically recognized by SIL Solver® when the user selects the primary folder location for the projects. Selecting the default folder for SIL Solver® will attach all projects within the default folder. If the user does not want to see a particular project, it will need to be removed from the designated folder (e.g., archiving). Due to this feature, the disconnect selection was removed.

General Display (version 4.0)
All screens were reformatted for better clarity of text and graphics. Screens now expand without loss of resolution on larger monitors. Previous versions would lose alignment of some fields when the screen was expanded to full size.

Verification test format change (version 4.0)
Verification test can be changed from color (red/green) to text (yes/no) for color blind users of the software.

Logic Solver and Support System Entry (version 4.1)
Changed entry method for logic solver and support systems to reduce error rate. Now, the user must make equipment selection and then click add to confirm. Inadvertent entries are eliminated.

Ability to replace previously entered test interval or architecture for an input or action without deletion (version 5.0)
Allows user to play what-if scenarios. User selects the data entry to evaluate by what-if and then selects new architecture and test interval for equipment.

Security

XP Issues (version 5.0)

New XP security feature allows IT to limit the writing of folders to the main computer directory, especially to the c:/Program Files directory. The SIL Solver® print feature uses Crystal Reports, which must be able to write a series of files to a specified location prior to printing. When the print is complete, Crystal Reports deletes these files. Some security implementation has resulted in conflict with Crystal Reports writing the required files. Some users have experienced printing problems as a result of the XP security, although SIL Solver® maintains all other capabilities.

SIL Solver® now creates a folder on installation – c:/SILSolver_CR_Dbf – for use by Crystal Reports. IT must give the user rights to this folder.

Relocation of default project folder (version 4.2)

SIL Solver® defaults to a folder external of the Program Files directory. This folder is named c:/silsolver_projects. The user can select another file location by choosing Options on the SIL Solver® main entry screen and choosing Project Files Location. The browser is used to select the location of the files.

Reports

Enhanced report format (version 4.0)

All reports have been re-formatted to improve readability with larger margins and larger size font.

Ability to print safety functions at project level (version 4.0)

All functions in a project can be printed at one time rather than having to print the functions separately.

Ability to select all reports or individual ones at function and project level (version 4.0)

Database

Database access on opening screen (version 4.0)

Ability to access the database from the opening screen. All features available to the user from the protective function screen are now available using the datasheets button on the opening screen.

Updated and expanded database (all versions)

A listing of the device database device IDs may be found in the back of the SIL Solver® Technical Manual.

Device Datasheets

Version 4.0

1. Added daily, weekly, and monthly test intervals.
2. Changed DI from 0.003 to 0.5 hr in all sheets where DI was equal to 0.003 hr. This does not significantly affect any result. SIL Solver® calculations assume that detected device failures are voted toward the trip state. Fault tolerance is used to obtain reliability. If fault tolerance is not provided and simplex devices are failed away from the trip state, the diagnostic alarm would be a high priority safety alarm requiring immediate operator action. The DI change was made to consider that most users classify diagnostic alarms as low priority alarms, allowing the operator 15 to 30 minutes for acknowledgement.
3. Updated data for alarm annunciator, compressor stop, differential pressure transmitter, gate valve spring return fail close and fail open, load monitor, pump stop, RCS 1oo1 hot standby, RCS 2oo2D with monthly diagnostics, relay fail to close, relay fail to open, temperature transmitter, thermocouple low stress, thermocouple high stress, RTD low stress, RTD high stress, pneumatic positioner, and trip amplifier non-programmable.
4. Added data sources to auxiliary contact, ball valve spring return fail to close in clean service, Bently Nevada overspeed monitor, compressor stop, de-energize to trip solenoid valve, differential pressure flow transmitter, differential pressure level transmitter, differential pressure transmitter, combination UV/IR flame scanner, IR flame scanner, load monitor, monitored energize to trip solenoid valve, motor contactor, motor operated valve fail to close, pump stop, pneumatic positioner, position switch, pressure transmitter, RCS 1oo1 hot standby, RCS 2oo2D, radar level gauge, relay fail to close, relay fail to open, temperature transmitter, trip amplifier non-programmable, UV flame scanner, vibrating level switch, and vortex shedding flow transmitter.

5. Added butterfly block valve, catalytic hydrocarbon detector, flame rod, frequently stroked solenoid valve, hand switch, IR hydrocarbon detector, liquid filled differential pressure level transmitter, magnetic flow transmitter, nuclear level transmitter, pneumatic pressure switch, pneumatic solenoid valve, position transmitter, push button, RCS 1oo1 hot standby without monthly diagnostics, RCS 2oo2D without monthly diagnostics, remote sealed differential pressure level transmitter, pneumatic positioner in modulating service, pneumatic positioner in on/off service, smart modulating positioner, smart on/off positioner, solenoid valve DTT high wattage, solenoid valve DTT low voltage, UPS DTT, UPS ETT, temperature transmitter with thermocouple low stress, temperature transmitter with thermocouple high stress, temperature transmitter with RTD low stress, temperature transmitter with RTD high stress, and variable speed drive.
6. Updated notes on temperature transmitter separate thermowell guidance.
7. Updated notes on butterfly control valve FTC action upon air removal.
8. Replaced Fisher DVC 6000 with generic smart positioner, providing one value to represent the various manufacturers of smart positioners. The smart positioner values are provided for modulating and on-off services. Added new references.

Version 4.1

1. Added Block Valve-Butterfly-FTC, Block Valve-Butterfly-FTO, Block Valve-Butterfly-FTC-PS Month. Added Block Valve-Gate-FTC, Block Valve-Gate-FTO, Block Valve-Gate-FTC-PS Month, Block Valve-Globe-FTC, Block Valve-Globe-FTO, Block Valve-Globe-FTC-PS Month, Rising Stem-Generic-FTC, Hydraulic Valve-PS Month Dirty and Clean Service, Updated the device descriptions throughout the block valve and control valve device types.

Version 5.0

1. Added proximity switch, level servo gauge, level ultrasonic, flow ultrasonic, carbon monoxide analyzer, hydrocarbon analyzer - catalytic, hydrocarbon analyzer – infrared, Block Valve - Butterfly - FTC - PS Month, Block Valve - Double Acting, Block Valve - Globe - FTC, Block Valve - Globe - FTO, Block Valve - Globe - FTC - PS Month, Block Valve - Gate - FTC, Block Valve - Gate - FTO, Block Valve - Gate - FTC - PS Month, Control Valve - Ball - Spring Return - FC, Control Valve - Ball - Spring Return - FO, Control Valve - Butterfly - Spring Return - FC, Control Valve - Butterfly - Spring Return - FO, Control Valve - Globe- Spring Return - FC, Control Valve - Globe - Spring Return - FO, Control Valve - Gate - Spring Return - FC, Control Valve - Gate - Spring Return - FO, Control Valve - Ball - FTC - Frequently Stroked, Flame Gas Detector - Flame Temperature, Hydraulic Valve - PS Test - Monthly Clean,

Hydraulic Valve - PS Test - Monthly Dirty, Rising Stem - Generic – FTC, RCS-1oo1HS - 3 month, 6 month diagnostic interval, smart positioner-on/off-monthly partial test, pneumatic positioner - modulating, and pneumatic positioner - on/off.
2. Added instrument air data to the device datasheets. This data replicates the support system data and allows its selection on the action worksheet.
3. Added common cause values to flame rod datasheet.
4. Increased dangerous failure rate for the alarm annunicator, pneumatic positioner - unspecified
5. Decreased dangerous failure rate for chlorine analyzer, conductivity analyzer, carbon dioxide analyzer, hydrogen sulfide analyzer, nitrogen analyzer, oxygen analyzer, level transmitter - capacitance, push button, hand switch, RTD - high and low stress environments
6. Increased safe failure rate for all RCS datasheets.

Version 5.01
1. Added 2oo2D architecture to ANHCT, ANHIR, HCDCT, and HCDIR.

Logic Solver Datasheets

Version 4.0
1. Updated data for safety configured general purpose PLC, relay fail to close, relay fail to open and trip amp non-programmable.
2. Updated notes for generic 2oo4D dual MP, dual I/O; generic 1oo2D dual MP, and simplex I/O
3. Added data sources to relay fail to close, relay fail to open, and trip amp non programmable.
4. Added non safety configured PES with dual MP and dual I/O, non safety configured PES with dual MP and simplex I/O, non safety configured PES with simplex MP and simplex I/O, and relay time delay.
5. Deleted non safety configured PES.

Version 4.1
1. Added clarification to NSDD that Dual MP and Dual I/O is 2oo2 voted.

Version 5.0
1. Updated notes for DMDIO and DMSIO

Support System Datasheets

Version 4.0

1. Updated assumptions for instrument air with receiver and instrument air with monitored receiver.

Version 4.1

1. Added instrument air with receiver and instrument air with monitored receiver.

Version 5.0

1. No changes. Instrument air data is replicated in the device datasheets.