

FactoryFloor 4.1 Release Notes

Welcome to FactoryFloor 4.1

The new release of Opto 22 FactoryFloor[®] makes it easier than ever to finish your automation projects faster, cheaper, and better than before. This document describes new features and improvements, and provides notes you'll need to use FactoryFloor 4.1.

See ["What's New"](#) below for descriptions of the improvements, enhancements, and other changes that have been made to applications in the FactoryFloor software suite. See ["Special Notes" on page 6](#) for important information on using FactoryFloor applications.

FactoryFloor 4.1 includes the following software applications:

- **OptoControl™**, the foundation of the FactoryFloor software suite, is an intuitive, graphical flowchart-based development environment that blends analog control, digital logic, and serial and network communications seamlessly in a single tagname database. Optional scripting streamlines programming tasks such as string handling, math expressions, and conditions.
- **OptoDisplay™** provides full-featured HMI capabilities with advanced trending and multimedia.
- **OptoServer™** serves your data to OPC 1.0 and DDE clients.
- **OptoUtilities™** include OptoTerm™ for working with controllers, OptoSniff™ for checking communications, ioManager™ for working with Ethernet-capable Opto 22 hardware, and other helpful tools.

What's New

OptoControl™

Support for New Hardware

Support for the following new hardware has been added to OptoControl 4.1:

- SNAP Simple I/O units (with a SNAP-ENET-S64 brain), known in OptoControl as SNAP Simple 64, used with a SNAP-LCM4 controller equipped with an M4SENET-100 Ethernet adapter card.
- SNAP-AIPM power monitoring module
- SNAP-ph/ORP module
- SNAP-AIMA-iSRC analog input module

New Features

- A **controller download file** can now be made. This file makes it easy to download a compiled strategy for a specific controller using OptoTerm.
- To reduce the time required to download a strategy to a controller, **download compression** has been added.
- A cdb.txt file is now created every time a tag database file is written. This file provides a basic textual description of the contents of the cdb file, including all tags and their data types.
- OptoControl now supports **clamping** for SNAP analog output points. Both upper and lower clamps can be set to keep out-of-range signals from being sent to an analog output point. The revised Add Analog Point dialog box for SNAP I/O has been improved to include clamping and to make it easier to configure custom scaling.

New Commands

The following new commands have been added in OptoControl 4.1:

New Command	Purpose
Float Valid?	To verify whether a float variable contains a valid value.
Get Simple-64 I/O Unit Latches Get & Clear Simple-64 I/O Unit Latches Move Simple-64 I/O Unit to Table Move Table to Simple-64 I/O Unit Get Simple-64 I/O Unit as Binary Value Set Simple-64 I/O Unit from MOMO Masks	To support new SNAP Simple I/O unit hardware.
Get Analog Lower Clamp Get Analog Upper Clamp	To read the lower and upper clamp values for an analog point on a SNAP module. (These values are set during point configuration.)

New Command	Purpose
Get Digital Latches Get Digital-64 Latches Get & Clear Digital Latches Get & Clear Digital-64 Latches	To read all on and off latches (as well as the state of all points) on a digital I/O unit and optionally to clear latches.

Document Changes Make it Easier to Find the Command You Need

Two new features have been added to the *OptoControl Command Reference* (Opto 22 form #725) to make it easier to find the command you're looking for:

- You can now find a command by its command group in a new section in the front of the book. In this section, for example, all Digital Point commands are listed together. Each command also shows its page number and OptoScript equivalent.
- Related commands are now easier to locate as well. Most commands have related commands listed under See Also. In the printed book, each command name now includes its page number. In the PDF version of the book, all See Also command names are links.

Enhancements

When uploading a strategy archive from a controller to a PC, you can now enter Debug mode immediately without needing to download the strategy to the controller. (Note that the archive uploaded from the PC is compressed in zip file format and must be uncompressed before use.)

The time it takes to record a variable or I/O name change has been decreased in large strategies that have charts without OptoScript blocks.

Loop Number and Setpoint columns have been added to the Configure PID Loops dialog box.

The Add Module, External Instruction Files, and Subroutine Files dialog boxes have been improved.

Keyboard and mouse standard shortcuts have been added:

- When a block is selected, the F2 key brings up the Name Block dialog box.
- When a flowchart window is selected, holding the CTRL key while scrolling the mouse wheel will change the zoom setting.

While stepping through a chart, if the active step block is not visible, it will be scrolled into view.

Bug Fixes

Focusing issues in the Add Instruction dialog box have been addressed.

In the debugger, the version of digital brains is now shown correctly.

PID loops and event/reactions are correctly added during a chart import.

In a flowchart, making multiple object selections with the Shift key is now working.

Some combo boxes in Find and Replace dialog boxes have been widened to show all contents.

Fixed a download error that occurred if an OptoScript block in a subroutine made a string assignment like `s1 = s2 + s3 ;`

For SNAP-AOA-23 and SNAP-AOV-25 modules, the "Custom..." scaling button is correctly enabled in the Edit Analog Point dialog box.

In watch windows, pointer variables are properly displayed.

When a chart window is opened, it is always inside the viewable area.

Fixed a problem with OptoScript blocks with unterminated comment blocks (i.e. `/*` and `*/`), which caused the OptoScript lexical analyzer to enter an incorrect state, causing unexpected behavior.

PID loop flags are all compiled correctly.

In OptoScript blocks, float literals are no longer truncated when compiled. For instance, `5.335004e-7` was being truncated to `0.000001`.

.XID files associated with a subroutine are now properly archived with correct extensions in the zip file.

In OptoScript blocks, *for* loops with a negative step now work properly. Previously, they did one fewer iteration than they should.

Adding I/O points on-the-fly works even if a type mismatch occurs.

Using OptoKernel R4.0e to download online changes over serial or ARCNET now works correctly.

OptoDisplay™

Security, Encryption, and Project Management

OptoDisplay 4.1 adds important security features to control and log operator HMI use, plus automatic project version numbering. The new access control capabilities, plus new operator log encryption, can be useful for organizations which must meet U.S. FDA 21 CFR Part 11 requirements. In OptoDisplay 4.1, you can:

- Configure the Operator Driven dynamic attributes of an on-screen object to restrict HMI use to operators who are defined in Microsoft® Windows® User- and Group-level security settings. This lets you specify, for example, an operator or group of operators who can click an on-screen button to start and stop a process.
- Encrypt the Runtime Operator Action Log file to provide a secure record of operator activity.
- Have the project's version number increase automatically whenever a project is modified.

New Library of Industrial Graphics and JPEG File Support

- A new color version of the Symbol Factory library of industrial graphics is included in OptoDisplay 4.1. Symbol Factory graphics can now be dragged and dropped directly into an OptoDisplay project.
- Graphics in JPEG file format can be imported into an OptoDisplay project.

New Numeric Table Object

- A new on-screen object has been added that can hold up to four numeric tables from an OptoControl strategy.

Support for Pointer Variables and Integer 64 Values

- OptoControl pointer variables and integer 64 values can now be used in an OptoDisplay project.

Improved Alarms and Operator Logging

- Alarm Point Persistence feature lets you specify how long an alarm condition must be present before an alarm is triggered.
- Automatic Re-arming after Acknowledge feature triggers the alarm if the trigger condition remains for a set period of time after the alarm is acknowledged.
- Silenced color for Alarm Point graphics visually indicates alarms that have been silenced and not acknowledged.
- Runtime Logs are now in the same format as OptoDisplay historic logs. Custom headers can be used in a Runtime log file.
- A single Controller status object can now display the status of several controllers.

Improved Authoring Environment

- Search and reveal tags used in projects.
- View just the tags configured for an object.
- View individual Dynamic Attributes for an object.
- Format the text read from a controller as decimal, hexadecimal, binary, or exponential.

OptoTerm™

This utility software for controllers has the following new features to better serve OEMs and system integrators:

- Ability to download a complete strategy from a single controller download file, or CDF. This file is new in OptoControl 4.1.
- Ability to start and stop a strategy in the Inspect and Status windows.
- Command-line support for using batch files to download and run strategies.

OptoConnect™

The database connectivity application OptoConnect has been removed from the FactoryFloor software suite. Due to fundamental changes in Microsoft data exchange technologies,

OptoConnect is not compatible with recent versions of Microsoft Access and Microsoft SQL Server databases. (OptoConnect can only be used with Microsoft Access 97 and SQL Server 6 databases.)

We apologize for any inconvenience this may cause you. If using an older version of Access or SQL is a valid option for your application, you can still obtain OptoConnect separately. Contact Opto 22 Product Support for more information.

Special Notes

OptoServer Customers

If you are using OptoServer with Microsoft Windows XP Service Pack 2, contact Opto 22 Product Support for important information (800-835-6786, 951-695-3080, or support@opto22.com).

System Requirements

Here's what you need to install and run FactoryFloor 4.1:

- A computer with at least the minimum processor required for your version of Microsoft® Windows® (1 GHz Pentium®-class or better recommended). Additional computer requirements include:
 - Ethernet capability, if using an M4-series controller with M4SENET-100 Ethernet adapter card.
 - An RS-232 serial port and serial cable, for downloading firmware updates to a controller.
- Microsoft Windows XP or Windows 2000® workstation operating system with the most recent service packs.
- At least 128 MB RAM (256 MB recommended)
- At least 180 MB of available hard drive space
- VGA or higher resolution monitor (Super VGA recommended)
- Mouse or other pointing device
- Installed Windows printer (optional).

Upgraded Controller Firmware for FactoryFloor 4.1

FactoryFloor 4.1 requires the latest Opto 22 controller firmware, which is also version 4.1. The new firmware is included with FactoryFloor and can also be downloaded from the Opto 22 Web site. See Chapter 4, "Working with Controllers," in the *OptoControl User's Guide* for instructions to download new firmware to the controller.

IMPORTANT: *Before you open any existing strategy in OptoControl 4.1, make a backup copy of the strategy. Having a backup copy will keep your options open in case there is insufficient memory in your controller.*