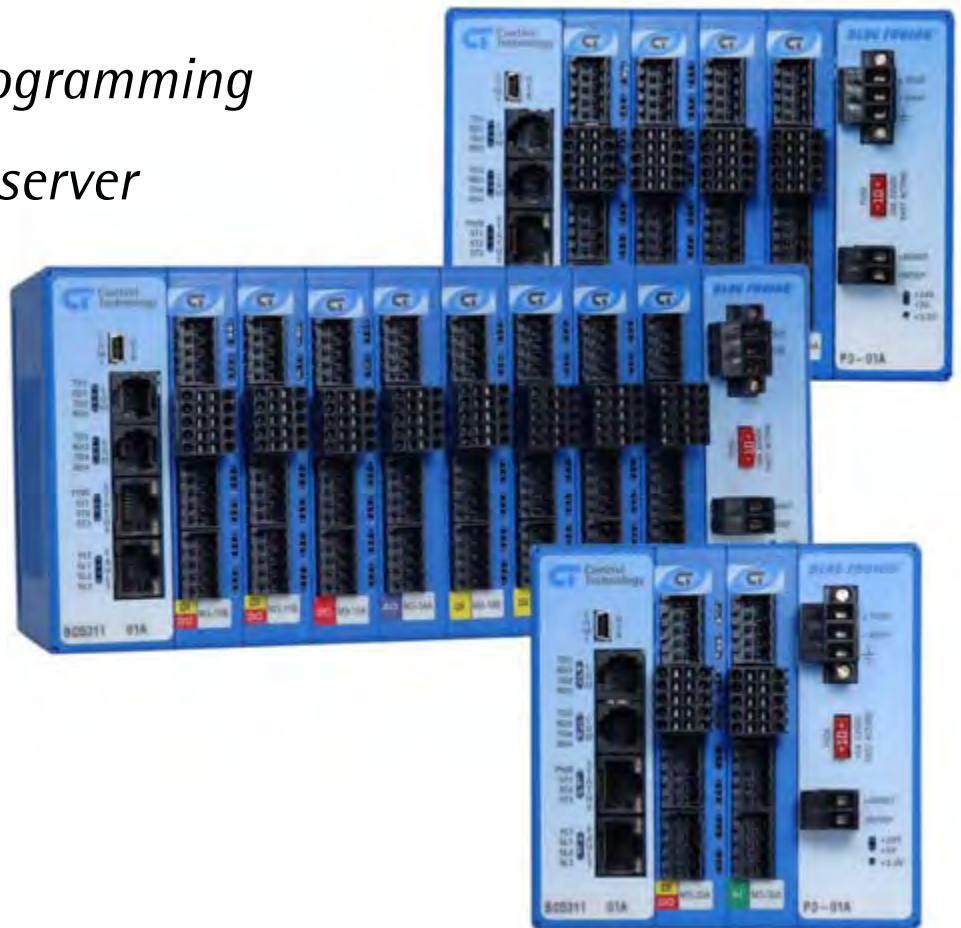# Blue Fusion™

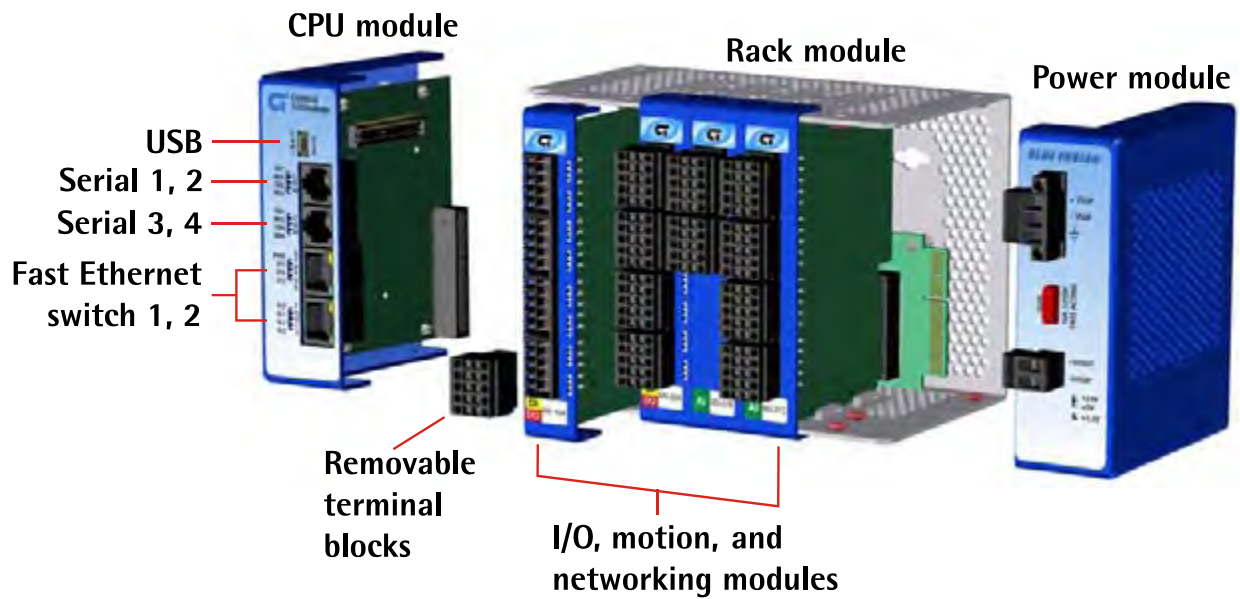## Model 5300 Automation Controllers

- *Graphical programming*
- *Built-in web server*
- *Digital and analog I/O*
- *Multi-axis motion control*

ctc
Control Technology Corp.

Compact modular solution

The 5300 series brings a new level of power and flexibility to CTC's award-winning line of Blue Fusion™ Automation Controllers. The fully modular Model 5300 controllers can be configured for small local applications or expansive distributed applications with more than 500 I/O channels. The Model 5300 can monitor and control nearly any type of I/O or motor, and its web-enabled features facilitate remote information exchange and visualization.

CPU module

Rack module

Power module

USB

Serial 1, 2

Serial 3, 4

Fast Ethernet switch 1, 2

Removable terminal blocks

I/O, motion, and networking modules

Powerful features

▶ Compact modular design

▶ High-density I/O modules

▶ Integrated data logging

▶ Robust security and audit features

▶ Internal web server and CT webHMI

▶ Expandable from 2 to 16 slots (up to 512 I/O)

5300

Shown Actual Size

Configuring your system

1. Select a CPU module

Model 5300 CPU modules may be ordered with or without removable flash storage. CPUs have multiple serial and Ethernet ports and one USB port.

2. Select up to 16 I/O modules

CTC offers a wide range of 5300 series I/O modules. Modules are available for digital, analog, networking, and motion and come in 4-, 8-, 16-, and 32-channel versions. Up to 16 I/O modules may be controlled by a single CPU module. This example has four modules.

## 3. Select rack configuration

Racks with solid metal construction are available in 2-, 4-, and 8-slot sections. Each slot holds one I/O or motion module. Networking modules require two slots.
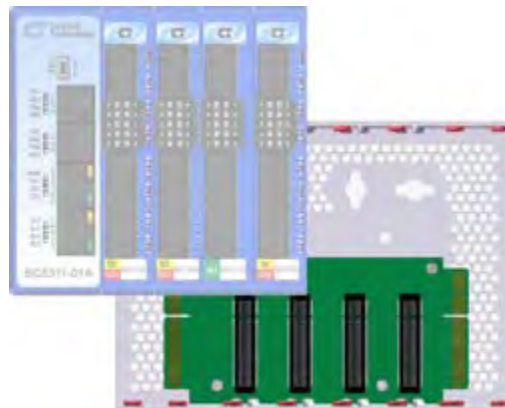
Note: *0-slot systems are ordered as single units and do not include modules, racks, or bridge units.*

4. Add a bridge unit

For larger systems, a Power bridge connector joins two rack sections.

Power bridge

up to 8 modules   up to 8 modules
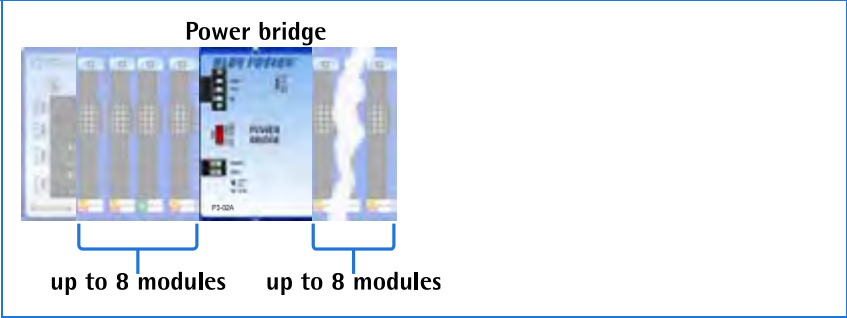
5. Select power supplies

Power supplies are available either as right-side end caps or as part of the Power bridge (see step 4) that joins two rack sections together. The power supply module regulates, isolates, and filters all necessary power for the modules to its left.   In addition to the input connector, the power supply has a 5 VDC output connector that can be used to power other system components such as motor encoders or sensors. A protective fuse is accessible from the front of the controller.

Single-rack system

Multi-rack system

Power bridge   **End cap**
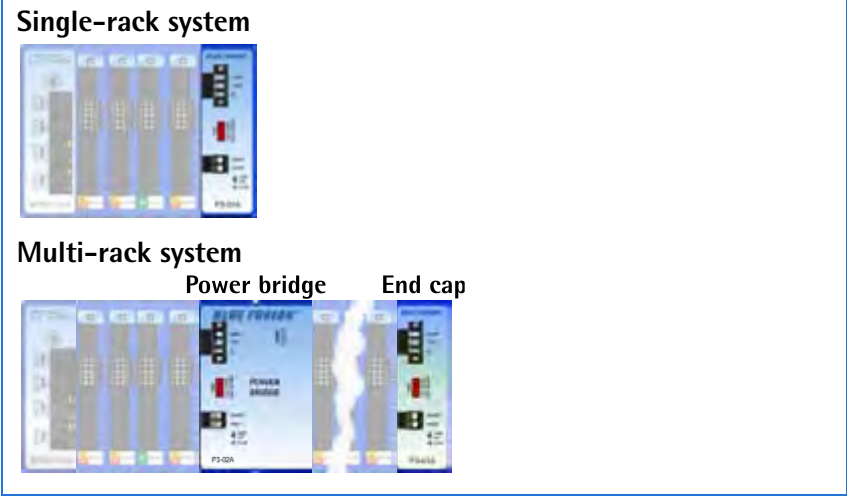
I/O module listing

CTC offers a wide array of I/O, motion, and networking modules for customizing the functionality of your Model 5300 automation controller. I/O and motion modules occupy a single rack bay; networking modules occupy two bays. Each module contains embedded information used by the controller to identify the module and automatically establish I/O channel numbering.

Part number	Name	Description
Digital input/output modules		
M3–10A	16 In/16 Out Digital module	VDC sinking
M3–10B	16 In/16 Out Digital module	5 VDC sinking
M3–11A	16 In/16 Out Digital module	VDC sourcing[1]
M3–11B	16 In/16 Out Digital module	5 VDC sourcing
M3–18A	Digital Switch/LED module	8 three-way switches and 8 bi-color LEDs
M3–20A	Smart Digital In/Out module	16 In/16 Out VDC sinking with on-board fast logic, eight hardware counters, and eight PWM outputs @ up to 12kHz[2]
M3–20C	Smart Digital In/Out module	16 In/16 Out 5 VDC sinking with on-board fast logic, eight hardware counters, and eight PWM outputs @ up to 12kHz[2]
M3–21A	Smart Digital In/Out module	16 In/16 Out VDC sourcing[1] with on-board fast logic, eight hardware counters, and eight PWM outputs @ up to 12kHz[2]
M3–21C	Smart Digital In/Out module	16 In/16 Out 5 VDC sourcing with on-board fast logic, eight hardware counters, and eight PWM outputs @ up to 12kHz[2]
Digital input modules		
M3–16A	32 Digital Input module	VDC sinking
M3–16B	16 Digital Input module	VDC sinking
M3–16C	32 Digital Input module	5 VDC sinking
M3–16D	32 Digital Input module	5 VDC sourcing
M3–16E	32 Digital Input module	VDC sourcing[1]
M3–16F	16 Digital Input module	VDC sourcing[1]
Digital output modules		
M3–12A	16 Relay Output 4A SPST module	0 – 30 VDC, 0 – 250 VAC, 4 Amp/ch
M3–14A	32 Digital Output module	VDC sinking
M3–14B	16 Digital Output module	VDC sinking
M3–15A	32 Digital Output module	VDC sourcing[1]
M3–15B	16 Digital Output module	VDC sourcing[1]
M3–15C	32 Digital Output module	5 VDC sourcing

Notes:

1. Voltage reflects power supply in use. Voltage is 18 to 32 VDC with a P3-01A or P3-02A power supply, and it is 10 to 32 VDC with a P3-01B or P3-02B power supply.
2. See datasheet on CTC's website (www.ctc-control.com) for additional specifications on this module.

　　　　ctc-control.com　　　　Control Technology Corporation

Part number	Name	Description
Analog input modules		
M3–31A	16 Analog In (±10V) module	Single-ended, 16-bit
M3–31B	8 Analog In (±10V) module	Single-ended, 16-bit
M3–31C	16 Analog In (4 - 20mA) module	Single-ended, 16-bit
M3–31D	8 Analog In (4 - 20mA) module	Single-ended, 16-bit
M3–33A	8 Analog In (±20mV) module	Differential, 16-bit
M3–33B	4 Analog In (±20mV) module	Differential, 16-bit
M3–33C	8 Thermocouple/±100mV module	Channel configurable for E,K,J,R,S,T (16-bit)
M3–33D	4 Thermocouple/±100mV module	Channel configurable for E,K,J,R,S,T (16-bit)
M3–33E	8 Analog In (±10V) module	Differential, 16-bit, 3-wire connection with shield
Analog output modules		
M3–32A	32 Analog Out (±10V) module	Single-ended, 16-bit
M3–32B	16 Analog Out (±10V) module	Single-ended, 16-bit
M3–34A	8 Analog Out (4 - 20mA) module	Single-ended, 16-bit 3-wire connection with shield
M3–34B	8 Analog Out 4x(4-20mA), 4x(±10 VDC)	Mixed analog output signal module; single-ended, 16-bit, 3-wire connection with shield
Motion control		
M3–40A	2-Axis Servo module	Controls two servo motors (250 μsec position loop) with 10 MHz encoder feedback, high-speed programmable inputs and outputs
M3–40B	3-Axis Stepper/HSC module 24V	3-axis stepper; 10 user DO (six 24V step/dir), 10 user DI, 2 encoders, 16 counters @ 10 MHz
M3–40C	3-Axis Stepper/HSC module 5V	3-axis stepper; 10 user DO (six 5V step/dir), 10 user DI, 2 encoders, 16 counters @ 10 MHz
Networking		
M3–61A	DeviceNet™ Master module	ODVA certified. 64 nodes. Poll, COS, cyclic, and explicit messaging. Requires two rack slots.
M3–61B	DeviceNet Slave module	ODVA certified. Poll, COS, cyclic, and explicit messaging. Requires two rack slots.

I/O module common features

Highest channel density ▶

The Model 5300 I/O modules offer the highest channel density in the industry. Each high-density module has connections for up to 32 I/O channels. The modules are only 4.1" high by 0.75" wide, yielding an unmatched channel density of 7.4 channels per square inch of panel space.
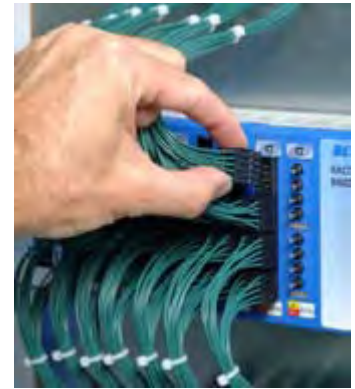
◀ Multiple granularity options

Choose between 4-, 8-, 16-, and 32- channel modules to optimize your system design.

Individual test points ▶

To facilitate rapid machine commissioning, there are test points for each wire location on the terminal block that can be accessed by test probes even with the controller fully wired and operating.

◀ Module data chip

The Model 5300 modules have unique identification and performance information embedded in a specialized on-board data chip. The data includes the module's serial number, model type, and firmware revision as well as specialized diagnostic data. The information on the data chip enables the controller to automatically validate that all connected modules are appropriate for the application. Individual module information can also be made available to local or remote computers for troubleshooting or compliance purposes.

5300
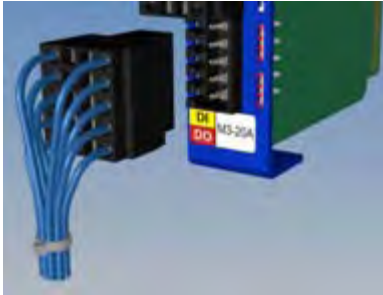
◄ Diagnostic channel LEDs

Bright diagnostic LEDs indicate channel status at a glance.

Convenient wiring ►

The spring clamp terminal blocks make wiring fast and efficient. The high tension force exerted on inserted wires ensures they remain securely fastened in high vibration environments. Wiring can be done with the connectors attached to the controller, or harnesses can be prepared in advance and then simply plugged into the controller.
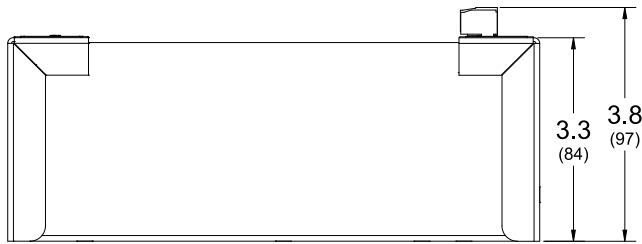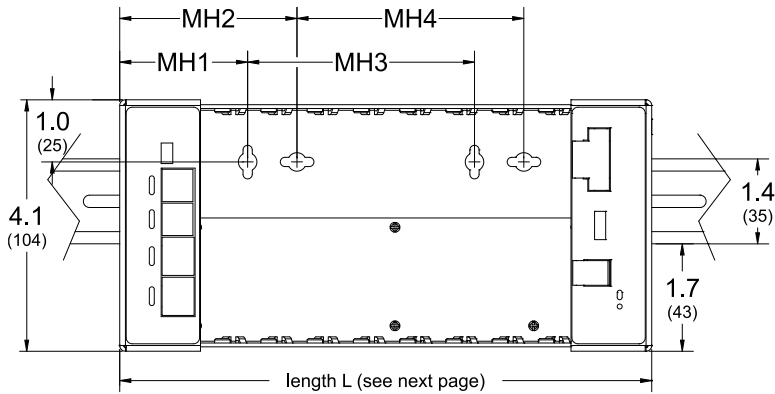

◄ Pluggable terminal blocks

By using pluggable terminal blocks for all connections, the Model 5300 eliminates the cost and space required for separate breakout boards and terminal blocks. All Model 5300 terminal blocks are keyed to ensure proper installation.
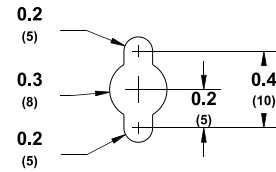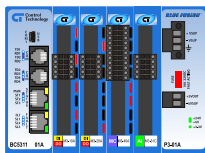
Controller dimensions

MH2   MH4

MH1   MH3

1.0
(25)

4.1
(104)

1.4
(35)

1.7
(43)

0°

length L (see next page)

3.3
(84)

3.8
(97)

Mounting hole positions

Rack	MH1	MH2	MH3	MH4
0 slots	0.8 (20)	n/a[2]	0.9 (23)	n/a[2]
2 slots	1.3 (33)	n/a[2]	1.6 (41)	n/a[2]
4 slots	1.5 (38)	2.3 (58)	1.9 (48)	1.9 (48)
8 slots	2.1 (53)	2.9 (74)	3.7 (94)	3.7 (94)

Keyhole dimensions (horizontal mounting)[3]

0.2
(5)

0.3
(8)

0.2
(5)

0.2
(5)

0.4
(10)

Mounting options

Horizontal
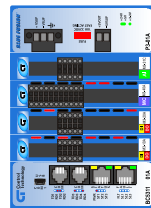
Vertical

Notes

1. All dimensions on this page and the next page are in inches (mm).
2. 0- and 2-slot controllers are horizontal mounting only.
3. Dimensions for vertical mounting keyhole are the same as horizontal, rotated 90°.

Calculating controller length

To determine the controller length L, add the length of all modules in the controller. Individual module lengths are given in the table below.

Part Number	Description	Length	
		inches	mm
CPU modules			
BC531x	Single-bay CPU module	1.30	33.02
I/O, motion, and networking modules			
M3–xxx	I/O and motion modules	0.75	19.05
M3–61x	Networking modules	1.50	38.10
Rack bridge			
R3–90x	Rack bridge	2.60	66.04
Power modules			
P3–01x	End cap power modules	1.30	33.02
P3–02x	Power bridge modules	2.60	66.04

Example
The following diagram depicts a 16-module controller with a single-bay CPU and a Power bridge.
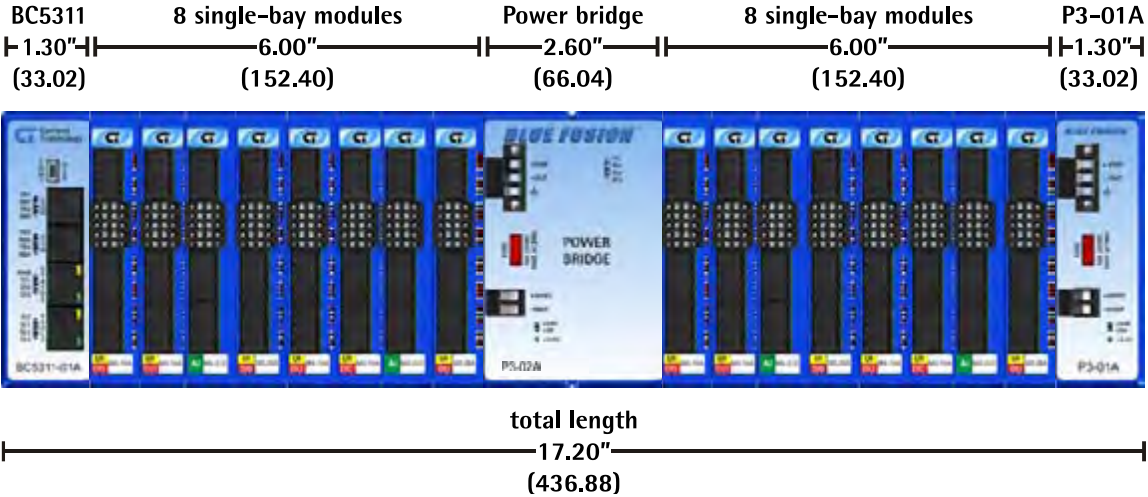
Model 5300 part numbers

CPU modules		
BC5311–01A	200 MHz G3 CPU with 4 MB Flash	Single-bay CPU module. GEN 3 CPU (2 LAN, 4xRS232, USB, 2MB NVRAM, 4MB Flash)
BC5311–01B	200 MHz G3 CPU with 8 MB Flash	Single-bay CPU module. GEN 3 CPU (2 LAN, 2xRS232, 1xRS485, USB, 2MB NVRAM, 8MB Flash)
Power modules		
P3–01A	Power module, 18 – 32 VDC Input	Powers modules to left of the power supply
P3–02A	Power bridge, 18 – 32 V	Joins 2 racks together. Powers modules to its left; isolates power from right modules
P3–01B	Power module, 10 – 32 VDC Input	Powers modules to left of the power supply
P3–02B	Power bridge, 10 – 32 V	Joins 2 racks together. Powers modules to its left; isolates power from right modules
Racks		
R3–08A	5300 8-Slot rack	Rugged metal backplane with 8 module slots
R3–04A	5300 4-Slot rack	Rugged metal backplane with 4 module slots
R3–02A	5300 2-Slot rack	Rugged metal backplane with 2 module slots
R3–00A	5300 0-Slot rack	Joins a CPU module to a Power module. Not sold separately
R3–90A	5300 Rack bridge, no PWR module	Joins 2 racks together without interrupting the power bus
Software		
CTS–QKBLDR	QuickBuilder™ Automation Suite	Model 5300 graphical development environment: design, debug, and document. Includes one year of support.

Graphical development environment

▶ *Integrates all automation tasks*

▶ *Intuitive graphical interface*

▶ *Re-usable code libraries*

▶ *New split-screen editor*

QuickBuilder™ State Language Programming Software is CTC's innovative graphical development environment built using the latest .NET technology. It combines all aspects of an automation project into one easy-to-use desktop application. This holistic approach to building automation projects leads to quicker machine startups and simpler ongoing maintenance.

The most recent release of QuickBuilder brings three new features our customers requested. To make your job easier, we added:

Split-screen editor
With the new split-screen editor, users can develop and view multiple programs simultaneously, which can reduce de-bugging time and start-up time. Using the split-screen editor, a user can see how programs interact and how changes to one program affect the other while they are still in development.

Graphic documentation
As you develop your control program code, QuickBuilder automatically generates a graphical view of the process. Switch back and forth between the programming and process view to be sure your code is doing exactly what you intend.
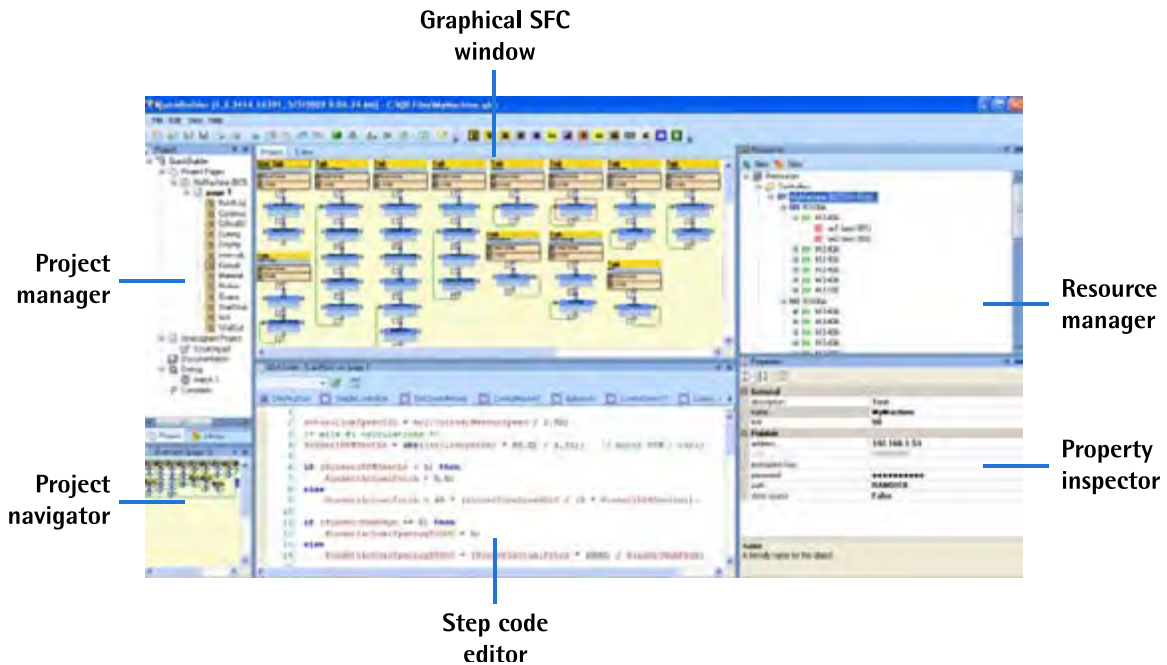
Online monitoring and de-bug tool
While the controller is running, simply mouse over any instruction variable in the code to capture the latest value of that variable in real time.
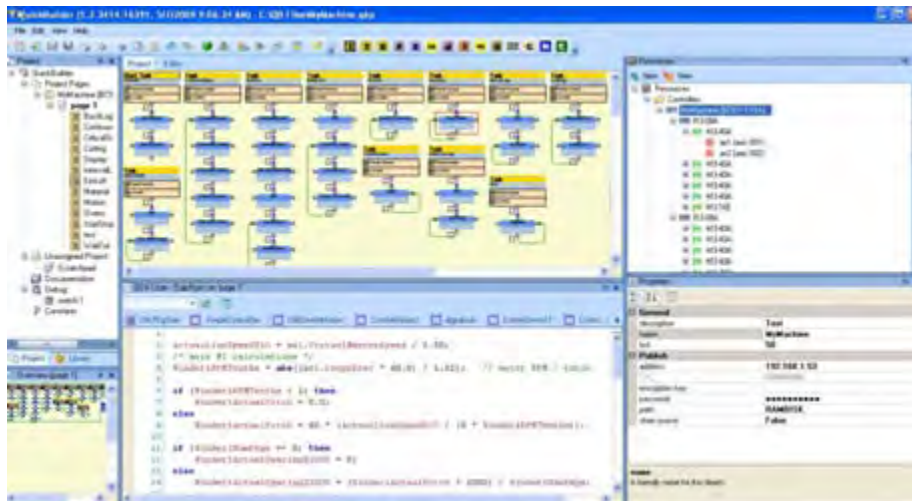
Overview

▼ QuickBuilder desktop

The QuickBuilder workspace is divided into multiple windows that give the user a comprehensive view of the project and allow easy access to the various project elements. All of the window sections can be resized and/or hidden to fit individual work preferences. Users can set and store favorite layout configurations for future use.

Graphical SFC window

Project manager

Project navigator

Resource manager

Property inspector

Step code editor

QuickBuilder Automation Suite

Project manager ▶

The Project manager provides a hierarchical view of the major program elements in a familiar tree structure. Using the tree's drill-down capability, even large multi-controller projects are easy to navigate. At the top of the tree are the controllers used in the project. The program for each controller is built on logical pages. The page concept offers a convenient way to break up the program logically. A controller can have as many pages as desired. Clicking on a page activates it in the Graphical SFC window. The pages contain the flowchart view of the application, including all the tasks, events, and functions used. In addition to Controller pages, there is a scratchpad area that is not associated with any particular controller, for use in developing modules that might be used in multiple places.

**5300**
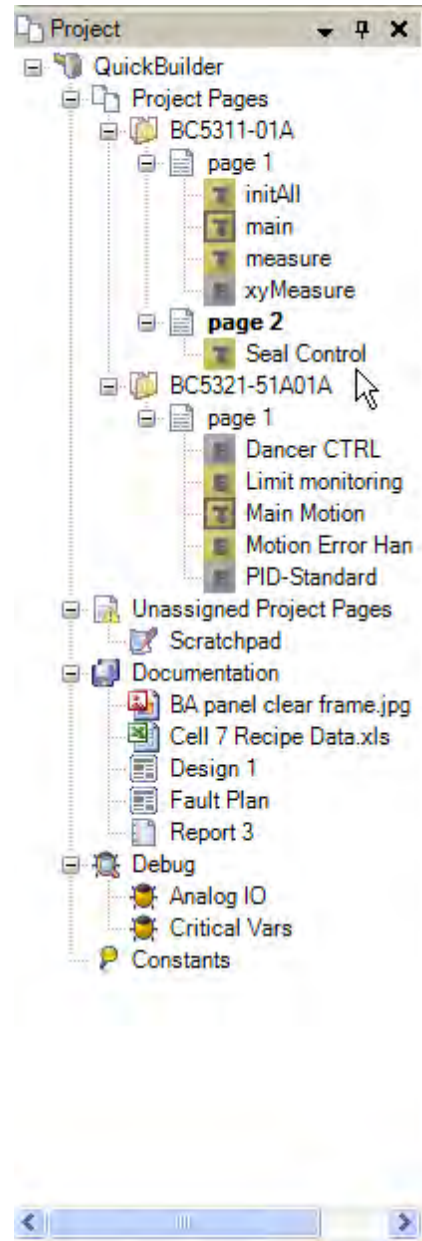
Configuration

Resource manager ▶

All the physical and logical attributes of the controller are contained in the Resource manager. Instead of burying this important information within the Project manager, QuickBuilder uses a dedicated window for resource management. This provides a clearer view of the project and significantly speeds program development. Using the menus and right-click functionality, it's easy to set up and configure controllers for the application.
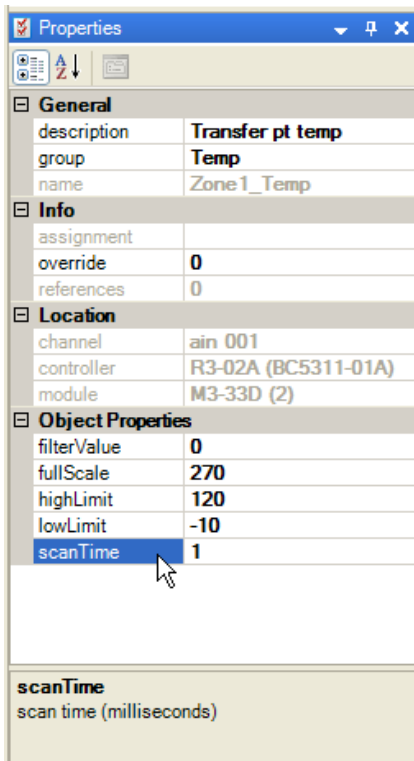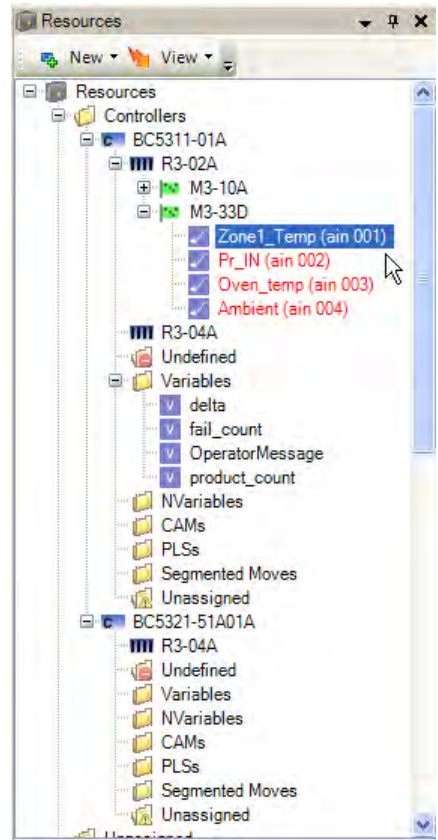
◀ Property inspector

When a resource is selected in the Resource manager window, a link is instantly established with the Property inspector where all the detailed aspects of the resource can be viewed and edited.
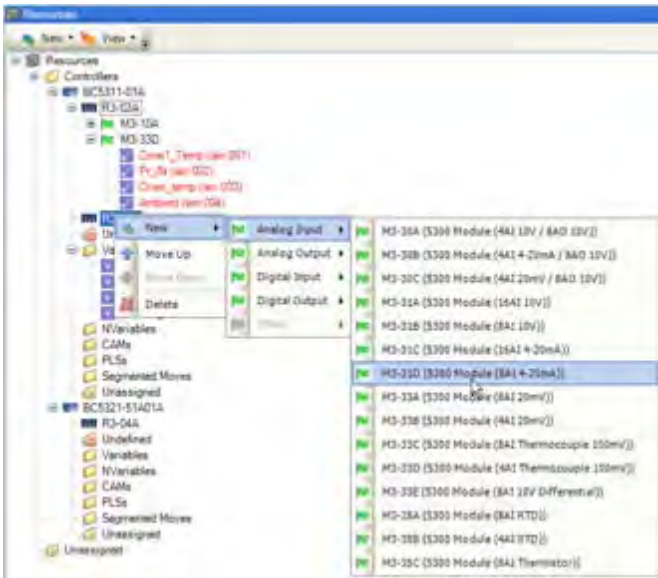
◄ I/O configuration

Right click on a rack and a pick list is presented to populate any available rack slots with I/O, motion, or specialty modules. Once entered, modules can be easily moved within a rack or to a different rack.

▼ Grid view

For smaller applications the various tree views are fine, but for larger applications it's nice to be able to sort, filter, and group I/O by various attributes. To facilitate this, QuickBuilder has a powerful I/O grid view window.
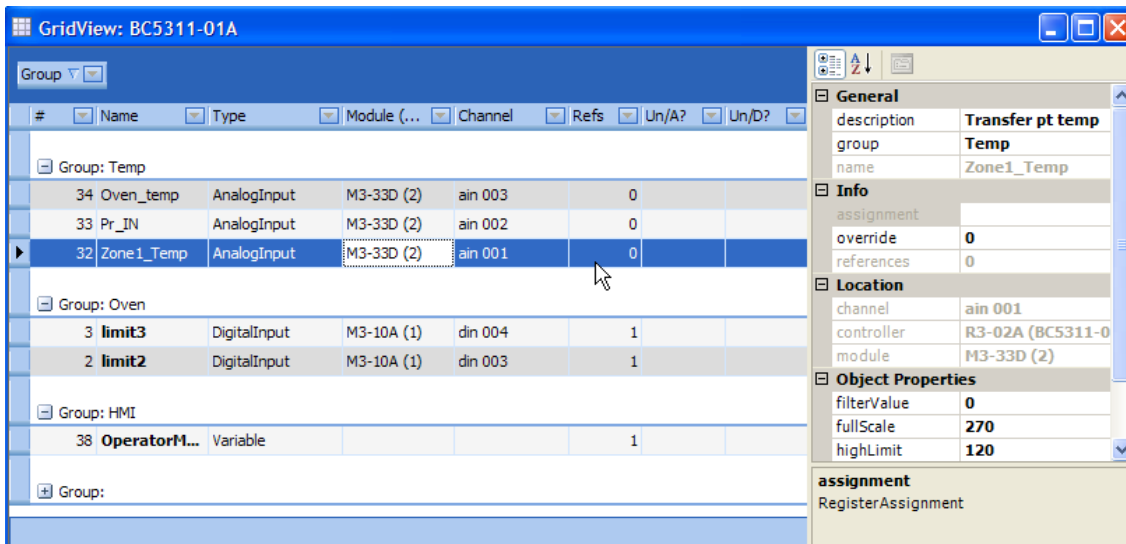
Programming

Graphical flow charts

This is where the program development takes shape. Using flowcharting techniques, the major application elements are arranged according to task. Under the tasks are steps that can easily be altered, moved, cloned, or deleted. When a step is highlighted, it is instantly linked to the code window.
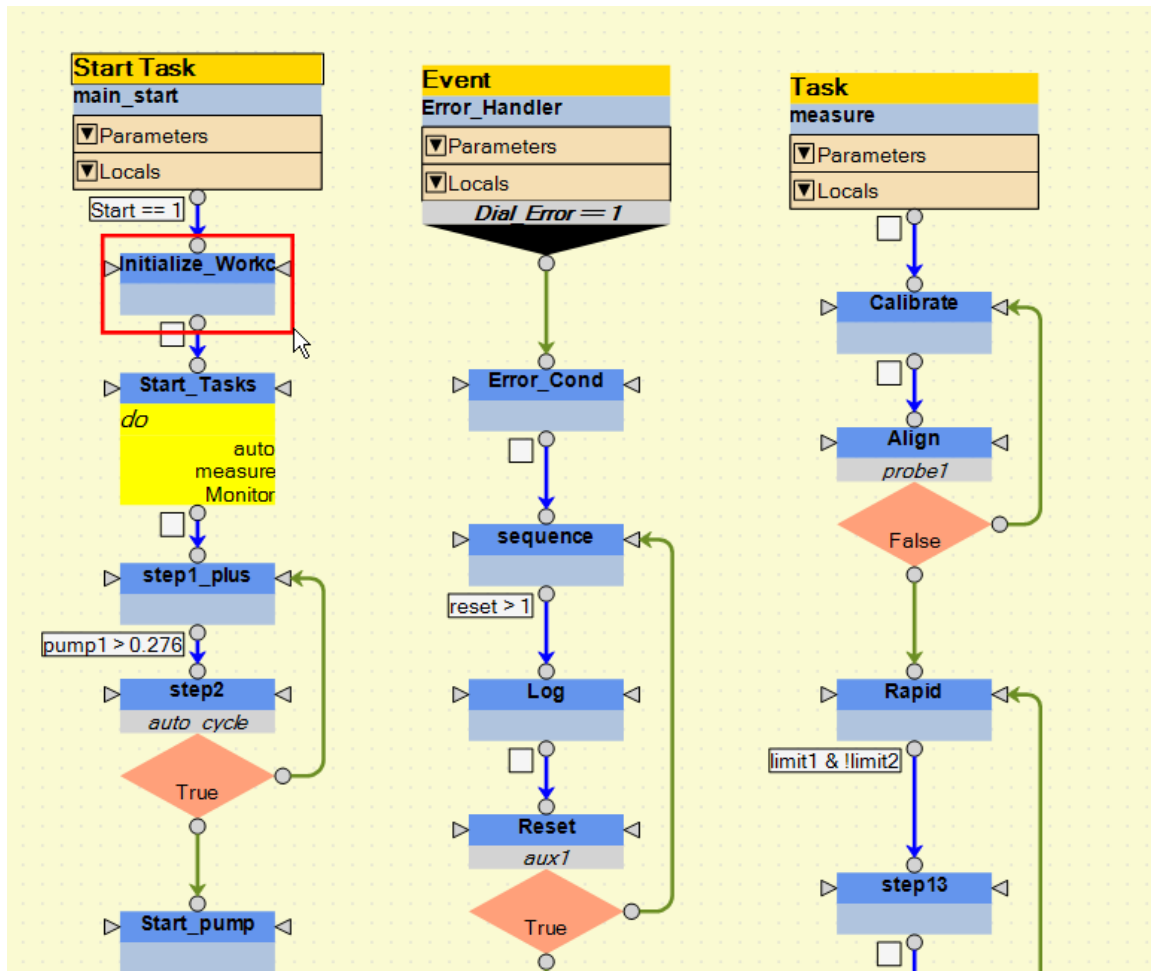
Coding the steps

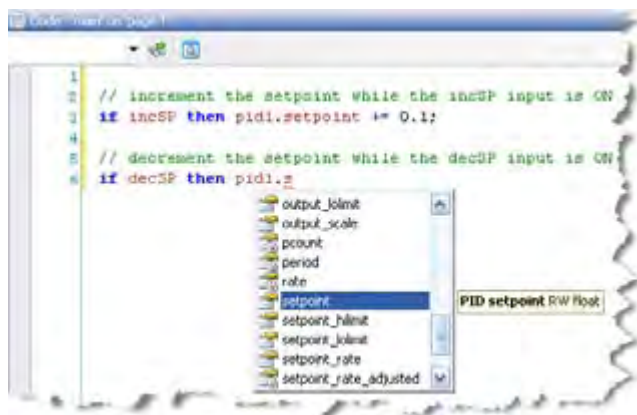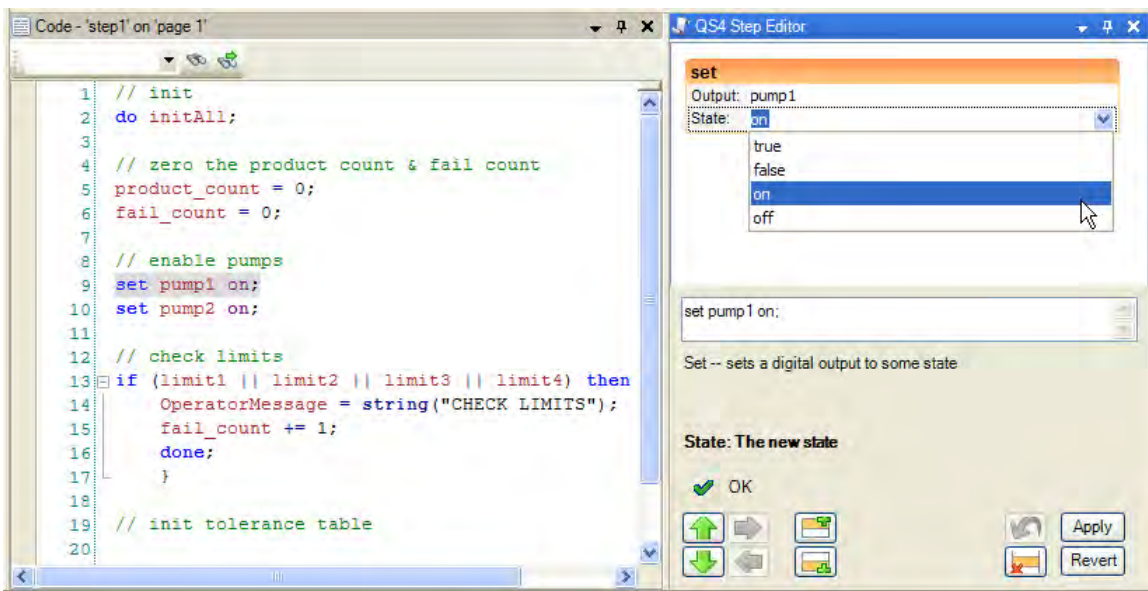## ▼ Step editor window

Once a step is highlighted in the graphical work window, the actual instructions and logic for that step can be created and/or edited in the editing window. Here you have two options: For novice programmers there is an auto step editor that walks the user through the command selection and completion. The resulting code is automatically inserted into the left side code editor window.

◄ Code editor window

More experienced programmers can skip the step editor and enter code directly into the code editor window. As you type, QuickBuilder's intellisense feature automatically detects key words and checks for syntax errors.

Programming

Programming features

▼ Library window

QuickBuilder's powerful library manager allows individuals and teams to share and re-use common code elements easily. Any portion of a project — from a step, to a series of steps, to a task, to an entire page — can be saved as a library element. Library elements are stored in a folder that can be located on the local PC or shared server. Multiple libraries can be open simultaneously.
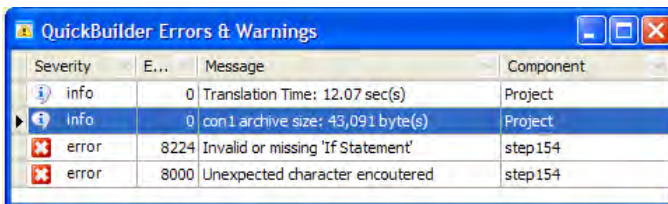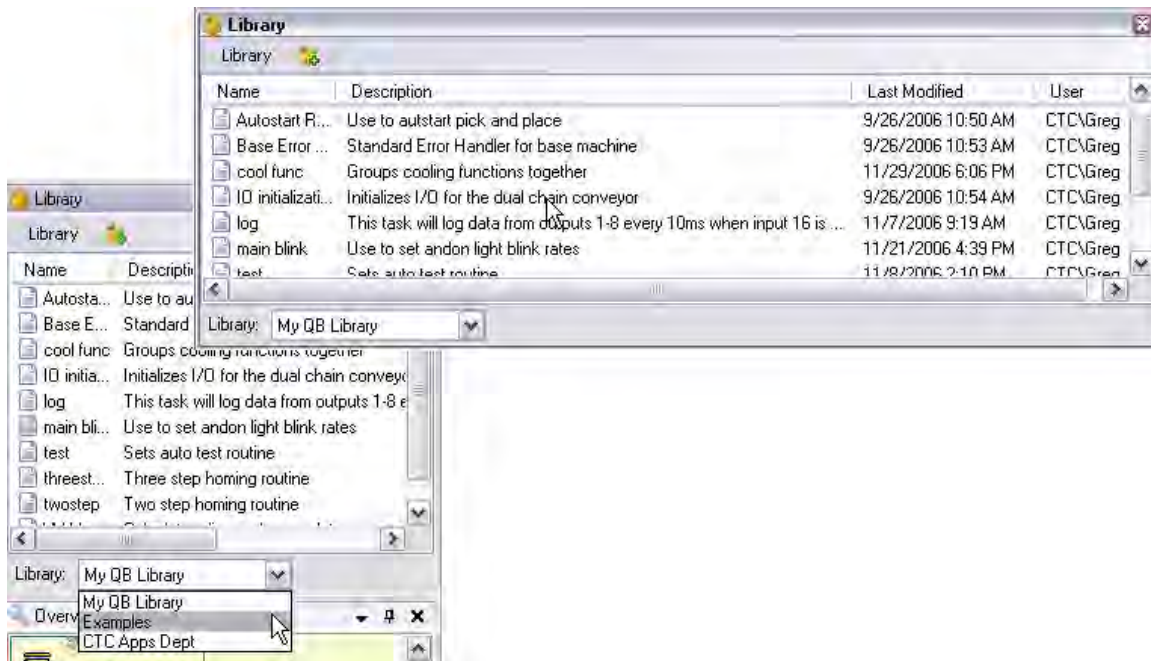
◄ Linked error window

Any errors are flagged by the error handler and can be fixed quickly by clicking on the error, which takes you instantly to the place where the error was detected and offers suggestions to fix the error.

QuickBuilder Automation Suite

Programming capabilities

▶ *Task control*

- *Multiple tasks (up to 96/controller)*
- *Individual task control*
- *Break, continue*

▶ *Events*

▶ *Functions*

▶ *Subroutines*

▶ *Exception handling*

▶ *While*

▶ *Repeat . . . Until*

▶ *For, by*

▶ *If, then, else*

▶ *Text/string commands*

▶ *Full floating point support*

▶ *Advanced math and trig functions*

▶ *Multiple dimension arrays*

▶ *Timers*

▶ *Logic functions*

▶ *Copy and re-use code segments*

▶ *Specialized motion functions*

For experienced developers...

While QuickBuilder was designed to make automation simple for the beginner and occasional user, our software team insisted on including features for power users as well:

- *Abundant use of shortcut keys*
- *Ability to bypass the Graphical SFC window and type all code in the code window*
- *Ability to code steps in C programming language*

Advanced features

PID control

QuickBuilder provides the user with several advanced functions to simplify common automation applications. Advanced functions like the PID control example below are implemented as embedded functions within QuickBuilder, allowing them to be tightly integrated with the Model 5300 hardware. This makes them extremely fast and precise. Because they are embedded functions, they do not consume user variable or program step space.
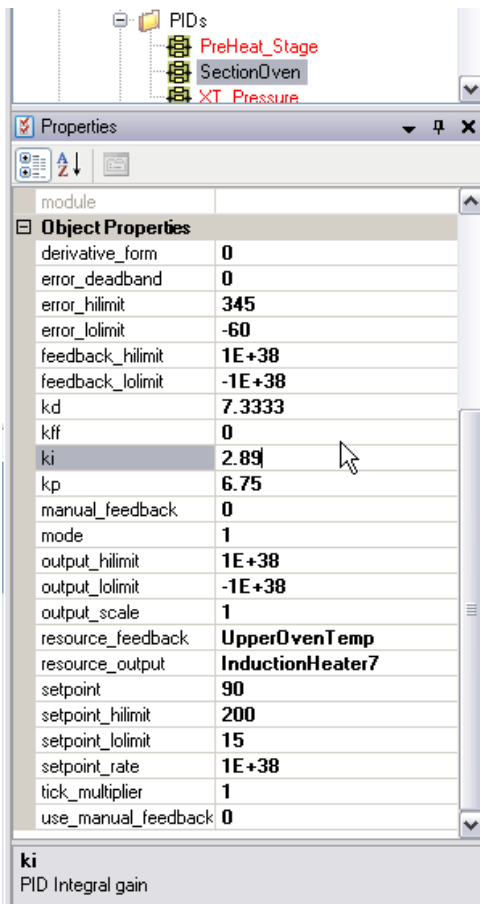
◄ PID function example
The PID function allows the Model 5300 to control temperature, pressure, or flow rates precisely. It can also be used for simple motion control applications. Multiple PID loops are solved in only a few milliseconds with full 64-bit floating point precision.

In keeping with QuickBuilder's design philosophy of providing users with powerful control functions that are easy to use, the PID function makes use of an easy-to-navigate property window for PID setup. When a PID loop is needed, the user simply right clicks on a controller in the QuickBuilder resource window, and fills in the necessary parameters.

Key features

- 64-bit floating point precision used throughout
- Table-driven setup
- PID and PID (derivative) forms
- Feed-forward
- Integral anti-windup
- Multiple limits and alarms

- Individually configurable loop rates
- Programmable error deadband
- Setpoint rate limit
- Manual, automatic, and cascade modes
- Minimum loop time of 1 ms
- Pop-up "property" intelligent prompting

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Motion control

▶ *Control up to 32 axes/system*

▶ *Stepper or servo*

▶ *Powerful motion command set*

▶ *Motion code runs asynchronously on each axis module, ensuring consistent high-performance control*

▶ *Full user units support*

QuickBuilder was designed from its inception to handle both simple and advanced motion control applications. It features a rich command set that is both powerful and intuitive. For example, to move to a position of 67.4" in 3.27 sec after input one goes high, you would write:

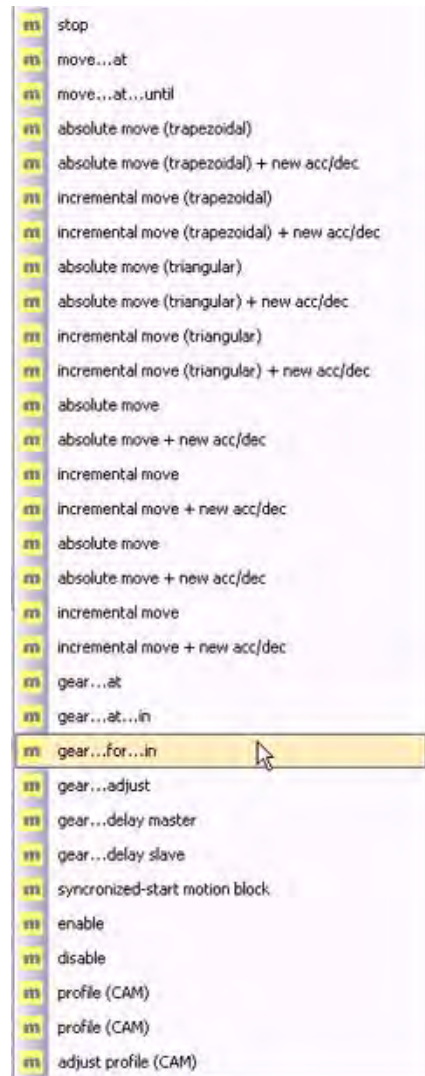### wait for rise of *1;*   move in *3.27* to *67.4;*

The English-like language combined with more than 100 specialty motion variables makes QuickBuilder motion easy to learn.

Motion Sequence
Fast_Home

Motion control statements are entered into a special type of step called a Motion Sequence Block, or MSB. An MSB is similar to a function block in that it can be called by one or more axes. For example, you might create an MSB to execute a specific homing routine. Once created, this MSB can be called by any number of axes.

MSBs can be as simple as a single statement, or they can contain multiple motion, logic, and I/O statements. Because they run asynchronously on the motion module, MSB statement execution times are measured in microseconds.

|	
m	stop
m	move...at
m	move...at...until
m	absolute move (trapezoidal)
m	absolute move (trapezoidal) + new acc/dec
m	incremental move (trapezoidal)
m	incremental move (trapezoidal) + new acc/dec
m	absolute move (triangular)
m	absolute move (triangular) + new acc/dec
m	incremental move (triangular)
m	incremental move (triangular) + new acc/dec
m	absolute move
m	absolute move + new acc/dec
m	incremental move
m	incremental move + new acc/dec
m	absolute move
m	absolute move + new acc/dec
m	incremental move
m	incremental move + new acc/dec
m	gear...at
m	gear...at...in
m	gear...for...in
m	gear...adjust
m	gear...delay master
m	gear...delay slave
m	syncronized-start motion block
m	enable
m	disable
m	profile (CAM)
m	profile (CAM)
m	adjust profile (CAM)

Selected motion commands.

Commissioning

Diagnostics

▼ Watch and control windows

Specialized control windows within QuickBuilder provide the capability to execute and monitor the status of the downloaded program. Standard run and stop control buttons simplify the process. QuickBuilder supports multiple Watch windows that can be set up to monitor various resources within the controller. The Watch window also allows resource values to be forced to a specific value. The contents of the Watch window can be copied to the clipboard and then saved or printed.
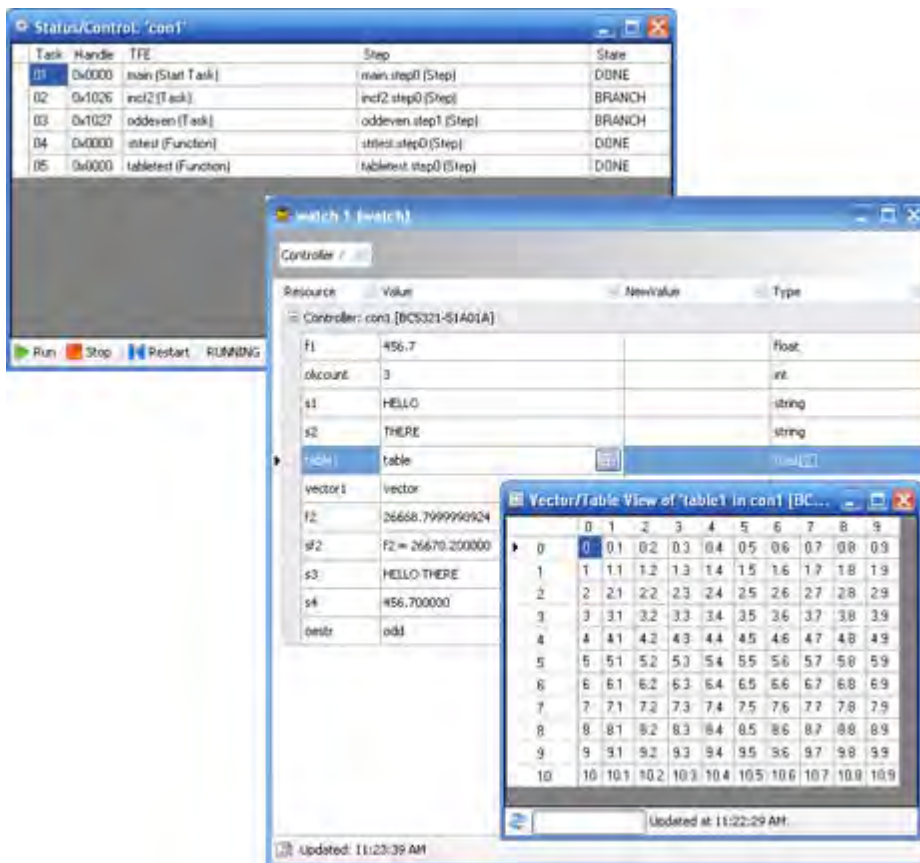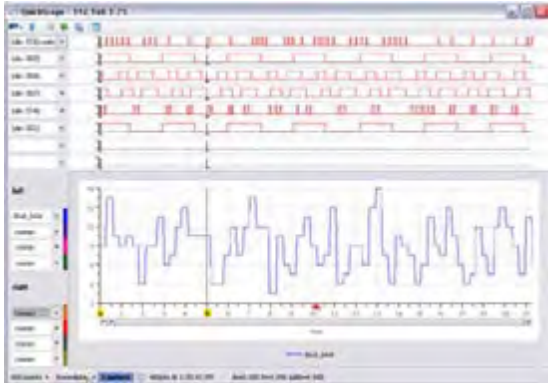
◀ **QuickScope analysis tool**

QuickBuilder incorporates a powerful analysis tool called QuickScope. The QuickScope tool gives developers and technicians an easy way to visualize the real-time operation of one or more Model 5300 controllers. QuickScope combines the features of a logic analyzer and oscilloscope into a single synchronized display, making it much simpler to monitor application performance or perform troubleshooting activities.

Using high-speed memory within the Model 5300 controller, QuickScope captures the state of 64 digital inputs and 64 digital outputs in the upper logic analyzer window and any 8 named resources (analog, variable, motion, etc.) in the lower window. Items in the lower and upper windows are time synchronized. All designated items are logged at the capture rate, which can be as fast as 1 ms. Once the data is captured, it is instantly plotted by QuickScope in full color. Data can be quickly analyzed using the zoom, scroll, and multiple cursor features.

To aid in documentation or for further analysis, QuickScope-captured data can either be exported directly to Excel or the QuickScope traces can be published as a PDF document. QuickScope is built into QuickBuilder, CTC's powerful graphical development environment.

Key features of QuickScope

- *Capture rates as fast as 1 ms/point*
- *Each capture contains up to:*
    - *64 digital inputs*
    - *64 digital outputs*
    - *8 user-selectable resources*
- *Scroll and zoom functions*
- *Import and export to Excel*
- *Document capture in a PDF file*
- *Open multiple QuickScope instances*

- *Select any controller on the network*
- *Set triggers within QuickBuilder code*
- *Y-scale value cursor*
- *Dual X-scale measurement cursors*
- *Auto detects all named resources in the active Model 5300 project*

Documentation
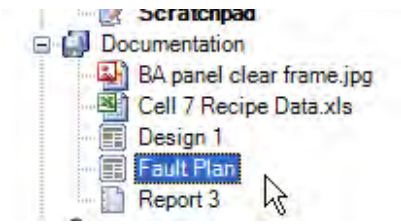
Documentation files can be internally generated by QuickBuilder using features such as the auto report generator or the in-line documentation tool. There are several customizable reports built into QuickBuilder including the graphical view, the code listings, and resource cross reference lists. QuickBuilder reports have embedded hyperlinks that link to the referenced item, speeding the debug process. Additionally, externally generated files such as CAD drawings or text documents can be added to the project by dragging them from Windows Explorer into the documentation section of the Project manager.
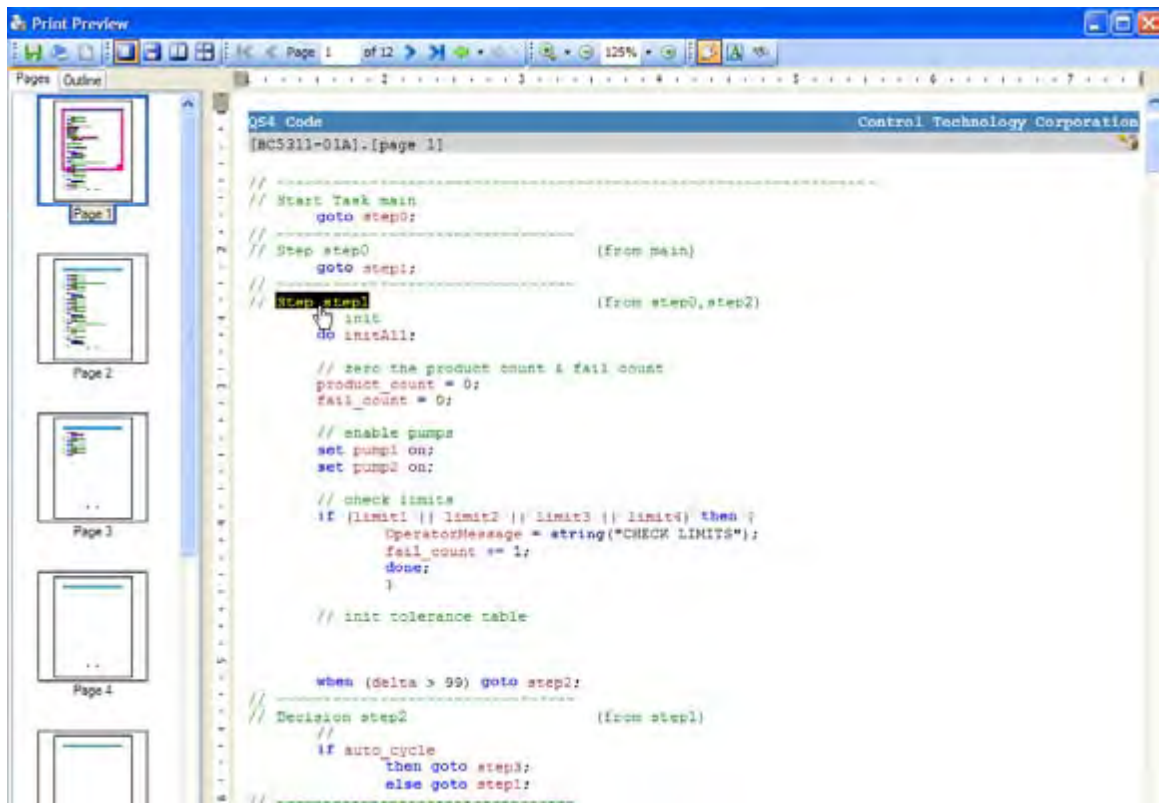
Auto-generated report showing hyperlink to step 1.

Security features

The Model 5300 is equipped with a robust multi-level security system. Its built-in features ensure that the controller is only used in the manner originally intended by the system designer. Security features include:
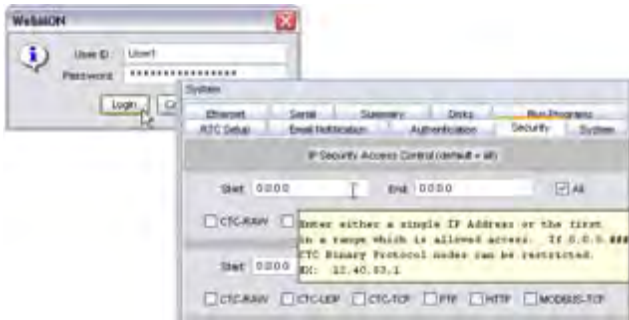
◀ **Access Control**

- *Requires valid name and password*
- *IP filtering can restrict access to specific IP addresses*

Project download & edit control ▶

Project upload and view control

Project encryption

Keyed access control

- *Controller can be given a user-defined 56-bit key*
- *Projects can be given a user-defined 56-bit key*
- *Only projects with a key identical to that of a keyed controller can be loaded into that controller*
- *Projects stored on a keyed controller can only be accessed with the key*
- *Keys are securely written to non-volatile EEPROM (no battery)*
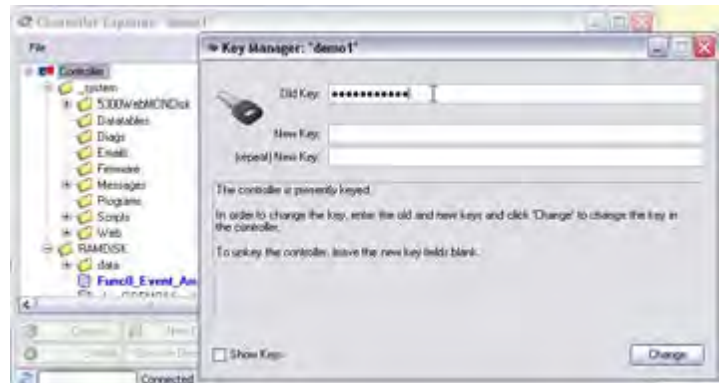
Security and audit features

- *Name and password access*
- *IP access filtering*
- *Controller and project keying*
- *Only projects with matching 56-bit key can be loaded*
- *Project and file encryption*
- *Project validation via 32-bit CRC*
- *Edits tagged with domain, name, date, time*
- *Revision archiving*
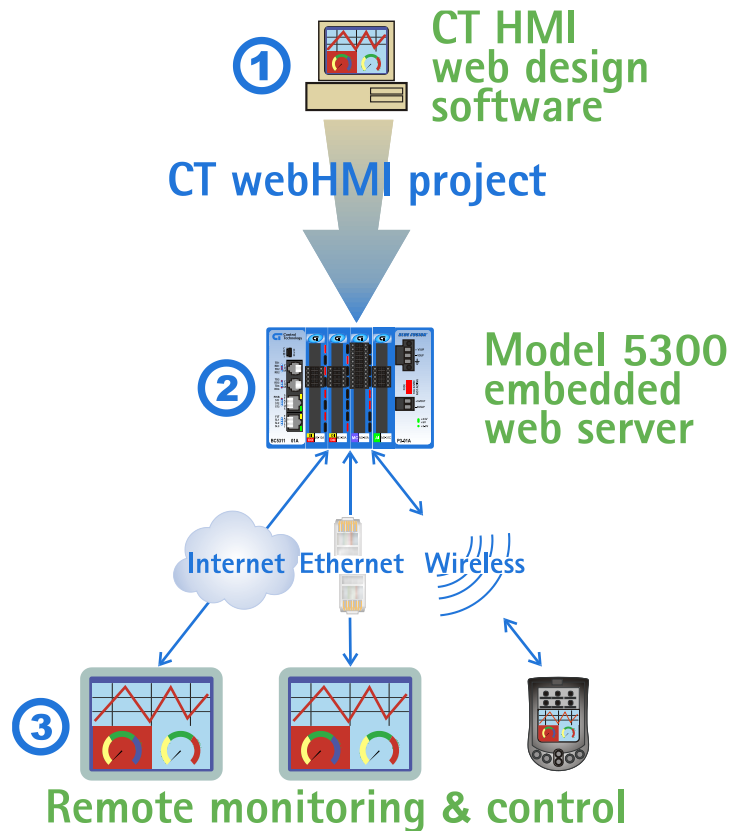
Embedded HMI server

Controllers serve web-based HMI screens

The Blue Fusion Model 5300 automation controllers use patented CTC technology to serve up interactive web-based HMI projects. The projects are created on a PC using CT HMI Builder, CTC's graphical development software. CT HMI Builder has a large library of graphical elements, including switches, displays, lights, meters, charts, etc. that speed the development process. Once the project has been created, CT HMI Builder converts the project to a CT webHMI project and exports it directly to the Blue Fusion controller.   The CT webHMI project in the controller can be accessed by any number of authenticated users via standard web browsers.

Exporting HMI displays to Blue Fusion controllers: three easy steps

1. *Create interactive displays with CT HMI Builder software on your PC.*

2. *Publish CT webHMI projects to web server residing in a Blue Fusion Model 5300 automation controller using patented web server technology.*

3. *Access real-time data as a web page from any network or Internet connection. No expensive software is required on client devices to monitor or control your applications.*

① **CT HMI web design software**

CT webHMI project

② **Model 5300 embedded web server**

Internet Ethernet Wireless

③ **Remote monitoring & control**

CT webHMI features
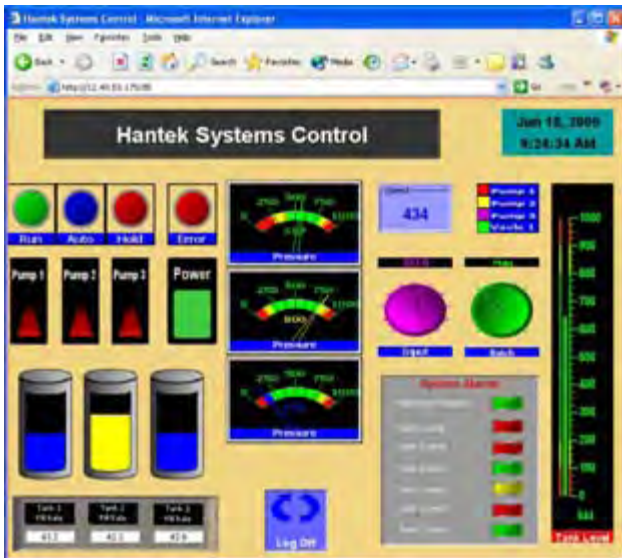
Actual CT webHMI display accessed via Internet Explorer.

CT webHMI projects are accessed directly from the Blue Fusion controller by all authenticated users via standard web browsers such as Internet Explorer. The browser "screen" is dynamically updated, providing live read/write access to all the controller's resources. Through the browser, users can monitor and control any connected devices or processes remotely. The web page will look just like it did when originally designed using CT HMI Builder and will be fully interactive.

5300 CT webHMI features

	All CPUs	CPUs ≥ 8 MB Flash
CT webHMI version	*basic*	*advanced*
Simple graphics	✓	✓
Labels	✓	✓
User–generated graphics	✓	✓
Active display boxes	✓	✓
Interactive switches	✓	✓
Indicator lights	✓	✓
Live video feeds	✓	✓
Interactive meters	✓	✓
Remote data logging	✓	✓
Number of controllers HMI project can access	*1*	*unlimited*
Multiple register (block) read	–	✓
String table translator	–	✓
Event scripts	–	✓
Project scripts	–	✓
Recipe manager	–	✓
Dynamic charting	–	✓
Encrypted multi–level security	–	✓
Multi–panel support	–	✓
Animation	–	✓
Multiple language support	–	✓
User logon authentication	–	✓

Data logging and FTP support

Model 5300 Blue Fusion controllers are ideal for secure data logging and data acquisition in industrial, scientific, environmental, and agency-compliance applications. Data from any of the controller's I/O or internal resources can be logged to protected non-volatile files. These files can be retrieved by remote computers using the built-in FTP server. Alternatively the controller can automatically "push" the file to a remote computer based on time or event using the built-in FTP client or email support.

Accurate time and date stamping is assured by the controller's SNTP time synchronization feature that automatically synchronizes the controller with a designated enterprise time source or an external reference clock time. Unlike traditional data loggers, CTC controllers can analyze logged data in real time and take appropriate action based on the logged data.
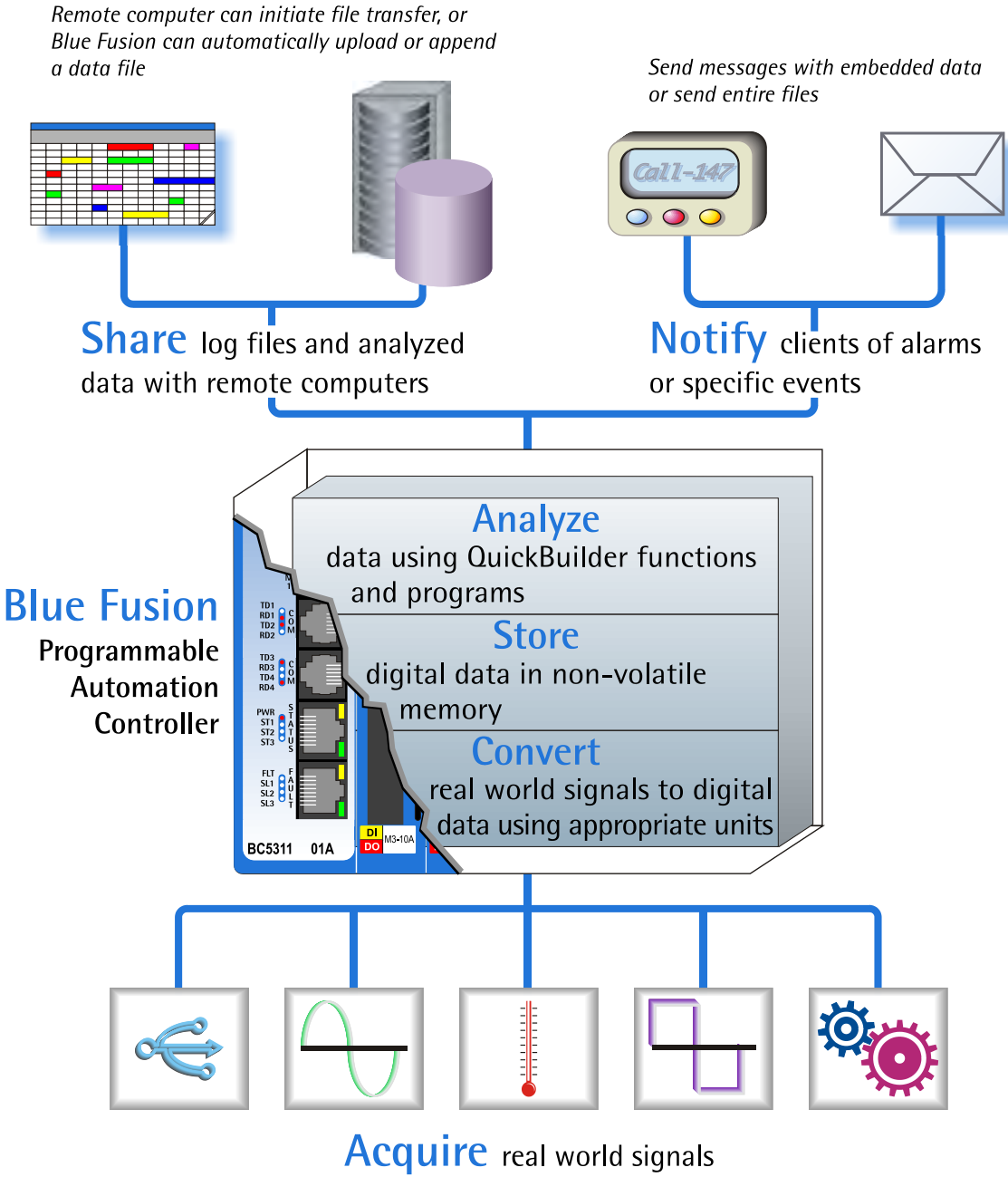
Data logging features

- *Supports data logging of any controller variable*
- *Log files support custom formatting*
- *Easily exported to Excel for detailed analysis*
- *Automatically upload log files to remote servers*
- *Automatic time and date stamping*
- *Data is logged to non-volatile memory*
- *Multiple formatting options*
  - *Comma delimited*
  - *Fixed field size*
  - *Free-style record format*
- *Allows up to 999 log files*
- *Log files support mixed record formatting*
- *Provides I/O interface to SCADA systems*
- *Automatic record synchronization with remote server*
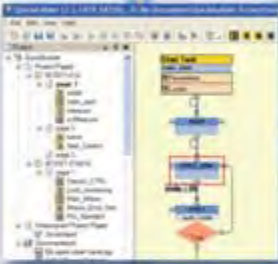- *Local non-volatile logging*

FTP support features

- *FTP server support; allows remote computers to upload or download files on the controller*
- *FTP client support; allows the controller to upload, append, or download files automatically from remote computers*

Data types supported

- *Integers*
- *Floats*
- *Doubles*
- *Strings*
- *Mixed format*

Remote computer can initiate file transfer, or Blue Fusion can automatically upload or append a data file

Send messages with embedded data or send entire files

Call-147

Share log files and analyzed data with remote computers

Notify clients of alarms or specific events

Blue Fusion

Programmable Automation Controller

TD1
RD1
TD2
RD2
COM

TD3
RD3
TD4
RD4
COM

PWR
ST1
ST2
ST3
STATUS

FLT
SL1
SL2
SL3
FAULT

BC5311   01A

DI
DO   M3-10A

Analyze
data using QuickBuilder functions and programs

Store
digital data in non-volatile memory

Convert
real world signals to digital data using appropriate units

Acquire real world signals

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