



more sensors, more solutions

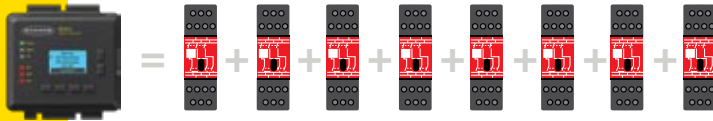
# SC22-3/-3E

## Safety Controller

## Who else but Banner could take the complexity out of safety control.

### Replace multiple safety modules with a single controller.

SC22-3 Safety Controller and SC22-3E with Ethernet communications are totally configurable and flexible safety modules. Because they incorporate numerous input devices and manage multiple safety-related functions, they can easily replace several traditional safety modules to integrate light screens, E-stops, interlocking switches, safety mats, two-hand controls, muting functions and many others. The cost savings in design, safety modules, wiring and installation are significant.



One Safety Controller... replaces multiple dedicated safety modules



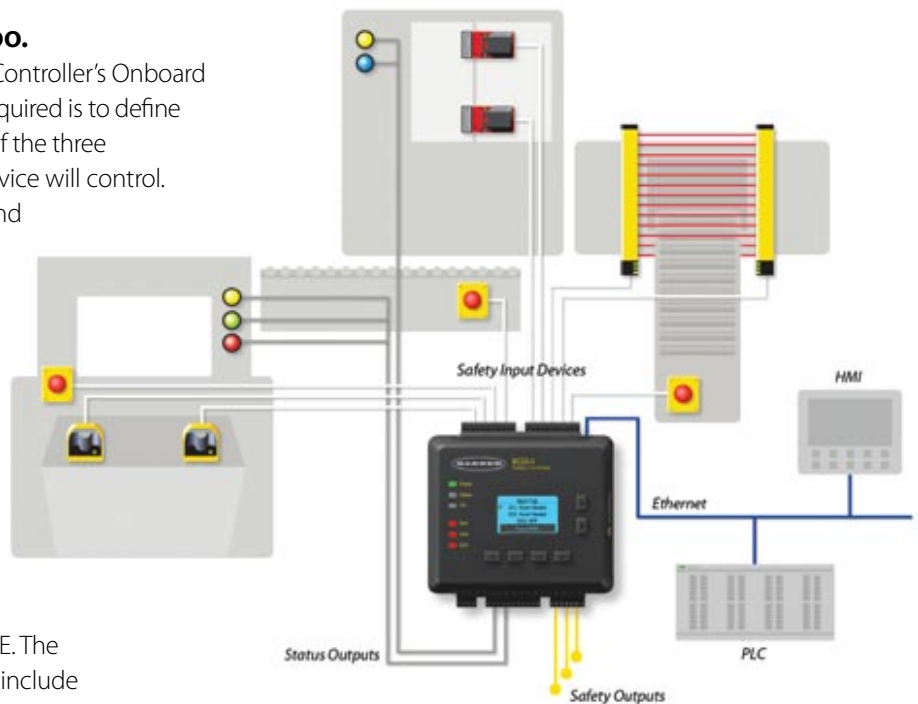
### Dramatically reduce the complexity of interfacing multiple safety functions and devices.

Banner's intuitive PC Interface application allows you to quickly create and document even complex safety logic configurations, incorporating multiple safety input and outputs, in minutes. There are 14 types of safety and non-safety input device categories from which to choose, and several Dual- and Single-Channel circuit types that can be used.

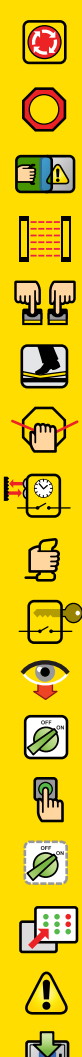
### Vastly reduce installation and troubleshooting time too.

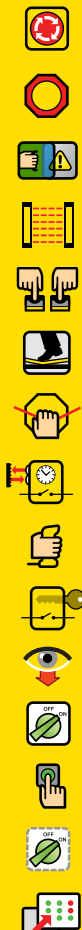
Using either the PC Interface or the Controller's Onboard Interface, setup is simple. All that is required is to define each device and what combination of the three independent safety outputs each device will control. User-friendly icons, circuit symbols and multilingual support make the process easy. Faulty devices or wiring configuration errors are automatically detected and displayed along with built-in diagnostic information to help quickly locate and clear faults.

The SC22-3E Safety Controller includes Ethernet communications for non-safety monitoring of the inputs (both safety and non-safety) and the safety outputs of the SC22-3E. The Ethernet communications protocols include Modbus/TCP, EtherNet/IP™ and PCCC.



Easy to learn. Easy to use.  
Safety made simple.





## Totally configurable. Remarkably easy.

### The versatile input circuit for both safety and non-safety devices.

22 input terminals can monitor both contact-based and PNP solid-state input devices. Each input circuit is configurable with the ability to monitor an input signal or provide 24V dc sources when needed. Versatile input circuitry accommodates a wide range of input device types from a variety of manufacturers including:

- E-Stops
- Interlock Switches
- Safety Light Screens
- Two-Hand Controls
- Safety Mats and Edges
- Rope Pulls
- Muting Sensors
- Enabling Devices
- Bypass Switches
- And More

### Three redundant PNP safety outputs.

The SC22-3 is designed to meet stringent standards, including Safety Integrity Level (SIL) 3 per IEC 62061 and IEC 61508, and Category 4 Performance Level (PL e) per ISO 13849-1. Outputs can also be used with selectable one- or two-channel external device monitoring.

### Combine safety and muting functions in one controller.

The SC22-3 allows you to perform multiple safety monitoring functions, including muting and bypass functions. The flexible functions greatly simplify setup and troubleshooting, while minimizing concerns about the level of safety achieved.



### Built-in front panel display keeps you in the loop.

The front panel LCD screen and LEDs offer easy setup and provide exceptional diagnostics. The SC22-3 can be configured with its built-in LCD display and push buttons, or using a PC interface. The LCD display and LED status indicators keep you informed of power, faults, output status and communication status with your PC.

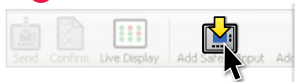
### SC22-3E with EtherNet/IP™ and Modbus/TCP network communications

The SC22-3E provides 32 configurable Virtual Status Outputs (VO), in addition to the functionality provided on the SC22-3 model. The "Auto Configure" option is used to automatically assign these VO to track the status of previously configured inputs, outputs, and system status. VO can later be reassigned or added. I/O status is available over the network within 100 milliseconds; changes to other configuration tables, such as the onboard Fault Log, is available within 1 second.

# Set up multiple safety functions in minutes, not hours.

With your Windows XP, 2000, Vista or Windows 7 PC you can configure all safety and non-safety functions for the SC22-3 right on your computer using the USB port and the SC22-3 PC Interface, or the XM card and programming tool. This all-new, click-and-go system brings a new level of simplicity to configuring safeguarding functions.

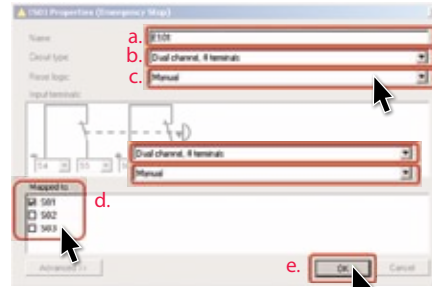
## 1 Add safety input



## 2 Select a device

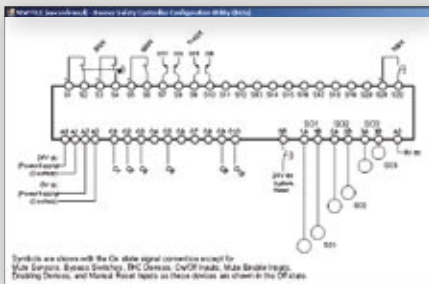


## 3 Modify device properties:

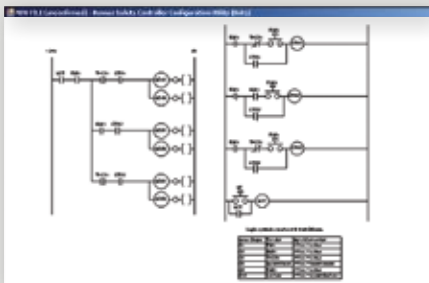


- a. Rename device
- b. Select device circuit type
- c. Select reset logic
- d. Map inputs to outputs
- e. Click "OK"

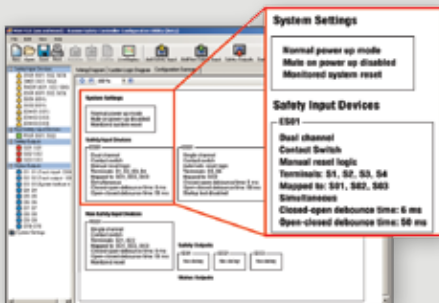
## More information at your fingertips.



Wiring Diagram



Ladder Logic Diagram



Configuration Summary

## Quickly configure Safety Output ON- and OFF-delay.

Set ON- and OFF-delay and time in seconds. Delay time values are automatically displayed in the ladder logic diagram.

## Confirm proper configuration and test.



Once created, you can review and confirm the validity of the configuration and parameters in seconds. Once complete, the configuration can be stored for future use with no additional confirmation.

## Easily establish status of input, output and system properties.

Ten non-safety status outputs are capable of 0.5A output individually (up to 1.0A in total for all used). With simple menu selections, you can monitor a variety of output status functions including:

- Track Input
- Track Output
- System Lockout Status
- I/O Fault Status
- System Waiting for Reset
- Output Waiting for Reset
- Muting Status
- Track Input Group

Advanced diagnostics and troubleshooting hints are available using either the front panel display or your PC.

## Store system configurations on the optional XM card.

Using external, non-volatile memory, system configurations are easily stored on the optional SC-XM1 external memory (XM) card. This allows the downloading of preset configurations to multiple systems or rapid changeovers without reconfiguring the system—another significant time-saver. Store system configurations on a hard drive, or on a CD-ROM, or email them anywhere in the world for fast efficient upgrades.



# Experience the SC22-3/-3E.

Discover how simple it is to configure multiple devices and functions.



## Demonstration Software:

The attached CD lets you experience an interactive demonstration and allows you to program a configuration using the PC Interface.

Call 1-888-373-6767 or visit [www.bannerengineering.com/SC22](http://www.bannerengineering.com/SC22) to download the **free** SC22-3/-3E Safety Controller PC Interface and other information.

### ADDITIONAL INFORMATION

Product Manual	133487
Quick Start Guide	133485
Controller/PC Interface Software	134534

SPECIFICATIONS	SC22-3	SC22-3E
Power	24V dc +/- 20% 400 mA max (no output loads) 5.9A (all outputs ON at maximum load)	24V dc +/- 20% 400 mA max (no output loads) 4.9A (all outputs ON at maximum load)
Housing	35 mm DIN Mount    IEC IP20 rating	Plug-in Terminals
Inputs	22 (Safety or Non-Safety inputs) Configurable for solid state or contact based input devices	
Safety Outputs (6 terminals)	3 Independent, Dual Channel, PNP 750 mA each @ 24V dc (per output)	3 Independent, Dual Channel, PNP 500 mA each @ 24V dc (per output)
Status Outputs (non-safety)	10 Single Channel PNP outputs 0.5A max each @ 24V dc 1.0A max @ 24V dc total	10 Single Channel PNP outputs 0.5A max each @ 24V dc 1.0A max @ 24V dc total 32 Virtual Status outputs (Ethernet communication)
Performance Standards	SIL CL 3 per IEC 62061, SIL 3 per IEC 61508, Category 4, PL e per EN ISO 13849-1	
Approvals	UL (NBN), cULus (3NFV) and CE per Machinery Directive 2006/42/2006	

SAFETY CONTROLLER MODELS		Terminal Type	USB Cable	XM Card	XM Programming Tool
STANDARD	ETHERNET				
SC22-3-SU1	SC22-3E-SU1	Screw	1.8 m	Yes	Yes
SC22-3-CU1	SC22-3E-CU1	Clamp			
SC22-3-S	SC22-3E-S	Screw	—	Yes	—
SC22-3-C	SC22-3E-C	Clamp			
SC-SC22-3	SC-SC22-3E	None	Replacement Controller only (no terminals)		

### SC22-3/-3E SAFETY CONTROLLER ACCESSORIES

SC-XM1	External memory card (XM card)
SC-TS1	Screw terminal replacement set for SC22-3
SC-TC1	Clamp terminal replacement set for SC22-3
SC-USB1	USB A/B Cable, 1.8 m
SC-XMP	XM card USB programming tool
SC-IM9A	10A Interface module for 1 Safety Output (3 NO per output)
SC-IM9B	10A Interface module for 2 Safety Outputs (3 NO per output)
SC-IM9C	10A Interface module for 3 Safety Outputs (3 NO per output)
IM-T-9A	6A Interface module (3 NO)
IM-T-11A	6A Interface module (2 NO, 1 NC)

## Choose from Banner's complete line of machine safety products.



Safety Light Screens



Perimeter & Area Optical Guards



Safety Modules



Emergency Stop Devices



Two-Hand Controls



Safety Interlock Switches



Fiber Optic Safety Devices

From simple to advanced,  
Banner solves more applications in your plant!



**Sensors**

- Presence
- Absence
- Inspection
- Gating
- Counting
- Measurement



**Vision**

- Pattern Recognition
- Complex Part Inspection
- Multi-Component Gauging
- Part ID/Orientation
- Assembly Verification
- Print Verification
- Traceability (Bar Code and Text)



**Wireless**

- Process Control & Monitoring
- Factory Automation
- Agriculture & Water Management
- Traffic Monitoring & Control
- Commercial & Consumer Monitoring



**Indicator Lights**

- Bin & Part Picking
- Error Proofing
- Pick-to-Light & Call for Parts
- Visual & Audible Indication
- Operator Guidance
- Visual Management
- Andon Indication
- Pilot & Stack Light Replacement



**Machine Safety**

- Safety Light Screens
- Fiber Optic Safety Systems
- Safety Modules & Controllers
- Emergency Stop Devices
- Safety Interlocks
- Ergonomic Two-Hand Control & Run Bars

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