

# XS26-2/SC26-2 Base Safety Controllers



## Datasheet

- Control System monitors a variety of input devices such as e-stop buttons, rope pulls, enabling devices, protective safety stops, interlocked guards or gates, optical sensors, two-hand controls, and safety mats
- Pre-configured safety function blocks including Two-Hand Control, Muting, and Enabling Device to simplify application programming
- Boolean logic functions for programming flexibility
- Intuitive programming environment for easy implementation
- Expandable models for adding up to 8 additional I/O modules for larger scale applications
- Base Controller allows 8 of the 26 inputs to be configured as outputs for efficient terminal utilization
- Ethernet models available providing up to 64 virtual status outputs
- Optional onboard LCD display for system status and diagnostic information
- Optional accessories:

SC-USB2                      USB Cable  
SC-XM2                      External Memory Drive  
p/n 90443                      Resource CD

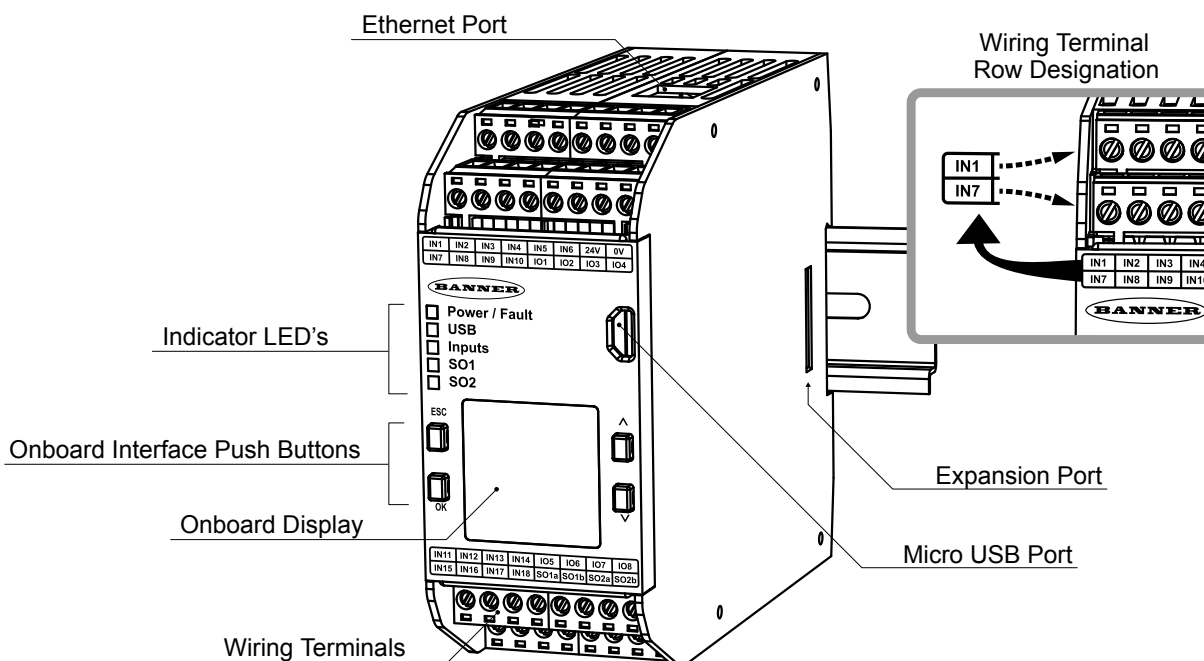
Model	Features
XS26-2	Expandable
XS26-2d	Expandable + Display
XS26-2e	Expandable + Ethernet
XS26-2de	Expandable + Display + Ethernet
SC26-2	Non-Expandable
SC26-2d	Non-Expandable + Display
SC26-2e	Non-Expandable + Ethernet
SC26-2de	Non-Expandable + Display + Ethernet



NOTE: Configuration software required.

The software is available at <http://www.bannerengineering.com/xs26> or installed from the optional Resource CD.

## Features Diagram



## Specifications

### Mechanical Stress

Shock: 15 g for 11 ms, half sine, 18 shocks total (per IEC 61131-2)  
Vibration: 3.5 mm occasional / 1.75 mm continuous at 5 Hz to 9 Hz,  
1.0 g occasional and 0.5 g continuous at 9 Hz to 150 Hz: all at 10  
sweep cycles per axis (per IEC 61131-2)

### Safety

Category 4, PL e (EN ISO 13849)  
SIL CL 3 (IEC 62061, IEC 61508)

### Product Performance Standards

See Standards and Regulations section in the Instruction Manual for a  
list of industry applicable U.S. and international standards

### EMC

Meets or exceeds all EMC requirements in IEC 61131-2, IEC 62061  
Annex E, Table E.1 (increased immunity levels), IEC 61326-1:2006,  
and IEC61326-3-1:2008

### Power

24 V dc  $\pm$  20% (incl. ripple), 100 mA no load  
Ethernet models: add 40 mA  
Display models: add 20 mA  
Expandable models: 3.6 A max. bus load

### Network Interface (Ethernet models only)

Ethernet 10/100 Base-T/TX, RJ45 modular connector  
Selectable auto negotiate or manual rate and duplex  
Auto MDI/MDIX (auto cross)  
Protocols: EtherNet/IP (with PCCC), Modbus/TCP  
Data: 64 configurable virtual Status Outputs; fault diagnostic codes  
and messages; access to fault log

### Convertible I/O

Sourcing current: 80 mA maximum (overcurrent protected)

### Test Pulse

Width: 200  $\mu$ s max.  
Rate: 200 ms typical

### Certifications



### Operating Conditions

Temperature: 0 °C to +55 °C (+32 °F to +131 °F)  
Storage Temperature: -30 °C to +80 °C (-34 °F to +176 °F)

### Environmental Rating

NEMA 1 (IEC IP20), for use inside NEMA 3 (IEC IP54) or better  
enclosure

### Removable Screw Terminals

Wire size: 24 to 12 AWG (0.2 to 3.31 mm<sup>2</sup>)  
Wire strip length: 7 to 8 mm (0.275 in to 0.315 in)  
Tightening torque: 0.565 N·m (5.0 in-lb)

### Removable Clamp Terminals

*Important: Clamp terminals are designed for 1 wire only. If more than  
1 wire is connected to a terminal, a wire could loosen or become  
completely disconnected from the terminal, causing a short.*

Wire size: 24 to 16 AWG (0.20 to 1.31 mm<sup>2</sup>)  
Wire strip length: 8.00 mm (0.315 in)

### Safety Inputs (and Convertible I/O when used as inputs)

Input On threshold: > 15 V dc (guaranteed on), 30 V dc max.  
Input Off threshold: < 5 V dc and < 2 mA, -3 V dc min.  
Input On current: 5 mA typical at 24 V dc, 50 mA peak contact  
cleaning current at 24 V dc  
Input lead resistance: 300  $\Omega$  max. (150  $\Omega$  per lead)  
Input requirements for a 4-wire Safety Mat:  
· Max. capacity between plates: 0.22  $\mu$ F  
· Max. capacity between bottom plate and ground: 0.22  $\mu$ F  
· Max. resistance between the 2 input terminals of one plate: 20  $\Omega$

### Solid State Safety Outputs

0.5 A max. at 24 V dc (1.0 V dc max. drop), 1 A max. inrush  
Output OFF threshold: 1.7 V dc typical (2.0 V dc max.)  
Output leakage current: 50  $\mu$ A max. with open 0 V  
Load: 0.1  $\mu$ F max., 1 H max., 10  $\Omega$  max. per lead

### Response and Recovery Times

Input to Output Response Time (Input Stop to Output Off): see  
the Configuration Summary in the PC Interface, as it can vary  
Input Recovery Time (Stop to Run): 250 ms typical, 400 ms max.  
Output xA to Output xB turn On differential (used as a pair, not  
split): 6 to 14 ms typical,  $\pm$ 25 ms max.  
Output X to Output Y turn on Differential (same input, same  
delay, any module): 3 scan times +25 ms max.  
Output On/Off Delay Tolerance:  $\pm$ 3%

### Output Protection

All solid-state outputs (safety and non-safety) are protected from  
shorts to 0 V or +24 V, including overcurrent conditions

### Current Feature ID

Base Modules:	1	XS8si and XS16si:	1
XS2so and XS4so:	1	XS1ro and XS2ro:	1



**Important:** The Safety Controller and all solid state output expansion modules should be connected only to a SELV (Safety Extra-Low Voltage, for circuits without earth ground) or a PELV (Protected Extra-Low Voltage), for circuits with earth ground power supply.

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