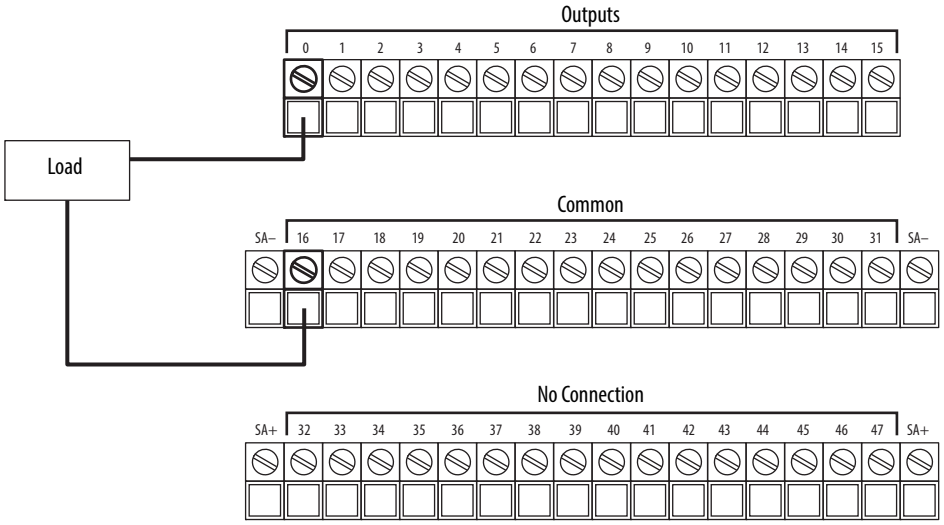
5094-OB16S and 5094-OB16SXT Safety Digital 16-point Sourcing Output Modules

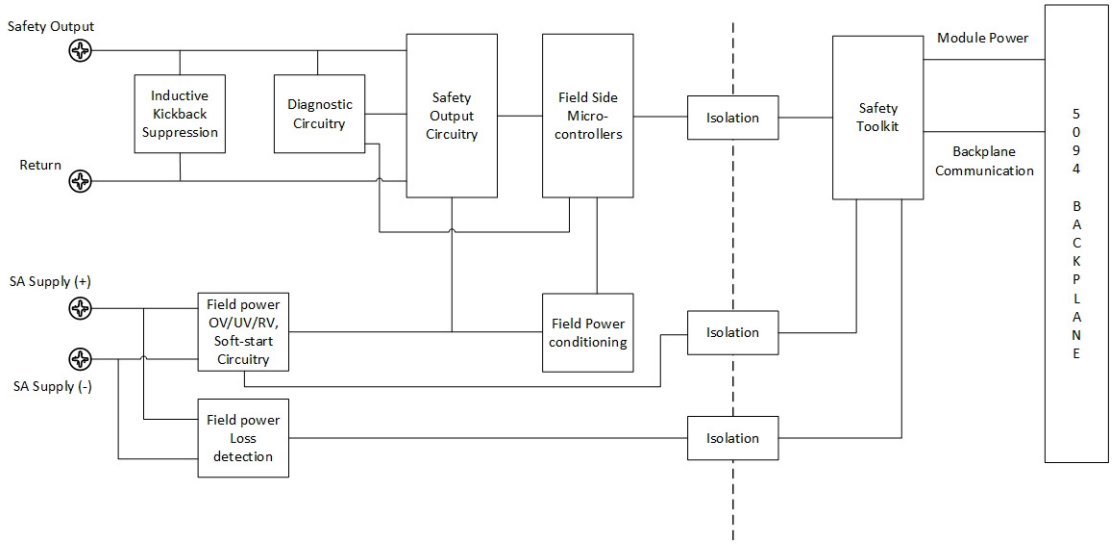
This figure shows a wiring diagram for the 5094-OB16S and 5094-OB16SXT safety modules. You must connect a 24V DC power source to the left SA+/– terminals to provide field-side power.

5094-OB16S and 5094-OB16SXT Wiring Diagram



This figure shows a functional block diagram for the 5094-OB16S and 5094-OB16SXT safety modules.

5094-OB16S and 5094-OB16SXT Functional Block Diagram



Technical Specifications - 5094-OB16S, 5094-OB16SXT

Attribute	5094-OB16S, 5094-OB16SXT
On-state voltage range	18...32V DC
On-state voltage drop, max	0.5V @ 0.5 A
On-state current per channel, min	10 mA
Off-state voltage, max	5V DC
Off-state leakage current per point, max(1)	0.5 mA
Output current rating per point	0.5 A
Surge current per point, max	1.8 A(2)
Output delay time (backplane to screw), max Off to On On to Off	4 ms @ RPI of 2 ms
Safety Integrity Level (SIL)	Up to and including Cat. 4 / PL e acc. to EN ISO 13849-1, SIL CL 3 acc. to IEC 62061, SIL 3 acc. to IEC 61508(3)
Safety Reaction Time (SRT)	4.5 ms @ RPI of 2 ms
Pulse width, max	500 µs
Open load detection diagnostics	Yes (per point)
Output short circuit/overload detection	Yes (per point)
Channel-to-channel short-circuit detection	Yes (per point) in Safety Pulse Test mode
Module over-temperature detection	Yes
Output short circuit/overload protection	Yes (per point)
SA supply reverse voltage protection	Yes
SA supply overvoltage protection, max	60V
Output control in fault state per point	Yes
Output state in program mode per point	• Off (default) • Hold • ON
Output state in communications fault mode per point	• Off (default) • Hold • ON
Output state in communications fault mode in program mode per point	• Program mode (default) • Communications Fault mode
CIP Sync	Yes

(1) Recommended Loading Resistor - To limit the effects of leakage current through solid-state outputs, you can connect a loading resistor in parallel with your load. For 24V DC operation, use a 5.6 kΩ, 0.5 W resistor for transistor operation.
(2) 1.8 A for up to 150 ms. The module current rating cannot exceed 10 A at any time. See the FLEX 5000 Digital I/O User Manual, publication 5094-UM001, for Surge Capability of Safety Output.
(3) See the FLEX 5000 Digital I/O User Manual, publication 5094-UM001, for Safety Application Suitability Levels and Safety Data for Safety I/O Modules.

General Specifications - 5094-OB16S, 5094-OB16SXT

Attribute	5094-OB16S, 5094-OB16SXT
Outputs	16 Channels (1 group of 16), sourcing
Output voltage range	18…32V DC
Backplane Power (BP) voltage	15V DC
Backplane Power (BP) current, max	100 mA
Sensor Actuator Power (SA) voltage range	18…32V DC
Sensor Actuator Power (SA) current, max	8.2 A
Power dissipation, max	3.5 W
Thermal dissipation, max	11.94 BTU/hr
Isolation voltage	250V (continuous), Basic Insulation Type, System to Field No isolation between SA Power and output ports No isolation between individual output ports
Module keying	Mechanical keying or electronic keying via programming software
Indicators	1 green/red module status indicator 1 green/red SA power status indicator 16 yellow/red I/O status indicators
Terminal base (TB) assembly	5094-TB3I (consists of a 5094-MB and 5094-RTB3I) 5094-TB3IS (consists of a 5094-MB and 5094-RTB3IS) 5094-TB3IXT (consists of a 5094-MBXT and 5094-RTB3IXT) 5094-TB3ISXT (consists of a 5094-MBXT and 5094-RTB3ISXT) **IMPORTANT:** You must order mounting bases (MBs) and removable terminal blocks (RTBs) separately. MBs and RTBs do not ship with FLEX 5000 I/O modules.
TB keying	5 ⓚⓣ 1
Wire category[1]	2 - signal ports 2 - power ports
Wire size - signal	0.34…2.5 mm^2 (22…14 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 1.2 mm (3/64 in.) insulation, max Ferrule according to DIN 46 228/1
Wire size - power	2.5 mm^2 (14 AWG) Cu multi-strand
Dimensions (HxWxD), approx	87.0 x 94.0 x 54.0 mm (3.43 x 3.70 x 2.13 in.)
Weight, approx	140 g (0.31 lb)
Enclosure type	None (open-style)
North American temp code	T4
ATEX temp code	T4
IECEx temp code	T4

(1) Use this Conductor Category information for planning conductor routing. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.
Use this Conductor Category information for planning conductor routing as described in the appropriate System Level Installation Manual.