FS80

Fixed Industrial Scanner

Product Reference Guide

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About this Guide

This guide provides information on installing a lens on the scanner, integrating various electrical connections, and connecting with the Zebra Integrated Multifunction Light (ZIML).

Configurations

The FS80 Fixed Industrial Scanner is available in 5MP, 9MP, 12MP and 16MP configurations. Deep Learning OCR is available with specified SKUs.

Table 1 Configurations

Configurations	Description
5MP	
FS80-CM0507H00W	FS80 C-Mount Fixed Industrial Scanner: 5 MP, Standard 2D Barcode Decoder W/ DL OCR, Leader & Follower Full, Lens Not Included, Worldwide
FS80-CM0507Z00K	FS80 C-Mount Fixed Industrial Scanner: 5 MP, Standard 2D Barcode Decoder, Leader & Follower Full, Lens Not Included, India and South Korea
FS80-CM0507H00K	FS80 C-Mount Fixed Industrial Scanner: 5 MP, Standard 2D Barcode Decoder W/ DL OCR, Leader & Follower Full, Lens Not Included, India and South Korea
FS80-CM0507F00W	FS80 C-Mount Fixed Industrial Scanner: 5 MP, Fast 2D Barcode Decoder, Leader & Follower Full, Lens Not Included, Worldwide
FS80-CM0507G00W	FS80 C-Mount Fixed Industrial Scanner: 5 MP, Fast 2D Barcode Decoder, Leader & Follower Full, Lens Not Included, Worldwide
FS80-CM0507F00K	FS80 C-Mount Fixed Industrial Scanner: 5 MP, Fast 2D Barcode Decoder, Leader & Follower Full, Lens Not Included, India and South Korea
FS80-CM0507G00K	FS80 C-Mount Fixed Industrial Scanner: 5 MP, Fast 2D Barcode Decoder W/ DL OCR, Leader & Follower Full, Lens Not Included, India and S. Korea
9MP	
FS80-CM0907Z00W	FS80 C-Mount Fixed Industrial Scanner: 9 MP, Standard 2D Barcode Decoder, Lens Not Included – Worldwide
FS80-CM0907H00W	FS80 C-Mount Fixed Industrial Scanner: 9 MP, Standard 2D Barcode Decoder W/ DL OCR, Lens Not Included - Worldwide

Table 1   Configurations (Continued)

Configurations	Description
FS80-CM0907F00W	FS80 C-Mount Fixed Industrial Scanner: 9 MP, Fast 2D Barcode Decoder, Lens Not Included – Worldwide
FS80-CM0907G00W	FS80 C-Mount Fixed Industrial Scanner: 9 MP, Fast 2D Barcode Decoder W/ DL OCR, Lens Not Included – Worldwide
FS80-CM0907Z00K	FS80 C-Mount Fixed Industrial Scanner: 9 MP, Standard 2D Barcode Decoder, Lens Not Included - India / S. Korea
FS80-CM0907H00K	FS80 C-Mount Fixed Industrial Scanner: 9 MP, Standard 2D Barcode Decoder W/ DL OCR, Lens Not Included - India / S. Korea
FS80-CM0907F00K	FS80 C-Mount Fixed Industrial Scanner: 9 MP, Fast 2D Barcode Decoder, Lens Not Included - India / S. Korea
FS80-CM0907G00K	FS80 C-Mount Fixed Industrial Scanner: 9 MP, Fast 2D Barcode Decoder W/ DL OCR, Lens Not Included - India / S. Korea
12MP	
FS80-CM1207F00W	FS80 C-Mount Fixed Industrial Scanner: 12 MP, Fast 2D Barcode Decoder, Lens Not Included – Worldwide
FS80-CM1207G00W	FS80 C-Mount Fixed Industrial Scanner: 12 MP, Fast 2D Barcode Decoder W/ DL OCR, Lens Not Included – Worldwide
FS80-CM1207Z00W	FS80 C-Mount Fixed Industrial Scanner: 12 MP, Standard 2D Barcode Decoder, Lens Not Included – Worldwide
FS80-CM1207H00W	FS80 C-Mount Fixed Industrial Scanner: 12 MP, Standard 2D Barcode Decoder W/ DL OCR, Lens Not Included – Worldwide
FS80-CM1207Z00K	FS80 C-Mount Fixed Industrial Scanner: 12 MP, Standard 2D Barcode Decoder, Lens Not Included - India / S. Korea
FS80-CM1207H00K	FS80 C-Mount Fixed Industrial Scanner: 12 MP, Standard 2D Barcode Decoder W/ DL OCR, Lens Not Included - India / S. Korea
FS80-CM1207F00K	FS80 C-Mount Fixed Industrial Scanner: 12 MP, Fast 2D Barcode Decoder, Lens Not Included - India / S. Korea
FS80-CM1207G00K	FS80 C-Mount Fixed Industrial Scanner: 12 MP, Fast 2D Barcode Decoder W/ DL OCR, Lens Not Included - India / S. Korea
16MP	
FS80-CM1607F00W	FS80 C-Mount Fixed Industrial Scanner: 16 MP, Fast 2D Barcode Decoder, Leader & Follower Full, Lens Not Included – Worldwide
FS80-CM1607G00W	FS80 C-Mount Fixed Industrial Scanner: 16 MP, Fast 2D Barcode Decoder W/ DL OCR, Leader & Follower Full, Lens Not Included – Worldwide
FS80-CM1607Z00W	FS80 C-Mount Fixed Industrial Scanner: 16 MP, Standard 2D Barcode Decoder, Leader & Follower Full, Lens Not Included - Worldwide
FS80-CM1607H00W	FS80 C-Mount Fixed Industrial Scanner: 16 MP, Standard 2D Barcode Decoder W/ DL OCR, Leader & Follower Full, Lens Not Included - Worldwide

Table 1 Configurations (Continued)

Configurations	Description
FS80-CM1607Z00K	FS80 C-Mount Fixed Industrial Scanner: 16 MP, Standard 2D Barcode Decoder, Leader & Follower Full, Lens Not Included - India / S. Korea
FS80-CM1607H00K	FS80 C-Mount Fixed Industrial Scanner: 16 MP, Standard 2D Barcode Decoder W/ DL OCR, Leader & Follower Full, Lens Not Included - India / S. Korea
FS80-CM1607F00K	FS80 C-Mount Fixed Industrial Scanner: 16 MP, Fast 2D Barcode Decoder, Leader & Follower Full, Lens Not Included - India / S. Korea
FS80-CM1607G00K	FS80 C-Mount Fixed Industrial Scanner: 16 MP, Fast 2D Barcode Decoder W/ DL OCR, Leader & Follower Full, Lens Not Included - India / S. Korea

Zebra Integrated Multifunction Light and Lens Compatibility

The following table provides the recommended compatibility for pairing the FS80 and the Zebra Integrated Multifunction Light (ZIML) and C-Mount lenses.

NOTE: Use of the FS80 with 8mm lenses is not IP67 compliant.

Table 2 FS80 5MP / ZIML Configuration / 2/3" Format Lens Compatibility

FS80 Configuration	C-Mount Focal Length and Zebra Integrated Multifunction Light Degree Compatibility				
	8mm	12mm	16mm	25mm	35mm
	55.3 Lens FoV	38.4 Lens FoV	29.6 Lens FoV	19.1 Lens FoV	13.6 Lens FoV
FS80 5MP FS80-CM0507Z00W FS80-CM0507H00W FS80-CM0507Z00K FS80-CM0507H00K FS80-CM0507F00W FS80-CM0507G00W FS80-CM0507F00K FS80-CM0507G00K	80° or 60° LGHT-X040RD LGHT-X040IR LGHT-X040WH LGHT-X060RD LGHT-X060IR LGHT-X060WH	60° LGHT-X060RD LGHT-X060IR LGHT-X060WH	40° LGHT-X040RD LGHT-X040IR LGHT-X040WH	40°/20° LGHT-X040RD LGHT-X040IR LGHT-X040WH LGHT-X020RD LGHT-X020IR LGHT-X020WH	20° LGHT-X020RD LGHT-X020IR LGHT-X020WH

Table 3 FS80 9, 12, and 16MP / ZIML Configuration / 1.1" Format Lens Compatibility

FS80 Configuration	C-Mount Focal Length and Zebra Integrated Multifunction Light Degree Compatibility				
	8mm	12mm	16mm	25mm	35mm
	78.2 Lens FoV	56.7 Lens FoV	43.9 Lens FoV	28.7 Lens FoV	20.5 Lens FoV
FS80 9MP					

Table 3   FS80 9, 12, and 16MP / ZIML Configuration / 1.1" Format Lens Compatibility (Continued)

FS80 Configuration	C-Mount Focal Length and Zebra Integrated Multifunction Light Degree Compatibility				
	8mm	**12mm**	**16mm**	**25mm**	**35mm**
	78.2 Lens FoV	**56.7 Lens FoV**	**43.9 Lens FoV**	**28.7 Lens FoV**	**20.5 Lens FoV**
FS80-CM0907Z00W FS80-CM0907H00W FS80-CM0907F00W FS80-CM0907G00W FS80-CM0907Z00K FS80-CM0907H00K FS80-CM0907F00K FS80-CM0907G00K	80° LGHT-X080RD LGHT-X080IR LGHT-X080WH	60° LGHT-X060RD LGHT-X060IR LGHT-X060WH	60° LGHT-X060RD LGHT-X060IR LGHT-X060WH	40° LGHT-X040RD LGHT-X040IR LGHT-X040WH	40° or 20° LGHT-X020RD LGHT-X020IR LGHT-X020WH
FS80 12MP					
FS80-CM1207F00W FS80-CM1207G00W FS80-CM1207Z00W FS80-CM1207H00W FS80-CM1207Z00K FS80-CM1207H00K FS80-CM1207F00K FS80-CM1207G00K	80° LGHT-X080RD LGHT-X080IR LGHT-X080WH	80° LGHT-X080RD LGHT-X080IR LGHT-X080WH	60° LGHT-X060RD LGHT-X060IR LGHT-X060WH	40° LGHT-X040RD LGHT-X040IR LGHT-X040WH	40° LGHT-X040RD LGHT-X040IR LGHT-X040WH
FS80 16MP					
FS80-CM1607F00W FS80-CM1607G00W FS80-CM1607Z00W FS80-CM1607H00W FS80-CM1607Z00K FS80-CM1607H00K FS80-CM1607F00K FS80-CM1607G00K	80° LGHT-X080RD LGHT-X080IR LGHT-X080WH	80° LGHT-X080RD LGHT-X080IR LGHT-X080WH	60° LGHT-X060RD LGHT-X060IR LGHT-X060WH	40° LGHT-X040RD LGHT-X040IR LGHT-X040WH	40° LGHT-X040RD LGHT-X040IR LGHT-X040WH

Accessories

The following table lists cables, brackets, lenses, and light accessories available for the scanner.

Table 4   Accessories

Accessory	Part Number	Description
Cables		

Table 4 Accessories (Continued)

Accessory	Part Number	Description
Power and Discrete I/O Cable	M12-CBL-PWRIO/3	3M, 12 Pin M12 to Flying Leads, Standard Flex
Power and I/O Y Cable	CBL-PWR00500-M1210	5M, 12 Pin and 8 Pin M12 to Flying Leads, Standard Flex **NOTE:** For use when integrating the FS80 with the Multi-Feature Integrated Light.
Ethernet Cable	CBL-ENT00500-M1200	5M, X-Coded M12 to RJ45, Standard Flex
Ethernet Cable	CBL-ENT01500-M1200	15M, X-Coded M12 to RJ45, Standard Flex
Brackets		
Fast Detachable Tilt Mounting Bracket	BRKT-TMNT-U000	Fast Detachable Tilt Mounting Bracket
Lenses		
C-Mount Lens	LENS-M0800-0100	8MM Focal Length, 25.5 Filter Thread
	LENS-M1200-0100	12MM Focal Length, 25.5 Filter Thread
	LENS-M1600-0100	16MM Focal Length, 25.5 Filter Thread
	LENS-M2500-0100	25MM Focal Length, 25.5 Filter Thread
	LENS-M3500-0100	35MM Focal Length, 25.5 Filter Thread
	LENS-M0800-0101	8MM Focal Length, 25.5 Filter Thread
	LENS-M1200-0101	12MM Focal Length, 25.5MM Filter Thread
	LENS-M1600-0101	16MM Focal Length, 25.5MM Filter Thread
	LENS-M2500-0101	25MM Focal Length, 25.5MM Filter Thread
	LENS-M3500-0101	35MM Focal Length, 25.5MM Filter Thread
	LENS-U0800-0101	8MM Focal Length, Large Format, 55MM Filter Thread
	LENS-U1200-0101	12MM Focal Length, Large Format, 35.5MM Filter Thread
	LENS-U2500-0101	25MM Focal Length, Large Format, 35.5MM Filter Thread
	LENS-U3500-0101	35MM Focal Length, Large Format, 35.5MM Filter Thread
Zebra Integrated Multifunction Light (ZIML)		
Zebra Integrated Multifunction Light (ZIML) Standard Model with 360° LED Indicator	LGHT-X020WH-0000	LED Integrated Ring Light, White Wavelength, LED20° Lens
	LGHT-X040WH-0000	LED Integrated Ring Light, White Wavelength, LED40° Lens
	LGHT-X060WH-0000	LED Integrated Ring Light, White Wavelength, LED60° Lens
	LGHT-X080WH-0000	LED Integrated Ring Light, White Wavelength, LED80° Lens
	LGHT-X020RD-0000	LED Integrated Ring Light, Red Wavelength, LED20° Lens
	LGHT-X040RD-0000	LED Integrated Ring Light, Red Wavelength, LED40° Lens
	LGHT-X060RD-0000	LED Integrated Ring Light, Red Wavelength, LED60° Lens
	LGHT-X080RD-0000	LED Integrated Ring Light, Red Wavelength, LED80° Lens

Table 4 Accessories (Continued)

Accessory	Part Number	Description
	LGHT-X020IR-0000	LED Integrated Ring Light, IR Wavelength, LED20° Lens
	LGHT-X040IR-0000	LED Integrated Ring Light, IR Wavelength, LED40° Lens
	LGHT-X060IR-0000	LED Integrated Ring Light, IR Wavelength, LED60° Lens
	LGHT-X080IR-0000	LED Integrated Ring Light, IR Wavelength, LED80° Lens
Zebra Integrated Multifunction Light (ZIML) Premium Model with 360° LED Indicator, Precision Aimer and Beeper	LGHT-X020WH-0100	LED Integrated Ring Light, 20° Fan Angle, White Wavelength, 360° Green/Red Feedback, Precision Aimer, Beeper
	LGHT-X040WH-0100	LED Integrated Ring Light, 40° Fan Angle, White Wavelength, Precision Aimer, Beeper
	LGHT-X060WH-0100	LED Integrated Ring Light, 60° Fan Angle, White Wavelength, Precision Aimer, Beeper
	LGHT-X080WH-0100	LED Integrated Ring Light, 80° Fan Angle, White Wavelength, Precision Aimer, Beeper
	LGHT-X020RD-0100	LED Integrated Ring Light, 20° Fan Angle, Red Wavelength, Precision Aimer, Beeper
	LGHT-X040RD-0100	LED Integrated Ring Light, 40° Fan Angle, Red Wavelength, Precision Aimer, Beeper
	LGHT-X060RD-0100	LED Integrated Ring Light, 60° Fan Angle, Red Wavelength, Precision Aimer, Beeper
	LGHT-X080RD-0100	LED Integrated Ring Light, 80° Fan Angle, Red Wavelength, Precision Aimer, Beeper
	LGHT-X020IR-0100	LED Integrated Ring Light, 20° Fan Angle, IR Wavelength, Precision Aimer
	LGHT-X040IR-0100	LED Integrated Ring Light, 40° Fan Angle, IR Wavelength, Precision Aimer, Beeper
	LGHT-X060IR-0100	LED Integrated Ring Light, 60° Fan Angle, IR Wavelength, Precision Aimer, Beeper
	LGHT-X080IR-0100	LED Integrated Ring Light, 80° Fan Angle, IR Wavelength, Precision Aimer, Beeper

WARNING: When using the FS80 with the Zebra Integrated Multifunction Light, use CBL-PWR00500-M1210 and ensure you are connecting to the connector marked Power ⏻. If you are using the FS80 as a standalone Fixed Industrial Scanner, use M12-CBL-PWRIO/3. Using the wrong cable can damage the scanner.

Notational Conventions

The following notational conventions make the content of this document easy to navigate.

- **Bold** text is used to highlight the following:
    - Dialog box, window, and screen names
    - Dropdown list and list box names
    - Checkbox and radio button names
    - Icons on a screen
    - Key names on a keypad
    - Button names on a screen
- Bullets (•) indicate:
    - Action items
    - List of alternatives
    - Lists of required steps that are not necessarily sequential
- Sequential lists (for example, those that describe step-by-step procedures) appear as numbered lists.

Icon Conventions

The documentation set is designed to give the reader more visual clues. The following visual indicators are used throughout the documentation set.

NOTE: The text here indicates information that is supplemental for the user to know and that is not required to complete a task.

IMPORTANT: The text here indicates information that is important for the user to know.

CAUTION: If the precaution is not heeded, the user could receive a minor or moderate injury.

WARNING: If danger is not avoided, the user CAN be seriously injured or killed.

DANGER: If danger is not avoided, the user WILL be seriously injured or killed.

Service Information

If you have a problem with your equipment, contact Zebra Global Customer Support for your region. Contact information is available at: zebra.com/support.

When contacting support, please have the following information available:

- Serial number of the unit
- Model number or product name
- Software/firmware type and version number

Zebra responds to calls by email, telephone, or fax within the time limits set forth in support agreements.

If your problem cannot be solved by Zebra Customer Support, you may need to return your equipment for servicing and will be given specific directions. Zebra is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty.

If you purchased your Zebra business product from a Zebra business partner, contact that business partner for support.

Getting Started

The Zebra FS80 Fixed Industrial Scanner offers versatile configurations (5MP, 9MP, 12MP, and 16MP), advanced 2D barcode decoding, and Deep Learning OCR. The FS80 is suited for various industrial applications and has a 360° LED when paired with the Mult-Feature Integrated Light.

Unpacking the Device

Unpack the FS80 Fixed Industrial Scanner and ensure all required components are in the box before attempting to set it up.

1. Carefully remove all protective material from the scanner and save the container for later storage and shipping.

2. Verify that the following are included:

   - FS80 Fixed Industrial Scanner
   - IP Lens Cover
   - Regulatory Guide
   - VGA/USB Connector Caps

WARNING: Keep the VGA/USB cap in place when the connector is not in use to maintain IP67 sealing and protect the scanner from dust or electrostatic discharge.

3. Inspect the equipment for damage. If any equipment is missing or damaged, contact the Global Customer Support Center immediately.

4. Before using the scanner for the first time, remove the protective shipping film that covers the scanner.

NOTE: The scanner does not come with cables, power supplies, or manual lenses. To purchase these items, contact a Zebra sales representative.

Hardware Installation

The scanner supports digital I/O, power, and Ethernet interfaces only. The digital I/O and power connector handles power, trigger input, and digital auxiliary I/O signals, while the Ethernet Connector provides connectivity to a network. Ensure you configure the device for network communication and cap unused Ethernet connectors to maintain IP67 conformity.

> **NOTE:** For detailed instructions on installing the Zebra Integrated Multifunction Light onto the FS80, refer to the Zebra Integrated Multifunction Light (ZIML) Product Reference Guide.

Mounting the Device

If you are using the scanner in a deployment environment, fasten it to a support using its provided mounting holes.

For the dimensions of the mounting holes, go to the Dimensional Drawings.

Connecting the Device

The scanner supports digital IO/power and Ethernet interfaces.
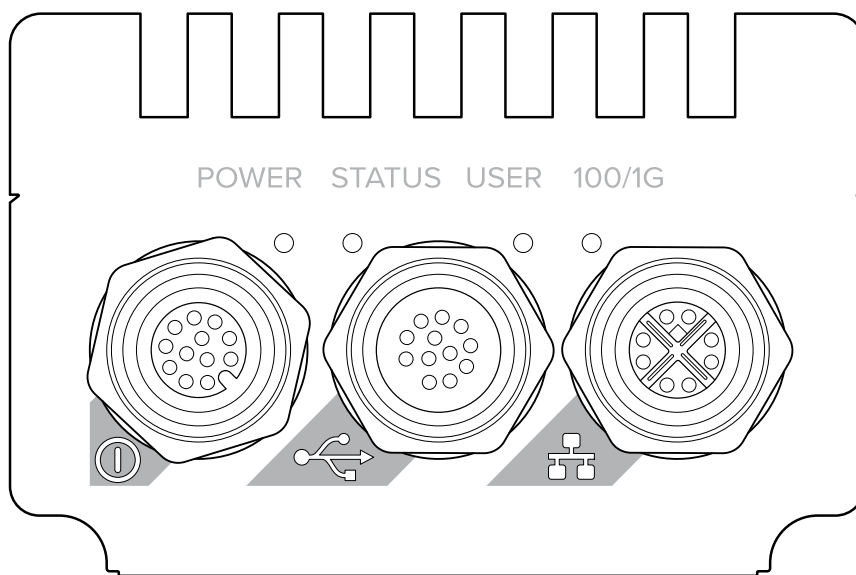
Table 5 FS80 Connectors

Connector	Description
Digital I/O and power connector	Receives power from an external power source. The connector can also receive trigger input and send/receive digital auxiliary I/O signals to/from third-party I/O devices.
VGA/USB	Not Supported ⚠️ **WARNING:** Keep the VGA/USB cap in place when the connector is not in use to maintain IP67 sealing and protect the scanner from dust or electrostatic discharge.
Ethernet connector	Provides connectivity between the scanner and computer on the network.

1. Connect an external power supply and third-party I/O devices to your digital I/O and power connector.

2. Connect your network or your computer (peer-to-peer) to the scanner's Ethernet connector using a network cable with an M12 8-pin X-coded connector on one end.

3. Connect the RJ45 connector of the cable to the network connector of your network/computer.

After connecting to the network, configure the scanner to communicate with your network or computer.

> **NOTE:** Cap the Ethernet connector to maintain IP67 conformity if the network connection is not in use.

Installing a C-Mount Lens

Install a C-Mount lens onto the scanner and secure the IP lens cover to maintain IP67 conformity.

> **NOTE:** Consider wearing gloves while installing the lens to avoid fingerprints or dust. Do not clean with an alcohol-based cleaning solution or fluids directly onto the lens. Instead, use a can of compressed air or a lens cleaning cloth to remove fingerprints or dust.

1. Disconnect the power from the scanner.

2. If attached, unscrew the IP lens cover from the scanner.

3. Screw the lens onto the lens enclosure until it is firmly in place.

4. Slide the IP lens case over the lens, and screw it into the housing of the scanner until it is firmly in place.
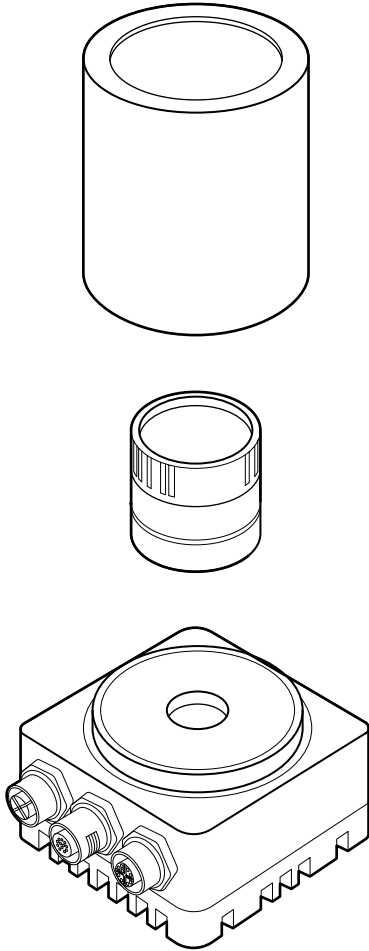
NOTE: The lens cover and connector cap must be in place to maintain IP67 conformity.

5. Reconnect the power to the scanner.

Electrical Installation

It features seven optically isolated auxiliary signals, with four inputs supporting both sinking and sourcing configurations and three outputs supporting sinking configurations up to 24 V.

IO Specification

The following table outlines the specifications and expected behavior of the FS80's Opto-isolated Output Signals and Opto-isolated Input Signals.

Table 6 IO Specification

Signal Type	Specification	Value
Opto-Isolated Output Signals	Operating Voltage	24 V (26 V absolute maximum)
	Sink Current	50 mA maximum
	Maximum Leakage Current	1 µA @ 24 mA 1 mA @ 26 mA
	On Voltage	0.4 V @ 2 mA 1.1 V @ 25 mA 1.5 V @ 50 mA
	PTC[1] Fuse Maximum, time-to-trip	1 sec @ 0.5 A
	Off to On Response	2 µs to reach 4 V[2]
	On to Off Response	50 µs to reach 11 V[2]
Opto-Isolated Input Signals	Operating Voltage	26 V (24 V absolute maximum)
	Input Current (sink or source)[3]	3.5 mA maximum[4], 1 mA minimum[5]
	On Voltage Level	> 11 V
	Off Voltage Level	< 4 V
	Off to On Response	6 µs
	On to Off Response	80 µs

NOTE:

- [1]This PTC is an automatically resetting fuse.

- [2]Occurs when the output is pulled to 24 V using 1 kΩ.

- [3]This measurement is the same in both sinking and sourcing configurations.

- [4]The maximum input current at the maximum On voltage. The connected device must not limit the current to a lower value.

- [5]The minimum input current at the minimum On voltage. This is used to calculate the bleeding resistor needed for a 2-wire proximity sensor.

Integrating Auxiliary Interfaces and Signals

The FS80 supports device connectivity and configuration using the auxiliary I/O interface. The auxiliary IO interface connects output signals to sourcing and sinking inputs using external pull-up resistors.

Connecting to the Auxiliary IO Interface

The FS80 has an auxiliary I/O interface with seven optically isolated auxiliary signals.

- Four inputs support sinking and sourcing configurations and can receive 24 V.

- Three outputs support sinking configurations and operate at up to 24 V nominal. If you connect one of the outputs in a sourcing configuration, the other two outputs are no longer available.

NOTE: Sinking and sourcing concepts refer to conventional current flow, which means current flows from the positive potential toward the negative potential. A sinking device provides a path to sink current towards the ground or the return path; it does not provide power. A sourcing device provides a path that sources current and a path from the power source.

In the following diagram, the device on the right is the sourcing device, and the device on the left is the sinking device.

Figure 1   Source and Sink Device Diagram
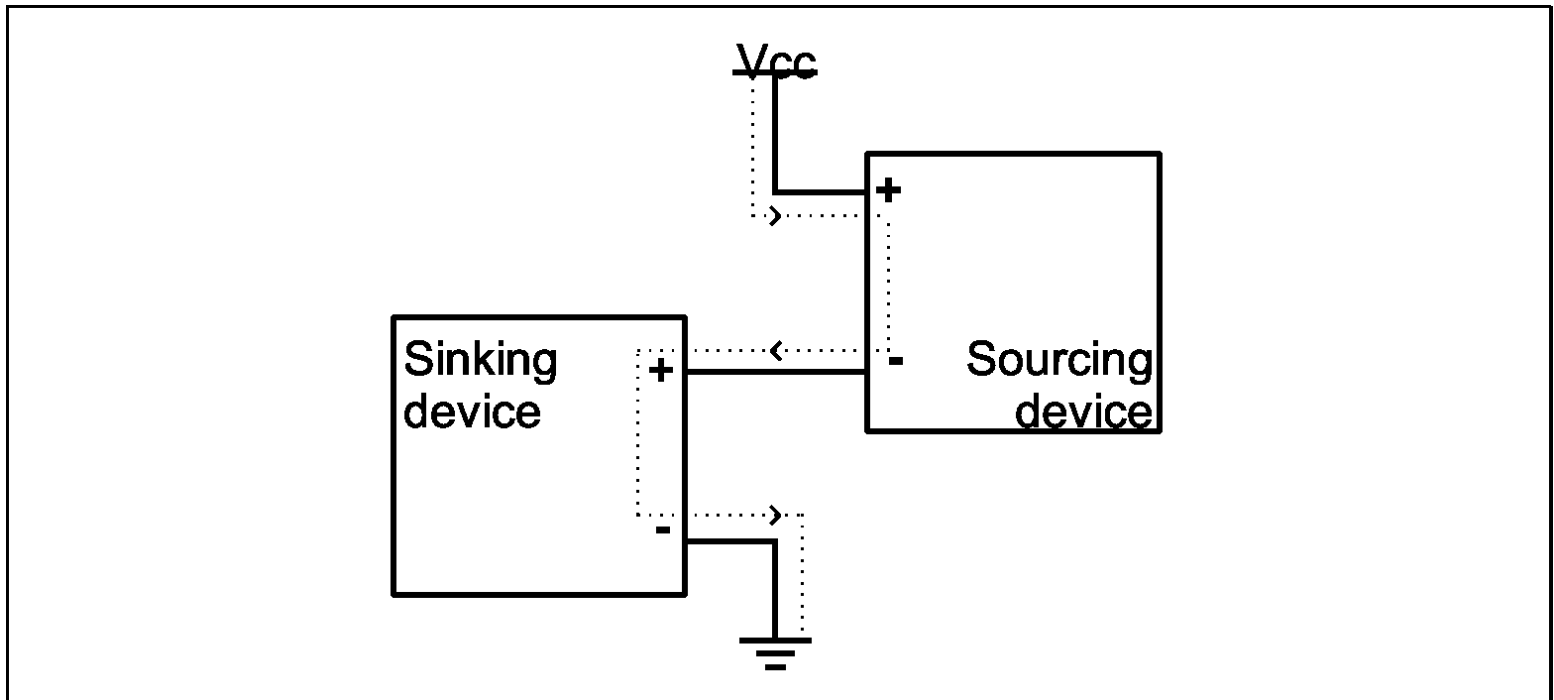
> **NOTE:** When setting up auxiliary I/O, ensure you configure the GPIO pins in Aurora Focus.

Auxiliary Output Signal Connections

Integrate external devices with the scanner's auxiliary output signals, which interface with PLC input modules and inductive loads such as relays. These NPN-type sinking outputs need an external power source and typically operate in a sinking configuration with shared common pins (AUX_OUT_COMMON). When on, the circuit closes, allowing current flow; when off, it opens, stopping the current.

Add 3 KOhms pull-up or pull-down resistors for predictable voltage levels. The signals handle up to 24 V and 50 mA, with resettable fuses for protection. The outputs are optically isolated from power and control signals but not from each other. Detailed connection procedures are available for third-party devices.

Connecting Devices to the Auxiliary Output Signals

Integrate external devices with the auxiliary output signals from the scanner.

The auxiliary output signals can also interface with inductive load devices (such as a relay or a small motor).

The auxiliary output signals are sinking outputs based on an NPN-type transistor. They need to be connected to an external power source because they cannot provide voltage to drive a device independently. They are typically connected in a sinking configuration because they only have one dedicated pin (AUX_OUT0, AUX_OUT1, AUX_OUT2, respectively) and share their other pin (AUX_OUT_COMMON). So, typically, a sourcing device is connected to its dedicated pin, and the return path connects to the common pin. The exact connection between the output signal, the connected device, and the power source depends on the type of device to which you connect.

Figure 2 Sourcing Devices to Sinking Auxiliary Output Signals
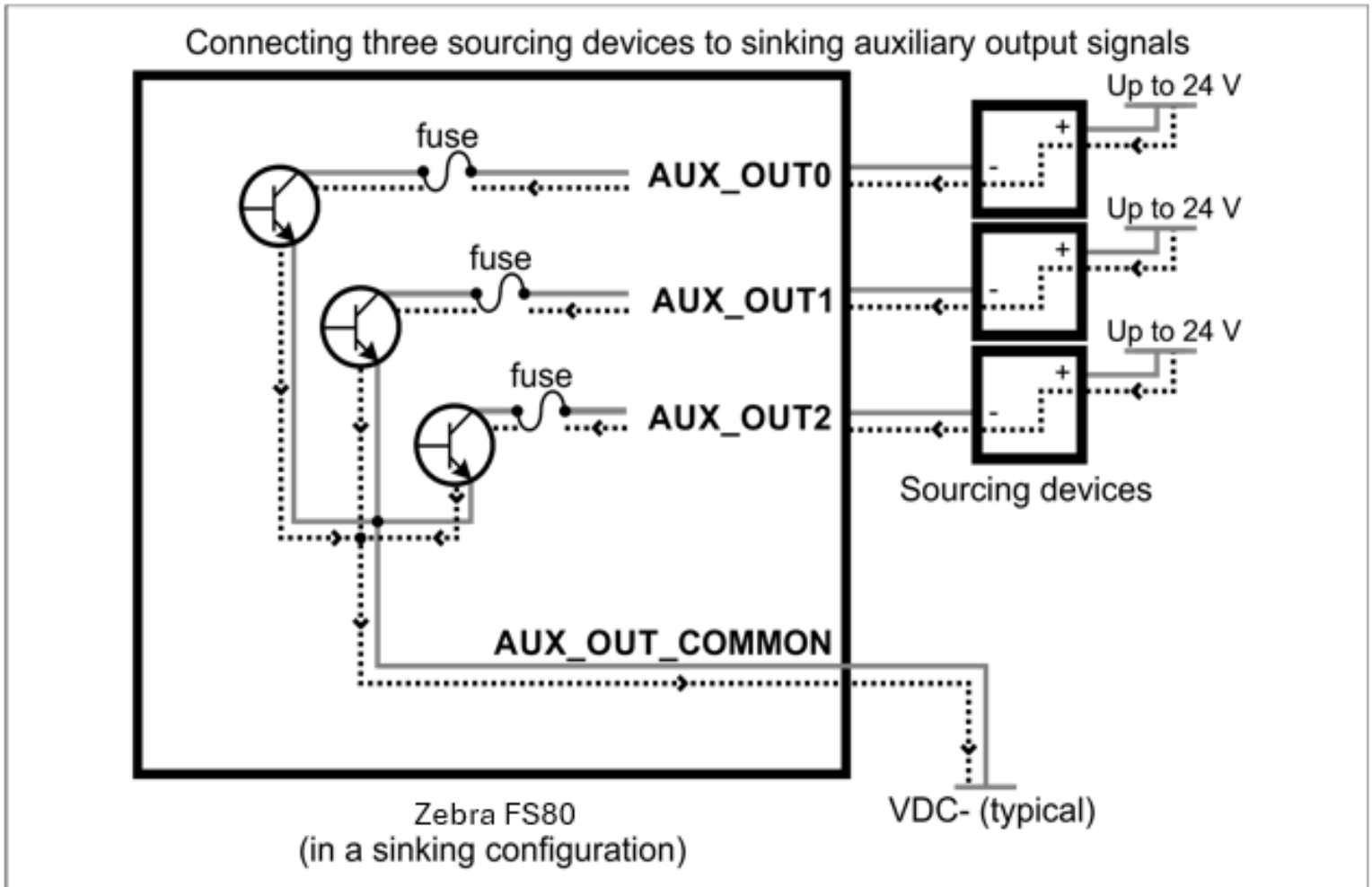
You can also connect a single auxiliary output signal in a sourcing configuration, such that the common pin is connected to a sinking device, and the dedicated pin is connected to the power supply. However, the other two auxiliary output signals are unavailable in this configuration. The exact connection between the output signal, the connected device, and the power source depends entirely on the type of device to which you connect.

Figure 3   Soucing Auxiliary Output Signal to a Sinking Device
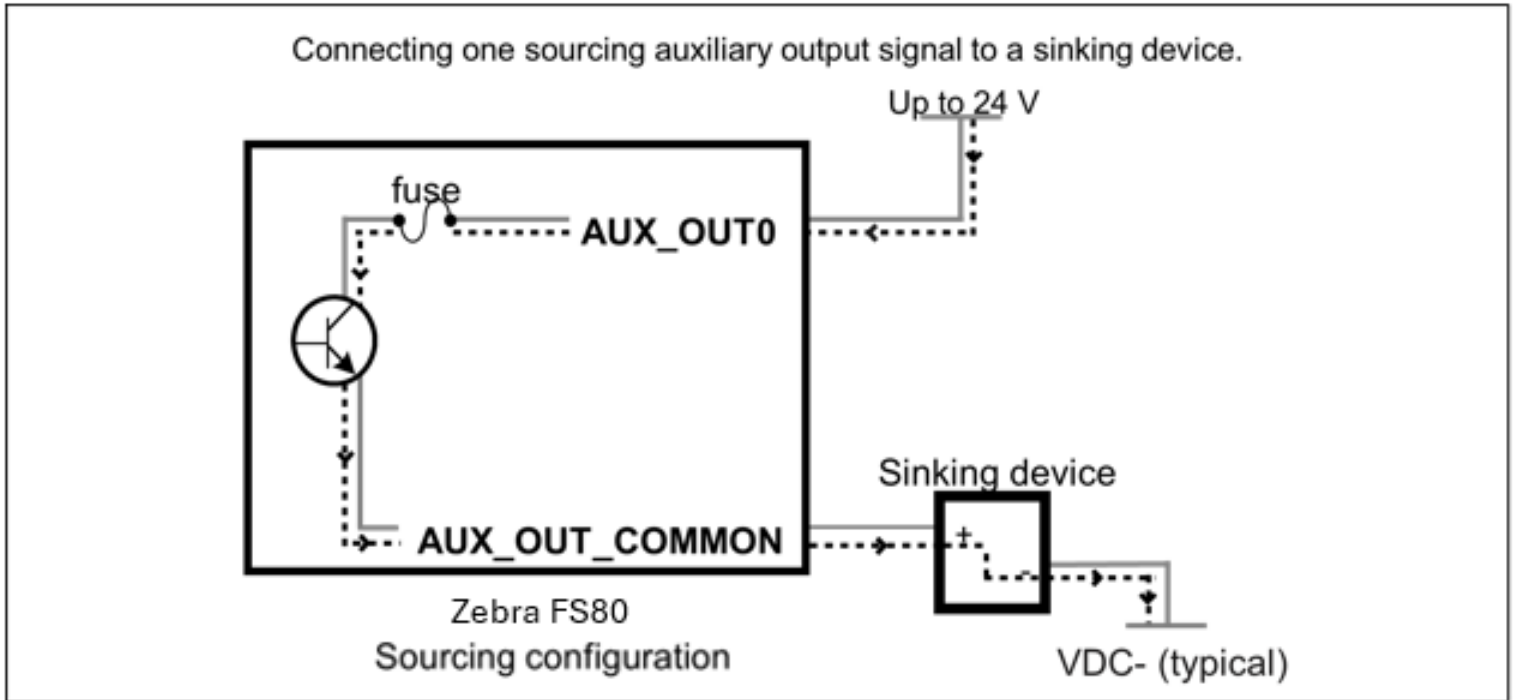
When an auxiliary output signal is on, the circuit between its AUX_OUT pin and AUX_OUT_COMMON pin is closed, allowing current to flow from the AUX_OUT pin to the AUX_OUT_COMMON pin if the AUX_OUT pin is attached to a power source or a sourcing device. When an auxiliary output signal is off, the circuit between the AUX_OUT and AUX_OUT_COMMON pins of the signal is open, and no current flows through.

IMPORTANT: The power source must be provided externally.

When the auxiliary output signal is attached to a device, observe the following:

Table 7   Observed Voltage

Connection	Observed At	Observed Voltage	
		Signal on (closed so current can flow from AUX_OUT to AUX_OUT_COMMON pin)	**Signal off (open so current cannot flow from AUX_OUT pin to AUX_OUT_COMMON pin)**
The sourcing device is attached to the AUX_OUT pin, and the return path is attached to the AUX_OUT_COMMON pin	AUX_OUT pin	Low	Floating (the sourcing device imposes voltage level)
	AUX_OUT_COMMON pin	Low	Low

Table 7   Observed Voltage (Continued)

Connection	Observed At	Observed Voltage	
		Signal on (closed so current can flow from AUX_OUT to AUX_OUT_COMMON pin)	Signal off (open so current cannot flow from AUX_OUT pin to AUX_OUT_COMMON pin)
The power supply is attached to the AUX_OUT pin, and the sinking device is attached to the AUX_OUT_COMMON pin.	AUX_OUT pin	High	High
	AUX_OUT_COMMON pin	High	Floating (the sinking device imposes voltage level)

Auxiliary output signals only present one predictable voltage level for a given configuration: a low voltage level in a sinking configuration or a high voltage level in a sourcing configuration. Their other output state is, by default, floating. So, if you need to connect to a digital device that requires two predictable voltage levels to operate, pull-up or pull-down circuitry must be added.

Figure 4   External Pull-up Circuitry
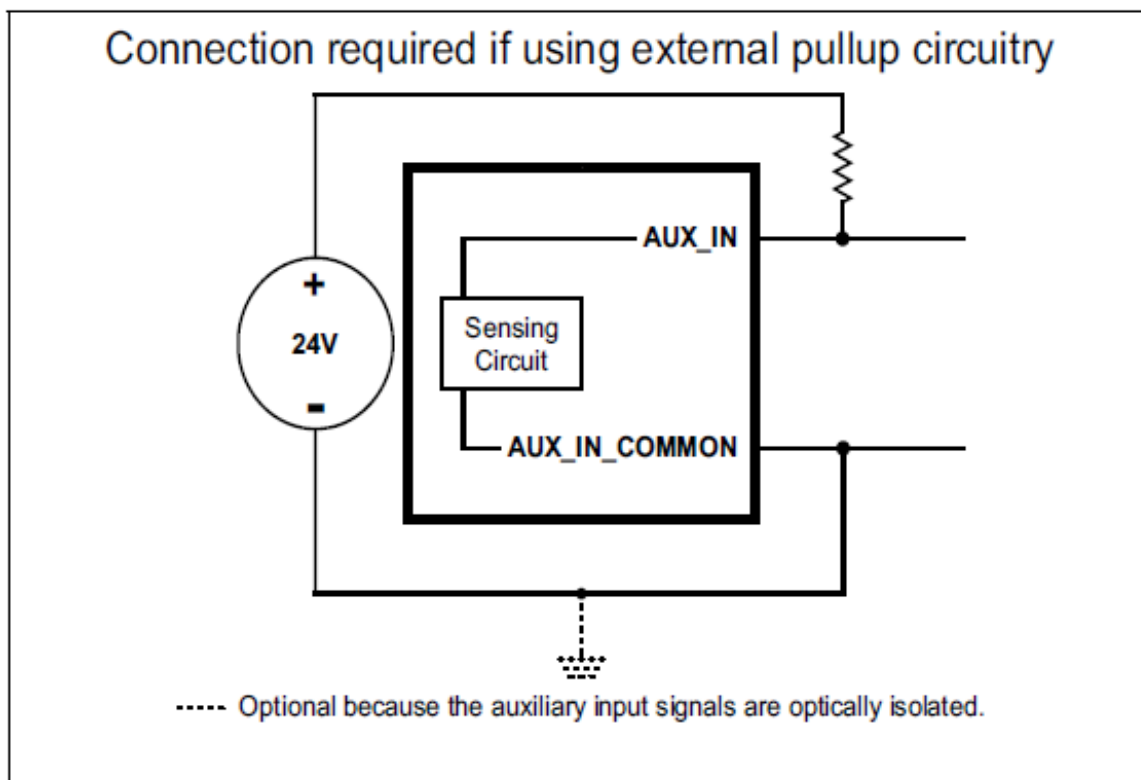
Implement a resistance value of 3 KOhms to protect the scanner. Auxiliary output signals can sink up to 50 mA; use the documentation of your input to calculate the required resistance for your external pull-up/pull-down resistor (if necessary).

In the previous example, the pull-up circuitry causes an inversion if the device's input is connected to the AUX_OUT pin. When the auxiliary output signal is on, the circuit between its AUX_OUT

and AUX_OUT_COMMON pins is closed, and current flows from the power source to the AUX_OUT_COMMON pin. As a result, the observed voltage at the AUX_OUT pin is low. When the auxiliary output signal is off, the circuit between its AUX_OUT and AUX_OUT_COMMON pins is open, and current flows from the power source to the device's input. In this state, the pull-up's resistor value limits the current.

⚠ **WARNING:** The auxiliary output signals are compatible with voltages up to 24 V. However, by default, they offer low resistance. Current flows directly through them when they are on (their circuit is closed). Ensure that the circuit created between the power source, the output signal, the connected device, and the return path does not cause more than 50 mA to flow through the signal.

As a precaution, the auxiliary output signals are individually fuse-protected up to 50 mA. The device uses resettable fuses. The fuses protect the scanner if you accidentally connect the corresponding auxiliary output signal to a device that sources/sinks more current than the scanner can safely transmit. If more than 50 mA of current goes through your scanner, the fuse eventually trips. After disconnecting your scanner, the fuse resets after it sufficiently cools.

The following diagram depicts the scanner's on-board fuse.

Figure 5   On-Board Fuse
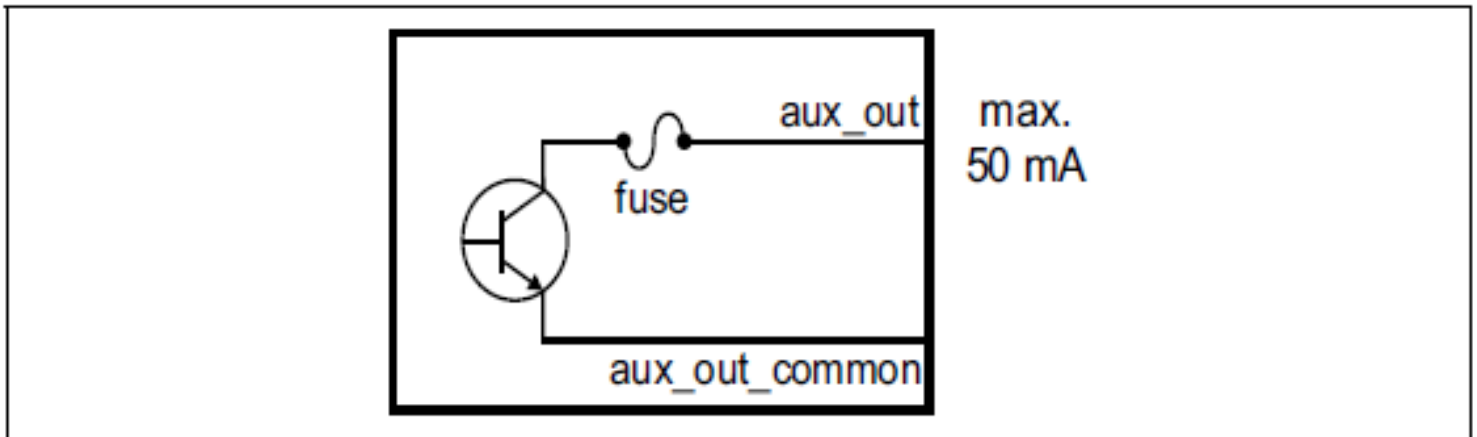
Optically Isolated Output Signals

Ensure the output signals are optically isolated to protect against voltage spikes and electrical noise.

The device's auxiliary output signals are optically isolated from the power and the auxiliary input signals. However, they are not optically isolated as they share a common pin (AUX_OUT_COMMON).

Connecting to Third-Party Devices

Establish a connection with third-party devices using the auxiliary output signals.

The following subsections detail the procedures for connecting common third-party devices to the scanner's auxiliary output signals. Ground is shown for reference in case you need to reference your return path to ground.

Power represents a nominal voltage of up to 24 V (+/- 10%).

The signal names in this section are shortened to fit within the diagrams: from AUX_OPTOIND_OUTn to AUX_OUT and from AUX_OPTOIND_OUT_COMMON to AUX_OUT_COMMON.

Connecting an Auxilary Output Signal to a Sourcing Input

Connect an auxiliary output signal to a sourcing input.

Figure 6 Auxiliary Output Signal to a Sourcing Input
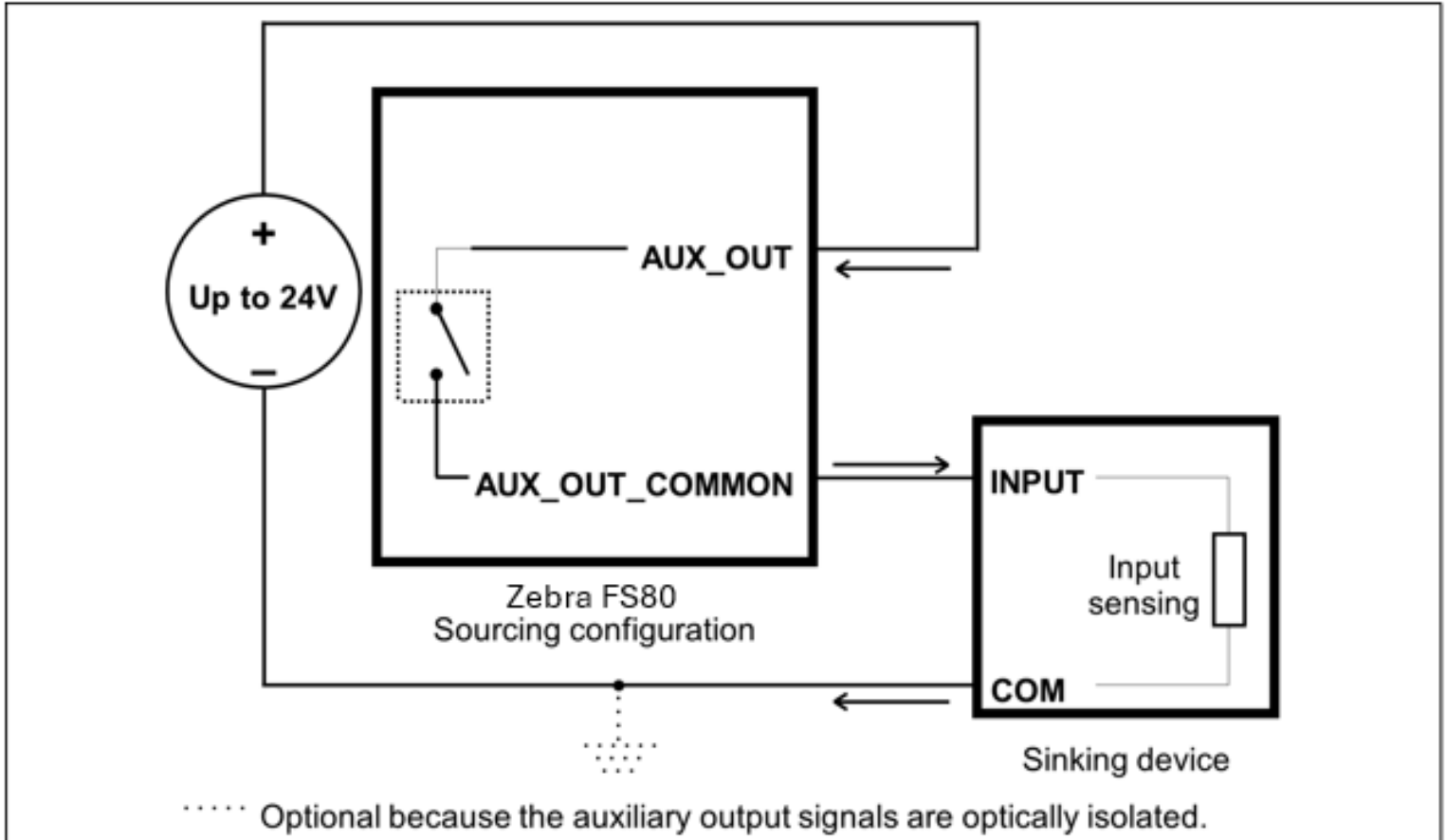
NOTE: Use the same connection when connecting a resistive load-sourcing device.

Connecting an Auxiliary Output Signal to a Sinking Input

Connect an auxiliary output signal to a sinking input.

In this case, use the pull-up circuitry to source the current to the sinking input.

Figure 7   Auxiliary Output Signal Sinking Input
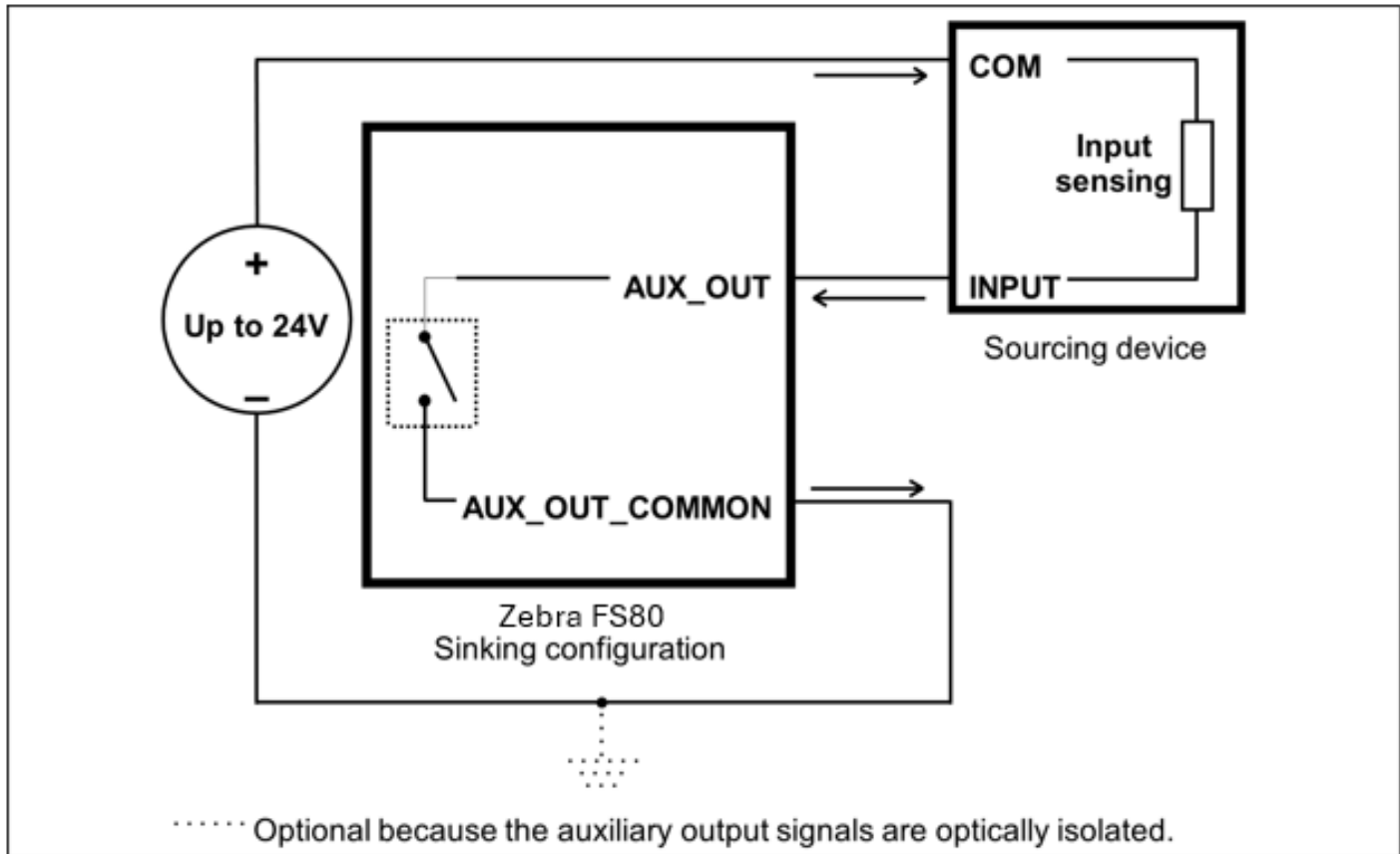
> **IMPORTANT:** In this configuration, the other two auxiliary output signals are not available.

> **NOTE:** Use the same connection when connecting a resistive load-sinking device.

Connecting to a Sinking Input Using an External Pull Up Resistor

Add a pull-up resistor to ensure proper voltage levels when connecting to a sinking input.

Connect an auxiliary output signal to a sinking input to preserve the three available output signals.

> **NOTE:** An external pull-up resistor is required for this configuration.

The scanner's auxiliary output signals can sink up to 50 mA. Use the documentation of your sinking device to calculate the required resistance for your external pull-up resistor (if necessary).

Figure 8   Sinking Input Using an External Pull-up Resistor
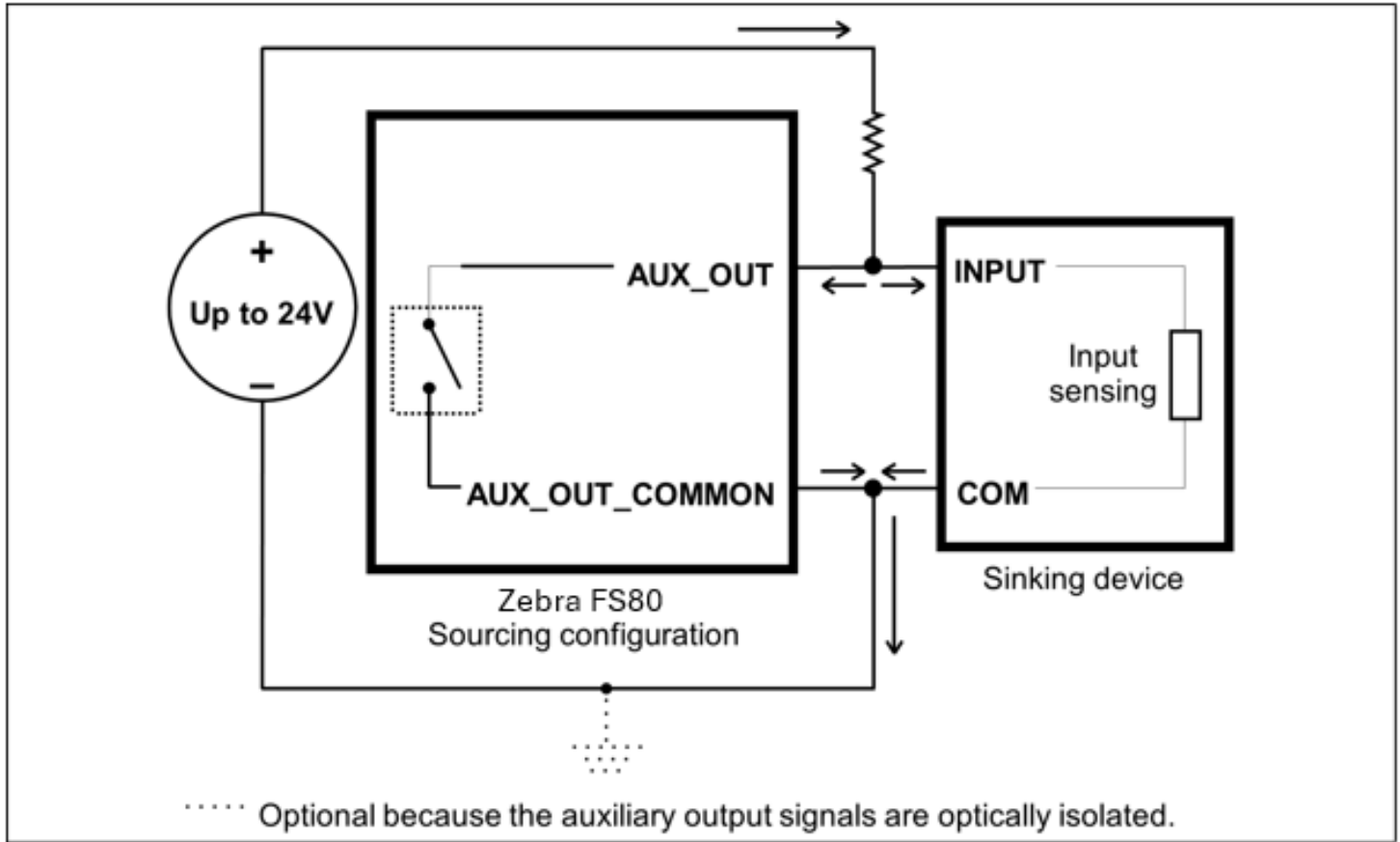
Connecting an Auxiliary Output Signal to an Inductive Load Input

Connect the scanner's auxiliary output signal to an inductive load input.

An inductive load device, such as a traditional relay, requires a flyback diode to protect the scanner from over- and undervoltage. Connect this diode to your inductive load device's input and voltage source.

Figure 9   Auxiliary Output Signal to an Inductive Load
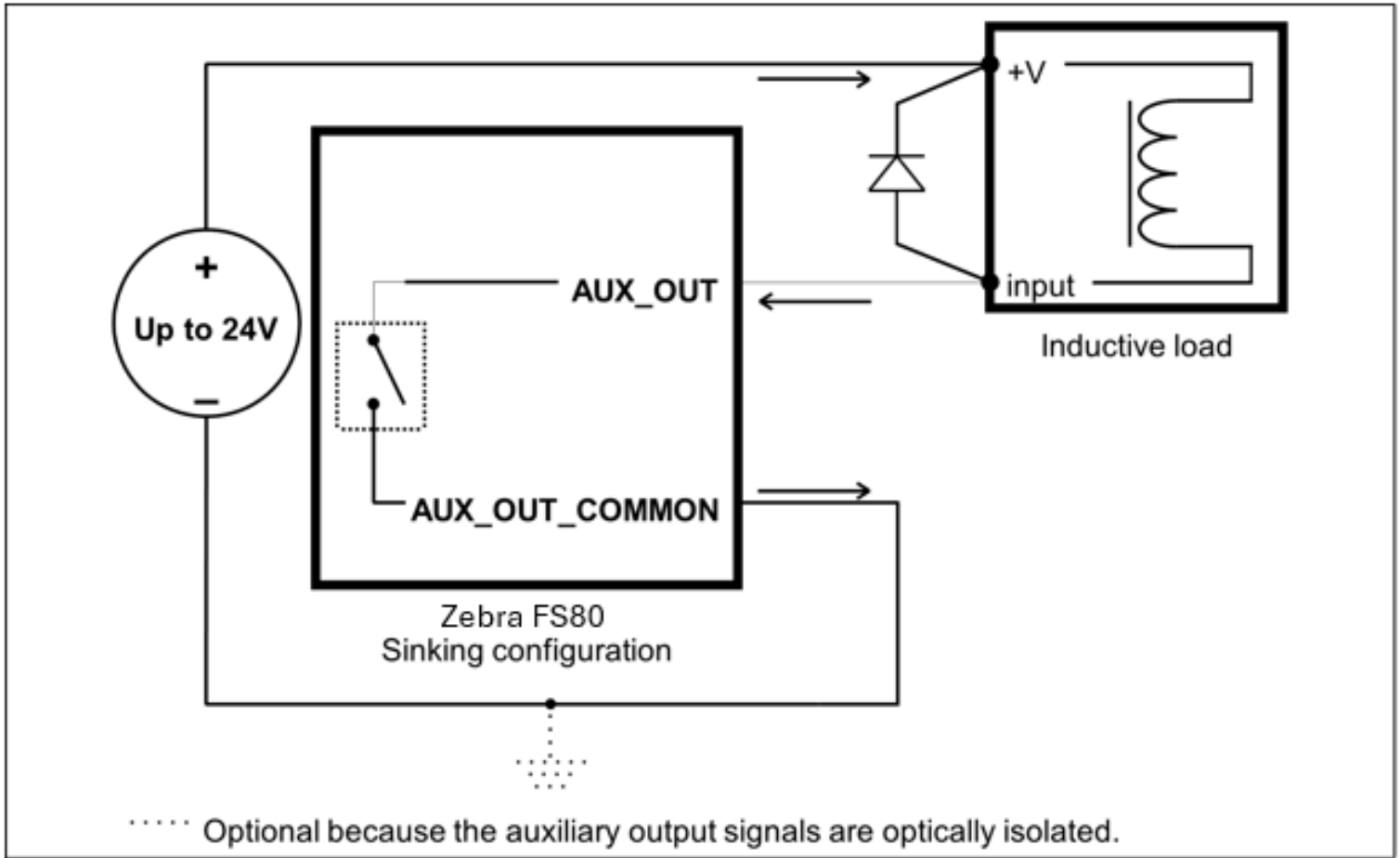
Auxiliary Input Signal Connections

Adding pull-up resistors when connecting an output device to an auxiliary input signal ensures proper voltage levels on input signals. Attach an external pull-up resistor between the voltage source and the AUX_IN pin, particularly for sinking configurations. Choose a resistor to avoid overcurrent.

When integrating proximity detectors, auxiliary inputs detect current flow between the AUX_IN and AUX_IN_COMMON pins, signaling On or Off. Each input (AUX_IN3, AUX_IN4, AUX_IN5, AUX_IN6) shares the AUX_IN_COMMON pin. Depending on the device type, all inputs must be in the same configuration (sinking or sourcing).

Connecting Devices to the Auxiliary Input Signals

Integrate external devices with the scanner's auxiliary input signals.

The scanner's auxiliary input signals can interface with various devices (such as proximity detectors). The auxiliary input signals are only detected when current flows between their AUX_IN pin and AUX_IN_COMMON pin. Therefore, an auxiliary input signal must be connected to a device that controls the current flow. When current is detected, the signal is reported as on; otherwise, it is reported as off. In software, you can generate an interrupt the moment the current is detected.

Each of the four available auxiliary input signals has one dedicated pin (AUX_IN3, AUX_IN4, AUX_IN5, and AUX_IN6, respectively) and shares its other pin (AUX_IN_COMMON) with the other auxiliary input signals.

You can connect the auxiliary input signals in a sinking or sourcing configuration. The auxiliary input signals share a common pin and must be in a sinking or sourcing configuration. The exact connection between the input signal, the connected device, and the power source depends entirely on the type of device you connect.

Adding Pull Up Circuitry

Add pull-up resistors to ensure proper voltage levels on input signals.

In some cases, you must add pull-up circuitry to connect an output device to an auxiliary input signal; specifically, you must attach an external pull-up resistor between the voltage source and the AUX_IN pin.

This is required when connecting the AUX_IN_COMMON pin to the electrical return path, and the third-party output device is in a sinking configuration.

In this case, select a resistor value that does not overcurrent the output device and provides enough current and voltage to the scanner's auxiliary input signals.

NOTE: Use a resistor with an appropriate power rating for your circuit.

Figure 10   External Pull-up Circuitry

Connection required if using external pullup circuitry

----- Optional because the auxiliary input signals are optically isolated.
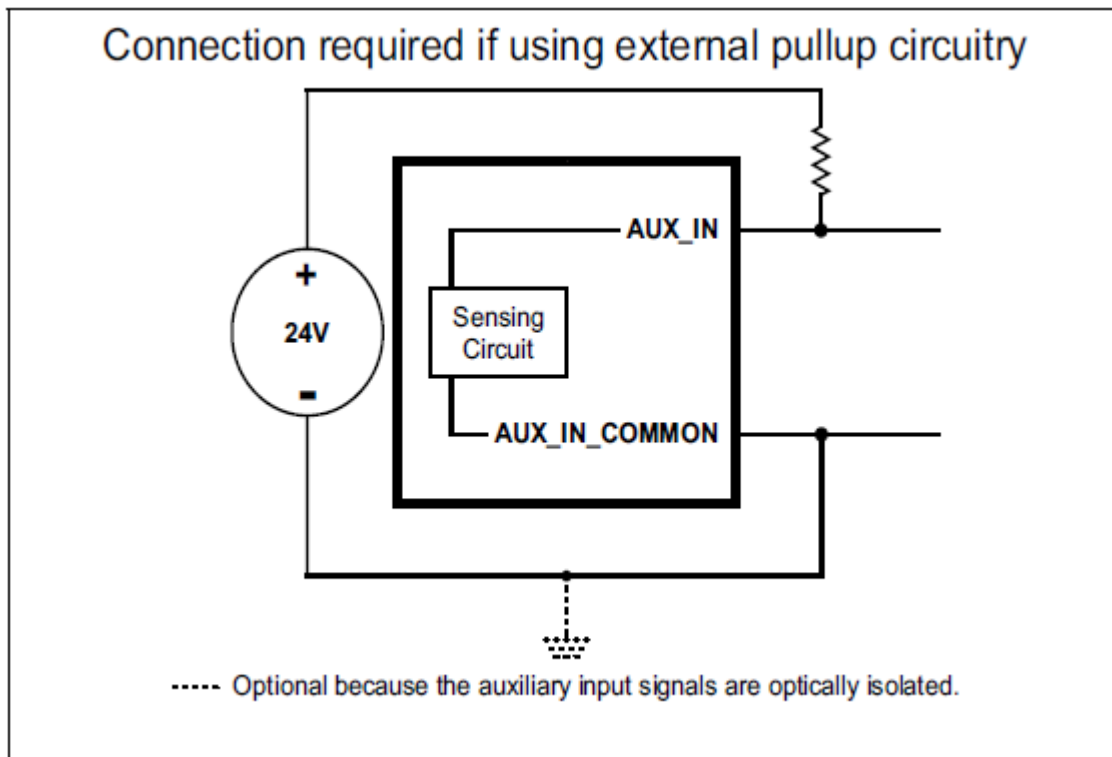
Connecting an External Bleeding Resistor

Add a bleeding resistor to discharge residual voltage or current.

By default, the current flows from the AUX_IN pin to the AUX_IN_COMMON pin (when connected to a sourcing device) or from the AUX_IN_COMMON pin to the AUX_IN pin (when connected to a sinking device). In some cases, the amount of current going through the sensing circuit is insufficient for the connected output device to match its minimum current requirement when the device is in an on or off-state, depending on the configuration of the circuit. Connect a 2.2 kOhm external bleeder resistor to boost the flowing current between the AUX_IN and AUX_IN_COMMON pins.

Figure 11   External Bleeding Resistor
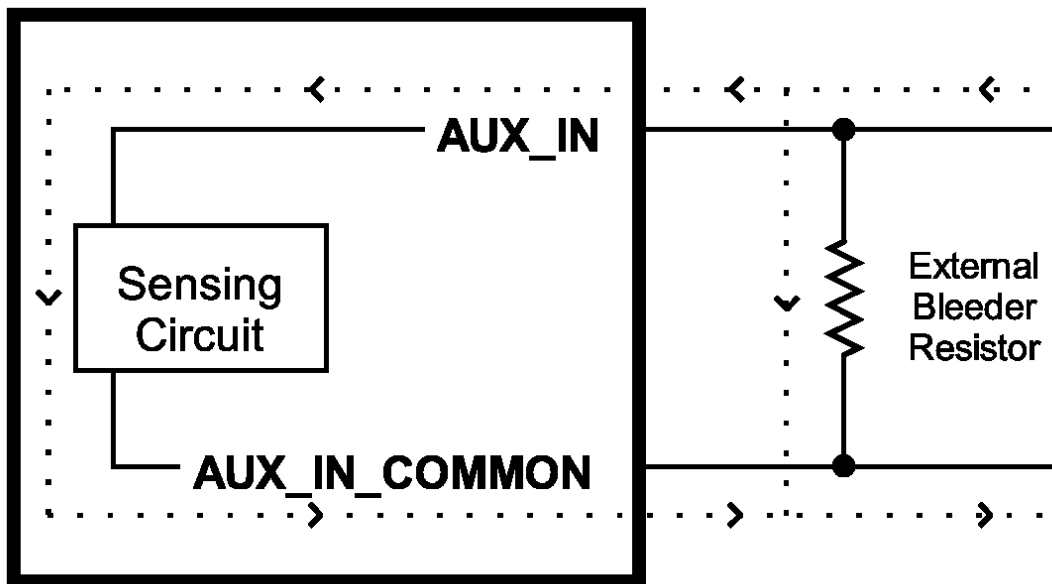
Connecting a Sourcing Output Device to an Auxiliary Input Signal

Connect a sourcing output device to the scanner's auxiliary input signal.

Figure 12 Sourcing Output Device to an Auxiliary Input Signal
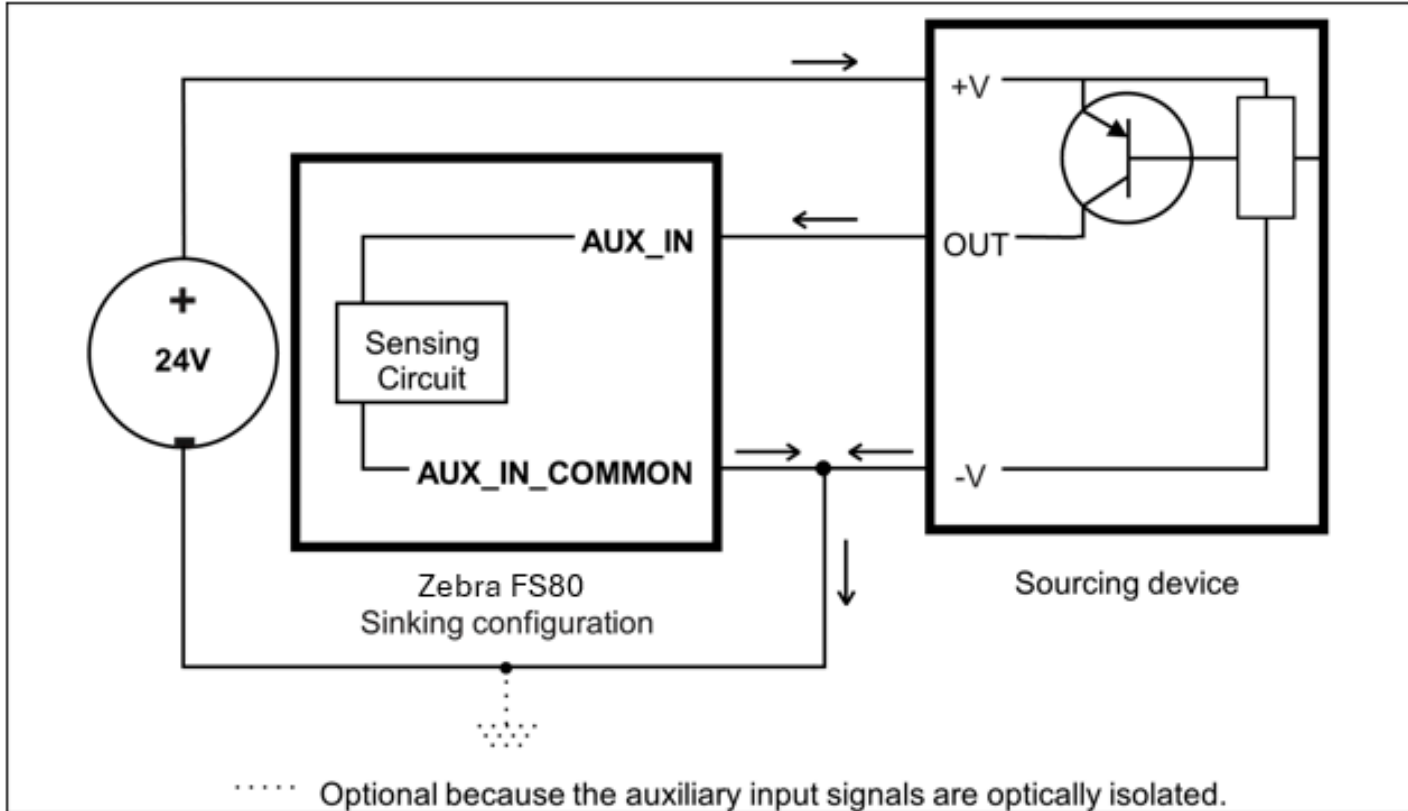
Connecting a Sinking Output Device to an Auxiliary Input Signal

Connect a sinking output device to the scanner's auxiliary input signal.

Figure 13 Sinking Output Device to an Auxiliary Input Signal
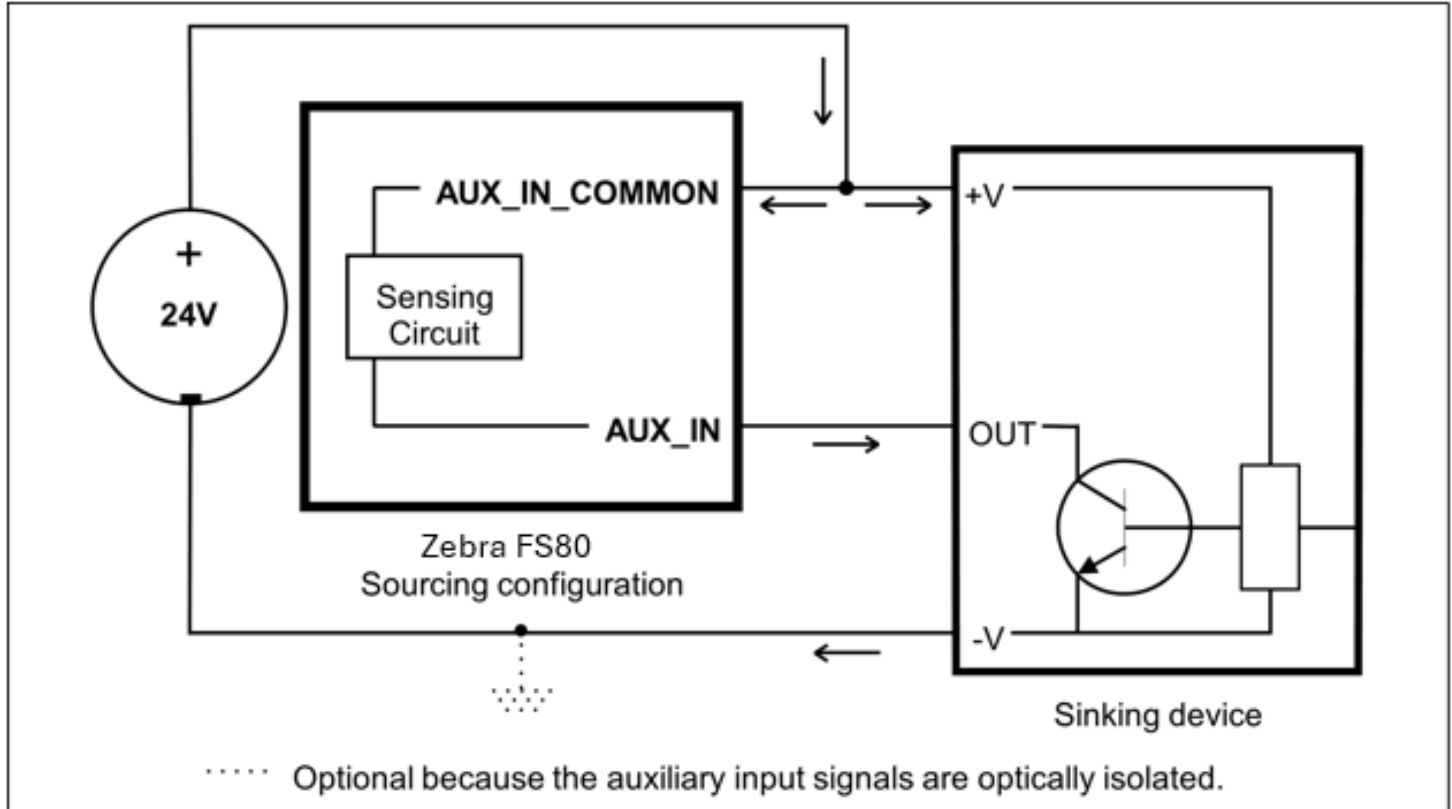
Connecting a 3-Wire PNP Proximity Sensor

Connect a 3-wire PNP proximity sensor (sourcing output) to an auxiliary input signal on the scanner.

Figure 14   3-Wire PNP Proximity Sensor
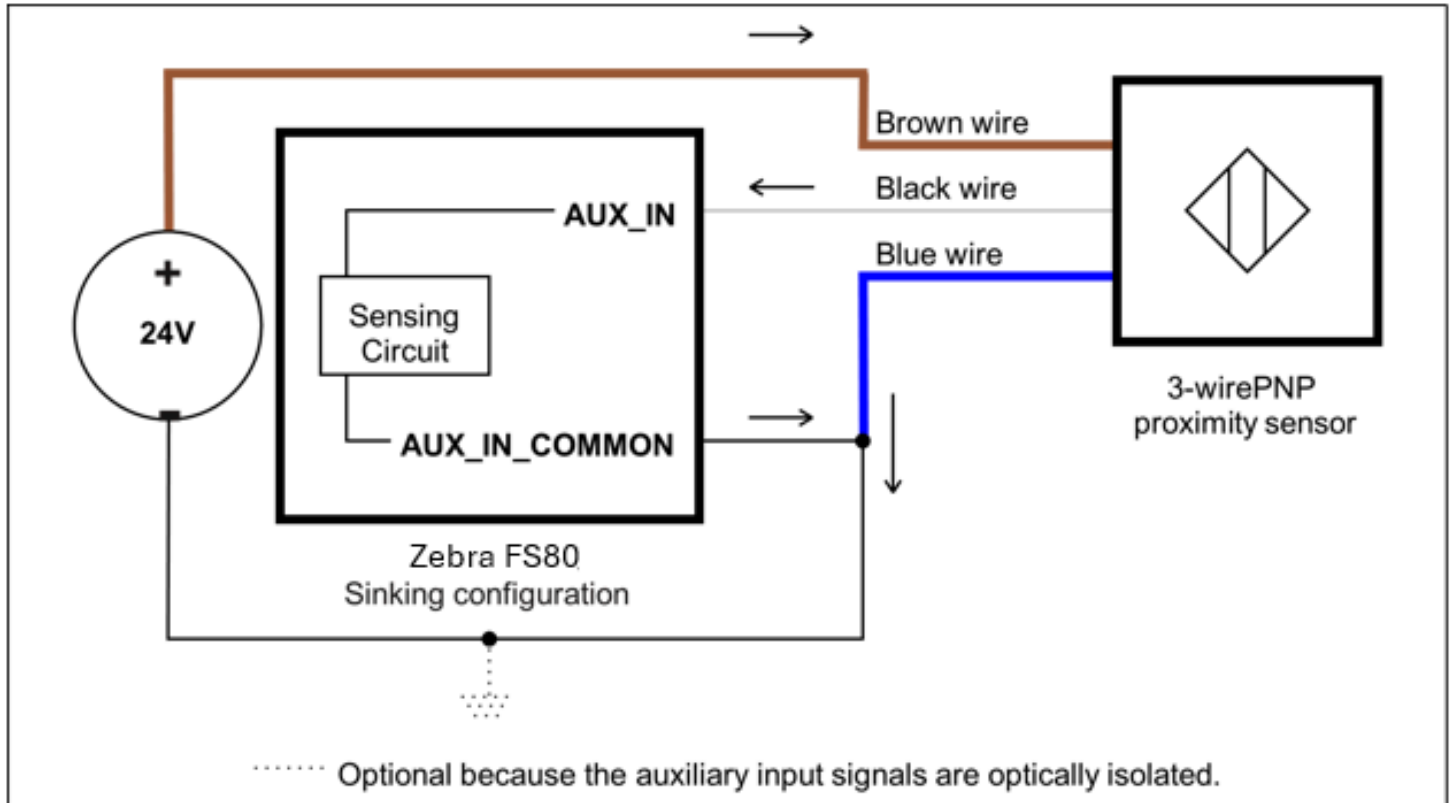
Connecting a 3-Wire NPN Proximity Sensor

Connect a 3-wire NPN proximity sensor (sinking output) to the scanner's auxiliary input.

Figure 15   3-Wire NPN Proximity Sensor
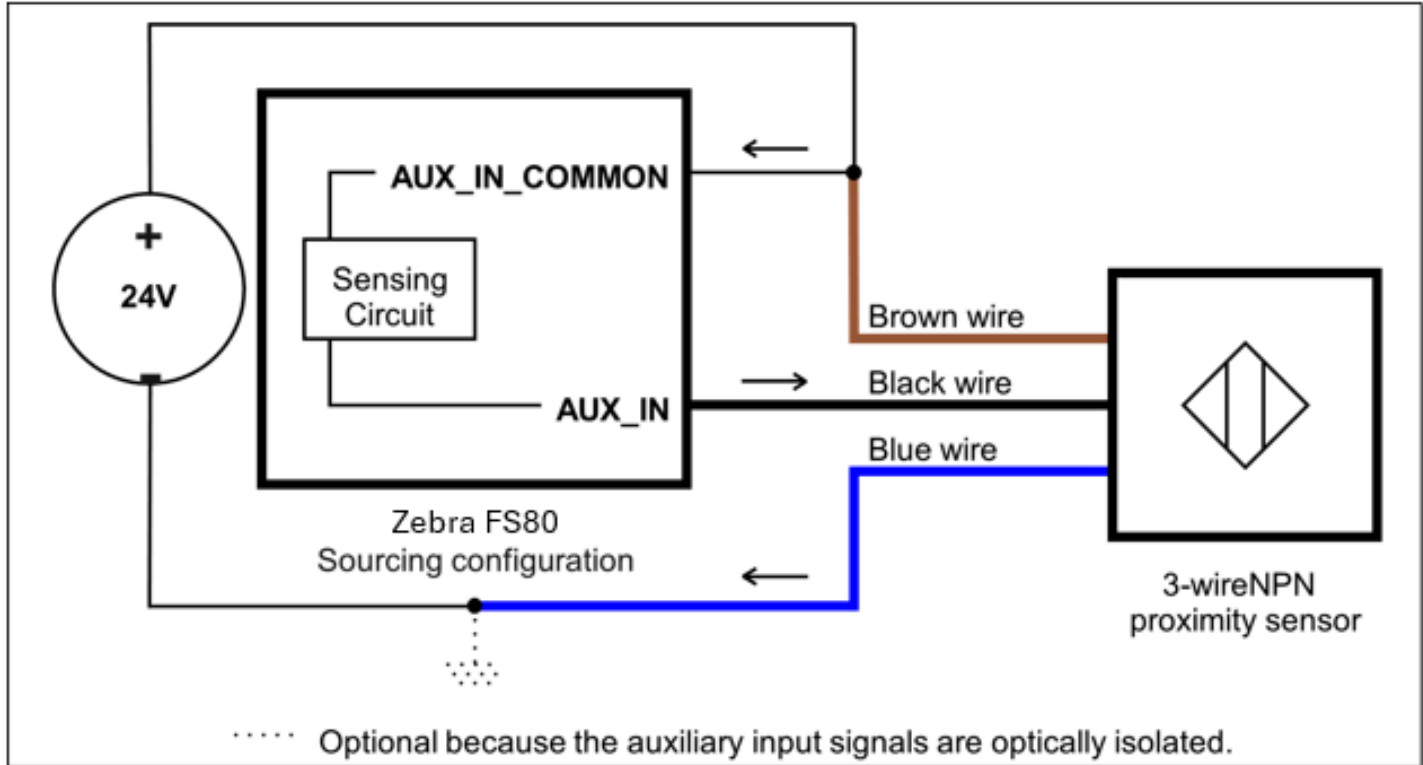
Connecting a 2-wire Proximity Sensor

Connect a 2-wire proximity sensor to an auxiliary input.

Connect a 2-wire proximity sensor to an auxiliary input signal in a sourcing or sinking configuration (on a positive or negative power wire). In both cases, install an external bleeder resistor to ensure a minimum amount of current flows into the proximity sensors and off-state.

- For the auxiliary input signal to source the current (to connect an auxiliary input signal on a positive power wire), connect the 2-wire device to the auxiliary input signal, as shown below. You must also install an external bleeder resistor between the AUX_IN_COMMON pin and the brown wire of the proximity sensor.

Figure 16　2-Wire Proximity Sensor
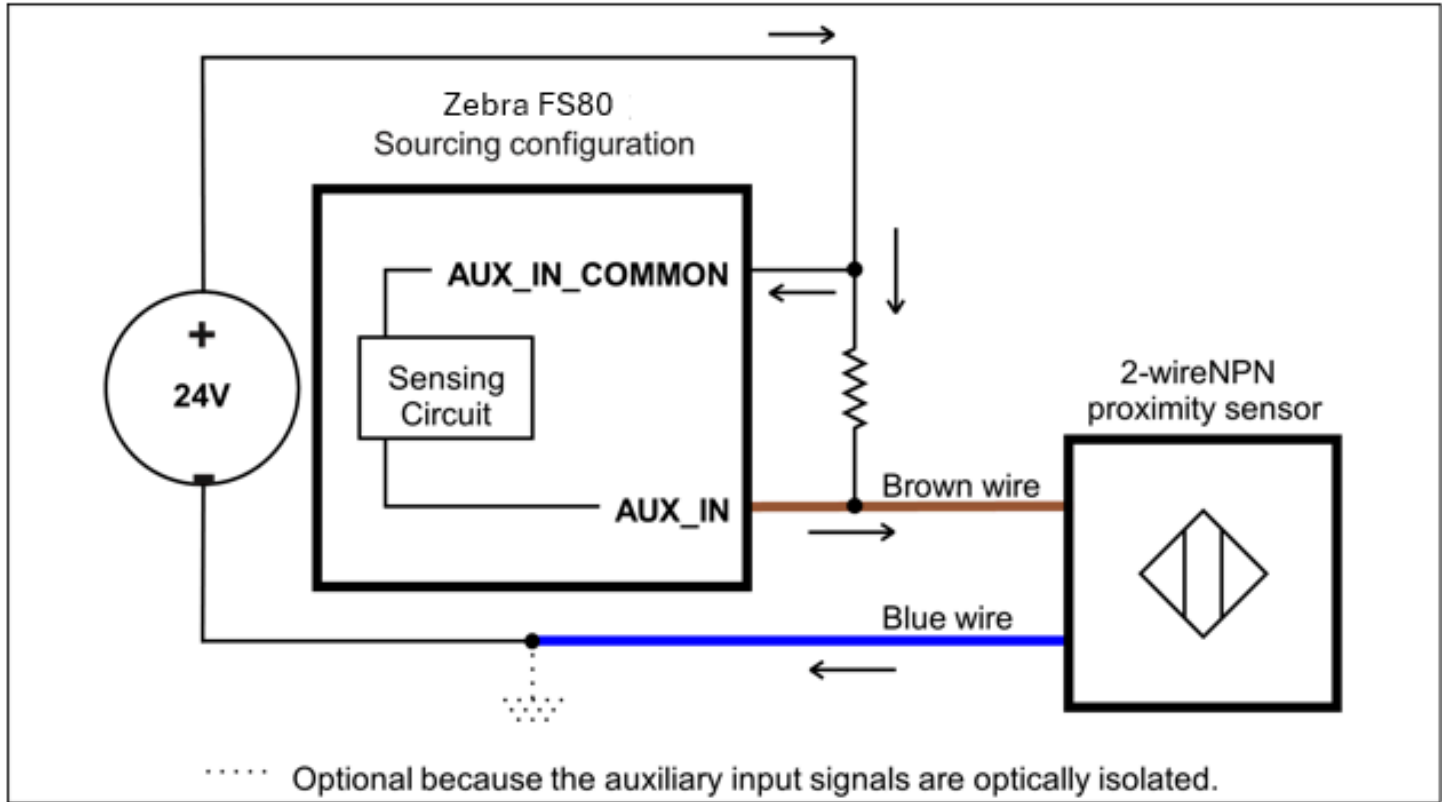
The bleeder resistors should guarantee that the minimal required current is provided to the connected sensor (the third-party device). For details regarding the sensor's current requirements, refer to its documentation.

Use a bleeder resistor with an appropriate power rating for your circuit.

- For the auxiliary input signal to sink the current, connect the 2-wire device to the auxiliary input signal. Install the external bleeder resistor between the blue wire of the proximity sensor and the AUX_IN_COMMON pin.

Figure 17   Bleeder Resistor
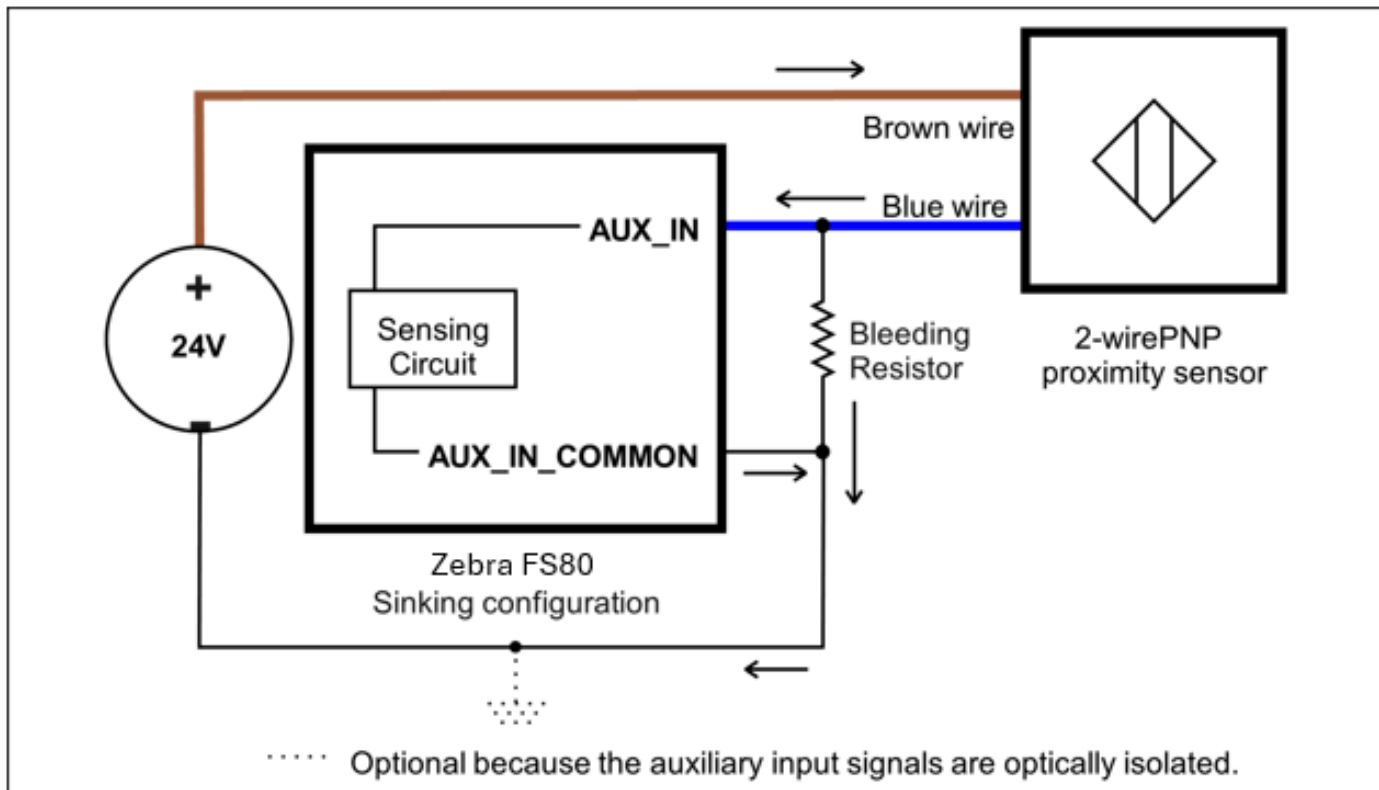
Using the Device

Monitor the four light-emitting diodes (LEDs) to understand the device state. Use Aurora Focus to update the device firmware in Device Settings. After downloading the latest device firmware, connect to the external light accessory using Aurora Focus. For information on mounting the light to the FS80, refer to the Zebra Integrated Multifunction Light (ZIML) Product Reference Guide.

LED Indicators

At least one of the four LEDs on the back of the scanner illuminates while powered on and in use.
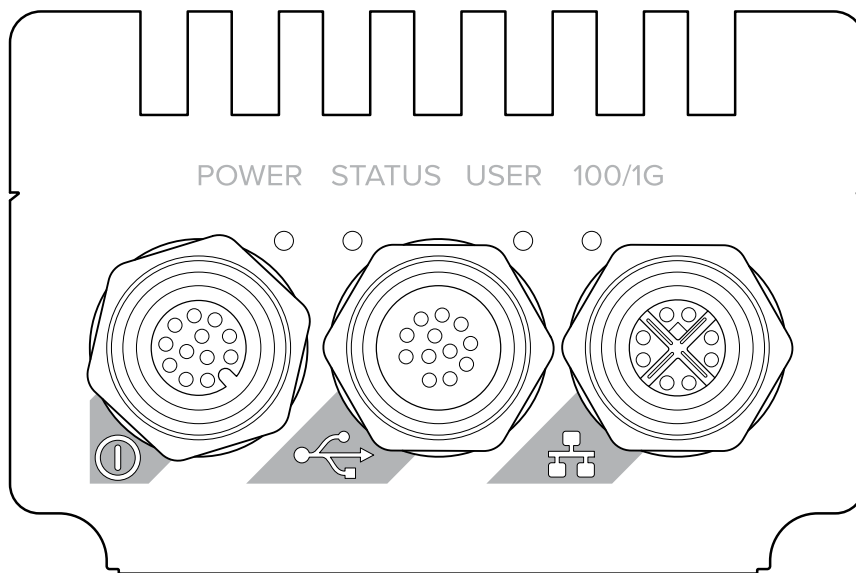
- Power LED and User LED - these two LEDs change as the scanner boots up.
- Status LED - displays the state of general device activity.
- 100/1G Ethernet LED - displays the connection status.

The Power and User LEDs indicate details on the power, temperature, and operating system status.

Table 8   Power and User LEDs

LED Color		Description
Power	**User**	
Off	Off	The device has no power.
Orange	Orange/ Red Blink	A thermal trip is detected.
Orange	Off	BIOS execution is in progress.
Green	Orange/ Off Blink	Overheating detected. Temperature is above the throttle temperature limit.
Green	Off	Operating System is loading.
Green	Orange	The operating system startup is in progress.
Green	Green	The scanner is ready.

The Status LED indicates details on the image sensor and image acquisition.

Table 9   Status LED

LED Color	Description
Off	There is no power, or there is an internal error.
Red/Orange	The image sensor is initializing.
Red/Orange Blink	The image sensor is not detected.
Orange	The device is in an idle state. Zebra Aurora Focus could be waiting for a trigger.
Green	Image acquisition is in progress.

The Ethernet LED indicates details on the scanner's connection to the network.

Table 10   Ethernet LED

LED Color	Description
Off	There is either no activity or a low-speed (10 Mbits) connection between the scanner and the network.
Solid Yellow	There is a link on the 100 Mbits/sec connection.
Blinking Yellow	The 100 Mbits/sec connection has activity.
Solid Green	There is a link on the 1 Gbit/sec connection.
Blinking Green	The 1 Gbit/sec connection has activity.

Updating the Device Firmware

Update the firmware on a connected scanner by viewing Device Settings in Zebra Aurora Focus.

1. Select a device to view its settings.

2. Click the ellipses in the right corner of the **View Devices** and select **Firmware Update** from the drop-down.

Figure 18   FS80 Device Details

3. Select a **FTP/FTPS Server** or **File Based** Firmware Update method

4. Click **Update Firmware** .

NOTE: The FS80 implements a Full or Incremental firmware update based on the current operating system installed on the scanner. The primary difference is the update process's duration and the firmware file's size. A Full Update firmware file is typically 3GB and takes approximately 30 minutes. An Incremental Update firmware file is typically 107MB, requires approximately 3 minutes, and only updates the application version. Refer to the release notes for each firmware file to understand the prerequisites for an incremental upgrade.

Connecting to the Zebra Integrated Multifunction Light

Connect to the Zebra Integrated Multifunction Light using Aurora Focus.

NOTE: The Standard model of the light does not support a laser aimer or beeper.

1. Select the scanner from the **View Devices** screen in Aurora Focus.
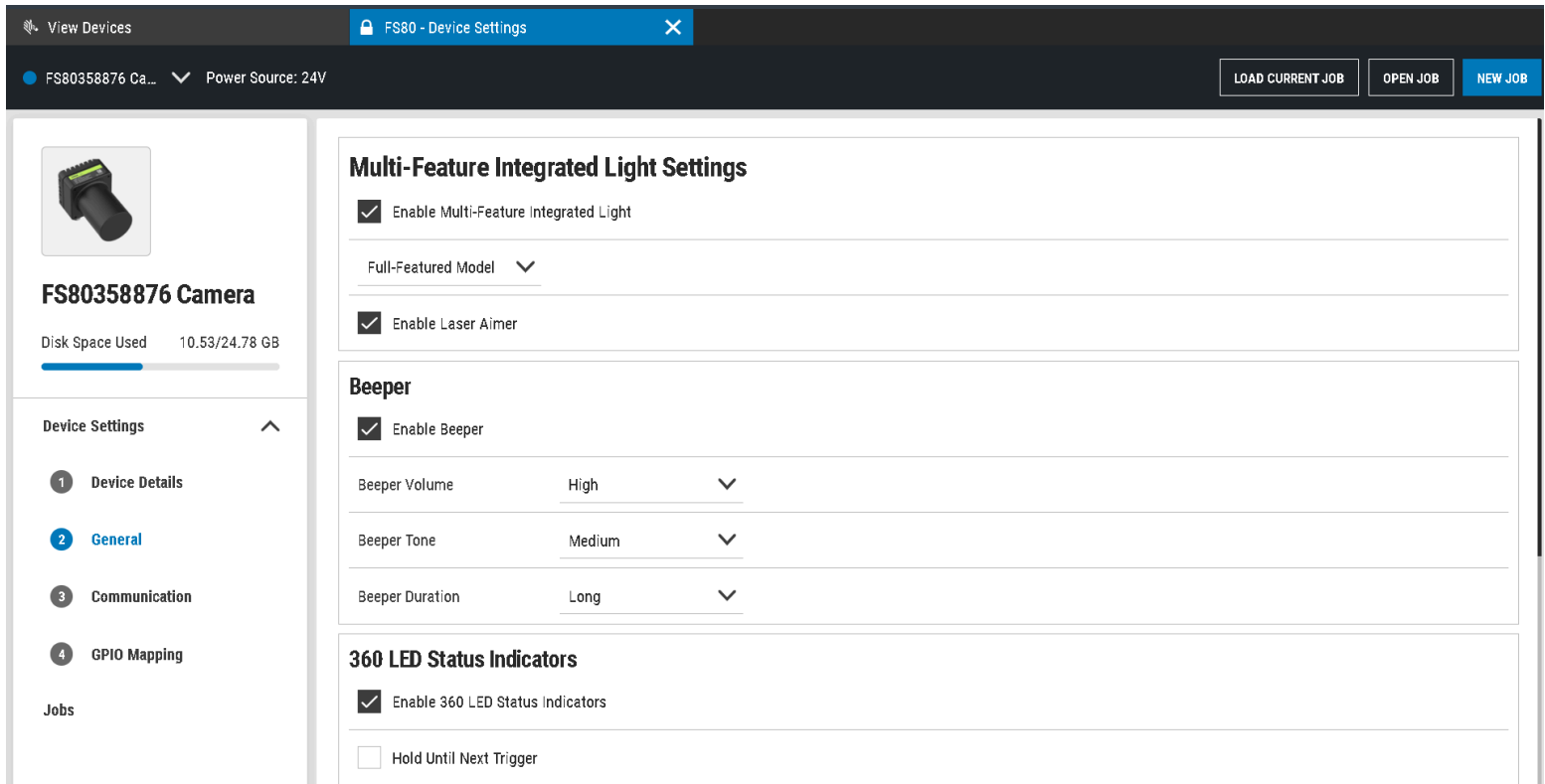
2. Navigate to the **General** tab and click the **Enable Multi-Feature Integrated Light** checkbox.

a) Select **Standard** or **Full-Featured Model** from the drop-down menu based on your configuration.

b) Click the **Enable Beeper** checkbox to configure **Beeper Volume**, **Tone**, and **Duration**.

c) Click the **Enable 360 LED Status Indicators** checkbox to receive feedback from the light upon a successful read.

d) Click the **Hold Until the Next Trigger** checkbox to keep the status LED illuminated (green or red) until the next job result is sent.

e) Configure the **Number of Flashes** and the **Time per Flash (ms)** from the drop-down menu to determine the frequency and duration of the flashes.

3. (Optional) Go to **GPIO Mapping** in **Device Settings** to configure the Pass/Fail output types.

NOTE: OUT1 and OUT2 on the FS80 are reserved for the Zebra Integrated Multifunction Light. The light's output GPIO is configurable for Pass/Fail Output, making OUT2 on the device available for other uses.

4. (Optional) Click ⚙ to configure output settings, such as **Pulse Width** or **Output Delay**, directly on the light.
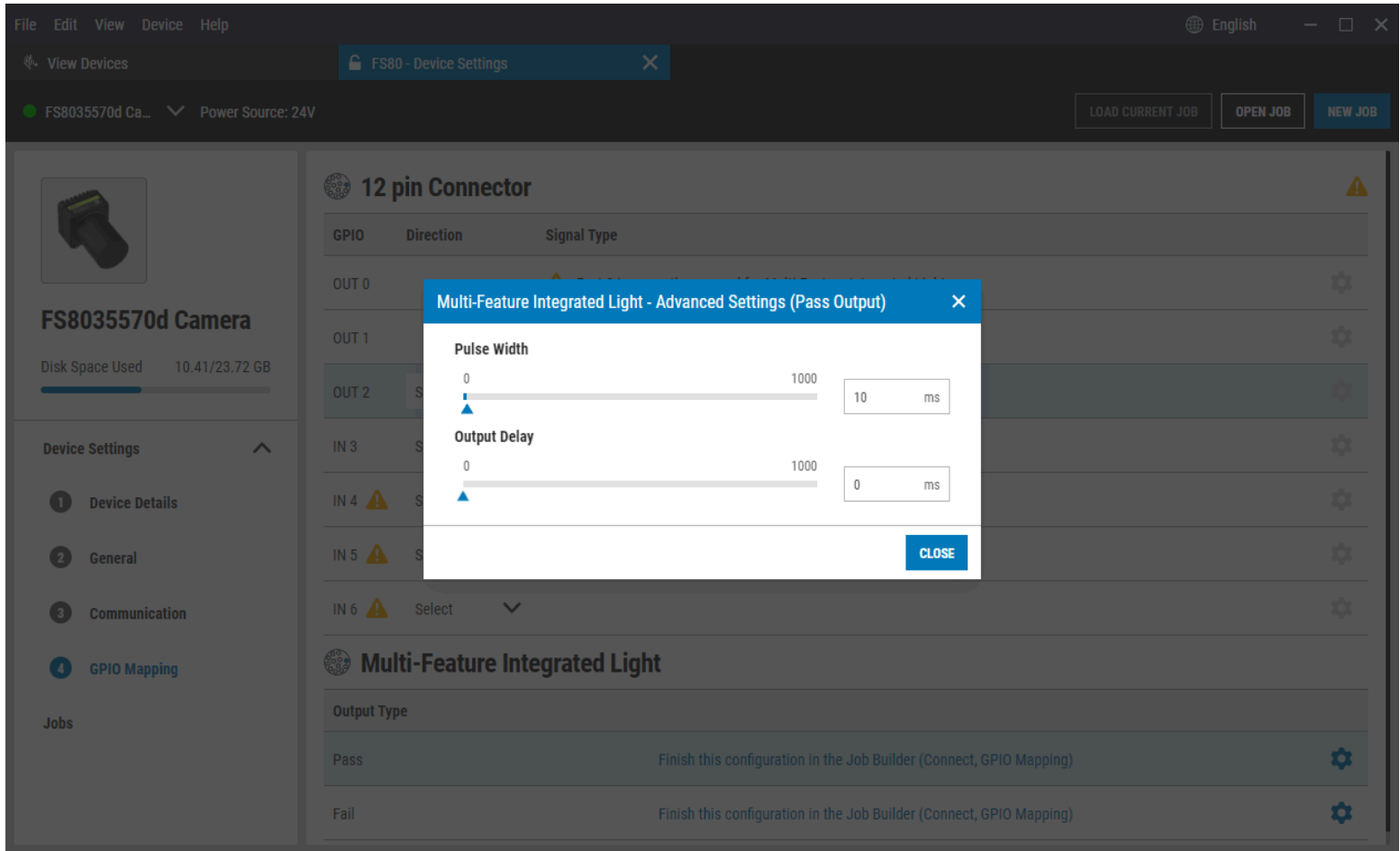
NOTE: Configure Pass/Fail output on the Zebra Integrated Multifunction Light using the **Connect** chevron while configuring settings for a specific job.

Maintenance

To maintain Zebra devices, avoid harmful chemicals such as acetone, ammonia solutions, benzene, bleach, and trichloroethylene, as they damage plastics. Use approved cleaning agents such as pre-moistened wipes and 70% isopropyl alcohol. Use a dampened soft cloth for routine cleaning to avoid liquid pooling and direct spraying into the scanner exit window. Clean the window with lens tissue and dry it with a soft cloth. For connectors, use a cotton-tipped applicator dipped in isopropyl alcohol, ensuring no residue remains, and follow with a dry applicator to remove debris.

Known Harmful Ingredients

The following chemicals are known to damage the plastics on Zebra devices and should not come in contact with the device:

- Acetone
- Ammonia solutions
- Aqueous or alcoholic alkaline solutions
- Aromatic and chlorinated hydrocarbons
- Benzene
- Bleach
- Carbolic acid
- Compounds of amines or ammonia
- Ethanolamine
- Ethers
- Ketones
- TB-lysoform
- Toluene
- Trichloroethylene

Approved Cleaning Agents

The following cleaning agents are approved for cleaning the plastics on Zebra devices:

- Pre-moistened wipes

- Isopropyl alcohol 70%

Tolerable Industrial Fluids and Chemicals

The following industrial fluids and chemicals were evaluated and deemed tolerable for Zebra devices.

NOTE: Not all fluid variants and brands have been tested.

- Motor/Engine Oil
- Automatic Transmission Fluid (ATF)
- Continuously Variable Transmission Fluid (CVT)
- Industrial De-Greaser (Engine Brite Heavy Duty)

Technical Reference

Specifications

The following table describes physical attributes, performance and user environment specifications, and regulatory certifications for the FS80.

Table 11   Specifications

Specification	Description
Physical Characteristics	
Dimensions	2.95 x 4.724 x 2.95 in. / 75 x 120 x 75 mm (with lens cover)
	2.95 x 2.24 x 2.95 in. / 75 x 57 x 75 mm (without lens cover)
Weight	504 g / 17.8 oz (with lens cover)
	407 g / 14.4 oz (without lens cover)
Digital IO	(3) Opto-coupled inputs (with incremental rotary encoder support)
	(1) Opto-coupled trigger input
	(3) Opto-coupled trigger outputs
Connectors	M12-X 8-pin (female) for Gigabit Ethernet
	M12-A 12-pin (female) for power, digital I/Os, and LED lighting intensity control
Power Consumption	15 W (625 mA @24 VDC)
Communication Protocols	TCP/IP
Performance Characteristics	
Sensor Type	Monochrome, CMOS Sensor
Resolution	FS80CM05: 2592 x 2048
	FS80CM09: 4096 x 2160
	FS80CM12: 4096 x 3072
	FS80CM16: 4000 x 4000

Table 11 Specifications (Continued)

Specification	Description
Frame Rate	FS80CM05: Up to 41.7 fps FS80CM09: Up to 39.6 fps FS80CM12: Up to 28 fps FS80CM16: Up to 21.6 fps
Pixel Size	3.2 x 3.2 μm
Gain Range	1x to 11.875x (0 to 21.5 dB)
Shutter Speeds	50 μsec to 4.2 sec
External Trigger Latency	55 μsec to 57 sec
Memory	4 GB LPDDR4/x
Storage	32 GB eMMC
User Environment	
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-40°F to 158°F / -40° to 70°C
Vibration Resistance	Sweep 10 to 500Hz, 5g, 10 sweep cycles per axis, 3-axis
Shock Resistance	50g, 3 ms half-sine, 3 shocks per 3 axis 30g, 11ms half sine, 3 shocks per 3 axis
Environmental Sealing	IP67
Humidity	90% non condensing
Regulatory	
Environmental	EN IEC 63000:2018 ✎ **NOTE:** This device is used while a product is manufactured in an industrial environment.
Electrical Safety	CSA C22.2 No. 61010-1-12, UPD1:2015, UPD2:2016, AMD1:2018 UL 61010-1 3rd ed (Rev. Nov 21, 2018) IEC 61010-1:2010 IEC 61010-1:2010/AMD1:2016

Table 11   Specifications (Continued)

Specification	Description
EMI/EMS	EN 55011:2009+A1:2020, Class A EN 61326-1:2013 IEC 61326-1:2020 SANS 211:2010/CISPR 11:2010, Class A Group 1 Equipment SANS 61000-6-2:2005/IEC 61000-6-2:2005 VCCI-CISPR 32:2016, Class A 47 CFR FCC Rules and Regulations Part 15, Subpart B, Class A EN61326-1/IEC61326-1
EU Declaration of Conformity	2014/30/EU; 2014/35/EU; 2011/65/EU. Refer to the Declaration of Conformity (DoC) for details of compliance with the current standards. The DoC is available at: zebra.com/doc

Dimensional Drawings

Use the dimensional drawings to understand the mounting requirements for the scanner.

Figure 19 FS80 Dimensional Drawings

Dimensions are presented as mm[inches]
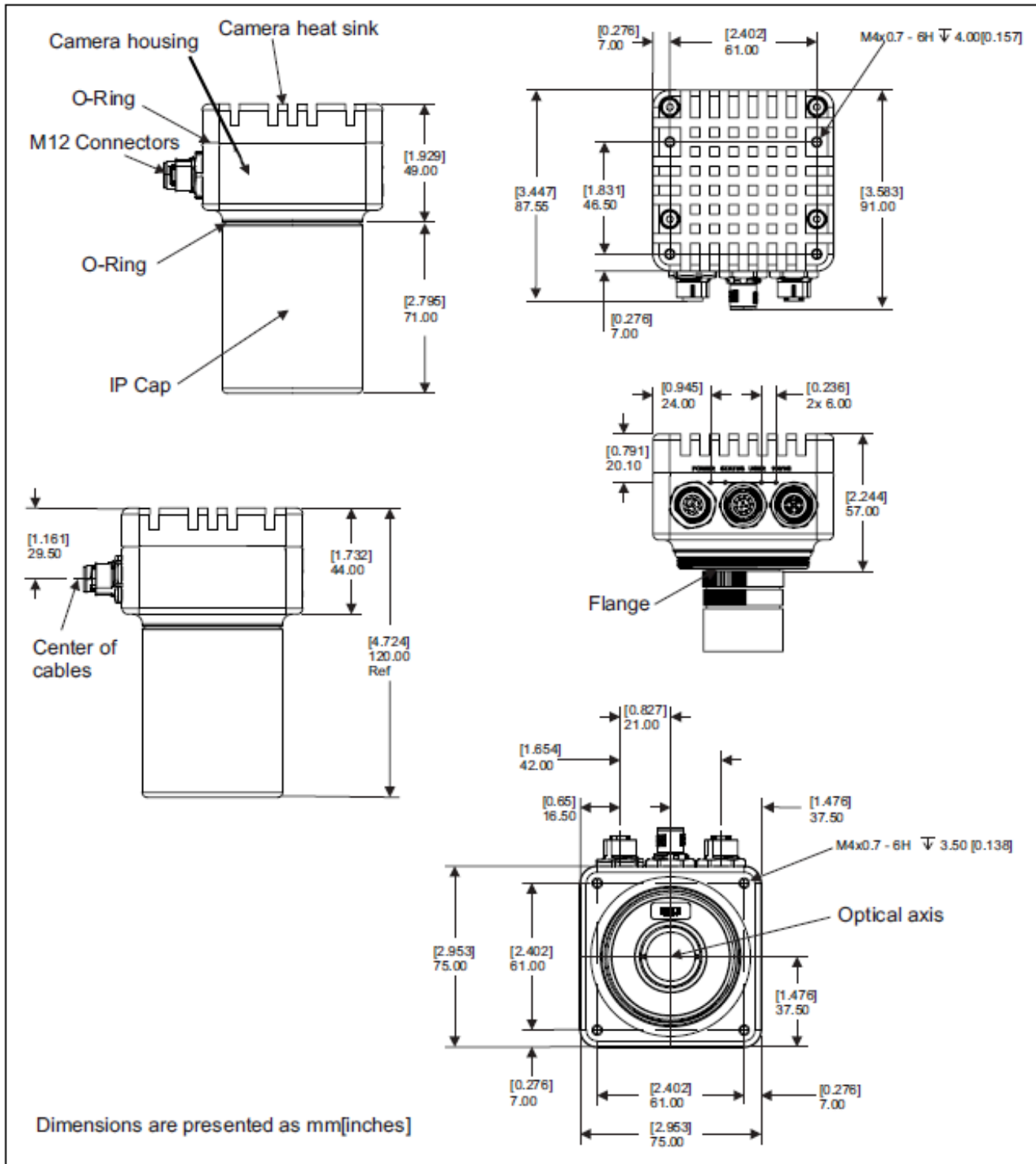
Connector Diagrams

The FS80 supports connections to digital I/O, power, and Ethernet. The M12 12-pin (female) connector handles digital I/O signals, and power. The M12 8-pin X-coded Ethernet connector supports 1 Gbit/sec communication.

Digital IO and Power Cable

The digital IO and power cable (M12-CBL-PWRIO/3) transmits and receives digital I/O signals and provides power to the FS80 through the M12 12-pin female connector on the device.
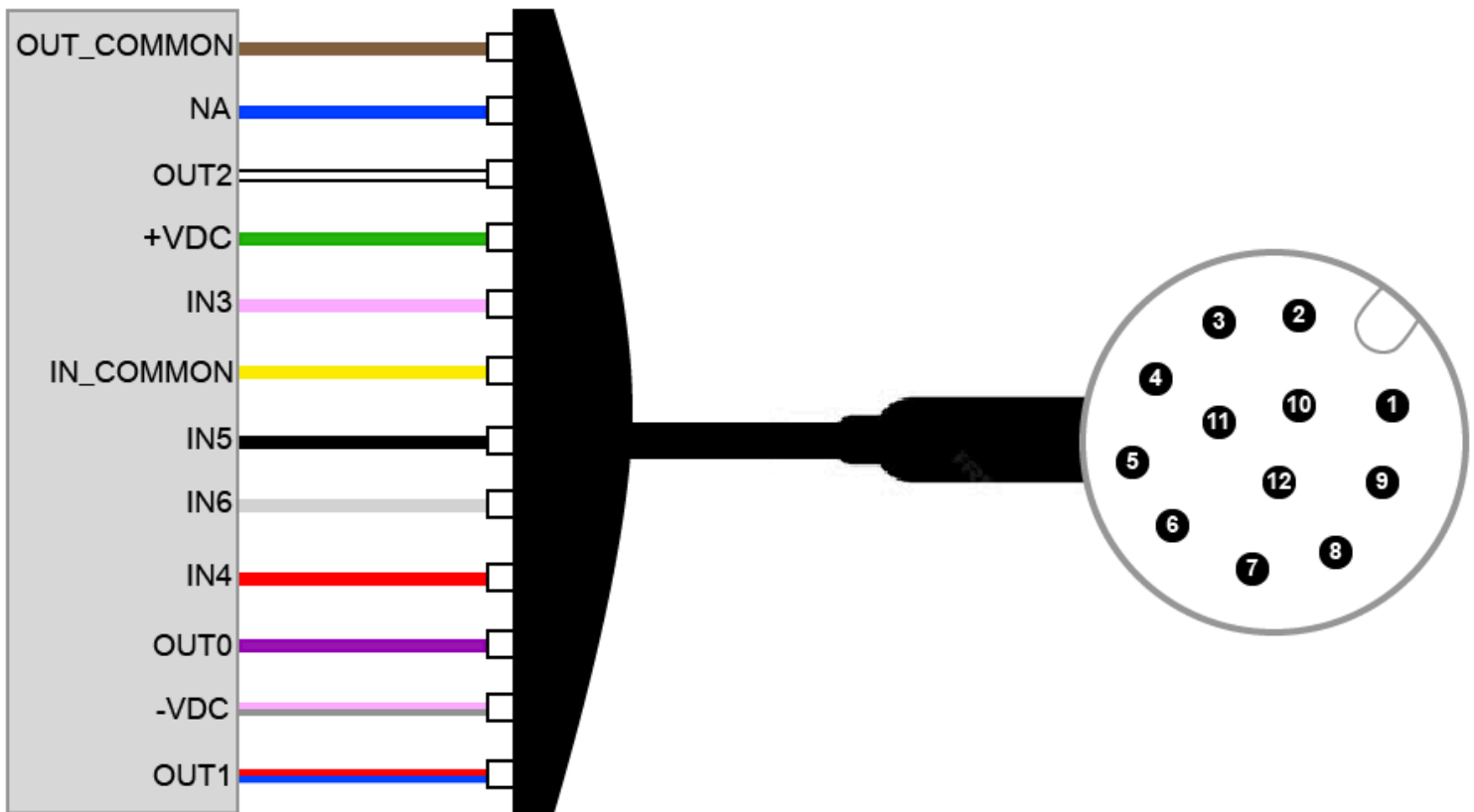
Table 12 M12-CBL-PWRIO/3 Digital IO and Power Pin-Out Diagram

Pin Number	Wire Color	Hardware Signal Name	Description
1	Brown	OUT_COMMON	Opto-isolated industrial auxiliary signal (output) common. **NOTE:** Ensure that OUT_COMMON is connected to the return path when using the FS80 with the Zebra Integrated Multifunction Light.
2	Blue	NA	Not in Use
3	White	OUT2	Opto-isolated industrial auxiliary signal 2 (output). Supported function: user-bit 2 (output 3 of 3).
4	Green	+ VDC	Positive pin of the power provided to your device. **NOTE:** This pin must be connected to a + 24 V +/- 10% power supply.
5	Pink	IN3	Opto-isolated industrial auxiliary signal 3 (input).
6	Yellow	IN_COMMON	Opto-isolated industrial auxiliary signal (input) common. Supported function: Whether you should connect this pin to an electrical return path or a voltage source depends on whether the third-party device is sourcing or sinking the current.
7	Black	IN5	Opto-isolated industrial auxiliary signal 5 (input).
8	Grey	IN6	M_AUX IO6
9	Red	IN4	Opto-isolated industrial auxiliary signal 4 (input).
10	Violet	OUT0	Opto-isolated industrial auxiliary signal 0 (output).
11	Grey/Pink	- VDC	Negative pin of the power provided to your Zebra FS80. **NOTE:** This pin must be connected to the electrical return path.

Table 12   M12-CBL-PWRIO/3 Digital IO and Power Pin-Out Diagram (Continued)

Pin Number	Wire Color	Hardware Signal Name	Description
12	Red/Blue	OUT1	Opto-isolated industrial auxiliary signal 1 (output). Supported function: user-bit 1 (output 2 of 3).

Power and IO Y Cable

The power and IO Y cable (CBL-PWR00500-M1210) transmits and receives digital IO signals and provides power to the FS80 (12-pin Male) and the Zebra Integrated Multifunction Light (8-Pin Female).
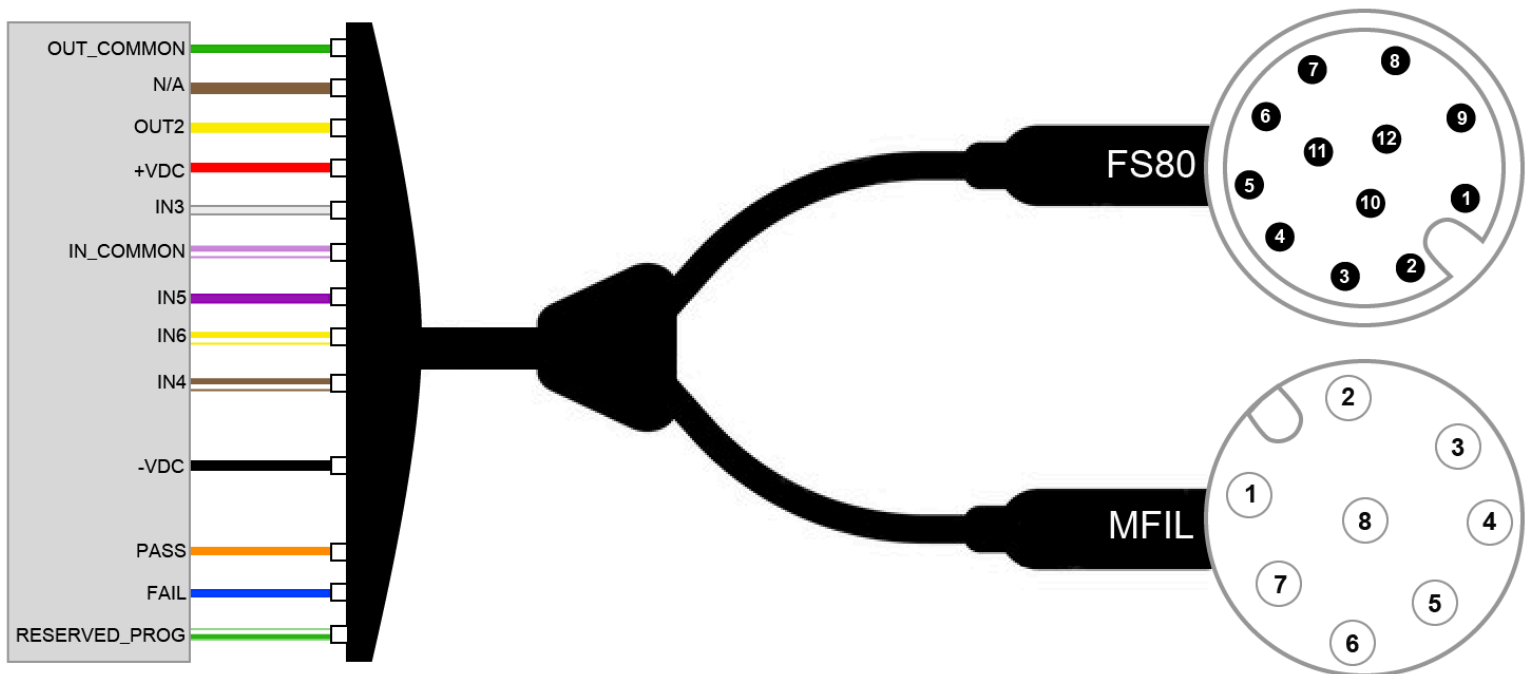
Flying Leads Color (24 AWG)	Function	12-Pin A-Coded Male M12 to FS80		8-Pin A-Coded Fenale M12 to MFIL	
Green **NOTE:** Green must be connected to -VDC to operate the Zebra Integrated Multifunction Light.	OUT_COMMON	1	Green	6	Green
Brown	N/A	2	Brown	-	
Yellow	OUT2	3	Yellow	-	
Red	+VDC	4	Red	1	Red

Flying Leads Color (24 AWG)	Function	12-Pin A-Coded Male M12 to FS80		8-Pin A-Coded Fenale M12 to MFIL	
Grey	IN3	5	Grey	-	
White/Violet	IN_COMMON	6	White/Violet	-	
Violet	IN5	7	Violet	-	
White/Yellow	IN6	8	White/Yellow	-	
White/Brown	IN4	9	White/Brown	-	
Black	-VDC	11	Black	8	Black
Orange	PASS	-	-	7	White/Orange
Blue	FAIL	-	-	2	White/Blue
White/Green	RESERVED_PROG	-		3	White/Green

Ethernet Connector

The Ethernet connector is an M12 (female) 8-pin X-coded connector that provides TCP/IP communication.
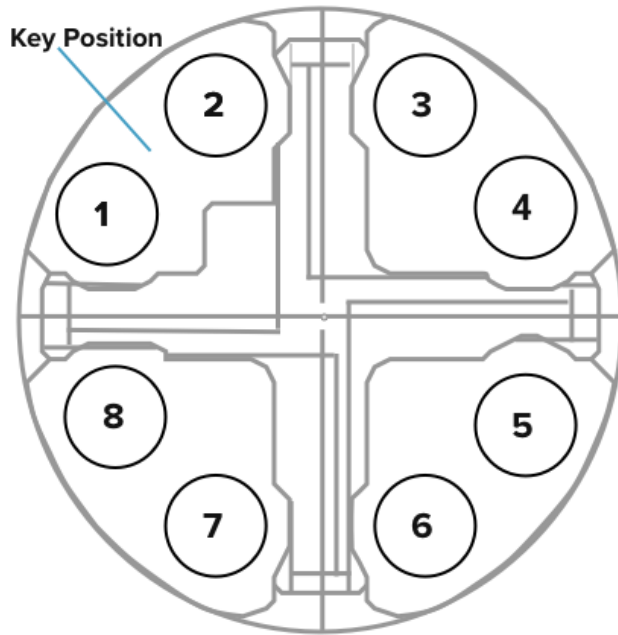
Table 13   Digital IO and Power Pin-Out Diagram

Pin Number	Signal Name	Description
1	MDI_1+	Bidirectional data A+
2	MDI_1-	Bidirectional data A-
3	MDI_2+	Bidirectional data B+
4	MDI_2-	Bidirectional data B-
5	MDI_4+	Bidirectional data D+
6	MDI_4-	Bidirectional data D-
7	MDI_3-	Bidirectional data C-
8	MDI_3+	Bidirectional data C+

Reading Diagrams

View the following diagrams to understand the scanning capabilities of the device for specific codes at various distances.

FS80 Reading Distance with 8MM C-Mount Lens

Figure 20   8mm C-Mount Lens Reading Distance
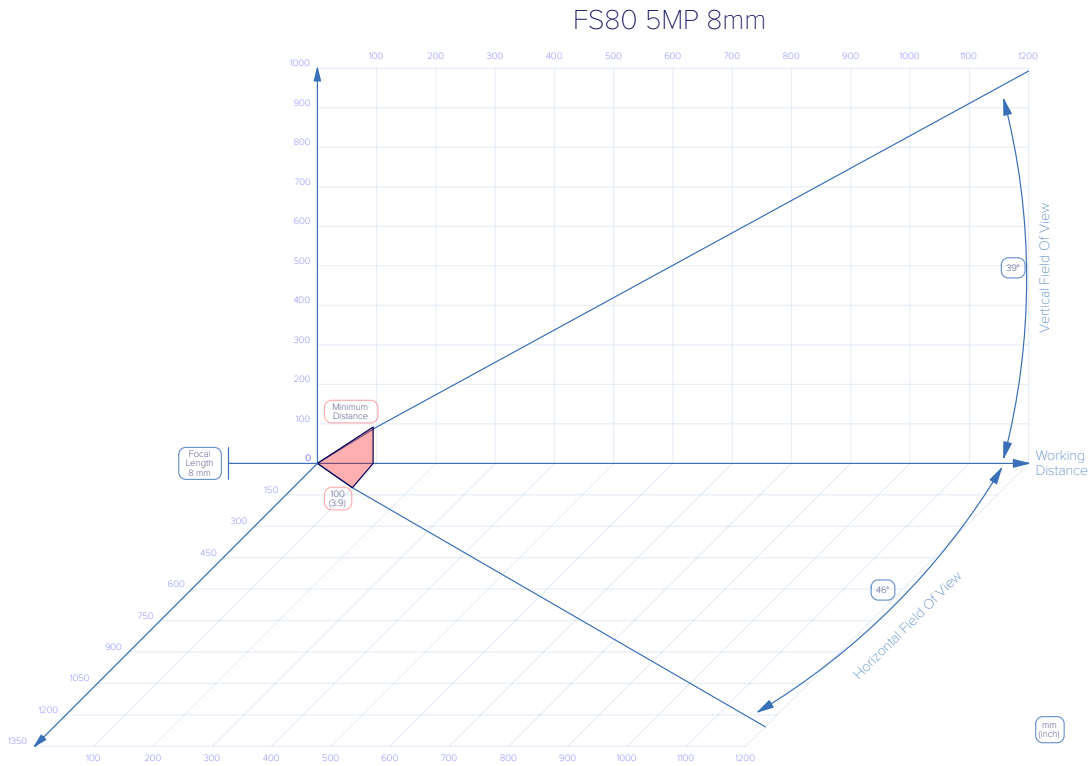
Figure 21 8mm C-Mount Lens Reading Code128
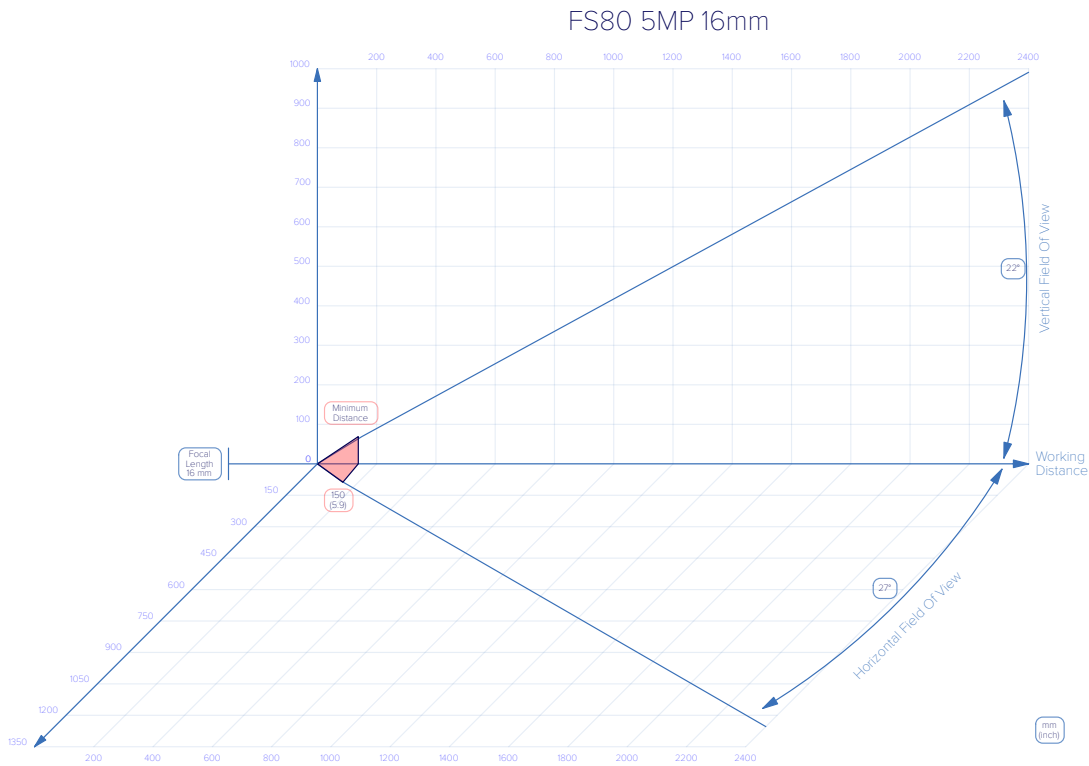

FS80 5MP 8mm - Code128
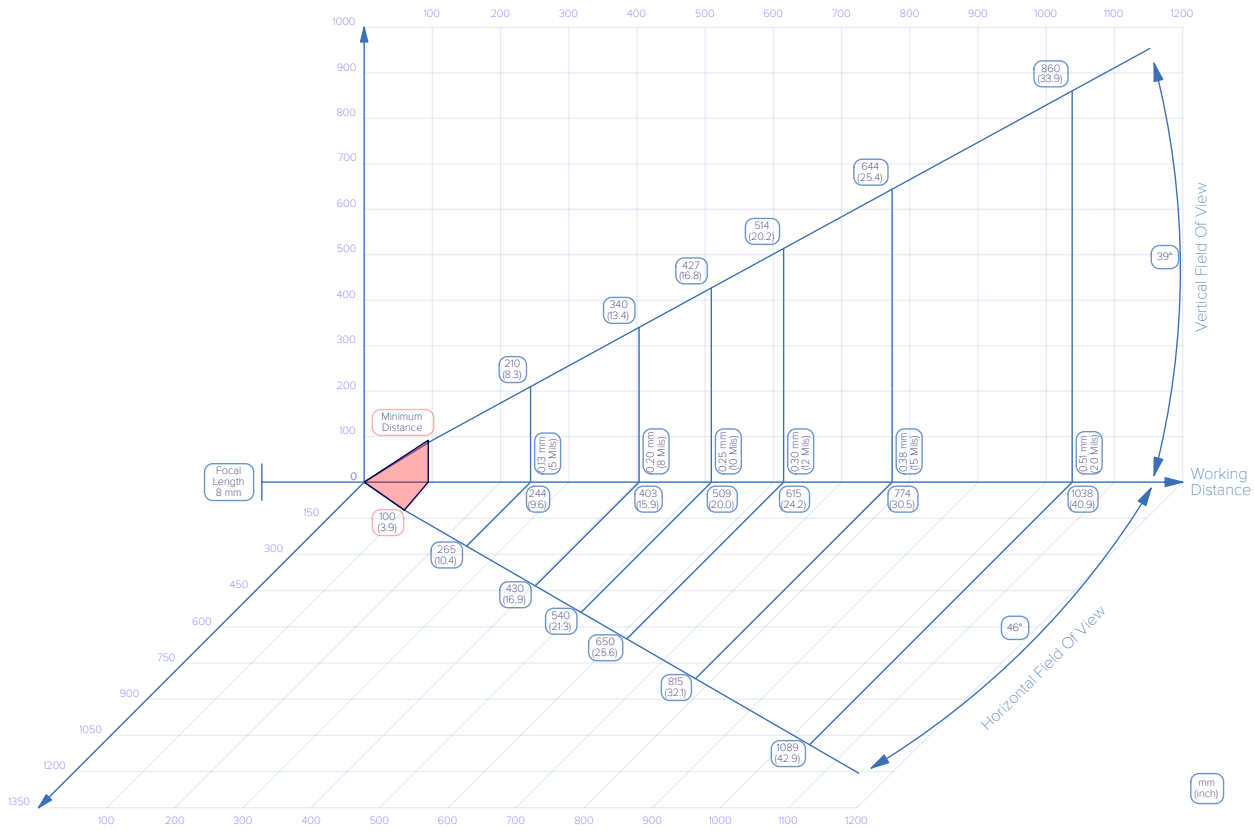
Figure 22   8mm C-Mount Lens Reading ECC 200

FS80 5MP 8mm - ECC 200
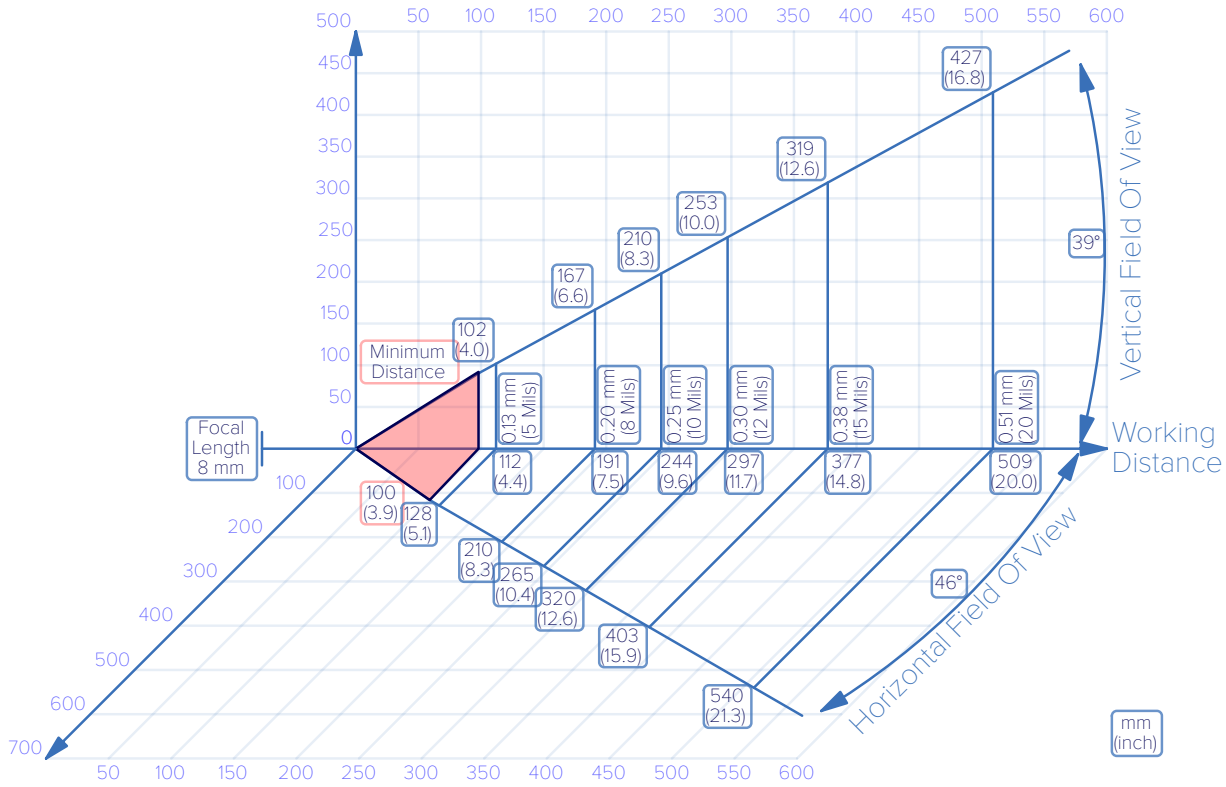
12mm

Figure 23   12mm C-Mount Lens Reading
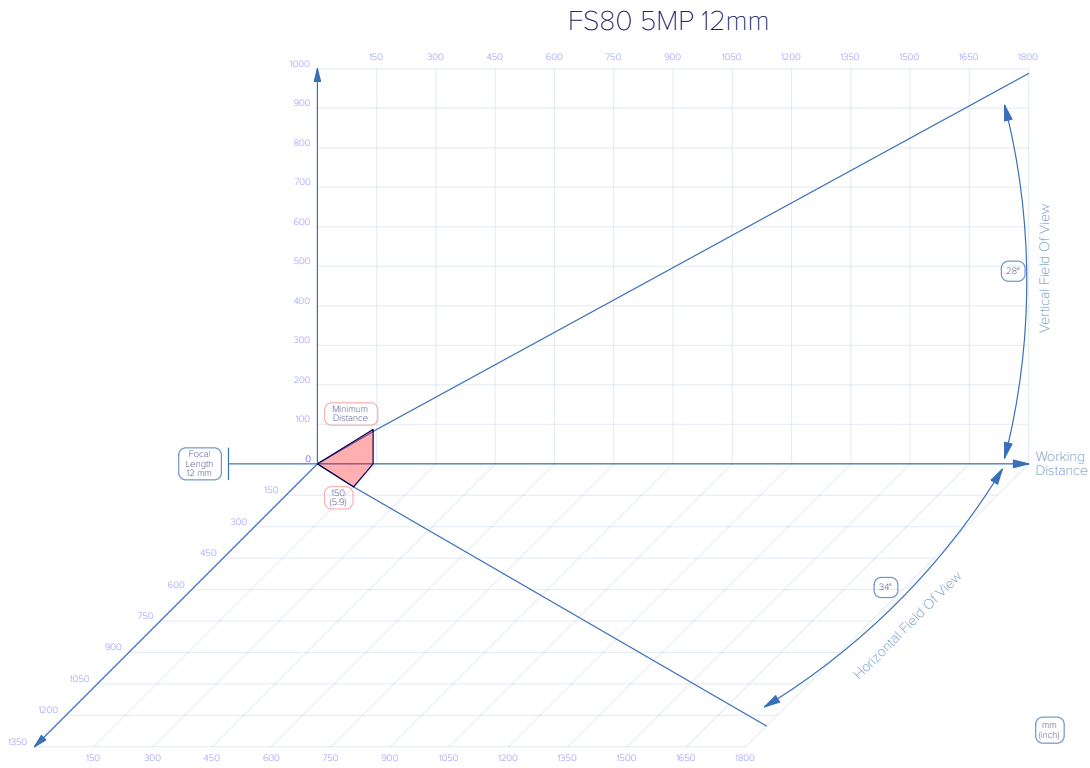
FS80 5MP 12mm
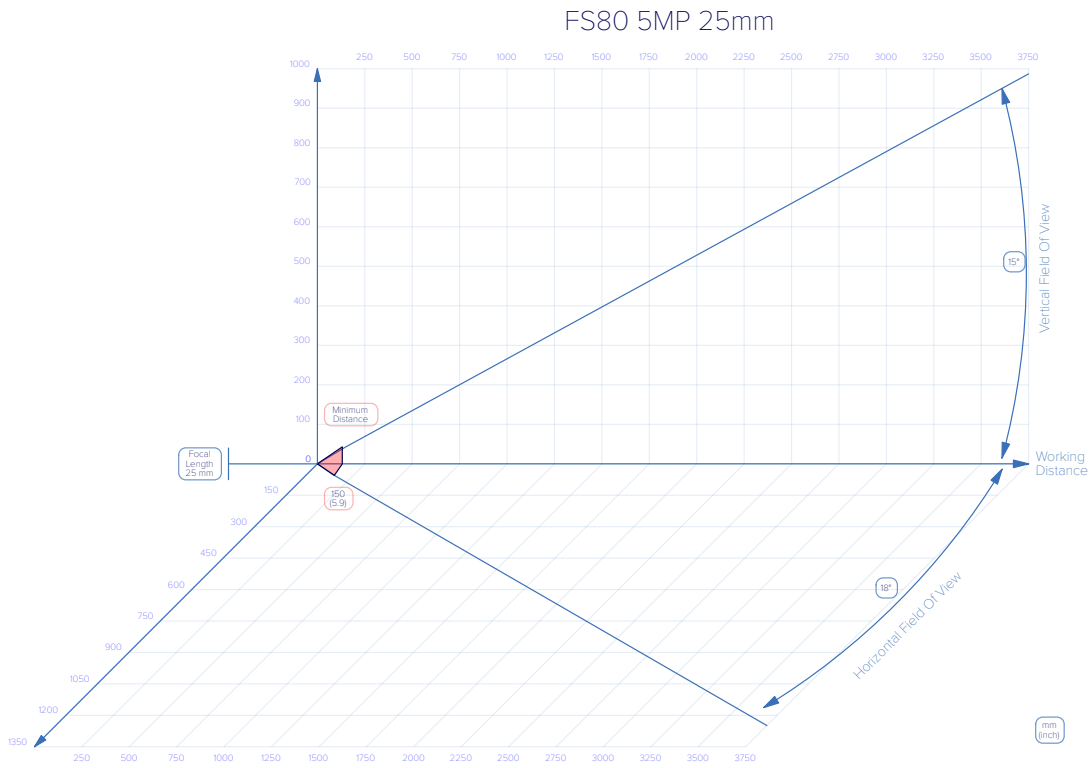
Figure 24   12mm C-Mount Lens Reading Code128

FS80 5MP 12mm - Code128
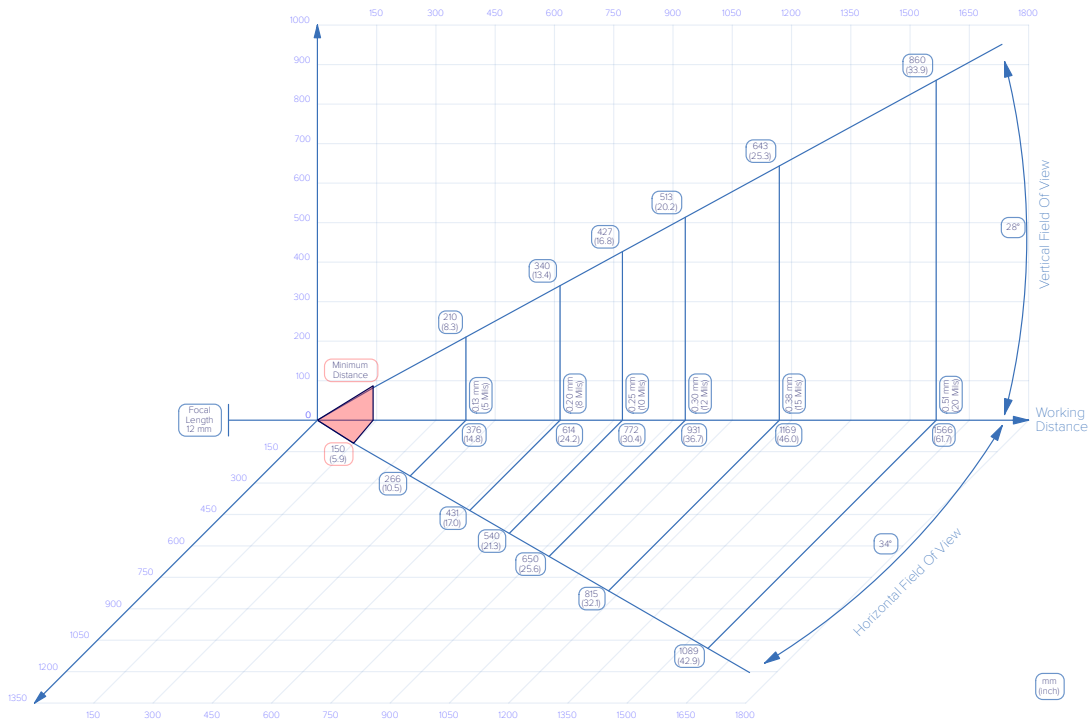
Figure 25 12mm C-Mount Lens Reading ECC 200

FS80 5MP 12mm - ECC 200
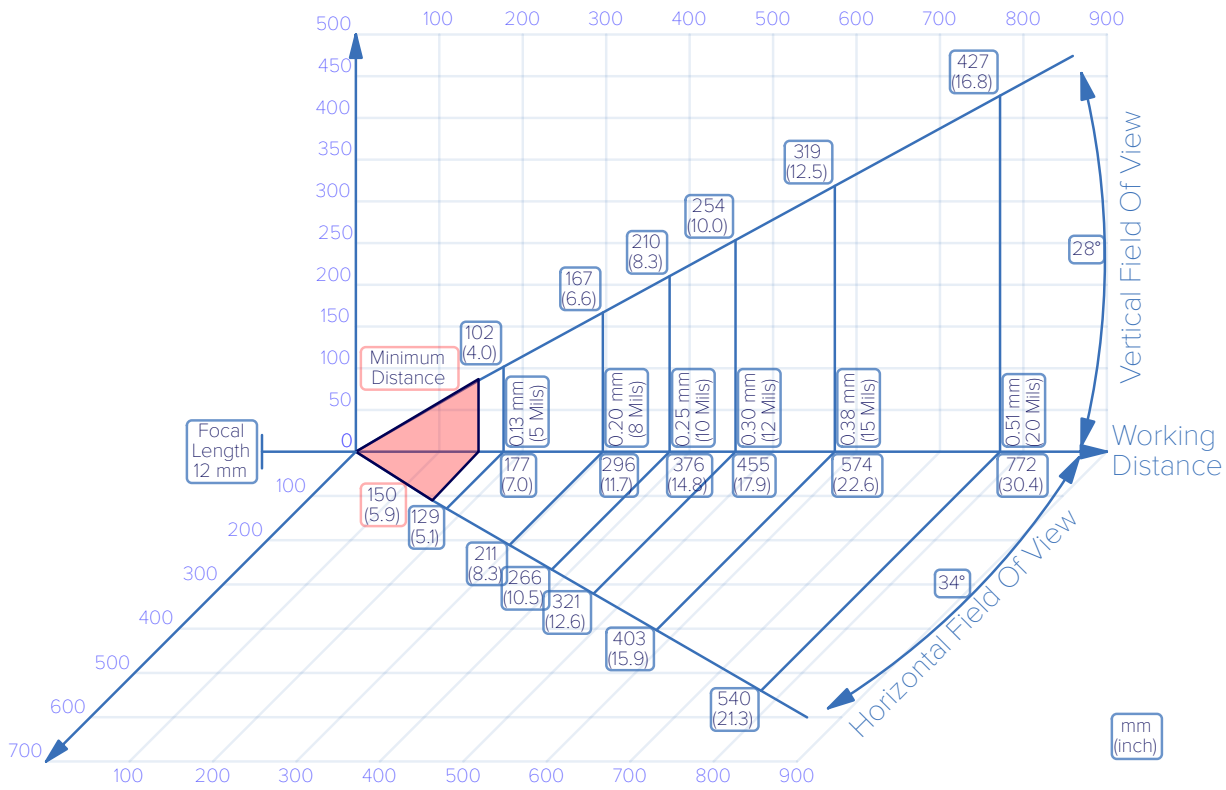
16mm

Figure 26   16mm C-Mount Lens Reading Distance

FS80 5MP 16mm

Figure 27   16mm C-Mount Lens Reading Code128

FS80 5MP 16mm - Code128
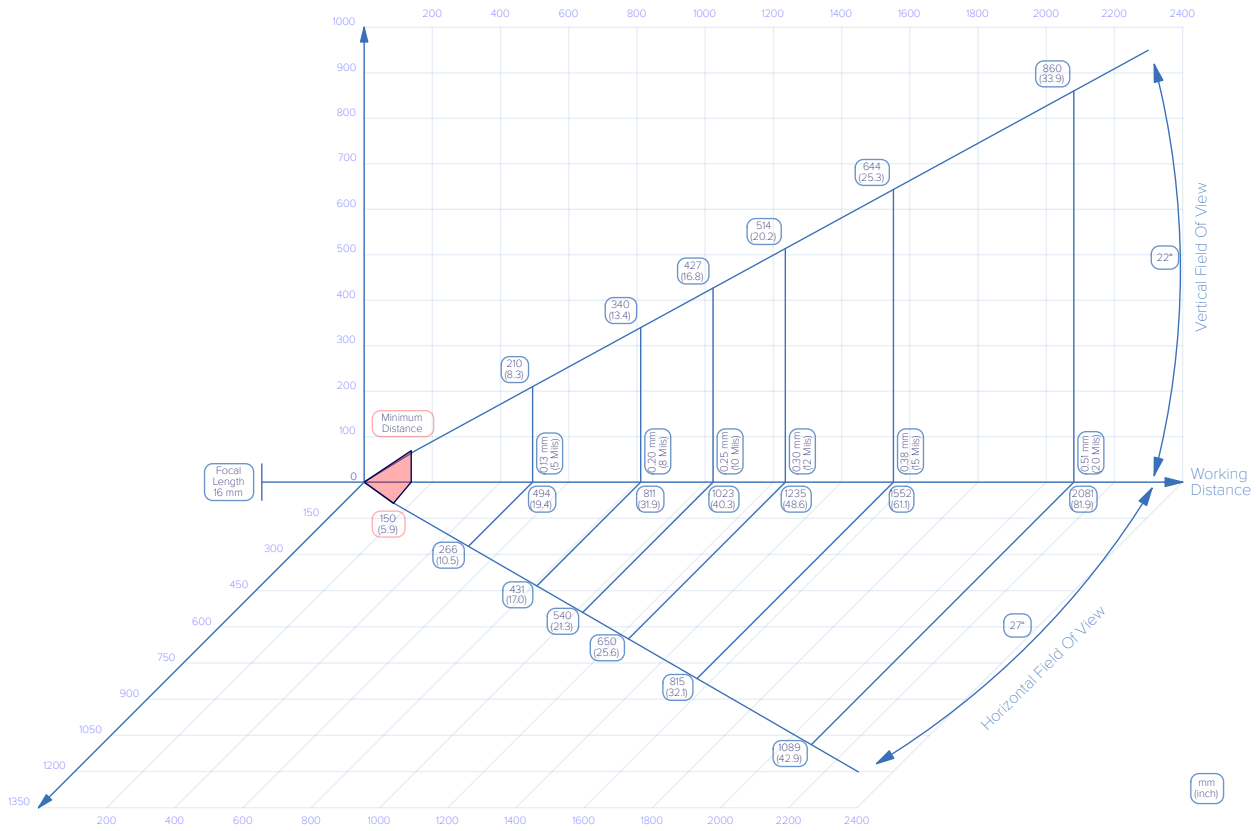
Figure 28   16mm C-Mount Lens Reading ECC200

FS80 5MP 16mm - ECC 200
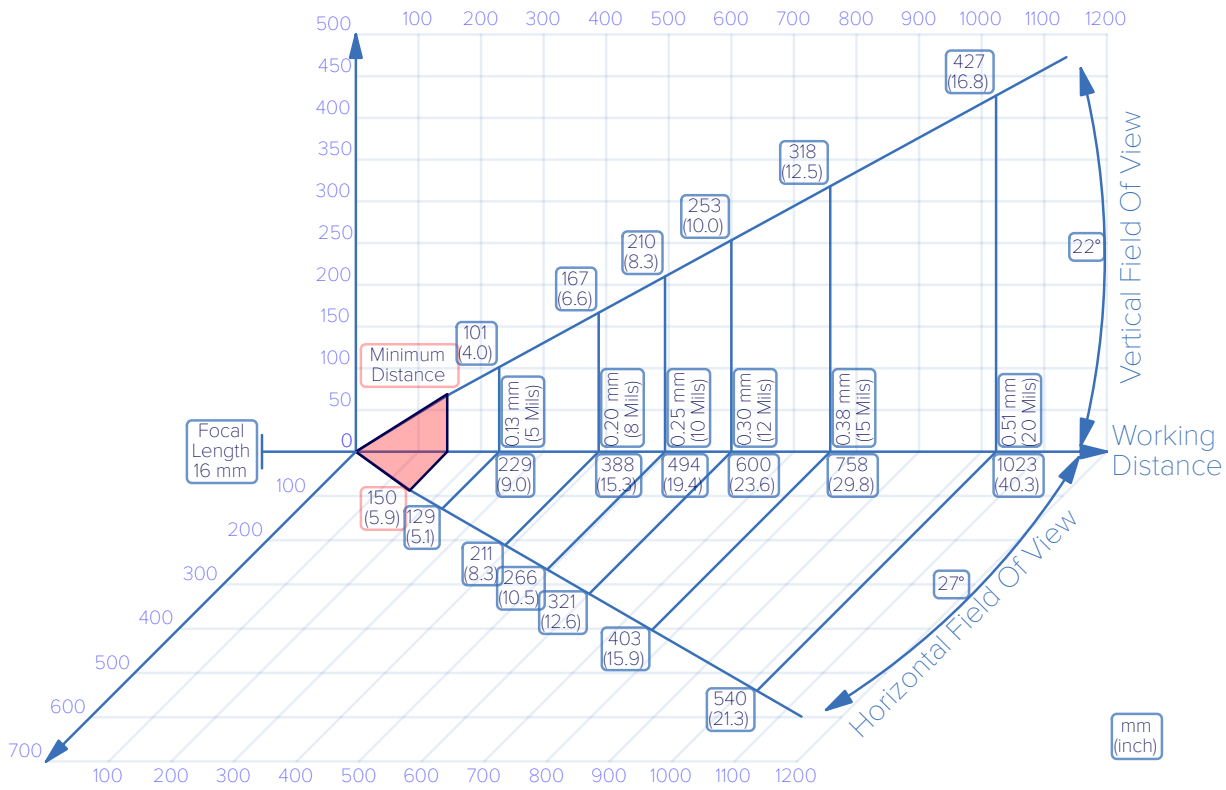
25mm

Figure 29 25mm C-Mount Lens Reading Distance

FS80 5MP 25mm

Figure 30   25mm C-Mount Lens Reading Code128
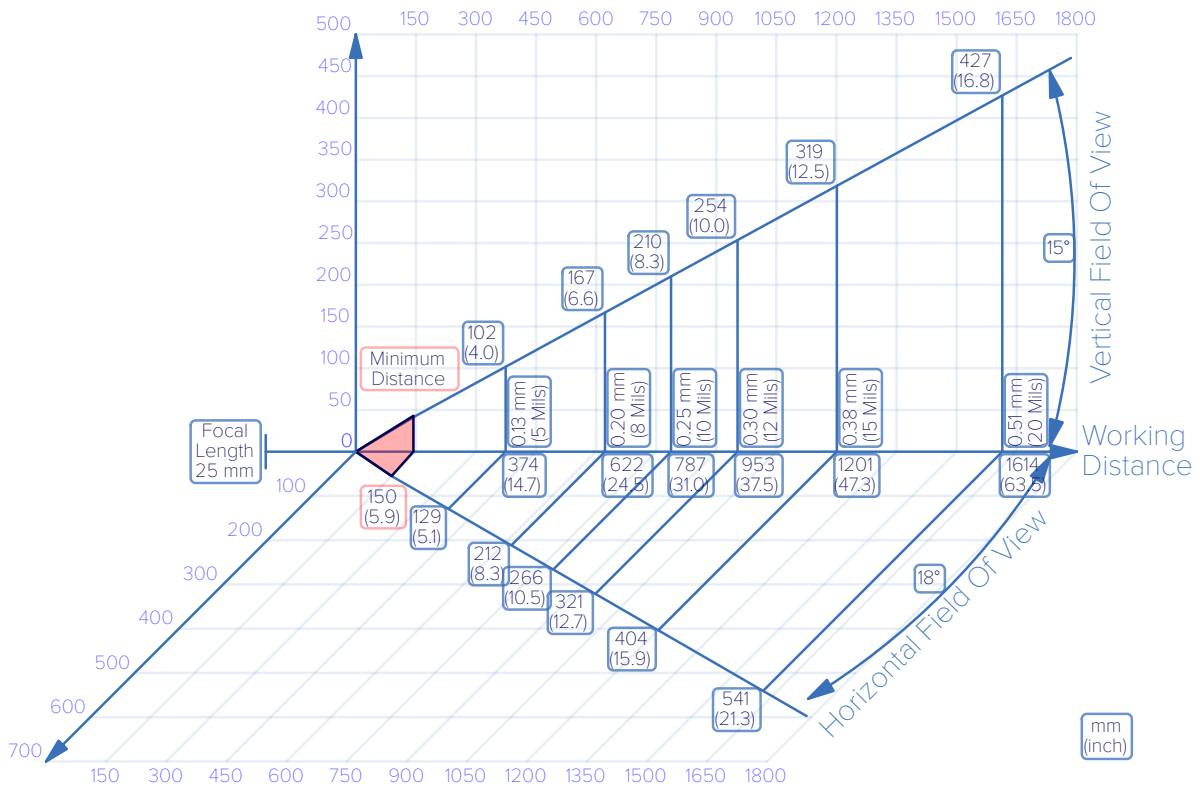

FS80 5MP 25mm - Code128
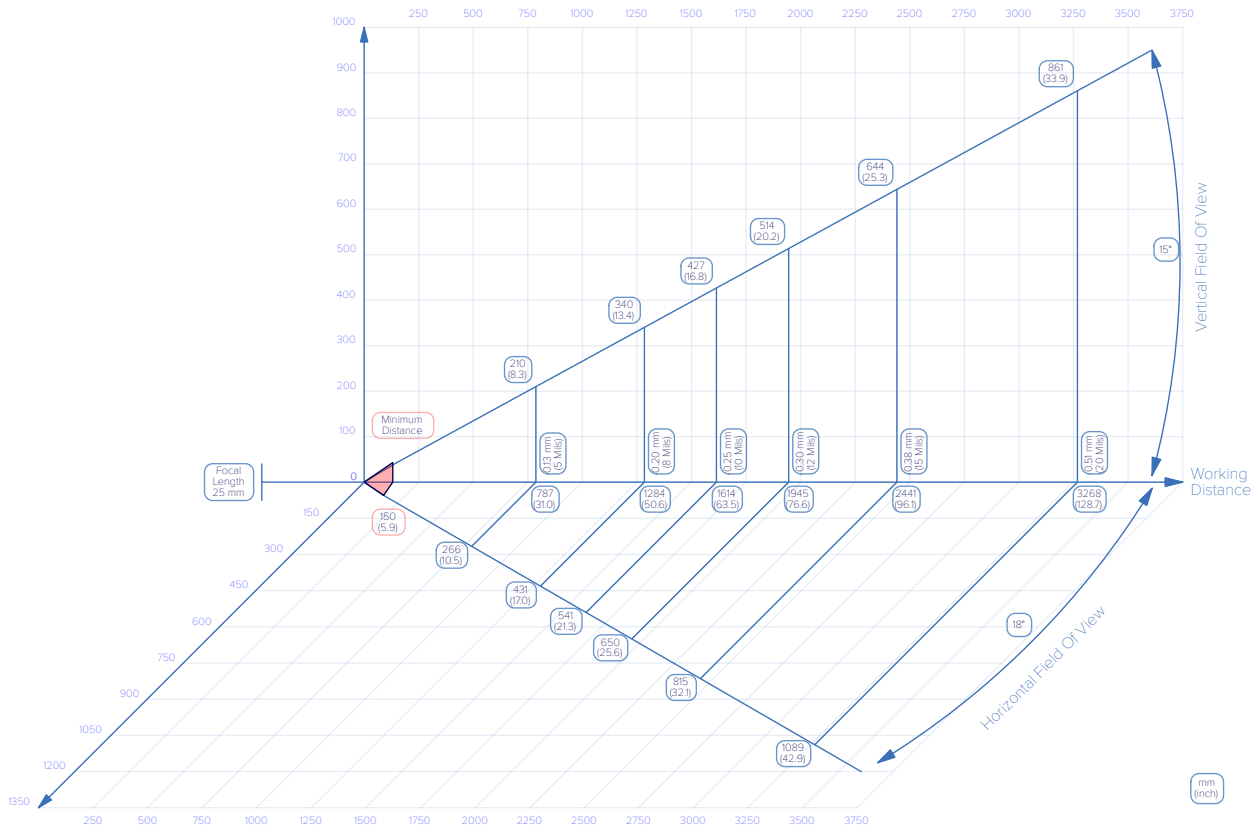
Figure 31   25mm C-Mount Lens Reading ECC 200

FS80 5MP 25mm - ECC 200

35mm

Figure 32   35mm C-Mount Lens Reading Distance
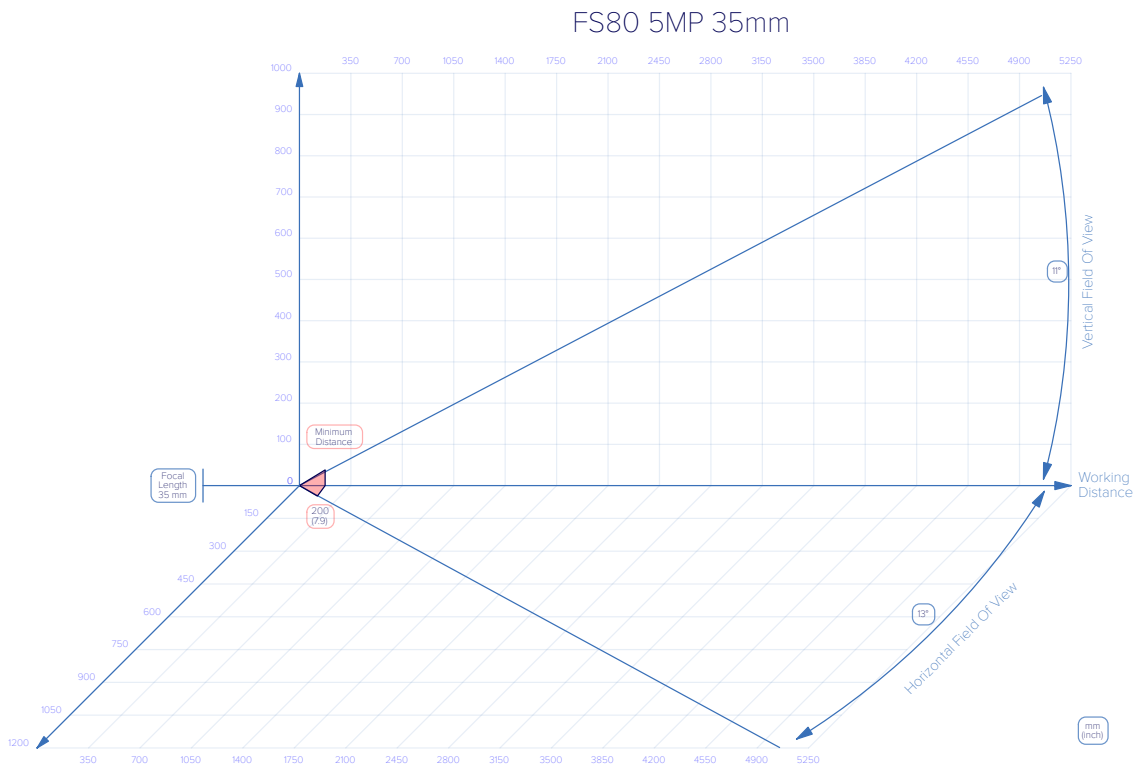

FS80 5MP 35mm

Figure 33   35mm C-Mount Lens Reading Code128
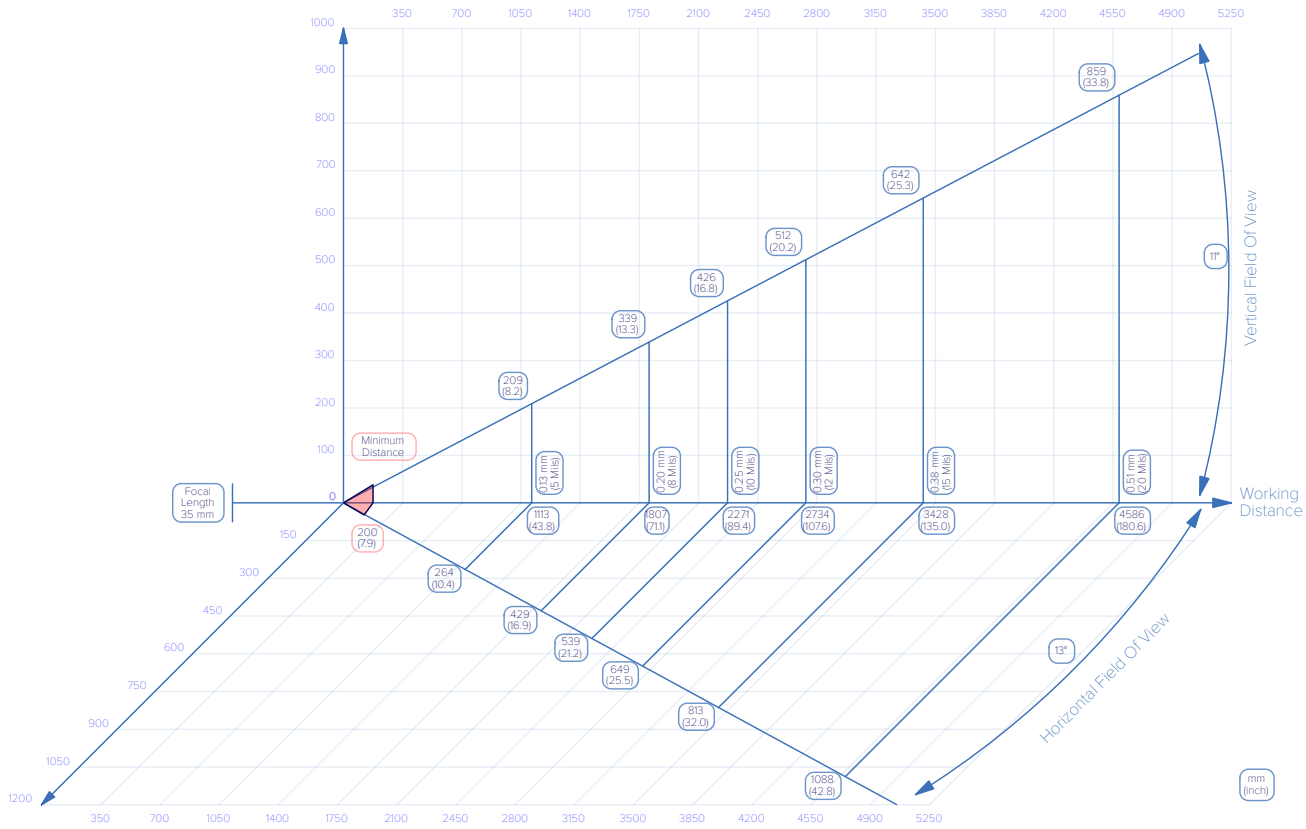

FS80 5MP 35mm - Code128

Figure 34 35mm C-Mount Lens Reading ECC 200

FS80 5MP 35mm - ECC 200