

SLX-80 Series Reference Manual



2025 October 17
Revision: 25.2.0.9

49.6

2X 25.9

Legal Notices

The software described in this document is furnished under license, and may be used or copied only in accordance with the terms of such license and with the inclusion of the copyright notice shown on this page. Neither the software, this document, nor any copies thereof may be provided to, or otherwise made available to, anyone other than the licensee. Title to, and ownership of, this software remains with Cognex Corporation or its licensor. Cognex Corporation assumes no responsibility for the use or reliability of its software on equipment that is not supplied by Cognex Corporation. Cognex Corporation makes no warranties, either express or implied, regarding the described software, its merchantability, non-infringement or its fitness for any particular purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by Cognex Corporation. Cognex Corporation is not responsible for any errors that may be present in either this document or the associated software.

Companies, names, and data used in examples herein are fictitious unless otherwise noted. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, nor transferred to any other media or language without the written permission of Cognex Corporation.

Copyright © 2025. Cognex Corporation. All Rights Reserved.

Portions of the hardware and software provided by Cognex may be covered by one or more U.S. and foreign patents, as well as pending U.S. and foreign patents listed on the Cognex web site at: cognex.com/patents.

The following are registered trademarks of Cognex Corporation:

2DMax, Advantage, AlignPlus, AssemblyPlus, Checker, Cognex, Cognex Vision For Industry, CVL, DataMan, DVT, EasyBuilder, Edge Intelligence, Hotbars, In-Sight, MX, OmniView, PatFind, PatFlex, PatInspect, PatMax, PatMax RedLine, PatQuick, PowerGrid, Smart View, SmartAdvisor, UltraLight, VisionPro, VisionView

The following are trademarks of Cognex Corporation:

The Cognex logo, 1DMax, 3D-Locate, 3DMax, BGAI, CheckPoint, Cognex VSoC, CVC-1000, FFD, iLearn, In-Sight (design insignia with cross-hairs), In-Sight 2000, InspectEdge, Inspection Designer, MVS, NotchMax, OCRMax, PatMax RedLine, ProofRead, SmartSync, ProfilePlus, SmartDisplay, SmartSystem, SMD4, VisiFlex, Xpand

Portions copyright © Microsoft Corporation. All rights reserved.

Portions copyright © MadCap Software, Inc. All rights reserved.

Other product and company trademarks identified herein are the trademarks of their respective owners.

Precautions

To reduce the risk of injury or equipment damage, observe the following precautions when you install the Cognex product:

- The safety of any system incorporating this product is the responsibility of the assembler of the system.
- Do not install Cognex products where they are exposed to environmental hazards such as excessive heat, dust, moisture, humidity, impact, vibration, corrosive substances, flammable substances, or static electricity.
- Route cables and wires away from high-current wiring or high-voltage power sources to reduce the risk of damage or malfunction from the following causes: over-voltage, line noise, electrostatic discharge (ESD), power surges, or other irregularities in the power supply.
- Do not expose the image sensor to laser light. Image sensors can be damaged by direct, or reflected, laser light. If your application requires laser light that might strike the image sensor, use a lens filter at the corresponding laser wavelength. For suggestions, contact your local integrator or application engineer.
- This product does not contain user-serviceable parts. Do not make electrical or mechanical modifications to product components. Unauthorized modifications can void your warranty.
- Changes or modifications not expressly approved by the party responsible for regulatory compliance could void the user's authority to operate the equipment.
- Include service loops with cable connections.
- Ensure that the cable bend radius begins at least six inches from the connector. Cable shielding can be degraded or cables can be damaged or wear out faster if a service loop or bend radius is tighter than 10X the cable diameter.
- This device should be used in accordance with the instructions in this manual.
- All specifications are for reference purposes only and can change without notice.

Symbols

The following symbols indicate safety precautions and supplemental information:

 **WARNING:** This symbol indicates a hazard that could cause death, serious personal injury or electrical shock.

 **CAUTION:** This symbol indicates a hazard that could result in property damage.

 **Note:** This symbol indicates additional information about a subject.

 **Tip:** This symbol indicates suggestions and shortcuts that might not otherwise be apparent.

Table of Contents

Legal Notices	2
Precautions	3
Symbols	4
Table of Contents	5
Getting Started	6
About the SLX-80 Series	6
SLX-80 Systems	6
Accessories	7
Cables	7
Mounting Brackets	7
Setting Up Your SLX-80 Device	8
Device Layout	8
Indicator LEDs	9
Dimensions	9
Field of View and Working Distance	10
Mounting the Device	11
Connection Options	12
Connecting the Ethernet Cable	12
Using your Device through USB	12
Emulating Ethernet Functionality	12
Using Your SLX-80 Device	14
Connect to Station Manager	14
Trigger Methods	14
Industrial Protocols	14
Specifications	16
SLX-80 Series Device	16
SLX-80 Device Image Sensor	17
Illumination Characteristics	17
LED Wavelengths	17
Acquisition Trigger Input	18
High-Speed Outputs	18
High Speed Output Wiring	20
Cleaning and Maintenance	21
Clean the Housing	21
Clean the Device Image Sensor Window	21
Clean the Device Lens Cover	21
Regulations and Conformity	22
中国大陆RoHS (Information for China RoHS Compliance)	23
For European Community Users	23

Getting Started


This section provides general information about the SLX-80 series device and the accessories and systems.

About the SLX-80 Series

The SLX-80 series delivers high performance with a simplified hardware and software setup.



SLX-80 Systems






	Omnidirectional 1D Codes	1D Max with Hotbars	2DMax - Hard to Read 2D Codes	PowerGrid - Damaged 2D Codes	High Speed Decoding	Edge Learning Classifier	Resolution
SLX-80-M4C	✓	✓		✓	✓	✓	1440 x 1080

Accessories




You can purchase the following components separately. For a list of options and accessories, contact your local Cognex sales representative.

Cables

Note: Cables are sold separately.

Accessory	Product Number	Illustration
GigE Cable, shielded CAT6, straight RJ45 to RJ45	CGE-CBL-SHLD-5M	
	CGE-CBL-SHLD-10M	
	CGE-CBL-SHLD-20M	
Locked IP67 USB-C to DB15, Straight 0.5 m	CCB-PIO-DB15-05ST	
Locked IP67 USB-C to DB15, Right Angle, 0.5 m	CCB-PIO-DB15-05RA	
Sealed USB Type C Cable to USB Type A, Straight, 2.5 m	DMA-STCBLE-IP65-25	
Sealed USB Type C Cable to USB Type A, Straight 3.6 m	DMA-STCBLE-IP65-36	
Sealed USB Type C Cable to USB Type A, Angled, 2.5 m	DMA-RTCABLE-IP65-25	
Sealed USB Type C Cable to USB Type A, Angled, 3.6 m	DMA-RTCABLE-IP65-36	

Mounting Brackets

Accessory	Product Number	Illustration
Universal mounting bracket	DM100-UBRK-000	
Pivot mounting bracket	DM100-PIVOTM-01	
Logistics mounting bracket and plate kit	DMA-BKT-LGS	

Setting Up Your SLX-80 Device

Read this section to learn how the device connects to its standard components and accessories.

Note:



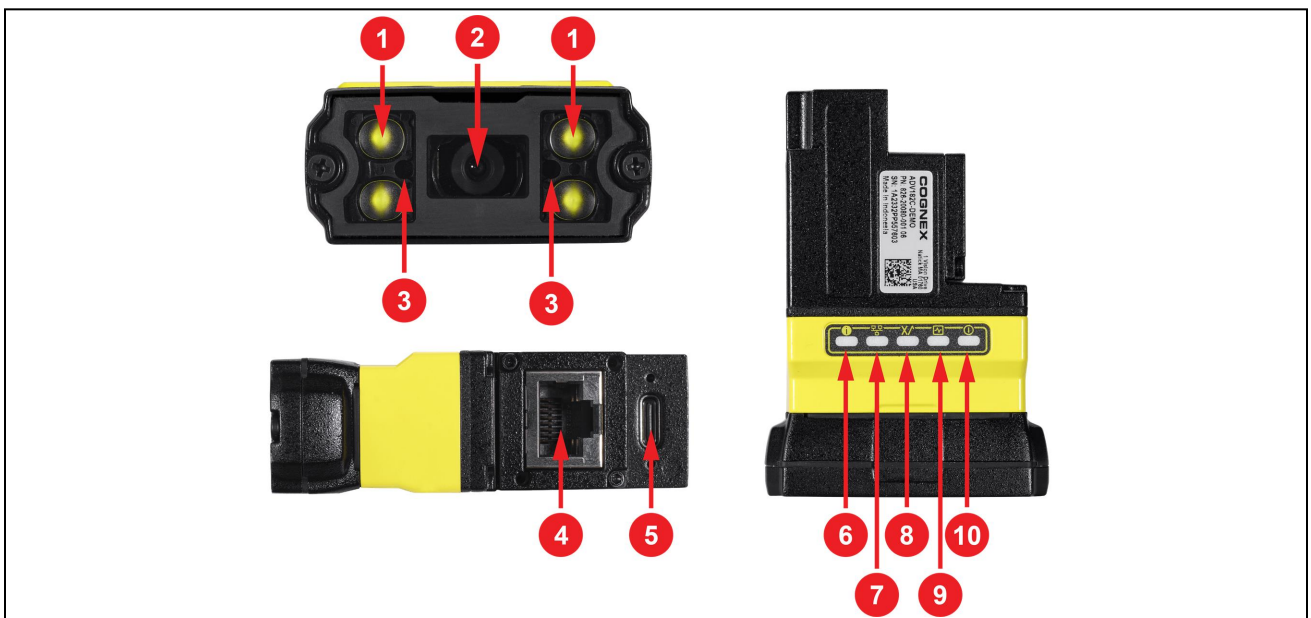
- Cables are sold separately.
- If a standard component is missing or damaged, immediately contact your Cognex Authorized Service Provider (ASP) or Cognex Technical Support.



CAUTION: All cable connectors are keyed to fit the connectors on the device. Do not force the connections or damage may occur.

Device Layout

The image and table below shows the elements of the device.



Number	Description
1	Illumination LEDs
2	Lens
3	LED aimer
4	Ethernet connector
5	USB-C connector
6	Error LED indicator
7	Communication LED indicator
8	Good/Bad read LED indicator
9	Train/Trigger status LED indicator
10	Power LED indicator

Indicator LEDs

The table summarizes the functions of the indicator LEDs on SLX-80 devices.

Indicator	Color/Status	Meaning
Power LED indicator	ON	The device is ON.
	OFF	The device is OFF.
Train/Trigger status LED indicator	ON	This LED is always solid GREEN. It does not reflect training state.
Good/Bad read LED indicator	GREEN, blinking	The device performs a good read.
	RED, blinking	The device performs a bad read when it does not find a decoding after a timeout.
Communication LED indicator	ON	This LED blinks according to network activity.
	OFF	This LED is OFF when there is no Ethernet connection.
Error	ON	This LED is ON when the SLX-80 device detects an error.

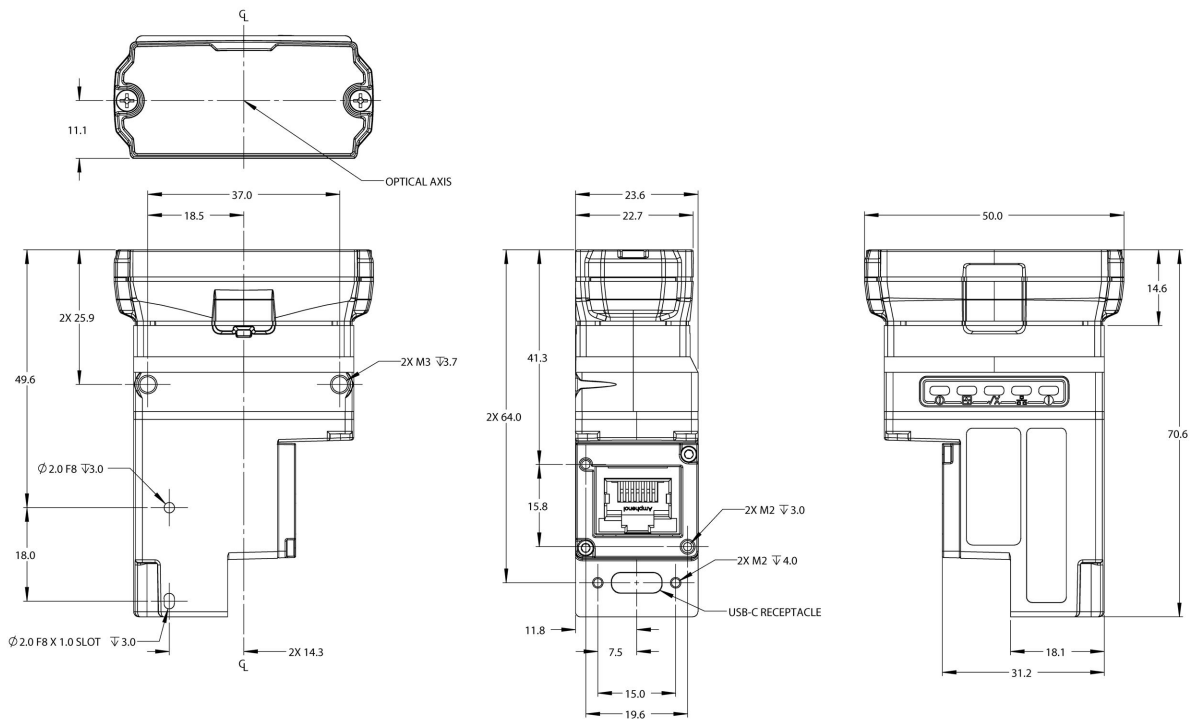
Dimensions

The following sections list dimensions of the device.

Note:

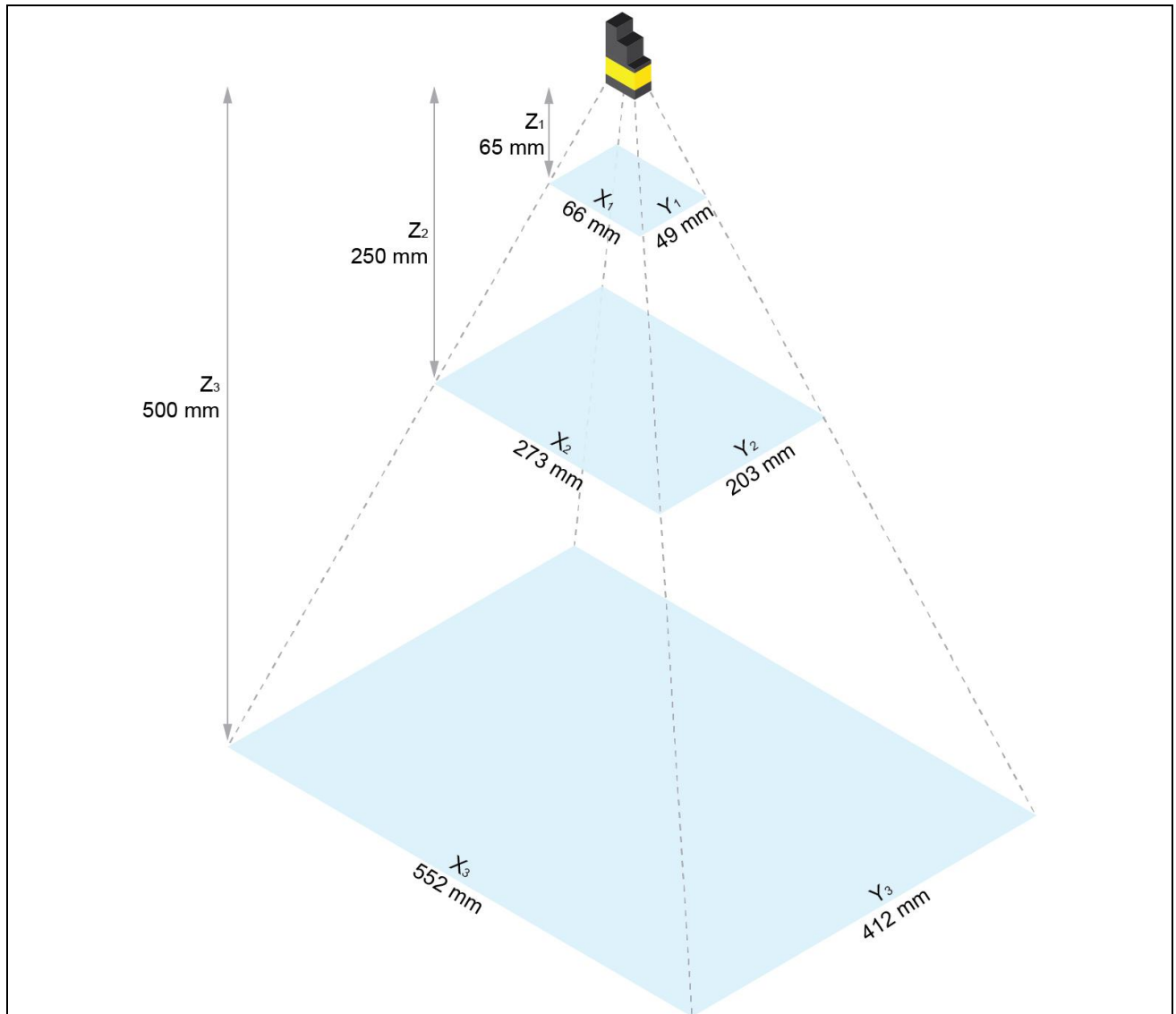


- Dimensions are in millimeters and are for reference purposes only.
- All specifications are for reference purposes only and can change without notice.



Field of View and Working Distance

This section provides the Field of View (FoV) values for 4.5 mm lenses.

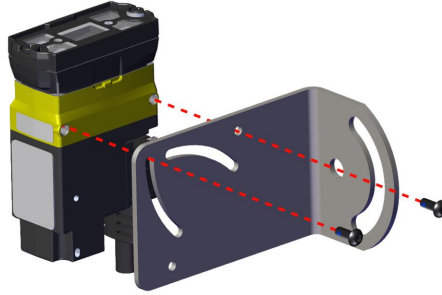


Working Distance	Horizontal Values	Vertical Values
Z ₁ = 65 mm [2.56 in]	X ₁ = 66 mm [2.60 in]	Y ₁ = 49 mm [1.93 in]
Z ₂ = 250 mm [9.84 in]	X ₂ = 273 mm [10.75 in]	Y ₂ = 203 mm [7.99 in]
Z ₃ = 500 mm [19.69 in]	X ₃ = 552 mm [21.73 in]	Y ₃ = 412 mm [16.22 in]
Z ₃ = 750 mm [27.60 in]	X ₃ = 830 mm [32.68 in]	Y ₃ = 620 mm [24.41 in]

Mounting the Device

The device provides mounting holes for attachment to a mounting surface.

CAUTION: The device has to be grounded, either by mounting the device to a fixture that is electrically grounded or by attaching a wire from the mounting fixture of the device to frame ground or Earth ground. If a ground wire is used, it has to be attached to one of the two mounting points on the bottom plate of the device and not to the mounting points on the front of the device.



Align the holes on the mounting surface with the mounting holes on the device. Insert the M3 screws into the mounting holes.

Connection Options

This section summarizes connection options.

Connecting the Ethernet Cable

CAUTION: The Ethernet cable shield has to be grounded at the far end. If the far end device is not grounded, add a ground wire in compliance with local electrical codes. The cable is typically plugged into a switch or router, which has to have a grounded Ethernet connector. Use a digital voltmeter to validate the grounding.

1. Connect the M12 connector of the Ethernet cable to the device ENET connector.
2. Connect the RJ-45 connector of the Ethernet cable to a switch/router or PC, as applicable.

Using your Device through USB

You can use the USB connector of the SLX-80 for emulating Ethernet functionality.

Note: To prevent issues, ensure that the USB connector is tightly screwed on.

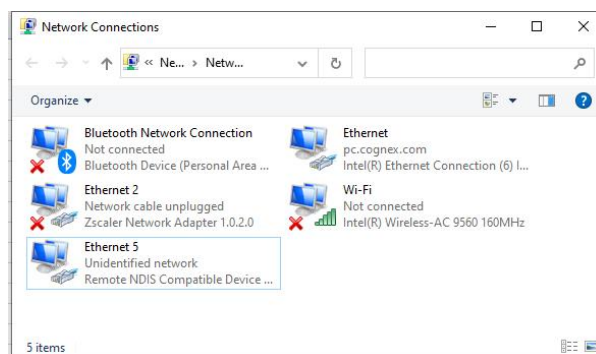
Emulating Ethernet Functionality

You have to configure the connection between the PC and the SLX-80 to use the emulated Ethernet-over-USB functionality.

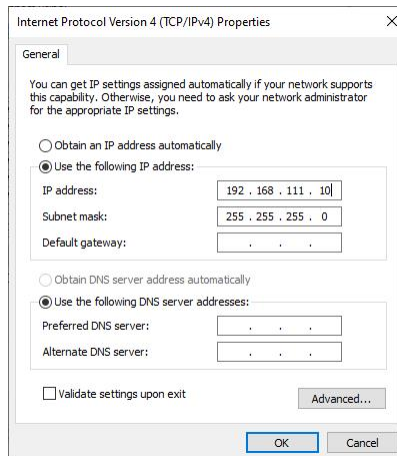
The SLX-80 has the fixed IP address 192.168.111.2 through an emulated Ethernet connection.

Configure the PC-emulated Ethernet driver to be in the same LAN

1. Connect the PC to the SLX-80 with an USB-C cable.
2. Open **Control Panel** and select **Network and internet**.
3. Select **Network and Sharing Center**, then select **Change adapter settings**.
4. Identify the virtual adapter. On the example image, it is Ethernet 5.



5. Right-click on the virtual adapter and select **Properties**. Assign a fixed IP to the network adapter starting with 192.168.111.



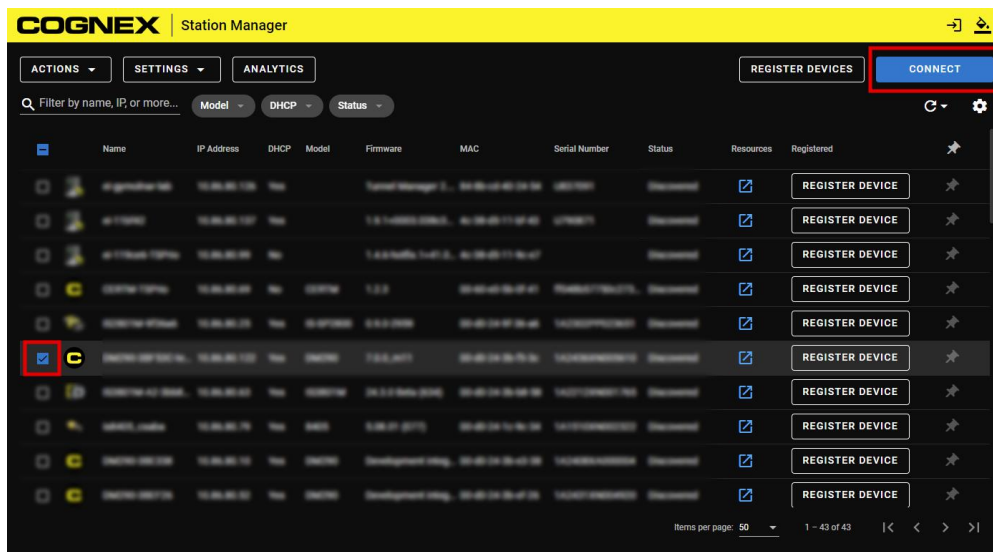
Using Your SLX-80 Device

This section provides information on the installation of the WebUI, trigger types, and protocols.

Connect to Station Manager

To connect to the Station Manager:

1. Go to support.cognex.com/en/downloads/edge-intelligence and select Cognex Station Manager.
2. Download the Station Manager installer and follow the on-screen steps.
3. Find and select your device.
4. Click **Connect** and set up.



Trigger Methods

The SLX-80 devices support the following trigger modes:

- **Hardware Signal:** the device acquires images when it receives a signal on input line 0.
- **Software Command:** the device acquires images when it receives a trigger command through an industrial protocol or TCP.
- **Internal Timer:** the device automatically acquires images at a configurable interval. This enables continuous inspection or code reading without an external signal.

The Hardware Signal and Software Command trigger modes support the following trigger behaviors:

- **One Time:** the device acquires and processes one image for each trigger using the currently enabled tools. The device relies on an external trigger source.
- **Repeating:** The device acquires and processes images continuously after one trigger. The device stops image acquisition when a tool returns a result or the trigger signal becomes inactive.

Industrial Protocols

The device supports the following industrial protocols:

- EtherNet/IP™, EDS and PLC
- PROFINET (Class B)

You can enable or disable industrial protocols in the WebUI under the **Protocols** pane of the **Communications** step.

Once enabled, you must reboot the device for the changes to take effect.

For more information on using the industrial protocols, see the *Industrial Protocols* section of the **Software Manual** available through the **Help** menu, or available on the [Cognex support site](#).

Specifications

The following sections list general specifications for the device.

SLX-80 Series Device

Specification	SLX-80
Weight	130 g
Power	With Cognex Serial IO cable: 5.5 – 24 V +10% With USB-C cable: 4.75 – 5.25 V
Power Consumption	5 V DC Average: 3.5 W Maximum: 4.5 W
Operating Temperature	0–40 °C (32–104 °F)
Storage Temperature	-10–60 °C (14–140 °F)
Humidity	<95% non-condensing
Environmental	IP40, indoor use only, pollution degree II
Shock	IEC 60068-2-27 - 500 shocks in each polarity of each (X, Y, and Z) axis, 3000 shocks total, semi-sinusoidal, 11 g, 10 ms
Shock (Shipping and Storage)	ISTA-1A Standardized Testing - Packaged Products 150 lb or less
Vibration	IEC 60068-2-6: vibration test in each of the three main axis for 2 hours @ 10 Gs (10 to 500 Hz at 100 m/s ² / 15 mm)
Vibration (Shipping and Storage)	FedEx Vibration Testing for packaged products 150 lbs or less
Codes	1-D barcodes: Codabar, Code 25, Code 39, Code 128, Code 93, UPC/EAN/JAN, MSI 2-D barcodes: Data Matrix, QR Code, DotCode
High-Speed Output 0	I _{MAX} : 50 mA
	V _{OL} : ≤ ± 3 V @ 50 mA
Input 0	V _{IL} : ≤ ± 6 V
	V _{IH} : ≥ ± 12 V
	I _{TYP} : 4.2 mA @ 24 V
RS-232	RxD, TxD according to TIA/EIA-232-F
Job Program and Image Storage Memory	380 MB

SLX-80 Device Image Sensor

Specification	SLX-80
Image Sensor	1/3-inch CMOS, global shutter, Monochrome
Image Sensor Properties	Diagonal size: 6.21 mm Pixel size: 3.45 μm (H) x 3.45 μm (V)
Image Resolution (pixels)	1440 x 1080 (1.6 MP)
Electronic Shutter Speed	Minimum exposure: 43 μs Maximum exposure: 200 ms (with external illumination)
Image Acquisition at Full Resolution	Maximum: 45 Hz
Lens Type	4.5 mm f6

Illumination Characteristics

The following table shows the illumination characteristics of the SLX-80 device.

Illumination	Powered through USB	
	Maximum Exposure Time	Maximum Duty Cycle
Standard White	1 ms	6%
High Power White	1 ms	6%

LED Wavelengths

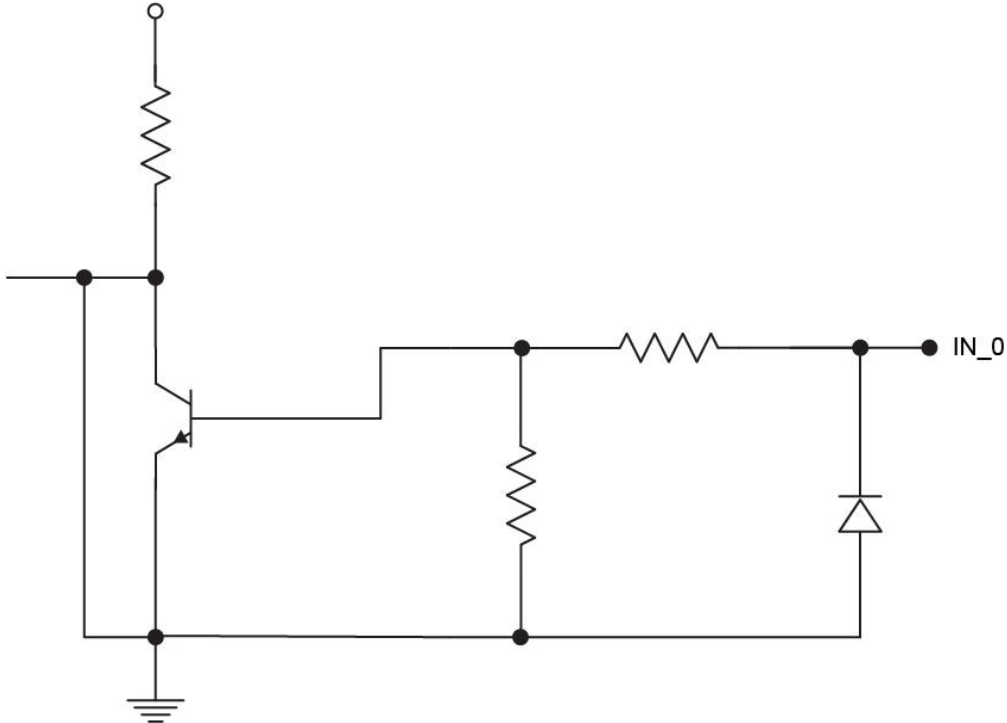
The following table shows LED types and the related peak wavelengths.

LED	λ [nm]
WHITE	6500K (Color temperature)

Acquisition Trigger Input

The device features one acquisition trigger input. You can configure the acquisition trigger input to trigger from an NPN (current sinking) device.

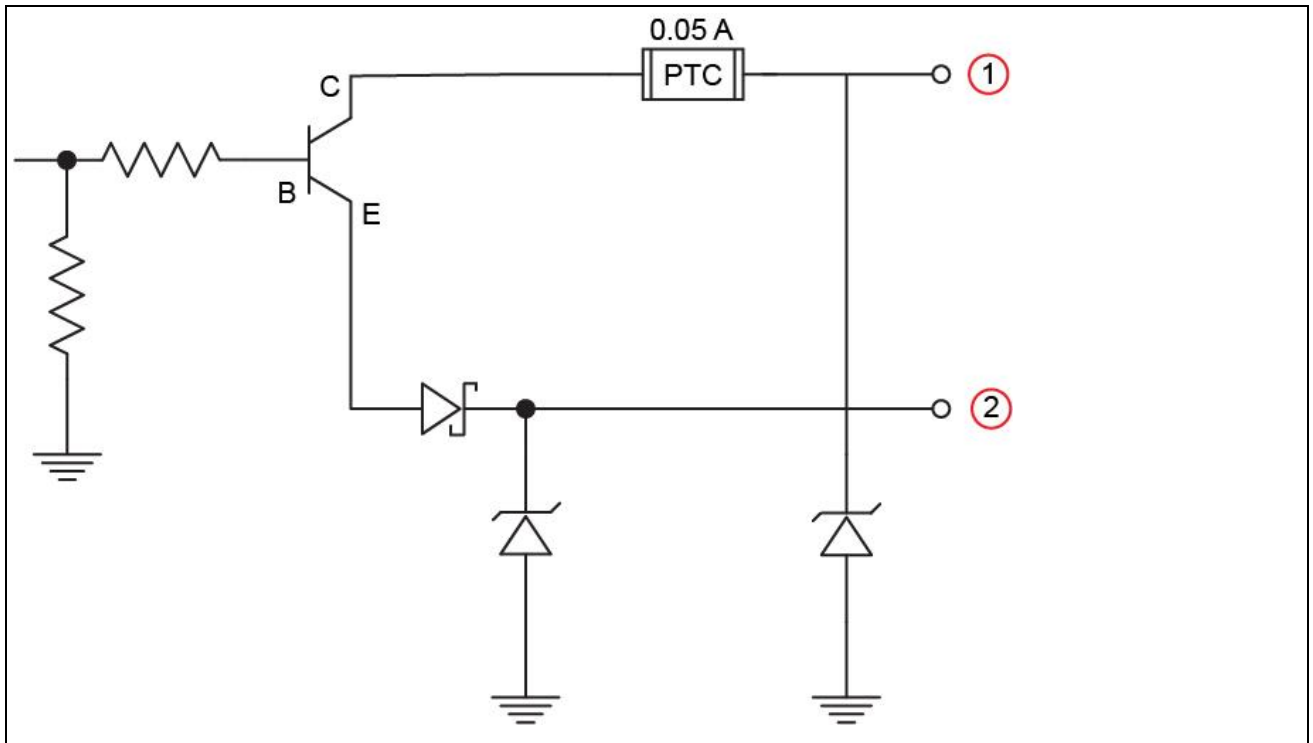
To trigger from an NPN type photoelectric sensor or PLC output, connect IN 0 to the output of the photoelectric sensor. The reference of the input is GND. When the output turns ON, it pulls TRIGGER down to 0 VDC, turning the transistor ON.



High-Speed Outputs

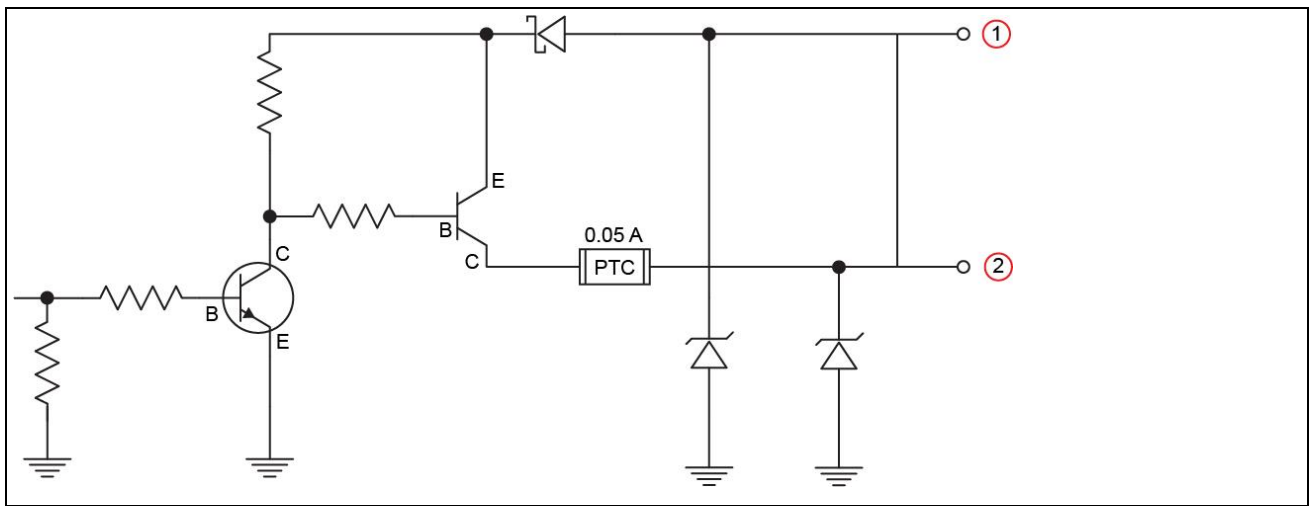
Specification	Description
Voltages	V_{MAX} : 26 VDC through external load V_{OL} : $\leq \pm 3$ V @ 50 mA
Current	I_{MAX} : 50 mA maximum sink or source current Each line is protected against over-current, short circuits and transients from switching inductive loads. High current inductive loads require an external protection diode.

For NPN lines, the external load should be connected between the output and the positive supply voltage (< 26 VDC). The output pulls down to less than 3 VDC when ON, which causes current to flow through the load. When the output is OFF, no current flows through the load.



Number	Output
1	NPN OUT
2	COMMON OUT

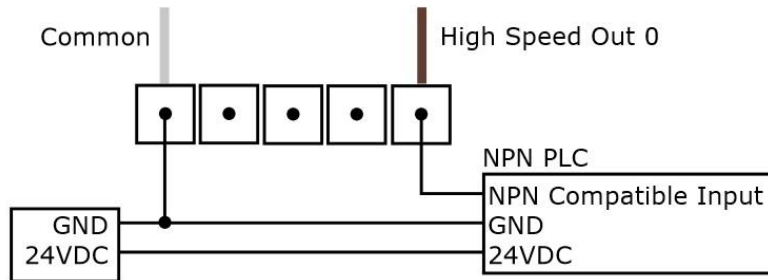
For PNP lines, the external load should be connected between the output and the negative supply voltage (0 VDC). When connected to a 24 VDC power supply, the output pulls up greater than 21 VDC when ON, and current flows through the load. When the output is OFF, no current flows through the load.



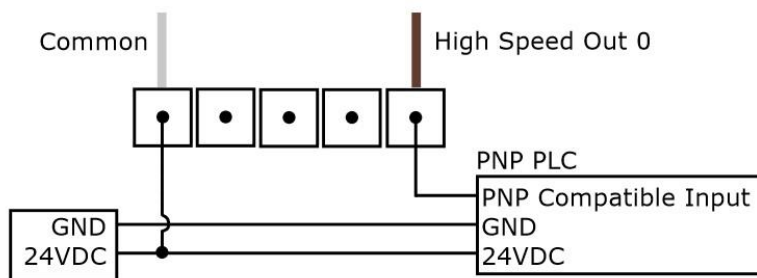
Number	Output
1	COMMON OUT
2	PNP OUT

High Speed Output Wiring

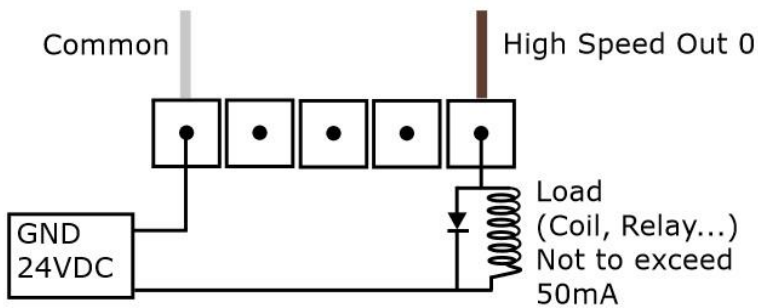
To connect to an NPN-compatible PLC input, connect one of the device's high-speed outputs directly to the PLC input. When enabled, the output pulls the PLC input down to less than 3 VDC.



To connect to a PNP-compatible PLC input, connect one of the device's high-speed outputs directly to the PLC input. When enabled, the output pulls the PLC input up to greater than 21 VDC.




To connect the high-speed outputs to a relay, LED or similar load, connect the negative side of the load to the output and the positive side to +24VDC. When the output switches on, the negative side of the load is pulled down to less than 3 VDC, and 21 VDC appears across the load. Use a protection diode for a large inductive load, with the anode connected to the output and the cathode connected to +24 VDC.



Cleaning and Maintenance

Clean the Housing

To clean the outside of the device housing, use a small amount of mild detergent cleaner or isopropyl alcohol on a cleaning cloth. Do not pour the cleaner on the device housing.

 **CAUTION:** Do not attempt to clean any SLX product with harsh or corrosive solvents, including lye, methyl ethyl ketone (MEK) or gasoline.

Clean the Device Image Sensor Window

To remove dust from the outside of the image sensor window, use a pressurized air duster. The air must be free of oil, moisture or other contaminants that could remain on the glass and possibly degrade the image. Do not touch the glass window. If oil or smudges remain, use a cotton bud and alcohol (ethyl, methyl, or isopropyl) to clean the window. Do not pour the alcohol on the window.




Clean the Device Lens Cover

To remove dust from the lens cover, use a pressurized air duster. The air must be free of oil, moisture or other contaminants that could remain on the lens cover. To clean the plastic window of the lens cover, use a small amount of isopropyl alcohol on a cleaning cloth. Do not scratch the plastic window. Do not pour the alcohol on the plastic window.

Regulations and Conformity

Note: For the most current CE and UKCA declaration and regulatory conformity information, see the Cognex support site: cognex.com/support.

SLX-80 devices have Regulatory Model 50180 and meet or exceed the requirements of all applicable standards organizations for safe operation. However, as with any electrical equipment, the best way to ensure safe operation is to operate them according to the agency guidelines that follow. Please read these guidelines carefully before using your device.

Safety and Regulatory	
Manufacturer	Cognex Corporation One Vision Drive Natick, MA 01760 USA
	SLX-80: Regulatory Model 50180 This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take immediate measures. This equipment complies with the essential requirements of the EU Directive 2014/30/EU. Declarations are available from your local representative.
EU RoHS	Compliant to the most recent applicable directive.
FCC	FCC Part 15, Class A This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Korea 	This device is certified for office use only and if used at home, there can be frequency interference problems. A급 기기 (업무용 방송통신기자재): 이 기기는 업무용 (A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다. SLX-80: R-R-CGX- 50180
TÜV	SLX-80: Regulatory Model 50180 NRTL: TÜV SÜD SCC/NRTL OSHA Scheme for UL/CAN 61010-1. CB report available upon request. TÜV SÜD, IEC/EN 61010-1.
	SLX-80: Regulatory Model 50180 This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take immediate measures. This equipment complies with the essential requirements of the Electromagnetic Compatibility Regulations 2016. Declarations are available from your local representative.

中国大陆RoHS (Information for China RoHS Compliance)

根据中国大陆《电子信息产品污染控制管理办法》(也称为中国大陆RoHS), 以下部份列出了本产品中可能包含的有毒有害物质或元素的名称和含量。



Hazardous Substances 有害物质						
Part Name 部件名称	Lead (Pb) 铅	Mercury (Hg) 汞	Cadmium (Cd) 镉	Hexavalent Chromium (Cr (VI)) 六价铬	Polybrominated biphenyls (PBB) 多溴联苯	Polybrominated diphenyl ethers (PBDE) 多溴二苯醚
Regulatory Model 50180	X	O	O	O	O	O

This table is prepared in accordance with the provisions of SJ/T 11364.
这个标签是根据SJ/T 11364 的规定准备的。

O: Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB / T26572 - 2011.
表示本部件所有均质材料中含有的有害物质低于GB / T26572 - 2011 的限量要求。

X: Indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB / T26572 - 2011.
表示用于本部件的至少一种均质材料中所含的危害物质超过GB / T26572 - 2011 的限制要求。

For European Community Users

Cognex complies with Directive 2012/19/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on waste electrical and electronic equipment (WEEE).

This product has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment, if not properly disposed.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems for product disposal. Those systems will reuse or recycle most of the materials of the product you are disposing in a sound way.



The crossed out wheeled bin symbol informs you that the product should not be disposed of along with municipal waste and invites you to use the appropriate separate take-back systems for product disposal.

If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You may also contact your supplier for more information on the environmental performance of this product.

