

Fork Sensors

Catalog Numbers 45LSP-2LNA1-P3, 45LSP-2LPA1-P3, 45LSP-2LNA2-P3, 45LSP-2LPA2-P3, 45LSP-2LNA3-P3, 45LSP-2LPA3-P3, 45LSP-2LNA4-P3, 45LSP-2LPA4-P3, 45LST-1LEA1-P4, 45LST-1LEA2-P4, 45LST-1LEA3-P4, 45LST-1LEA4-P4, 45LST-1LEA5-P4, 45LST-1LEA6-P4, 45LST-1LEA7-P4

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Plastic Fork Sensors



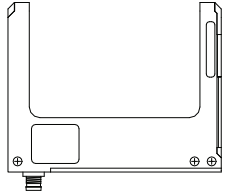
Features

The 45LSP plastic fork sensors include the following features:

- Detection of objects as small as 0.2 mm (0.08 in.)
- Highly visible power and output LED indicators with output indication along both sides of the fork
- Remote teach and teach button lock on 4-pin models
- Selectable light or dark operate
- Multiple mounting options: through-holes, threaded holes, and dovetail
- Easy installation with no alignment required
- IP67 rated enclosure

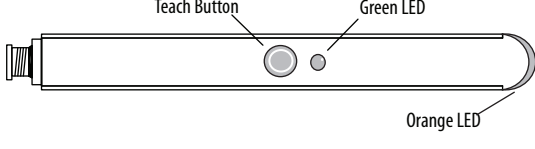


Table 1 - Product Selection

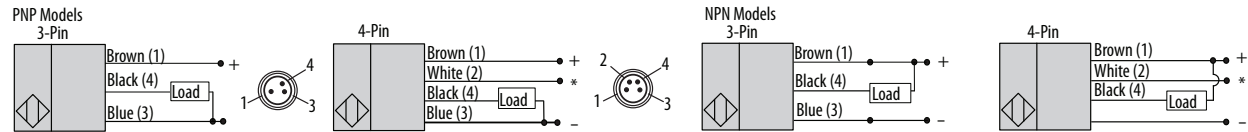
Sensing Mode	Light Source	Sensing Gap [mm (in.)]	Sensitivity Adjustment	Output Function	Output Type	Catalog Number ⁽¹⁾
Transmitted Beam Optical Fork 	Visible red LED 640 nm	30 (1.2)	Push button	Selectable light or dark operate	NPN	45LSP-2LNA1-P3
		50 (2)			PNP	45LSP-2LPA1-P3
		80 (3.2)			NPN	45LSP-2LNA2-P3
					PNP	45LSP-2LPA2-P3
					NPN	45LSP-2LNA3-P3
					PNP	45LSP-2LPA3-P3
					NPN	45LSP-2LNA4-P3
	PNP	45LSP-2LPA4-P3				
Recommended standard 3-pin DC pico (M8) quick-disconnect cordset						889P-F3AB-2
Recommended standard 4-pin DC pico (M8) quick-disconnect cordset						889P-F4AB-2

(1) Connection Options: The -P3 suffix describes a 3-pin pico (M8) integral QD. For additional connection options, replace the -P3 suffix with -P4: For a 4-pin pico (M8) integral QD connection (for example, 45LSP-2LPA1-P4).

Table 2 - User Interface Panel

Type	LED Color	State	Status
Plastic Fork 	Orange	Off	Output is de-energized
		On	Output is energized
		Flashing	Teach mode or short-circuit protection active
	Green	Off	Power is off
		On	Power is on
		Off	Teach mode

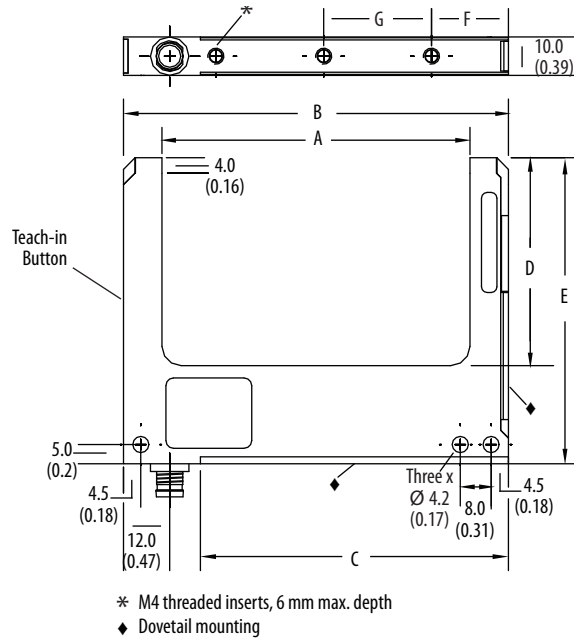
Wiring Diagrams



* Remote teach

Approximate Dimensions

[mm (in.)]



Gap Size (mm)	A	B	C	D	E	F	G
30	30 (1.18)	50 (1.97)	30 (1.18)	34 (1.34)	59.5 (2.34)	20 (0.79)	—
50	50 (1.97)	70 (2.76)	50 (1.97)	54 (2.13)	79.5 (3.13)	20 (0.79)	28 (1.10)
80	80 (3.15)	100 (3.93)	80 (3.15)	54 (2.13)	79.5 (3.13)	20 (0.79)	2 x 28
120	120 (4.72)	140 (5.51)	120 (4.72)	54 (2.13)	79.5 (3.13)	20 (0.79)	3 x 28

Optical and Response Time Characteristics

Characteristic	45LSP Plastic Fork			
	30 mm	50 mm	80 mm	120 mm
Resolution	0.2 mm (0.008 in.)			0.4 mm (0.016 in.)
Light Source	Visible red LED 640 nm			
Response Time	0.25 ms			

Metal Fork Sensors



Features

The 45LST Metal Fork Sensors include the following features:

- Multi-turn sensitivity adjustment allows for high-precision adjustment
- Fast 30 μs response time for selected models
- NPN or PNP push-pull output helps streamline product inventory
- Industrial aluminum housing
- IP65 rated enclosure

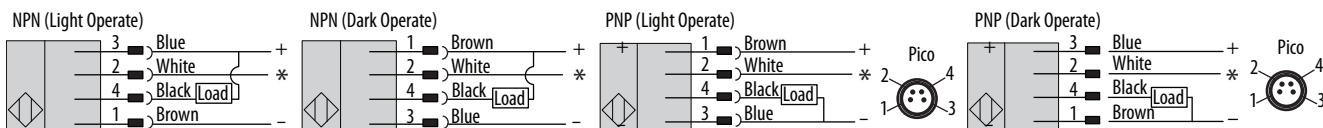
Table 3 - Product Selection

Sensing Mode	Light Source	Sensing Gap [mm (in.)]	Sensitivity Adjustment	Output Function	Output Type	Catalog Number
Transmitted Beam Optical Fork	Infrared non-modulated	2 (0.08)	25-turn potentiometer	Selectable light or dark operate	Push-pull (NPN or PNP)	45LST-1LEA1-P4
		15 (0.6)				45LST-1LEA2-P4
		30 (1.2)				45LST-1LEA3-P4
		50 (2)				45LST-1LEA4-P4
	Infrared modulated	80 (3.2)				45LST-1LEA5-P4
		120 (4.7)				45LST-1LEA6-P4
		225 (8/9)				45LST-1LEA7-P4
Recommended standard 4-pin DC pico (M8) quick-disconnect cordset						889P-F4AB-2

Table 4 - User Interface Panel

Type	LED Color	State	Status
Metal Fork	Orange	Off	Output is de-energized
		On	Output is energized
	Green	Off	Power is off
		On	Power is on

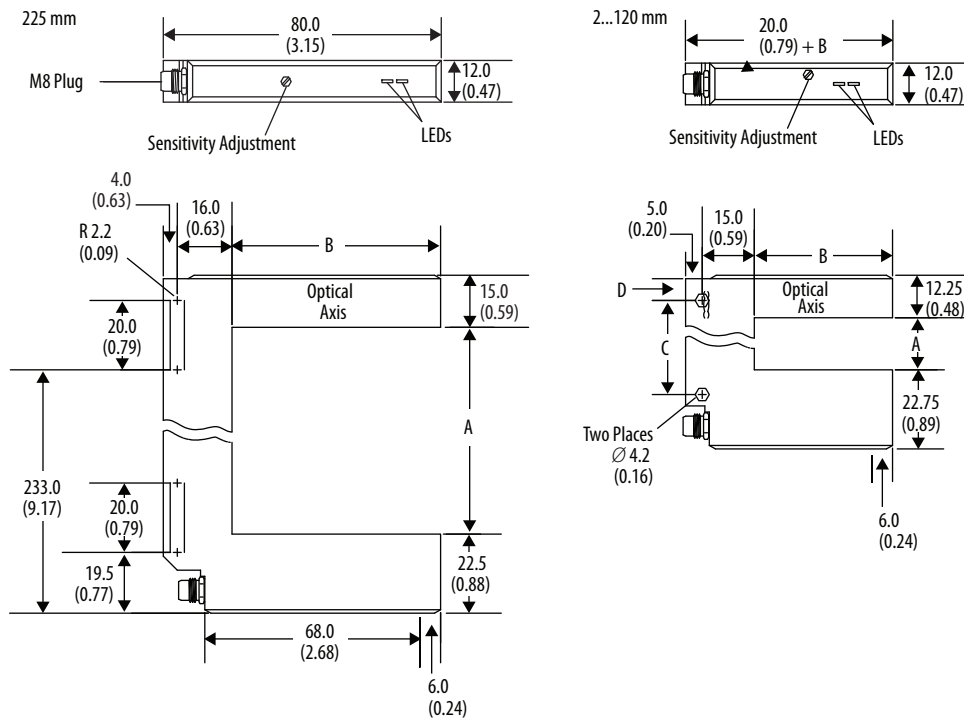
Wiring Diagrams



* White wire not used.

Dimensions

[mm (in.)]



Optical and Response Time Characteristics

Characteristic	45LST Metal Fork [mm (in.)]	
	2 mm	15, 30, 50, 120, and 225 mm
Resolution	—	—
Light Source	Infrared non-modulated	
Response Time	0.03 ms	1 ms

Accessories

Description	Catalog Number
Pico style QD cordset, 3-pin	889P-F3AB-2
Dovetail Bracket used for Background and Foreground Suppression Sensors 44B	44B-BKT

Specifications

Attribute	45LSP Plastic Fork	45LST Metal Fork
Certifications	c-UL-us Listed and CE Marked for all applicable directives	
Vibration	10...55 Hz, 1 mm (0.04 in.) amplitude, meets or exceeds IEC600947-5-2	
Shock	30 g with 1 ms pulse duration, meets or exceeds IEC 600947-5-2	
Environmental		
Enclosure type rating	IP67	IP65
Operating temperature	-10...+60 °C (14...140 °F)	-20...+60 °C (-4...+140 °F)
User Interface		
Sensitivity adjustment	Push button	25-turn potentiometer
Indicator LEDs	Green and orange LEDs	Green and red LEDs
Electrical		
Operating voltage	10...30V DC	
Current consumption	30 mA	40 mA max
Protection type	Short circuit, reverse polarity, false pulse, overload	
Outputs		
Response time	0.25 ms	1 ms, 0.03 ms (45LST-1LEA1-P4)
Output type	⁽¹⁾	Push-pull output (NPN or PNP)
Output function	Selectable light or dark operate	
Load current	100 mA	
Leakage current	0.5 mA max	—
Mechanical		
Housing material	Polycarbonate	Anodized aluminum
Connection type	⁽¹⁾	4-pin pico (M8) integral QD

(1) For Output Type and Connection Type, see [Product Selection](#).

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.rockwellautomation.com/global/certification/overview.page	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at <http://www.rockwellautomation.com/global/literature-library/overview.page>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

Notes:

Rockwell Automation Support

Rockwell Automation Support

Use the following resources to access support information.

Technical Support Center	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.	www.rockwellautomation.com/knowledgebase
Local Technical Support Phone Numbers	Locate the phone number for your country.	www.rockwellautomation.com/global/support/get-support-now.page
Direct Dial Codes	Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.	www.rockwellautomation.com/global/support/direct-dial.page
Literature Library	Installation Instructions, Manuals, Brochures, and Technical Data.	www.rockwellautomation.com/literature
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	www.rockwellautomation.com/global/support/pcdc.page

Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete the How Are We Doing? form at http://literature.rockwellautomation.com/idc/groups/literature/documents/du/ra-du002_-en-e.pdf.

Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment can be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental information on its website at <http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page>.

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Publication FORK-TD001A-EN-P - May 2018