

LPD Series
INSTRUCTION MANUAL

TCD230053AI

Autonics

Thank you for choosing our Autonics product.

Read and understand the instruction manual and manual thoroughly before using the product.

For your safety, read and follow the below safety considerations before using.

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

Keep this instruction manual in a place where you can find easily.



Visit Autonics website (www.autonics.com or QR code) for the latest information. Manuals, CAD files, certifications, software, etc. are available. The dimensions, specifications, certifications, etc. are subject to change without notice for product improvement. Certain models may be discontinued without notice.

Safety Considerations

- Observe all ‘Safety Considerations’ for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

⚠ Warning Failure to follow instructions may result in serious injury or death.

01. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.(e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)

Failure to follow this instruction may result in personal injury, economic loss or fire.

02. Do not use or store the unit in the place where flammable/explosive/ corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact or salinity may be present.

Failure to follow this instruction may result in explosion or fire.

03. Do not modify the unit.

Failure to follow this instruction may result in fire.

04. Do not connect, repair, or inspect the unit while connected to a power source.

Failure to follow this instruction may result in fire.

05. Check ‘Connections’ before wiring.

Failure to follow this instruction may result in fire.

⚠ Caution Failure to follow instructions may result in injury or product damage.

01. Use the unit within the rated specifications.

Failure to follow this instruction may result in fire or product damage.

02. Use a dry cloth to clean the unit, and do not use water or organic solvent.

Failure to follow this instruction may result in fire.

Cautions during Use

- Follow instructions in ‘Cautions during Use’.
- Otherwise, it may cause unexpected accidents.
- Power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Use the product, after about 15 min of supplying power. Temperature compensation stabilizes the device. If device stabilization is not completed, sensing performance may deteriorate.
- When teaching, the [Teach-in] button axis must be pressed correctly for operation. Do not press the button with a sharp object. If the button is damaged, there may be operational or functional problems.
- Wire as short as possible and keep away from high voltage lines or power lines, to prevent surge and inductive noise. Do not use near the equipment which generates strong magnetic force or high frequency noise (transceiver, etc.).
- In case installing the product near the equipment which generates strong surge (motor, welding machine, etc.), use diode or varistor to remove surge.
- This unit may be used in the following environments.
 - Indoors (UL Type 1 Enclosure)
 - Altitude max. 2,000 m
 - Pollution degree 3
 - Installation category II

Cautions for Installation

■ Environment

- Install the unit correctly with the usage environment, location, and the designated specifications.
- Install no objects other than the sensing target in the detection width area. For the area, refer to the product manual.

■ Wire

- Do NOT strike with a hard object or excessively bend the wire lead-out, as it may damage the waterproofing.
- In case of IO-Link mode, the cable length between the unit and the IO-Link Master should be under 20 m.
- Fasten the connector so that no thread is visible.
- Fasten the connector in vibration environments using PTFE tape to prevent loosening.

■ Tightening torque

- Connector - M8: ≤ 0.2 N m
 - M12: 0.39 to 0.49 N m
- M4 × 14 bolt (LPD-14-□-□): 0.5 N m
 - (LPD-103-□-□): 3 N m

■ Influence by surrounding metals

If there are metallic objects other than the detection object around the product, incorrect measurement signals may occur. To prevent malfunction due to surrounding metal, install as follows.

LPD-14-□-□	Unit: mm	LPD-103-□-□	Unit: mm
Maintain a metal-free area of approximately 10 mm along all sides of the aspect of the product. If the detection object is not a steel for general structure (SS275, SM45C, etc.), attach the target (TG-LPD-T8, sold separately) to the detection object and use it.		Maintain a metal-free area of approximately 20 mm along all sides of the aspect of the product.	

Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website.

LPD - ① - ② - ③

① Detection range 14: 14 mm 103: 103 mm	③ Connection type No mark: Cable type W8: Cable M8 connector type W12: Cable M12 connector type CM8: M8 connector type CM12: M12 connector type
② Output No mark: Voltage + Current V: Voltage C: Current IL2: IO-Link COM2	

Product Components

Model	LPD-14-□-□	LPD-103-□-□
Product components	Product, Instruction manual	
M4 × 14 bolt	× 2	× 4
Bracket	-	× 2

Sold Separately

- M8 Connector cable: CID□408-□, CLD□408-□, C□D4-□EB, C□DH4-□EB
- M12 Connector cable: C□D4-□, C□DH4-□-□
- Target: TG-LPD-T8

Software

Download the installation file and the manuals from the Autonics website.

■ atIOLink

atIOLink with purposes for setting, diagnosis, initialization, and maintenance of IO-Link device via IODD file is provided as the Port and Device Configuration Tool (PDCT).

Specifications

Model		LPD-14-V-□	LPD-14-C-□	LPD-14-IL2-□	LPD-103-□	LPD-103-IL2-□
Detection range		14 mm			103 mm	
Detection object distance		0.5 to 2.0 mm			0.5 to 3.0 mm	
Function		Positioning				
Detection type		Inductive				
Linearity		± 250 μm			± 400 μm	
Repeatability		± 80 μm				
Response time		≤ 30 ms				
Power supply		15 - 30 VDC≡, Rated voltage: 24 VDC≡				
Output spec. 01)		0 - 10 VDC≡	DC 4 - 20 mA	IO-Link COM2	0 - 10 VDC≡ DC 4 - 20 mA	IO-Link COM2
OOR ⁰²⁾ output	START	0 VDC≡	4 mA	IO-Link COM2	0 VDC≡ 4 mA	IO-Link COM2
	END	10 VDC≡	20 mA		10 VDC≡ 20 mA	
Load resistance		≥ 2,000 Ω	≤ 500 Ω	-	Voltage: ≥ 2,000 Ω Current: ≤ 500 Ω	-
Current consumption (no load)		≤ 35 mA			≤ 55 mA	
Insulation resistance		≥ 100 MΩ (500 VDC≡ megger)				
Dielectric strength		Between the live part and the case: 500 VAC≡ ~ 50 / 60 Hz for 1 min				
Vibration		1.0 mm double amplitude at frequency 10 to 55 Hz in each X, Y, Z direction for 30 min.				
Shock		Half-sinus, 30 g, 11 ms (EN 60068-2-27, Shock)				
Protection circuit		Output short over current protection circuit, reverse polarity protection circuit				
Ambient temp. ⁰³⁾		-25 to 70 °C, storage: -25 to 70 °C (no freezing or condensation)			-25 to 85 °C, storage: -25 to 85 °C (no freezing or condensation)	
Ambient humi.		35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)				
Protection rating		IP67 (IEC standard)				
Standard detection object material		Steel for general structure (SS275, SM45C, etc.).				
Material		Housing, sensing part: PBT				
Certification		CE   IO-Link ⁰⁴⁾				

01) For more information, refer to 'Analog Output Feature Data'.

02) Out of Range. When there is no detection object within the detection range or teaching range

03) UL approved ambient temperature: 70 °C

04) It is applied to the IO-Link communication output model.

Model	LPD-14-□-□			LPD-103-□-□	
Connection type	Cable type	Cable connector type		Connector type	
Connector spec.	-	M8 4-pin plug	M12 4-pin plug	M8 4-pin plug	M12 4-pin plug
Cable spec.	Ø 4 mm, 4-wire (oil resistant PVC)	Ø 4 mm, 4-wire (oil resistant PVC)		-	
Cable length	2 m	300 mm			
Wire spec.	AWG 23 (0.08 mm, 60-core)	AWG 23 (0.12 mm, 50-core)	AWG 23 (0.08 mm, 60-core)		
Insulator diameter	Ø 1.28 mm	Ø 1.6 mm	Ø 1.28 mm		
Unit weight (package)	≈ 67.74 g (≈ 76.7 g)	≈ 25.33 g (≈ 50.34 g)	≈ 33.06 g (≈ 42.6 g)	≈ 49.4 g (≈ 74.8 g)	≈ 53.5 g (≈ 79.0 g)

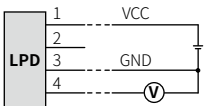
Communication Interface

■ IO-Link

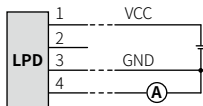
Version	Ver. 1.1
Class	Class A
Baud rate	COM 2 (38.4 kbps)
Min. cycle time	2.3 ms
Data length	PD: 2 byte, OD: 1 byte (M-sequence: TYPE_2_2)
Vendor ID	899 (0x383)

Wiring Diagram

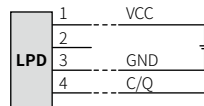
■ LPD-14-V-□



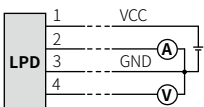
■ LPD-14-C-□



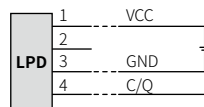
■ LPD-14-IL2-□



■ LPD-103-□



■ LPD-103-IL2-□



Connections

Pin	Color	Voltage / Current output	Voltage + Current output	IO-Link Comm. output
1	Brown	VCC		
2	White	N.C	I OUT	N.C
3	Blue	GND		
4	Black	V OUT / I OUT	V OUT	C/Q

[M8 connector]

[M12 connector]

Indicator

- START, END points are based on the center of the detection object.

