45DLA

Discrete Light Arrays

Description

The Allen-Bradley 45DLA discrete light array is an ON/OFF sensor that utilizes an array of transmitted beam photoelectric sensor pairs to detect objects over a much wider span than traditional sensors. The 45DLA are packaged as transmitted beam pairs (the emitter and receiver arrays are both included). The controls are integrated into the array housing and no separate controller is required. The emitter and receiver are optically synchronized and therefore do not need to be wired together.

Features

- Integrated light array controller
- IP54
- Simple, flexible mounting
- Optically synchronized (no electrical connection between emitter and receiver required)
- Push/pull (PNP/NPN) outputs (connect to sinking or sourcing inputs)
- Wiring selectable range and output state (light/dark operate)
- 30 mm resolution
- Sensing height of 118…734 mm (4.6…28.9 in.)

Specifications

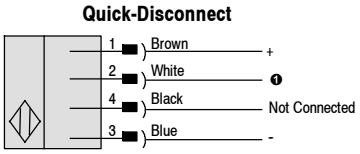
Environmental	
Certifications	CE Marked for all applicable directives
Operating Environment	IP54
Operating Temperature [C (F)]	-20°…+65° (-4°…+149°)
Vibration	2 g, 10…200 Hz; 20 sweeps each axis; meets or exceeds EN 60068-2-6
Shock	15 g, 11 ms, 3 x each axis; 10 g, 16 ms, 100 x each axis; meets or exceeds EN 60068-2-27 and EN 60068-2-29
Relative Humidity	5....95% (noncondensing)
Ambient Light Immunity	75,000 Lux
Optical	
Sensing Modes	Transmitted beam pair
Sensing Range	200…1500 mm (7.9…59 in.) or 1.0…8.0 m (3.3…26.2 ft)
Field of View	Emitter (long range selected): 15° @ 3.0 m (9.8 ft) Receiver (when emitter has long range selected): 35° @ 3.0 m (9.8 ft)
Light Source	Infrared LED (880 nm)
LED Indicators	Green (transmitter only) = power, orange (receiver only) = target present
Adjustments	Selectable range (by wiring input)
Resolution	30 mm (1.2 in.)
Beam Pitch	22 mm (0.87 in.)
Number of Beams	4…32 by Cat. No.
Sensing Height	118…734 mm (4.65…28.9 in.) by cat. no.
Electrical	
Voltage	14…30V DC
Current Consumption	50 mA @ 24V DC without load connected
Sensor Protection	Short circuit (SCP), reverse polarity
Outputs	
Response Time	25…165 ms by cat. no.
Power-On Time	100 ms + response time
Output Type	PNP/NPN (single push/pull output)
Output Mode	Dark or light operate selectable (by wiring)
Output Current	120 mA max.
Mechanical	
Housing Material	Aluminum
Housing Height	266…882 mm (10.5…34.7 in.) by cat. no.
Lens Material	Polycarbonate
Cable Material	PVC
Connection Type	4-pin DC micro (M12) on 150 mm (6 in.) cable pigtail

User Interface Panel

LED	Description	Status	Meaning
Emitter Array	Emitter Status	Off	No Power
		Green	Power OK
Receiver Array	Receiver Status	Off	No power OR target not present
		Orange	Power OK and target present (or arrays not aligned)

Wiring Diagrams

Emitter



❶ Pin 2 (white wire): Connect to 0V or not connected for 1.0…8.0 m (3.3…26.2 ft) range; connect to V+ (24V) for 0.2…1.5 m (0.6…4.9 ft) range.

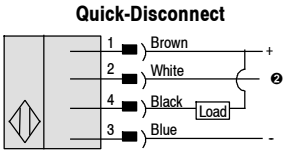
Note: In applications with multiple 45DLA pairs in one area, it is recommended to use the shorter range option (by connecting Pin 2/white wire to 24V) to reduce the potential for interference between separate pairs.

Note: For applications with a range of less than 1 m (3.3 ft) it is recommended to use the shorter range option to improve the response time.

Receiver:

The 45DLA uses a push/pull transistor output that can be wired as either a PNP or NPN style output.

Wired as NPN output:

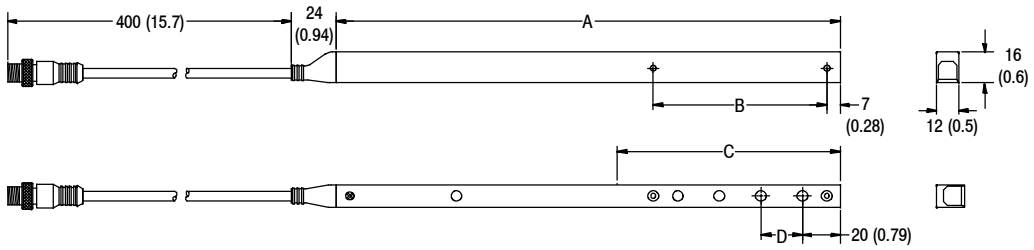


❷ Pin 2 (white wire): Connect to V+ (24V) or not connected for D.O.; connect to 0V for L.O.

Wired as PNP output:

❸ Pin 2 (white wire): Connect to V+ (24V) or not connected for L.O.; connect to 0V for D.O.

Approximate Dimensions [mm (in.)]



Note: Mounting from the front of the array (lens side) requires M4 flat head (countersunk) screws (included). Mounting from the side of the array requires M4 pan head screws.

No. of Beams	Approximate Dimensions [mm (in.)]				Cat. No.
	A: Housing Height	B: Mounting Holes	C: Sensing Height	D: Pitch	
4	266 (10.5)	92 (3.6)	118 (4.65)	22 (0.87)	45DLA-1LEB1T-F4
8	354 (13.9)	180 (7.1)	206 (8.11)	22 (0.87)	45DLA-1LEB2T-F4
16	530 (20.9)	356 (14.0)	382 (15.04)	22 (0.87)	45DLA-1LEB4T-F4
24	706 (27.8)	532 (20.9)	558 (21.97)	22 (0.87)	45DLA-1LEB6T-F4
32	882 (34.7)	708 (27.9)	734 (28.9)	22 (0.87)	45DLA-1LEB8T-F4

Product Selection

Sensing Height [mm (in.)]	Response Time	Cat. No.
118 (4.65)	25 ms	45DLA-1LEB1T-F4
206 (8.11)	45 ms	45DLA-1LEB2T-F4
382 (15.04)	85 ms	45DLA-1LEB4T-F4
558 (21.97)	125 ms	45DLA-1LEB6T-F4
734 (28.9)	165 ms	45DLA-1LEB8T-F4

Note: Both emitter (light source) and receiver arrays are included in the package.

Cordsets and Accessories

Cordset		Accessories	
Description	Cat. No.	Description	Cat. No.
DC Micro QD Cordset, 4-pin, 2 m (6.5 ft)	889D-F4AC-2	DC Micro Splitter	879D-F4DM
DC Micro QD Patchcord, 4-pin, 2 m (6.5 ft)	889D-F4ACDM-2		

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Preferred availability cat. nos. are printed in **bold**.