

DD / DDOF Reflective Area Detection Light Grid

Single-side mounted area detection light grids — DD diffuse-reflection type (to 2000 mm) and DDOF time-of-flight type (to 4000 mm, no blind zone, background suppression).

⚠ **Application limit:** per the factory manual, this series — both DD and DDOF — is recommended for area detection **ONLY** and must not be used for safety protection purposes. Neither series is certified to IEC 61496, EN ISO 13849-1 (PL) or IEC 62061 (SIL). For personnel protection, specify a certified through-beam safety light curtain (e.g. DAIDISIKE DQT4).

1. Series Overview

Emitter and receiver share one 35 × 35 mm housing: the grid mounts on a single side, needs no opposite receiver and no beam alignment, and wires at one end only. Two series share every dimension, mounting hole and model tier — swappable on the same bracket:

Function	DD — diffuse reflective type	DDOF — TOF (time-of-flight) type
Detection method	Judges presence from reflected light energy intensity	Each beam axis measures distance independently; triggers inside the set window
Max detection distance	Up to 2000 mm	Up to 4000 mm
Blind zone	May have a blind zone	No blind zone
Background colour / target reflectivity	Affected; stable background required	Not affected; small distance attenuation
Distance setting	Gears 1–9 + self-learning at gear 0	One-key distance setting
Output	NPN + PNP both fitted; normally-open default, NC switchable	
Beam count	4–50 even numbers, 24 standard tiers; any even count to order	

2. Model Selection Table — Both Series, All 24 Tiers

Model = series + beam count + pitch (DDOF2040 = TOF, 20 beams, 40 mm pitch). Detection height H = beams × 40 mm; total height L = H + 49 mm.

Beams	DDOF (TOF)	DD (diffuse)	H (mm)	L (mm)	Beams	DDOF (TOF)	DD (diffuse)	H (mm)	L (mm)
4	DDOF0440	DD0440	160	209	28	DDOF2840	DD2840	1120	1169
6	DDOF0640	DD0640	240	289	30	DDOF3040	DD3040	1200	1249
8	DDOF0840	DD0840	320	369	32	DDOF3240	DD3240	1280	1329
10	DDOF1040	DD1040	400	449	34	DDOF3440	DD3440	1360	1409
12	DDOF1240	DD1240	480	529	36	DDOF3640	DD3640	1440	1489
14	DDOF1440	DD1440	560	609	38	DDOF3840	DD3840	1520	1569
16	DDOF1640	DD1640	640	689	40	DDOF4040	DD4040	1600	1649
18	DDOF1840	DD1840	720	769	42	DDOF4240	DD4240	1680	1729
20	DDOF2040	DD2040	800	849	44	DDOF4440	DD4440	1760	1809
22	DDOF2240	DD2240	880	929	46	DDOF4640	DD4640	1840	1889
24	DDOF2440	DD2440	960	1009	48	DDOF4840	DD4840	1920	1969
26	DDOF2640	DD2640	1040	1089	50	DDOF5040	DD5040	2000	2049

3. Dimensions & Dead Points

Housing cross-section	35 × 35 mm extrusion, T-slot mounting channel
Beam pitch D	40 mm (all standard models)
End caps	A1 top = 12 mm · A2 bottom (cable exit) = 12 mm
Dead points	B1 top = ½ pitch (20 mm) · B2 bottom = ½ pitch + 25 mm (45 mm)
Formulas	H = beams × 40 mm · L = beams × 40 mm + 49 mm

The end segments B1/B2 do not detect — orient the cable end away from the edge where detection matters most, and size the beam count so the zone you need falls inside H.

4. Wiring

Wire colour	Function
Brown	+24 V supply
Blue	0 V (GND)
Black	NPN signal output
White	PNP signal output

Both output types are fitted on every unit — connect the wire that matches the PLC input card and insulate the other.

Default output: normally open. To switch to NC: with power off, press and hold the adjustment button; keep holding while powering on; release once the red LED lights — the NC setting is saved.

The factory sheet does not print the output load rating, response time, supply tolerance, IP rating or temperature range — confirm these in writing with the factory for your model before ordering if the application depends on them.

5. Adjustment — Gears, Self-Learning, One-Key Distance

- **Gears (DD):** match gear 1–9 to the actual working distance; long-press 1 s to save, or auto-save after 30 s. No gear→distance table is published — tune against the real target.
- **Self-learning (DD):** at default gear 0, long-press 2 s with a fixed background; the grid learns the distance and sets emission intensity itself (green LED flashes). Not suitable where background brightness varies greatly or background position changes frequently.
- **One-key distance (DDOF):** set the sensing window with a single key press; judgment by distance means colour or film changes need no re-tuning.
- **Indicators:** green LED = power · red LED = signal · large digital display = active gear/status.

6. Choosing Between DD and DDOF — Six Scenarios

1. **Conveyor package / rack-slot detection:** uniform cartons + fixed baffle → DD; mixed black totes, film, cartons, or span > 2000 mm → DDOF.
2. **AGV & forklift passageways:** 2–4 m widths, wildly varying surfaces → DDOF by default; DD only for narrow, fixed-wall, uniform traffic.
3. **Automatic doors / equipment openings:** moving door = moving background → DDOF; exclude the door with the distance window.
4. **Palletizing & robot cells:** 800–1600 mm zones (20–40 beams); moving pallets and mixed loads → DDOF. Person-entry stop functions require a certified safety curtain, not this series.
5. **Packaging in/outfeed:** ≤ 2000 mm against a fixed frame → DD; transparent/metallized film with jumping reflectivity → DDOF or sample-test first.
6. **Roller shutters / lifting platforms:** textbook changing-background case → DDOF with a locked distance band.

7. Use Restriction

Per the factory manual: this reflective light grid series is recommended for area detection only and must not be used for safety protection purposes. This applies equally to DD and DDOF — the DDOF's better detection performance does not change its regulatory status. Do not connect either series into a stop circuit intended to protect a person. Workstations requiring personnel protection need a certified safety light curtain (IEC 61496) wired through a safety relay or safety PLC — DAIDISIKE supplies the DQT4 Type 4 family for that duty.

Foshan DAIDISIKE Optoelectronics Technology Co., Ltd. · www.fsddsk.com · Tel/WhatsApp +86 15218909599

Values transcribed from the 2026-08 factory manual. Parameters the factory does not publish are stated as such rather than estimated.

Specifications subject to change; confirm critical values in writing at order time.