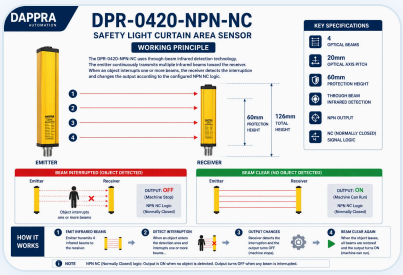
DAPPRA Automation

Industrial Sensor Manufacturer



DPR-0420-NPN-NC

Industrial Area Sensor / Safety Light Curtain

SKU: SD69

SIL 2 Certified

Product Datasheet

Version 1.0 — September 2020

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DPR-0420-NPN-NC

Industrial Area Sensor / Safety Light Curtain

SKU: SD69 DAPPRA Automation SIL 2 Certified

Product Overview

The DAPPRA DPR-0420-NPN-NC is a multi-beam infrared area sensor designed for machine protection and industrial automation applications. The product uses a through-beam infrared detection method with an emitter and receiver configuration. When an object enters the detection area and interrupts the infrared beams, the receiver detects the interruption and changes the sensor output according to the configured signal logic. The DPR-0420-NPN-NC can be described as a light curtain-type machine protection sensor, using multiple infrared beams rather than a single-point photoelectric detection method. It is suitable for applications including CNC machines, packaging machinery, conveyor systems, and robot peripheral protection.

Key Features at a Glance

Detection Method

Through-Beam Infrared

Beam Quantity

4 Beams

Optical Axis Pitch

20 mm

Protection Height

60 mm

Total Housing Height

126 mm

Output Type

NPN NC (Normally Closed)

Response Time

<5 ms

Protection Rating

IP65

Detection Distance

0.2–3 m

Power Supply

DC24V ±20%

Typical Applications

- CNC machine protection
- Press and hydraulic machine safeguarding
- Packaging machinery detection
- Conveyor system monitoring
- Robot workcell peripheral protection

Technical Specifications

Parameter	Specification
Brand	DAPPRA
Manufacturer	DAPPRA Automation
Product Series	DPR Series
Model	DPR-0420-NPN-NC
SKU	SD69
Product Category	Industrial Area Sensor
Related Product Type	Safety Light Curtain / Light Curtain
Detection Method	Through Beam Infrared Detection
Beam Quantity	4 Beams
Optical Axis Pitch	20 mm
Protection Height	60 mm
Total Height (Housing)	126 mm
Output Type	NPN Output
Signal Logic	NC (Normally Closed)
Response Time	<5 ms
Power Supply	DC24V ±20%
Protection Rating	IP65
Detection Distance	0.2–3 m

Parameter	Specification
Ambient Light Resistance	10000 Lux
Operating Temperature	-10°C to 55°C
Cross Section	29 × 30 mm

Output Configuration

Condition	Signal
Normal beam transmission	0V output
Beam interrupted	No output

Model Number Explanation

Code	Meaning	Description
DPR	Product Series	DAPPRA DPR Industrial Area Sensor Series
04	Beam Quantity	4 optical beams
20	Optical Axis Pitch	20 mm beam spacing
NPN	Output Type	NPN transistor output
NC	Signal Logic	Normally Closed

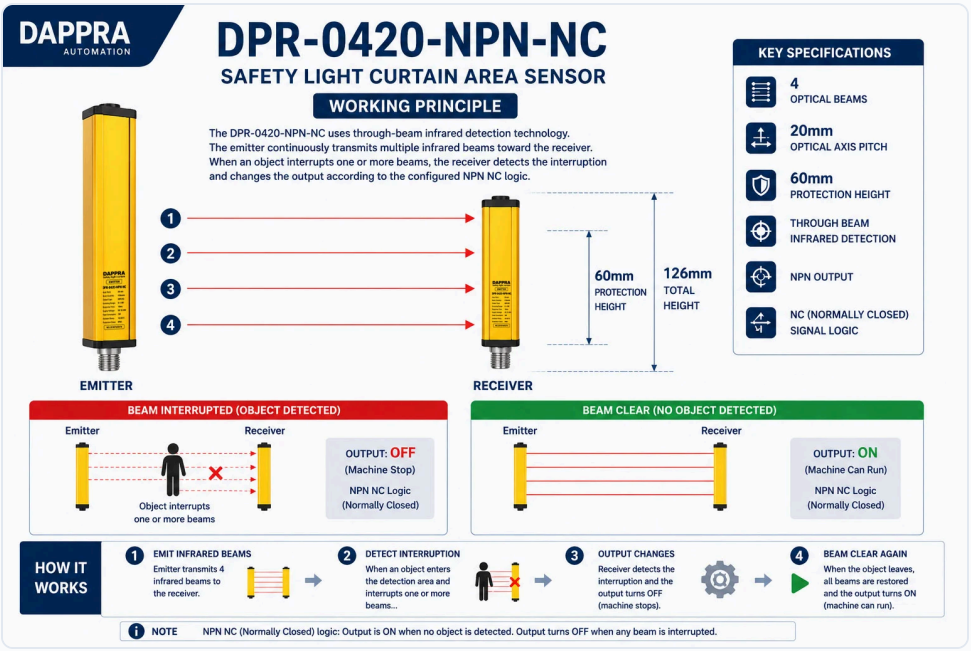
> `Protection Height = (Beam Quantity - 1) × Optical Axis Pitch`
> `(4 - 1) × 20 mm = 60 mm`

Working Principle

The DPR-0420-NPN-NC uses a through-beam infrared detection method with an emitter and receiver. The emitter continuously sends multiple infrared beams toward the receiver to create a detection area. When an object enters the detection zone and blocks one or more beams, the receiver detects the interruption and changes the output signal according to the configured NPN NC logic.

Detection Process

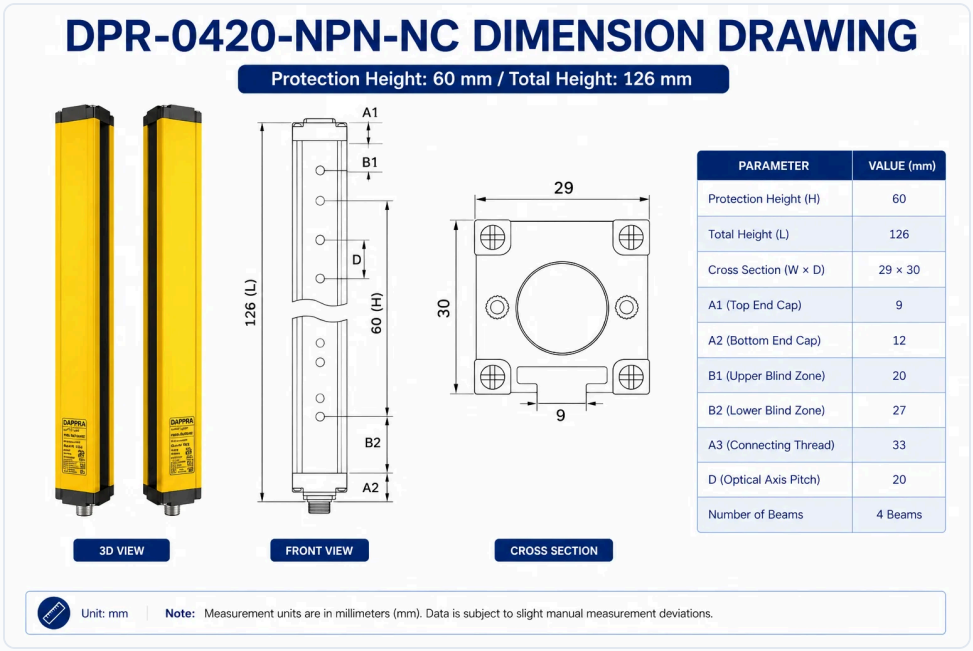
1. **Infrared Beam Transmission** — The emitter generates multiple infrared beams and sends them toward the receiver.
2. **Detection Area Creation** — The multiple beams create a detection field (4 beams, 20 mm pitch, 60 mm protection height).
3. **Object Detection** — When an object enters the detection area, one or more infrared beams are interrupted.
4. **Signal Output** — The receiver processes the interruption and changes the output signal.



DAPPRA DPR-0420-NPN-NC Area Sensor detects objects for machine protection.

Mechanical Dimensions

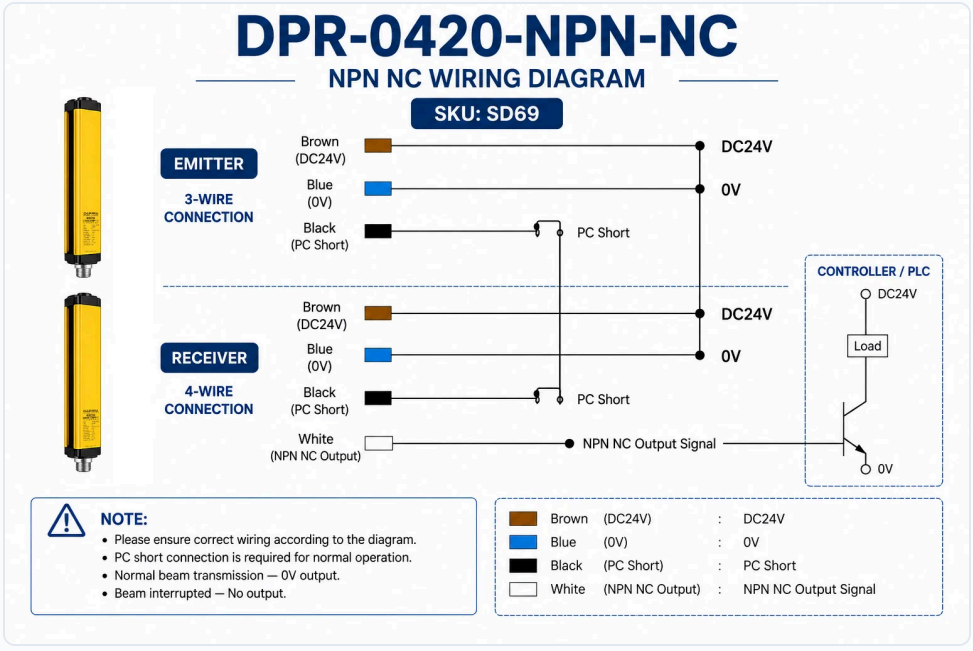
- Protection Height: 60 mm
- Optical Axis Pitch: 20 mm
- Cross Section: 29 × 30 mm
- Total Height (Housing): 126 mm



PARAMETER	VALUE (mm)
Protection Height (H)	60
Total Height (L)	126
Cross Section (W × D)	29 × 30
A1 (Top End Cap)	9
A2 (Bottom End Cap)	12
B1 (Upper Blind Zone)	20
B2 (Lower Blind Zone)	27
A3 (Connecting Thread)	33
D (Optical Axis Pitch)	20
Number of Beams	4 Beams

Mechanical dimensions of the DAPPRA DPR-0420-NPN-NC SD69 Industrial Area Sensor.

Wiring Diagram



Wiring diagram for the DAPPRA DPR-0420-NPN-NC SD69 NPN NC Area Sensor.

Safety & Compliance

SIL 2 Functional Safety Certification

The DAPPRA DPR-0420-NPN-NC has achieved **SIL 2 Functional Safety Certification** according to IEC 61508 through third-party testing and verification. The certification confirms that the product has been evaluated by an independent testing organization.

Safety Parameter	Specification
Safety Integrity Level	SIL 2
Safety Standard	IEC 61508
Certification Type	Third-party Safety Certification
Product Model	DPR-0420-NPN-NC
SKU	SD69

Additional Certifications

- CE Certification
- FCC Certification
- RoHS Compliance



Safety and compliance certifications for DAPPRA DPR-0420-NPN-NC SD69 Industrial Area Sensor, including SIL 2, CE, FCC and RoHS compliance.

DAPPRA Automation — Industrial Sensor Manufacturer

DAPPRA Automation is an industrial automation manufacturer providing industrial control components, sensors, drives, and supporting components for automation applications. The DPR Series Industrial Area Sensor is manufactured by DAPPRA's own production facility, supporting consistent product quality control and customized production requirements.

OEM & ODM Services available.

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