



# Spectiv

**G8NB Beam Detector  
USER GUIDE**

# In the Box

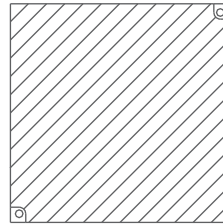
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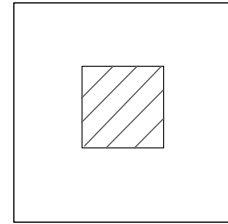
① G8NB Detector Base



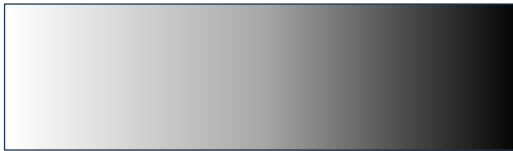
② G8NB Detector Head



③ Reflector



④ Sort Range Mask



⑤ G8NB Test Filter



User Guide

# General Information

## Installation

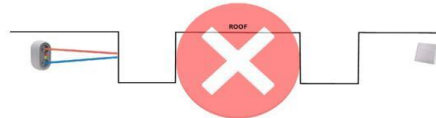
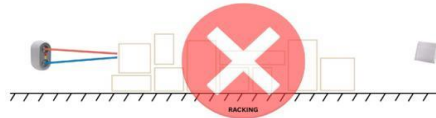
All installations should comply with local Regulations



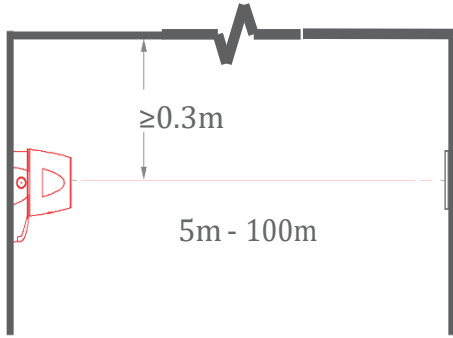
Do NOT position Detector where personnel or objects can enter the beam path

Do NOT install the Detector or Reflector in environments where condensation or icing are likely to occur

Smoke detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose



# General Information



Position as high as possible, but with a minimum distance of 0.3m from Detector and Reflector to the ceiling.

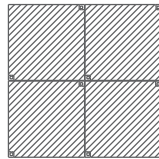
For detectors approved to UL268 refer to NFPA72 for installation guidance. In such installations, it is advised that the maximum distance of Detector and Reflector from the ceiling must be 10% of the distance between floor and ceiling



5 - 15m = Short Range Mask



15 - 50m = 1 Reflector



50 - 100m = 4 Reflectors

Ensure correct Reflector selected for the appropriate distance

Mount Detector and Reflector directly opposite each other.

Do not mount the Reflector onto reflective surface

# Wiring

The G8NB outputs the status of the detector using volt-free relays.

To wire a single Detector to an FCP, use the following wiring diagram.

### Components not supplied:

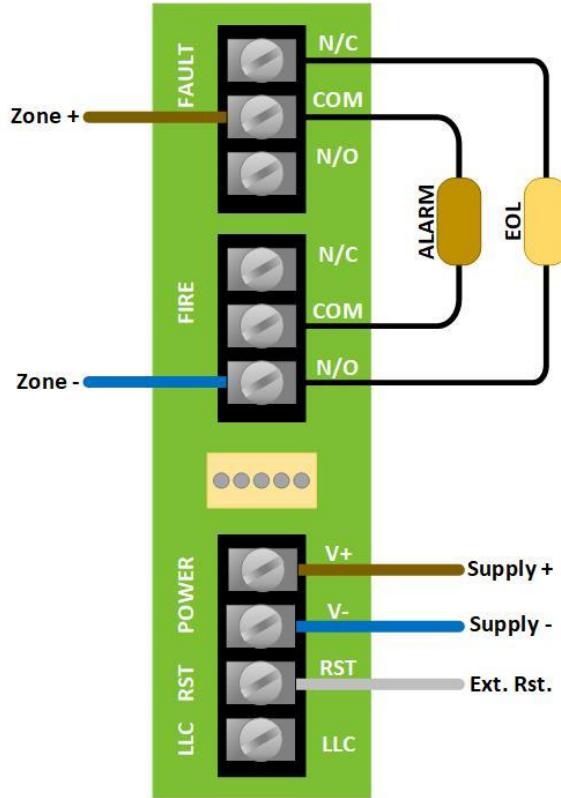
1. Alarm Resistor - specified by the FCP manufacturer. For some FCP, this can be a short-circuit
2. End Of Line ('EOL') component - supplied by FCP manufacturer

After installation, check operation of Fire and Fault connections to the FCP - see page 12.

Apply a voltage [V+] to 'Ext Reset' contact for at least 2 seconds to clear a latched fire condition - see page 10 for latched Fire setting.

CAUTION: For system monitoring - Do not use looped wire under any terminals. Break-wire run to provide monitoring of connections.

Note: Only plastic conduit to be connected to the detector and secured via the selected knock out



# Mounting

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## Mount Detector Base

Mark and drill holes for mounting the Detector Base.



With the Detector Head Cover removed, plug the Detector Head cable into the connector on the PCB of the Detector Base.



Fix the Detector Head onto the Detector Base using the using the fixing bolts.



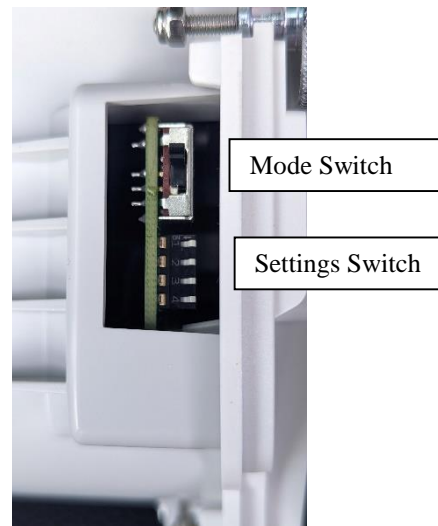
Detector Base must be mounted onto a solid surface such as a structural wall or girder.  
Appropriate hardware (not supplied) must be used to mount securely.

# Alignment

## User Interface – Mode Switch and Settings Switch



Remove the Front Cover to access the G8NB Mode and Settings Switches which are located to the side of the unit.  
**Do NOT removed the detector from the wall when accessing switches.**



## Targeting Mode

Slide the Mode Switch to the top position to start Targeting Mode. The purpose of this is to achieve the at least a solid Red LED by adjusting the Alignment Thumbwheels to steer the beam onto the Reflector. The minimum required to progress onto Alignment Mode is a solid Red LED. At shorter operating ranges, it may be possible to illuminate the Red, Amber and Green LEDs.

**Weak Red LED:** No signal or a very weak signal. Continue to adjust the beam alignment to until the Red LED increases or the Amber LED is illuminated.

**Solid Red LED:** Beam is receiving a low amount of reflected signal. Continue to adjust the beam alignment until an Amber LED is illuminated. If this is not possible, move onto Alignment mode. Note: Solid Red LED is the minimum required signal to move onto Alignment Mode

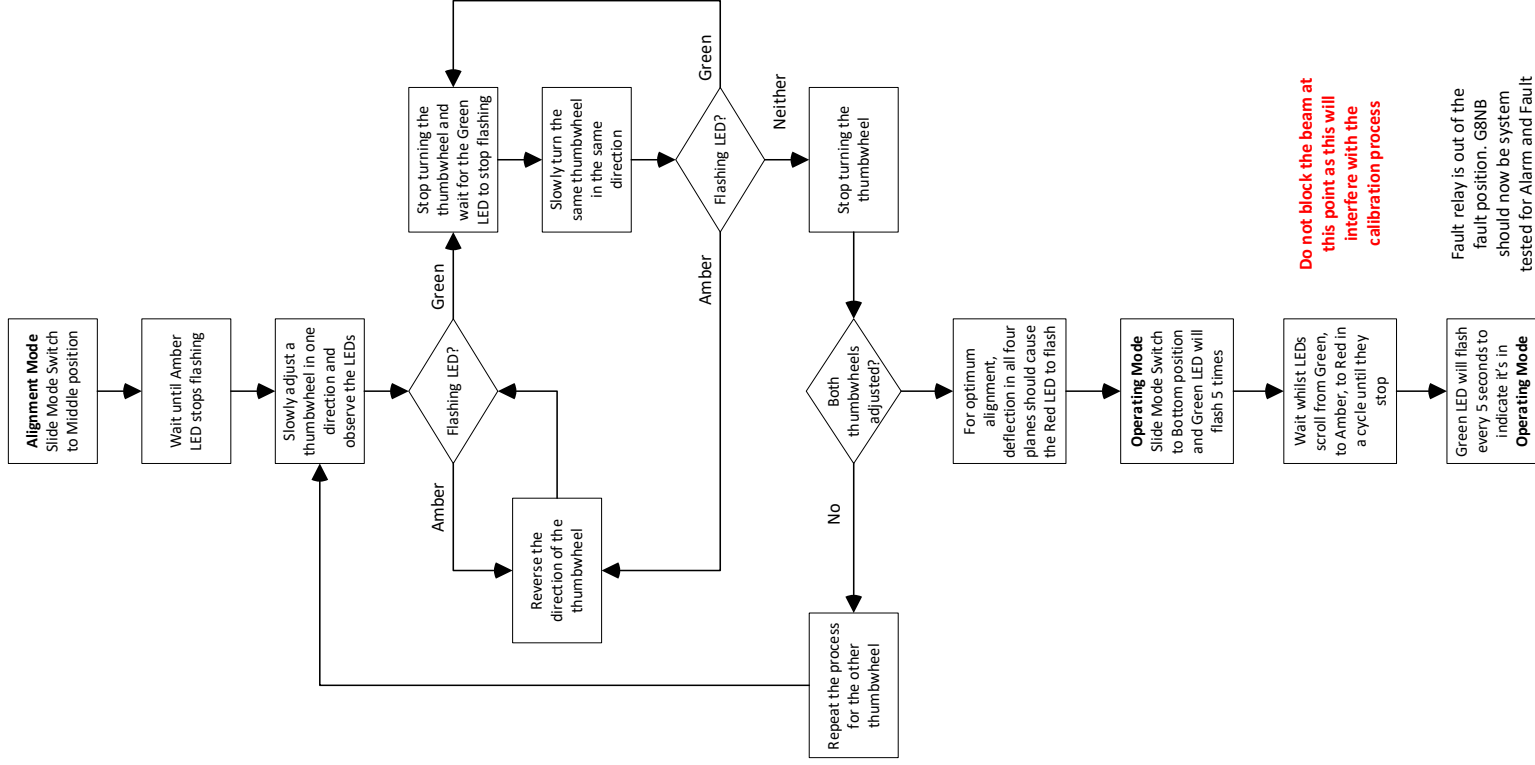
**Amber LED:** Beam is receiving a medium amount of reflected signal. Continue to adjust the beam alignment until a Green LED is illuminated. If this is not possible, move onto Alignment mode.

**Green LED:** Beam is receiving a high amount of reflected signal. Move onto Alignment mode.

Before moving onto Alignment mode, it is advised to cover the reflector fully with a non-reflective object. A weak Red LED should illuminate to indicate no signal is being received from the Reflector. If the LEDs do not change, then the beam receiving a signal from another surface. Repeat the Targeting Mode to adjust the beam onto the reflector.



# Alignment Flow Process



Once Aligned, the Fire and Fault relays will go to normal state, and the Detector will flash its status indicator green every 5 seconds.

You are now ready to select Alarm Thresholds and Latching mode, and to test the Detector to ensure it is operating and connected to the Fire Control Panel correctly.

## Settings

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### Settings Switch

Threshold	SW-1	SW-2	SW-3	SW-4
Range - 50m	OFF	X	X	X
Range - 100m	ON	X	X	X
Latched Fire	X	ON	X	X
Non-Latched Fire	X	OFF	X	X
25%	X	X	ON	OFF
35%	X	X	OFF	ON
50%	X	X	OFF	OFF
75%	X	X	ON	ON

Distance between Reflector and Detector (m)	Distance between Reflector and Detector (ft)	Acceptable Alarm Threshold
5m - 8m	16.5ft - 26ft	25%
8m - 20m	26ft - 65.5ft	25%, 35%
20m - 31m	65.5ft - 101.5ft	35%, 50%
31m - 50m	101.5ft - 164ft	50%, 75%
50m - 100m	164ft - 328ft	75%

### Latched and Non-Latched Fire

The Fire state will automatically clear once the signal strength has recovered above the threshold level unless Latched Fire has been selected. To clear a Latched Fire, apply [V+] to the **External Reset** [RST] for longer than 2 seconds. Note: the cause of the fire condition must have also cleared.

# Status Indications and Troubleshooting

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## Status Indications

### Normal Operation

During normal operation the Green Detector LED will flash once every 5 seconds, and both Fire and Fault relays will be in their normal position.

### Fire Condition

In a Fire state, the Red Detector LED will flash once every 2 seconds and the Fire relay will change state.

### Fault Condition – Rapid Obscuration

If the line of sight of the G8NB has been blocked, causing the signal level to rapidly drop close to 0%, the Amber LED will flash once every 2 seconds and the Fault relay will change state.

### Fault Condition – Dirty Lens

The G8NB compensates for dust on the lenses and reflectors to prevent false alarms. If this compensation reaches its limit, the Amber LED will flash once every 5 seconds and the Fault relay will change state. At this time, the lenses and reflectors must be cleaned and the G8NB re-aligned.

## Cleaning

The G8NB automatically compensates for dust build up by changing its AGC (automatic gain control) level. If the AGC limit has been reached, the G8NB will indicate with a flashing Amber LED every 2 seconds and a Fault and cleaning must be performed.

To clean use a soft, lint-free cloth to wipe away any dust from the lenses and reflectors. After cleaning, the G8NB must be re-aligned to reset the AGC and ensure the best possible signal.

## Testing

After installation or cleaning it is recommended that a Fire and Fault test is performed using the **G8NB Test Filter** (G8NB-TF).

**Fire Test:** Cover the reflector slowly so that it takes longer than 5 seconds to cover. The G8NB will indicate Fire after 10 seconds.

**Fault Test:** Cover the reflector completely within 2 seconds. The G8NB will indicate Fault after 10 seconds.

## Technical Information

G8NB Parameters	Minimum	Typical	Maximum	Unit
Operating Voltage	15	24	32	V DC
Operating Current	15	20	42	mA
Operating Current – Alignment Modes	-	-	55	mA
Alarm Current	25	33	55	mA
Fault Current	3	10	30	mA
Response Thresholds (25%, 35%, 50%, 75%)	25	35	75	%
Delay to Alarm	-	10	-	s
Delay to Fault	-	10	-	s
Operating Distance (Separation between Detector and Reflector) (4 reflectors required for >50m, >164ft)	5	-	100	m
Rapid Obscuration Fault Threshold	-	85	-	%
Maximum angular alignment range of detector	-	-	±4.5	Deg
Optical Wavelength	-	850	-	nm
Operating Temperature	-	-20 -4	+55 +131	°C °F
Storage Temperature	-	-	+55	°C
Relative Humidity (non-condensing)	-	-	93	%RH
IP Rating	-	IP40	-	IP
Fire & Fault Relays (VFCO) - Contact voltage	-	-	30	V DC
Fire & Fault Relays (VFCO) - Contact current	-	-	1	A
Cable Gauge	22	-	16	AWG
Housing Flammability Rating	-	UL94 V0	-	-
G8NB Dimensions and Weights	Width (mm)	Height (mm)	Depth (mm)	Weight (kg)
Reflective Detector	115	190	130	0.7
Reflector	100	100	10	0.1