FUWEI

Guangzhou FUWEI Electronic Technology Co.,Ltd

FGU-03N-X Series

PHOTOELECTRIC LABEL SENSOR

Safety Warning

- Do not use in an environment with flammable, explosive or corrosive gases.
- Do not use in an environment with oil or chemicals.
- Do not use in an environment with high humidity.
- Do not use in direct sunlight.
- Do not use under other environmental conditions that exceed the rated value.
- Do not disassemble, repair or modify the product without permission.

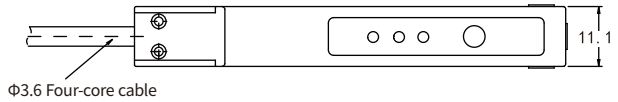
End-of-life Disposal

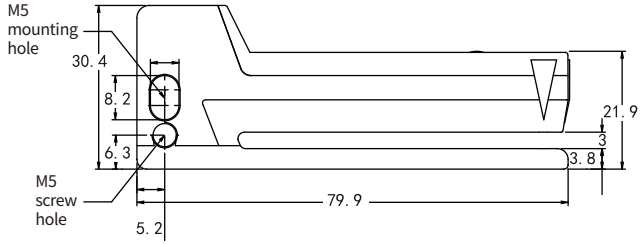
When the product is disposed of, please dispose of it as industrial waste.

Specification

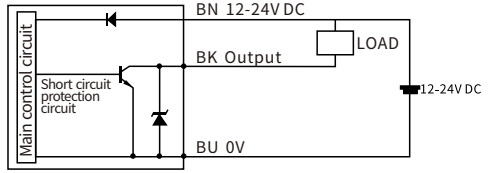
Model number		FGU-03N-X	FGU-03P-X
Size	Slot width	3mm	
	Slot depth	60mm	
Minimum detection width		⩾2mm	
Minimum detection depth		⩾2mm	
Light source		940nm (Infrared radiation lamp)	
Response frequency		Max 10kHz	
Conveyor speed		⩽20m/min (0.3m/s)	
Response time		⩽50μs	
Post-start delay		⩽300ms	
Operating voltage		12-24V DC	
Residual voltage		⩽2V	
Open circuit current		⩽30mA	
Switching output		Push-pull output	
Warning output		Red indicator light on	
Switching output function		Light on operation/Dark on operation(switchable)	
Storage Temp.		-30~+70°C	
Output current		⩽100mA	
Capacitive load		⩽0.2μF³	
Indicator	Red light	Proofreading errors/operational errors	
	Green light	Normally open normally closed	
	Blue light	Switching signal output	
Wiring method		Three wire connection (brown/black/blue); wire length 2m	
Operating Temp.		-20~+60°C (No condensation or freezing)	
International Protection		IP66	
Weight		Approx. 55g (including wire approx. 100g)	
Material		Zinc die casting; surface electroless nickel plating (silver) ; PC plastic	

Dimensions

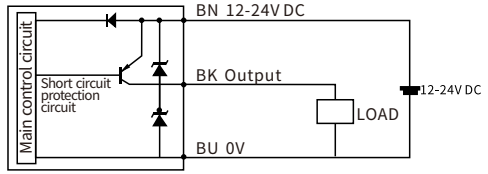




Wiring Diagram



NPN Output



PNP Output

Product Features

1. Photoelectric sensor with 3mm detection slot width and 60mm detection slot depth for optical detection, capable of accurate (unit: mm) label detection on the machine
2. High speed switching frequency and very short response speed to ensure good repeatability
3. Long slot design, easy to place labels directly on the edge of the operating slot for detection
4. Adaptive logic circuit function (automatic level control): through the autonomous optimization of the switching threshold achieve its best performance
5. Warning output for calibration value display and function operation errors
6. Easy adjustment by closed calibration buttons or calibration outputs

Calibration setting

Normally open mode (green indicator always on).
Moves one or more tags from the substrate and pushes the blank area into the sensor.
-When the blank area is pushed into the detection center, the blue output indicator turns on.
-When the tag is pushed into the center of the detection, the blue output LED turns off.
-If set correctly, the LED will turn on and off normally between the label and the gap.
Operation is complete.
Normally closed mode (green light is always off).
Moves one or more tags from the substrate and pushes the blank area into the sensor.

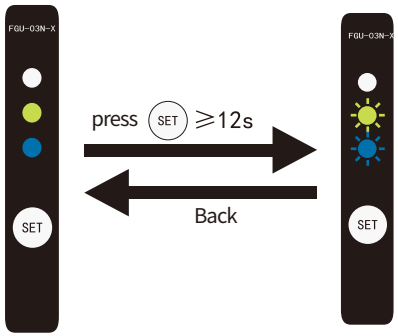
Adjusting the output path of the switch output signal

(Switching signal output at the tag gap / Switching signal output at the tag)
The sensor is usually used for this standard function during operation.
This product can detect the tag and its gap accurately at high speed. Mainly, the blue output indicator and switch output are observed for display.

Indicator (in normally open mode, for example):

Green light Normally open and normally closed indicator	When the sensor is always in working condition, the green light is always on.
Blue light Output Indicator	Displays the switch output signal. The LED t urns on if a label gap is detected.
Red light Error Indicator	If there is no operational error, the red light is not on. If the setting limit is reached or the last calibration is miscalculated, the red light turns on.

Operating procedure:
The calibration button must be pressed for at least 3 seconds to operate the product.
This button can be electrically disabled to prevent accidental operation.



Calibration "normally open and normally closed mode"
Set switch output: Switch signal output at gap/label

【Normally open setting】Press and hold the SET key for 12 seconds, the green light and the blue light will flash at the same time. 12 seconds later, the green light is always on. Press the SET key again, can use the current command normally for the switching behavior of signal output and off (i.e. the blue output light is normally on and off, and the switch signal output is normally switched), then the setting is finished.

Blue light: on=signal output in the gap; off=signal output in the label

【Normally closed setting】Press and hold the SET button for 12 seconds, the green and blue lights flash simultaneously. 12 seconds later, the green light goes out. Press the button again and can use the current command normally for the switching behavior of signal output and off (i.e. the blue output indicator lights up and off normally, and the switch signal output switches normally), then the setting is finished.

Blue light: on=signal output at the label; off=signal output at the gap

Calibrate "Set detector" (in "normally open mode" for example)
For non-transparent label detection (static or moving work)

Place the gap or blank area of the label to be detected under the detection area, press and hold the SET key for 3 seconds, the green light and blue light will flash at the same time.
Place the label to be detected under the detection area, press SET key to stop calibration, the blue light goes out and the green light is always on. Switch the tag and gap freely in the sensor, the blue output light is on and off normally, then the setting is correct.
Error Indicator - Red: If there are no errors in calibration, the red light turns off.
*Normally closed mode, the detection is the opposite of normally open mode.

Calibration Operation

For a wide range of tags, the tag sensor FGU-03N-X has the ability to detect correctly at high speed, with standard sensitivity applied to most tags.
Dynamic calibration preparation:
Embed the label conveyor into the sensor.
Static calibration preparation:
· Move the label out of the sensor substrate and push the blank area into the sensor.
· Press and hold the calibration button for 3 seconds until the green and blue lights flash simultaneously.
· Release the calibration button.
Dynamic demonstration:
· Push a label conveyor with a maximum speed of 20m/min into and through the sensor, with at least 3-7 labels passing through the sensor.
· Then briefly press the next calibration button to end this calibration operation and the sensor enters standard mode.
Static demonstration:
· The blank area remains in the sensor's detection area.
· Press the next calibration button briefly to end this calibration operation and the sensor enters standard mode.
· If the calibration operation is incorrect (e.g., the label being detected is a transparent material or the material is not uniform), the red light turns on, the green and blue lights flash rapidly, and an error output signal is generated.
· When an incorrect operation occurs, the calibration operation must be recalibrated. After recalibration, if the error cannot be corrected, then this type of label is not applicable to the FGU-03N-X.

⚠ WARNING

· This product is for target object detection only. Please do not use the product for purposes such as protecting the human body or body parts.
· This product should not be used as an explosion-proof product. Do not use this product in hazardous locations or potentially explosive atmospheres.
· This product is powered by DC. Do not use AC power. If AC voltage is applied, the product may explode or catch fire.

Product applicability description

Fuwei products are designed and manufactured for general use in the general industry. Therefore, our products are not to be used and are not suitable for the following applications. However, the product may be used if the purchaser has consulted us in advance about the use of the product in a responsible manner and is aware of the technical specifications, rating and performance of the product, and has taken the necessary safety measures. In this case, the product warranty coverage is the same as above.
· Facilities that have a serious impact on life and property, such as nuclear power plants, airports, railroads, ships, motorized devices and medical equipment
· Public utilities such as electricity, gas and water services
· Outdoor use in similar conditions or environments

Product specifications are subject to change without notice.
For more information or if you have any questions or suggestions about this product, please feel free to contact us.