

SPECIFICATIONS

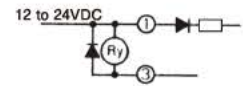
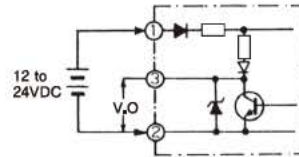
Model	NT30F	NT30FW (water cooling jacket)
Detection method	Through beam	
Detection distance	30m	
Detection object	φ22mm (Min.)	
Power supply	12 to 24VDC ±10%, Ripple 10% (Max.)	
Current consumption	Trns. : 50mA (Max.) Rcvr. : 35mA (Max.)	
Output mode	Current/Voltage	
Rating	Current : Sink current 30VDC, 100mA (Max.) Voltage : Output impedance 4.7KΩ	
Operating mode	Light ON/Dark ON Selectable	
Self-diagnostic function	Tx : Test signal input terminal/Monitor output: on at normal. (Sink current 30VDC, 100mA (Max.) Output impedance 4.7KΩ) Rx : Alarm output: outputs when the Stability indicator turns off.※ (NPN open collector Sink current 100mA or less at 30VDC, Output impedance 4.7KΩ)	
Response time	5ms or less	
Light source	Infrared LED	
LED indicator	(Trns.) P.L : Power (Red) NORM.OP : Monitor (Green)	(Rcvr.) OP.L : Operation (Red) UP : Stability (Green)
Switch	Light-On/Dark-On Selectable switch provided	
Short protection	Provided	
Case material	Zn Diecast	
Connection	Terminal	
Weight	Tx : 700g, Rx : 700g	Tx : 1300g, Rx : 1300g

(2) Receiver An alarm output (terminal 4) is equipped which generates an output when receiving light intensity is not enough or unstable. Terminal 1 and 2 are for power supply (12 to 24VDC) and the ground respectively.

● Wiring for output

■ In case of Voltage output

■ In case of Relay output



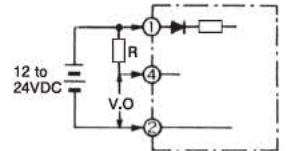
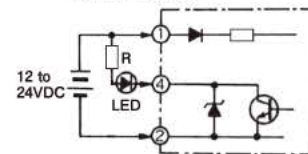
Output is selectable by Dark-ON/Light-ON switch

Ry=30VDC, 100mA (Max.)

● When using the alarm output

■ Using a LED to confirm Alarm Output

■ As a voltage output



Notes : A resistor (R) is required in series, 2KΩ to 4KΩ.

※ Alarm output will be issued when the received light intensity is less than double of the threshold.

Connect a resistor (R) between (4) and (1). The resistance value depends on the load level. Voltage output becomes available between (4) and (2) is High (off). R = ext. resistor. Normal operation, voltage output between (4) and (2) is High (off).

ENVIRONMENTAL SPECIFICATION

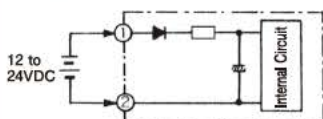
Ambient light	Withstands 20,000 lx	
Operating temp.	NT30F : -25 to +55°C (No freezing)	NT30FW : -25 to +110°C (No freezing)
Ambient Humidity	35 to 85%RH (No condensation)	
Protective structure	I P 66	
Vibration	10 to 55Hz, 1.5mm Double-amplitude, 2h, 3 Directions	

INPUT/OUTPUT CIRCUIT

(1) Transmitter

A test signal input (terminal 4) and a monitor output (terminal 3) are equipped to check the operation.

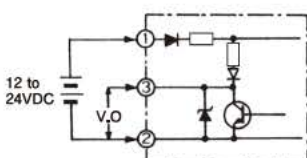
● Connection of Power Source



When power is ON, LED turns on indicating normal operation.

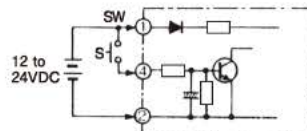
● When using the monitor output

■ As a voltage output



The NORM.OP LED (Monitor output indicator, green) turns on and the monitor output becomes High when the transmitter is functioning normally.

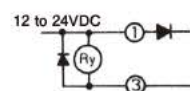
● When using the test signal input



Connect a switch (form a) between the terminal 1 and 4. Turn the switch on and if the transmitter is functioning normally, the light transmission stops after 25msec and the monitor output becomes High.

■ As a relay output (control)

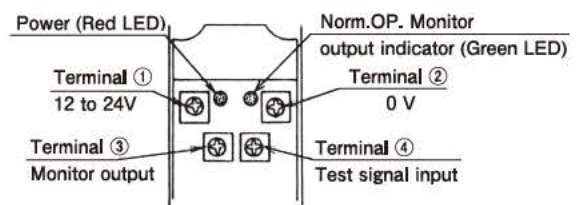
The relay operates when a relay is connected as below



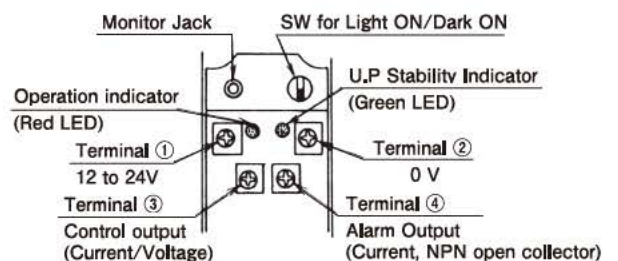
Ry=30VDC, 100mA (Max.)

CONNECTION & INDICATOR

Transmitter



Receiver

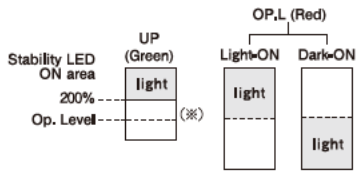


INSTALLATION

- Loosen the screws on the lid and remove it for wire connection.
- Use cables of 9 to 11mm in diameter.
- Tighten the conduit connector with a torque from 2.9 to 3.9 N·m.
- Check the connection before supplying power.
- Select Light ON or Dark ON by turning the selector till the end.
- Confirm the Power LED of the transmitter is on when the power is supplied.

[Beam alignment]

- Install and fix the transmitter. By moving the receiver vertically and horizontally, find the range where the stability indicator (green) turns on and direct the sensor in the center of the range. Adjust the position of the receiver in the same way.
- Monitor sound is available for light axis alignment. Plug an earphone in the monitor jack.



The Red LED is an operation indicator.
For Light On mode, it lights when the beam is received.
For Dark On mode, it lights when the beam is interrupted.

[Alarm output]

- Alarm output will be issued when the received light intensity is less than double of the threshold. (※)

NOTES

- Use the sensor within the scope of the specifications.
- Avoid to turn on and off the power consecutively.
- Fix the attached bracket on the sensor. Use M5 volts and tighten it with a torque from 1.8 to 2.5 N·m.
- Though this sensor has IP66 rated housing, do not use the sensor where water is splashing constantly or under the water.
- Return the lid to the original place and fix tightly by the screws after wiring or adjustment. Tighten the screws with a torque from 1.8 to 2.5 N·m.
- Use thread size PF1/2 when use metal conduit.
- Clean the lens by a soft and dry cloth periodically. A stain or dirt stuck on the lens deteriorates the performance. Do not use organic solvent including alcohol and thinner.
- Be sure to route the sensor wires separate from any power transmission or high voltage line. Use a same conduit or duct with high-voltage or power lines will cause malfunction or damage by induction.
- When using a DC power unit with an insulated transformer or a switching regulator, be sure to ground the frame ground (FG) terminal.
- High frequency fluorescent lamps or inverters may emit light or noise of similar modulated frequency that photo sensors generate. Do not install the sensor in the vicinity of high-frequency equipment.
- When expanding the wiring, use cables with 0.3mm² or more.
- Limit the current of the power supply in accordance with the size of the sensor cable.

OPTION

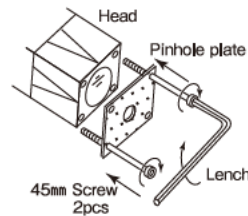
- Optional parts are available as below.

■ PINHOLE PLATE

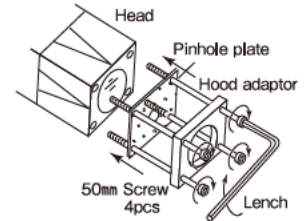
Pinhole (mm)	Models	Range※
φ 1	30P1	0.4m
φ 3	30P3	2.5m
φ 5	30P5	5.5m
φ 7	30P7	9.5m
φ 10	30P10	16 m

※ Ranges when using a pinhole plate for both the transmitter and the receiver.

To detect small diameter objects, use the appropriate sized pinhole plates to reduce the aperture.



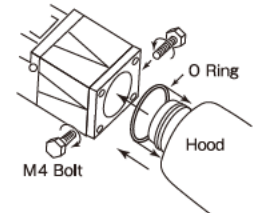
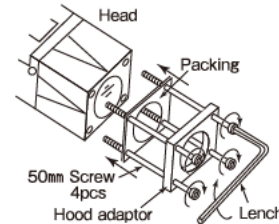
- Mount the pinhole plate on sensor by screws directly.



- Mount the pinhole plate on sensor with hood.

■ HOOD

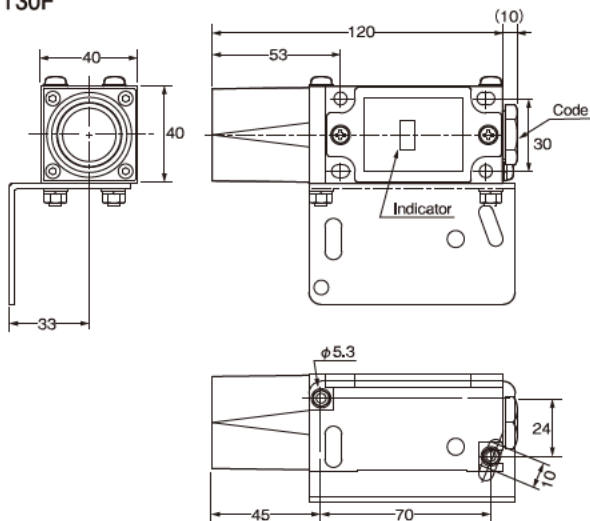
Hood	H301	Protect the external light.
Air-less Hood	F301	Protect the dust and external light.
Air-purge Hood	A301	Protect the dust.



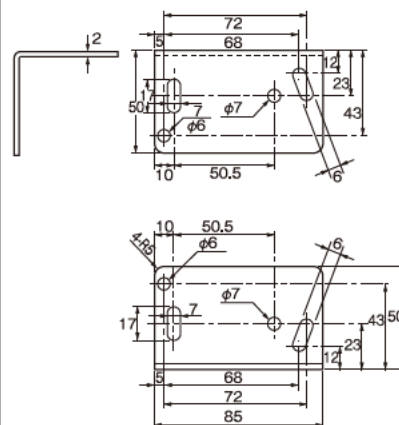
- The tightening torque should be 0.6N·m or less.

DIMENSIONS (in mm)

● NT30F

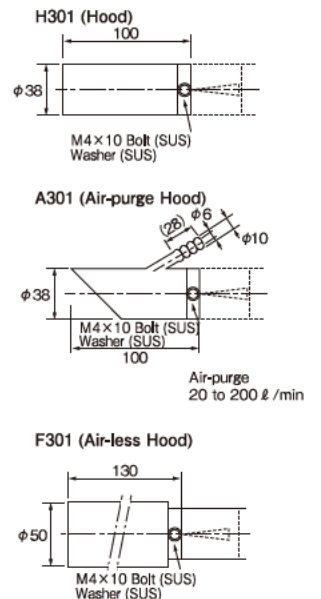


● Bracket



Material : SUS
Thickness : 2 mm

● Hood (Option)



- The guarantee period of this product is one year after the delivery.
- If any defect is found during the guarantee period, Takenaka will repair or replace the defective product.
- This product is an industrial sensor which issues an output upon detecting an object. It does not have any function to prevent accidents, death or injuries.
- Takenaka will not held responsible for any damage or loss incurred due to accidents, faulty installation, abuse, misuse, improper maintenance or acts of God including lightning surge.