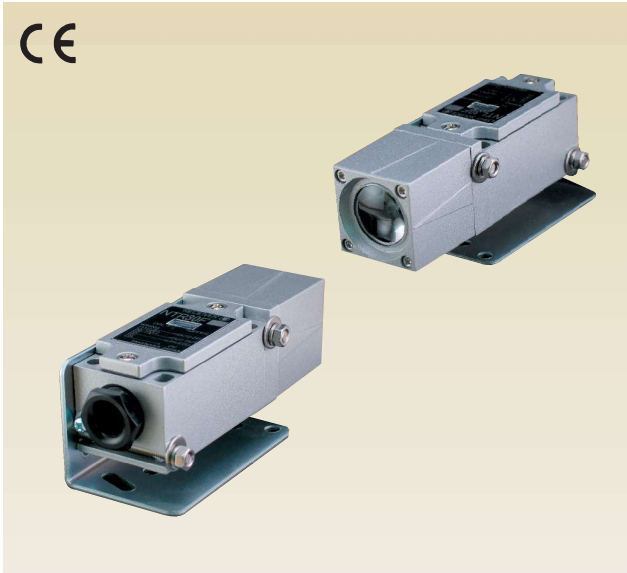


# NT30F

Long Range and Self Diagnostic Output  
Embedded Amplifier Photo Sensors

CE



- Self diagnostic feature
- High power for reliable detection in adverse environment
- Long distance detection of up to 30 m
- DIN compatible zinc die-cast case
  - Receiver provided with "stability alarm output circuit" for monitoring adequate light reception together with indicator and output terminal. Also equipped with monitor output jack for additional reliability in light axis alignment by use of earphone and Light ON/Dark ON selector switch.
  - Transmitter has "check signal input function" and "monitor output function" for overall operation checking of transmitter and receiver.

## Type

Detection method	Detecting distance	Model	Operation mode	Output mode
 Through beam		<b>NT30F</b>	Light ON/Dark ON selectable (with switch)	Current output/ voltage output

- Extra long-distance of 50 m and 100 m also available  
Models allowing even longer detecting distance are also available.  
50 m type: model NT50 / 100 m type: model NT100

## Optional Parts

Type	Model	Diameter (mm)	Detecting distance(m)	Description
Pinhole plate	<b>30P1</b>	$\phi$ 1	0.4	The detecting distance is when using a pinhole plate both for the transmitter and the receiver.
	<b>30P3</b>	$\phi$ 3	2.5	
	<b>30P5</b>	$\phi$ 5	5.5	
	<b>30P7</b>	$\phi$ 7	9.5	
	<b>30P10</b>	$\phi$ 10	16	
Hood	<b>H301</b>	Hood for shielding from outside light.		
	<b>F301</b>	Hood for shielding from outside light. Energy saving airless dust hood taking advantage of muffler effect for preventing soiling of lens.		
	<b>A301</b>	Air purge hood.		



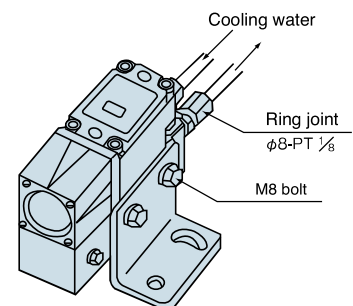
Pinhole plate



Airless hood



Hood



## Model Equipped with Water-Cooling Jacket

Water-cooling type	Model	Transmitter	Receiver	Description
	<b>NTL30FW</b>	Transmitter		For protecting sensor from ambient high temperature
	<b>NTR30FW</b>		Receiver	

## Rating/Performance/Specification

Model	Set	NT30F	NT30FW (Water cooling)
	Transmitter	NTL30F	NTL30FW
	Receiver	NTR30F	NTR30FW
Detection method		Through beam type	
Detecting distance		30m	
Detection object		φ22 mm or more Opaque	
Power supply		12 - 24VDC ±10% / Ripple 10% or less	
Current consumption		Transmitter: 50 mA or less Receiver: 35 mA or less	
Output mode	Control output	Current output (Rating) : Sink current 100 mA (30 VDC) or less Voltage output (Rating): Output impedance 4.7 kΩ	
	Alarm output	NPN open collector output: Sink current 100mA (30 VDC) or less	
Operation mode		Light ON/Dark ON selectable (with switch)	
Self-diagnosis feature	Transmitter	Check signal input (Terminal No. 4) Monitor output (Terminal No. 3): activated when normal (For current/voltage: Sink current 100 mA (30 VDC) or less output impedance 4.7 kΩ)	
	Receiver	Alarm output (Terminal No. 4): outputs when stability indicator (green LED) turns off (NPN open collector sink current 100 mA (30 VDC) or less) Received light monitor, earphone jack terminal	
Response time		5ms or less (*0.5ms)	
Light source		Infrared LED	
Indicator	Transmitter	P.L: Power indicator (red LED) NORM.OP: Monitor output indicator (green LED)	
	Receiver	OP.L: Operation indicator (red LED) UP: Stability indicator (green LED)	
Switch (SW)		Light ON/Dark ON selector switch provided	
Short circuit protection		Provided	
Case material		Zinc die cast	
Connection		Terminal block connection (screw: M3.5; terminal pitch: 8.1 mm)	
Weight		Approx.700 g (transmitter/receiver)	Approx.1.3 kg (transmitter/receiver)
Accessory		Operation manual	Mounting bracket

Harsh Environment

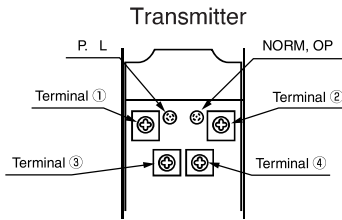
## Environmental Specification

Ambient light	20,000 lx or less
Ambient temperature	NT30F: -25 - +55°C (non-freezing) NT30FW: -25 - +110°C (non-freezing)
Ambient humidity	35-85%RH (non-condensing)
Protective structure	IP66
Vibration	10 - 55 Hz / 1.5 mm double amplitude / 2 hours each in 3 direction

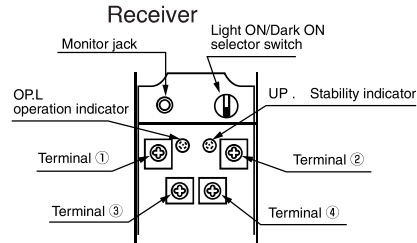
\*High-speed response type (0.5 ms) also available: model NT30FA

# NT30F

## Terminal Block and Connection



- Terminal ① Power supply 12 - 24VDC
- Terminal ② 0V
- Terminal ③ Monitor output  
Voltage/current output
- Terminal ④ Check signal input
- Indicator PL: Power indicator (red LED)
- Indicator NORM.OP: Monitor output (green LED)



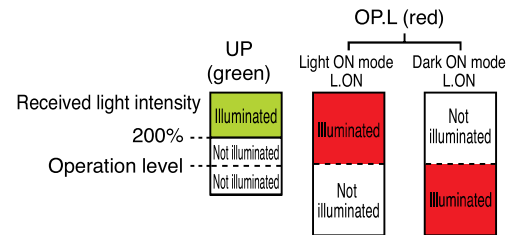
- Terminal ① Power supply 12-24VDC
- Terminal ② 0V
- Terminal ③ Control output: voltage/current
- Terminal ④ Alarm output (current)  
NPN Open collector
- Indicator O.P.L: operation indicator (red LED)
- Indicator UP: Stability indicator (green LED)
- Selector switch Light ON/Dark ON selector switch
- Monitor jack For earphone for light axis alignment
- Note) Be sure to use the earphone specified (CLR3-CY separately available).

## Operation and Stability Indicators

When the received light intensity is under the operation level, neither of the indicator is illuminated.

When the light intensity reaches the operation level, OP.L is illuminated (with selector switch set to LIGHT).

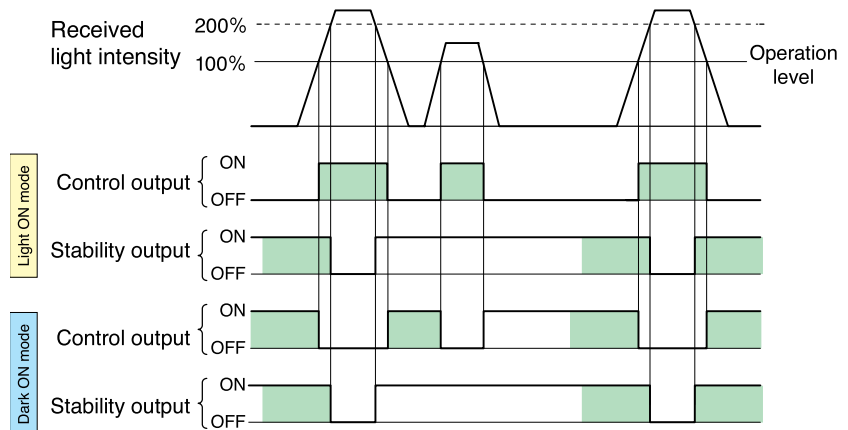
When the light intensity reaches twice as much as the operation level, the stability indicator UP is illuminated.



The red LED (O.P.L) is the operation indicator.

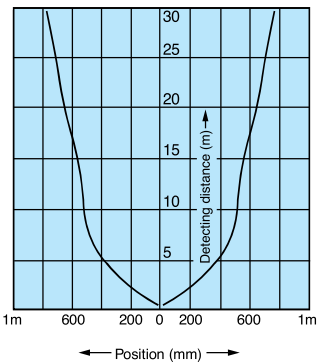
## About Alarm Output

You can use this function when the environment changes after installation, when the light intensity is lowered during the operation, or when you want to initially check operation. If the light intensity is less than twice (200%) the threshold (100%), the alarm will sound.

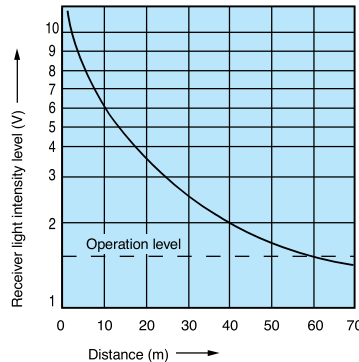


## Performance Curves

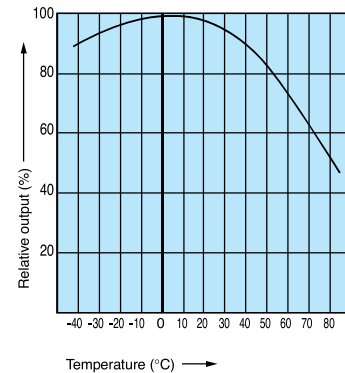
### ● Response Curves : Beam Pattern



### ● Response Curves : Excess Gain



### ● Response Curves : Ambient Temperature

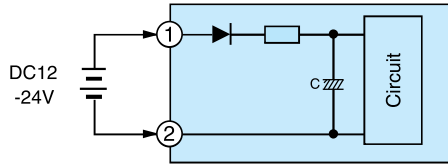


## Input/Output Circuit and Connection

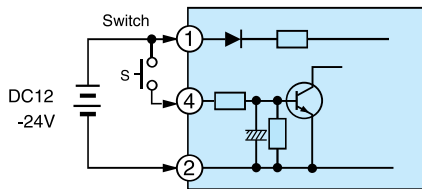
### Transmitter (NTL30F)

#### Power supply connection

Indicator illuminated when power is supplied, indicating normal operation



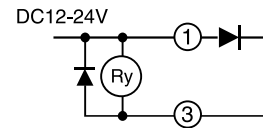
(For use of check signal input (HOLD))



Connect a switch, etc. between Terminals ① and ④ (normally open contact) and press the switch. The light emission stops after about 25 ms and the output level turns H.

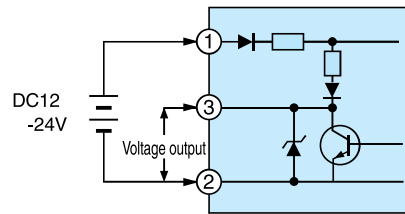
#### Use of monitor output

(For relay output (control))



Relay activated when normal (relay of 30 VDC, 100 mA or less.)

(For voltage output)



Light emission state = indicator (NORM.OP) illuminated  
output: ON (level)

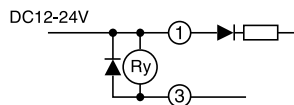
### Receiver (NTR30F)

#### Output connection

Terminal assignment for power supply same as transmitter:

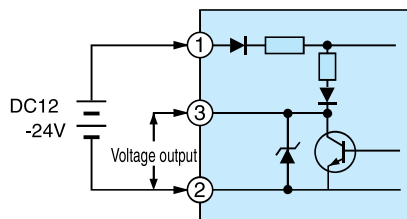
- ① DC12 - 24V
- ② 0V

(For relay output)



(Ry: relay of 30 VDC, 100 mA or less.)

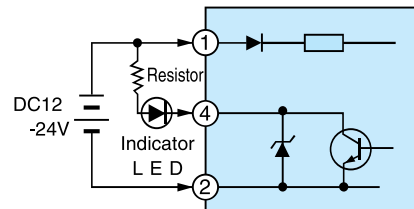
(For voltage output)



Output mode selectable with switch between Light ON/Dark ON

#### When using alarm output

(For LED)

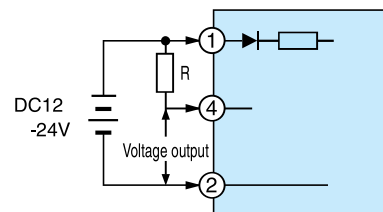


Alarm output: Generated when the stability indicator UP (green LED) turns off.

Note) Connect a resistor in series with the indicator.

(Hint) Resistance: 2 - 4 KΩ

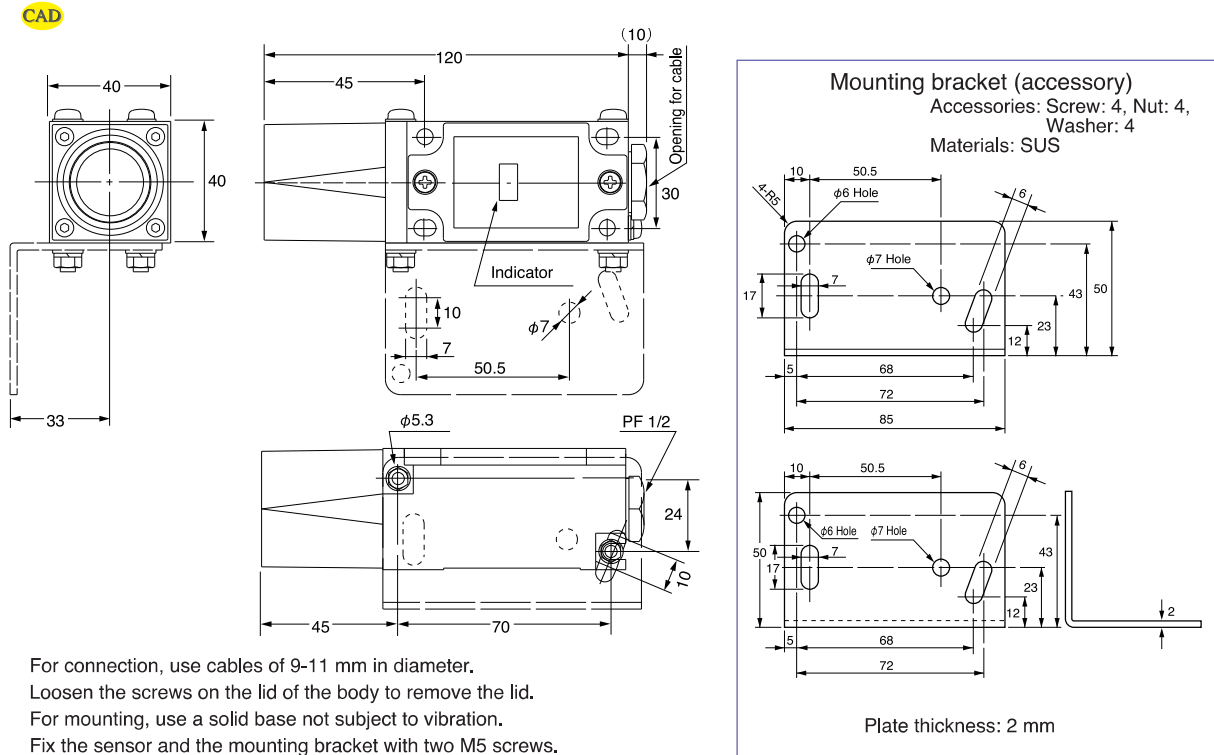
(For voltage output)



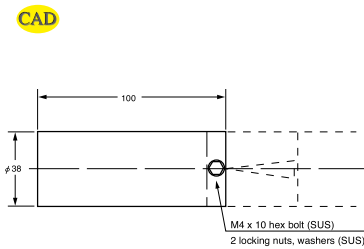
When a resistor is connected between terminals ④ and ①, voltage output is generated between ④ and ②.  
When stable, it is OFF (H level). When output, it is ON (H level).  
\* External resistor: the resistance value varies, depending on the load to be used.

# NT30F

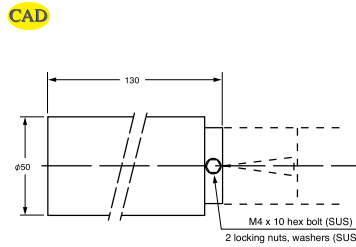
## Dimensions (in mm)



(NT30F + H301 hood)



(NT30F + F301 airless hood)



(NT30F + A301 air purge hood)

