Distributed by: ABQ Industrial LP USA
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STROBOSCOPE

DT−3011N

INSTRUCTION MANUAL

Read this manual thoroughly before use.

Before use, please carefully read these safety precautions as well as instructions,
and follow them for proper operation.

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Safety Precautions

Be sure to observe

Be sure to read the entire instruction manual thoroughly before initial set-up, operation and maintenance.

The instruction manual provides two grades of safety warnings: “Danger” and “Caution”.
Each of them is an important description related to safety. Be sure to observe.

Danger	This indicates the possibility of fire, severe injury, and even death if a user disregards the instruction and operates the unit improperly.
Caution	This indicates the possibility of minor injury or property damage if a user operates the unit improperly. However, depending on the circumstances, there is still the possibility that severe injury may result. Be sure to observe.

We categorize the type of those precautions using the following symbols throughout the manual.

A prohibited action you must not do.

A forced action you must always do.

Danger

Never use in flammable environments.
May result in fire.

Never look directly into the light source.
May result in eye injury.

Caution

Do not apply strong impact to the unit, or drop it.
Failure to follow this could result in abnormal operation.

Avoid the followings.
Water, direct sunlight, condensation, dust, dirt, salt, iron, oil, chemicals, corrosive and/or combustible gases.

Do not alter, modify or dispose improperly.
Failure to follow this could result in injury due to abnormal operation.

Operate within 0-35°C(32-95°F)
Failure to follow this could result in malfunction.

Wipe clean the unit with a soft dry cloth if it gets dirty.
Or immerse a cloth in water diluted neutral detergent, wring it, and wipe clean the unit with it.
Do not use any volatile chemicals, such as benzine, thinner, or alcohol.

Operate within 35-85%RH
Failure to follow this could result in malfunction.

Since continuously emitting light for long time causes the unit’s housing to heat up, fix the strobe using a tripod, etc. (Avoid direct skin contact with the unit, such as holding it by hand).
Failure to follow this could result in mild burns.

Contents

1 Overview of this product

A stroboscope tachometer is a measurement instrument to measure the speed (cycle) of rotating objects that rotate at a constant speed, or moving objects that repeatedly operate at a constant cycle. When the rotation (motion) cycle matches with the flash cycle while the strobe flash is periodically applied on a rotating or moving object, the rotating (moving) object image appears to stand still. This stroboscope tachometer is the non-contact type, and can be used to read the object frequency when such a still image appears. Also, a stroboscope can be used to make images of rotating or moving objects stand still or that slightly move in order to observe their appearance in slow-motion.

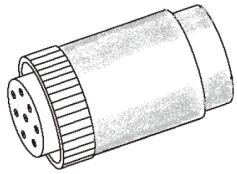
Main features

- Wide flash range – 30 to 35000 FPM(flashes per minute)
- Emission in synchronization with the external trigger pulse
- Phase Shift function.(PHA mode)

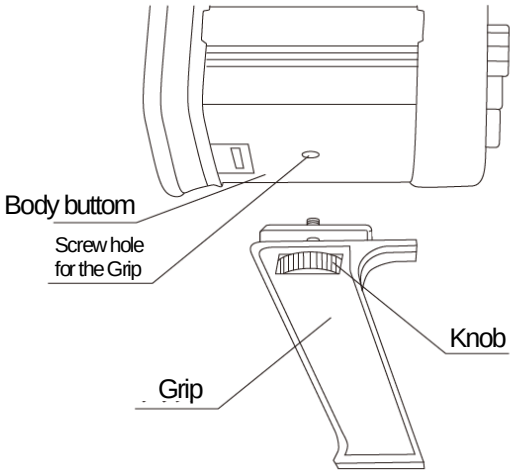
2 Before use

2.1 Checking the supplied items

Check that the five items below are supplied.

	DT-3011N
Main unit	One(1) DT-3011N (with Power cable 2.4 m) 
Accessories	One(1) Grip
	One(1) External signal I/O connector (8 pins) RM15WTPZ-8S(71) 
Instruction Manual	One(1) This document
Warranty	One(1) document

2.2 How to take on/off the Grip



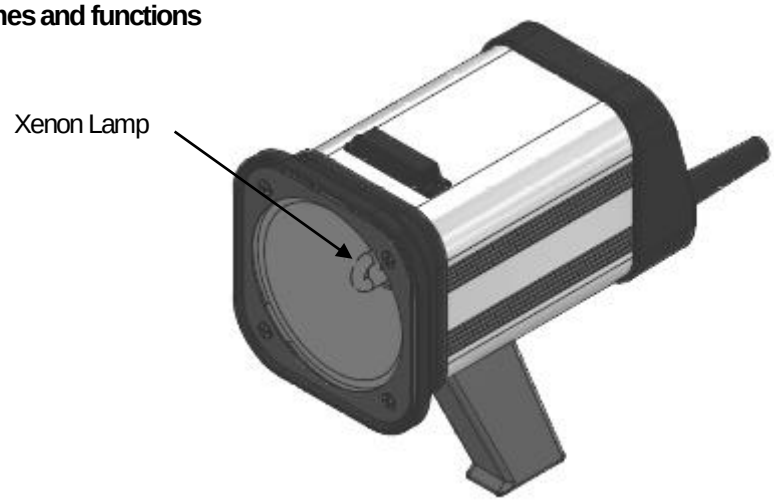
Please put on the Grip (one of included accessories) before use.

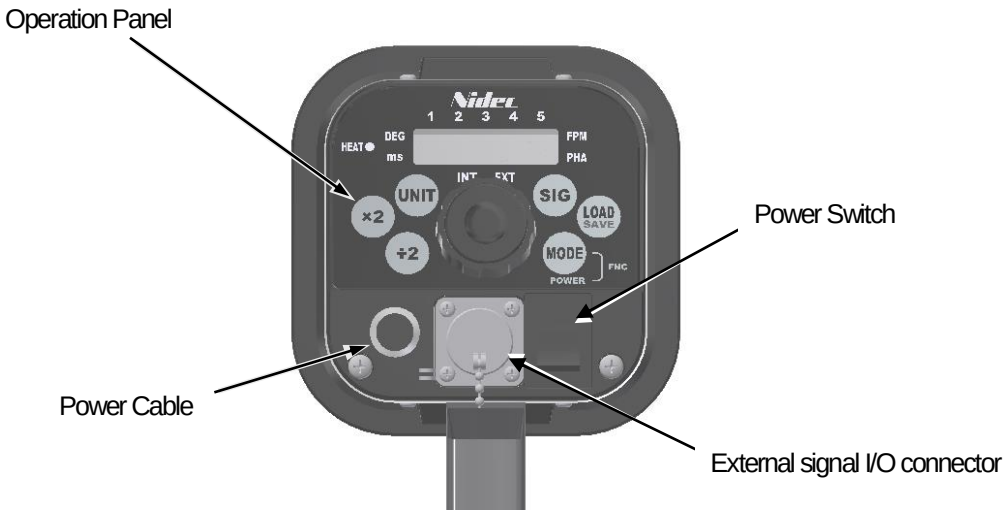
Insert the screw into the holl on the bottom of main unit,
and turn the knob crockwise to tighten the screw.

This can be attached to the tripod for cameras.
Please use the one has a designated screw.
*1/4-20 UNC under 8 mm long

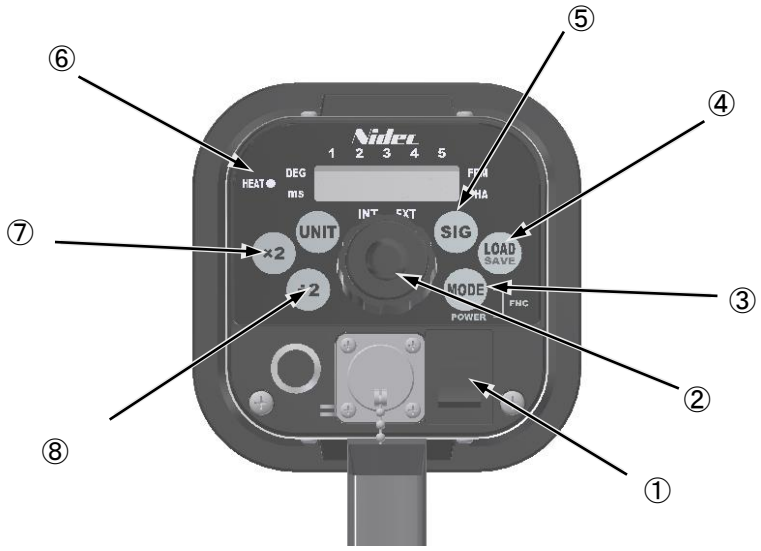
3 Part names and functions

3.1 Main unit





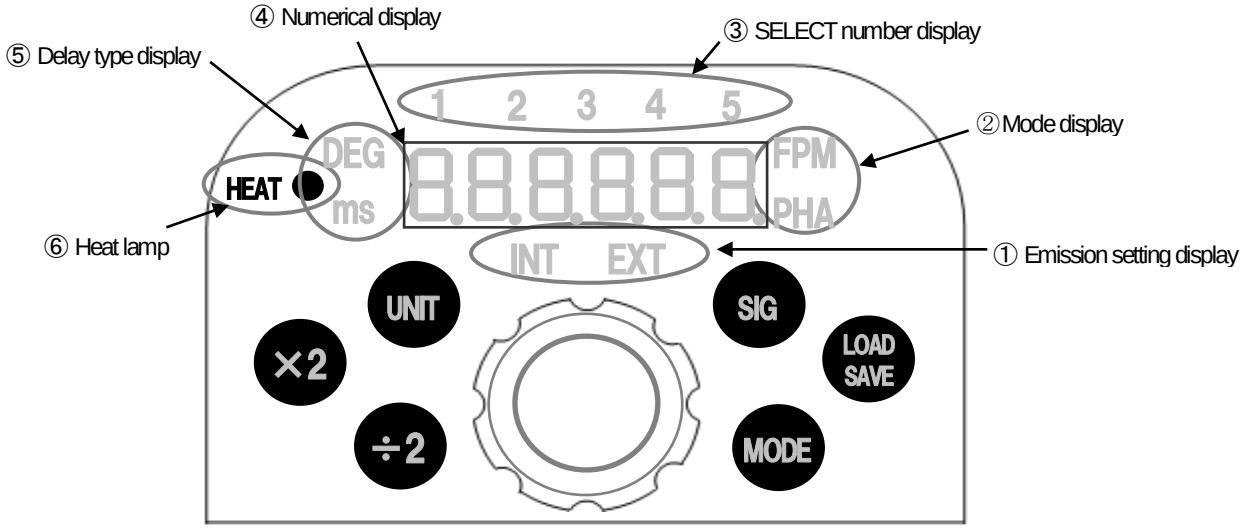
3.2 Operation Panel



No.	Key	Function Instructions
①	Power Switch	Turns the power ON / OFF
②	Dial (LAMP POWER)	Turn this clockwise or counterclockwise to change the emission frequency and some setting value. Press and hold the center of this to turn the lamp ON / OFF.
③	MODE	Press this to switch the LED display as follows Flashes Per Minute mode (FPM mode) → Phase Shift mode (PHA mode DEG = delay angle) → Phase Shift mode (PHA mode ms = delay time) → FPM mode →…
④	LOAD(SAVE)	Press this to load the saved settings. Also, Press and hold this to save the current display and mode settings.
⑤	SIG	Select Internal/ External/ Parameter mode. Internal oscillation emission (referred to as “INT”) : Flash by internal signal External synchronous emission (referred to as “EXT”) : Synchronized flash with external signal
⑥	UNIT	Each press of this switches the delay type as following, delay angle(DEG) → delay time(ms) → DEG → ms
⑦	× 2	Press this while on INT to double the current set emission count (frequency). (*If the double count is over than the flash range, nothing will change on the display.)
⑧	÷ 2	Press this while on INT to halve the current set emission count (frequency). (*If the half count is lower than the flash range, nothing will change on the display.)

3.3 Display

3.3.1 Part names and function instructions.

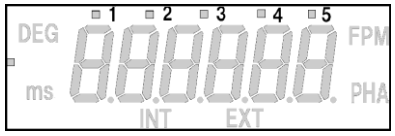
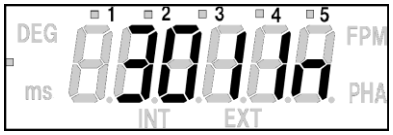
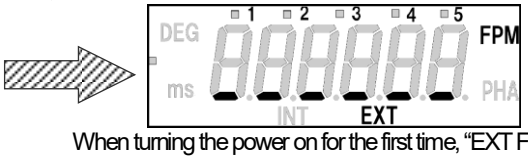


No.	Key	Display	Instructions
①	Emission setting display	INT EXT	Each press of "SIG" switches emission settings. INT : Internal oscillation emission EXT : External synchronous emission
②	Mode display	FPM PHA	Each press of "MODE" switches flashing mode and delay type. FPM : Flashes per minutes mode / PHA : Phase mode
③	SELECT number display	1 2 3 4 5	This indicates the memories for saving. (called SELECT number) Each press of "LOAD" switches SELECT number (1 to 5)
④	Numerical display		Standard Operation : indicates flash rate. PHA Mode : Angle and Time are displayed. Function Mode : Each setting value is indicated.
⑤	Delay type display	DEG ms	Each press of "MODE" switches flashing mode and delay type. DEG : delay angle / ms : delay time (millisecond)
⑥	Heat lamp	HEAT	When the ambient temperature of the Xenon lamp rises above a certain level, this lamp indicator will flash.

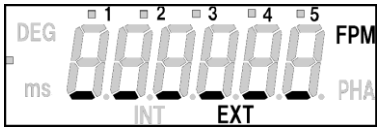
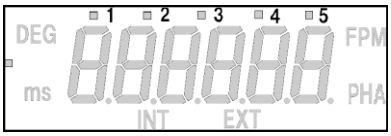
4 Functions and operations

4.1 Power ON / OFF

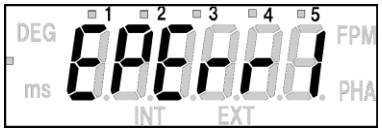
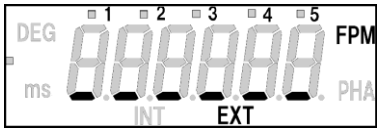
Press the power switch when the power is OFF to turn the power ON.
When power is turned ON, the model is indicated, followed by internal oscillation emission or external synchronous emission.

Operation	Display
When the power is OFF	  Displayed "dt" for 0.5 sec.
Press the power switch	 Displayed the model for a sec.  When turning the power on for the first time, "EXT FPM mode" is displayed. From the second time on, the same as when the power is previously turned OFF is displayed.

Press the power switch when the power is ON to turn the power OFF, then the indication goes off.

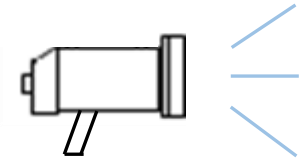
Operation	Display
When the power is ON **Press the power switch**	  Indicated letters go off

*When the power is turned ON, the following indication may be displayed.
The following indication is an error message when the reading previously used setting value fails.
Press the "MODE" to return to normal emission screen from the error message display.

Operation	Display
X2 **Press the "× 2"**	 Error message  Returns to the normal emission screen

4.1.1 LAMP ON / OFF

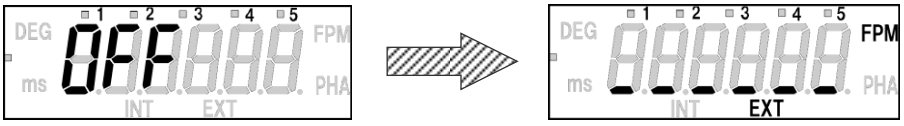
Press and hold the center of the dial to turn ON the LAMP when emission setting is displayed on the screen.
Press and hold again while flashing to turn OFF the LAMP.

Operation	Display
 Press and hold	 Press and hold the dial to flash. Press and hold again to stop flashing.

*When turning the power switch OFF while flashing, it will be turned ON flashing at the next time.

4.1.2 Flash timer

When the Flash timer is set to a value other than 0 [minutes] in Function mode 3,
the flashing will automatically cease after set time from the start of the light emission.
When the flashing stops by this flash timer, the display indicates “OFF”.
Press and hold the dial to return to the previous display.

Operation	Display
 Press and hold	 After set time from the start / Return to the previous display

4.1.3 Heat Lamp Indicator

When the ambient temperature of the Xenon lamp rises above a certain level, the Heat Lamp Indicator will flash.
If the temperature rises more, the Heat Lamp Indicator will remain on and the light emission will cease.
***The temperature tends to rise more quickly the higher the emission frequency is set.**

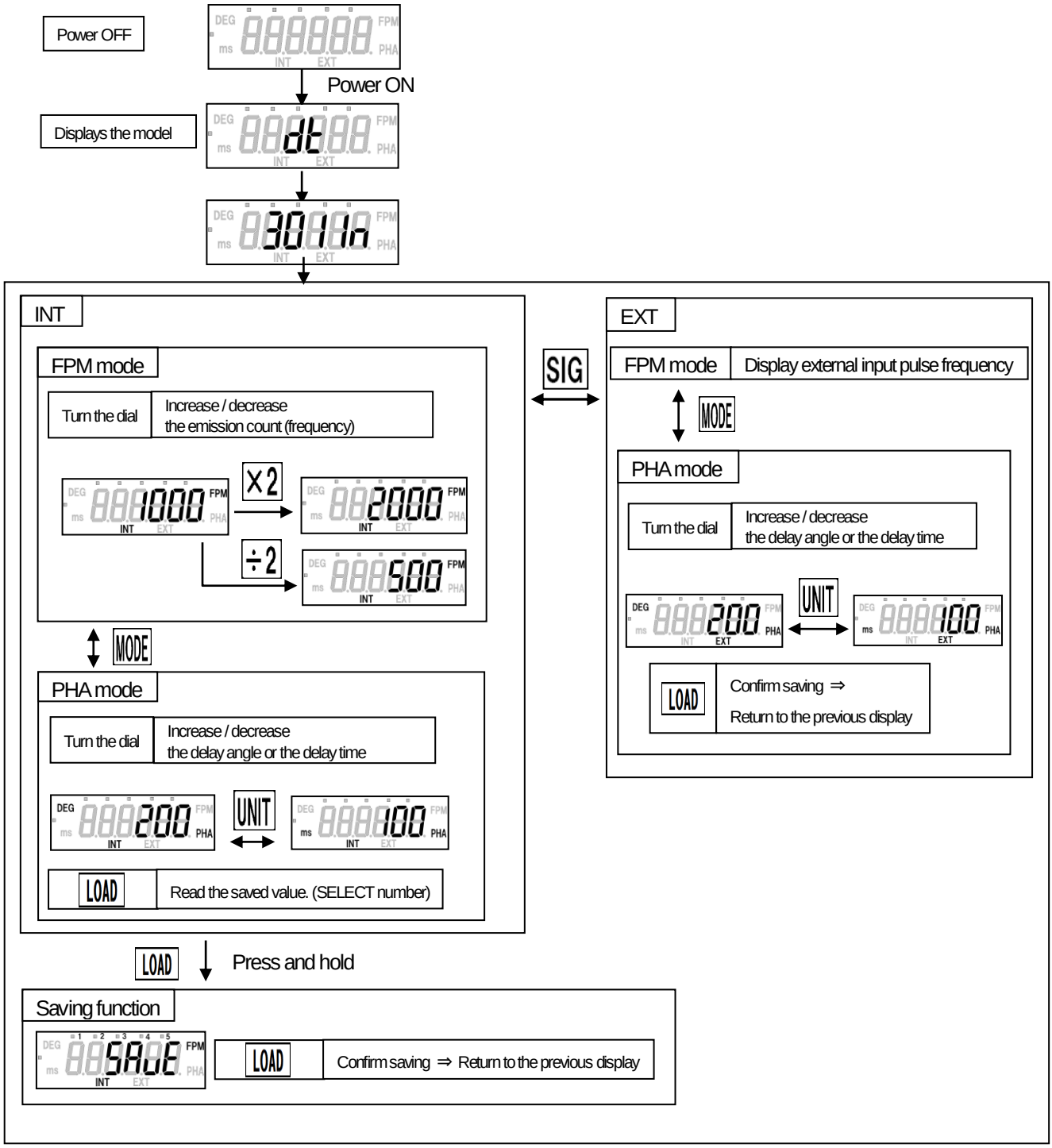
The ambient temperature of the Xenon lamp	HEAT	Light emission
Less than 75°C (164°F)	Off	Keep flashing
Over 75°C (167°F)	Flash	Keep flashing
Over 80°C (176°F)	On	Stop flashing

4.2 Emission mode and settings

Emission mode	詳細
Internal oscillation emission (“INT”)	Flash at the set frequency.
External synchronous emission (“ EXT”)	Flash in synchronization with the external trigger pulse.
Function mode	Configure the settings.

4.2.1 How to switch INT and EXT

Each press of “SIG” switches “INT” and “EXT”.

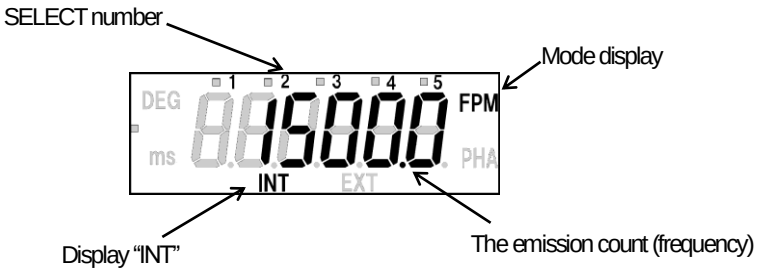


4.3 Internal oscillation emission

・On “INT”, the Xenon lamp flashes at the displayed emission count.
・”INT” has the following 2 mode settings.

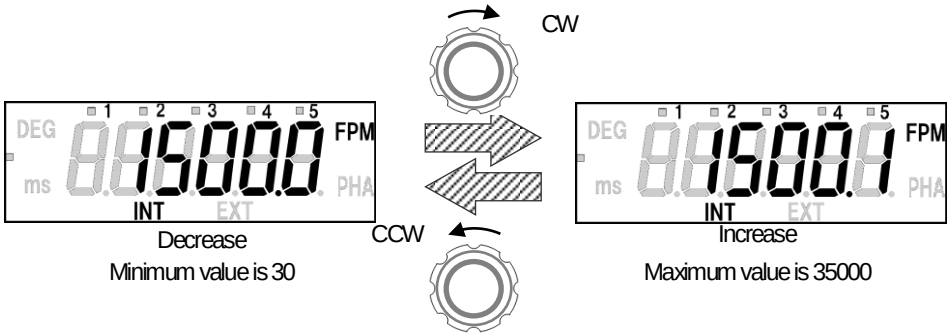
Mode settings	FPM mode	PHA mode
Instructions	Set the emission count per minute [FPM] (flashes per minute)	Shift the timing of flash. The phase can be changed by a degree or a millisecond. (One cycle is 360°)

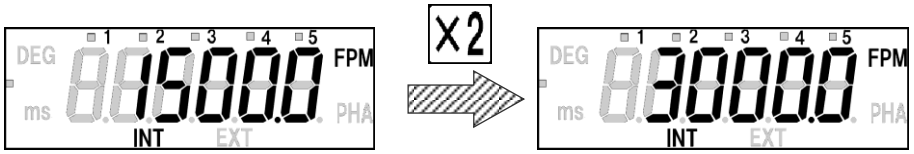
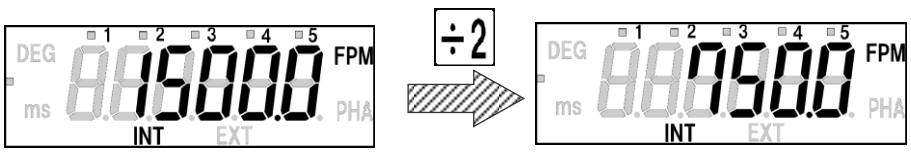
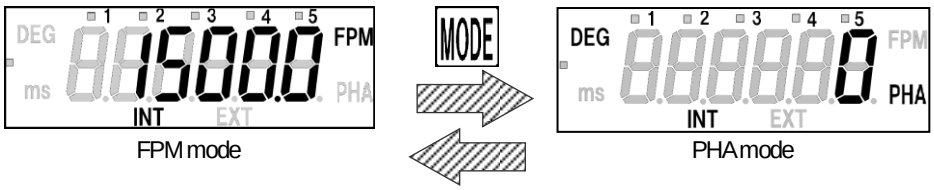
Display of INT



4.3.1 FPM mode setting (INT)

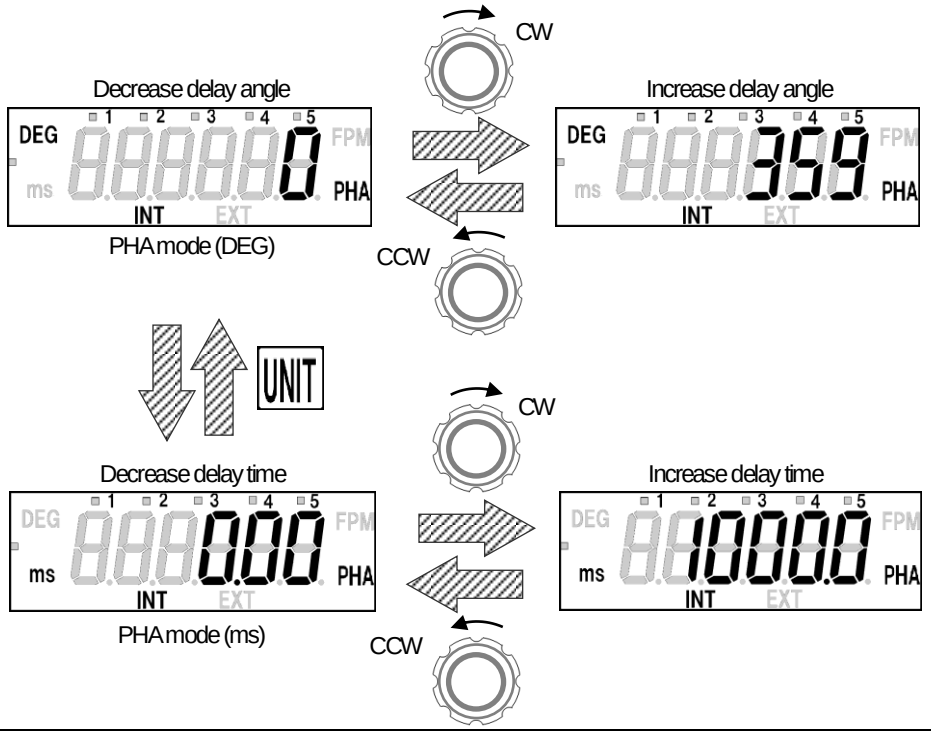
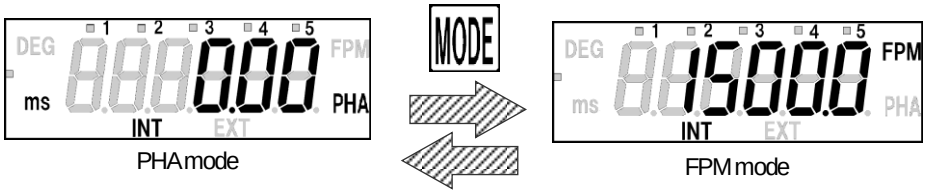
The emission count (frequency) can be set in FPM mode.
Turn the dial in a CW direction to increase the emission count, and in a CCW direction to decrease it.
(Turn the dial fast to change the setting value greatly, and slowly to change it slightly.)

Operation	Display
 **Increase / decrease The emission count (frequency)**	 CW CCW Decrease Minimum value is 30 Increase Maximum value is 35000
SIG **Press “SIG” to switch to the “EXT”**	 INT EXT

X2 **Press "×2"to double the current set the emission count**	 *If it is over than the flash range, nothing will change on the display.
÷2 **Press "÷2"to halve the current set the emission count**	 *If it is lower than the flash range, nothing will change on the display.
MODE **Press "MODE" to switch to PHA mode**	 FPM mode PHA mode

4.3.2 PHA mode (INT)

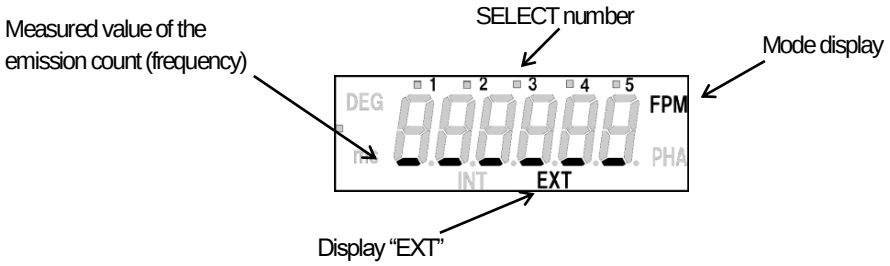
When the rotation (motion) cycle of a measured object matches with the strobe flash cycle,
the measured object appears to stand still. Use the PHA mode in order to adjust the stop angle (position).
The phase can be changed by 1° using dial within the range between 1° and 359° in the PHA mode.
Press "UNIT" to switch to PHA mode (ms).
(The phase can be changed by 0.01 [ms] within the range between 0.00 and 999.99 [ms] and by 0.1 [ms] within the range between 1000.0 and 1994.4 [ms].)
A time longer than the light emission cycle cannot be set. (PHA mode ms)
Press "MODE" in PHA mode to switch to FPM mode.

Operation	Display
Increase / decrease Delay angle / time **Each press of "UNIT" switches DEG to ms**	
Press "MODE" to switch to FPM mode	

4.4 External synchronous emission

・External synchronous emission is the function to emit a strobe flash in synchronization with an external trigger pulse input.
・You can set which edge of the external trigger pulse triggers emission, the rising edge or falling edge.
・A timing (delay) from the external trigger pulse input with the strobe flash emission can be optionally set using time and angle.
・EXT has the following 2 mode settings.

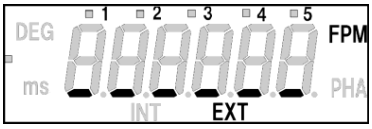
Mode setting	FPM mode	PHA mode
Instruction	Display the measured value of the emission count (frequency). The unit is FPM (flashes per minute)	Shift the timing of flash. The phase can be changed by a degree or a millisecond. (One cycle is 360°)



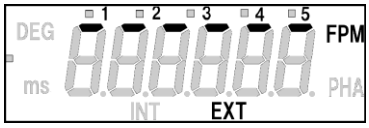
*If the external trigger pulse cycle is beyond the specifications range, the following letters are indicated.

[Without the delay angle / time setting]

Measurable range 27 to 35020 [fpm]



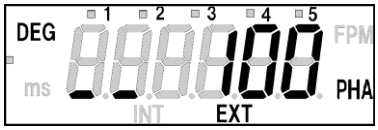
When the external input pulse frequency goes below 27 [fpm], underlines are displayed.



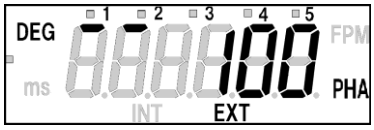
When the external input pulse frequency goes beyond 35020 [fpm], overlines are displayed.

[With the delay angle setting]

Measurable range 27 to 35020 [fpm]



When the external input pulse frequency goes below 27 [fpm], an underline on the first, left two digits is displayed.

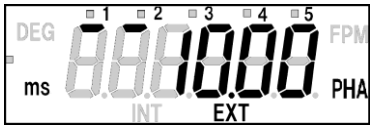


When the external input pulse frequency goes beyond 35020 [fpm], an overline on the first, left two digits is displayed.

[With the delay time setting]

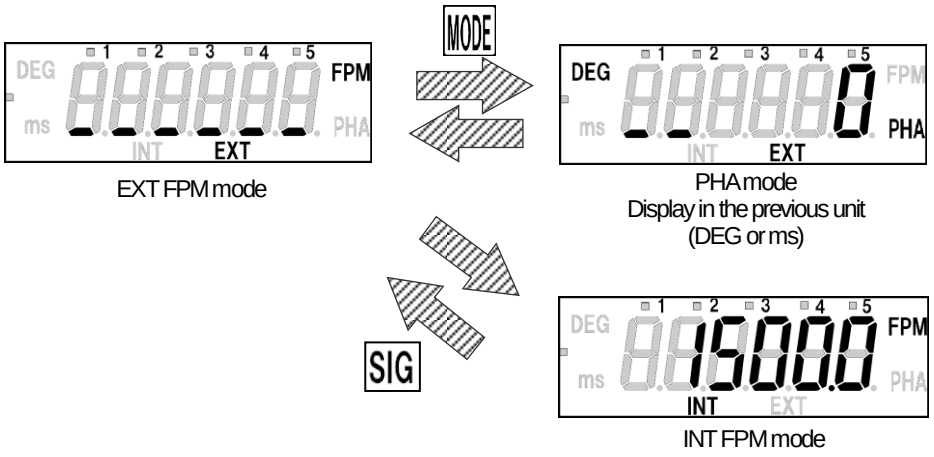
Measurable range 27 to 35020 [fpm]

When the external input pulse frequency goes below 27 [fpm], an underline on the first, left two digits is displayed.



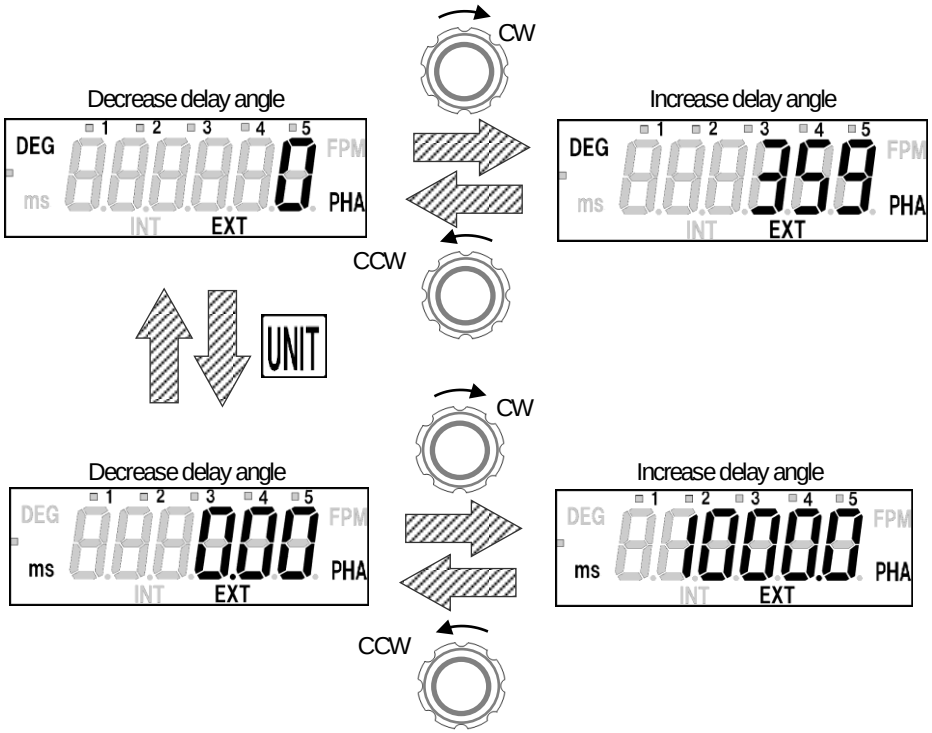
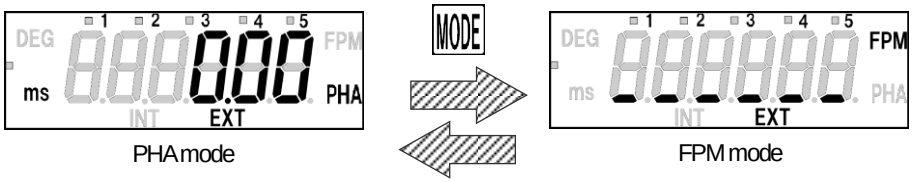
When the external input pulse frequency goes beyond 35020 [fpm], an overline on the first, left two digits is displayed.

4.4.1 FPM mode setting (EXT)

Operation	Display
MODE **Press "MODE" to switch to PHA mode** SIG **Press "SIG" to switch to INT**	 EXT FPM mode PHA mode Display in the previous unit (DEG or ms) INT FPM mode

4.4.2 PHA mode setting (EXT)

Delay emission can be set within the input signal range between 27 and 35020 [fpm].
In the PHA mode, the phase from the external trigger pulse entry to strobe flash emission can be changed by 1° using the dial within the range between 1° and 359°.
Press "UNIT" to toggle between PHA mode (DEG) and PHA mode (ms).
The phase can be changed by 0.01 [ms] within the range between 0.00 and 999.99 [ms], by 0.1 [ms] within the range between 1000.0 and 2216.0 [ms].
A time longer than the light emission cycle cannot be set. (PHA mode ms)
Press "MODE" in PHA mode to switch to FPM mode.

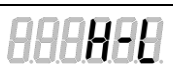
Operation	Display
Increase / decrease Delay angle / time **Press "UNIT" to toggle between DEG and ms**	
Press "MODE" to switch to FPM mode	

4.5 Function mode

Turn the power ON while pressing the “MODE” to enter the function mode.
During the function mode, turn the dial (CW/CCW) to change the settings.
And press “MODE” to save the setting and move to the next setting item. (F1⇒F2⇒F3⇒F4⇒F5⇒F6 end)
If the power is turned OFF in the middle of the function mode, the changed value will not be saved in the memory.

4.5.1 The setting items

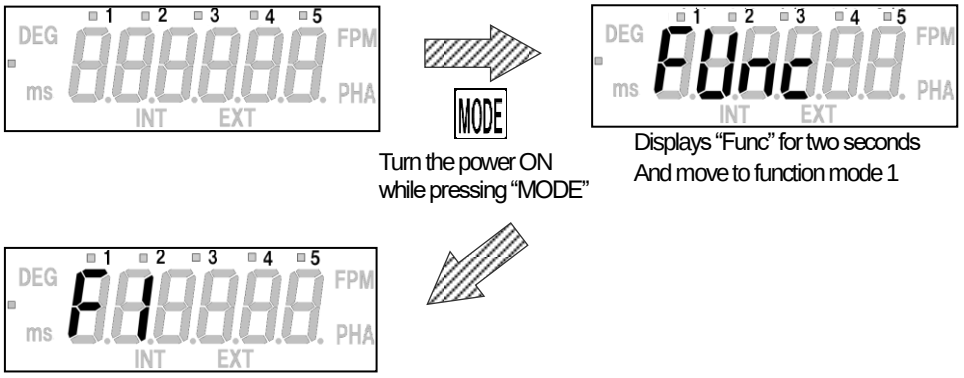
The setting items in the following table can be configured in the function mode.

F1	**Set to add decimal point (for INT and EXT FPM mode)**
	Add decimal point
	No decimal point
F2	**Trigger edge setting (for EXT)**
	Flash in the rising edge.
	Flash in the falling edge.
F3	**Auto emission stop time setting**
	Emission is performed continuously
	Stop emission automatically when no operation is performed for a certain period of time and display “OFF”. The available setting time is within the range between 0 [min] and 120 [min], which can be changed by 1 [ms]
F4	**Choose the input circuit**
	Open collector input
	Voltage pulse input
F5	**Measurement range setting (for INT)**
	The maximum value of the emission count can be set within the range between 30 and 35000 [fpm] (The value is limited to the maximum.)
F6	**Set the pulse width of the synchronous output signal to 400 [µs] or 150 [µs]**
	The pulse width is 400 [µs]
	The pulse width is 150 [µs]

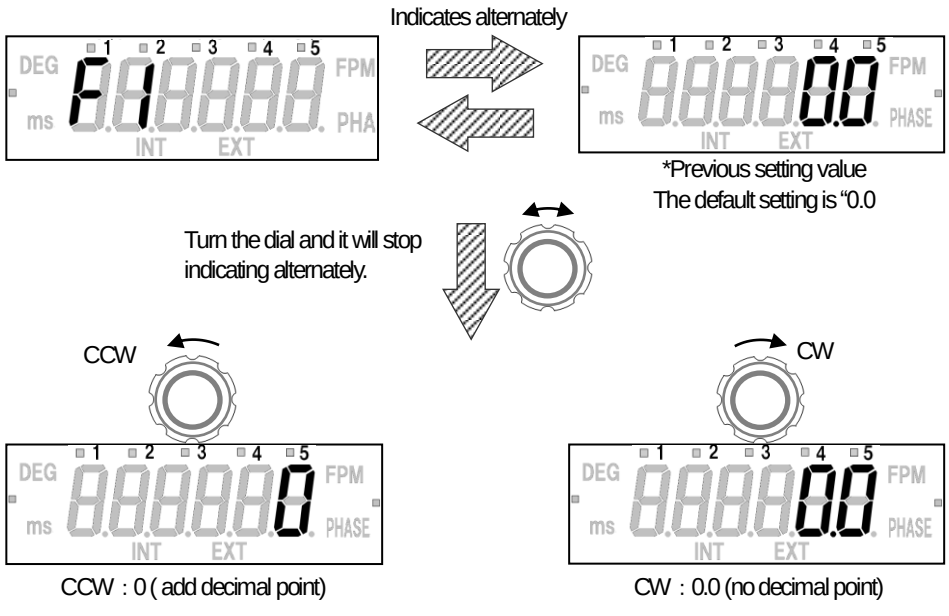
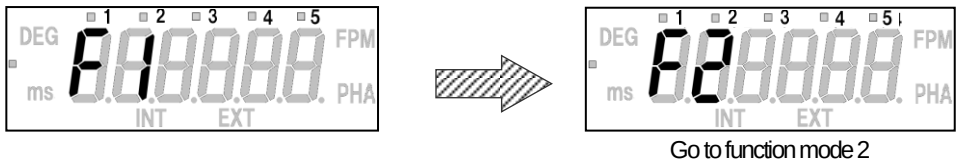
4.5.2 Instructions about function mode

How to move to function mode.

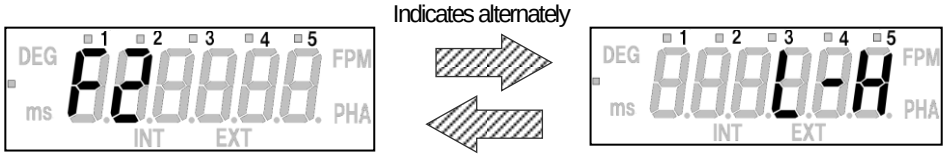
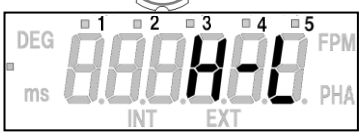
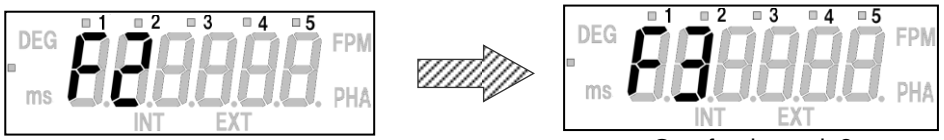
Turn the power ON while pressing the “MODE” to enter the function mode.

Operation	Display
MODE **The power switch ON while pressing “MODE”**	

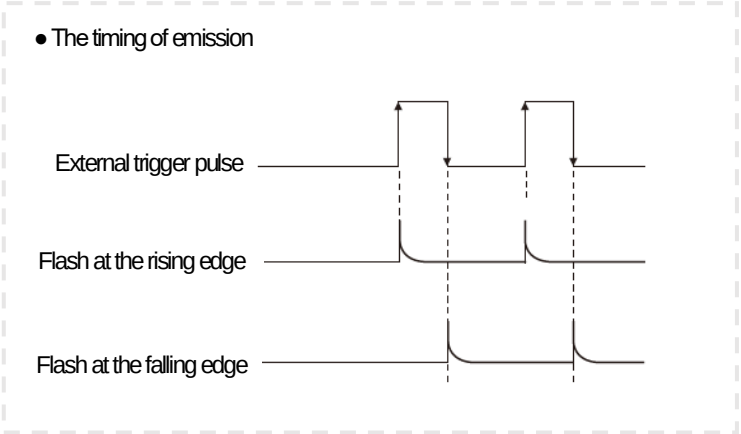
In function mode 1, you can set weather to add decimal point. (Not reflected on EXT)

Operation	Display
Change the setting value	
MODE **Go to function mode 2**	

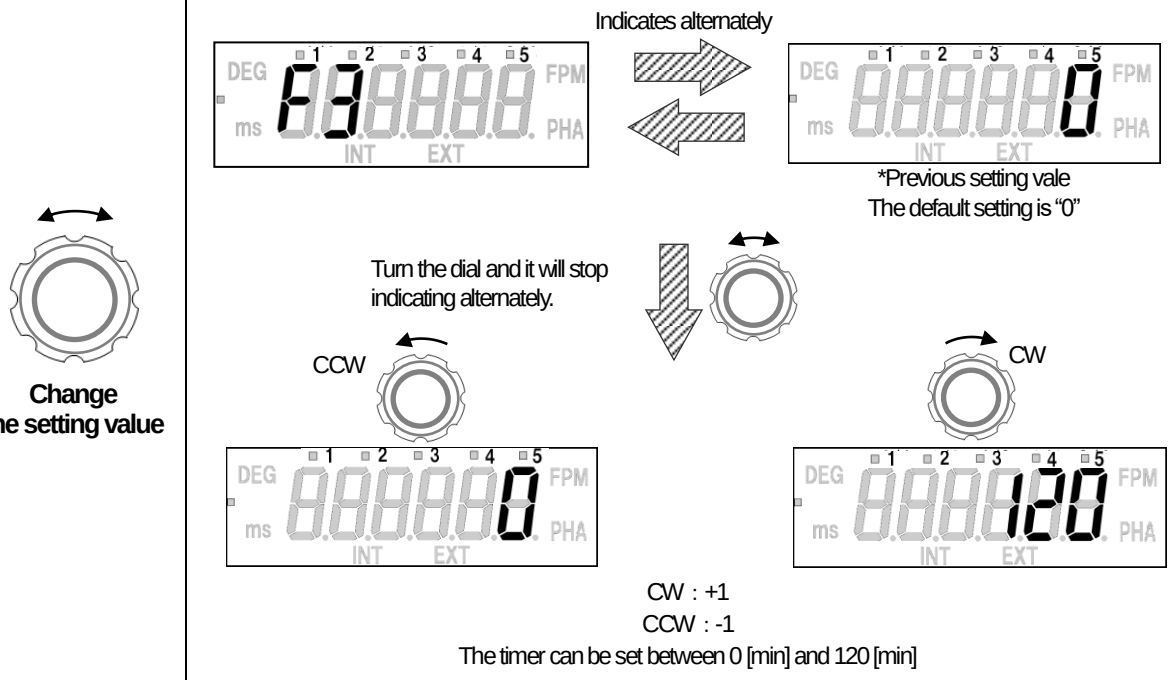
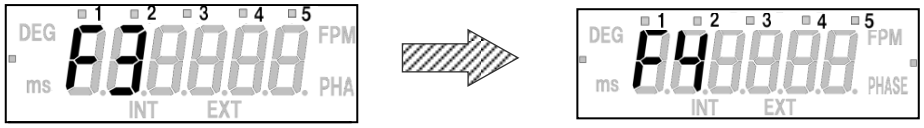
In function mode 2, in which the edge of the external pulse triggers emission, the rising edge or falling edge, can be set (for EXT).

Operation	Display
Change the setting value	Indicates alternately  *Previous setting value The default setting is "L-H" Turn the dial and it will stop indicating alternately. CCW  CCW: L-H (Rising edge) CW  CW: H-L (Falling edge)
MODE **Go to function mode 3**	 Go to function mode 3

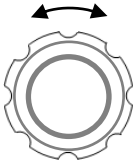
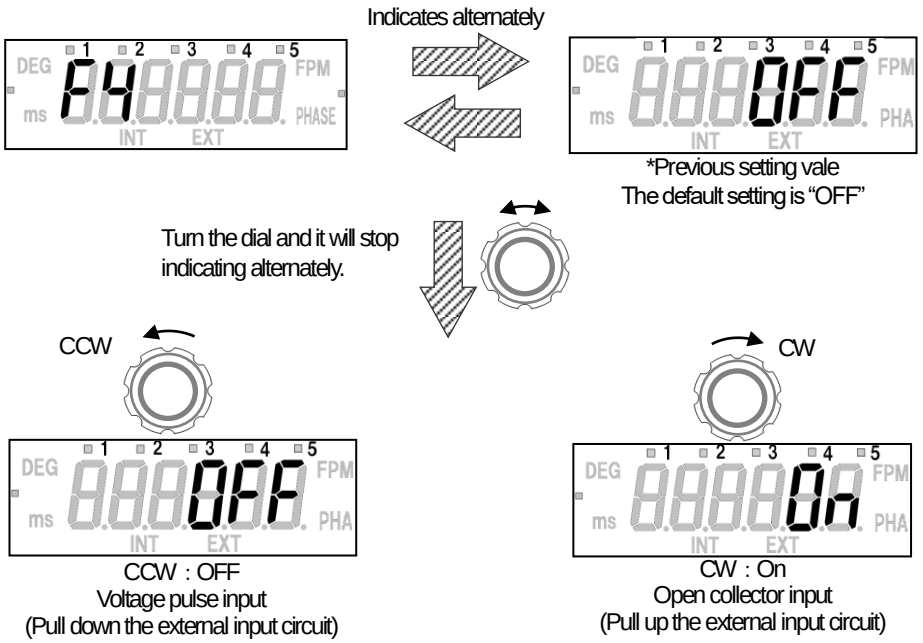
*This setting changes the timing of emission as shown in the following figure.



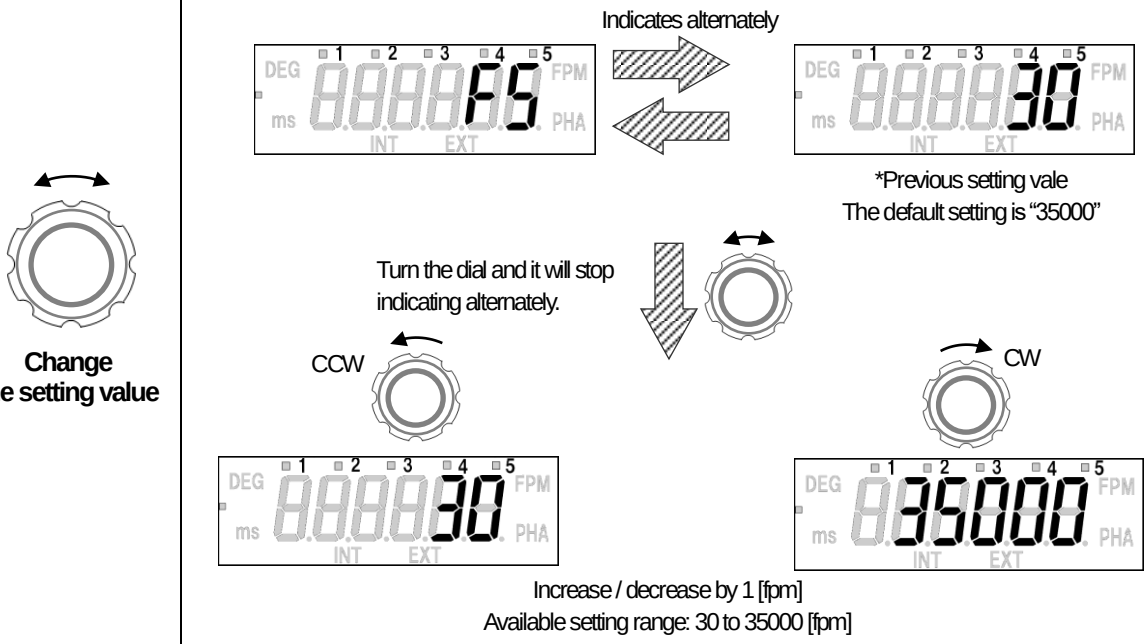
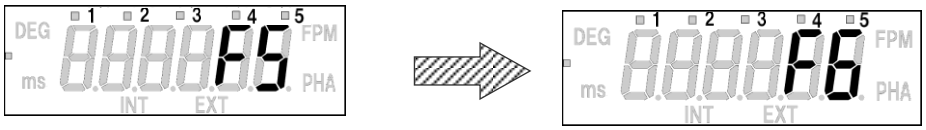
In function mode 3, auto emission stop time can be changed.

Operation	Display
Change the setting value	
MODE **Go to function mode 4**	

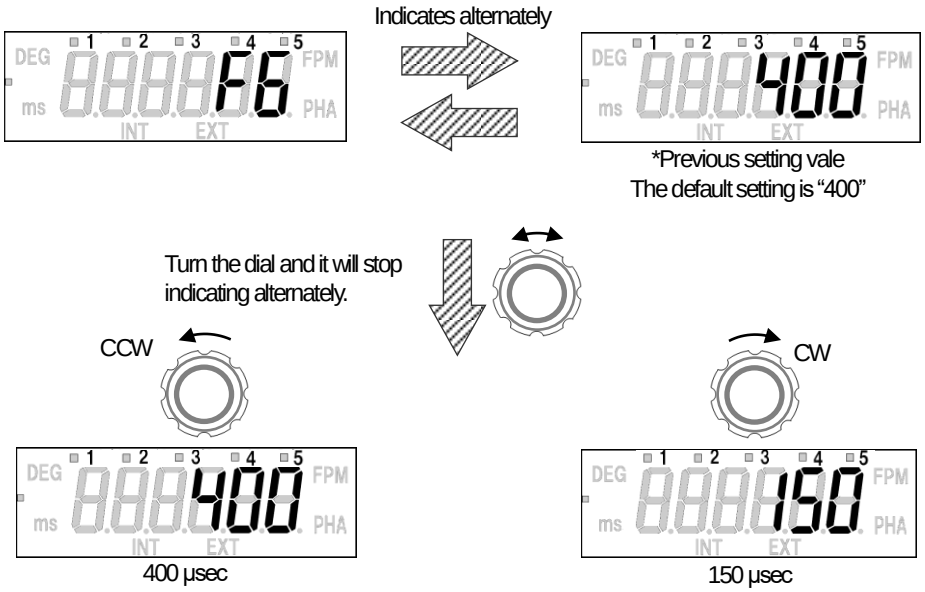
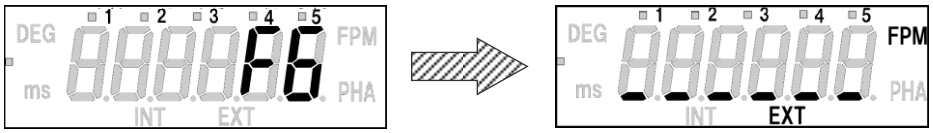
In function mode 4, the input circuit setting can be changed.

Operation	Display
Change the setting value	 
MODE **Go to function mode 5**	

In function mode 5, the measurement range on INT can be set.

Operation	Display
Change the setting value	
MODE **Go to function mode 6**	

In function mode 6, the pulse width of the synchronous output signal can be set to 400 µsec or 150 µsec.

Operation	Display
Change the setting value	
MODE **Save the changes and go to the home screen**	

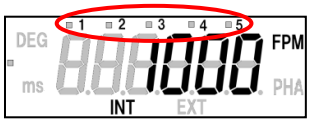
4.6 Saving function

This unit can save the setting values in two ways.

・Power OFF save：While using the unit while on INT and EXT, turn the power OFF to save the setting value to that which it was before turning the power OFF.
When the power is turned ON again, operation starts from the previous setting value.

・Memory save：The setting values on the screen can be saved as the SELECT number.
Since the SELECT number have five memories, the setting can be saved as five patterns.

SELECT number display



4.6.1 Saving the setting values

The setting values are saved as the following figure.

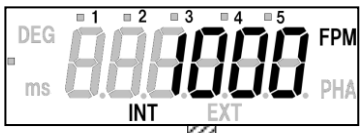
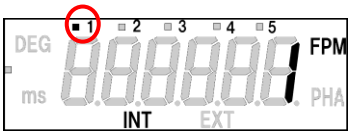
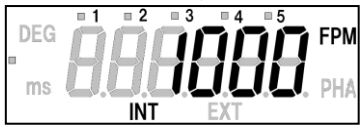
○：save ×：cannot save		Memory save		Power OFF save	
		INT	EXT	Power OFF during INT	Power OFF during EXT
Emission setting(INT / EXT)		○	○	○	○
Mode setting(FPM / PHA)		○	○	○	○
INT	The emission count(FPM)	○	×	○	×
	Delay angle(PHA)	○	×	○	×
	Delay time(PHA)	○	×	○	×
EXT	Delay angle(PHA)	×	○	×	○*1
	Delay time(PHA)	×	○	×	○*2

*1When you press “ZERO” in Delay angle mode, the value (delay angle) on the display is different from the actual value. In that case, the value on the display will be saved.

*2When you turn the power OFF to save, the calculated delay time based on delay angle will be saved.

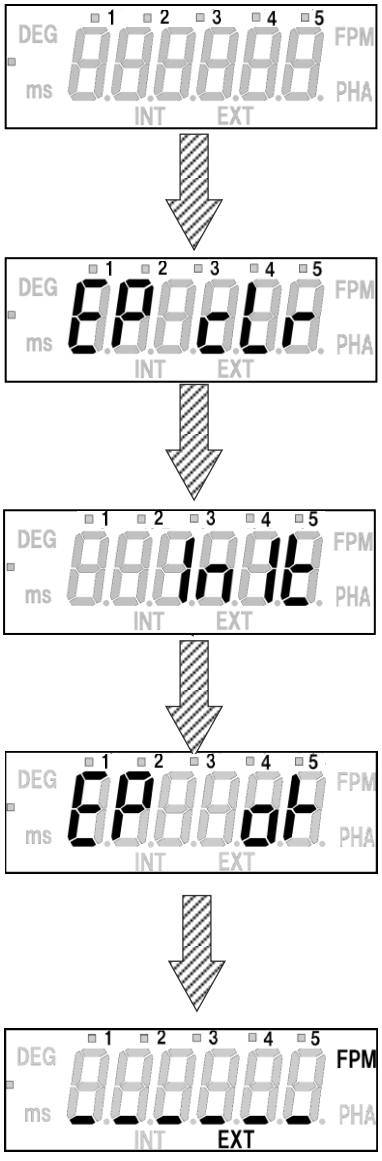
4.6.2 How to save the setting values

The setting values can be saved by the operations as followings.

Operation	Display
LOAD **Press and hold "LOAD"** X2 **Press "×2" to cancel the saving function.**	 Press and hold "LOAD"   "SAvE"and SELECT number (the default is "1") display alternately every 0.5 seconds. Turn the dial and change SELECT number to save. CW : +1 CCW : -1 *When"1"displays on the screen, turn the dial CW to display "5". *When"5"displays on the screen, turn the dial CCW to display "1".  ・Press "LOAD" and confirm the saving function. After the saving, go to the previous screen. ・Press "×2" and cancel the saving function. Go to the previous screen without saving.

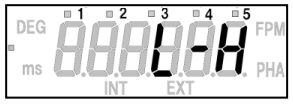
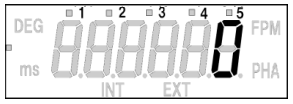
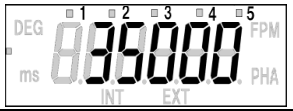
4.6.3 Initialize

The memory can be erased by initializing the saving function.

Operation	Display
÷2 **MODE** **The power switch ON while pressing "÷2" and "MODE"** **×2** **Press "×2" and confirm initialization**	

4.6.4 Initializing the setting values

The current settings will be erased and replaced as follows. (Including the function mode.)

		The initial setting	display
The initial emission setting		EXT	
The initial mode		FPM	
Default SELECT number		0 ※1	
INT	FPM	1500	
	PHASE(DEG)	0	
	PHASE(ms)	0	
EXT	FPM	0	*2 
	PHASE(DEG)	0	
	PHASE(ms)	0	
F1		0.0	
F2		L-H	
F3		0	
F4		OFF	
F5		35000	
F6		400	

*1 Memory (SELECT number) is not loaed

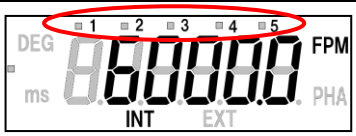
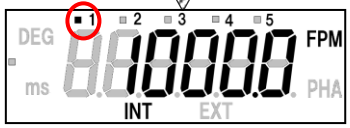
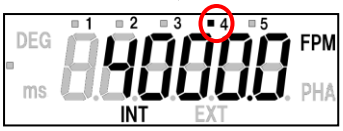
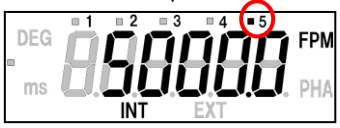
*2 On EXT, underlines are displayed until the external signal inputs occur.

4.7 Reading memory function

4.7.1 Reading values

Press “LOAD” and read the saving values as the figure on 4.6.1

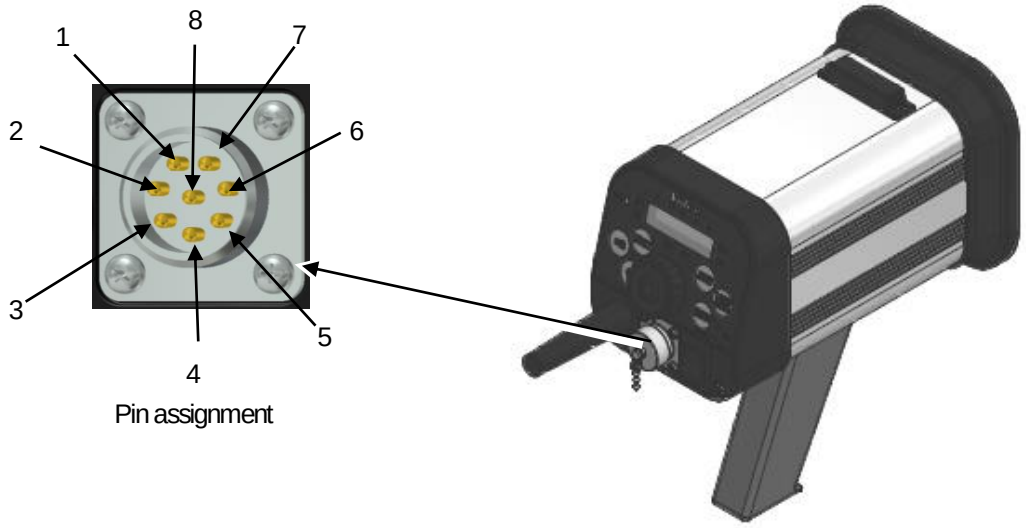
4.7.2 How to read the memory

Operation	Display
LOAD **Each press of “LOAD” switches SELECT numbers.** **OFF→1→2→3→4→5**	OFF (SELECT : 0)  SELECT : 1  SELECT : 2  Set the setting values which have been saved in SELECT number on display. SELECT : 3  SELECT : 4  SELECT : 5 

4.8 External signal I/O connector specifications and Pin assignment

RM15WTRZB-8P(71)　(Hirose Electric Group)

Pin number	Signal name	Remarks
1	NC	-
2	NC	-
3	12V	Power supply for sensor
4	OUT	External pulse output
5	IN	External pulse input
6	COM	GND
7	NC	-
8	FG	Earth



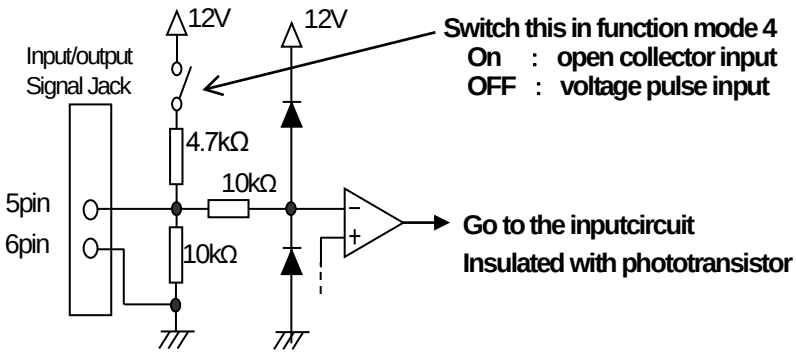
Pin assignment

4.9 External pulse input

Connect the unit to external devices (sensors, etc.) to allow the strobe to emit light using the pulse signal from the devices on external synchronous emission.

Available input frequency	:	Available measurement range	27 to 35020 fpm (0.45 to 583.7 Hz)
	:	Available delay emission range	27 to 35020 fpm (0.45 to 583.7 Hz)
Available input signal	:	Hi 2.5 to 12 V	
	:	Lo 0 to 0.5 V	
Available input pulse width	:	50 µs or more (edge trigger)	
Input impedance	:	10 kΩ (at voltage input)	

[Input circuit]

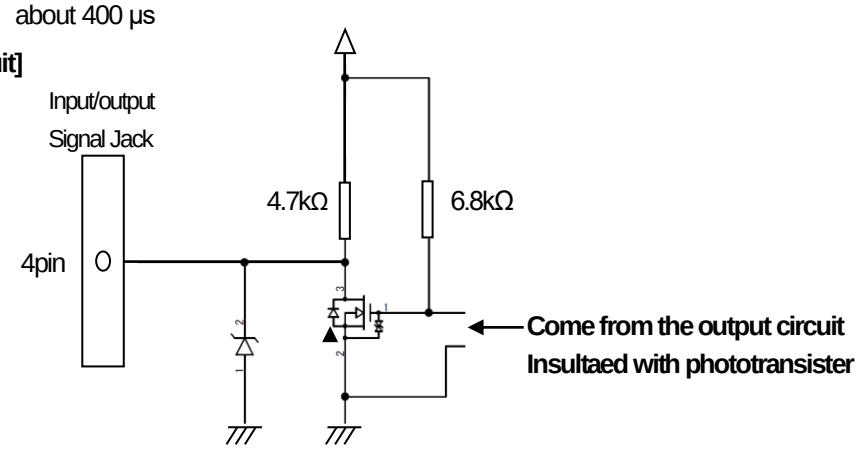


4.10 External pulse output

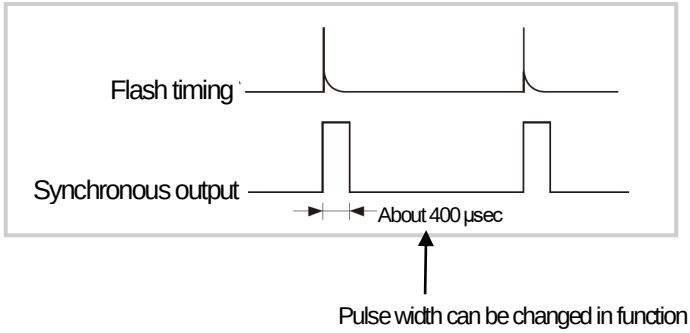
Outputs pulses to external devices simultaneously with light emission.

Output circuit spec : 12 V output
Output pulse width : about 400 µs

[Output circuit]



*Output square wave as following figure.



4.11 Lamp replacement

The life of a xenon lamp is about 1200 hours when it is emitted at 1500 fpm each time. Although rotation speed is displayed, no flash is emitted. When the flash is intermittently emitted, this indicates the lamp must be replaced. Be sure to replace the lamp with the following steps. Be sure to use the specified lamp. Please contact us or the retailer where you purchased this product if you need it.

Be sure to turn the power OFF. May result in electric shock

The lamp is hot and may cause burns.
After emission stops, let the stroboscope sit for 30 minutes or longer.
Be sure stroboscope is cool to the touch before replacing the lamp.

① Remove the protection window by loosening the 4 screws. Insert a thin screw driver into a hole of the protection window and pull out.

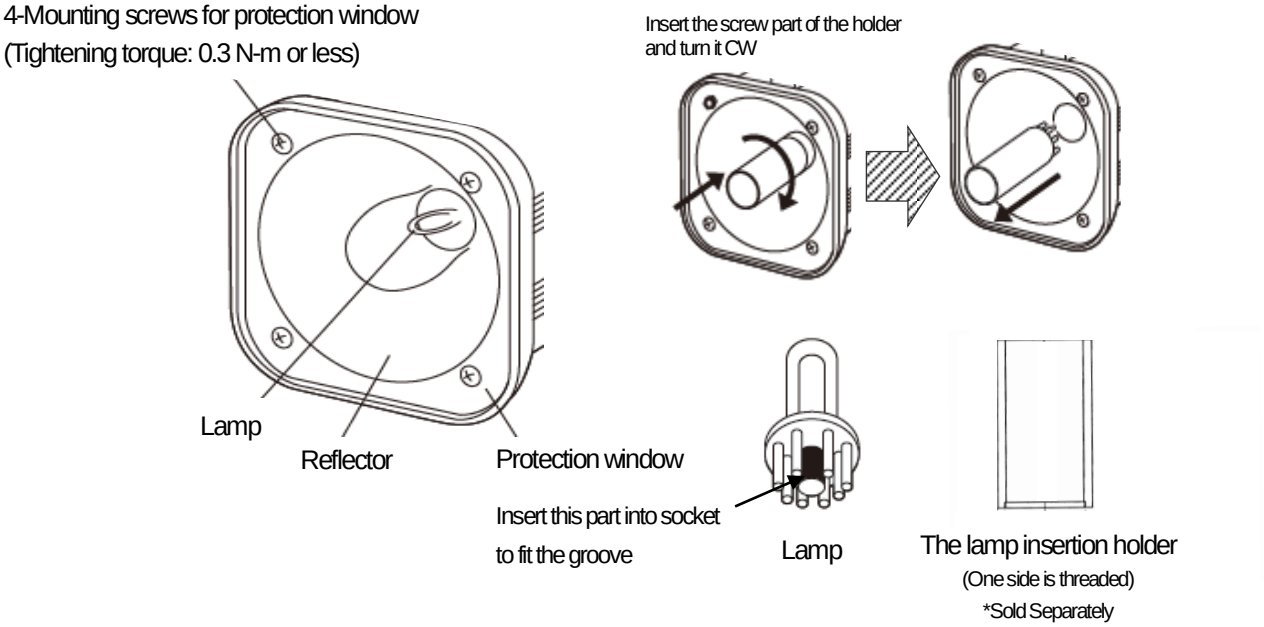
② Remove the reflector and Insert the lamp insertion holder as far as it will go. Then turn it CW two or three times and pull out straight with lamp.

Be sure to use a lamp insertion holder.
Pulling out lamp by hand may cause injury.

③ Insert new lamp into the lamp insertion holder with seeig the figure below. And press it to the socket in the proper direction.

④ Turn the lamp insertion holder CCW and pull out. And put carefully the reflector on the case properly.

⑤ Put the protection window back with 4 screws.
*In order to maintain protection, be sure to fix the protective window. (Tightening torque: 0.3N-m or less)



5 Specifications

5.1 Specifications list

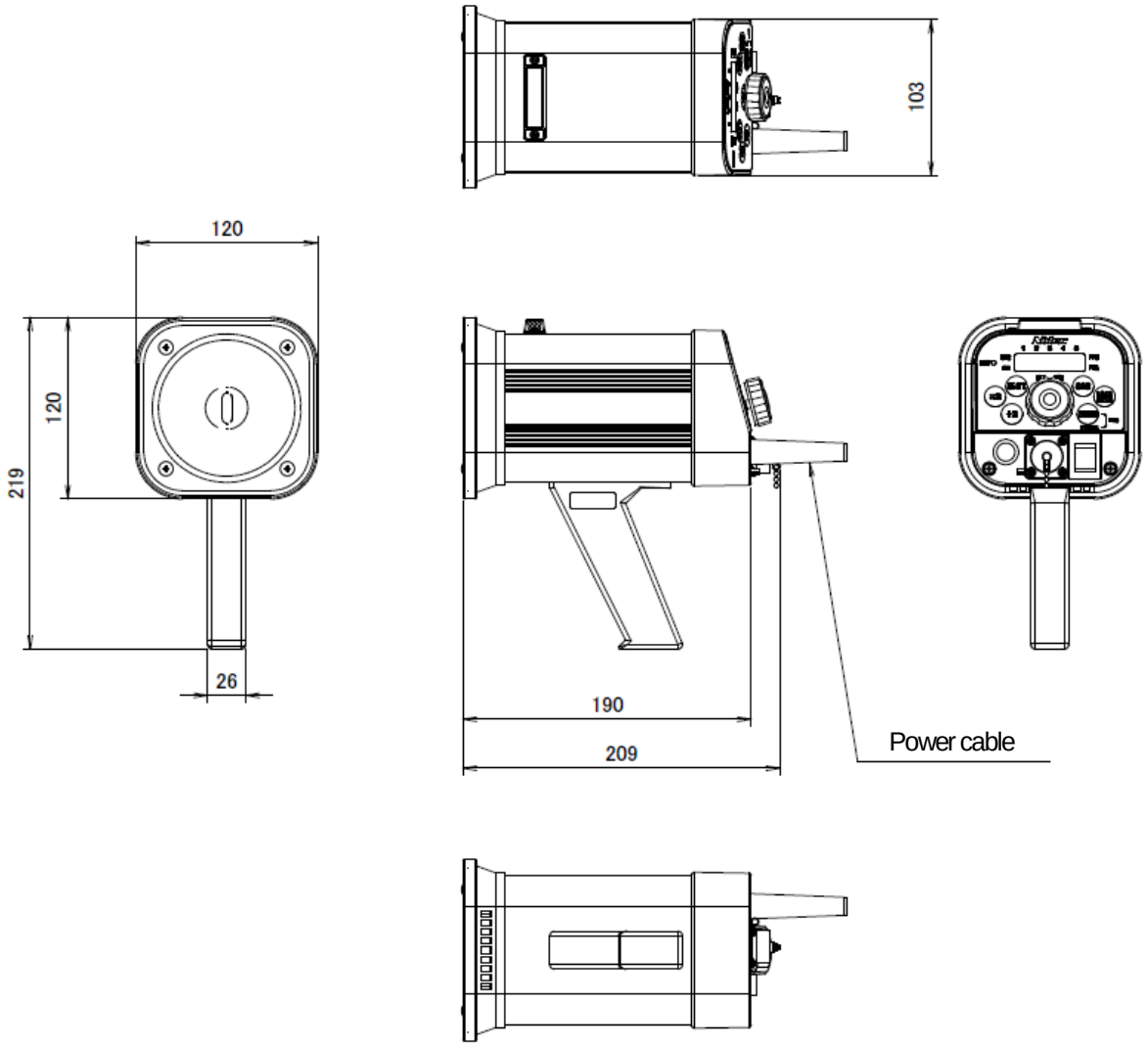
Internal oscillation emission	Emission count	30 to 35000 fpm
	Resolution	30.0 to 5000.0 : 0.1 fpm to 8000.0 : 0.2 fpm to 10000.0 : 0.5 fpm to 35000.0 : 1.0 fpm
	Phase change function	Available (PHA mode)
	Jump function	Available (press "×2" and "÷2" while on INT)
	Limit function	Available (configurable in function mode 5)
	Integer function	Available (configurable in function mode 1)
	Delayed emission function	Measurement range : 30 to 35000 fpm Within the range (angle) : 0 to 359°, available to set by1° Within the range (time) : 0.00 to 999.99 ms, available to set by 0.01 ms 1000.0 to 1994.4 ms ,available to set by 0.1 ms
External synchronous emission	Input signal	H level : 2.5 to 12 V L level : 0 to 0.5 V Pulse width : 50 µs or more *Input impedance : 10 kΩ or more
	Frequency measurement range	27 to 35020 fpm
	Phase change function	Available (PHA mode)
	Resolution	1 fpm
	Delayed emission function	Measurement range : 27 to 35020 fpm Within the range (angle) : 0 to 359°, available to set by1° Within the range (time) : 0.00 to 999.99 ms, available to set by 0.01 ms 1000.0 to 2216.0 ms ,available to set by 0.1 ms
Display		6-digit 7 segment red LED
Setting devices		Multi-turn encoder, tact switch
Lamp	Emission source	Xenon lamp
	input	15 W
Emission pulse width		20 µs
Emission timer		Emission continuously or automatically stop in 1 to 120 [min] (adjustable in function mode 3)
Saving function		Power OFF saving Memory saving (SELECT number)
Power supply for sensor		DC12V 40mA
Power supply		AC100 V (input) AC100 to 115 V 50/60 Hz
		AC200 V (input) AC200 to 240 V 50/60 Hz
Power cable		Approx 2.4 m (7.8')
Operating temperature		0 to 40°C (32 to 104°F)
Operating humidity		35 to 85% (Non- condensing)
Protection structure		None
Weight		Approx. 1.2 kg (with power cable) (2.6 lb)

Notes

*1 The lamp may flicker in high frequency, but it is not failure. It can be measured by instruments so please continue to use it.

*2 If noise causes signal integrity issues from the external input sensors, please take measures such as connecting a ferrite core to the signal line.

5.2 External dimensions



6 Troubleshooting

Troubleshooting

Symptoms	Factors	Causes	Solution
Emissinon occurs inconsistently.	The Xenon lamp failure.	The Xenon lamp life. Internal circuit failure.	Replace the lamp,If the problem has not been solved, ask for repair.
Emission sometimes stops.	The Xenon lamp failure.	The Xenon lamp life. Internal circuit failure.	Replace the lamp,If the problem has not been solved, ask for repair.
Display does not change by turning the dial.	Internal circuit malfunction.	Internal circuit failure.	Ask for repair.
Information appears on the digital display, but no emission occurs.	The Xenon lamp failure.	Internal circuit failure.	Replace the lamp,If the problem has not been solved, ask for repair.
Emission occurs but does not match the display.	Internal circuit malfunction.	Internal circuit failure.	Ask for repair.
Nothing is indicated on the display and no emission occurs.	Internal circuit malfunction.	Internal circuit failure.	Ask for repair.
At measurement, the object does not stand still completely	The rotartion speed cannnot be set accurately.	Due to resolution.	It caanot be set below the second decimal place.

Q & A

Questions	Answer	Note
Is it possible to see the object 2m away?	It depends on the surrounding environment.	Please check it by using demo.
Can I shoot the video?	No.	It does not have the signal for the video.
Can I take a picture?	No.	It does not have the signal for pictures.
Is this washable?	It is not washable.	Do not wash.
Do you have explosion-proof models?	No.	Impossible at present.