

DT-329

LED Linear Stroboscope

Operation Manual

Read manual thoroughly prior to operation.

Use instrument only after reading the complete manual.

Follow all safety precautions.



Safety Precautions

Please be sure to closely follow all safety precautions.

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".
Follow these precautions.



"Danger" marking indicates possible death, severe injury or fire if the user disregarded.



"Caution" marking indicates possibility of severe bodily injury or object damage if operated improperly.



This warning indicates a prohibited operation.



Execute this warning.

 Danger	
 Never use in flammable environments. May result in fire or explosive.	 Never look directly into the LED light source. May result in eye injury.

 Caution	
 Do not drop. May cause damage or injury.	 Avoid the following. Direct sunshine, condensation, dust or caustic Chemicals, combustible gases Oils, water, salts
 Do not alter, modify or dispose of improperly. May cause damage, accidents and void warranty.	 Operate within 0-35°C(32-95°F), 35-85%RH May alter operation of the unit.
 To clean, gently wipe with a soft cloth. No volatile chemicals such as usage Benzene, Thinner, or Alcohol.	 DT-329 case may become excessively hot when used continuously long time. Never use while touched directly as possession by the hand etc.

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1 Summary

The DT-329 LED Linear Stroboscope is AC powered precision instrument used to illuminate wide spot and measure the rotational speeds of objects with a certain speed and a constant period.

By illuminating the rotating object with the DT-329, the moving object appears to remain still when the flashing rate of the DT-329 is equals the rotational speed of the target object. This allows inspection of rotating and moving parts, printed matter, labels, gears, shafts and others. Additionally, the target object can appear to rotate back or forth (frequency) by utilizing the phase shift function.

Main features

Wide spot range- 23.62 in x 15.75 in (600mm x 400mm)

=>refer to 5. Specifications

Wide flash range- 60 to 120,000 FPM

=> refer to 4.3.4 Flash rate and frequency setting in Internal mode

High brightness- 1,950 lux at 120,000 FPM and 7.87 in (20cm)

=>refer to 5. Specifications

Two units of measure- FPM (flashes per minute) and Hz.

=>refer to 4.3.2 Changing Units of Measure in Internal mode

Multiply or Divide by 2- function to quickly adjust flash rate

=>refer to 4.3.5 Multiply/Divide by 2 Function

Phase Shift function - "+3°", "-3°"

=> refers to 4.3.6 Phase shift (Angle)

Adjustable flash duration – (FOCUS) Time can change for 0.1° each time as in the range of 0.1°/ 360° - 2.5°/360°

=> refer to 4.3.7 Flash duration (FOCUS) setting

External input/output port-Synchronization of flash rate with external pulse, or flash rate pulse signal output

=>refer to 4.4 External trigger mode, 4.6 Connector of External input/output

2 Product Inspection and Preparation

2.1 Confirmation of product packaging

Confirm the following five parts in your DT-329 packaging:

1. One (1) LED linear stroboscope



2. One (1) External input connector (7 pins)
SRCN6A16-7P [JAE]



3. One (1) External output connector (3 pins)
SRCN6A13-3P [JAE]



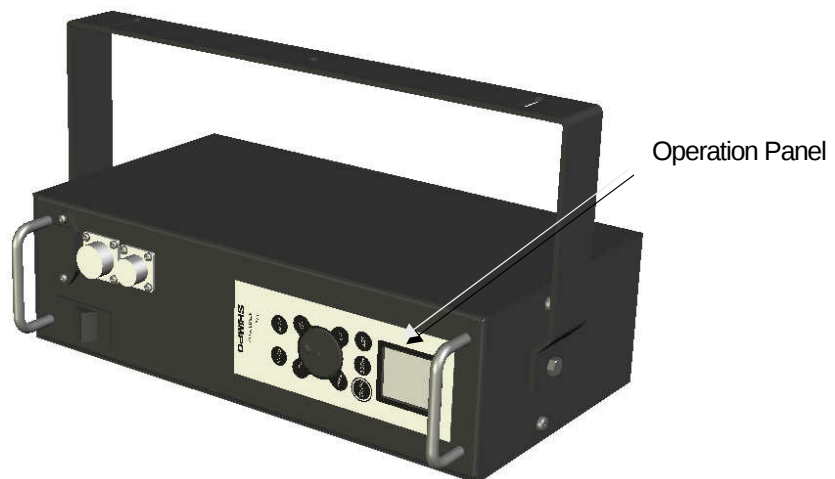
4. One (1) AC cable



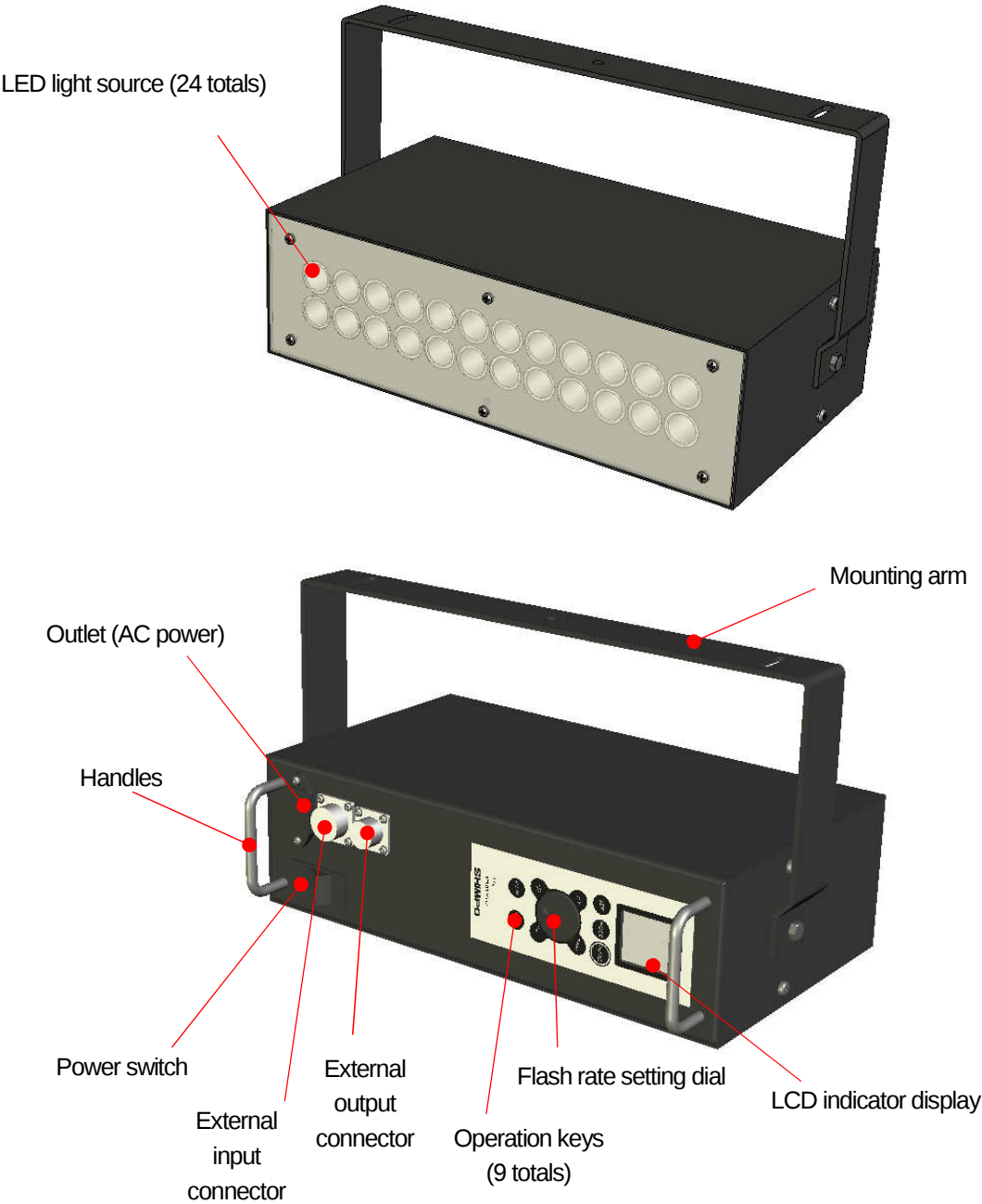
5. Instruction Manual

2.2 Removal of protective sheet

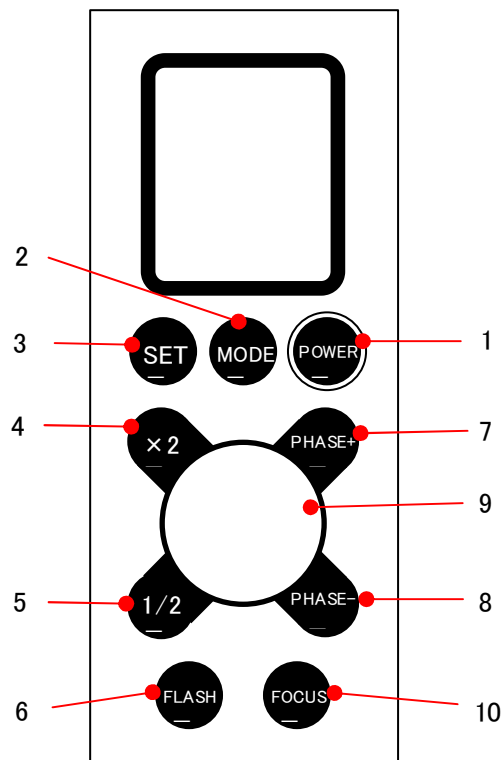
Remove protective sheet covering the operation panel.



3 Names and functions of the components
3.1 DT-329 Unit



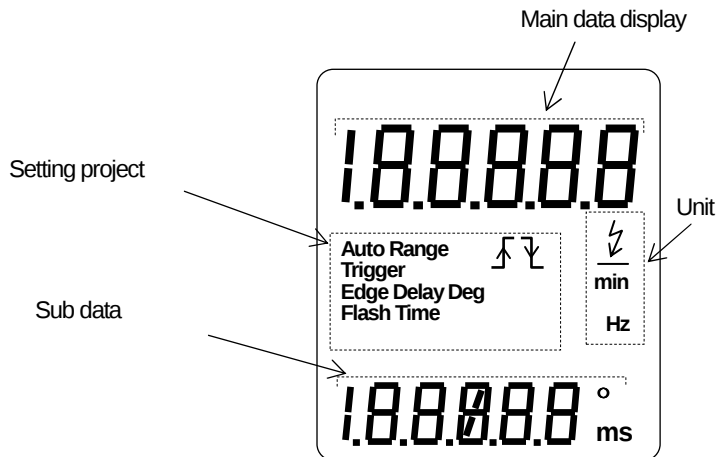
3.2 Operation panel



No.	Key	Function Instructions
1	POWER	Power the unit on or off
2	MODE	Select Internal /External/Parameter mode of operation
3	SET	Unit change, Select parameter setting item, Store setting value.
4	$\times 2$	Multiplies the flash rate/frequency by a factor of 2.
5	$1/2$	Divides the flash rate/frequency by a factor of 2.
6	FLASH	Flash on and off
7	PHASE “+”	Advance image forwards 3 degrees at a time in internal mode. In parameter setting mode, change setting value.
8	PHASE “-”	Retard image backwards 3 degree at a time in internal mode. In parameter setting mode, change setting value.
9	Dial	Set flash rate or frequency. CW; Increase flash rate/frequency. CCW; Decrease flash rate/frequency. (Turn dial “quickly” to drastically change value. Turn dial “slowly” to change value 1 digit.) In parameter setting mode, CW or CCW rotating changes the setting value.
10	FOCUS	Adjusts the flash duration (flash pulse width) in Internal/External mode.

3.3 LCD Display

3.3.1 Display Names and Descriptions



3.3.2 Main data display

- Internal flashing mode: Displays flash rate.
- External trigger mode: Display external trigger frequency.
- *Parameter setting mode: Display LCD backlight setting ("P" or "LCD")

*Refer to section 4.5 for detail.

3.3.3 Sub data display

Internal Flash Mode Display

- To change the degrees of phase shift, press PHASE + or PHASE - keys. The display will reflect the cumulative angle of phase shift.
- “Flash Time” will be displayed when FOCUS key is pressed. The flash time (pulse flash duration) can then be set using the dial to increase or decrease the flash time from 0 to 1.0 (0 - 1.0°).

External Trigger Mode Display

- Displays delay time setting. Refer to section 4.4.2 for detail.

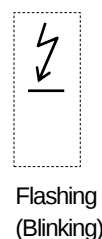
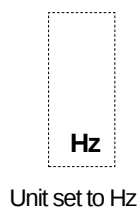
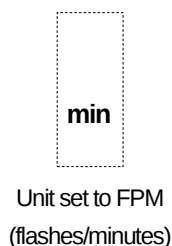
*Parameter Mode Display

- Displays the following:
 - Selected measuring range
 - Delay time (in ms)
 - Backlit LCD (ON or OFF)

*Refer to 4.5 “Parameter setting mode” for detail.

3.3.4 Units of Measure: Display

Digital display will show the following according to the unit of measure setting.

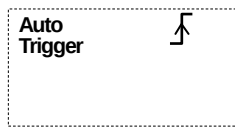


3.3.5 Setting project display

The following will be displayed, according to the mode of measure and *parameter settings



Internal flashing mode



Positive auto trigger



Negative auto trigger



Set the measuring range in Parameter setting mode*



Set the flash time (duration)



Choose positive when set trigger edge in *Parameter setting mode



Choose negative when set trigger edge in *Parameter setting mode



Choose angle setting when delay set in *Parameter setting mode



Choose delay time when delay set in *Parameter setting mode

* Please see section 4.5 for Parameter setting data.

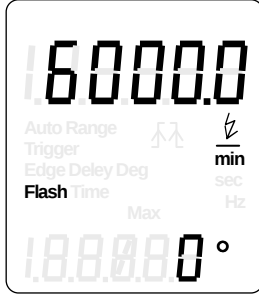
4 Function Instructions

4.1 Power on/off

Turn on Main Power Switch, then press “POWER” key to turn on unit. The unit will begin to flash in internal mode and the display will indicate the flash rate (FPM = flashes per minute).

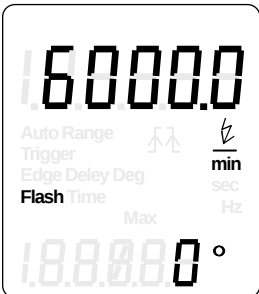
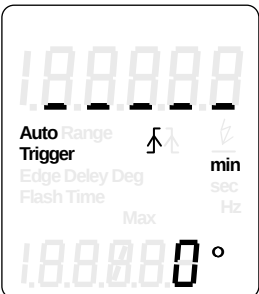
Operation	Indication	
Power off  Press and release		  Display will indicate the flash rate in internal mode, and the LED light source will begin flashing.

Press “POWER” key again to turn off unit. The display will turn off, and the device will stop flashing. Then turn off the main power switch.

Operation	Indication	
Power on  Press and release		  Display will turn off and unit will stop flashing.

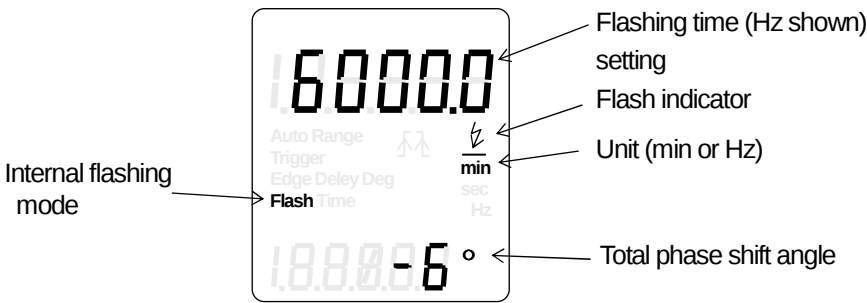
4.2 Mode Selection

Press and release “MODE” key to toggle between INTERNAL, EXTERNAL and PARAMETER mode. MODE doesn't change while flashing. Please stop flashing by pressing “FLASH” key.

Operation	Indication		
 Press and release to switch modes	 Internal flashing mode	  External trigger mode	  Parameter setting mode
	 		

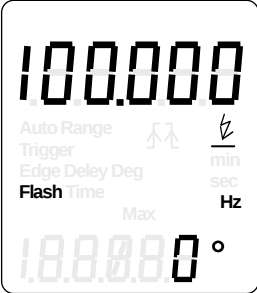
4.3 Internal flashing mode

4.3.1 Instruction for Internal flashing mode



4.3.2 Changing Units of Measure in Internal Mode

Press and release “SET” key to toggle between FPM and Hz measuring unit.

Operation	Indication		
 Press and release	 Measuring unit “FPM”	  Measuring unit “Hz”	  Measuring unit “FPM”

4.3.3 FLASH function

Press and release “FLASH” key to toggle between flashing on and off.

Operation	Indication		
 Press and release	 Flashing off	  Flashing on ⚡ blinking	  Flashing off

4.3.4 Flash rate and frequency “Internal Mode”

Set the flash rate (frequency) by turning the center dial.

Clockwise: Increase

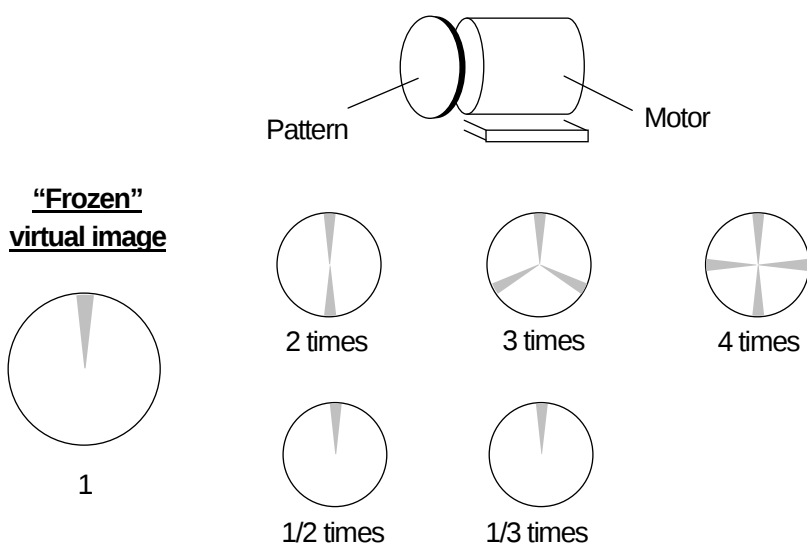
Counter-clockwise: Decrease

For small adjustments, turn the dial slowly. For large adjustments, rotate the dial quickly.

The flash rate and resolution differs according to measuring range. Refer to section 4.5.1 for details.

Notes for setting the flash rate

One function of a stroboscope is to provide a “Frozen” virtual image of a rotating target once the flash rate of the stroboscope matches the rotational speed of the target object (FPM=RPM). The stroboscope will also show a single image when the flash rate or frequency is set to a lesser multiple of the RPM (1/2, 1/3, etc.) When the flash rate is increased to a high multiple (2, 3, etc.), multiple images will appear. To find the true RPM of the target object, beginning the flash rate to lower multiples until only a single image appears. For more information regarding the multiply/divide by 2 function, please see 4.3.5.



True rotational speed of target object (rpm)	Flash rate of stroboscope (FPM)	Multiple of true rotational speed	Number of stopped images
900	3600	4 times	4
	2700	3 times	3
	1800	2 times	2
	900	1 times	1
	450	1/2 times	1
	300	1/3 times	1

4.3.5 Multiply / Divide by 2 Function

The flash rate or frequency can be doubled or halved by the “x2” and “1/2” keys on the operation panel.

1) Doubling the flash rate (x2)

Press “x2” key to multiply the current flash rate by a factor 2 until the max flash rate is reached.

Operation	Indication		
×2 Press and release	1.5000.0 Auto Range Trigger Edge Delay Deg Flash Time Max Hz 1.8.8.8.8.0 ° Ex. Flash rate 1,500 FPM → ×2 <td> 3.0000.0 Auto Range Trigger Edge Delay Deg Flash Time Max Hz 1.8.8.8.8.0 ° Double the rate 3,000 FPM → ×2 <td> 6.0000.0 Auto Range Trigger Edge Delay Deg Flash Time Max Hz 1.8.8.8.8.0 ° Double the rate 6,000 FPM </td></td>	3.0000.0 Auto Range Trigger Edge Delay Deg Flash Time Max Hz 1.8.8.8.8.0 ° Double the rate 3,000 FPM → ×2 <td> 6.0000.0 Auto Range Trigger Edge Delay Deg Flash Time Max Hz 1.8.8.8.8.0 ° Double the rate 6,000 FPM </td>	6.0000.0 Auto Range Trigger Edge Delay Deg Flash Time Max Hz 1.8.8.8.8.0 ° Double the rate 6,000 FPM

After the flash rate (frequency) changes, it becomes the new value based on the set display resolution. (See section 5. Specifications)
Therefore, the frequency is likely not to return to the original frequency, even if the “1/2” key is pressed after pressing the “x2” key.

2) Halving the flash rate (1/2)

Press “1/2” key to divide the current flash rate by a factor of 2 until the min flash rate is reached.

Operation	Indication		
1/2 Press and release	1.5000.0 Auto Range Trigger Edge Delay Deg Flash Time Max Hz 1.8.8.8.8.0 ° Ex. Flash rate 1,500 FPM → 1/2 <td> 0.7500.0 Auto Range Trigger Edge Delay Deg Flash Time Max Hz 1.8.8.8.8.0 ° New flash rate 750 FPM → 1/2 <td> 0.375.0 Auto Range Trigger Edge Delay Deg Flash Time Max Hz 1.8.8.8.8.0 ° New flash rate 375 FPM </td></td>	0.7500.0 Auto Range Trigger Edge Delay Deg Flash Time Max Hz 1.8.8.8.8.0 ° New flash rate 750 FPM → 1/2 <td> 0.375.0 Auto Range Trigger Edge Delay Deg Flash Time Max Hz 1.8.8.8.8.0 ° New flash rate 375 FPM </td>	0.375.0 Auto Range Trigger Edge Delay Deg Flash Time Max Hz 1.8.8.8.8.0 ° New flash rate 375 FPM

After the flash rate (frequency) changes, it becomes the value based on the set display resolution. (See section 5. Specifications)
Therefore, the frequency is not to return to the original frequency even if “x2”key is pressed after pressing “1/2” key.

4.3.6 Phase Shift (Angle)

Once "Frozen" virtual image is achieved via FPM=RPM, the phase shift function can advance or delay the flash so that the image appears to be rotating incrementally.

Press "PHASE+" key or "PHASE-" key to increment or decrement the phase shift angle by 3°.

The display will show the cumulative angle of the phase shift.

Operation	Indication		
PHASE+ Press and release	6000.0 Auto Range Trigger Edge Deley Deg Flash Time Max 1.8.8.8.8 0 ° Ex. Flash rate 6,000 FPM → 6000.0 Auto Range Trigger Edge Deley Deg Flash Time Max 1.8.8.8.3 ° Increment phase shift by 3° → 6000.0 Auto Range Trigger Edge Deley Deg Flash Time Max 1.8.8.8.6 ° Increment phase shift by 3° Final phase shift of 6°		

If "PHASE +" key is pressed at 359°, it becomes 0°.

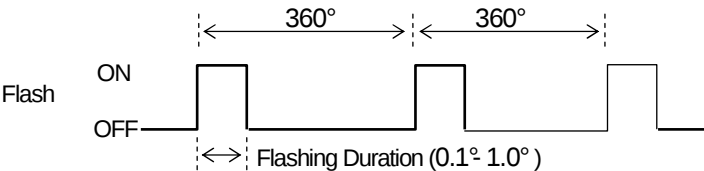
Operation	Indication		
PHASE- Press and release	6000.0 Auto Range Trigger Edge Deley Deg Flash Time Max 1.8.8.8.8 0 ° Ex. Flash rate 6,000 FPM Phase shift at 0° → 6000.0 Auto Range Trigger Edge Deley Deg Flash Time Max 1.8.8.8.8 -3 ° Decrement phase shift by 3° → 6000.0 Auto Range Trigger Edge Deley Deg Flash Time Max 1.8.8.8.8 -6 ° Decrement phase shift by 3° Final phase shift of -6°		

If "PHASE -" key is pressed at -359°, it becomes 0° .

4.3.7 Flash Pulse Duration (FOCUS) setting

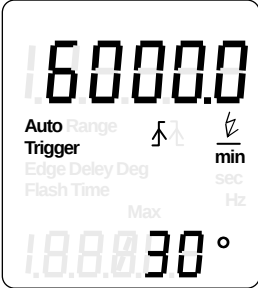
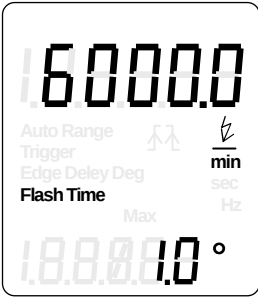
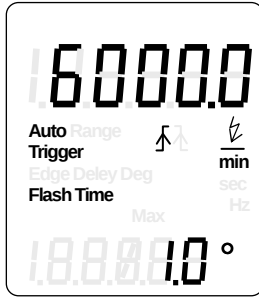
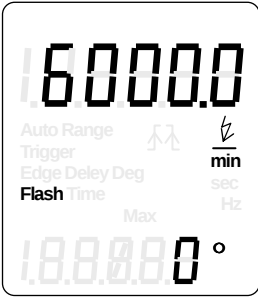
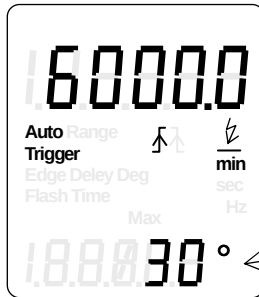
The FOCUS can be set within the range of 0.1°/360° - 1.0°/360°, with a resolution of 0.1°.

Period of flashing = 360°



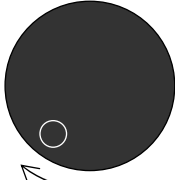
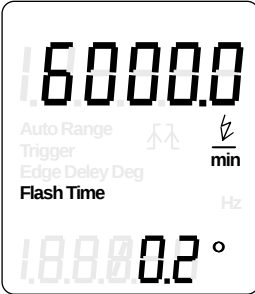
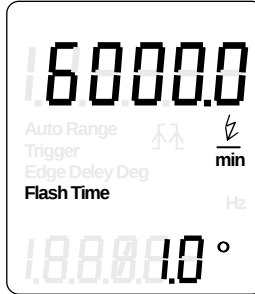
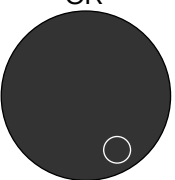
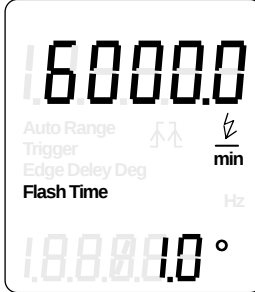
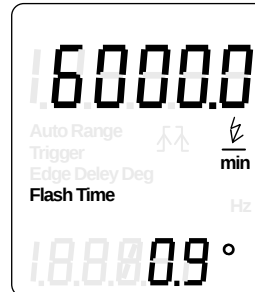
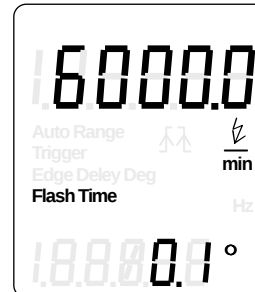
The Flash Pulse Duration (RATIO) is directly proportional to the LED brightness, which in turn, is inversely related to the target image focus.

Press the “RATIO” key. The current mode will start blinking for 5 seconds allowing modification at this point.

Operation	Indication	
 Press and release	Internal flashing mode	External trigger mode
	 Phase shift angle	 Flash delay angle
		
	 Flash pulse duration (blinking)	 Flash pulse duration (blinking)
	When blinking, flash duration can be modified (see next section for directions on this step)	When blinking, flash duration can be modified (see next section for directions on this step)
		
	 Phase shift angle	 Flash delay angle
	Return to normal internal flashing mode and display	Return to normal external triggering mode and display

** While in the flash pulse duration setting mode, if no manual changes are made to the DT-329 settings for 5 seconds the LCD display will return to a normal indication of each mode.

Press “PHASE+” key, or turn the dial clockwise to increment the Focus by 0.1°.
Press “PHASE-” key, or turn the dial counter clockwise direction to decrement the Focus by 0.1°.

Operation	Indication
PHASE+ Press and release OR  Turn clockwise	    Flash duration (FOCUS) 0.17 360° Incremented 0.27 360° Maximum 1.07 360°
PHASE- Press and release OR  Turn counter clockwise	    Current (FOCUS) 1.07 360° Decrementd 0.97 360° Minimum 0.17 360°

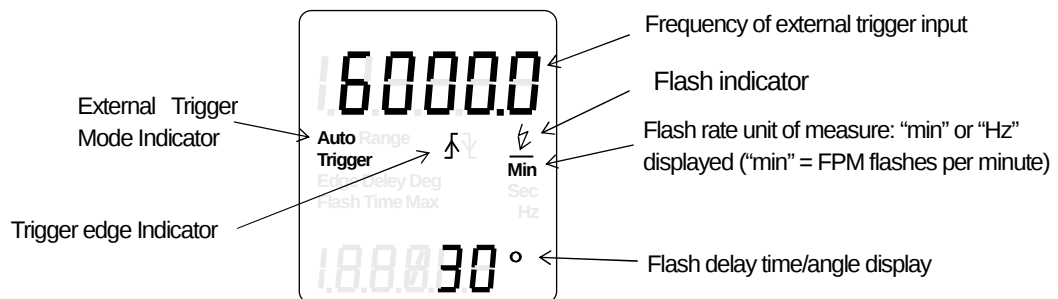
4.4 External Trigger Mode

This mode allows synchronization of the FPM with external signal input such as a sensor.

See section 4.6 for details.

Parameter settings are possible, like phase shift, delay time, flash duration, edge trigger.

4.4.1 External trigger mode: LCD display information



The frequency of the external signal is measured each period, while the latest external frequency measurement is updated every 50ms.

For an out of range external input signal, the display will appear as follows:



External signal < 60FPM/1Hz.



External signal > 10,000FPM/166Hz.

4.4.2 Flash Delay Setting

This mode allows for delayed flashing once an external signal is triggered.

The unit of delay is time (msec) or degree (°).

Press "PHASE+" or "PHASE-" key to toggle between two settings of "delay time" or "delay angle".

Operation button	Indication
PHASE+ PHASE- Press and release	1.8.8.8.8 Auto Range Trigger Edge Delay Deg Flash Time Max 1.8.8.8.8 0 ° "delay angle" in deg PHASE+ PHASE- 1.8.8.8.8 Auto Range Trigger Edge Delay Deg Flash Time Max 1.8.8.8.8 0 ms "delay time" in ms

4.4.2.1 “Delay time” setting

This can be set to 0~999 msec with a resolution of 1 ms.

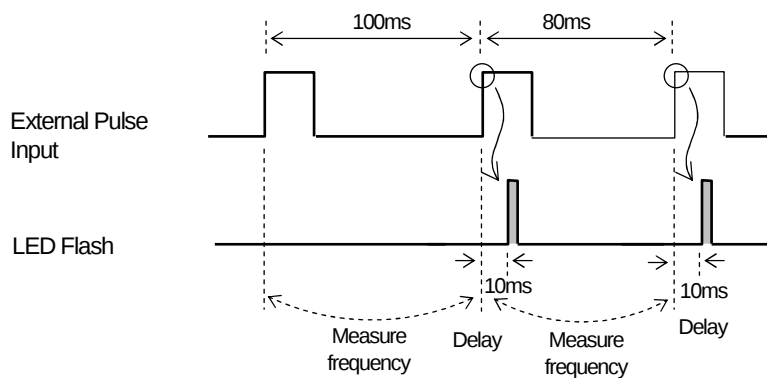
The internal calculation time of the unit is 60us, which results in the actual delay time being (Setting delay time) + 60us.

The DT-329 will begin flashing after the 1st trigger pulse. See timing chart below.

[Example]

Trigger: Positive edge (The instant where the delay time)

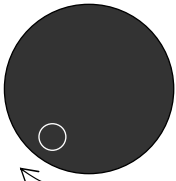
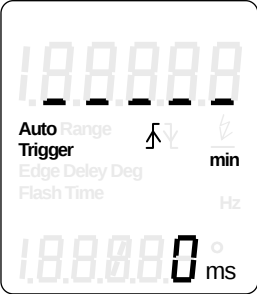
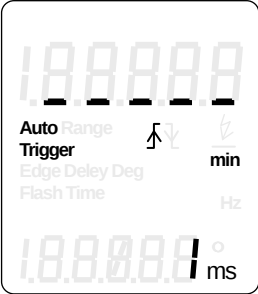
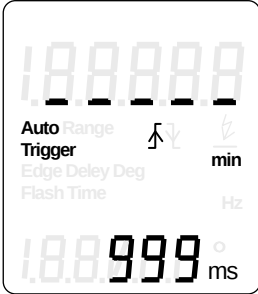
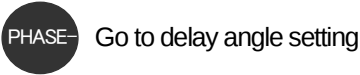
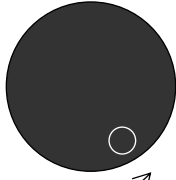
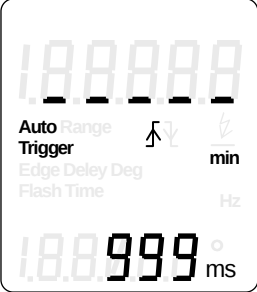
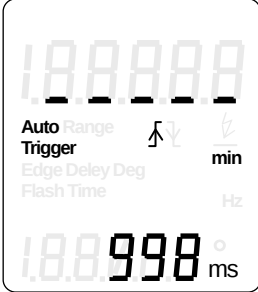
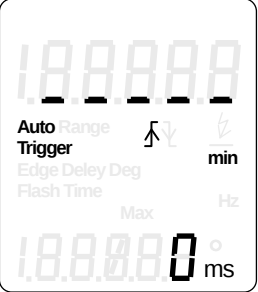
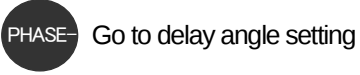
Delay time: 10ms (Independent of external input frequency)



If external signal period < delay time, then the delay time value = 0.

Please note the built in 60us internal delay on top of the external signal input.

Press "PHASE+" key to select the delay time setting. Turn dial CW to increase and CCW to decrease.

Button operation	Expression
 Turn clockwise	      
 Turn counter clockwise	      

4.4.2.2 “Delay angle” setting

Set the delay angle from 0° to 360° in 1° increment.

The actual delay time is as follows:

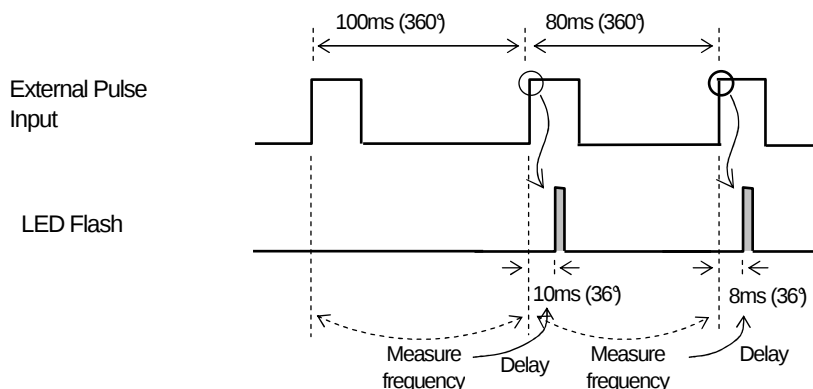
$$\frac{\text{Delay angle setting}}{360^\circ} \times \text{Period of External Input} + \text{approx. } 60\mu\text{s (Built-in)}$$

While the DT-329 does not flash at the 1st trigger pulse as shown below in the timing chart.

[Example]

Trigger : Positive edge

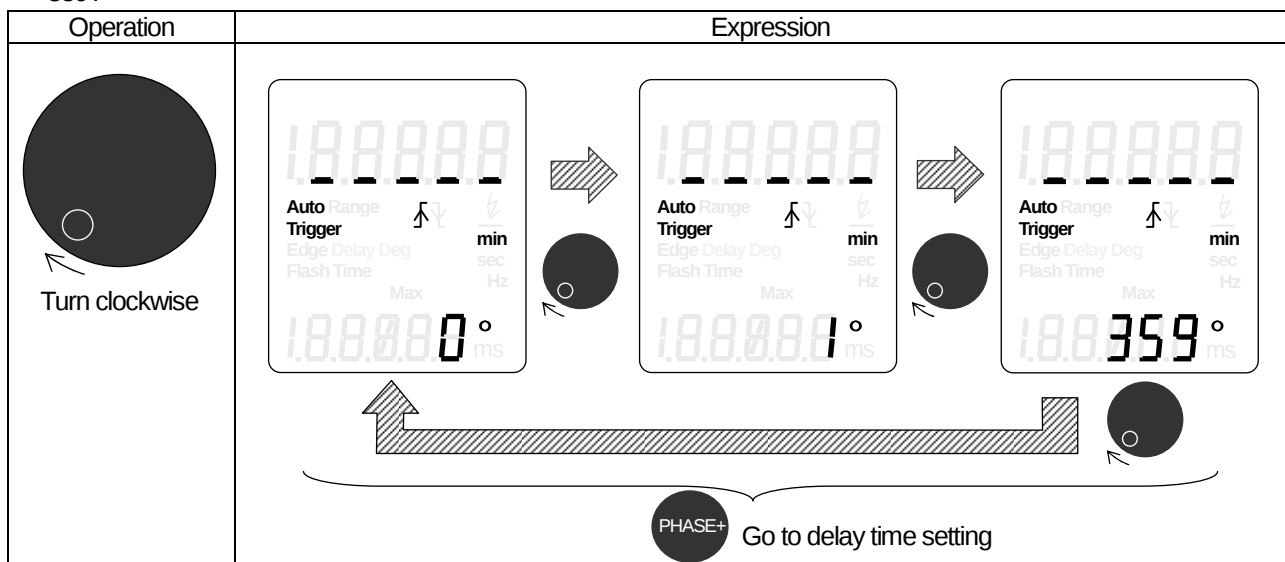
Delay angle : 36°



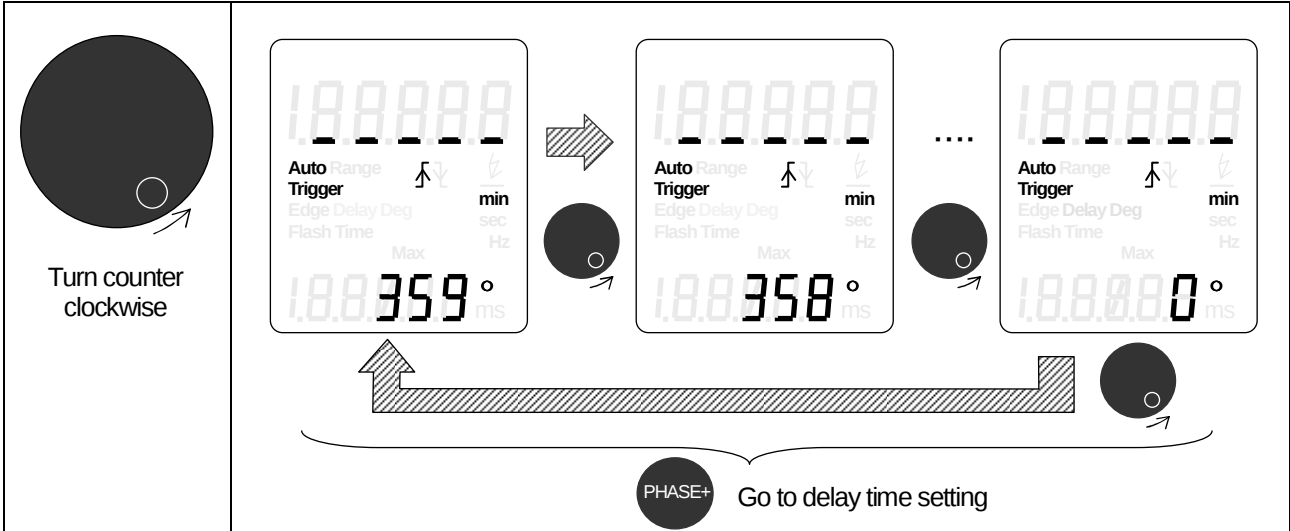
If the frequency of the external trigger input changes, the timing of the flash is inaccurate, because the timing is calculated based on the previous measured period.

If the current period of external trigger input is less than the previous period and the next trigger input occurs before the flash time, the delay angle setting is ignored and the unit flashes at delay angle = 0°.

Delay angle increases as the dial is rotated to the right. The angle settings will go to 0° when angle increases past 359°.



Delay Angle setting will decrease from 359°(Max) to 0°(Min) value for counter clockwise. The settings will eventually go to 0° as when angle decreases from 359°.



4.4.3 Units of Measure- Changing from FPM to Hz

Press and release the “SET” key to toggle between “FPM” to “Hz”.

Operation	Expression		
SET Press and release	60000.0 Auto Range Trigger Edge Delay Deg Flash Time Max 1.8.8.0.8.0 ° Measuring unit “FPM”	100.0000 Auto Range Trigger Edge Delay Deg Flash Time Max 1.8.8.0.8.0 ° Measuring unit “Hz”	60000.0 Auto Range Trigger Edge Delay Deg Flash Time Max 1.8.8.0.8.0 ° Measuring unit “FPM”

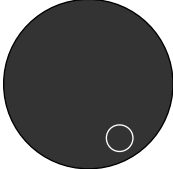
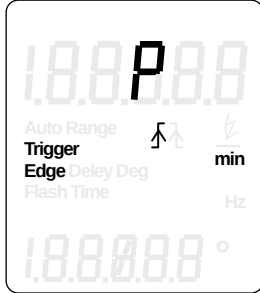
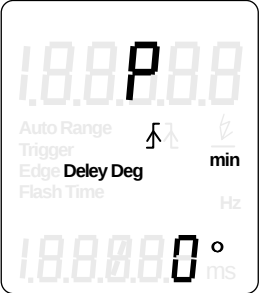
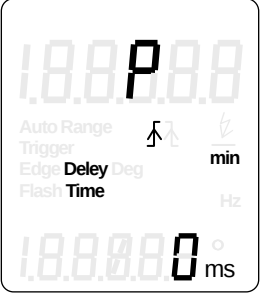
NOTE: Fraction values are rounded down.

4.5 Parameter Setting Instruction

Press "MODE" until the LCD displays "P" (Parameter setting mode). Please refer to 4.2. Mode selection.

Press the "SET" key to cycle between the various parameter settings available (range, trigger edge and delay time/delay angle). For more information regarding the various parameter settings, please refer to sections 4.5.2 through 4.5.4 below. Press the "MODE" key to store the settings and return to measuring modes.

Note: "MODE" key must be pressed to store settings.

Operation	Expression
 Press to cycle between parameters   Press to change the selected parameter setting OR  Rotate the dial to change the selected parameter setting	 Measuring range setting (Press "PHASE+", "PHASE-" key or turn the dial to switch the measuring range)      Trigger edge setting (Press "PHASE+", "PHASE-" key or turn the dial to change the trigger edge setting)    Delay angle setting (use dial to change settings)      Delay time setting (use dial to change settings)  Set and store parameter settings, then go to Internal flashing mode

4.5.1 Measurement range setting

The DT-329 has a selectable measuring range, which can be set in the Parameter mode setting. The range and resolution of this setting will be different for each measuring range, as indicated in the table below.

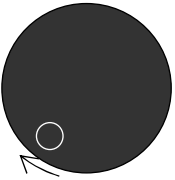
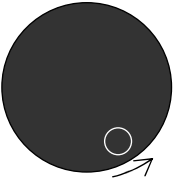
Test unit	Measuring range as Indicated in Parameter Settings	
FPM	12,000 (range 60.0 - 12,000.0)	120,000 (range 60 - 120,000)
Hz	200 (range 1.000 - 200.00)	2,000 (range 1.00 - 2000.0)

*Note that if the flash range is changed to a lower range, the current flash rate, if larger than 12,000 FPM or 200 Hz, will decrease to the maximum allowable value of the range.

Ex: If flash rate is set to 60,000 FPM in the range of 60 – 120,000 FPM, it will automatically switch to 12,000 FPM when the flash measuring range parameter is changed to 60.0 – 12,000.0 FPM. The max value is limited if the Flashing time (frequency) setting is greater than the range in the test range switch.

To adjust the measuring range parameter, press “PHASE +” or turn the dial clockwise to set the range as “120,000 FPM” or “2000 Hz”

Press “PHASE -” or turn the dial counter clockwise to set the range as “12,000 FPM” or “200 Hz”.

Operation	Expression	
PHASE+ Press and release  Turn clockwise	 Measuring range set to “60.0 - 12,000.0 FPM”	 Measuring range set to “60 - 120,000 FPM”
PHASE- Press and release  Turn counter clockwise	 Measuring range set to “60 - 120,000 FPM”	 Measuring range set to “60.0 - 12,000.0 FPM”

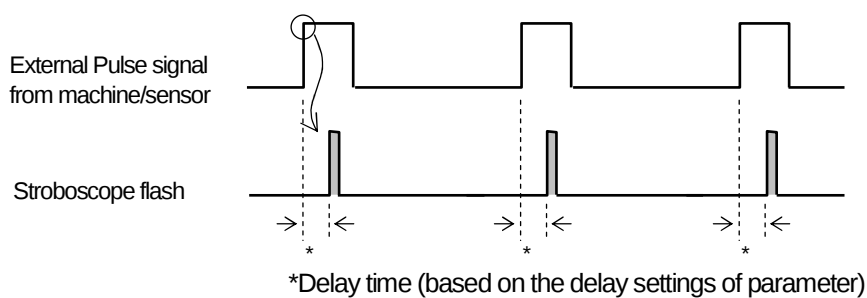
Operation	Expression
PHASE+ Press and release Turn clockwise	Measuring range set to "1 – 200 Hz" Or Measuring range set to "1 – 2000 Hz"
PHASE- Press and release Turn counter clockwise	Measuring range set to "1 – 2000 Hz" Or Measuring range set to "1 – 200 Hz"

4.5.2 Trigger Edge setting (External Mode)

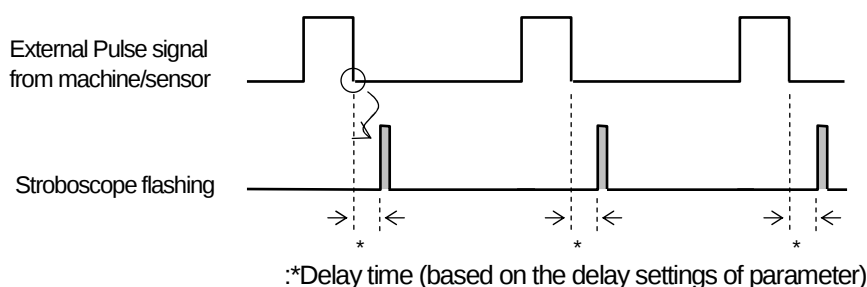
Select Positive or Negative edge.

Examples:

-When trigger edge setting is set to "Positive Edge", the flash will occur on the positive edge of the input pulse (when delay setting is zero).



-When the trigger edge setting is set to "Negative Edge", the flash will occur on the negative edge of the input pulse (when delay setting is zero).



Press the “SET” key to cycle to the Trigger Edge setting parameter mode.

To set the trigger edge as “Down edge”, press “PHASE -“key or turn the dial clockwise.

To set the trigger edge as “Up edge”, press “PHASE +” key or turn the dial counter clockwise.

Operation	Expression	
PHASE- Press and release Turn clockwise	Trigger edge set as “Positive edge” Or	Trigger edge set as “Negative edge” Or
PHASE+ Press and release Turn counter clockwise	Trigger edge set as “Negative edge” Or	Trigger edge set as “Positive edge” Or

4.5.3 Delay setting

Delay time and angle setting will allow the flash to be delayed after an external pulse is sensed by the unit.
The Parameter setting mode:

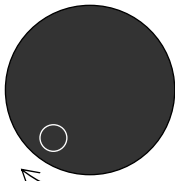
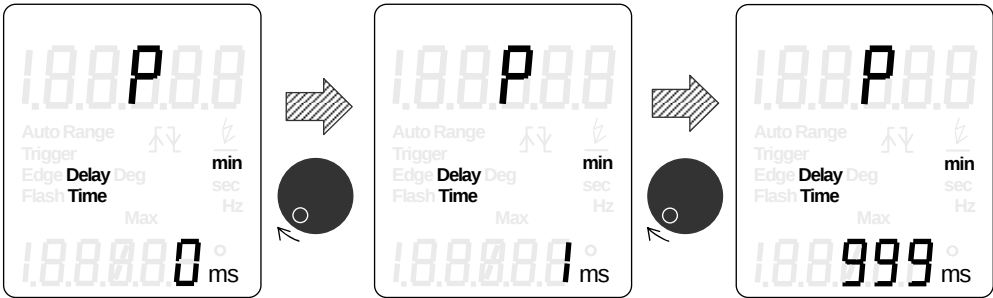
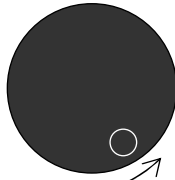
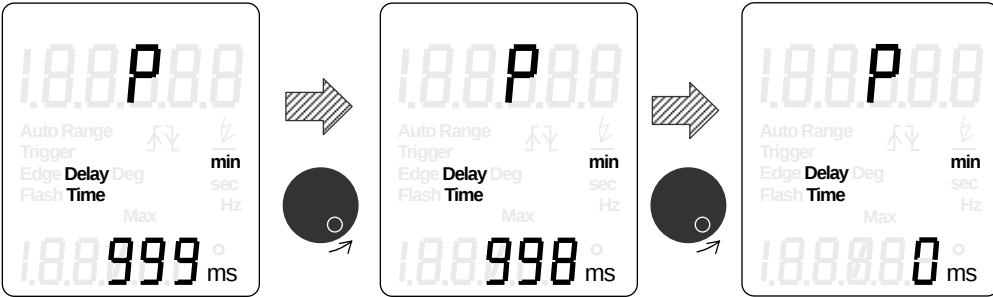
Press “PHASE +” and “PHASE -” key, to select between delay time and delay angle.

4.5.3.1 Delay time setting

Selecting Delay time from an external pulse input to LED flashing can be set in the range of 0 – 999 msec, with a resolution of 1msec.

For details, please refer to “4.4.2 Flash delay setting”.

Rotate the dial clockwise to increase delay time setting or counter clockwise to decrease the delay time.

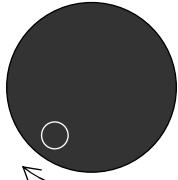
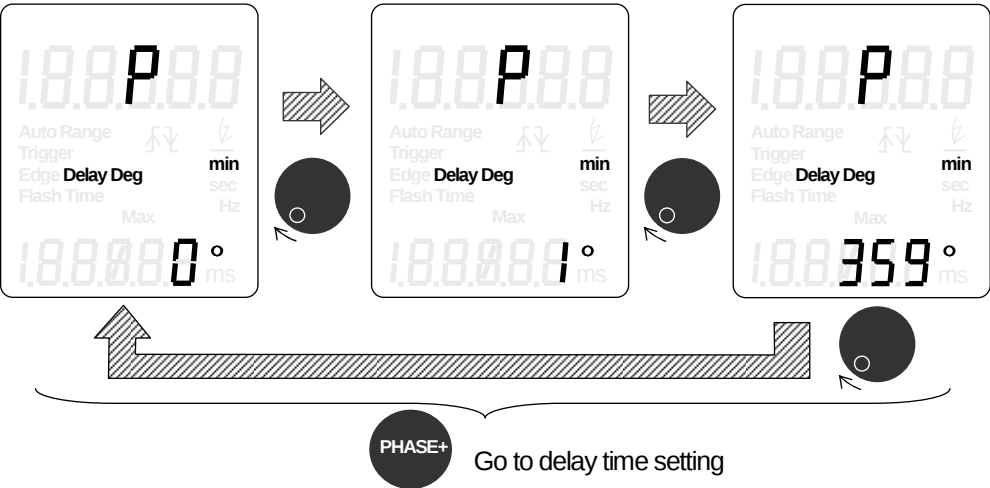
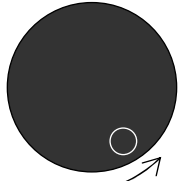
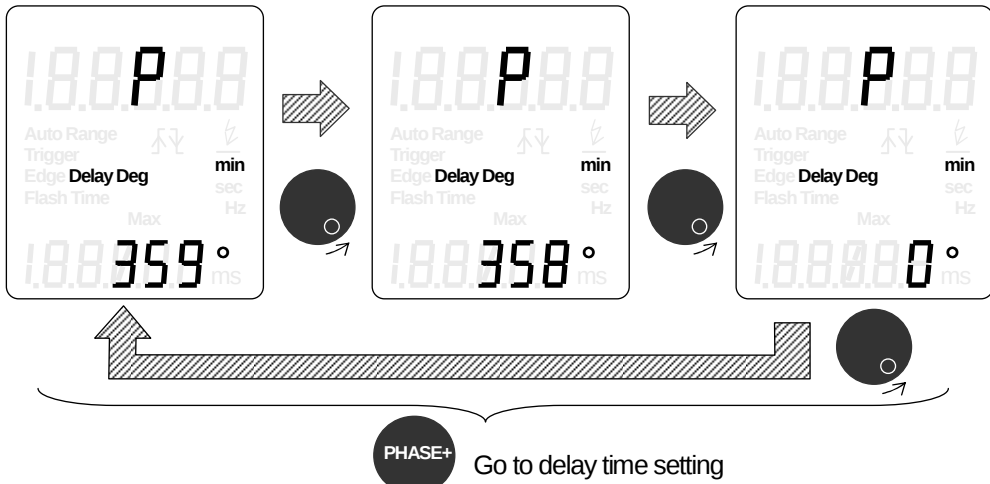
Operation	Expression
 Turn clockwise	  Go to delay angle setting
 Turn counter clockwise	  Go to delay angle setting

4.5.3.2 Delay angle setting

The delay angle can be set from 0° to 360° by 1° increments.

Delay angle setting increases as the dial turns right, and decreases as it turns left.

Delay angle events to zero when set below 0° (min) or 360° (max).

Operation	Expression
 Turn clockwise	 PHASE+ Go to delay time setting
 Turn counter clockwise	 PHASE+ Go to delay time setting

4.6 Connector of External input/output

4.6.1 Connector Pin Assign

External Input

Pin No.	Signal Name	Contents
1	+12V	+12V power supply output
2	G12	Ground of power supply output
3	TRG_IN	External pulse input
4	IN_COM	Common of External pulse input
5	NC	
6	NC	
7	FG	Frame ground

DT-329 side: SRCN2A16-7S [JAE]

Accessory: SRCN6A16-7P [JAE]

External Output

Pin No.	Signal Name	Contents
1	OUT	External pulse output
2	OUT_COM	Common of External pulse output
3	FG	Frame ground

DT-329 side: SRCN2A13-3S [JAE]

Accessory: SRCN6A13-3P [JAE]

4.6.2 External Pulse Input

The unit can be operated and controlled by an external signal, from either a sensor or a machine signal like an output from a printing press, re-winder or others. This will allow the stroboscope to flash in sync with the target object's rotational speed.

The input signal will have the following characteristics.

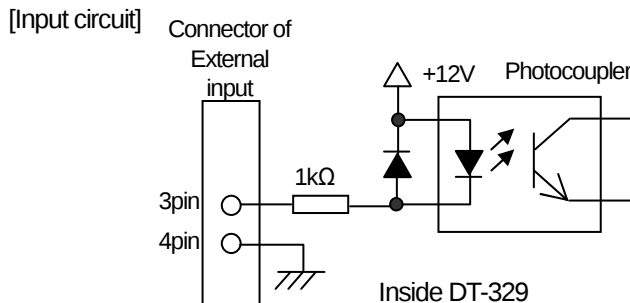
Input frequency: 60 - 10,000 FPM (1 – 160 Hz)

Input pulse width: over 50us

Delay angle: 0 - 359° (every 1°)

Delay time: 0 - 999ms (every 1ms)

Please connect with open collector output (below 1V (ON voltage)) or no-voltage contact output (approx. 11mA current)



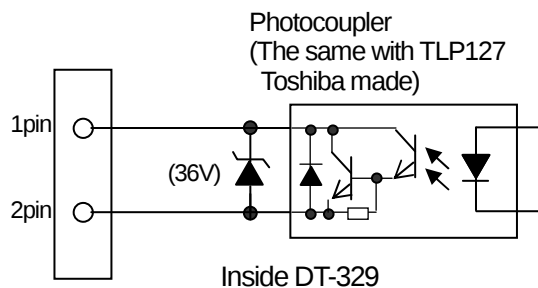
4.6.3 External pulse output

The unit will also output a signal that is related to the flash rate of the unit. This signal can be used to control additional stroboscopes so that each flashes at the same rate or to send a pulse to data collectors.

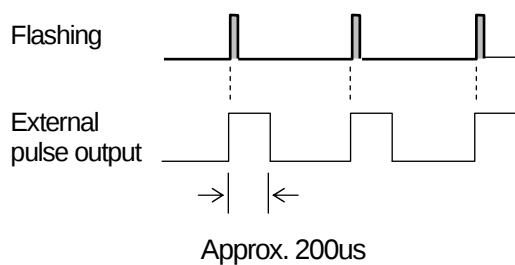
External circuit: Open collector output, Voltage below DC30V, Current below 30mA

Output pulse width: Approx. 200us

[Output circuit]



[Output time]



5 Specifications

Model Number			DT-329		
Units of measure			FPM (flashes per minute) or Hz (frequency)		
Measuring range			1 - 2,000Hz		
			60 - 120,000 FPM		
Accuracy			+/-0.02% (at 73°F [23°C])		
Resolution of flash rate setting in internal mode	Unit; Hz	Measuring range: 1-200 Hz	0.01Hz		
		Measuring range: 1-2000 Hz	0.1Hz		
	Unit; FPM	Measuring range: 60 - 12,000 FPM	60.0 - 3,000.0 3,000.2 - 6,000.0 6,000.5 - 12,000.0	0.1FPM 0.2FPM 0.5FPM	
		Measuring range: 60 - 120,000 FPM	60 - 30,000 30,002 - 60,000 60,005 - 100,000 100,010 - 120,000	1FPM 2FPM 5FPM 10FPM	
		Flashing time (Duty)			0.1°- 1.0/360°setting can be changed by 0.1°inc rements
Mode	Internal	Set and change flashing rate	Change flash rate by using dial, or “x2” and “1/2” key		
		Phase Shift	Forward/backward by 3°increments		
		Unit change	“FPM” or ”Hz”		
	External trigger	Flash rate (Input frequency)	1 – 166 Hz 60 – 10,000 FPM		
		Input pulse width	More than 50 us		
		Unit change	“FPM” or ”Hz”		
	Parameter setting	Measuring range	1 - 2000Hz (60 - 120,000 FPM) range or 1 - 200Hz (60 - 12,000 FPM)		
		Trigger Edge	Positive or Negative edge		
		Delay time/angle	Delayed time : 0 - 999ms *1 Delayed angle : 0 - 359°*1		
	Input/ Output (I/F)	External Trigger Input		Photo Coupler Input, Current 12mA (approx.)	
External Trigger output		Photo Coupler (Open collector) Output Voltage: DC30V or less, Current: 30mA or less. Pulse width: approx.200us			
Sensor Power Supply		DC12V/max.40mA			

*1 Built-in delay time = 60us

Display	LCD	6 digits (main), 5 digits (sub)
		"Setting item", "Unit"
	Back light	Yellow green LED
Flashing part	Flash Source	Super High Brightness White LED 5500K (typ)
	Life time (Flashing	More than 1500 hours (approx. 5×10^8 times at 6000 FPM)
Luminance(typical value)	20cm 6,000FPM	About 1250 lx
	50cm 6,000FPM	About 700 lx
	20cm 120,000FPM	About 1950 lx
Flash area		About 23.62in x 15.75in (600mm x 400mm)
Power supply		AC100 – 240V (50Hz/60Hz)
Temperature Range		32 - 95°F [0 - 35°C]
Operating humidity limits		35 – 38 % RH
Use Environment		No dust, No corrosive gas
Resistance of Environment		No water-proof/explosion protection and non-RoHS
Standards		CE
Weight		About 11lbs(5kg)
Housing Material		Steel
Accessories		AC cable Connector for External input Connector for External output

6 Dimensions

