Autonics

TIMER

LE3S SERIES

INSTRUCTION MANUAL

Thank you for choosing our Autonics product.
Please read the following safety considerations before use.

■ Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.
※⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠ **Warning** Failure to follow these instructions may result in serious injury or death.
⚠ **Caution** Failure to follow these instructions may result in personal injury or product damage.

⚠Warning

1. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**
   Failure to follow this instruction may result in fire, personal injury, or economic loss.
2. **Install on a device panel to use.**
   Failure to follow this instruction may result in electric shock or fire.
3. **Do not connect, repair, or inspect the unit while connected to a power source.**
   Failure to follow this instruction may result in electric shock or fire.
4. **Check 'Connections' before wiring.**
   Failure to follow this instruction may result in fire.
5. **Do not disassemble or modify the unit.**
   Failure to follow this instruction may result in electric shock or fire.

⚠Caution

1. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in fire or product damage.
2. **Use dry cloth to clean the unit, and do not use water or organic solvent.**
   Failure to follow this instruction may result in electric shock or fire.
3. **Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
   Failure to follow this instruction may result in fire or explosion.
4. **Keep metal chip, dust, and wire residue from flowing into the unit.**
   Failure to follow this instruction may result in fire or product damage.

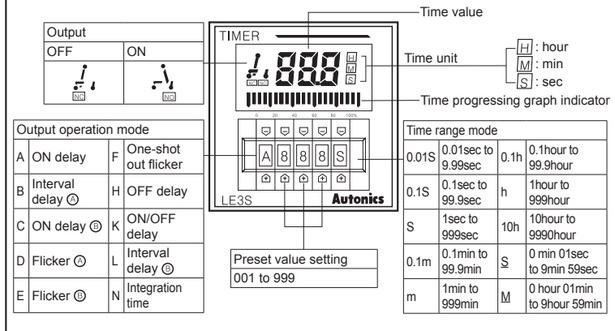
■ Ordering Information

LE 3 S □

Output	No mark	Time-limit SPDT (1c)
	A	Time-limit DPDT (2c)
	B	Time-limit SPDT (1c), Instantaneous SPDT (1c)
Size	S	DIN W48×H48mm
Digit	3	999 (3-digit)
Item	LE	LCD timer (digital switch type)

※8-pin socket (PG-08, PS-08(N)) is sold separately.

■ Front Panel Identification



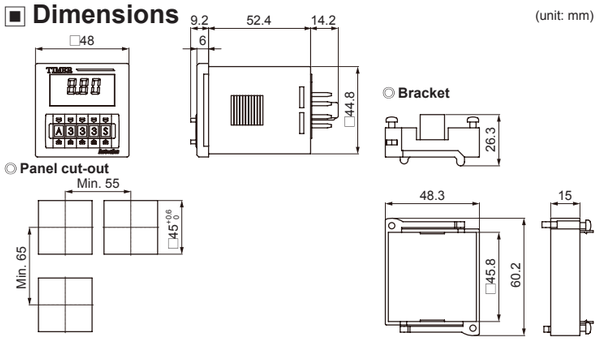
Output operation mode			
A	ON delay	F	One-shot out flicker
B	Interval delay Ⓐ	H	OFF delay
C	ON delay Ⓑ	K	ON/OFF delay
D	Flicker Ⓐ	L	Interval delay Ⓑ
E	Flicker Ⓑ	N	Integration time

Time range mode			
0.01S	0.01sec to 9.99sec	0.1h	0.1hour to 99.9hour
0.1S	0.1sec to 99.9sec	h	1hour to 999hour
S	1sec to 999sec	10h	10hour to 9990hour
0.1m	0.1min to 99.9min	S	0 min 01sec to 9min 59sec
m	1min to 999min	M	0 hour 01min to 9hour 59min

※**The above specifications are subject to change and some models may be discontinued without notice.**
※**Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).**

■ Dimensions

(unit: mm)



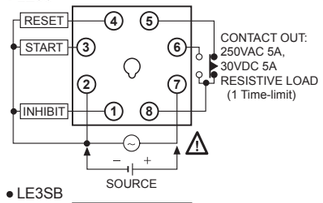
■ Specifications

Model		LE3S	LE3SA	LE3SB
Function		Multi time and operating	Multi time, Power ON Delay operation	
Display method		LCD display (character size: W4×H8mm)		
Power supply		24-240VAC~ 50/60Hz, 24-240VDC⎓ universal		
Allowable voltage range		90 to 110% of rated voltage		
Power consumption		Max. 2.5VA (240VAC~ 50/60Hz) Max. 1W (240VDC⎓)	Max. 3.3VA (240VAC~ 50/60Hz) Max. 1.5W (240VDC⎓)	
Return time		Max. 0.2sec	Max. 0.1sec	
Min. input signal width	START	Approx. 20ms	—	
	INHIBIT			
	RESET			
Input	START	• No-voltage input Impedance at short-circuit : max. 1kΩ Residual voltage: max. 0.5VDC Impedance at open-circuit : min. 100kΩ	—	
	INHIBIT			
	RESET			
Time operation		Signal ON Start	Power ON Start	
Control output	Contact Type	Time-limit SPDT(1c)	Time-limit DPDT(2c)	Time-limit SPDT(1c), instantaneous SPDT(1c)
	Contact Capacity	250VAC~ 5A, 30VDC⎓ 5A resistive load	250VAC~ 3A, 30VDC⎓ 3A resistive load	
Relay life cycle	Mechanical	Min. 10,000,000 operations		
	Electrical	Min. 100,000 operations (250VAC 5A resistive load)	Min. 100,000 operations (250VAC 3A resistive load)	
Output mode		A, B, C, D, E, F, H, K, L, N	A	
Repeat error		Power Start : max. ±0.01% ±0.05sec Signal Start : max. ±0.005% ±0.03sec	Max. ±0.01% ±0.05sec	
SET error				
Voltage error				
Temperature error				
Insulation resistance		Over 100MΩ (at 500VDC megger)		
Dielectric strength		2000VAC 50/60Hz for 1 minute		
Noise immunity		±2kV the square wave noise (pulse width: 1μs) by the noise simulator		
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz in each X, Y, Z direction for 1hour		
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz in each X, Y, Z direction for 10 minutes		
Shock	Mechanical	300m/s² (approx. 30G) in X, Y, Z direction for 3 times		
	Malfunction	100m/s² (approx. 10G) in X, Y, Z direction for 3 times		
Environment	Ambient temp.	-10 to 55℃, storage: -25 to 65℃		
	Ambient humi.	35 to 85%RH		
Unit weight		Approx. 100g	Approx. 105g	

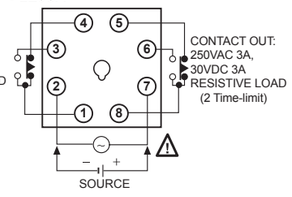
※Environment resistance is rated at no freezing or condensation.

■ Connections

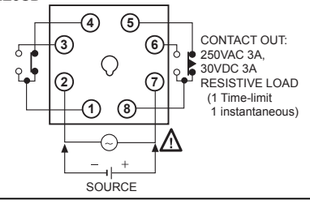
● LE3S



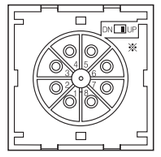
● LE3SA



● LE3SB



■ Up/Down Mode



※Output operation mode is working as Up mode or Down mode according to Up/Down mode selection switch's position.

Up	Down
DN ■ UP	DN ■ UP

⚠**Power must be cut off.**

● Factory specification

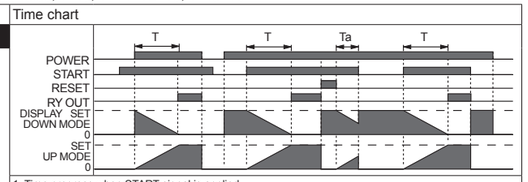
LE3S	LE3SA, LE3SB
Up/Down mode: Up	• Output mode: Fixed A mode • Up/Down mode: Up ※Down Mode is optional

■ Output Operation Mode

● **LE3S**

• This product has 10 output mode from A to N by digital switch in front.
T=Preset value, T>Ta, T=T1+T2+T3, T>Ta+Tb

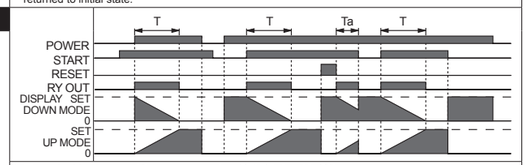
A — ON Delay Ⓐ



1. Time progress when START signal is applied.
2. The output will be ON when the preset value is equal to the display value.
3. When the setting value is equal to the display value, if START signal is OFF, the output turns off, the display value is returned to initial state.
4. When the RESET signal is applied, the display value is returned to the initial state.

※When the setting value is bigger than the display value, if START signal turns off, the display value is returned to initial state.

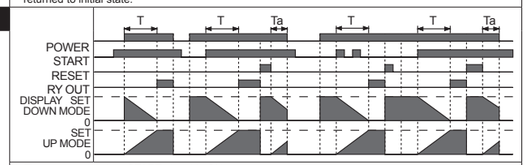
B — Interval Delay Ⓐ



1. The output turns on and time progress when START signal is ON.
2. When the setting value is equal to the display value, the output will be returned and the display held.
3. When the RESET signal is applied, the display value is returned to the initial state.

※If START signal is OFF when the preset value is bigger then the display value, the display value is returned to initial state.

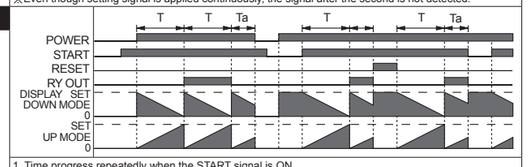
C — ON Delay Ⓑ



1. Time proceeds when START signal is ON.
2. The output & display value is held when the setting value is equal to the display value.
3. When the RESET signal is applied, the display value is returned to the initial state.

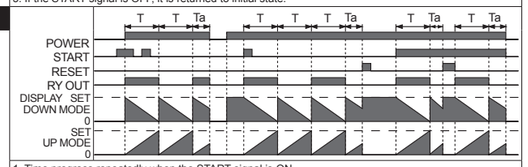
※Even though setting signal is applied continuously, the signal after the second is not detected.

D — Flicker Ⓐ



1. Time progress repeatedly when the START signal is ON.
2. The output also operates from NC to NO, and from NO to NC repeatedly.
3. If the START signal is OFF, it is returned to initial state.

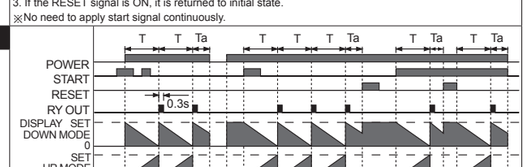
E — Flicker Ⓑ



1. Time progress repeatedly when the START signal is ON.
2. The output also operates from NC to NO, and from NO to NC repeatedly.
3. If the RESET signal is ON, it is returned to initial state.

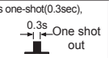
※No need to apply start signal continuously.

F — One Shot Out Flicker

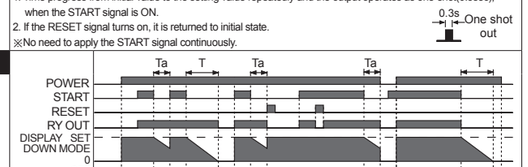


1. Time progress from initial value to the setting value repeatedly and the output operates as one-shot(0.3sec), when the START signal is ON.
2. If the RESET signal turns on, it is returned to initial state.

※No need to apply the START signal continuously.



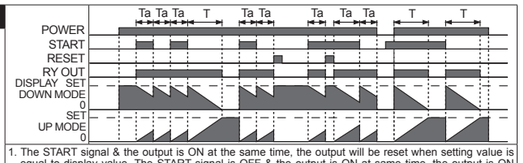
H — OFF Delay



1. The START signal & the output is ON at the same time, the output will be reset and the display value is held after the setting time.
2. If the RESET signal is ON, the display value is returned to initial state.

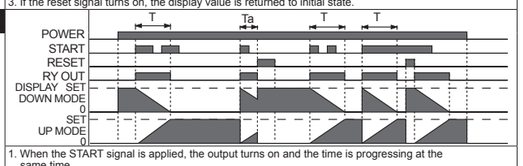
※If the START signal is applied continuously, the output will be ON but time is not progressing.

K — ON/OFF Delay



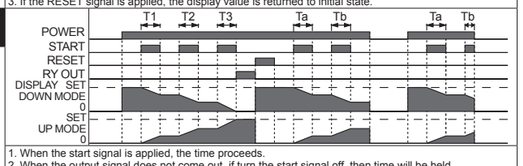
1. The START signal & the output is ON at the same time, the output will be reset when setting value is equal to display value. The START signal is OFF & the output is ON at same time, the output is ON when setting value is equal to display value.
2. If the START signal is applied continuously, the output turns on but time is returned to the initial state.
3. If the reset signal turns on, the display value is returned to initial state.

L — Interval Delay Ⓑ



1. When the START signal is applied, the output turns on and the time is progressing at the same time.
2. When the time reach at the setting value the output will be reset, and the display value is held.
3. If the RESET signal is applied, the display value is returned to initial state.

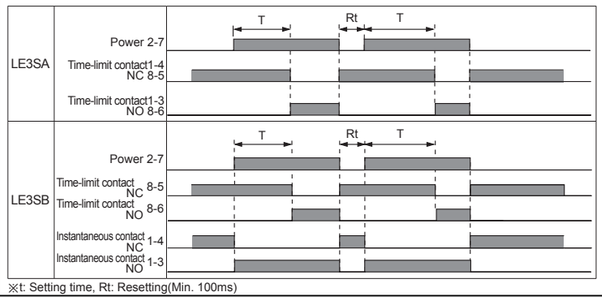
N — Integration Time



1. When the start signal is applied, the time proceeds.
2. When the output signal does not come out, if turn the start signal off, then time will be held.
3. If the reset signal is applied, the display value is returned to initial state.

※Initial state: The output is OFF, the display value is "0". (At Up mode)
※When set the time setting as 000, control output does not come out.
※When use D, E, F output mode: If set the fine short, it may not work due to response time of relay contact. Please set the min. setting time over 100ms.

● **LE3SA, LE3SB**

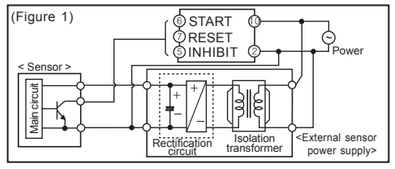


※t: Setting time, Rt: Resetting(Min. 100ms)

■ Cautions during Use

1. Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
2. When supplying or turning off the power, use a switch or etc. to avoid chattering.
3. Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
4. In order to block peripheral current, use isolation transformer which of secondary part is not grounded as (Figure 1) to supply power to the external input device.

(Figure 1)



5. Do not connect two or more timers with only one input contact or transistor simultaneously.
6. Keep away from high voltage lines or power lines to prevent inductive noise.
   In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line.
   Do not use near the equipment which generates strong magnetic force or high frequency noise.
7. Change setting time, time range, operation mode or etc. after turning off the power of the timer.
8. This unit may be used in the following environments.
   ①Indoors (in the environment condition rated in 'Specifications')
   ②Altitude max. 2,000m
   ③Pollution degree 2
   ④Installation category II

■ Main Products

■ Photoelectric Sensors
■ Fiber Optic Sensors
■ Door Sensors
■ Door Side Sensors
■ Area Sensors
■ Proximity Sensors
■ Pressure Sensors
■ Rotary Encoders
■ Connector/Sockets
■ Switching Mode Power Supplies
■ Control Switches/Lamps/Buzzers
■ I/O Terminal Blocks & Cables
■ Stepper Motors/Drivers/Motion Controllers
■ Graphic/Logic Panels
■ Field Network Devices
■ Laser Marking System (Fiber, Co_2, Nd: YAG)
■ Laser Welding/Cutting System
■ Temperature Controllers
■ Temperature/Humidity Transducers
■ SSRs/Power Controllers
■ Counters
■ Timers
■ Panel Meters
■ Tachometers/Pulse (Rate) Meters
■ Display Units
■ Sensor Controllers

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