Autonics

TIMER
LE4SA
INSTRUCTION MANUAL

Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

▣ Safety Considerations

※Please keep these instructions and review them before using this unit.

※Please observe the cautions that follow;
⚠ **Warning** Serious injury may result if instructions are not followed.
⚠ **Caution** Product may be damaged, or injury may result if instructions are not followed.

※The following is an explanation of the symbols used in the operation manual.
⚠**Caution**:Injury or danger may occur under special conditions.

⚠ 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. **When connecting the power/sensor input and relay output, use AWG 20(0.50mm^2) cable or over and tighten the terminal screw with a tightening torque of 0.74 to 0.90N·m.**
   Failure to follow this instruction may result in fire or malfunction due to contact failure.
2. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in fire or product damage.
3. **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.
4. **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.
5. **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

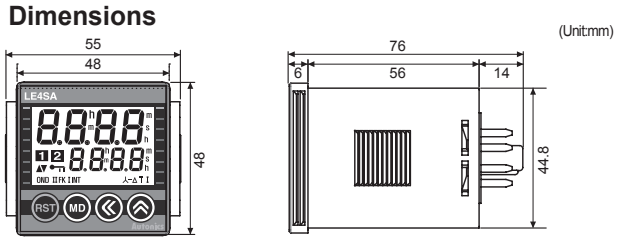
L E 4 S A

Output		Time limit contact 1c
	A	Time limit contact 2c, Instantaneous contact 1c + Time limit contact 1c(Selectable)
Size	**S**	DIN W48mm×H48mm
Digit	**4**	9999(4 Digit type)
Item	**E**	Timer
Display	**L**	LCD Display

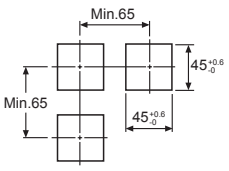
※8 Pin socket(PG-08, PS-08): Sold separately

▣ Dimensions

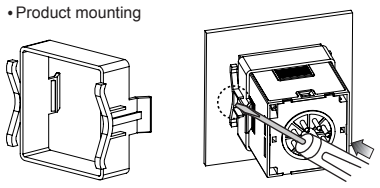
(Unit:mm)



• Panel cut-out



• Product mounting



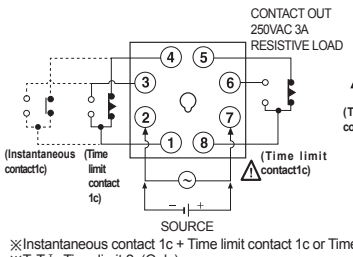
※Insert product into a panel, fasten braket by pushing with tools as shown above.

▣ Specifications

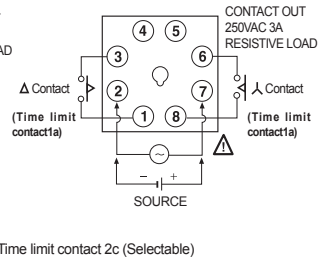
Model			LE4SA
Power supply			24-240VAC~ 50/60Hz, 24-240VDC⎓
Display method			LCD Display(Backlight)
Allowable voltage range			90 ~ 110% of rated voltage
Power consumption			24-240VAC~: Max. 4VA, 24-240VDC⎓: Max. 1.6W
Return time			Max. 100ms
Control output	Contact	Type	Time limit DPDT(2c), Time limit SPDT(1c)+Instantaneous contact SPDT(1c): Selectable
		Capacity	250VAC~ 3A resistive load
Repeat·Setting·Voltage·Temperature error			Max. ±0.01% ±0.05 sec
Ambient temperature			-10 ~ 55℃(at non-freezing status)
Storage temperature			-25 ~ 65℃(at non-freezing status)
Ambient humidity			35 ~ 85%RH
Insulation resistance			Min. 100MΩ(500VDC megger)
Dielectric strength			2,000VAC 50/60Hz for 1 minute
Vibration	Mechanical		0.75mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 1hour
	Malfunction		0.5mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 10 minutes
Shock	Mechanical		300m/s²(30G) X, Y, Z directions for 3 times
	Malfunction		100m/s²(10G) X, Y, Z directions for 3 times
Relay life cycle	Mechanical		Min. 10,000,000 times
	Electrical		Min. 100,000 times(250VAC 3A resistive load)
Approval			CE cULus
Weight			Approx. 98g

▣ Connection

• **OND, OND Ⅱ, FK, FK Ⅰ, INT, T, T Ⅰ**



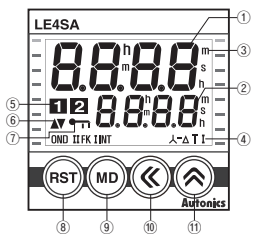
• **人-Δ**



※Instantaneous contact 1c + Time limit contact 1c or Time limit contact 2c (Selectable)
※T, T Ⅰ : Time limit 2c(Only)

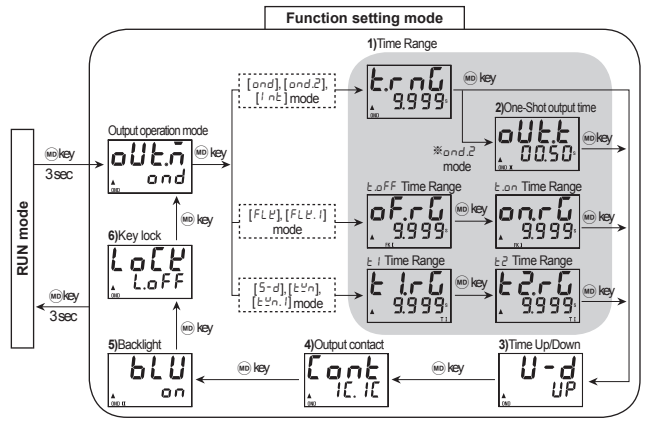
※The above specifications are subject to change and some models may be discontinued without notice.
※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

▣ Front Panel Identification



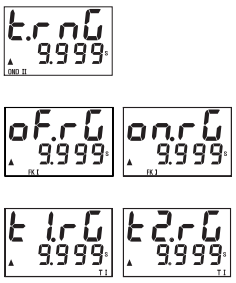
① Time progressing display:It displays the current time.
② Time setting display:It displays the setting time.
③ Time unit:It displays the time unit.
④ Operation mode:It displays the current operation mode.
⑤ Output display:It displays the status of output contact.
⑥ UP/DOWN:It displays time progressing UP(▲), DOWN(▼).
⑦ Key lock display:It displays the status of key lock.
⑧ RST key:Used for initializing time progressing and output return.
⑨ MD key:Used for advancing to function setting mode, setting time change and output contact status checking
⑩ ≪ key:Used for advancing to setting time change mode and moving to each digit
⑪ ≫ key:Used for changing the set value

▣ Function Setting Mode Descriptions



1) Time Range

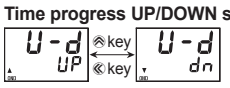
Parameter	Time range specification
9.999s(9.999s)	0.010 sec ~ 9.999 sec
99.99s(99.99s)	0.01 sec ~ 99.99 sec
999.9s(999.9s)	0.1 sec ~ 999.9 sec
9999s(9999s)	1 sec ~ 9999 sec
99m59s(99m59s)	0 min 01 sec ~ 99 min 59 sec
999.9m(999.9m)	0.1 min ~ 999.9 min
9999m(9999m)	1 min ~ 9999 min
99h59m(99h59m)	0 hour 01 min ~ 99 hour 59 min
99.99h(99.99h)	0.01 hour ~ 99.99 hour
999.9h(999.9h)	0.1 hour ~ 999.9 hour
9999h(9999h)	1 hour ~ 9999 hour



2) One-Shot output time setting

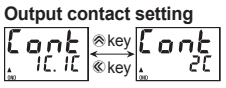
It will be activated when selecting ON Delay 2[ond.2] output operation mode (One-Shot-output mode).(Time setting: 0.01 sec ~ 99.99 sec)

3) Time progress UP/DOWN setting



UP[UP]: Time progressed from 0 to setting time.
DOWN[dn]: Time progressed from setting time to 0.

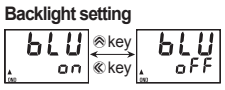
4) Output contact setting



Set the relay contact (No.1, 3, 4 pin) to Instantaneous or Time limit.
[1C.1C] : Instantaneous 1c, Time limit 1c, [2C] : Time limit 2c.
It is fixed to Time limit 2c in star-delta, Twin and Twin 1 modes.

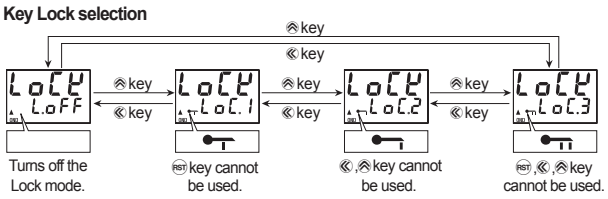
※If MD key press on RUN mode, [1C.1C] or [2C] will be displayed depend on the status of output contact on time setting display.

5) Backlight setting



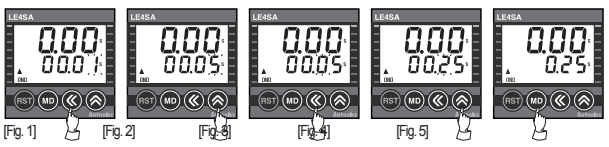
Set Backlight (**ON**[on], **OFF**[oFF]).

6) Key Lock selection



▣ Time Setting

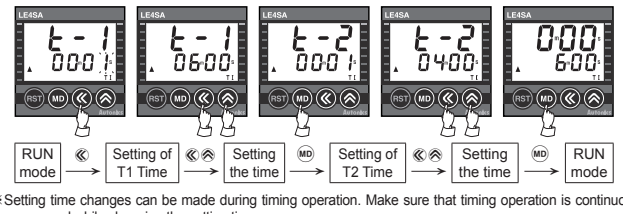
• **Output operation mode : OND, OND Ⅱ, INT**



①Press ≪ key in RUN mode, time set digits will flash.[Fig. 1]
②Change setting time by press ≪ or ≫ keys.[Fig. 2,3,4]
-≪ key:Shift the setting digits.
-≫ key:Shift the flashing position value. As press ≫ key once, it will increase by 1digit, number will increase faster by press ≫ key for over 2sec.
③When the setting is completed, it will be saved and return to RUN mode by pressing MD key.[Fig. 5]

• **Output operation mode : FK, FK Ⅰ**

• **Output operation mode : 人-Δ, T, T Ⅰ**

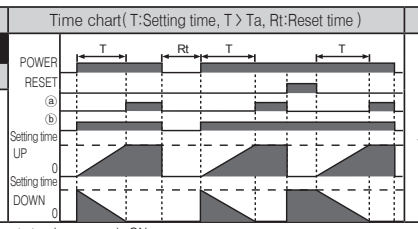
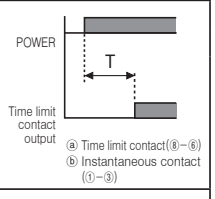
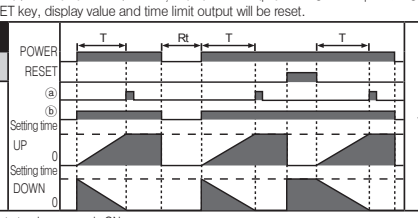
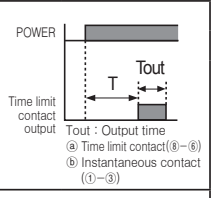
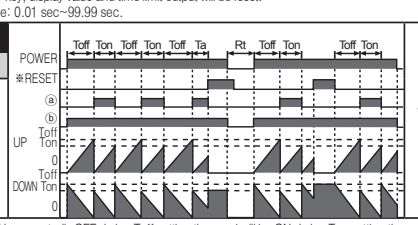
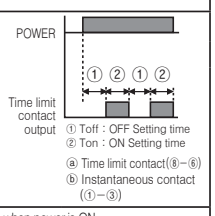
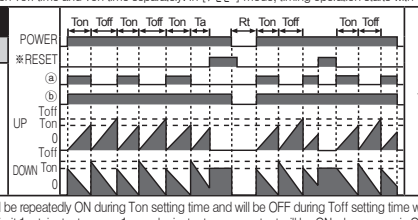
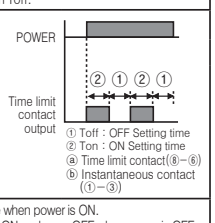
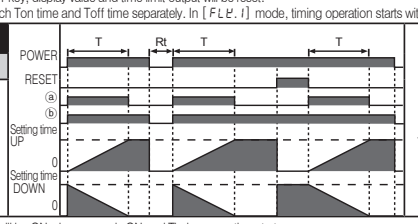
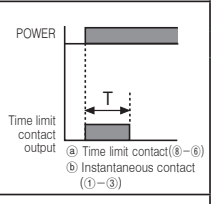
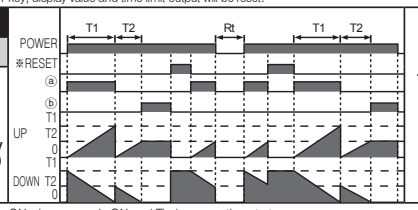
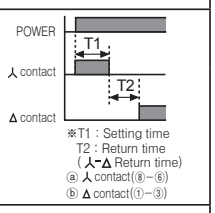
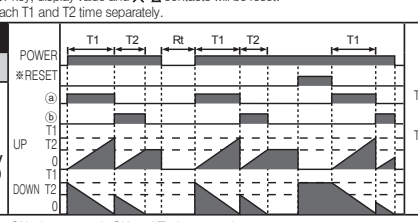
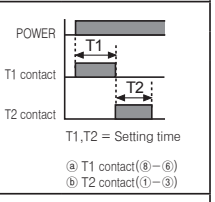
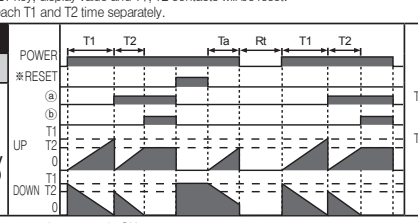
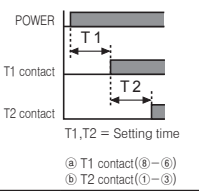


※Setting time changes can be made during timing operation. Make sure that timing operation is continuously progressed while changing the setting time.
※If pressing MD key while setting time is shorter than min. setting time, setting value will be flickering three times and it will be returned to setting mode again, not to RUN mode.
※If there is no additional key operations after entering into setting mode, it will be return to RUN mode.(Setting value is not saved.)
※Min. Setting time: 0.01 sec.(In case of OND and OND Ⅱ modes, it is able to set 0 since no min. setting time is applied.)

▣ Factory Default

NO.	Parameter		Default
1	Output operation mode	oUt.n	ond
2	Time Range	t.rnG	99.99s
3	Time Up/Down	U-d	UP
4	Output contact	Cont	1C.1C
5	Backlight	bLU	on
6	Key Lock	LoCK	LoC.1
7	Setting time	-	50.00s

▣ Output Operation Mode

Mode	Time chart(T:Setting time, T > Ta, Rt:Reset time)	Operation
[ond] **OND** **ON Delay**		 ⓐ Time limit contact(⑧-⑥) ⓑ Instantaneous contact (①-③)
1. Timing operation starts when power is ON. 2. Time limit output will be ON when timing operation is progressed up to the setting time. Display value will be HOLD. 3. If selecting time limit 1c + instantaneous 1c mode, instantaneous output will be ON when power is ON and goes OFF when power is OFF. 4. If pressing RESET key, display value and time limit output will be reset.		
[ond.2] **OND Ⅱ** **ON Delay 2** **(One-Shot Output)**		 Tout : Output time ⓐ Time limit contact(⑧-⑥) ⓑ Instantaneous contact (①-③)
1. Timing operation starts when power is ON. 2. Time limit output will be ON during Tout setting time and goes OFF when timing operation is progressed up to the setting time. Display value will be HOLD. 3. If selecting time limit 1c + instantaneous 1c mode, instantaneous output will be ON when power is ON and goes OFF when power is OFF. 4. If pressing RESET key, display value and time limit output will be reset. 5. Tout setting range: 0.01 sec~99.99 sec.		
[FLt] **FK** **Flicker** **(Toff operation precedes Ton operation)**		 ① Toff : OFF Setting time ② Ton : ON Setting time ⓐ Time limit contact(⑧-⑥) ⓑ Instantaneous contact (①-③)
1. Control output will be repeatedly OFF during Toff setting time and will be ON during Ton setting time when power is ON. 2. If selecting time limit 1c + instantaneous 1c mode, instantaneous output will be ON when power is ON and goes OFF when power is OFF. 3. If pressing RESET key, display value and time limit output will be reset. 4. It is able to set each Toff time and Ton time separately. In [FLt] mode, timing operation starts with Toff.		
[FLt.I] **FK Ⅰ** **Flicker 1** **(Ton operation precedes Toff operation)**		 ① Toff : OFF Setting time ② Ton : ON Setting time ⓐ Time limit contact(⑧-⑥) ⓑ Instantaneous contact (①-③)
1. Control output will be repeatedly ON during Ton setting time and will be OFF during Toff setting time when power is ON. 2. If selecting time limit 1c + instantaneous 1c mode, instantaneous output will be ON when power is ON and goes OFF when power is OFF. 3. If pressing RESET key, display value and time limit output will be reset. 4. It is able to set each Ton time and Toff time separately. In [FLt.I] mode, timing operation starts with Ton.		
[Int] **INT** **Interval**		 ⓐ Time limit contact(⑧-⑥) ⓑ Instantaneous contact (①-③)
1. Time limit output will be ON when power is ON and Timing operation starts. 2. Time limit output will be OFF when timing operation is progressed up to the setting time. Display value will be HOLD. 3. If selecting time limit 1c + instantaneous 1c mode, instantaneous output will be ON when power is ON and goes OFF when power is OFF. 4. If pressing RESET key, display value and time limit output will be reset.		
[5-d] **人-Δ** **Star-Delta** **(Output will be set automatically as Time limit 2c)**		 ※T1 : Setting time T2 : Return time (人-Δ Return time) ⓐ 人 contact(⑧-⑥) ⓑ Δ contact(①-③)
1. 人 contact will be ON when power is ON and Timing operation starts. 2. 人 contact will be OFF when timing operation is progressed up to the T1 setting time. Timing operation will be reset and started again. 3. Δ contact will be ON when timing operation is progressed up to the T2 switching time. Display value will be HOLD. 4. If pressing RESET key, display value and 人-Δ contacts will be reset. 5. It is able to set each T1 and T2 time separately.		
[tYn] **T** **Twin** **(Output will be set automatically as Time limit 2c)**		 T1,T2 = Setting time ⓐ T1 contact(⑧-⑥) ⓑ T2 contact(①-③)
1. T1 contact will be ON when power is ON and Timing operation starts. 2. T1 contact will be OFF and T2 contact will be ON when timing operation is progressed up to the T1 setting time. Timing operation will be reset and started again. T2 contact will be OFF when timing operation is progressed up to the T2 setting time. Display value will be HOLD. 3. If pressing RESET key, display value and T1, T2 contacts will be reset. 4. It is able to set each T1 and T2 time separately.		
[tYn.I] **T Ⅰ** **Twin 1** **(Output will be set automatically as Time limit 2c)**		 T1,T2 = Setting time ⓐ T1 contact(⑧-⑥) ⓑ T2 contact(①-③)
1. Timing operation starts when power is ON. 2. T1 contact will be ON when timing operation is progressed up to the T1 setting time. Timing operation will be reset and started again. 3. T2 contact will be ON when timing operation is progressed up to the T2 setting time. Display value will be HOLD. 4. If pressing RESET key, display value and T1 and T2 contacts will be reset. 5. It is able to set each T1 and T2 time separately.		

※Reset: Up mode -> Display value is"0," Output is"OFF."
DOWN mode -> Display value is"setting time," Output is"OFF."

▣ 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. 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.
5. 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

▣ Major 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
■ Tachometer/Pulse (Rate)Meters
■ Display Units
■ Sensor Controllers

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