Autonics

TIMER
LE4SA
M A N U A L

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

▣ Caution for your safety

※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.In case of using this unit with machineries(Nuclear power control, medical equipment,vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it requires installing fail-safe device or contact us for information on type required.
It may result in serious damage, fire or human injury.
2.This unit must be mounted on panel.
It may give an electric shock.
3.Do not repair or checkup when power on.
It may give an electric shock.
4. Do not disassemble and modify this unit, when it requires. If needs, please contact us.
It may give an electric shock and cause a fire.

⚠ Caution

1.This unit shall not be used outdoors.
It may give an electric shock.
2.When wire connection, No.20AWG(0.50mm^2) should be used and screw bolt on terminal block with 0.74Nm to 0.90Nm strength.
It may result in malfunction or fire due to contact failure.
3.Please observe specification rating.
It might shorten the life cycle of the product and cause a fire.
4.Do not use the load beyond rated switching capacity of Relay contact.
It may cause insulation failure, contact melt, contact failure, relay broken, fire etc.
5.In cleaning the unit, do not use water or an oil-based detergent.
It might cause an electric shock or a fire.
6.Do not use this unit at place where there are flammable or explosive gas, humidity, direct ray of the sun, radiant heat, vibration, impact etc.
It may cause explosion or a fire.
7.Do not inflow dust or wire dregs into inside of this unit.
It may cause a fire or mechanical trouble.

▣ Ordering information

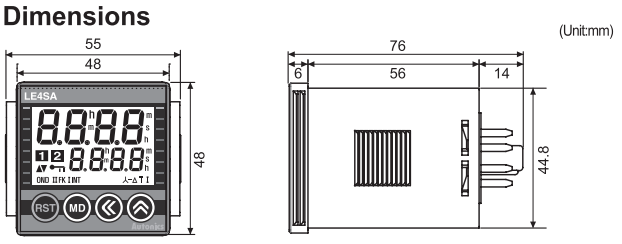
L E 4 S A

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

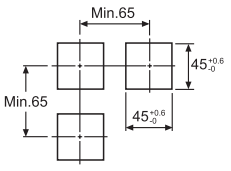
※8 Pin socket(PG-08, PS-08): Sold separately

▣ Dimensions

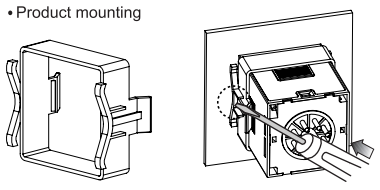
(Unit:mm)



• Panel cut-out



• Product mounting



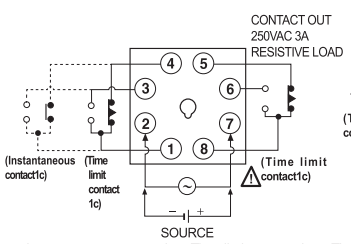
※Insert product into a panel, fasten braket by pushing with tools as shown above.

▣ Specifications

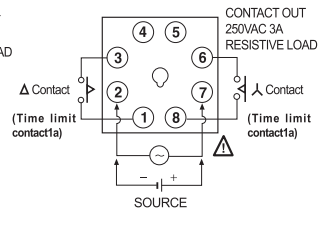
Model			LE4SA
Power supply			24-240VAC 50/60Hz, 24-240VDC
Display method			LCD Display(Backlight)
Allowable voltage range			90 ~ 110% of rated voltage
Power consumption			24-240VAC: Max. 4VA, 24-240VDC: Max. 1.6W
Return time			Max. 100ms
Control output	Con-tact	Type	Time limit DPDT(2c), Time limit SPDT(1c)+Instantaneous contact SPDT(1c): Selectable
		Capacity	250VAC 3A resistive load
Repeat·Setting·Voltage·Temperature error			Max. ±0.01% ±0.05 sec
Ambient temperature			-10 ~ 55°C(at non-freezing status)
Storage temperature			-25 ~ 65°C(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**



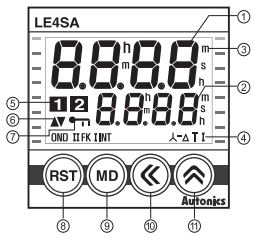
• **人-Δ**



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

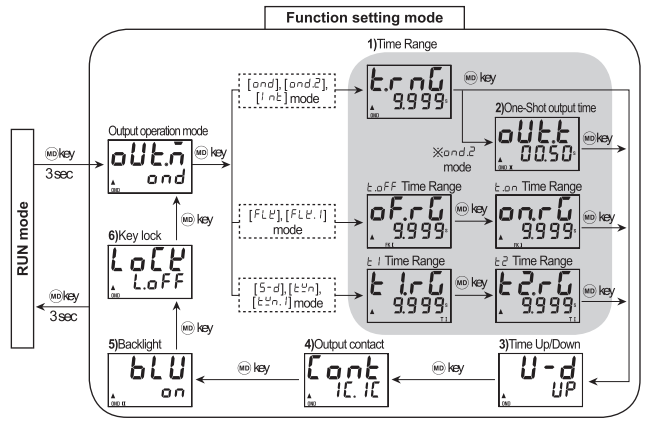
※The above specifications are subject to change and some models may be discontinued without notice.

▣ Front panel identification



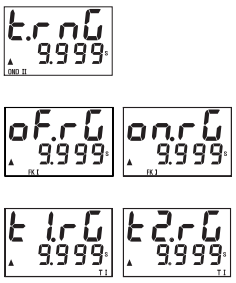
① Time progressing display:It displays the current time.
② Time setting display:It displays the setting time.
③ Time unit:It displays the time unit.
④ Operation mode:It displays the current operation mode.
⑤ Output display:It displays the status of output contact.
⑥ UP/DOWN:It displays time progressing 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

oUt.t 00.50 — 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

U-d UP ⇄ key ⇄ key U-d dn

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

4) Output contact setting

Cont 1C.1C ⇄ key ⇄ key Cont 2C

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.

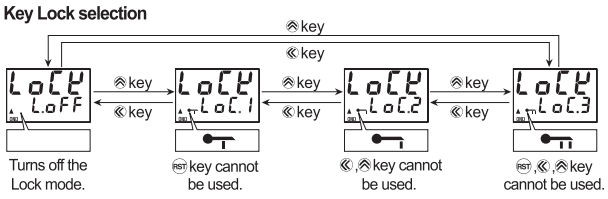
※ If MD key press on RUN mode, [1C.1C] or [2C] will be displayed depend on the status of output contact on time setting display.

5) Backlight setting

bLU on ⇄ key ⇄ key bLU oFF

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

6) Key Lock selection



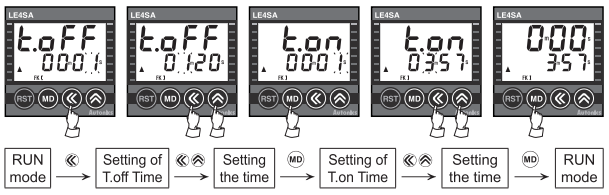
▣ Time setting

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

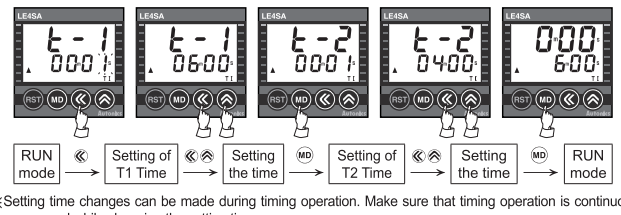
[Fig. 1] [Fig. 2] [Fig. 3] [Fig. 4] [Fig. 5]

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**

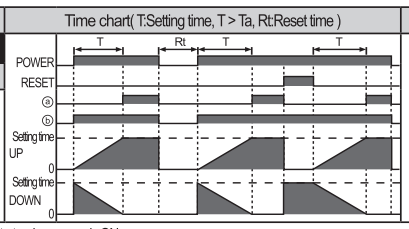
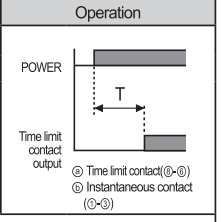
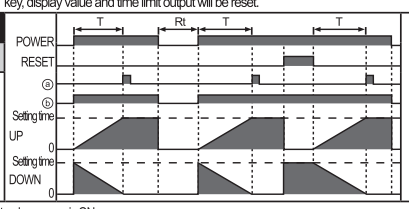
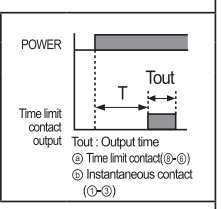
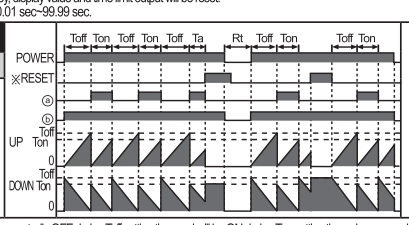
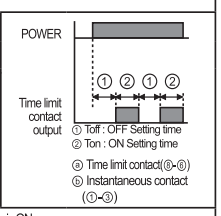
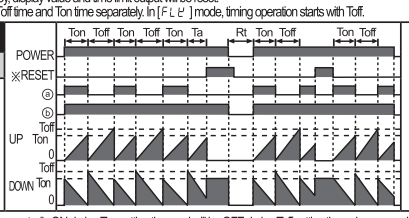
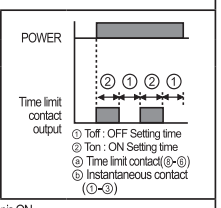
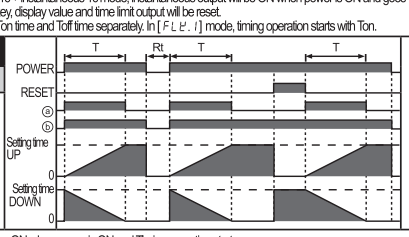
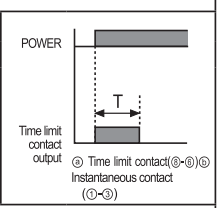
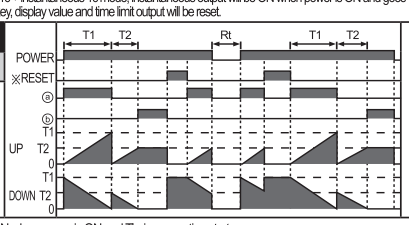
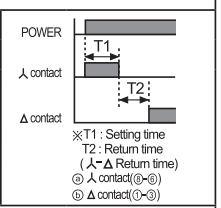
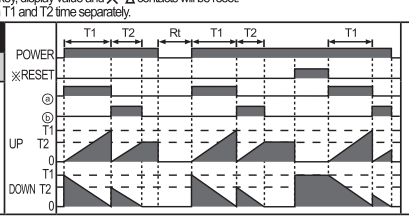
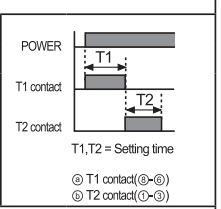
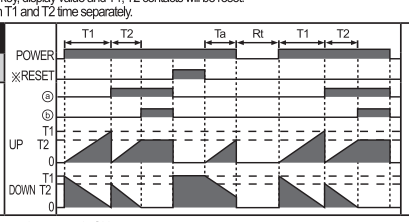
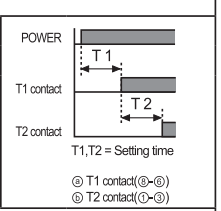


※Setting time changes can be made during timing operation. Make sure that timing operation is continuously progressed while changing the setting time.
※If pressing MD key while setting time is shorter than min. setting time, setting value will be flickering three times and it will be returned to setting 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 ONDII 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**		
[ond.2] **OND II** **ON Delay 2 (One-Shot Output)**		
[FLt] **FK** **Flicker (Toff operation precedes Ton operation)**		
[FLt.I] **FK I** **Flicker 1 (Ton operation precedes Toff operation)**		
[Int] **INT** **Interval**		
[5-d] **人-Δ** **Star-Delta (Output will be set automatically as Time limit 2c)**		
[tYn] **T** **Twin (Output will be set automatically as Time limit 2c)**		
[tYn.I] **T I** **Twin 1 (Output will be set automatically as Time limit 2c)**		

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.

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.

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.

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.

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.

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.

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.

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".

▣ Caution for using

1. Power connection
(1) AC Power : It is able to connect power to the terminals(2 to 7) without distinguish the polarity.
DC Power : Be sure the polarity of ②←<->, ⑦←<+>.
(2) It can be operating stably due to free power voltage type.(Please connect the power lind seperate from high voltage line in order to avoid inductive noise)
2. Input signal line
(1) Shorten the cable distance between the sensor and this product.
(2) Please shielded wire for input signal needed to be long.
(3) Please wire input signal line separated from power line.
3. When test dielectric voltage and insulation resistance of the control panel with this unit installed.
(1) Please isolate this unit from the circuit of control panel.
(2) Please make all terminals of this unit short-circuited.
4. Do not use this unit at below places because of product damage.
(1) Place where there are severe vibration or impact
(2) Place where strong alkalis or acids are used
(3) Place where there are direct ray of the sun
(4) Place where strong magnetic field or electric noise are generated
5. Installation environment
(1) It shall be used indoor (2) Altitude Max. 2000m
(3) Pollution Degree 2 (4) Installation Category II

※It may cause malfunction if above instructions are not followed.

▣ 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/soldering system
- Temperature controllers
- Temperature/Humidity transducers
- SSR/Power controllers
- Counters
- Timers
- Panel meters
- Tachometer/Pulse(Rate) meters
- Display units
- Sensor controllers

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