

Autonics

TIMER

LE4S

M A N U A L

CE cULus



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.

2.This unit must be mounted on panel.

It may give an electric shock.

3.Do not repair or checkup when power on.

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(0.50mm²) should be used and screw bolt on terminal block with 0.74N·m to 0.90N·m 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

Output

Size

Digit

Item

Display

Time limit contact 1c

Time limit contact 2c, Instantaneous contact 1c + Time limit contact 1c(Selectable)

DIN W48mm×H48mm

9999(4 Digit type)

Timer

L LCD Display

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

■ Dimensions

55

48

48

76

56

14

44.8

Panel cut-out

Product mounting

Min.65

45^{+0.4}_{-0.4}

Min.65

45^{+0.4}_{-0.4}

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

■ Specifications

Model	LE4S
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. 4.5VA, 24~240VDC: Max. 2W
Return time	Max. 100ms
Min.input signal (START,INHIBIT,RESET)	1ms, 20ms(Selectable)
Input (START,INHIBIT,RESET)	«No-voltage input» Impedance at short-circuit: Max. 1kΩ, Residual voltage: Max. 0.5V, Impedance at open-circuit: Min. 100kΩ
Control output	Time limit SPDT(1c)
Con-tact Capacity	250VAC 5A resistive load
Repeat-Setting · Voltage · Temperature error	Max. ±0.005% ±0.03sec (Signal Start) Max. ±0.01% ±0.05sec (Power ON Start)
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/s ² (30G) X, Y, Z directions for 3 times Malfunction 100m/s ² (10G) X, Y, Z directions for 3 times
Relay life cycle	Mechanical Min. 10,000,000 times Electrical Min. 100,000 times(250VAC 5A resistive load)
Approval	CE cULus
Weight	Approx. 98g

■ Input connections

●LE4S is No-voltage input(Short-circuit and open) type.

○Solid-state input

Sensor

LE4S

START

RESET

INHIBIT

0V

Q1

ON: Operating

Sensor: NPN open collector output

Sensor

LE4S

START

RESET

INHIBIT

0V

Q2

ON: Operating

Sensor: NPN Universal output

Sensor

LE4S

START

RESET

INHIBIT

0V

S1, S2, S3 are ON: Operating

Please use reliable contact enough to flow 5VDC 1mA.

※Be sure that it is not insulated between power input and input terminal block.

■ Connection

RESET

START

INHIBIT

4

5

6

7

8

CONTACT OUT

250VAC 5A

RESISTIVE LOAD

(Time limit contact 1c)

▲ The above specifications are subject to change without notice.

■ Front panel identification

LE4S

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 key:Used for initializing time progressing and output return.

⑨ key:Used for advancing to function setting mode, setting time change checking.

⑩ key:Used for advancing to setting time change mode and moving to each digit.

⑪ key:Used for changing the set value.

⑧

⑨

⑩

⑪

■ Function Setting Mode Descriptions

Function setting mode

1)Time Range

2)One-Shot output time

3)Time Up/Down

4)Min. input signal

5)Backlight

6)Key Lock

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

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
99.59s (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
99.59h (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

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

2) One-Shot output time setting

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

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

3) Time progress UP/DOWN setting

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

DOWN[d n]: Time progressed from setting time to 0.

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

4) The minimum input signal setting

Set the minimum input signal of RESET, START and INHIBIT

Min. input signal: Choose 1ms and 20ms

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

5) Backlight setting

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

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

6) Key Lock selection

Turns off the Lock mode.

key cannot be used.

key cannot be used.

key cannot be used.

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

⑩ key

■ Time setting

●Output operation mode : OND, OND I, OND II, INT, INT I, OFF D

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 key 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 1 digit, 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 key.[Fig. 5]

●Output operation mode : FK, FK I

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 key 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 1 digit, 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 key.[Fig. 5]

●Output operation mode : ON OFF D, ON OFF D I

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 key 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 1 digit, 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 key.[Fig. 5]

■ 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 line separate 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.

■ Output operation mode

Mode

Time chart (T:Setting time, T > Ta)

Operation

OND

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

ON Delay

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

1. Timing operation starts when START signal is ON at status of power on.

2. Output will be ON when timing operation is progressed up to the setting time. Display value will be HOLD.(① position)

3. When RESET signal is ON, display value and output will be reset.(② position)

4. If RESET signal is OFF while START signal is ON, "STEP 1" will be restarted.(③ position)

5. When START signal is OFF, display value and output will be reset.(④ position)

OND I

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

ON Delay 1

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

1. Timing operation starts when START signal is ON at status of power on.

2. Output will be ON when timing operation is progressed up to the setting time. Display value will be HOLD.(① position)

3. When RESET signal is ON, display value and output will be reset.(② position)

4. If RESET signal is OFF while START signal is ON, "STEP 1" will be restarted.(③ position)

5. When START signal is OFF, display value and output will be reset.(④ position)

OND II

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

ON Delay 2 (One-Shot Output)

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

1. Timing operation starts when START signal is ON at status of power on.

2. Time limit output will be ON and goes OFF during Tout setting time when timing operation is progressed up to the setting time. Display value will be HOLD.(③ position)

3. When RESET signal is ON, display value and output will be reset.

4. If RESET signal is OFF while timing operation is progressing, Timing operation will be reset and started again.(② position)

5. Tout setting range: 0.01 sec~99.99 sec.

FK

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

Flicker (Toff operation precedes Ton operation)

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

1. If START signal is ON, output will be repeatedly OFF during Toff setting time and will be OFF during Ton setting time when power is ON.

2. When RESET signal is ON, display value and output will be reset.

3. If RESET signal is OFF when START signal is ON, "STEP 1" will be restarted.

4. When START signal is OFF, display value and output will be reset.

5. It is able to set each Toff time and Ton time separately. In [FLV.1] mode, timing operation starts with Toff.

FK I

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

Flicker 1 (Ton operation precedes Toff operation)

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

1. If START signal is ON, output will be repeatedly ON during Ton setting time and will be OFF during Toff setting time when power is ON.

2. Even though START signal is applied repeatedly, only the initial signal is recognized.(① position)

3. When RESET signal is ON, display value and output will be reset. If START signal is ON, it will be restarted.

4. When START signal is OFF, display value and output will be reset.

5. It is able to set each Toff time and Ton time separately. In [FLV.1] mode, timing operation starts with Ton.

INT

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

Interval

POWER

START

RELAY OUT

1. Output will be ON when START signal is ON at status of power on and Timing operation starts.

2. Output will be OFF when timing operation is progressed up to the setting time. Display value will be HOLD.

3. When RESET signal is ON, display value and output will be reset.(① position)

4. If RESET signal is OFF when START signal is ON, "STEP 1" will be restarted.

5. When STRAT signal is OFF, display value and output will be reset.(② position)

INT I

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

Interval 1

POWER

START

RELAY OUT

1. Output will be ON when START signal is ON at status of power on and Timing operation starts.

2. Output will be OFF when timing operation is progressed up to the setting time. Display value will be HOLD.

3. Even though START signal is applied repeatedly, only the initial signal is recognized.(① position)

4. If START signal is ON after timing operation is progressed up to the setting time, Output will be ON and setting time will be reset and then timing setting starts.

5. When RESET signal is ON, display value and output will be reset.(② position)

OFF D

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

ON OFF Delay

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

1. If START signal is ON when power is on, Output will be ON when timing operation is progressed up to the Ton setting time(On-Delay). If START signal is OFF, output will be ON when timing operation is progressed up to the Toff setting time (Off-Delay).

2. If START signal is OFF when timing operation is progressed up to the setting time. Display value will be HOLD.

3. When RESET signal is ON, display value and output will be reset. When RESET signal is OFF while START signal is ON, it will be operating as On-Delay.(② position)

4. It is able to set each Toff time and Ton time separately.

ON OFF Delay 1

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

ON OFF Delay 1

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

1. If START signal is ON when power is on, timing operation starts. Output will be ON when timing operation is progressed up to the Ton setting time(On-Delay). If START signal is OFF, output will be ON when timing operation is progressed up to the Toff setting time (Off-Delay).

2. Output will be ON when START signal is ON and goes OFF during setting time and display value will be reset.(① position)

3. Output will be OFF when START signal is OFF and goes ON during setting time and display value will be reset.(③ position)

4. When RESET signal is ON, display value and output will be reset. When RESET signal is OFF while START signal is ON, it will be operating as On-Delay.(② position)

5. It is able to set each Toff time and Ton time separately.

OFF D

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

OFF Delay

POWER

START

RESET

RELAY OUT

Setting time UP

Setting time DOWN

POWER

START

RELAY OUT

1. If START signal is ON when power is on, output will be ON.

2. When START signal is OFF, timing operation starts. Output will be OFF when timing operation is progressed up to the setting time. Display value will be HOLD.

3. When RESET signal is ON, display value and output will be reset.

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

DOWN mode -> Display value is "setting time", Output is "OFF".

■ Major products

■ Proximity sensors

■ Pressure sensors

■ Rotary encoders

■ Fiber optic sensors

■ Photoelectric sensors

■ Graphic/Logic panels

■ Field network devices

■ Door/Door side sensors

■ Tachometer/Pulse(Rate) meters

■ Laser welding/soldering system

■ Temperature/Humidity transducers

■ Stepping motors/drivers/motion controllers

■ Laser marking system(CO₂, Nd:YAG)

■ Counters

■ Timers

■ Area sensors

■ Display units

■ Panel meters

■ Sensor controllers

■ Power controllers

■ Temperature controllers

■ Switching power supplies

Autonics corporation

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