LCD Digital Timers

LE4S Series

INSTRUCTION MANUAL

TCD220045AA

Autonics

Thank you for choosing our Autonics product.
Read and understand the instruction manual and manual thoroughly before using the product.
For your safety, read and follow the below safety considerations before using.
For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.
Keep this instruction manual in a place where you can find easily.
The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.
Follow Autonics website for the latest information.

Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

⚠ Warning Failure to follow instructions may result in serious injury or death.

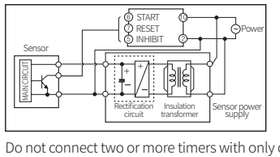
01. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)
Failure to follow this instruction may result in personal injury, economic loss or fire.
02. Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact or salinity may be present.
Failure to follow this instruction may result in explosion or fire.
03. Install on a device panel to use.
Failure to follow this instruction may result in fire or electric shock.
04. Do not connect, repair, or inspect the unit while connected to a power source.
Failure to follow this instruction may result in fire or electric shock.
05. Check 'Connections' before wiring.
Failure to follow this instruction may result in fire.
06. Do not disassemble or modify the unit.
Failure to follow this instruction may result in fire or electric shock.

⚠ Caution Failure to follow instructions may result in injury or product damage.

01. When connecting the power/sensor input and relay output, use AWG 20 (0.50 mm²) cable or over, and tighten the terminal screw with a tightening torque of 0.74 to 0.90 N·m.
Failure to follow this instruction may result in malfunction due to contact failure.
02. Use the unit within the rated specifications.
Failure to follow this instruction may result in fire or product damage.
03. Use a dry cloth to clean the unit, and do not use water or organic solvent.
Failure to follow this instruction may result in fire or electric shock.
04. Keep the product away from metal chip, dust, and wire residue which flow into the unit.
Failure to follow this instruction may result in fire or product damage.

Cautions during Use

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



- Do not connect two or more timers with only one input contact or transistor simultaneously.
- 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.
- This unit may be used in the following environments.
  - Indoors (in the environment condition rated in 'Specifications')
  - Altitude max. 2,000 m
  - Pollution degree 2
  - Installation category II

Ordering Information

This is only for reference, the actual product does not support all combinations.
For selecting the specified model, follow the Autonics website.

LE4S ❶

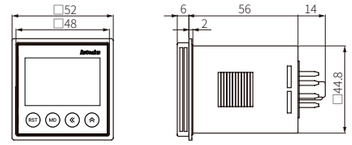
❶ Output
No mark: Time limit 1c
A: Time limit 2c, Time limit 1c + Instantaneous 1c

Product Components

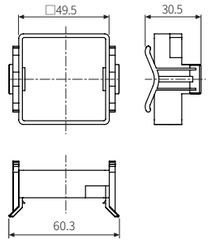
- Product (+ bracket)
- Instruction manual

Dimensions

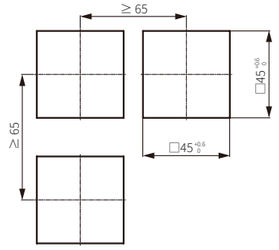
- Unit: mm, For the detailed drawings, follow the Autonics website.



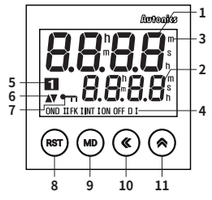
■ Bracket



■ Panel cut-out



Unit Descriptions



No.	Name	Function
1	Time progressing display part	Shows progressing time
2	Time setting display part	Shows the setting time
3	Time unit	Shows time unit (h: hour / m: min / s: sec) Flashing: time progressing
4	Operation mode	Shows current output operation mode • INTG: no mark
5	Output contact	Shows the status of current output contact
6	UP / DOWN	Shows UP / DOWN mode of time progressing
7	Key lock	Shows key lock status
8	[RST] key	Initializes progressing time and output return
9	[MD] key	Enter RUN mode ↔ Parameter setting Shift to next parameter in parameter setting
10	[◀] key	Enter RUN mode ↔ setting time change mode Move the digit when changing the setting value.
11	[▲] key	Change the parameter setting value

Mode Setting

RUN	[MD] 3 sec	→	**Parameter setting**	[MD] 3 sec	→ RUN
	[◀]	→	**Time setting** 01)	[MD]	→
	While pressing [MD]	→	**Check output contact status** 02)	Release [MD]	→
	[RST]	→	**Initialization**	Auto	→

01) If no key is pressed over 60 sec, returning to RUN mode and not storing the setting value.
02) Only for the LE4SA model

Output Operation Mode

For the detailed timing chart for operation output mode, refer to the manual.
The output operation mode differs depending on each model.

Group	Output operation mode		LE4S	LE4SA	Time setting
Group 1	**OND**	ON Delay	○	○	Time
	OND.1	ON Delay 1		-	
	OND.2	ON Delay 2		○	
	INT	Interval			
	INT.1	Interval 1		-	
	OFD	OFF Delay			
	INTG	Integration time			
Group 2	**FLK**	Flicker	○	○	t.oFF, t.on
	FLK.1	Flicker 1			
	NFD	ON - OFF Delay		-	on.d, oFF.d
	NFD.1	ON - OFF Delay 1			
Group 3	**S-D**	Star - Delta	-	○	t - 1, t - 2
	TWN	Twin			
	TWN.1	Twin 1			

Parameter Setting

- Some parameters are activated / deactivated depending on the model or setting of other parameters. Refer to the description of each parameter.
- In the parameter setting, the time and output control continue.
- If the settings are changed, all outputs to be OFF and reset the current values when returning to RUN mode.
- [MD] key: saves current setting value and moves to the next parameter.

Parameter		Display	Defaults	Setting range	Model	Display condition
1-1	Output operation mode	oUt.n	ond	• Refer to the output operation mode.	Comm.	-
1-2	Time range	t.rnG	99.99	• Refer to the table below.		1-1. Output operation mode: Group 1
1-3	One-shot output time	oUt.	00.50	0.01 to 99.99 sec		1-1. Output operation mode: OND.2
1-4	T.off time range	oF.rG	99.99	• Refer to the table below.		1-1. Output operation mode: Group 2
1-5	T.on time range	onrG	99.99			
1-6	T1 time range	t 1rG	99.99		[LE4SA]	1-1. Output operation mode: Group 3
1-7	T2 time range	t2rG	99.99		[LE4SA]	
1-8	Time UP / DOWN	U-d	UP	UP: 0 → setting time DN: setting time → 0	Comm.	-
1-9	Width of min. input signal	Int	20	1, 20 ms • Set the min. width of RESET, START, INHIBIT input signals	[LE4S]	-
1-10	Output contact 01)	Cont	1C.1C	1C.1C: Time limit 1c + Instantaneous 1c 2C: Time limit 2c	[LE4SA]	-
1-11	Backlight	bLU	on	ON, OFF	Comm.	-
1-12	Key lock	LoCK	L.oFF	L.OFF: release key lock LOC.1: lock [RST] key LOC.2: lock [◀], [▲] key LOC.3: lock [RST], [◀], [▲] key	[LE4S]	-
			LoC.1		[LE4SA]	

01) 1-1. Output operation mode of group 3: 2C fixed

- [Table]

Unit	SEC	SEC	SEC	SEC	M S	M	M
Display	9.999	99.99	999.9	9999	99m59s	999.9m	9999m
Range	0.001s to 9.999s	0.01s to 99.99s	0.1s to 999.9s	1s to 9999s	0m1s to 99m99s	0.1m to 999.9m	1m to 9999m

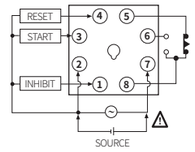
Unit	H M	H	H	H
Display	99h59m	99.99h	999.9h	9999h
Range	0h1m to 99h59m	0.01h to 99.99h	0.1h to 999.9h	1h to 9999h

Connections

⚠ Caution

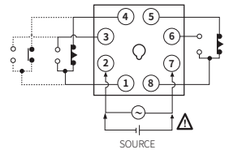
- Refer to the 'specifications' for checking the power supply and control output.
- The LE4S model: Be sure to use terminal No. 2 as the common terminal to connect terminals No. 1, 3, and 4.
  Failure to follow this instruction may result in product malfunction.

■ LE4S

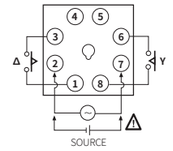


■ LE4SA

- Output operation mode
  : OND / OND.2 / FLK / FLK1 / INT / TWN / TWN.1 (TWN, TWN.1 mode: time limit 2c fixed)



- Output operation mode
  : Y - Δ (Time limit 2c fixed)
- Use the A contact.



Specifications

Model	LE4S	LE4SA
Function	MULTI time, MULTI operation	
Display method	LCD (Backlight)	
Return time	≤ 100 ms	
Time operation	Signal ON Start	Power ON Start
Input signal	START, INHIBIT, RESET	
Min. signal width	≈ 1, 20 ms	-
No-voltage input	Short-circuit impedance: ≤ 1 kΩ Short-circuit residual voltage : ≤ 0.5 VDC⎓ Open-circuit impedance: ≥ 100 kΩ	-
Control output	Relay	
Contact type	Time limit SPDT (1c)	Time limit DPDT (2c), Time limit SPDT (1c) + Instantaneous SPDT (1c) (depends on operation mode)
Contact capacity	250 VAC~ 5 A, 30 VDC⎓ 5 A resistive load	250 VAC~ 3 A, 30 VDC⎓ 3 A resistive load
Error Repeat / SET	Power ON Start : ≤ ± 0.01% ± 0.05 sec	≤ ± 0.01% ± 0.05 sec
Error Voltage / Temp.	Signal ON Start : ≤ ± 0.005% ±0.3 sec	
Approval	CE c UL us EAC	
Unit weight	≈ 98 g	

Model	LE4S	LE4SA
Power supply	24 - 240 VAC~ ± 10% 50 / 60 Hz, 24 - 240 VDC⎓ ± 10%	
Power consumption	AC: ≤ 4.5 VA, DC: ≤ 2 W	AC: ≤ 4 VA, DC: ≤ 1.6 W
Insulation resistive	100 MΩ (500 VDC⎓ megger)	
Dielectric strength	2000 VAC~ 50 / 60 Hz for 1 min	
Noise immunity	± 2 kV square-wave noise by noise simulator (pulse width 1 μs)	
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 1 hour	
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 10 min	
Shock	300 m/s² (≈ 30 G) in each X, Y, Z direction for 3 times	
Shock (malfunction)	100 m/s² (≈ 10 G) In each X, Y, Z direction for 3 times	
Relay life cycle	Mechanical: ≥ 10,000,000 operations Electrical: ≥ 100,000 operations	
Ambient temperature	-10 to 55 °C, storage: -25 to 65 °C (no freezing or condensation)	
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)	

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