DRW171152AA

Autonics

Weekly/Yearly Timer

LE7M-2

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.
6. **Since Lithium battery is embedded in the product, do not disassemble or burn the unit.**
   Failure to follow this instruction may result in fire.
7. **Please contact to us for battery replacement.**

⚠Caution

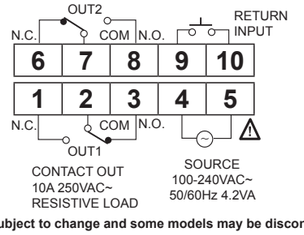
1. **When connecting the power/sensor input and relay output, use AWG 20(0.50mm²) cable or over and tighten the terminal screw with a tightening torque of 0.74 to 0.90N·m.**
   Failure to follow this instruction may result in fire or malfunction due to contact failure.
2. **Use the unit within the rated 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 7 M - 2

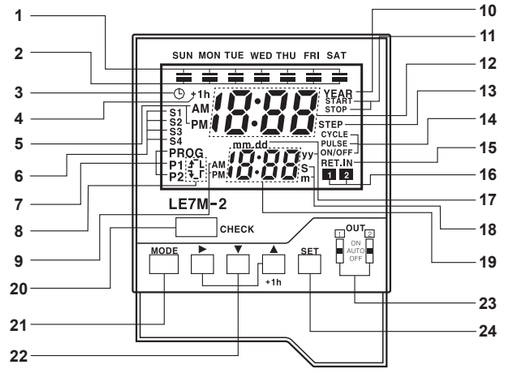
2	Dimensions & Mounting
M	DIN 72×72 size
7	1 week(7 days)
E	Weekly/Yearly Timer
L	LCD Display

■ Connections



※**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 Day cursor
2 Day display
- Light : Day is selected
- Light-out : Day is not selected yet.

3 Current time setting display
4 DST display(Daylight Saving Time)
5 AM/PM display
6 Season display
7 Program display
8 Display ON time/day, OFF time/day, ON time width, OFF time width
9 AM/PM display
10 YEAR display: It is lighted when set, check, modify, delete yearly program, set yearly holidays and operate yearly program.
11 Yearly START/STOP day display
12 Main display
13 Remaining step display
14 Operation mode display
15 Power failure return input display
16 Output mode display
17 Year, month, date display
18 Unit of pulse duration display
19 Sub-display
20 CHECK Key
21 MODE Key
22 Operation key
23 Output selection switch
- AUTO : Control output depending on the set program.
- ON : Output is ON.(Operation)
- OFF : Output is OFF.

※Output 1(OUT1) and Output 2(OUT2) are selected independently.

24 SET Key

■ Specifications

Model		LE7M-2
Power supply		100-240VAC~ 50/60Hz
Allowable voltage range		90 to 110% of rated voltage
Power consumption		4.2VA
Control Output	Contact type	SPDT(Single Pole Double Contact)
	Contact capacity	250VAC~ 10A resistive load
	Number of circuits	Independent 2 circuits(1c × 2)
Number of steps		48 steps for weekly, 24 steps for yearly
Operation mode		ON/OFF mode, Cycle mode, Pulse mode
Mounting		Front panel mounting, Surface mounting, DIN rail mounting
Time deviation		±15sec/month(Ta:25℃) (±4sec/week)
Temperature error		0.01% ±0.05sec
Memory retention		Over 5 years(at 25℃)
Insulation resistance		Min. 100MΩ(at 500VDC)
Dielectric strength		2000VAC 50/60Hz for 1minute
Noise strength		±2kV the square wave noise(pulse width:1μs) by the noise simulator
Relay life cycle	Mechanical	Min. 5,000,000 operations(Switching capacity 30 times/1 minute)
	Electrical	50,000 operations<Switching capacity 20 times/1 minute, at 250VAC 10A(resistive load)>
Environ -ment	Ambient temperature	-10 to 55℃, Storage: -25 to 65℃ (at non-freezing status)
	Ambient humidity	35 ~ 85%RH
Unit weight		Approx. 272g
Approval		cULus

■ Functions

◎ **Program setting and output operation**
OUT1 and OUT2 are operated depending on P1 and P2 setting.

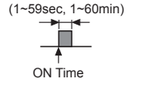
◎ **Terms**
- Record : The standard unit to control output.
- Step : The unit constructing Record.

◎ **Operation mode**
In case of program operation for Program 1 is Pulse, the operation mode of Program 1 is fixed as Pulse when add program on Program 1.(or Program 2)
In case of program operation for Program 1 is ON/OFF or Cycle, Pulse mode is not available when add program on Program 1.(or Program 2)

- **Weekly ON/OFF mode**
  OUT1 or OUT2 are ON at set ON time and OFF at set OFF time.
  • Min.set time unit : 1 min.
  • It is able to set ON/OFF day separately.
  • 2 steps(ON day/ON time, OFF day/OFF time) construct one Record

- **Weekly Cycle mode**
  Output(OUT1 or OUT2) is ON from ON Cycle operation time to OFF Cycle operation time repeatedly.
  • Set range of ON/OFF time : 1 min.~12:59
  • 3 steps(ON day/ON time, OFF day/OFF time, ON width/OFF width) construct one Record.

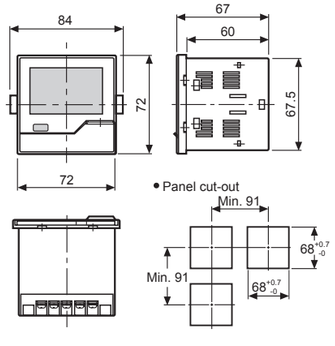
- **Weekly Pulse mode**
  Output (OUT1 or OUT2) is ON from set ON time for specified time.
  (Pulse width : 1~59sec, 1~60min)
  • 2 steps(ON day/ON time, Pulse width) construct one Record.
- **Yearly ON/OFF mode**
  Output is ON at ON time set from START day to STOP day and OFF at set OFF.
  • 3 steps(START/STOP date, ON/OFF time) construct one Record.
- **Yearly Pulse mode**
  Output is ON at ON time set from START date to STOP date for specified time repeatedly(Pulse width:1~59sec, 1~60min).
  • 3 steps(START/STOP date, ON time, Pulse width) construct one Record.



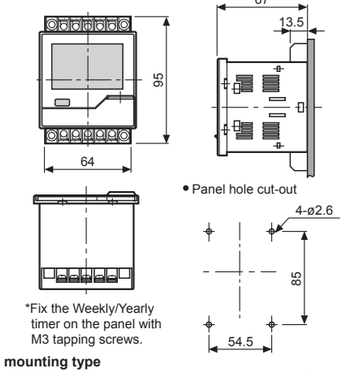
■ Dimensions & Mounting

(Unit:mm)

1)Front panel mounting

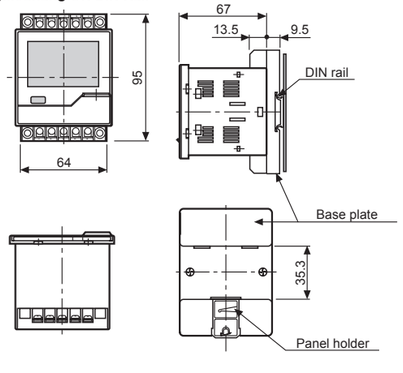


2)Surface mounting



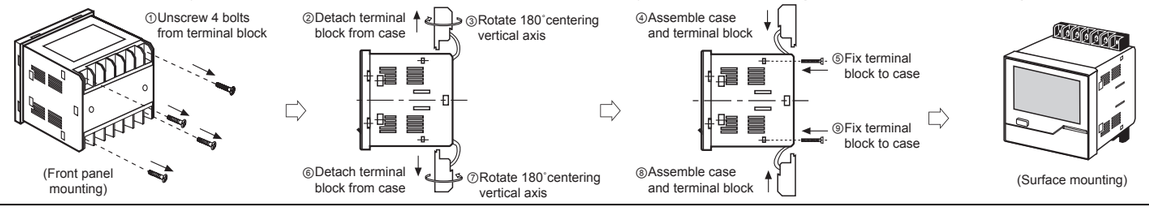
*Fix the Weekly/Yearly timer on the panel with M3 tapping screws.

3)Mounting ON DIN Rail

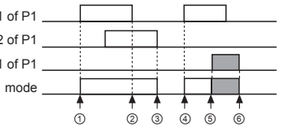


4)How to change from panel mounting type into surface mounting type

Remove terminals from the body after unscrew terminal screws and then assemble terminals to the body after rotate 180˚ centering vertical axis terminals as below figure.



◎ **Program operation**



- ① ~ ② : Operated by weekly setting 1 of P1.
- ② ~ ③ : Operated by weekly setting 2 of P1.
- ④ ~ ⑤ : Operated by weekly setting 1 of P1.
- ⑤ ~ ⑥ : Operated by yearly setting 1 of P1.
  (When it is changed as yearly program "START day AM 12:00(⑤)" during weekly program operation, weekly program is stopped and yearly program mode will be available.
  When it is changed as yearly program "Next day of STOP AM 12:00(⑥)", yearly program will be stopped.)

◎ **Display and change of next mode**
- The next mode day of program1(P1) or program2(P2) is lighted on day display position and next mode time is displayed on second display part. Press SET + CHECK in RUN mode it is changed from program1 to program2 or from program2 to program1.
- It operated as ON/OFF or Cycle, mode start(ON) time and mode end(OFF) time is displayed as next mode and Pulse mode start(ON) time as next mode, in case of Pulse mode.

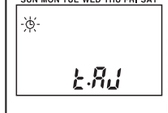
◎ **Power failure return mode**
After select Auto("Rt ") or Normal("nor ") by ▲ or ▼ keys in power failure return selection LEVEL2 of setting group 2("rEt " is lighted, "Rt " or "nor " are flashed.), press SET key to select power failure selection.
- In case of select as Auto("Rt ")
  Output(OUT1, OUT2) is operated depending on set program when power is ON after power failure.
- In case of select Normal("nor ")
  Output(OUT1, OUT2) is OFF and **"RET.IN"** is flashed in front panel when power is ON after power failure. When power failure return is ON, **"RET.IN"** is lighted off and output(OUT1, OUT2) is operated depending on set program.
  • Power failure return input
  Input contact signal at external "Return Input terminal(⑨-⑩)" by switch or relay or press SET key over 3sec in RUN mode. Use reliable contacts enough to flow 0.1mA of current at 5VDC when using switch or relay.

◎ **Season switching mode**
After select ON(" on ") by ▲ or ▼ keys in season switching selection LEVEL2 of setting group 2("SEn " is lighted, "oFF " are flashed.), press SET key to select season switching selection. **The previous program 1(P1) and program 2(P2) can be deleted when season switching mode is "oFF " or " on ".**
- In case of select as ON(" on ")
  Weekly program is switched automatically by season switching.
  • Period setting per season
  ①Press SET key in period setting per season mode of setting group 2. ("SEn " is flashed, season with preset period is lighted and **"START"** and **"STOP"** are lighted.)
  ②Advance to the flashing position of season selection among S1, S2, S3, S4 by ▲or ▼ keys and press SET key.
  ③After set START month, date per season and press SET key.
  ④SET key is pressed after set STOP month, date per season, it is advanced to LEVEL1 of period setting per season. Add or adjust the period setting by SET key.
- Season switching selection is not available when it is set as OFF("oFF ").

◎ **Daylight Saving Time**
After select Auto("Rt ") or Normal("nor ") by ▲ or ▼ keys in power failure return selection LEVEL2 of setting group 2("dSt " is lighted, "Rt " or "nor " are flashed.), press SET key to select Daylight Saving Time.
- In case of select as Auto("Rt ")
  Current time will be faster as an hour when it is started and will be slower as an hour when Auto mode is finished.
  • Automatic Daylight Saving Time period setting
  ①Automatic Daylight Saving Time period setting LEVEL 1 of setting group 2.
  ("dSt " is flashed and **"START"** and **"STOP"** are lighted.)
  ②Set START date(Month, date) of automatic Daylight Saving Time mode and press SET key.
  ③Set START time(AM/PM, Hour) of automatic Daylight Saving Time mode and press SET key. But, the minute will be fixed as 00.
  ④Set STOP date(Month, date) of automatic Daylight Saving Time mode and press SET key.
  ⑤Set STOP time(AM/PM, Hour) of automatic Daylight Saving Time mode and press SET key. But, the minute will be fixed as 00.
- In case of select as Normal("nor ")
  Press +1h key over 3sec in RUN mode, "+1h" is lighted and current time is faster as an hour and "+1h" is lighted out, current time will be slower as an hour when press +1h key over 3sec again.

◎ **Current time setting**
(Ex)Set the current time as 10, Mar, 2008, 5:10 PM.

①Advance to the current time setting mode



MODE + SET keys are pressed over 3sec in RUN mode, it is advanced to current time setting of setting group 2 and clock will be flashed and tAJ will be lighted in second display part, press SET key.

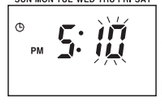
②Set Year, Month, Date

Press ▲ or ▼ keys to set 08(year 2008) and move the flashing digit to position month by ▶ key. Press SET key after press ▲ or ▼ keys to set date 10.

③Set current time(AM, PM)

Press ▲or ▼ keys to select PM and move the flashing digit to position hour by ▶ key.

④Set current time(Hour, Min.)

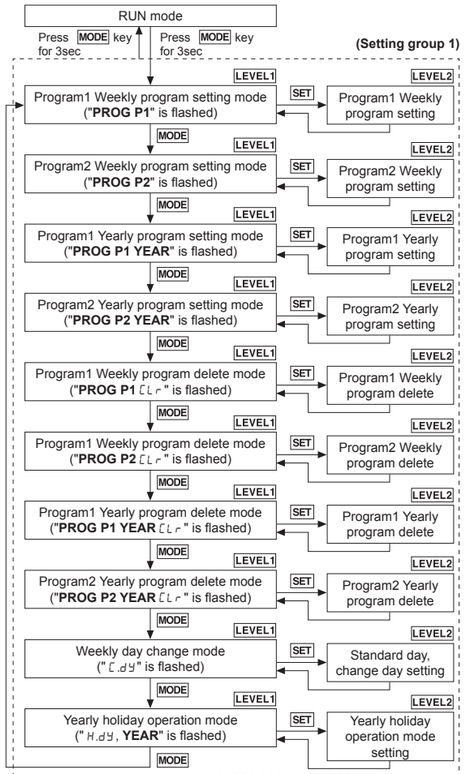


Press ▲ or ▼ keys to set 5 PM and move the flashing digit to position min. by ▶ key. Press ▲ or ▼ key to set 10min and press SET key and it is returned to RUN mode when press MODE key over 3sec.

- When power is ON, it is advanced to "①Current time setting mode" and set current time as the above ②~④ by SET key.
- Current time is set up to 31, Dec, 2099.
- Check current year/month/date in RUN mode
  When ▶ key is pressed over 3sec in RUN mode, it is advanced to current year/month/date display. After display current year/month/date for 3sec, it is returned to RUN mode displaying current display.

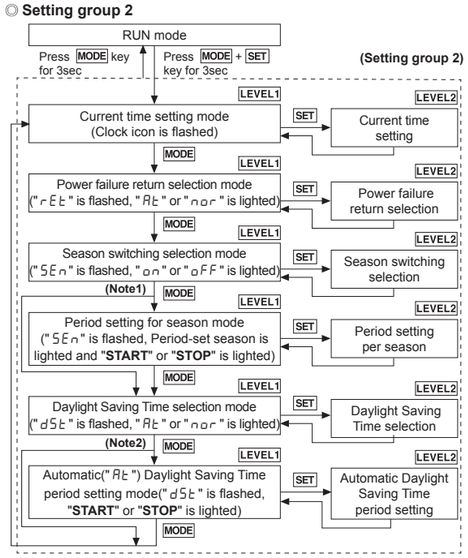
■ Program Setting

◎ Setting group 1



- When it is advanced to setting group 1 in RUN mode, output (OUT1, OUT2) will be OFF.
- It is returned to previous setting group 1 when power of time switch is ON again in setting group 1.
- When MODE key is pressed in LEVEL2 of setting group 1, current setting will be canceled and it is returned to previous LEVEL1.

◎ Setting group 2

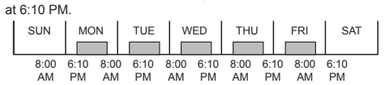


- **(Note1)** Season switching selection is "oFF".
  (Note2) Automatic switching selection of Daylight Saving Time is Normal ("nor").
- If it is advanced to setting group 2 in RUN mode, output(OUT1, OUT2) will be OFF.
- When power of time switch is ON again in setting group 2, it is returned to previous setting group 1.
- Front MODE key is pressed in LEVEL2 of setting group 2, it is returned to previous LEVEL1.
- When season switching selection is changed from "oFF" to "on" or "on" to "oFF", previous set weekly program will be deleted.

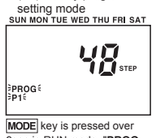
◎ Weekly program setting

• Weekly ON/OFF mode

(Ex)Output1(OUT1) is ON from Monday to Friday at 8:00 AM and OFF at 6:10 PM.



①Advance to program1 (P1) weekly program setting mode



MODE key is pressed over 3sec in RUN mode, "**PROG P1**" is flashed and press SET key.

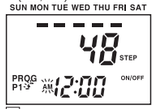
②Mode type setting

Press SET key in ON/OFF mode.

③ON day setting

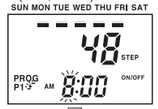
Press ▶ key to move cursor to Monday, it will be lighted when ▲ or ▲ keys are pressed and move it to Tuesday by ▶ key.
Press SET key after Tuesday, Wednesday, Thursday, Friday are lighted.

④ON time setting (AM, PM)



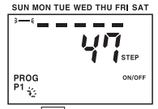
▶ key is pressed, move the flashing to hour position and select PM by ▲ or ▼ keys when ON time is afternoon.

⑤ON time setting (Hour, Minute)



Set 8:00 by ▶ key and press SET key.

⑥OFF day setting

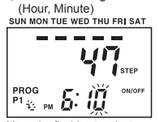


Press SET key to check ON/OFF day.

⑦OFF time setting (AM, PM)

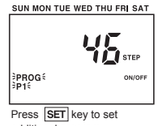
Select PM by ▲ or ▼ keys and move the flashing to hour position by ▶ key.

⑧OFF time setting (Hour, Minute)



Move the flashing to minute position after set 6:00 by ▲ key and set the minute as 10 and press SET key.

⑨Complete to set



Press SET key to set additional program.

• Weekly Pulse mode

Output2(OUT2) is ON for 10sec at 8:00AM from Monday to Friday during S2 season in case, period of S1, S2, S3, S4 is set.

①Program2(P2) Advance to weekly program setting mode

MODE key is pressed for 3sec in RUN mode, "**PROG P1**" is flashed and press MODE key again, "**PROG P2**" is flashed and press SET key.

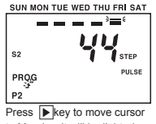
②Mode type setting

Press ▲ key when ON/OFF is flashed, PULSE is flashed and press SET key.

③Season selection

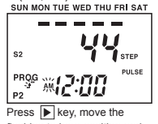
Press ▼ key to select season S2 and press SET key.

④ON day setting



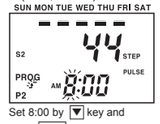
Press ▶ key to move cursor to Monday, it will be lighted when ▲ or ▼ keys are pressed and move it to Tuesday by ▶ key.
Press SET key after light Tuesday, Wednesday, Thursday, Friday.

⑤ON time setting (AM, PM)



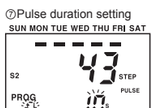
Press ▶ key, move the flashing to hour position and select PM by ▲ or ▼ keys when ON time is afternoon.

⑥ON time setting (Hour, Minute)



Set 8:00 by ▼ key and press SET key.

⑦Pulse duration setting



Press ▲ key to select pulse duration as 10s and press SET key.

⑧Complete to set

Press SET key to set additional program.

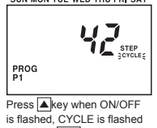
• Weekly Cycle mode

(Ex)Output1(OUT1) is ON for 10min and OFF for 5min from Monday 6:00AM to Saturday 5:30PM.

①Program1(P1) Advance to weekly program setting mode

Press MODE key for 3sec in RUN mode, "**PROG P1**" is flashed.

②Mode type setting

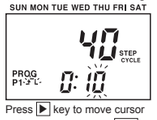


Press ▲ key when ON/OFF is flashed, CYCLE is flashed and press SET key.

③ ~ ⑧

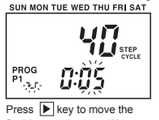
Refer to ③~⑧ of "**• Weekly ON/OFF mode**" to set ON day, ON time, OFF day and OFF time.

⑨ON time duration setting



Press ▶ key to move cursor to Saturday and press SET key after select Saturday as standard day(SAT is flashed).

⑩OFF time duration setting



Press ▶ key to move the flashing to minute position and set as 5min by ▲ key and press SET key.

⑪Complete to set

Press SET key to set additional program.

◎ Weekly day change

When the specified day mode is required to install in other day, it is started from the set day and returned to previous program setting automatically when it is finished.
It is applied to program1(P1) and program2(P2).

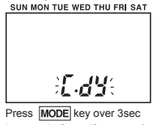
• Weekly day change cancellation

①Change current year, month, date in current time setting mode
②Change standard day
③Delete all program in program1(P1) and program2(P2)
④Season switching

• Setting

Output1(OUT1) is ON in Saturday at 9:00AM and OFF at 12:00PM and it is ON 8:30AM and OFF at 6:00PM from Monday to Friday and the mode of Monday and Tuesday is operated temporarily as Saturday(standard) program.

①Advance to weekly day change mode



Press MODE key over 3sec to move to the setting group1 in RUN mode and press it repeatedly until "C.dY" is flashed in second display part and press SET key.

②Standard day selection

Press ▶ key to move cursor to Saturday and press SET key. after select Saturday as standard day(Sat is lighted) by ▲ or ▼ keys.

③Change day selection

Press ▶ key to move cursor to Monday and select Monday to change(Mon is lighted) by ▲ or ▼ keys and repeat the procedure to select Tuesday to change (Tue is lighted) and press SET to complete weekly day change setting.

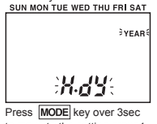
◎ Yearly holiday mode

It is used to off the output without program adjustment during previously set yearly holiday period available from present year to 31, Dec of the next year.
Designate the start date of yearly holiday and year of end date as every year("- - ") to repeat the holiday mode for specified in every year.

• Setting

Set every year 5, May to off the output(OUT1, OUT2).

①Advance to yearly holiday mode

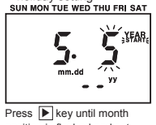


Press MODE key over 3sec to move to the setting group1 in RUN mode and press it repeatedly until "H.dY" is flashed in second display part and press SET key.

②Yearly holiday No. display

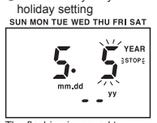
Press SET key after check yearly holiday No.

③Start date of yearly holiday setting



Press ▶ key until month position is flashed and set May by ▲ key and press ▶ key until date position is flashed. Press SET key after set 5th by ▲ key.

④End date of yearly holiday setting



The flashing is moved to month position directly and press ▲ key to set May and press ▶ key until date position is flashed.
Press SET key after set 5th by ▲ key.

⑤Complete to set yearly holiday

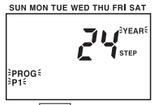
Press MODE key to finish the additional yearly holiday setting and press SET key to set additional program.
※It is able to set yearly holiday up to 12 times.

◎ Yearly program setting

• Yearly ON/OFF mode

(Ex)Output1(OUT1) is ON from every 5, Apr to 7, Apr at 9:00AM and OFF 5:10PM.

①Program1(P1) Advance to yearly program setting mode

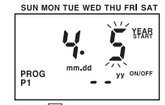


Press MODE key for 3sec in RUN mode, "**PROG P1**" is flashed and press MODE key 3 times more until "**PROG P2 YEAR**" is flashed and press SET key.

②Mode type setting

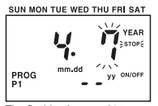
Press SET key when ON/OFF is flashed.

③Start date setting



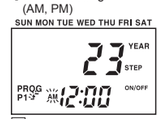
Press ▶ key until month position is flashed and set Apr by ▲ key and press ▶ key until date position is flashed. Press SET key after set 5th by ▲ key.

④End date setting



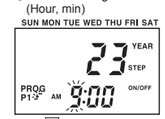
The flashing is moved to month position directly and press ▲ key to set Apr and press ▶ key until date position is flashed.
Press SET key after set 7th by ▲ key.

⑤ON time setting (AM, PM)



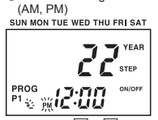
▶ key is pressed, move the flashing to hour position and select PM by ▲ or ▼ keys when ON time is afternoon.

⑥ON time setting (Hour, min)



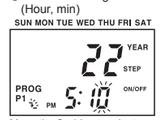
Press ▼ key to set 9 and press SET key after check 00min.

⑦OFF time setting (AM, PM)



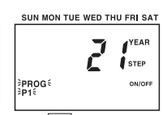
Select PM by ▲ or ▼ keys and move the flashing to hour position by ▶ key.

⑧OFF time setting (Hour, min)



Move the flashing to minute position after set 5 by ▲ key and set the minute as 10 and press SET key.

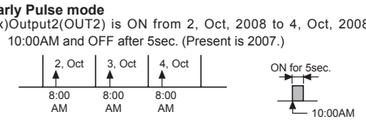
⑨Complete to set



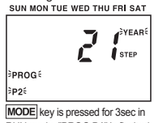
Press SET key to set additional program.

• Yearly Pulse mode

(Ex)Output2(OUT2) is ON from 2, Oct, 2008 to 4, Oct, 2008 at 10:00AM and OFF after 5sec. (Present is 2007.)

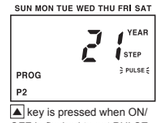


①Program2(P2) Advance to yearly program setting mode



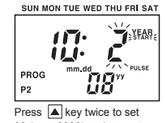
MODE key is pressed for 3sec in RUN mode, "**PROG P1**" is flashed and press MODE key again, "**PROG P2 YEAR**" is flashed and press SET key.

②Mode type setting



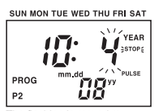
▲ key is pressed when ON/OFF is flashed to set PULSE mode and press SET key.

③Start date setting



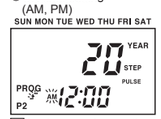
Press ▲ key twice to set 08 (year 2008) and move to month position by ▶ key.
Set Oct by ▼ key and move to date position by ▶ key and press SET key after set 2nd by ▲ key.

④End date setting



The flashing is moved to month position directly by ▶ key and set 4th by ▲ key after move it to date position by ▶ key, then press SET key.

⑤ON time setting (AM, PM)

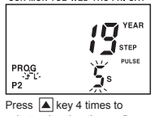


▶ key is pressed, move the flashing to hour position and select PM by ▲ or ▼ keys when ON time is afternoon.

⑥ON time setting (Hour, Minute)

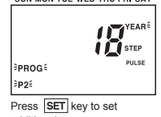
Press ▼ key twice to set 10 and press SET key after check 00min.

⑦Pulse duration setting



Press ▲ key 4 times to select pulse duration as 5s and press SET key.

⑧Complete to set

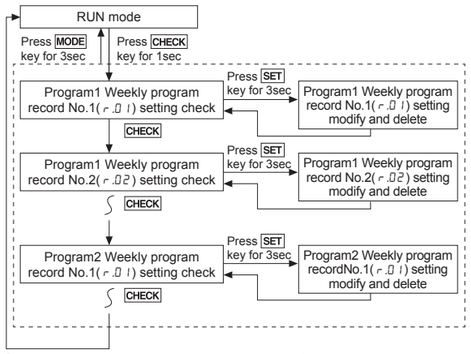


Press SET key to set additional program.

※It is able to set year of start date and end date in yearly program setting up to 2 years later from present year.

■ Program Check, Modify and Delete

◎ Weekly program check, modify and delete



◎ Yearly program check, modify and delete

※"**YEAR**" is lighted when check, modify or delete yearly program.

- If any key is untouched for 60sec, it is returned to RUN mode in weekly or yearly program check.
- In weekly or yearly program check, it controls output depending on program setting and output is OFF in modify or delete mode.
- When MODE key is pressed in weekly or yearly program record modify, delete stand by or delete mode, current work is cancelled and it is returned to check mode.
- Weekly or yearly program record modify and delete
  (1)Program record modify
  ①When press SET key over 3sec in program check, "Edt" is flashed in second display part, press SET key.
  ②It is returned to check mode when finish the modify same as the above procedure.
  (2)Program record delete
  ①When press SET key over 3sec in program check, "Edt" is flashed in second display part, press ▲ or ▼ keys until "CLr" is flashed in second display part and press SET key.
  ②Press SET key over 3sec when "CLr" is lighted in second display part, it is returned to program check.

■ Lithium Battery

Since lithium battery is embedded in the product, follow instructions below for safety.
①Do not charge, short, disassemble, subject it to shock, heat.
②Do not solder on a battery directly.
③Do not store this unit in the place with the direct sunlight, high temperature and humidity.

■ 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. In case of controlling a heater, must use a thermostatic switch at load circuit.
6. 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
■ Connectors/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

Autonics Corporation
http://www.autonics.com
■ **HEADQUARTERS:**
18, Bansong-ro 513beon-gil, Haeundae-gu, Busan, South Korea, 48002
TEL: 82-51-519-3232
■ **E-mail:** sales@autonics.com

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