BN-LINK®

PRODUCT
BND-60/SU101D

7-DAY IN-WALL DIGITAL TIMER

ENERGY
SAVING

c ETL us
LISTED
Intertek
3173845

Please keep this handbook

TECHNICAL SPECIFICATIONS

Up to 18 ON/OFF programs per day
With ON/OFF/Timing shift function
With Ni-MH recharging battery
Min. Setting time: 1 minute
Max. Setting time: 7 days
Supply voltage: 125V~,60Hz
Contact rating: 15A/1875W Resistive
10A/1250W Tungsten, 10A/1250W Ballest,1/2 HP, TV-5
Do not exceed electrical ratings
Operating temperature: 5ºF−122ºF(-15ºC−50ºC)
Storage temperature: -4ºF−140ºF (-20ºC−60ºC)
Insulation class: II
Protection class: IP20
Attention: inductive (starting load) should always be calculated
especially when controlling lighting (because of variable inductive loads).
If this load exceeds 8 Amps then it is imperative that a contactor be used.
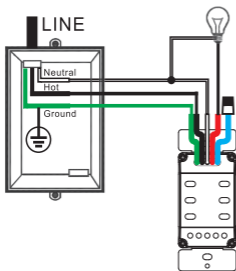
PRODUCTS QUICK GUIDE

Features

1. The manual override button allows to turn on or off the timer at any time.
2. Easy-to read big LCD screen with clock display.
3. Up to 18 ON programs and 18 OFF programs daily.
4. Random security setting allows to respectively postpone ON and OFF times by 0-30 minutes to create a "lived-in" appearance when the occupant is away.
5. Easy to activate DTS state.

⚠ WARNING

• Shut off power at fuse box or circuit breaker before installation.
• Not all switch boxes have neutral wires. Be sure to contact a qualified and licensed electrician to do this installation.

INSTALLATION
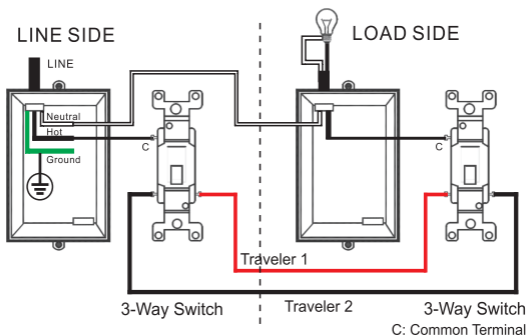
A. SINGLE-POLE INSTALLATION

Note:

1. To replace an existing switch, please make sure that the neutral wire is available in the wall box.

2. Before wiring, please cut OFF the power at beaker and switch the timer to MANUAL OFF .(Please refer to the chapter SWITCHING BETWEEN TWO OPERATION MODES).

Installation instructions (single-pole)

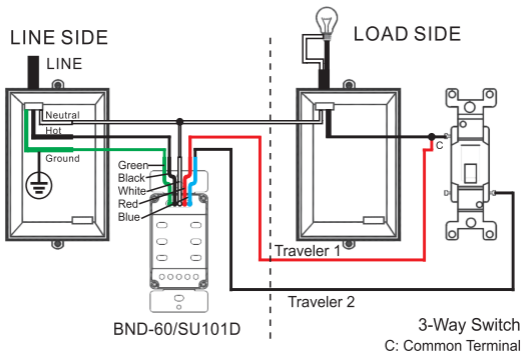   1.Turn OFF the main power at the circuit breaker or fuse box.

    2.Remove the existing switch.

    3.Connect the timer to the wall box wires as shown in Fig above.

a. Ground wire. Connect the Ground wire in wall box (or the earth screw) to GREEN wire of the timer.

b. Neutral wire: Connect the Neutral wire in wall box (from breaker) to the WHITE wire of the timer. (The Neutral wire from breaker should also be connected to the load's neutral wire.)

c. Hot wire: Connect the hot wire in the wall box (from breaker) to the BLACK wire of the timer.

d. Load wire: Connect load's hot wire (from load such as light) to the RED wire of the timer.

e. Use a wire nut to twist the BLUE wire for safety.

B. 3-WAY INSTALLATION

*Conventional 3-way installation

LINE SIDE

LINE

Neutral
Hot

Ground

C

LOAD SIDE

C

3-Way Switch

Traveler 1

Traveler 2

3-Way Switch
C: Common Terminal

*Timer-on-the-line-side installation

LINE SIDE

LINE

Neutral
Hot

Ground

Green
Black
White
Red
Blue

LOAD SIDE

C

Traveler 1

Traveler 2

3-Way Switch
C: Common Terminal

BND-60/SU101D

Note:
1. To replace an existing switch, please make sure that the neutral wire is
   available in the wall box.

2. Before wiring, please cut OFF the power at beaker and switch the timer
   to MANUAL OFF. (Please refer to the chapter SWITCHING BETWEEN
   TWO OPERATION MODES).

Step 1:Preparing the switch on the LOAD Side

Traveler 1: Connect Traveler 1 (from the timer) and load's hot wire to the COMMON terminal (usually black or copper colored) of the3-way switch.

Traveler 2: Connect Traveler 2 (from the timer) to either terminal (usually brass colored) of the 3-way switch.

Step 2:Installing the timer on the LINE Side

a.Ground wire: Connect the Ground wire in the wall box (or the earth screw) to the GREEN wire of the timer.

b.Neutral wire: Connect the Neutral wire in the wall box (from breaker) to the WHITE wire of the timer.(The Neutral wire from breaker should also be connected to the load's neutral wire)
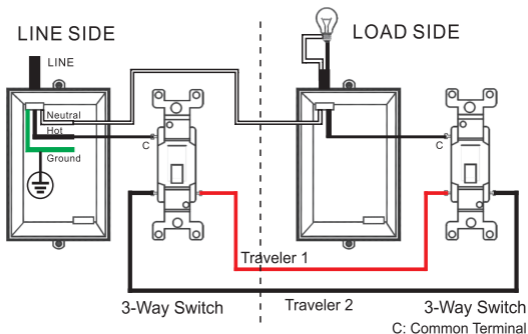
c. Hot wire: Connect the Hot wire in wall box (from breaker) to the BLACK wire of the timer.
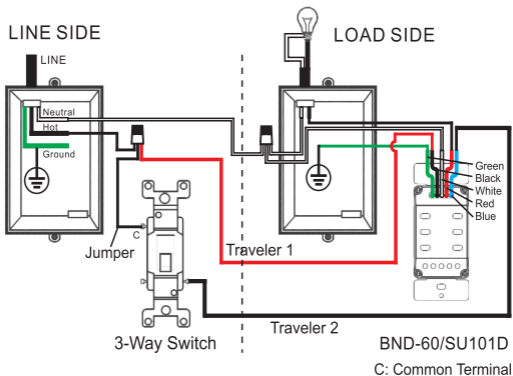
d. Travelers:

Traveler 1: Connect Traveler 1 (from load side) to the RED wire of the timer.

Traveler 2: Connect Traveler 2 (from load side) to the BLUE wire of the timer.

*Conventional 3-way installation

LINE SIDE
LINE
Neutral
Hot
Ground
C

LOAD SIDE
C

Traveler 1
Traveler 2

3-Way Switch
3-Way Switch
C: Common Terminal

*Timer-on-the-load-side installation

LINE SIDE
LINE
Neutral
Hot
Ground

LOAD SIDE

Green
Black
White
Red
Blue

Jumper
Traveler 1

3-Way Switch
Traveler 2

BND-60/SU101D
C: Common Terminal

Note:
1. To replace an existing switch, please make sure that the neutral wire is available in the wall box.

2. Before wiring, please cut OFF the power at beaker and switch the timer to MANUAL OFF. (Please refer to the chapter SWITCHING BETWEEN TWO OPERATION MODES)

Step 1:Preparing the switch on the LINE Side

HOT wire: Connect the Hot wire in the wall box (from breaker) to Traveler 1(from the timer) and the jumper, then connect jumper to COMMON terminal (usually black or copper colored) of the 3-way switch.
Traveler 2: Connect Traveler 2 (from the timer) to either terminal (usually brass colored) of the 3-way switch.
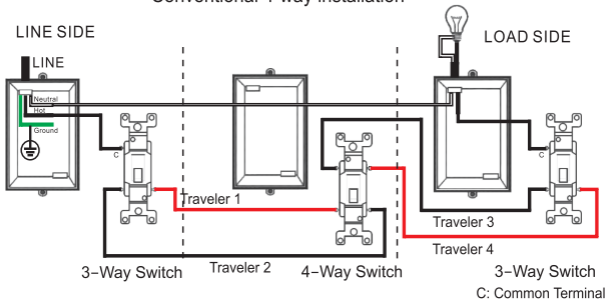
Step 2:Installing the timer on the LOAD Side

a.Ground wire: Connect the Ground wire in the wall box (or the earth screw)to the GREEN wire of the timer.
b.Neutral wire: Connect the Neutral wire in the wall box (from breaker) to the WHITE wire of the timer. (The Neutral wire from breaker should also be connected to the load's neutral wire)
c. Load Hot wire: Connect the Load's Hot wire in wall box (from Load such as Light) to the RED wire of the timer.
d.Travelers:
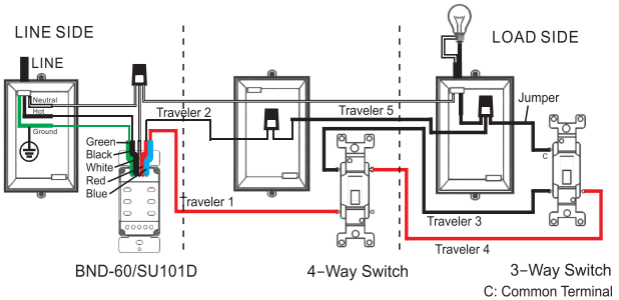Traveler 1: Connect Traveler 1 (From LINE side) to the BLACK wire of the timer.
Traveler 2: Connect Traveler 2 (From LINE side) to the BLUE wire of the timer.

C. 4-WAY INSTALLATION

*Conventional 4-way installation

LINE SIDE

LINE
Neutral
Hot
Ground

LOAD SIDE

Traveler 1

Traveler 3

Traveler 4

3-Way Switch   Traveler 2   4-Way Switch   3-Way Switch
C: Common Terminal

*Timer-on-the-line-side installation

LINE SIDE

LOAD SIDE

LINE

Neutral
Hot

Ground

Traveler 2

Traveler 5

Jumper

Green
Black
White
Red
Blue

Traveler 1

Traveler 3

Traveler 4

BND-60/SU101D

4–Way Switch

3–Way Switch

C: Common Terminal

Note:

1. To replace an existing switch, please make sure that the neutral wire is available in the wall box.
   Also make sure that 5 travelers are available between the wall boxes and mark each wire (such as "HOT WIRE, NEUTRAL WIRE, TRAVELER 1, TRAVELER 2 …) for identification first.

2. Before wiring, please cut OFF the power at beaker and switch the timer to MANUAL OFF .(Please refer to the chapter SWITCHING BETWEEN TWO OPERATION MODES).

Step 1:Preparing the switch on the LOAD side

a. Traveler 5: Use a wire nut to connect together the load's hot wire, a jumper and Traveler 5(from the 4-way switch box), Then connect the jumper to COMMON terminal (usually black or copper colored) of the 3-way switch on the LOAD side.

b. Traveler 3: Connect Traveler 3 (from the 4 way box side) to either terminal (usually brass colored) of the 3-way switch on the LOAD side.

c. Traveler 4: Connect Traveler 4 (from the 4 way box side) to the third terminal(usually brass colored) of the 3-way switch on the LOAD side.

Step 2:Installing the timer on the LINE side

a. Ground wire: Connect the Ground wire in the wall box (or the earth screw)to the GREEN wire of the timer.

b. Neutral wire: Connect the Neutral wire in the wall box (from breaker) to the WHITE wire of the timer. (The Neutral wire from breaker should also be connected to the load's neutral wire)

c. Hot wire: Connect the Hot wire in wall box (from breaker) to the BLACK wire of the timer.
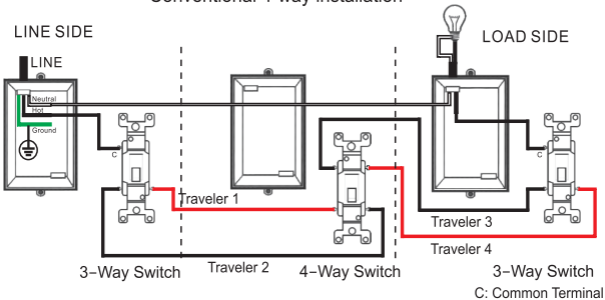
d. Travelers:

Traveler 1: Connect Traveler 1(from the 4-way switch box) to the BLUE wire of the timer.

Traveler 2: Connect Traveler 2(from the 4-way switch box) with the RED wire of the timer.
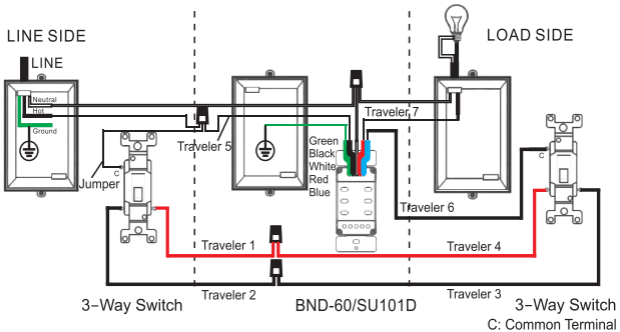
Step 3:Connecting the 4-way switch

a.Traveler 1: Connect Traveler 1(from the LINE side) to any of terminals of the 4-way switch.

b.Traveler 2: Connect Traveler 2(from the LINE side) to Traveler 5 (from the LOAD side).

c.Traveler 3: Connect Traveler 3(from the LOAD side) to one of terminals at another end of the 4-way switch.

d.Traveler 4: Connect Traveler 4(from the LOAD side) to another terminal (at same end of Traveler 3) of the 4-way switch.

ATTENTION: Traveler 1 can't be connected to the terminal which is at the same end of Traveler 3 or Traveler 4. Traveler 3 and Traveler 4 to the 3 way switch (in the LOAD side) have to be connected at the same end.

*Conventional 4-way installation

LINE SIDE

LINE

Neutral
Hot
Ground

LOAD SIDE

Traveler 1

Traveler 3

Traveler 4

3–Way Switch   Traveler 2   4–Way Switch   3–Way Switch

C: Common Terminal

*Timer-in-the-middle-box installation

LINE SIDE   LOAD SIDE

LINE

Neutral
Hot
Ground

Traveler 7

Traveler 5

Green
Black
White
Red
Blue

Traveler 6

Jumper

Traveler 1   Traveler 4

Traveler 2   Traveler 3

3–Way Switch   BND-60/SU101D   3–Way Switch
                                             C: Common Terminal

Note:

1. To replace an existing switch, please make sure that the neutral wire is available in the wall box.

   Also make sure that 7 travelers are available between the wall boxes and mark each wire (such as "HOT WIRE, NEUTRAL WIRE, TRAVELER 1, TRAVELER 2 ...) for identification first.

2. Before wiring, please cut OFF the power at beaker and switch the timer to MANUAL OFF .(Please refer to the chapter SWITCHING BETWEEN TWO OPERATION MODES).

Step 1:Wiring the LINE side

a. HOT wire: Use a wire nut to connect together the HOT wire (from breaker), a jumper and Traveler 5(from the 4-way switch box), then connect the jumper to COMMON terminal (usually black or copper colored) of the 3-way switch on the LINE side.

b. Traveler 1: Connect Traveler 1(from the 4-Way switch box/Timer) to either terminal (usually brass colored) of the 3-way switch on the LINE side.

c. Traveler 2: Connect Traveler 2(from the 4-Way switch box/Timer) to the third terminal (usually brass colored) of the 3-way switch on the LINE side
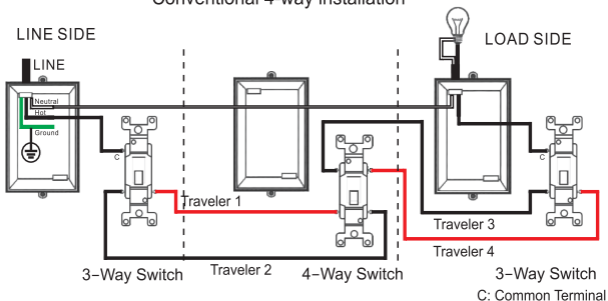.

Step 2:Installing the timer in the middle box

a. Ground wire: Connect the Ground wire in the wall box (or the earth screw) to the GREEN wire of the timer.

b. Neutral wire: Connect the Neutral wire in the wall box (from breaker) to the WHITE wire of the timer. (The Neutral wire from breaker should also be connected to the load's neutral wire)

c. Travelers:

Traveler 1: Connect Traveler1 (from the LINE side) to Traveler 4 (from the LOAD side).

Traveler 2: Connect Traveler2 (from the LINE side) to Traveler 3 (from the LOAD side).

Traveler 5: Connect Traveler 5(from the LINE side) to the BLACK wire of the timer.

Traveler 6: Connect Traveler 6(from the LOAD side) to the BLUE wire of the timer.

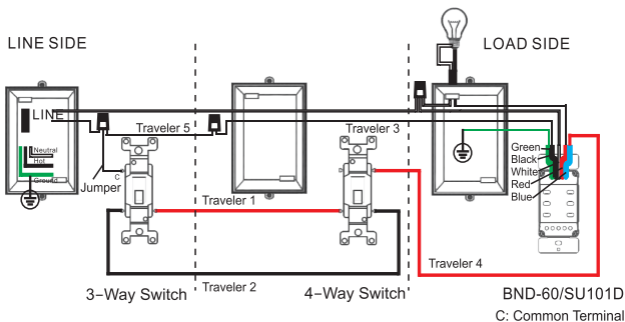Traveler 7: Connect Traveler 7(from the LOAD side) to the RED wire of the timer.

Step 3: Wiring the LOAD side

a. Traveler 6: Connect Traveler 6(from the TIMER) to COMMON terminal usually black or copper colored) of the 3-way switch on the LOAD side.

b. Traveler 3: Connect Traveler 3(from the TIMER) to either terminal (usually brass colored) of the 3-way switch on the LOAD side.

c. Traveler 4: Connect Traveler 4 (from the TIMER) to the third terminal (usually brass colored) of the 3-way switch on the LOAD side.

d. Traveler 7: Connect Traveler 7(from the TIMER) to the load's hot wire.

*Conventional 4-way installation

LINE SIDE
LOAD SIDE
LINE
Neutral
Hot
Ground

Traveler 1
Traveler 2
Traveler 3
Traveler 4

3–Way Switch
4–Way Switch
3–Way Switch
C: Common Terminal

* Timer-on-the-load-side installation

LINE SIDE
LOAD SIDE
LINE
Neutral
Hot
Ground
Jumper

Traveler 5
Traveler 3
Traveler 1
Traveler 2
Traveler 4

Green
Black
White
Red
Blue

3–Way Switch
4–Way Switch
BND-60/SU101D
C: Common Terminal

Note:

1. To replace an existing switch, please make sure that the neutral wire is available in the wall box.
   Also make sure that 5 travelers are available between the wall boxes and mark each wire (such as "HOT WIRE, NEUTRAL WIRE, TRAVELER 1, TRAVELER 2 ...) for identification first

2 Before wiring, please cut OFF the power at beaker and switch the timer to
   MANUAL OFF .(Please refer to the chapter SWITCHING BETWEEN TWO
   OPERATION MODES).

Step 1:Wiring the LINE side

a. Use a wire nut to connect together the HOT wire (from breaker), a jumper
   and Traveler 5(from the 4-way switch box), then connect the jumper to
   COMMON terminal (usually black or copper colored) of the 3-way switch
   on the LINE side.
b. Traveler 1: Connect Traveler 1(from the 4-Way switch box) to either
   terminal (usually brass colored) of the 3-way switch on the LINE side.
c. Traveler 2: Connect Traveler 2(from the 4-Way switch box) to the third
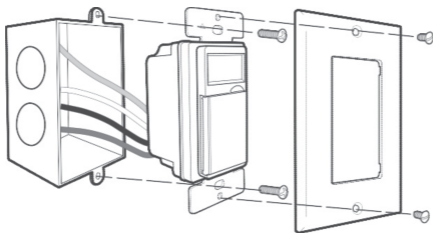   terminal (usually brass colored) of the 3-way switch on the LINE side.

Step 2:Wiring the 4-way switch

a. Traveler 1: Connect Traveler 1(from the LINE side) to any terminal of the
   4-way switch.
b. Traveler 2: Connect Traveler 2(from the LINE side) to the terminal (at
   same end of Traveler 1) of the 4-way switch.
c. Traveler 4: Connect Traveler 4(from the LOAD side) to the third terminal
   (at another end) of the 4-way switch.
d. Traveler 5: Connect Traveler 5(from the LINE side) to Traveler 3(from the
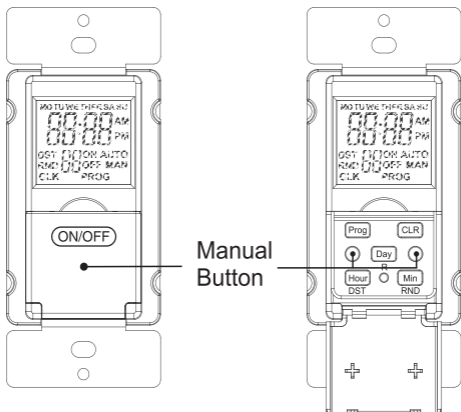   LOAD side).

Step 3:Installing the timer on the LOAD side

a. Ground wire: Connect the Ground wire in the wall box (or the earth
   screw) to the GREEN wire of the timer.
b. Neutral wire: Connect the Neutral wire in the wall box (from breaker) to
   the WHITE wire of the timer. (The Neutral wire from breaker should also
   be connected to the load's neutral wire)
c. Load Hot wire: Connect the Load's Hot wire in wall box (from Load such
   as Light) to the RED wire of the timer.
d. Travelers:
Traveler 3: Connect Traveler 3 (from the 4-way switch) to the BLACK wire
            of the timer.
Traveler 4: Connect Traveler 4 (from the 4-way switch) to the BLUE wire of
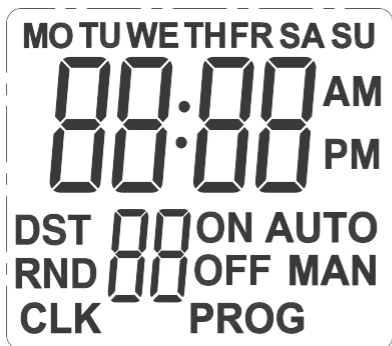   the timer.

Step 4:Place the timer into wiring box and then install faceplate
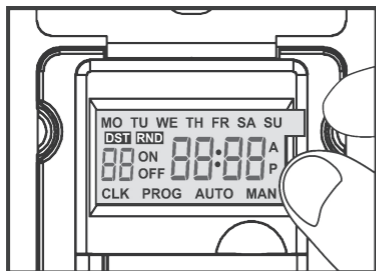

Step 5:Apply power to the fuse box

BUTTON LAYOUT AND SCREEN DISPLAY

Manual
Button

MO TU WE TH FR SA SU

DST | ON AUTO
RND | OFF MAN
CLK | PROG

AM
PM

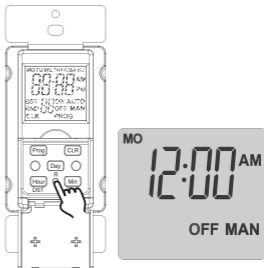Remove the sticker from the face of the screen as shown in fig below.

RESETTING THE TIMER

If the screen display is blank or faded, you can charge the battery for 10 minutes and then press the "**RESET**" button to reset the system. When the system is initialized, the screen display will be flashing. LCD display will appear like this icon.

Press any button at this time or wait 2 minutes without any operation, the clock will display.
Note: The system time and all settings will be erased after the system reset.

SETTING THE SYSTEM TIME

Example: if it is 12:08am Monday, please follow steps below to set the current time.

1. Press the "**PROG**" button.
2. Press the "**DAY**" button multiple times until the date is set to be "**MO**" shown on top of the screen.(Fig 01)
3. Press the "**HOUR**" button multiple times until the time is set to be 12:00am shown on the screen.(Fig 02)
Note: please pay attention to AM/PM.
4. Press the "**MIN**" button multiple times until the time is set to be 12:08am shown on the screen.(Fig 03)

Note: When the system time is correctly set, press "MANUAL" button to save, or press "PROG" to start to set the programs. If no button is pressed within 6 seconds, the timer will automatically save the current time and return to clock display screen.

Fig 01   Fig 02   Fig 03

SETTING THE PROGRAM

To start programming ON/OFF events, be sure to press PROG twice in clock display screen or press "PROG" once during the system clock setting stage. The screen will display "1 ON and "PROG".(Fig 04)

Fig 04

- - : - - this icon indicates that no ON/OFF program is set, otherwise it will show a specific time.

For example: If you want to set a program that the device is turned on automatically at 8:05am and turned off automatically at 9:00pm, please follow steps below.

1. Press the "DAY" button to enter the program setting, you will see all the days of the week on the top and "1 ON" on the screen of the display. (Fig 05)
   Note: Press "DAY" multiple times until you get the day combination you want.

Fig 05

Day combination options:
MO to SU,
MO to FR,
SA&SU

Individual day:
MO, TU, WE, TH, FR, SA, SU

Fig 06

2. Press the "**HOUR**" button multiple times until the time is set to be 8:00am shown on the screen.(Fig 06)

Fig 07

3. Press the "**MIN**" button multiple times until the time is set to be 8:05am shown on the screen.(Fig 07)
Note: please pay attention to AM/PM

Fig 08

4. Press the "**PROG**" button once to set program "**1 OFF**". The screen will display "1 OFF" and "**PROG**". (Fig 08)

Fig 09

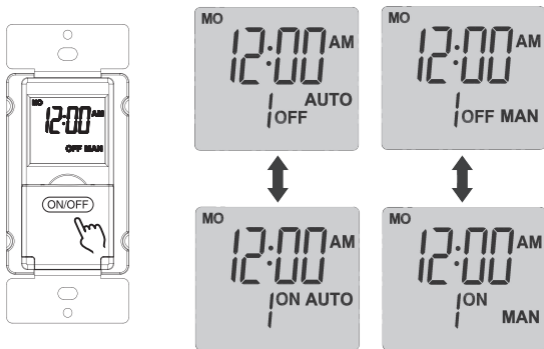5. Repeat steps 1-3 above to set program "**1 OFF**" (Fig09)

6. During the programming process, you can clear the previous settings by pressing "**CLR**" button. Pressing the "**CLR**" a second time will resume the previous settings.

7. If you want to set the second ON/OFF program, press "**PROG**" button again, you can repeat steps 1 to 5 to set program, or press the "**MANUAL**" to return the current time. You can set up to 18 different ON and OFF programs for your timer. To do so, just repeat steps 1 to 5 for program "**2 ON**", "**2 OFF**", "**3 ON**", "**3 OFF**" etc...

8. When all ON/OFF events are programmed, press "**MANUAL**" button to return to the clock display screen. If no button is pressed within 6 seconds, the timer will automatically save the settings and return to clock display screen.You can review, change or delete any event in the same way you program an event.

9. Press and hold "**MANUAL**" button till AUTO icon is shown so that the timer will run the programs.

SWITCHING BETWEEN TWO OPERATION MODES

The timer can work in two different operating modes: AUTO and MANUAL. They are activated when the icon AUTO or MAN is shown on the screen. Press and hold the "**MANUAL**" button for 4 seconds or longer to switch these two operating modes. In either operation mode, you can press the "**MANUAL**" button to alter the timer's output status.

SWITCHING ON/OFF DST

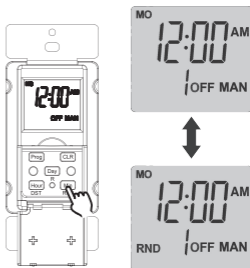Press and hold "**Hour**" button for 4 seconds or more to switch on or off DST.

DST is active when the DST icon is shown on the screen.

RANDOM SECURITY

To activate or deactivate the random security feature, press and hold the "**Min**" button for 4 seconds or more.

The "RND" icon on the screen indicates that the random function is active.
In this case, the timer will respectively postpone the ON and OFF events by 0-30 minutes. Please note that at least one ON/OFF program shall be set to activate this feature.

SCREEN BACKLIGHT

Press any button to turn on the backlight.
In clock display screen, the backlight will go out after 5 seconds without any button operation.
When you are setting the system time or programs, the backlight will go out after 90 seconds without any button operation.

TROUBLESHOOTING

- **PROBLEM**:
  Timer does not turn on or off as programmed.
- **POSSIBLE CAUSE**:
  Programs were not correctly set.
  DST or random function is active.
  The timer is working in manual mode.
  Multiple programs on the timer that conflict with each other
- **CORRECTIVE ACTION**:
  Re-program the timer following the operating instructions.
  Deactivate DST or random function.
  Switch the operation mode to AUTO.
  Review and correct the programs or re-program the timer.

- **PROBLEM**:
  No screen display or faded display.
- **POSSIBLE CAUSE**:
  Low battery.
- **CORRECTIVE ACTION**:
  Energize the timer to charge the internal battery for 10 minutes and then press RESET button to reset the timer.