

tecnoswitch 

OR_252DI



ASTRONOMICAL EASY DAY DIGITAL TIME SWITCH

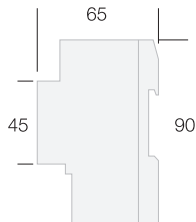
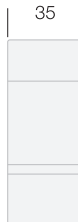


Fig.2

ASTRONOMICAL EASY DAY DIGITAL TIME SWITCH

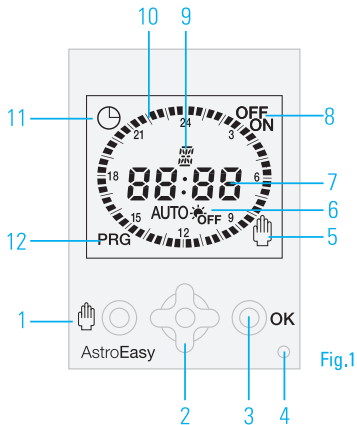
Thank you for purchasing Astronomical Easy day digital time switch. Please read carefully all the instructions below reported.

The digital time switch can control an electrical load between sunrise and sunset period all day long with an ± 2 hours offset by 1 minute interval settings.

Time zones can be automatic set with geographic coordinates but, for Italy time zone is required only the ZIP code.

It comes with blue led back illuminated display and Joystick, which makes it easy and handy to use.

Strong points are **Made in Italy** high quality production, permanent internal memory to make safe the programs stored, even in absence of network power supply and super-capacitor power supply, that can make possible do not replace the battery anymore.



CONTROL AND INDICATION

Controls fig.1

1. Manual or Automatic mode activation button.
2. 5 ways Joystick key. 4 way directions (◀ left, right ▶, ▲ up, ▼ down) needs to select **On**, **OFF**, clock and **PRG** icons and moving through trippers and days programming . If you press and keep hold a joystick direction, it will move the selection quickly. Press the joystick in the middle (5th way), enter in the main Menu.
3. **OK** button, confirm a choosing.
4. Reset button, set digital time switch to default values.

Indications fig.1

5. Manual mode indication icon.
6. Icon, "**AUTO**☀" Winter/summer time automatic update setting enabled
icon "**AUTO**☀**OFF**" Winter/summer time automatic update setting disabled.
7. Current time indication.
8. Relay output indication , if closed **ON** icon enabled, if open **OFF** icon enabled.
9. Day, month, year, hour, minute programming indications.
10. Trippers relay state indication: **ON**, will be highlighted. **OFF**, will be not highlighted.
Every tripper highlighted means 30 programming minutes.
11. Automatic mode indication (**Clock Icon**).
12. Set the programs (**PRG Icon**).

INDEX

pagina

1. Installation	5
2. Electrical connection	5
3. Default settings	6
4. Hour, date and winter/summer time settings	6
5. ASTRO, ZIP code and Coordinates settings	9
6. Programming resolution	13
7. Programs settings	14
8. Operating Mode	19
9. Off mode operating	19
10. Manual mode operating	19
11. Automatic mode operating	20
12. Locking settings	20
13. Language settings	22
14. Reset	23
15. Technical specifications	24
16. Safety warnings	25

1.0 INSTALLATION

Device Must be installed on DIN 35mm bar (EN60715) inside an electrical panel, without electrical voltage avoiding heat source [fig. 3](#)



Fig.3

2.0 ELECTRICAL CONNECTION

2.1 Follow the electrical connections using the digital clock screw terminals showed in [fig. 4](#)

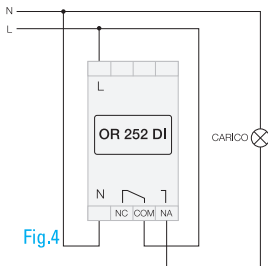


Fig.4

3.0 DEFAULT SETTINGS

Digital clocks comes without any programming with default settings:

1 Winter/summer time automatic time settings ON "AUTO-☀"

2 Italian language.

3 Automatic mode ON.

4 ASTRO modality.

5 0 minute time correction (120 min. range selectable)

6 Time zone "+1 Hour"

7 City Geographical coordinates : BARI

4.0 HOUR, DATE AND WINTER/SUMMER TIME SETTINGS

4.1 Press the Joystick in the middle at least 1 sec, display will show this icons. [Fig.5](#)
Clock icon blink.



Fig.5

4.2 Press OK button to confirm the clock selection. Year numbers begin blinking and letter Y appears. [Fig.6](#)



Fig.6

4.3 Press UP or DOWN Joystick direction and select the current Year.

4.4 Press OK button and confirm the Year.

Month numbers begin blinking and letter M appears. Fig.7

4.5 Press Up or DOWN Joystick direction and select the current Month.

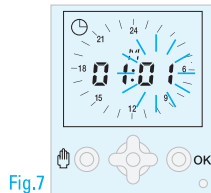


Fig.7

4.6 Press LEFT Joystick direction to set the Day.

Day Numbers begin blinking and letter D appears. Fig.8



Fig.8

4.7 Press UP or DOWN Joystick direction and select the current Day.

4.8 Press OK button and confirm the selections. At this point should be set the WINTER/SUMMER automatic update time.

Fig.9

Display will show the letter S (setting), On and icons "AUTO" and a sun icon.

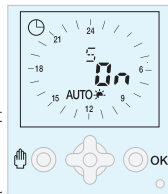


Fig.9

4.9 Winter/summer time automatic update setting is enabled by default values, if you want disable (or enable) press UP or DOWN joystick direction, display will show **OFF** and "AUTO" icons.

4.10 Press **OK** button and confirm the selections.

Hour numbers begin blinking and **H** letter appears, Fig.10

4.11 Press UP or DOWN Joystick direction and select the current Hour.

4.12 Press **RIGHT** Joystick direction, minute numbers begin blinking, Fig.11



Fig.10



Fig.11

4.13 Press UP or DOWN Joystick direction and select the current minutes.

4.14 Press **OK** button and confirm the selections. You will be out of settings.

5.0 ASTRO, ZIP CODE AND COORDINATES SETTING

Repeat settings from 4.1 to 4.14. After the current Hour confirmation by pressing **OK** button,

5.1 Will appear blinking **I** letter: We can make two choices:

a. confirm **I** letter (Italy) by pressing **OK** button

b. press **RIGHT** Joystick direction: **W** letter (world) blinking appears.

Press **OK** button and confirm selection.

Example: Choose solution **A**

5.2 After confirmation of **I** blinking letter,

display will show 4 numbers where first 2 numbers on the left are blinking. [Fig.12](#)

5.3 Press **UP** or **DOWN** Joystick direction and set the first two **ZIP CODE** numbers.

5.4 Press **RIGHT** Joystick direction, the last 2 numbers begin blinking.

5.5 Press **UP** or **DOWN** Joystick direction and set the last 2 **ZIP CODE** numbers. [Fig.13](#)



[Fig.12](#)



[Fig.13](#)

5.6 Press **OK** button and confirm the selection.

Note: The exactly position will be confirmed just with 4 **ZIP CODE** numbers.
Blinking letter **C** will appear.

If we want set the Sunrise or sunset correction look at point 5.17,
otherwise, press Manual button and confirm the selection.

Example: Choose solution B:

After confirmation of **W** blinking letter,
display will show blinking **N** letter (latitude).

5.7 Press **OK** button and confirm selection.

Default geographical coordinates setting are "BARI" (South Italian city)

5.8 Display will show **N** letter (North latitude) and number 41 (N can be in the range from 0 to 65)

5.9 Press UP or DOWN Joystick direction and set the NORTH LATITUDE.

Fig.14

5.10 Press **OK** button and confirm selection.

Note: If you choose a number under zero display will not show negative number but **S** letter,

means SOUTH LATITUDE (S can be in the range from 1 to 55)

After confirmation:

5.11 Display will show letter **E** (EAST LONGITUDE)

with number 17 (E can be in the range from 0 to 179)

5.12 Press UP or DOWN Joystick direction and set the EAST LONGITUDE.

Fig.15

10



Fig.14



Fig.15

5.13 Press **OK** button and confirm selection.

Note: If you choose a number under zero display will not show negative number but **W** letter, means WEST LONGITUDE (W can be in the range from 1 to 179).

After confirmation we can set the TIME ZONE.

5.14 Display will show blinking **Z** letter" (ZULU).

ZULU is the hour difference from ZERO GREENWICH MERIDIAN.

Example: ITALY is "+1 hour".

5.15 Press UP or DOWN Joystick direction and set the TIME ZONE.

Default value is **Z = 01** for Europe central TIME ZONE. It can be set with 1 hour step between -12 and +12. [Fig.16](#)

5.16 Press **OK** button and confirm selection.

After confirmation:

5.17 Display will show blinking **C** letter (Correction). It is possible correct until 120 minutes sunset load switching **ON** and sunrise load switching **OFF** (If the clock will be installed close to Hill shadows or very high Building).

5.18 Press **OK** button and confirm selection.

Display will show blinking **A** letter (it means SUNRISE) with 0:00 numbers. We can make two choises:

- Press **OK** button and set SUNRISE correction.
- Press **RIGHT** Joystick direction without any SUNRISE correction.



[Fig.16](#)



[Fig.16](#)

If we choose to press **OK** button, display will show 0:00 with 2 minutes numbers blinking on the right.

5.19 Press UP Joystick direction and set a delay correction (positive numbers).

If we press DOWN Joystick direction we can set anticipation correction (negative numbers). [Fig.17](#)

5.20 Press **OK** button and confirm selection.

Display will show blinking **T** letter (it means SUNSET) and 0:00 numbers.

If you want set an anticipation or delay on the SUNSET as well, repeat from 5.18 to 5.20 point. [Fig.18](#)

Press **OK** button and confirm selection.



[Fig.17](#)



[Fig.17](#)



[Fig.18](#)



[Fig.18](#)

6.0 PROGRAMMING RESOLUTION

Digital time switch can work with 1 or 30 minute PROGRAMMING RESOLUTION. It comes with 30 minutes default values. It is possible change the interval:

6.1 Press the Joystick in the middle at least 1s, display will show icons in [Fig.5](#) and Clock icon begin blinking.

6.2 Press UP Joystick direction until appears the blinking R letter.

[Fig.19](#)



[Fig.19](#)

6.3 Press **OK** button and confirm the selection. Display will show the Programming resolution numbers. [Fig.20](#)



[Fig.20](#)

6.4 Press RIGHT joystick direction and select 01 (1 minutes) or Press LEFT joystick direction and select 30 (30 minutes)

6.5 Press **OK** button and confirm the selections. You will be out of settings.

7.0 PROGRAMS SETTINGS

The digital clock can execute only 1 program between sunrise and sunset. It is not possible set a programming in the diurnal-time so the load will be always switching OFF. It is possible set switching ON and switching OFF program in the ASTRO period with 1 minute step (between sunset and sunrise). The Program interval depends from the Zone installation. When we select **PRG** menu will see the max program selectable based on the darkest year period. In the Automatic Mode we will see the highlighted trippers only between Sunset and sunrise of current day and not program out of astronomic current time. Through the days we will see previously programs set. Programs will be stored without any showing or working mode.

Programming example:

7.1 Press the Joystick in the middle at least 1s, Clock icon begin blinking.

7.2 Press RIGHT joystick direction and select blinking **PRG**.

7.3 Press **OK** button to get into the programming. Display will show the max astro programming selectable. It can be different from current program. Display shows sunset hour, Relay state **ON** and blinking trippers related to sunset and sunrise. [fig.21](#)

Note: Whether Relay icon does not blink we can watch the stored daily program by pressing right joystick direction without modify it.
Now you can get out by pressing **Manual** button without any **Astro** program modification, or you can set **OFF**-period during the current program.

Example A:

We are in BARI on 25th June , sunset at 20:27 and sunrise 05:22 and we want to set **OFF**-period during the astronomic program from 00:00 to 04:00 and leaving the rest of Astro-program **ON**.

Follow the point from 7.1 to 7.3. We will have. [fig.21](#)



Fig.21

7.4 Press UP Joystick direction to set the relay state. Relay icon **ON** is blinking.

7.5 While relay **ON** icon is blinking Press RIGHT Joystick direction until 00:00 appears.

7.6 Press two times DOWN Joystick direction and set relay state. Relay icon **OFF** is blinking.

7.7 While relay **OFF** icon is blinking Press RIGHT Joystick direction until 04:00 appears. [fig.22](#)

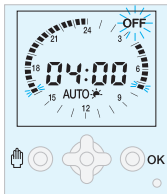


Fig.22

7.8 Press two times UP Joystick direction and set relay state. Relay icon ON is blinking.

7.9 Press OK button and confirm.

fig.23 shows Automatic mode, Astro program set, relay state and current hour.

Example B:

We want set a constant switching **ON** time during the entire year, from 23:00 and switch off at sunrise period. Repeat point from **7.1** to **7.3**. Display will show **fig.21**

7.10 Press DOWN joystick direction , display will show blinking OFF letters.

7.11 Press RIGHT joystick direction and select 23:00.

7.12 Press Two times Up joystick direction and set relay state. Relay icon ON is blinking. **fig.24**

7.13 Press OK button and confirm selection.

In **fig.25** Automatic Mode: **Timer/Astro** program, Relay state and current hour.



Fig.23



Fig.24

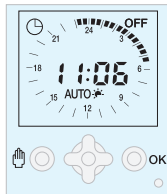


Fig.25

Example C:

We are in BARI on 23th December and want to set:

P1 Switching **ON** at Sunset and switching **OFF** at 18:30.

P2 Program a switching **OFF** pause of 1 hour and 30 minutes.

P3 Switching **ON** from 20:00 until sunrise.

Repeat Point from **7.1** to **7.3**. Display will show [fig.21](#)

7.14 Press **UP** Joystick direction to set the relay state.

Relay icon **ON** is blinking.

7.15 Press **RIGHT** Joystick direction and set 18.30 hour.

7.16 Press **two** times **DOWN** Joystick direction and set the relay state.

Relay icon **OFF** is blinking.

7.17 Press **RIGHT** Joystick direction and set 20.00 hour.

7.18 Press **UP** Joystick direction to set the relay state.

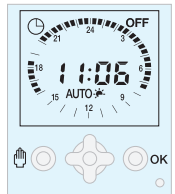
Relay icon **ON** is blinking. [fig.26](#)

7.19 Press **OK** and confirm selection.

In [fig.27](#) Automatic Mode: **Timer/Astro** program, Relay state and current hour.



[Fig.26](#)



[Fig.27](#)

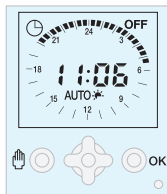
In Fig. 28a and Fig.28b two example on 18th June and 18th October programming period where display shows the different year programming.

In June all the trippers between 16:23 and 20:26 are **OFF** cause the sunset is at 20:26 so the switching **ON** will be at 20:26. At 5:20 will be the switching **OFF**. [fig.28a](#)

In [fig.28b](#) display shows same programming on 18th October. Sunset at 18:06 and sunrise at 07:08. There is a tripper **ON** at 18:30, it means the switching **ON** at 18:06 and switching **OFF** at 18:30 (for the **P1** Programming before, we set the switching **OFF** at 18:30).

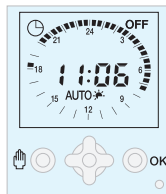
At 18:30 will be an **OFF** pause until 20:00. At 20:00 until sunrise there will be the **ON** program. In automatic mode, manual mode and **OFF** mode, by pressing **OK** button, display shows sunset hour with **T** letter; with another **OK** button pressing display shows sunset hour and **A** letter.

With another **OK** button pressing or just waiting 5 seconds you will be out of these informations.



18 june
RISE 05:20
SET 20:26

[Fig.28a](#)



18 october
RISE 07:08
SET 18:06

[Fig.28b](#)

8.0 OPERATING MODE

Digital time switch can work in Automatic, Manual or OFF operating mode (OFF).

9.0 OFF MODE OPERATING

OFF mode can be activated by pressing and keep holding at least 4 sec, OK button. Display will be showed Relay state **OFF** and the current Hour in the center. If you want activate digital time switch again, press and keep hold at least 4 sec, OK button. You will come back at previous step.

10.0 MANUAL MODE OPERATING

10.1 In Manual mode is possible set ON or OFF program for an indeterminate time by passing the main programming.

If you want set it, press the Hand button. Display will show Hand Icon, current time, icon "AUTO-☀", current day and all activated trippers if Relay state is ON, Fig.29a

10.2 It is possible change the relay state by pressing DOWN Joystick direction. Fig. 29b

10.3 If you want come back to Automatic program press again Hand button.

Fig.29a



Fig.29b



11.0 AUTOMATIC MODE OPERATING

11.1 Digital time switch with activated Automatic mode, control the Switching ON and switching OFF with stored programs between sunset and sunrise period daily updating. If you want activate it, press and keep hold the Hand button until display will show **Clock** icon, [Fig.30](#)

The display will show any possible tripper already programmed, relay state, current Hour and winter/summer hour.

Note: During the Automatic mode is possible view all the programs stored, relay state and current hour by pressing RIGHT joystick direction. After 4 sec without any button pressure you will come back to previous state.



[Fig.30](#)

12.0 LOCKING SETTING

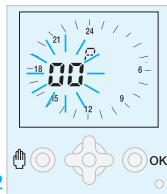
Digital time switch allows a 4 digit locking code to avoid unauthorized programs modification when works in public environment. If you want activate it:

12.1 Push and keep hold at least 4 sec. Manual button until backlight turn on and display shows **PASS**, as showed in [Fig. 31](#)



[Fig.31](#)

12.2 Press OK button to confirm the selection. Display will show 2 blinking numbers on the left, [Fig.32](#)



[Fig.32](#)

12.3 Press UP or DOWN Joystick direction and set the first 2 locking code numbers.

12.4 Press RIGHT Joystick direction and another 2 number will blink on the right of display, [Fig.33](#)



Fig.33

12.5 Press UP or DOWN Joystick direction and set the last 2 locking code numbers.

12.6 Press OK button and confirm the selections.

Display will show for 5 sec C symbol (Closed) and stored locking code, [Fig.34](#)

After that, you will come back to previous step.



Fig.34

At this point display shows Current hour, current day and related program stored. Every Button or joystick pressing episode, display will show **PASS** indication. After 5 seconds without any input commands you will come back to previous state.

If you want unlock the device:

12.7 After **PASS** appears on display press manual button, then display will showed 2 blinking numbers **00** on the. [Fig.32](#)

12.8 Press UP or DOWN Joystick direction and insert the first 2 locking code numbers.

12.9 Press RIGHT Joystick direction, display will show other 2 blinking numbers on the right, [Fig.33](#)

12.10 Press UP or DOWN Joystick direction and insert the last 2 locking code numbers.

12.11 Press OK button and confirm the device unlock. at this point display shows **O** letter (open). Locking code has been deleted.

Note: After 3 locking code insertion failure you will be automatic get outside of settings.

If you lost the password will be required to make a Total Reset and delete all the saved settings. Look at Reset chapter for further details.

13.0 LANGUAGE SETTING

Language default digital clock value is italian. To set English language:

13.1 Press joystick in the middle at least 1 sec until the clock icon blink.

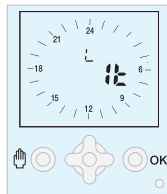
13.2 Press the joystick upwards until the L symbol blink, [Fig.35](#)



[Fig.35](#)

13.3 Press OK button to confirm.

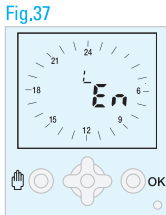
"It" icon will appear, means Italy. [Fig.36](#)



[Fig.36](#)

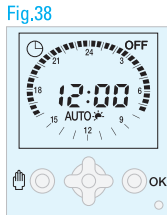
13.4 Move joystick to the left, "En" icon will appear, means English.

[Fig.37](#)



[Fig.37](#)

13.5 Press OK button and confirm English. [Fig.38](#)



[Fig.38](#)

14.0 RESET

Malfunctions, change language, technical operations or other technical reasons can required to reset the device.

This digital time switch has 3 different kind of Reset:

1. Soft Reset: In this reset, the main processor can be updated and device can be unlocked in case of stop or block of normal working. To perform a soft reset push the button in the hole placed in frontal part of device with a **pencil or an electrically isolated object**, (fig.39). After a while, device will be soft reset.

Soft reset will change this values on main settings:

"**AUTO**☀" will be **ON**; R programming resolution will be 30 minutes if user choosed 1 minute.

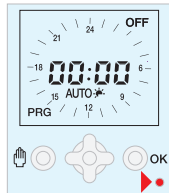


Fig.39

2. Total Reset: delete all the settings and programs stored and install the default values. **See Chapter 3.** Press and keep hold **Reset** and **Manual** Button then release reset button and continue to keep holding **Manual** button. If you keep hold for 5 sec. **Manual** button display will show "r St". It means device has been reset.

3. Absence network Power supply. There are two possible situation:

a) Within 20 days without network power supply device will keep in memory all the settings and programs stored.

b) Over 20 days without network power supply device will keep in memory: Language, Automatic mode or Manual mode with programs stored

15.0 TECHNICAL SPECIFICATIONS

- Astronomical Digital time switch with configurable programs.
- LCD back-illuminated Blue graphic display.
- Super-capacitor backup power supply. No substitution.
- 20 days autonomy without power supply. In case of network Voltage absence, display will turning off but will keep in memory for 20 days all the programs and settings.
- Astronomical Offset +/- 2 h.
- Operating temperature : -20 to +50° C.
- Protection degree: IP20
- Minimum hour resolution: 1min
- Programming resolution: 1 or 30 minutes
- A Class software
- SPDT Relay with change over monostable contact NA / COM and NC, 16A 250 Vac
- Electrical insulator level II
- Zero-crossing features.
- 2 independent buttons and 5th generation joystick



16.0 SAFETY WARNINGS

During product installation and operation it is necessary to observe the following instructions:

- Do not power the product if any part of it is damaged.
- Before accessing the connection terminals, verify that the electrical cable are not active.
- The device must be installed and activated in compliance with current electric system standards.
- The device must be installed by a qualified person, in strict compliance with the connections diagrams.
- The electrical system buildings in which the instruments is to be installed should have an over-current switch and a protection device.
- Do not overload the device.
- After installation, inaccessibility to the connection terminals without appropriate tools must be guaranteed
- In case of malfunction do not perform repairs and contact the technical support.

Tecno Switch SRL reserves the right to make changes at any time without notice.

Tecno Switch SRL declines all responsibility for any damages to things or person that use in improper mode their.

tecnoswitch 



[illegible]



tecnoswitch
keep control

TECNO SWITCH srl
Via P. Leone Dehon, 99/105 · 76123 Andria (BT) ITALY
tel (+39) 0883 555323 · fax (+39) 0883 555323
tecnoswitch.com