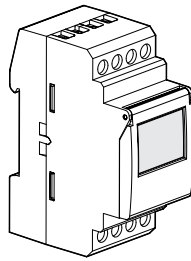


# SANGAMO


**SUNTRACKER**
**Electronic Solar clock 1 channel over 7 days  
+ programming key**

ref.: 04566

**Electronic Solar clock 2 channels over 7 days  
+ programming key**

ref.: 04567

Suntracker Solar clocks are electronic weekly programming clocks designed to control various loads automatically according to SUNRISE and SUNSET times. Examples of applications: street lighting, neon signs, store windows, monuments, frontages...

- in astronomical mode, it is pre-programmed according to times of SUNRISE and SUNSET, but this mode allows the user adding On and Off program steps to customize the program.  
- in the expert mode the programming orders available are: On/Off/On ☆ (= astronomical On) and Off ☆ (= astronomical Off).

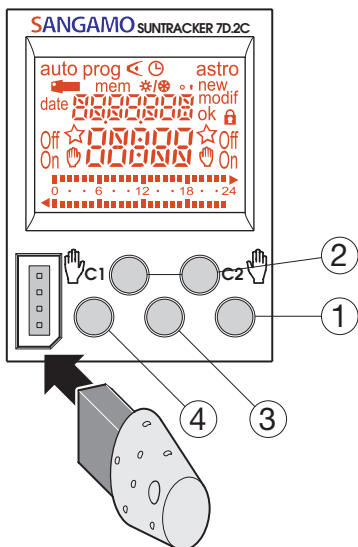
Programming of longitude and latitude parameters (using the provided chart) based on geographical location of your project allows automatic commutation of controlled circuit according to sunrise and sunset times.

A key is provided to save user programming.

## Major characteristics

- Product delivered with current time and date set.
- Automatic change of winter/summer time. ✨/🌞.
- Programming key - for permanent overrides,  
- for program copy or save.
- Programming for day or group of days.
- 56 program steps On, Off, On ☆ or Off ☆
- Permanent overrides On or Off (🔒 permanent light on).
- Astronomic mode 1 or 2 channel.
- Temporary overrides On or Off, On 15, On 30, On 60, (🔒 flashing).
- Display bar graph of daily profile for both channels.
- Keyboard locking possible .
- Programmable with power off.

ref.: 04567



### Keys:

- ① **menu**: selection of operating mode  
**auto**: mode of running according to the program selected.  
**prog**: new for programming mode.  
 : **modif** to modify an existing program.

- ⏪: checking of the program.  
 🕒: modification of time, date and selection of the winter/summer time ✨/🌞 change mode.  
**astro**: astronomical mode.

☆ : indicates that the channel is in astronomical mode.

- ② **+** and **-**: navigation or setting of values.  
**C1** : in **auto** mode, selection of overrides,  
**C2** or waivers.  
 ③ **enter**: to validate flashing information on display.  
 ④ **←**: to return to the previous step.

You may return into **auto** mode at any moment using **menu**.

If no action is taken for 1 min, the switch returns into **auto** mode.

### Reset:

- **Program reset:**  
the program may be completely cleared by simultaneously pressing the 3 following keys: **menu, enter, ←**. The time and the date will be kept.
- **Total:**  
pressing simultaneously the **-, +, enter, menu** keys lets you clear the entire contents of the product. Following a total reset it is necessary to reset the time and day of the device.

## Setting time and day 🕒

### Winter/summer time change ✨/🌞

Select the mode 🕒 with **menu** then **enter**. Modify the day, month, year, the hour and the minutes using **+** or **-** and **enter**.

The time switch next suggests the winter/summer ✨/🌞 time changes.

Select the type of change desired using **+** or **-**. Validate with **enter**.

The type of change depends on the geographical zone.

Types available: (by default)

| Type   | Start of time change summer | Start of time change winter | Zone of application         |
|--------|-----------------------------|-----------------------------|-----------------------------|
| Euro * | Last sunday of March        | Last sunday of October      | European Union              |
| USA    | First sunday of April       | Last sunday of October      | North America               |
| GB     | Last sunday of March        | Fourth sunday of October    | Only for the United Kingdom |
| AUS    | Last sunday of October      | Last sunday of March        | Australia                   |
| USER   | Date freely programmed      | Date freely programmed      |                             |
| No     | No change                   | No change                   |                             |

The change always takes place between 2:00 and 3:00 a.m. When the USER type is selected:

1. Enter the day then the month of the date of change of the summer time (from -120min to +120min) with **+** or **-** and **enter**.
2. Enter the day then the month of the date of change of the winter time (from -120min to +120min) with **+** or **-** and **enter**.

The time switch will check which days of which weeks correspond to these dates and will apply changes to the same periods for the following years independently of the date.

## Configuration of astronomical mode

It is imperative to do the following settings when installing the clock according to the geographical location of your project.

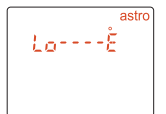
You may use the chart provided with the product to help you define precisely your geographical location.

These data will allow the clock to calculate automatically sunrise/sunset times.

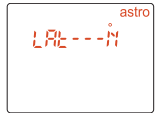
1. In order to set longitude and latitude, select the **astro** mode using the **menu** then validate by **enter**.



2. Set longitude **L0** using keys **+** and **-**. The setting values range from 180°E (East) to 180°W (West). Validate by **enter**.



3. Set latitude **LA** using keys **+** and **-**. The setting values range from 90°N (North) to 90°S (South). Validate by **enter**.

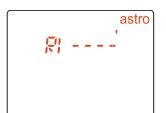


4. Set the time zone **UDT** using keys **+** and **-**. -12.00 to +12.00 compared to the Greenwich meridian line. UDT (= universal day time). Validate by **enter**.

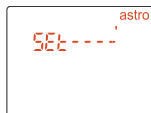


The 2 following steps will allow you to perform a permanent time correction in order to more precisely set sunrise/sunset times of your project location. The range of possible correction is -120 to +120 minutes.

5. Set the time correction of sunrise times **R1** using **+** and **-**. Validate by **enter**.

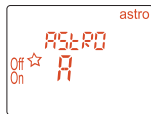


6. Set the time correction **SET** of sunset time using **+** and **-** then validate by **enter**.



7. Activate the **astro** mode by selecting **On** using **+** and **-** then **enter** to have the product switch on the control circuit automatically according to the astronomical parameters.

8. For 04567 clock, select channel **C1** or **C2** with **+** or **-** and validate with **enter**. The symbol  $\star$  on main display will indicate if the channel is in astro mode.



## Programming

Programming may be done for each day or for a group of days. In this case instructions are common to several days.

Days: 1 = monday, 2 = tuesday, 3 = wednesday...7 = sunday.



1. Select the **prog** mode using **menu** then **enter**.
2. Select the channel (**C1** or **C2**) using **+** or **-** then **enter** (only applicable to 2-channel clock 04567). The number of remaining program steps appears for a short time.
3. **new** flashes, press **enter** to validate this new program steps.
4. Choose the day(s) using **+** or **-**. Validate with **enter**.
5. **ok** flashes. Use **enter** to validate the group of days. **-** or **←** makes it possible to reset the group of days if necessary.
6. Using **+** or **-**, select instruction state:
  - **On** or **Off** if you are in automatic astronomical mode.
  - **On, Off, On**  $\star$  or **Off**  $\star$  if you are in expert mode.
7. Enter the time of switch-on using **+** or **-**. Validate with **enter**.
8. Enter minutes with **+** or **-**. Validate with **enter**. Program the other instructions of the group of days by repeating operations 3 to 8. The day or the group of days may be modified at the during step 3 by pressing the **+**, **-** or **←**.

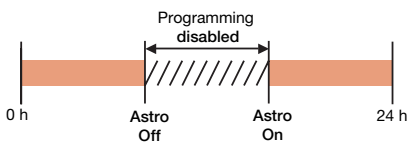
At the end of programming return to **auto** mode using the **menu** button.

To set the program of the other channel, return to **prog** and proceed according to steps 2 to 8.

In this mode it is also possible to add an instruction to the program set up. Proceed as described above.

## Limit of operation in Astro mode

In this mode the clock is pre-programmed according to sunrise and sunset hours. On and Off interrupt steps can be added to customize the program. The programming is disabled between Astro Off and Astro On.



## Display

To check the daily profile set up without the risk of modification or deletion. Select the mode  $\leftarrow$  using **menu** and **enter**.

Select the channel (**C1** and **C2**) using **+** or **-** and **enter**. The first step of Monday is displayed as well as the daily profile.

Two options available for display:

1. Pressing repeatedly **+** or **-**: lets you shift days. In this case only the first daily step is displayed as well as the daily profile.
2. Pressing **enter**: all steps of each day appear one after the other.

## Modification or clearing of a program step: prog modif

Select the **prog** mode with **menu** and press **enter**. Select the channel (**C1** or **C2**) using **+** or **-** and **enter**. Select the **modif** mode with **+** or **-**. Validate with **enter**.

The number of remaining program steps appears for a short time. The first step of the first day or group of days appears. Repeatedly pressing the **enter** key displays all programmed steps one at a time. Any flashing field (state, hour, minute) may be modified using **+** or **-**, then validated with **enter**.

When the cursor is positioned on **ok** located behind the group of days, you may display successively the days or the groups of days and switch directly to the one that has to be modified using **+** or **-**.

To remove a program step: select the state of the channel (**On**, **Off On**  $\star$  or **Off**  $\star$ ), press simultaneously **+** and **-**. **Clear** appears on the screen. Validate with **enter**.

## Key

As soon as the key is inserted into the switch,  $\blacktriangleleft$  appear on the screen.

Two types of operation:

**A. Permanent override:** insert the key into the switch. After 10 seconds the program contained in the key will be executed without clearing the program contained in the time switch. As soon as the key is removed the program of the time switch is again valid.

**B. Copy (load)/Save (save):** the key makes it possible to save a program contained in the time switch. It is also possible to copy the contents of the key into the clock (program + astro settings).

1. Insert the key and wait for 2 sec.
2. Using **menu**, select the mode:
  - save** (to save a program contained in the time switch),
  - load** (to load the program of the key into the time switch),
  - $\leftarrow$  (to check the program contained in the key).
3. Validate the selection with **enter**.
4. For **save** and **load** reconfirm with **enter**.

The following error messages may appear on the screen: **no prog**: the key is empty, it does not contain any program.

**Error**: incompatible key type.

In these two cases:

- Only the **save** mode is possible.
- The error message remains on display as long as the key is present, but in this case the program of the time switch is executed.

## Override

**04566:** by pressing repeatedly on **-** for channel C1

**04567:** by pressing repeatedly on **-** for channel C1 and on **+** for channel C2.

If the state of the output is **On**:

- 1st press: temporary override. **Off** and  $\text{🔊}$  flash. The next program step will let you return to the automatic mode.
- 2nd press: permanent override. **On** and  $\text{🔊}$  are permanent. This override must be cancelled manually.
- 3rd press: temporary override 15 minutes. **On**,  $\text{🔊}$  and **15** are permanent. The return to automatic mode will take place after 15 min.
- 4th press: temporary override 30 minutes. **On**,  $\text{🔊}$  and **30** and **30** are permanent. The return to automatic mode will take place after 30 min.
- 5th press: temporary override 60 minutes. **On**,  $\text{🔊}$  and **60** are permanent. The return to automatic mode will take place after 60 min.
- 6th press: permanent override. **Off** and  $\text{🔊}$  are permanent. This override must be cancelled manually.
- 7th press: return to the automatic mode.

## Locking

To prevent all undesirable actions, the keyboard of the time switch may be locked using a key 23193.

Unlocking is done in the same way.

## Technical specifications

### Electrical characteristics

- Supply voltage: 230 V AC  $\pm$  15%
- Frequency: 50/60 Hz
- Power consumption: max. 6 VA to 50 Hz
- Output 04566: 1 changeover volt free contact
- Output 04567: 2 changeover volt free contacts
- Maximum load:
  - AC1  $\mu$ 16A 250V~
  - Cos  $\varphi$  = 0,6  $\mu$ 10A 250V~
  - Incandescent lighting 2300 W
  - Halogen lighting 230 V 2300 W
  - Compensated fluorescent tubes // (max. 45  $\mu$ F) 400 W
  - Non compensated fluorescent tubes, Compensated in series 1000 W
  - Compact fluorescent lamps 500 W
- Minimum current:
  - AC1 100 mA 250V~
- Galvaniinsulation between power supply and output < 4 kV

### Functional characteristics

- Programming capacity: 56 steps
- Minimum time between 2 steps: 1 minute
- Running accuracy:  $\pm$  1,5 sec / 24h
- Astronomical time accuracy:  $\pm$  10 minutes
- Operating reserve: lithium battery provides 5 years of backup.
- The product is set into standby state (display switched-off) after 1 minute with power off. It switches back into **auto** mode as soon as power is back or when pressing any key.
- Protection degree: IP 20

### Environnement

- Operating temperature: -10  $^{\circ}$ C to +55  $^{\circ}$ C
- Storage temperature: -20  $^{\circ}$ C to +60  $^{\circ}$ C

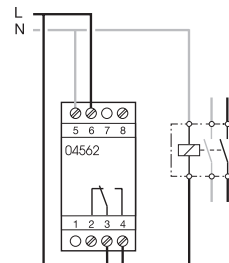
### Connection

- Flexible capacity: 1 to 6 mm<sup>2</sup>
- Rigid capacity: 1,5 to 10 mm<sup>2</sup>

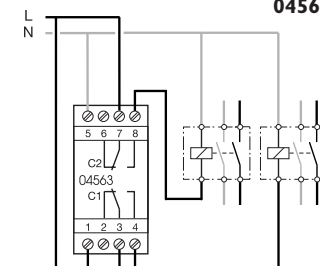
The products need to be protected according to the standards NF15 100 and/or IE60 364-1.

## Connection diagrams:

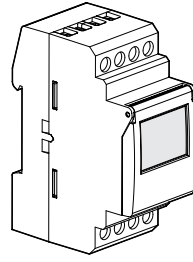
04566: 1 channel



04567: 2 channels



# SANGAMO


**SUNTRACKER**

## Time zone map

ref. : 04566/04567

### IRELAND

| Latitude  | Longitude | Town        |
|-----------|-----------|-------------|
| 53° North | 8° West   | Birr        |
| 53° North | 9° West   | Clane       |
| 52° North | 8° West   | Cork        |
| 53° North | 6° West   | Dublin      |
| 55° North | 8° West   | Donegal     |
| 53° North | 9° West   | Galway      |
| 53° North | 7° West   | Kilkenny    |
| 52° North | 10° West  | Kerry       |
| 53° North | 9° West   | Limerick    |
| 55° North | 7° West   | Londonderry |
| 54° North | 8° West   | Sligo       |
| 53° North | 6° West   | Wicklow     |
| 53° North | 6° West   | Wexford     |
| 52° North | 8° West   | Waterford   |

### UNITED KINGDOM

| Post. | Latitude  | Longitude | Town        |
|-------|-----------|-----------|-------------|
| AB    | 57° North | 2° West   | Aberdeen    |
| AL    | 52° North | 0°        | St.Albans   |
| B     | 52° North | 2° West   | Birmingham  |
| BA    | 51° North | 2° West   | Bath        |
| BB    | 54° North | 2° West   | Blackburn   |
| BD    | 54° North | 2° West   | Bradford    |
| BH    | 51° North | 2° West   | Bournemouth |
| BL    | 54° North | 2° West   | Bolton      |
| BN    | 51° North | 0°        | Brighton    |
| BR    | 51° North | 1° East   | Bromley     |
| BS    | 51° North | 2° West   | Bristol     |
| BT    | 55° North | 6° West   | Belfast     |
| CA    | 55° North | 3° West   | Carlisle    |
| CB    | 52° North | 0°        | Cambridge   |
| CF    | 51° North | 3° West   | Cardiff     |
| CH    | 53° North | 3° West   | Chester     |
| CM    | 52° North | 0°        | Chelmsford  |
| CO    | 52° North | 1° West   | Colchester  |
| CR    | 51° North | 1° West   | Canterbury  |
| CT    | 51° North | 0°        | Croydon     |
| CV    | 52° North | 2° West   | Coventry    |
| CW    | 53° North | 2° West   | Crewe       |
| DA    | 52° North | 0°        | Dartford    |
| DD    | 56° North | 3° West   | Dundee      |
| DE    | 53° North | 1° West   | Derby       |
| DG    | 55° North | 4° West   | Dumfries    |
| DH    | 55° North | 2° West   | Durham      |
| DL    | 55° North | 2° West   | Darlington  |
| DN    | 54° North | 1° West   | Doncaster   |
| DT    | 52° North | 1° West   | Dorchester  |
| DY    | 53° North | 2° West   | Dudley      |
| EH    | 56° North | 3° West   | Edinburgh   |
| EN    | 52° North | 0°        | Enfield     |
| EX    | 51° North | 4° West   | Exeter      |

|    |           |         |                |
|----|-----------|---------|----------------|
| FK | 56° North | 4° West | Falkirk        |
| FY | 54° North | 3° West | Blackpool      |
| G  | 56° North | 4° West | Glasgow        |
| GL | 52° North | 2° West | Gloucester     |
| GU | 51° North | 1° West | Guildford      |
| HA | 52° North | 0°      | Harrow         |
| HD | 54° North | 2° West | Huddersfield   |
| HG | 54° North | 2° West | Harrogate      |
| HP | 52° North | 0       | Hemel Hempst.  |
| HR | 52° North | 3° West | Hereford       |
| HU | 54° North | 0°      | Hull           |
| HX | 54° North | 2° West | Halifax        |
| IG | 52° North | 0°      | Barking        |
| IP | 52° North | 1° East | Ipswich        |
| IV | 57° North | 4° West | Inverness      |
| KA | 56° North | 5° West | Kilmarnock     |
| KT | 52° North | 0°      | Kingston       |
| KW | 59° North | 3° West | Kirkwall       |
| KY | 56° North | 3° West | Kirkcaldy      |
| L  | 53° North | 3° West | Liverpool      |
| LA | 54° North | 3° West | Lancaster      |
| LD | 52° North | 2° West | Llandrindiad   |
| LE | 53° North | 1° West | Leicester      |
| LL | 54° North | 2° West | Gwent          |
| LN | 53° North | 1° West | Lincoln        |
| LS | 54° North | 2° West | Leeds          |
| LU | 52° North | 0°      | Luton          |
| M  | 53° North | 2° West | Manchester     |
| MK | 52° North | 1° East | Milton Keynes  |
| ML | 56° North | 4° West | Motherwell     |
| NE | 55° North | 2° West | Newcastle      |
| NG | 53° North | 1° West | Nottingham     |
| NN | 52° North | 1° West | Northampton    |
| NP | 52° North | 5° West | Newport        |
| NR | 53° North | 1° East | Norwich        |
| OL | 54° North | 2° West | Oldham         |
| OX | 52° North | 1° West | Oxford         |
| PA | 56° North | 4° West | Paisley        |
| PE | 53° North | 0°      | Peterb'gh      |
| PH | 56° North | 3° West | Perth          |
| PL | 50° North | 4° West | Plymouth       |
| PO | 51° North | 1° West | Portsmouth     |
| PR | 54° North | 3° West | Preston        |
| RG | 51° North | 1° West | Reading        |
| RH | 51° North | 0°      | Redhill        |
| RM | 51° North | 0°      | Romford        |
| S  | 53° North | 1° West | Sheffield      |
| SA | 52° North | 4° West | Swansea        |
| SG | 52° North | 0°      | Stenage        |
| SK | 53° North | 2° West | Stockport      |
| SL | 52° North | 1° West | Slough         |
| SM | 52° North | 0°      | Sutton         |
| SN | 52° North | 2° West | Swindon        |
| SO | 51° North | 1° West | Southampton    |
| SP | 51° North | 1° West | Salisbury      |
| SR | 55° North | 1° West | Sunderland     |
| SS | 52° North | 1° West | Southend       |
| ST | 53° North | 2° West | Stoke on Trent |

|    |           |         |                |
|----|-----------|---------|----------------|
| SY | 53° North | 3° West | Shrewsbury     |
| TA | 51° North | 3° West | Taunton        |
| TD | 55° North | 3° West | Galasheils     |
| TF | 53° North | 2° West | Telford        |
| TQ | 50° North | 4° West | Torquay        |
| TR | 50° North | 4° West | Trord-Cornwall |
| TS | 54° North | 0°      | Cleveland      |
| TW | 52° North | 0°      | Twickenham     |
| UB | 52° North | 0°      | Southall       |
| WA | 53° North | 3° West | Warrington     |
| WD | 52° North | 0°      | Watford        |
| WF | 54° North | 2° West | Wakefield      |
| WN | 54° North | 3° West | Wigan          |
| WR | 52° North | 1° West | Worcester      |
| WS | 53° North | 1° West | Walsall        |
| WV | 53° North | 2° West | Wolverhampton  |
| YO | 54° North | 0°      | York           |
| ZE | 60° North | 2° East | Lerwick        |

### Customer Care Policy

As part of Sangamo's continuous improvement programme, the company operates a Customer Care policy.

This means we welcome your comments and complaints, as it can only help us to improve our services to you our customer.

Sangamo has a policy of continuous improvement therefore the specifications printed in this leaflet may be subject to change without notice.