

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 availables 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.

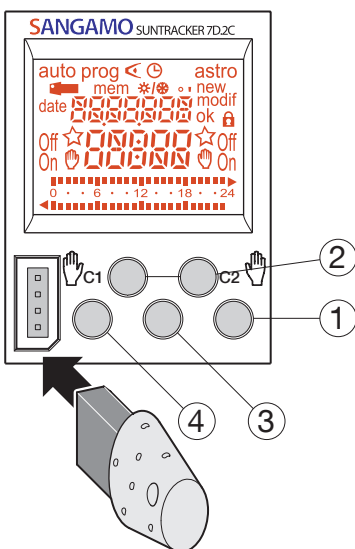
A key is provided to save user programming.

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 ☆ .
- Astronomic mode 1 or 2 channels.
- Permanent overrides On or Off (☹ permanent light on).
- 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.
 - ② **☹**: 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.
 - ③ **+** and **-**: navigation or setting of values.
C1 and **C2**: in **auto** mode, selection of overrides or waivers.
 - ④ **enter**: to validate flashing information on display.
←: to return to the previous step.
- You may return into **auto** mode at any moment using **menu**.
If no action is taken for 1 minute, the switch returns into **auto** mode.

Reset

- **Resetting the program**: the program can be totally deleted by pressing the following three keys simultaneously: **menu**, **enter** and **←**, the time and date are retained.
- **Reboot**: pressing the **+**, **-**, **menu** and **enter** keys simultaneously reboots the product.

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:

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	First Sunday of October	North America
USER	Date freely programmed	Date freely programmed	
No	No change	No change	

* type according defect

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

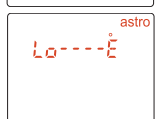
It is imperative to do the following settings when installing the clock according to the geographical location of your project.

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.

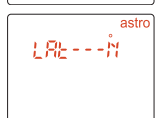
1. In order to set longitude and latitude, select the **astro** mode using **menu** then validate with **enter**.



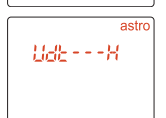
2. Set longitude **Lo** using keys **+** or **-**. The setting values range from 180°E (East) to 180°W (West). Validate with **enter**.



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



4. Set the time zone **Udt** using keys **+** or **-**: -12.00 to +12.00 compared to the Greenwich meridian line. (UDT = universal day time). Validate with **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 **+** or **-** then validate with **enter**.



- Set the time correction of sunset time **SET** using **+** or **-** then validate with **enter**.



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



- For 04567, select channel **C1** or **C2** using **+** or **-** then validate with **enter**. The symbol ☆, 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.

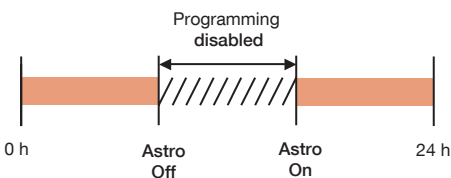


- Select the **prog** mode using **menu** then **enter**.
- Select the channel (**C1** or **C2**) using **+** or **-** then **enter** (only applicable to 2-channel clock 04567). The number of remaining program steps appears for a short time.
- If a program already exists, **new** will flash, press **enter** to validate this new program steps, if not move to 4.
- Choose the day(s) using **+** or **-**. Validate with **enter**.
- ok** flashes. Use **enter** to validate the group of days. **-** or **←** makes it possible to reset the group of days if necessary.
- Using **+** or **-**, select instruction state:
 - On** or **Off** if your are in automatic astronomical mode.
 - On**, **Off**, **On** ☆ or **Off** ☆ if your are in expert mode.
- Enter the time of switch-on using **+** 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 **menu**. To set the program of the other channel, return to **prog** mode 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 astronomical 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 impossible between **Astro Off** and **Astro On**.



Display

To check the daily profile set up without the risk of modification or deletion. Select the mode **◀** using **menu** and **enter**. Select the channel (**C1** or **C2**) using **+** or **-** then **enter**. The first step of Monday is displayed as well as the daily profile.

Two options available for display:

- Pressing repeatedly **+** or **-**: lets you shift days. In this case only the first daily step is displayed as well as the daily profile.
- 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 using **menu** then **enter**. Select the channel (**C1** or **C2**) using **+** or **-** then **enter**. Select the **modif** mode using **+** 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** ☆ or **Off** ☆), press simultaneously **+** and **-**, **Clear** appears on the display. Validate with **enter**.

Key

As soon as the key appears on the switch, **⏏** appears on the display.

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).

- Insert the key and wait for 2 secondes.
- Using **menu**, select the desired mode (**save** to save a program contained in the time switch, **load** to load the program of the key into the time switch or **◀** to check the program contained in the key).
- Validate the selection with **enter**.
- For **save** and **load** reconfirm with **enter**.

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

In these two cases:

- Only the **save** 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 **⏏** flash. The next program step will let you return to the automatic mode.
 - 2nd press: permanent override. **On** and **⏏** are permanent. This override must be cancelled manually.
 - 3rd press: temporary override 15 minutes. **On**, **⏏** and **15** are permanent. The return to automatic mode will take place after 15 minutes.
 - 4th press: temporary override 30 minutes. **On**, **⏏** and **30** are permanent. The return to automatic mode will take place after 30 minutes.
 - 5th press: temporary override 60 minutes. **On**, **⏏** and **60** are permanent. The return to automatic mode will take place after 60 minutes.
 - 6th press: permanent override. **Off** and **⏏** 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 ref. 23193.

Unlocking is done in the same way. Full product reset remains feasible when the keyboard is locked.

Technical specifications

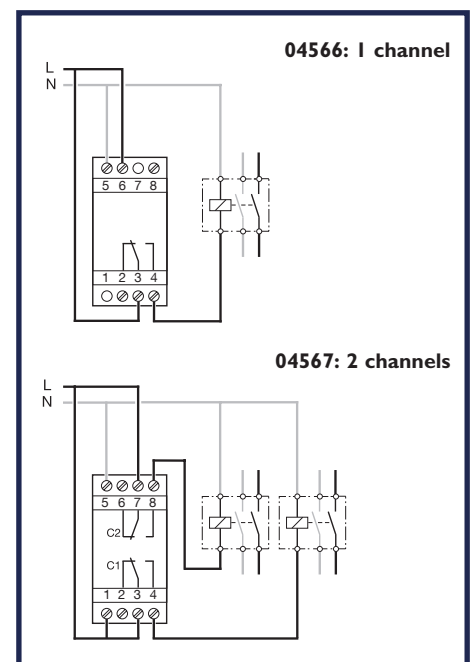
Supply voltage:	230 V AC ± 15%
Frequency:	50/60 Hz
Power consumption:	max. 6 VA to 50 Hz
Output 04566:	1 changeover volt free contact
Output 04567:	2 changeover volt free contacts
Maximum load:	
ACI	μ16A 250 V~
Cos φ = 0,6	μ10A 250 V~
Incandescent lighting	2300 W
Halogen lighting	230 V 2300 W
Compensated fluorescent tubes // (max. 45 μF) 400 W	
Non compensated fluorescent tubes, compensated in series	1000 W
Compact fluorescent lamps	500 W
Minimum current:	
ACI	100 mA 250 V~
Galvanic insulation between power supply and output:	< 4 kV
Programming capacity:	56 steps
Minimum time between 2 steps:	1 minute
Running accuracy:	± 1,5 sec./24h
Astronomical time accuracy:	± 10 minutes
Operating reserve:	lithium battery provides 5 years of backup.

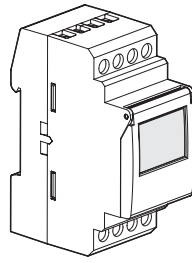
The product is set in standby mode (display is off) if power goes off. It is set back in auto mode when power is back on. With power off, the screen display is turned on when striking any key. After one minute, it is turned off.

Protection degree:	IP 20
Operating temperature:	-10 °C to +55 °C
Storage temperature:	-20 °C to +60 °C
Connection:	flexible capacity: 1 to 6 mm ² rigid capacity: 1,5 to 10 mm ²

The products need to be protected according to the standards NFC15100 and/or IEC 60 364-1.

Connection diagrams





Time zone map

ref.: 04566 and 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	Llandrinciad
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°	Stevenage
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.