Programming manual Astro-switching SC 28 astro-

1 ⇒ Monday
2 ⇒ Tuesday
3 ⇒ Wednesday
4 ⇒ Thursday
5 ⇒ Friday
6 ⇒ Saturday
7 ⇒ Sunday

⌐ ⇒ Channel ON
⌐ ⇒ Channel OFF

In mode AUTO manual switching possible by pressing relevant keys.

Programming

Key functions

Menu Selection of programming modes
AUTO → PR → ? → ☾ → S/W → AUTO ...

[**CL**] **CL**ear programmed switch commands in modes PR; ? and ☾.

[◆] In PR; ?; ☾ and S/W modes:
Select function option of flashing digit resp. position.
In Mode ?: Change selected inputs.

[**O.K.**] Confirm the selected mode.
In PR and ☾ modes:
Advance to required position. (forwards)
In? mode:
Advance to next switching time.
In S/W mode:
Enter into memory.

[◄] In PR and ☾ modes:
Return to required position. (backwards)
In ? mode:
Return to previous switching time.

[A] In AUTO mode:
[B] Press for manual override ON or OFF in relevant channel. Holding down key for 3 seconds will switch ON or OFF PERM override. **perm** will be displayed. Programmed switching functions of relevant channel are suppressed. Cancel permanent ON or OFF by holding down key for a further 3 seconds, **perm** will disappear.

Programming advice

The default setting on delivery is programmed real time and date, the summertime change is activated.

Battery power reserve:
Either without external power, or during a supply interruption, by operating the O.K. button the display comes on and switching commands can be programmed.

Make inputs step by step. The appropriate position in the display is flashing and can be changed by pressing ◆ key. Advance to next position by using **O.K.** key, go backwards by using ◄ key. Inputs are terminated when flashing finishes.

Installation details

Caution: The installation and assembly of electrical equipment must be only carried out only by a skilled person.

Connect to voltage and frequency according to type label only.

Warranty void if housing opened by unauthorised person.

The high density electronic circuit is protected against a wide range of external influences. Incorrect operating may occur if external influences exceed certain limits.

Reset

Pressing recessed button in the middle of ◄ key and **CL** key, will clear date, real time and microprocessor
Switching programmes normally will not be affected.
(Check by Read – Out; "?"mode)

The ☾ mode is selected because date and real time must be programme new.

Operating modes

AUTO Display of time, day of week, current switch status of channel(s). Bar graph display of ON time. Display the current sunset-time (ON) by operating the **O.K.** key and the sunrise-time (OFF) by operating the **O.K.** key a second time. Manual overriding possible (key A, B)

PR **Input of switching commands according to week day(s) and time**
Use arrow ◄ and **O.K.** keys to alter flashing digit.
Use diamond ◆ key to increase value.
(Confirm last input with **O.K.** key, will enter into memory)

? **Displays number of free memory locations**
Selects the selected Astro-table
Show switching times
Alter switching time
Clear single or all switching times
Use **O.K.** key forwards or ◄ key backwards to display switching times.
Use diamond ◆ key to change (alter) displayed switching time.
Use **CL** key to cancel the displayed switching time.
Use **CL** key twice to cancel all switching times if number of free memory locations available displayed only.

☾ **Input of actual date and time**
Use arrow ◄ and **O.K.** keys to alter flashing digit.
Use diamond ◆ key to increase value.
(Confirm last input with **O.K.** key, will enter into memory and change into AUTO mode)

S/W **To activate / deactivate the summer/winter time change over.**
Use diamond ◆ key to select automatic S/W – time change ON or OFF.
(Confirm last input with **O.K.** key, will enter into memory and change into AUTO mode)

Astro-function

- The switch function OFF in Astro mode is alligned with sunrise
- The switch function ON in Astro mode is alligned with sunset
- Each switch-time can be programmed alternatively as Astro, or as normal switch-time.
- With the two channel version each channel can be programmed seperately to be Astro or normal switching function.
- If the Astro-function is chosen for a switch-time, the sunrise (turning off) as well as sunset (turning on) times programmed for the current day will be shown in the Display -
  - this time can be changed as required and becomes automatically modified each successive day in accordance with the chosen Astro table -
  - the difference (offset) between the entered switch-time and the sunrise/set-time is fixed for successive operations
- The programmed switching times, (mode P), as well as the indicated Astro-switch times (mode?) are always applied exclusively to the current day.
- In mode AUTO The current sunset-time can be read by pressing button O.K., and by pressing O.K.twice the current sunrise-time is displayed
- In mode ? the matching astro-table must be chosen as the first step.

Astro table – custom on request

Table	Location
At 01	Scotland
At 02	England North
At 03	England South
At 04	Ireland
At 05	Germany North
At 06	Germany Middle
At 07	Germany East
At 08	Germany South, Swiss North East, Austrian North
At 09	France Middle
At 10	France North East
At 11	France North West
At 12	France South East; Swiss East
At 13	France South West
At 14	Italy North, Swiss South, Austrian South
At 15	Italy Middle
At 16	Italy South

Mode ?

Select time zone. (see table)

Prior to programming switching commands it is necessary to select the installation time zone.
A different Astro-table can be chosen at anytime. The currently programmed Astro-switch times are automatically re-calculated after the selection of the new table.
Programmed Astro-switch times can be checked, amended or deleted and input again..
Example: Astro-table 05 (At 05) required.
Start from: Mode AUTO;
Astro-table 01 (At 01) active.

Push button
↩ 2x, &
button **O.K.** 1x

30 PL

Display of free programming commands

AUTO PR ? ☾ S/W

Push button
O.K. 1x

At 01

AUTO PR ? ☾ S/W

Push button
◆ 1x

At 02

AUTO PR ? ☾ S/W

Push button
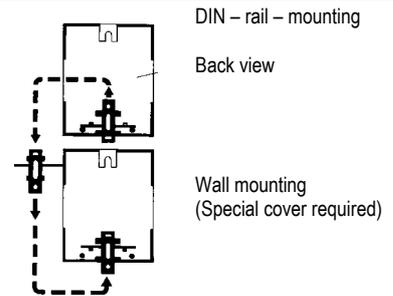◆ 3x

At 05

AUTO PR ? ☾ S/W

After programming, viewing or amending time zone, by pressing button **O.K.** switching commands can be viewed, programmed or amended.
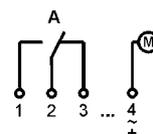To return to AUTO mode press ↩ button once.

Mounting advice

DIN – rail – mounting
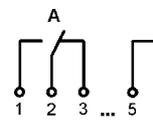
Back view

Wall mounting
(Special cover required)

Wiring diagrams

SC 28.13

A

1 2 3 ... 4 8
         ~ ~
         + −

SC 28.23

A   B   M

1 2 3 ... 5 6 7 ... 4 8
                        ~ ~
                        + −

Examples

⟳ mode
Current date and real time input or change

Example: Date 01.02.2000; time 14:00
after Reset

01 01 DATE
AUTO PR ? ⟳ S/W

O.K. 3x
◆ 1x

01 02 DATE
AUTO PR ? ⟳ S/W

O.K. 2x

01 02 2000
AUTO PR ? ⟳ S/W

O.K. 1x
◆ 1x

10:00 TIME
6
AUTO PR ? ⟳ S/W

O.K. 1x
◆ 4x

14: TIME
2
AUTO PR ? ⟳ S/W
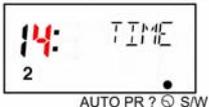
O.K. 3x

Mode PR
Programming day or week program

Is the matching Astro-table already chosen?
Several possibilities:
1. Single day, one channel
2. Several days, one channel.
The switch-times can be programmed as Astro-switch times or as normal switch-times.
Each switch command with Asto-function can be programmed during input with a fixed offset time.
The fixed offset is applicable to *this* switch command on all following days.
Example: Tuesday (2) and Thursday (4) to Sunday (7); Switching time 08:30;
Channel B OFF **with Astro-function and adaptation** respectively different time to sun-switching time.

Start from: AUTO mode
⟳ 1x
O.K. 1x

A---
A
B
AUTO PR ? ⟳ S/W

O.K. 1x   Example 2 channel clock

B---
A
B
AUTO PR ? ⟳ S/W

◆ 1x

BON
B ⌐
AUTO PR ? ⟳ S/W

◆ 1x

BOFF
B ⌐
AUTO PR ? ⟳ S/W

O.K. 1x

ASTRO
B ⌐
AUTO PR ? ⟳ S/W

The next example is a program that can differ from the chosen Astro-table by a programmed time offset.

O.K. 1x   The proposed sun-switching can be changed

08:00 ASTRO
B ⌐
AUTO PR ? ⟳ S/W

O.K. 2x   The programmed switch-time alters daily by 30 min difference to the sunrise of the respective day
◆ 3x

08:30 ASTRO
B ⌐
AUTO PR ? ⟳ S/W

O.K. 2x

08:30 ASTRO
1234567   B ⌐
AUTO PR ? ⟳ S/W

Red: Flashing symbol in display
◆ 1x

08:30 ASTRO
1234567   B ⌐
AUTO PR ? ⟳ S/W

O.K. 2x

08:30 ASTRO
123**4**567   B ⌐
AUTO PR ? ⟳ S/W

◆ 1x
O.K. 4x

08:30 ASTRO
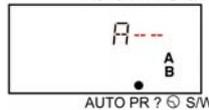123456**7**   B ⌐
AUTO PR ? ⟳ S/W
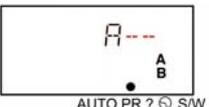
O.K. 1x

A---
A
B
AUTO PR ? ⟳ S/W

Continue with input of further dates / functions or press key ⟳ 1x to return to mode AUTO
Example: Tuesday (2) to Sunday (7);
Switching time 10:00;
Channel A ON **without Astro-function**
Start from: AUTO mode
⟳ 1x

A---
A
B
AUTO PR ? ⟳ S/W

◆ 1x

AON
A ⌐
AUTO PR ? ⟳ S/W

O.K. 1x

ASTRO
A ⌐
AUTO PR ? ⟳ S/W

◆ 1x

A ⌐
AUTO PR ? ⟳ S/W

O.K. 1x
◆ 1x

10:00
A ⌐
AUTO PR ? ⟳ S/W

O.K. 4x   The programmed switch-time doesn't change

10:00
1234567   A ⌐
AUTO PR ? ⟳ S/W

◆ 1x

10:00
1234567   A ⌐
AUTO PR ? ⟳ S/W

O.K. 7x

A---
A
B
AUTO PR ? ⟳ S/W
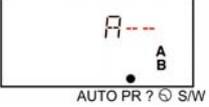
Continue with input of further dates / functions or press key ⟳ 1x to return to mode AUTO.

S/W mode
Deactivate automatic summertime changes (daylight saving)
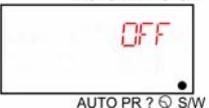
The default setting on delivery, S/W time change is activated.
Initial form: AUTO mode
⟳ 4x
O.K. 1x

ON
AUTO PR ? ⟳ S/W

◆ 1x

OFF
AUTO PR ? ⟳ S/W

Press key ⟳ 1x to return to mode AUTO·
The S/W - changeover is suppressed
At summertime-changeover, the Astro-switch times are also converted to the new time.
The time changeover is executed automatically according to the „European Regulation".

Start: Last Sunday in March
End: Last Sunday in October

? mode
Display or alter switching times

Example: Alter Tuesday and Thursday to Sunday 08:30; Channel B OFF
into :   Wednesday to Sunday 08:15; Channel B OFF with Astro-function

Start from: AUTO mode
⟳ 2x   Number of free storage locations available
O.K. 1x

28 PL
AUTO PR ? ⟳ S/W

O.K. 1x   Active Astro-table

At 05
AUTO PR ? ⟳ S/W

O.K. 1x

10:00
234567   A ⌐
AUTO PR ? ⟳ S/W

O.K. 1x

08:30 ASTRO
1234567   B ⌐
AUTO PR ? ⟳ S/W

◆ 1x

08:30 BOFF
1234567   B ⌐
AUTO PR ? ⟳ S/W

O.K. 1x

08:30 ASTRO
1234567   B ⌐
AUTO PR ? ⟳ S/W

O.K. 3x

08:30 ASTRO
1234567   B ⌐
AUTO PR ? ⟳ S/W

◆ 4x
O.K. 1x

08:10 ASTRO
1234567   B ⌐
AUTO PR ? ⟳ S/W

◆ 5x
O.K. 2x

08:15 ASTRO
1**2**34567   B ⌐
AUTO PR ? ⟳ S/W

◆ 1x
O.K. 1x

08:15 ASTRO
123**4**567   B ⌐
AUTO PR ? ⟳ S/W

◆ 1x

08:15 ASTRO
1234**5**67   B ⌐
AUTO PR ? ⟳ S/W
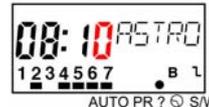
O.K. 5x   Number of storage locations available

28 PL
AUTO PR ? ⟳ S/W

? mode
Cancel function

Example: Tuesday (2) to Sunday (7);
Switching time 10:00;
Channel A ON without astro-function
Start from: AUTO mode
⟳ 2x   Number of storage locations available
O.K. 1x

28 PL
AUTO PR ? ⟳ S/W

O.K. 2x

10:00
234567   A ⌐
AUTO PR ? ⟳ S/W

CL 1x   Number of storage locations available

29 PL
AUTO PR ? ⟳ S/W

If CL key is pressed twice while free storage locations available are displayed, all inputs are cancelled.
(Clear all)