

Digital Timers

TR 651 S 1-channel timer No. 651 0 001

TR 652 S 2-channel timer No. 652 0 001

TR 653 S 3-channel timer No. 653 0 001

1.0 Information

The devices TR 651 S – TR 653 S comes ready programmed with the current time and with the relevant Greenwich mean time rule for automatic summer / winter timer adjustment.

Should you require a different time adjustment rule, or none at all, the new rule can be selected from the table (chapter 18.2) and re-programmed as described in chapter 18.3 to 18.6.

2.0 Application

Time switches switch on, off or over, electrical units time dependent on a day or week cycle. Time switch TR 651 S, TR 652 S, TR 653 S, is suitable in dry spaces and for assembly to the 35 mm top-hat rail (DIN EN 50022). If assembly kit 907 0 050 is used, the installation can be fitted to a wall.

3.0 Safety information

Electrical devices should only be connected and mounted by an electrical specialist. The national specifications and applicable safety regulations must be observed. Manipulations and modifications on the switch will result in loss of warranty.

Despite elaborate safety precautions, exceptionally strong electrical fields may cause interference with the microprocessor-controlled time switch. We therefore recommend that you observe the following points before installation:

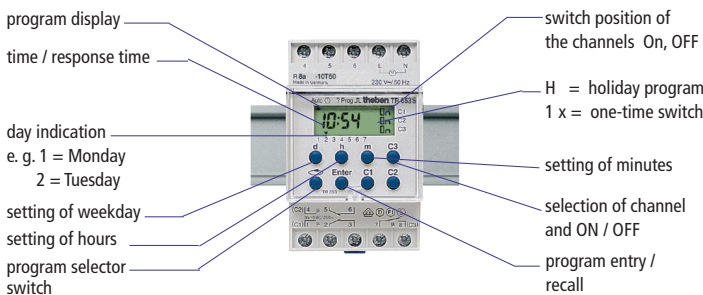
- Suppress interference of inductive loads by means of an RC filter
- Use a separate line for the mains voltage supply
- Do not install device in close proximity to sources of interference, e.g. transformers, contactors, PCs and TV sets.
- If interference occurs, we recommend that you carry out a RESET before putting the device back into operation (press button + **C1** simultaneously).

Attention

This action deletes all stored switching times!

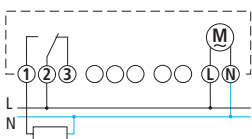
4.0 Features

- free block formation of the weekdays
- 140 memory locations
- holiday program, programmable 21 days in advance for max. 45 days
- Pulse program, 1 – 59 sec., switching times programmable precise to the second.
- 1 x switching e.g. for one time program override on holidays

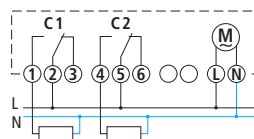


5.0 Electrical connection

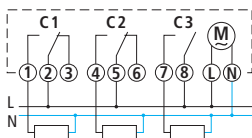
TR 651 S



TR 652 S



TR 653 S



6.0 Technical Data

Operating voltage:	240 V~ + 6 % / - 14 % 230 V~ ± 10 %
Mains frequency:	TR 651 S/652 S 50 – 60 Hz TR 653 S 50 Hz
Specified voltage range:	TR 653 S 60 Hz
Own consumption:	approx. 7 VA (TR 653 approx. 14 VA)
Contact rating:	
TR 651 / 652 S	16 A, 250 V~, cos φ = 1 10 A, 250 V~, cos φ = 0,6 10 A, 250 V~, cos φ = 1
TR 653 S	6 A, 250 V~, cos φ = 0,6 (Kontakte, potentialfrei)

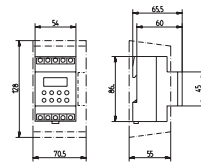
TR 653 S

Kontaktmaterial:	AgSnO
Time base:	quartz
Memory locations:	140
Shortest possible switching interval:	1 minute
Impuls einstellbar:	1 – 59 Sek.
Switching accuracy:	precise-to-the second
Running accuracy:	≤ ±1 sec. / deg at 20 °C
Power reserve:	Lithium max. 8 years at 20 °C
Admissible ambient temperature:	–10 °C ... +50 °C (-10T50)
Class of protection:	II acc. to EN 60 335-1 when mounted
Type of enclosure:	IP 20 acc. to EN 60 529
Type:	1 BSTU acc. EN 60730-2-7

Interference suppression degree:

The time switches are in accordance with the European directives 73/23/EWG (Low-Voltage Directive) and 89/336/EWG (EMC-Directive). If the time switches are used together with other devices in an installation, take care that the complete installation does not cause a radio interference.

Dimensioned drawing



7.0 Automatic reset

If no buttons are pressed for a certain length of time in the checking or programming mode, the display is automatically reset to automatic mode after approx. 40 sec. The device then assumes the switching status dictated by the program.

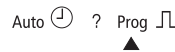
8.0 Setting / changing the current time

Should the time already set in the factory vary slightly, it can be corrected as follows:

Press button for approx 1 sec. (see Cursor under Auto ? Prog). Change the controll-time with button **h** or **m**. Store it by pressing the button **ENTER**.

9.0 Programming

press button see Cursor in Pos.



e. g. switch C1 Mo – Fr 8.00 (On)

Note: Using the 1 channel timer TR 651 S the key **C** is pressed instead of **C1** or **C2**.

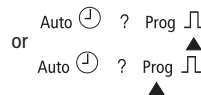
C1 (On) > **Enter** > **d** > **Enter** > **d** > **Enter** > **d** > **Enter** > **d** > **Enter** > **h** ... (8 h) > **Enter**.

e. g. switch C1 Mo – Fr 18.00 (OFF)

C1 > **C1** (OFF) > **Enter** > **d** > **Enter** > **d** > **Enter** > **d** > **Enter** > **h** ... (18 h) > **Enter**.

Pressing the keys **h** or **m** for more than 2 seconds, a fast run – through is carried out.

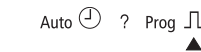
10. One-time switching



e. g. one time wednesday 9.45 switch C1 on. One-time switch has priority

Enter (1x) > **C1** (On) > **d** ... (3 = We) > **Enter** > **h** ... (9 h) > **m** > (45 min.) > **Enter**.

11. Program switching times



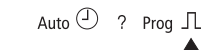
e. g. Channel C2 thursday 7:15 switching-on Impuls 10 sec.

C2 (On) > 2 x **d** > **Enter** > **h** (7 h) > **m** (15 min.) > **Enter** > **m** > (10 sec.) > **Enter**.

Attention: If you want to program only the switching times of the pulse program, you must program additional the daily OFF switching times.

12. Pulse program

Switching times can be prolonged by 1 – 59 sec. with an additional On rubbe command.



C1 (On) > 1 x **d** (Tue) > **Enter** > **h** (7 h) > **Enter**

C1 > **C1** (OFF) > 1 x **d** (Tue) > **Enter** > **h** (7 h) > **Enter** > **m** (25 sec.) > **Enter**.

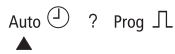
12.1 Delayed switch-on:

Switch-on can be delayed by 1 – 59 seconds with an additional OFF pulse command, e.g. 35 sec. On at 7 AM or for time-offset switch-on of channels.

Interrupting switch-on phases:

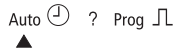
Off pulse commands permit brief interruptions of switch-on phases.

13.0 Preselection



e. g. C1 On / OFF **C1** ... to be pressed
e. g. C2 On / OFF **C2** ... to be pressed
Counter-acting program commands annul the switching preselection.

14.0 Permanent control:



e. g. **C2** permanent control ON/OFF/Autom.
m keep pressing **C2** > **C2** > **C2**
• On • OFF AUTO
• Point indicates permanent control of the channel

15.0 Recall



e. g. **C2** recall starting from Monday.
v ...? (free memory locations are displayed)
C2 > **d** > **Enter** > **Enter** ... End
if necessary to switch-over to other channels by pressing **C1** or **C3**. Flashing arrows indicate identical commands (block commands) on other weekdays.

16.0 Clearance



The indicated wrong switching command can be cleared by simultaneously pressing the keys **h** + **m** to be cleared

16.1 Total clearance of all switching commands

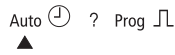


d + **h** + **m** to be pressed simultaneously

Attention!

This action deletes all stored switching times!

17.0 Holiday program



e. g.: all channels to be switched-off after 3 days for a period of 14 days
Start and End respectively at 00 00 h.
h keep pres. **d** ... 3 (max. 21) > **m** .. 14 (max. 42).
Delete by pressing forward to 00 00.

18.0 Summer-/Wintertime adjustment

18.1 Checking the date

If (**no**) automatic summer/winter time adjustment has been selected (**no**), the time can be corrected manually. First press the button **v** and the **d** button **d**. Hold down both buttons for approx. 2 sec. The set summer/winter time adjustment rule (e. g. **dat**) will then appear in the LCD display. If you now press the **Enter** button, the year will appear, followed by the date if pressed again. Press the **Enter** button to return to the automatic program.

18.2 Selection table for automatic summer/winter time adjustment

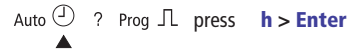
Setting area	Beginning of summer time	Beginning of winter time	Area
dat up to 12/95	Last Sun. in March	Last Sun. in Sept.	EU
dat 1 from 1/96	Last Sun. in March	Last Sun. in Oct.	EU
dat 2	Last Sun. in March	Last Sun. in Oct.	GB
dat 3	1st. Sun. in April	Last Sun. in Oct.	North
no	No adjustment	No adjustment	

18.3 See Captur 7.0 / setting / changing the current time

Select the required automatic adjustment from the selection table in chapter **18.2**. First press the button **v**, and then button **d**. The set summer/winter time adjustment rule will then appear in the LCD display (e.g. **dat**). To change the automatic S/W adjustment, press the button **C1** and then store the setting via the **Enter** button.
You can then change the year using button **d** and store it by pressing the **Enter** button. The current day can then be changed with button **d** and the month with button **m**. Again, store by pressing the **Enter** button.

18.4 Changing the automatic summer / winter time adjustment

Programming only possible, if no automatic summer / winter time adjustment as selected!

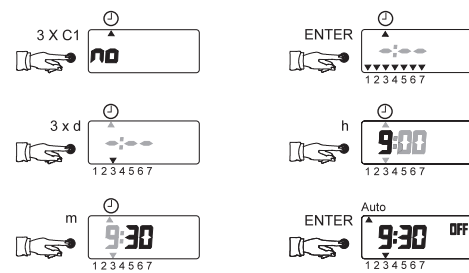


18.5 Initial start-up without automatic summer / winter time adjustment with week program

At first: **RESET** = press buttons **v** + **C1** simultaneously

Example TR 651 S:

Selected adjustment rule: **no**
Current day of the week: **wednesday**
Programming time: **9.30 AM**



18.6 Initial start-up with automatic summer / winter time adjustment with week program

The button **C1** can be used to set the required time adjustment rule from the table in chapter 18.2.

At first: **RESET** = press buttons **v** + **C1** simultaneously

Example TR 651 S:

Selected adjustment rule: **dat 2**
Programming Date: **8. 10. 1997**
Programming time: **9.30 AM**

