

TDTS2C230B TIME PROGRAMMER WEEK'S, DOUBLE CHANNEL

INSTRUCTION MANUAL



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DESCRIPTION

The TDTS2C230B control timers are designed for time functions execution in automatics and control systems. The week's programmer controls the output relay in dependence of program settings (day, hour). The device is fitted with some additional functions, among other things the random function that is used for the operating mode changing by means of an external push button. It is possible to mount the device on TH 35 rail and seal it if needed. **In case of power supply malfunction the unit battery sustain enables all settings saving and maintaining.**

In order to protect the battery during storage, the TDTS2C230B series programmers have a default setting, the so-called storage mode in which the battery power consumption is limited to a minimum.

FEATURES

- Week's cycle control in dependence of the current hour,
- Double-module casing with a protection flap,
- Random op mode, additional IN control inputs,
- Double-channel version,
- Many programs,
- LCD display illumination,
- Mounted on TH 35 rail.



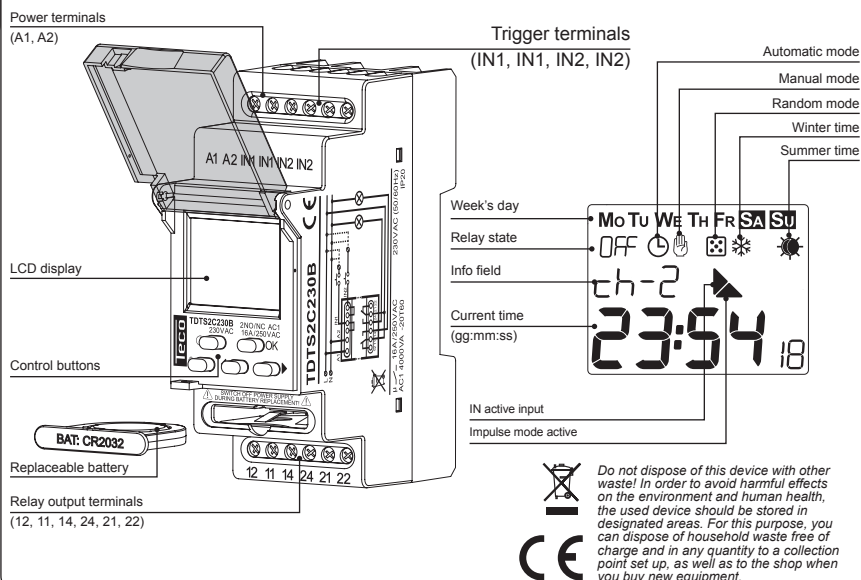
The device is designed for single-phase installation and must be installed in accordance with standards valid in a particular country. The device should be connected according to the details included in this operating manual. Installation, connection and control should be carried out by a qualified electrician staff, who act in accordance with the service manual and the device functions. Disassembling of the device is equal with a loss of guarantee and can cause electric shock. Before installation make sure the connection cables are not under voltage. The cruciform head screwdriver 3,5 mm should be used to install the device. Improper transport, storage, and use of the device influence its wrong functioning. It is not advisable to instal the device in the following cases: if any device part is missing or the device is damaged or deformed. In case of improper functioning of the device contact the producer.

TECHNICAL DATA

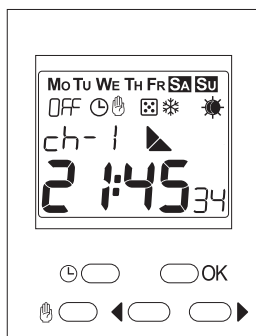
TDTS2C230B

Power supply terminals:	A1, A2
Input rated voltage:	230 V AC (-15 ÷ +10 %)
Nominal frequency:	50 / 60 Hz
Rated power consumption:	2 W / 14 VA
Number of channels:	2
Program quantity:	400 (100 On/Off pairs per channel)
Program:	daily, week's
Operating modes:	manual, automatic, random, impulse
Change of season summer/ winter:	automatic, manual
Colour of LCD panel lighting:	amber
Input:	2
Accuracy of time measurement:	max ±1 s / 24 h at temp. 25 °C
Time of clock maintenance:	3 years
Time of programme maintenance:	10 years
Clamps of release system:	IN1, IN1, IN2, IN2
Receiver input (supply) terminals:	11, 12, 14, 21, 22, 24
Output relay parameters:	2 NO/NC-16 A/250 V AC1 4000 VA
Number of terminal clamps:	12
Section of connecting cables:	0,2 ÷ 2,50 mm ²
Ambient temperature range:	-20 ÷ +60 °C
Operating position:	freely
Mounting:	rail TH 35 (PN-EN 60715)
Protection degree:	IP20 (PN-EN 60529)
Overvoltage category:	II
Pollution degree:	2
Dimensions:	double-modular (35 mm) 90x35x66 mm
Weight:	0,140 kg

APPEARANCE



DESCRIPTION





Description of elements and messages displayed

Mo Tu We Th Fr **SA** **SU** - days of week

0n OFF - transmitter's status


🕒 - automatic mode

 - manual mode

 - random mode

▲ - impulse mode

► - external input

- - winter time
-  - summer time

ch-1 ch-2 - channels

DAY - day, YEAR - year

Рrоб - program setting

 $t_m \in E$ - current time setting and summer/winter time shift

dRtE - current date setting

rAnd - random mode setting

inP_{ut} - external input setting

PULSE - impulse mode setting




Auto - automatic, USER - user

On OFF - on/off

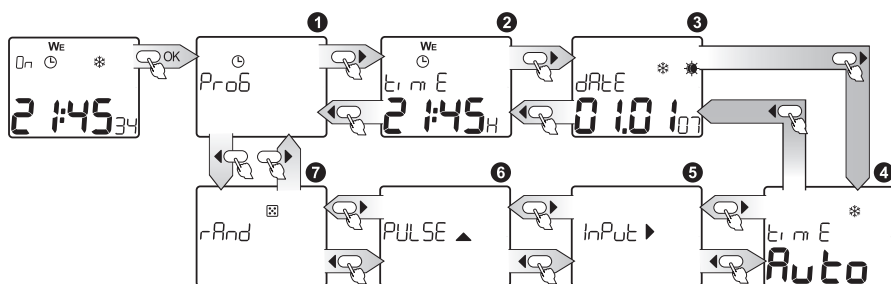
Button description

- | | |
|-----|---|
| ⌚ | <ul style="list-style-type: none"> • in the main window – the automatic mode enter or relay state changeover, if the timer already in the automatic mode; • in the main window (3 seconds) – the random mode enter / exit; • in the random mode – randomizing active/inactive manual toggle; • the other windows – exit to a higher level without changes saving; |
| 👉 | <ul style="list-style-type: none"> • in the main window – the manual mode enter or the relay state changeover, if the timer already in the manual mode; • in the random mode – the relay state changeover and randomizing switch-OFF; • the other windows - exit to a higher level without changes saving; |
| OK | <ul style="list-style-type: none"> • in the main window – the main menu enter; • the other windows – a submenu enter or setting acknowledgement; |
| ⬅ ➡ | <ul style="list-style-type: none"> • window/option toggle or set value increase/decrease. |

STORAGE MODE / BATTERY REPLACEMENT

- Programmers have a default setting, the so called storage mode in order to protect the battery during storage.
- In case of battery backup operation the storage mode is switched off during the first use of the programmer. It is done by means of a short pressing of the  push-button and subsequent date and time adjustment.
- In case of a nominal power supply the storage mode is switched off during the first use of the programmer by means of date and time adjustment.
- Adjusting the programmer into the storage mode is realised by means of a reset - in order to carry it out press at the same time the  and  push-buttons in the main window.
- Programmers have the option to replace the clock maintenance battery. **Before replacing the battery, disconnect the programmer from the external power supply.** Please pay the attention to correct battery polarity when replacing.

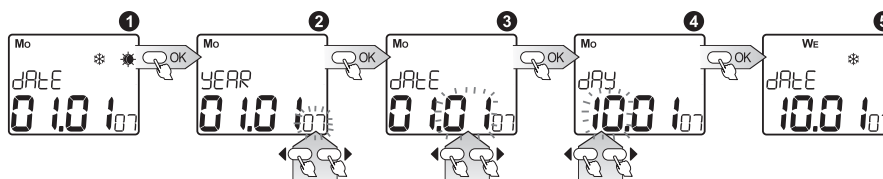
MAIN MENU



Menu enter by pressing OK;
menu items scrolling by means of cursors ◀ ▶.

	Function	Description
①	PRG	PROGRAM SETTING
②	TIME	CURRENT TIME SETTING
③	DATE	CURRENT DATE SETTING
④	TIME	WINTER / SUMMER TIME SETTING
⑤	INPUT	EXTERNAL INPUT SETTING
⑥	PULSE	IMPULSE MODE SETTING
⑦	RAND	RANDOM MODE SETTING

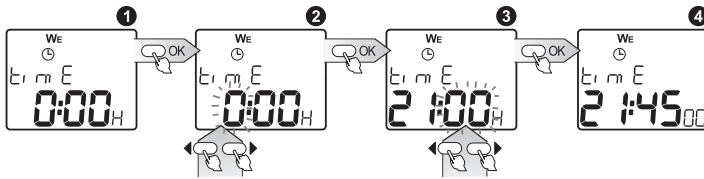
DATE SETTING



- ① **DATE** - Current date setting; entry after pressing OK;
 ② **YEAR** - choose adequate year with cursors ◀ ▶ confirm with OK, range of years: 2000÷2099;
 ③ **MONTH** - choose month with cursors ◀ ▶ confirm with OK;
 ④ **DAY** - choose day with cursors ◀ ▶ confirm with OK; the system has a protection against introducing incorrect parameter of a day for a given month (it takes into account leap years and it automatically calculates the day of the week on the basis of an arranged date);
 ⑤ Confirmation causes movement to a date setting window and set-up of current summer/ winter time - if the option **Auto** is arranged.

It is possible to exit every submenu window in any moment without saving settings by pressing the button or .

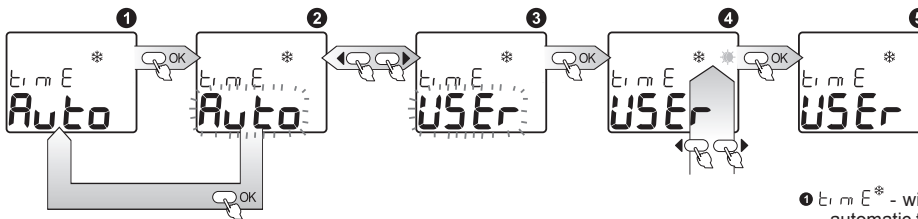
TIME SETTING



1. t, m, E - setting the current clock time; entry after pressing OK;
2. HOUR- choose adequate hour with cursor $\leftarrow \rightarrow$ which you can set in 1-24 H or 1-12 P (AM) and 1-12 P (PM) format; confirm with OK;
3. MINUTES - choose adequate parameter of minutes with cursors $\leftarrow \rightarrow$ confirm with OK;
4. Confirmation of the parameter of minutes causes simultaneous nullification of the parameter of seconds and movement to the window of time setting.

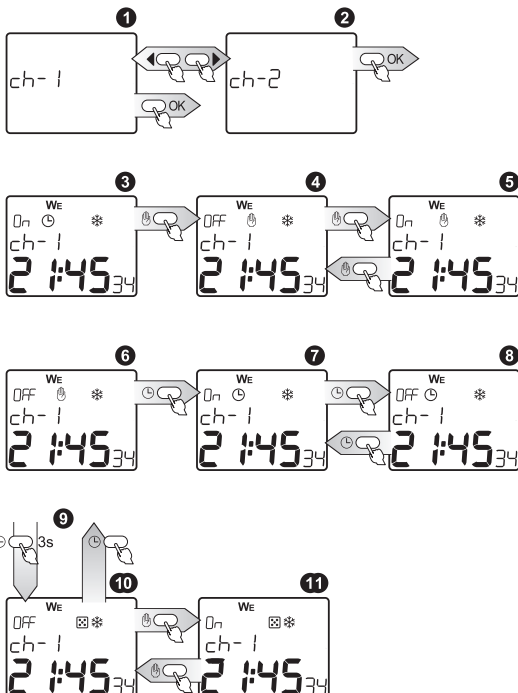
It is possible to exit every submenu window in any moment without saving settings by pressing the button \odot or \ominus .

WINTER / SUMMER TIME SETTING



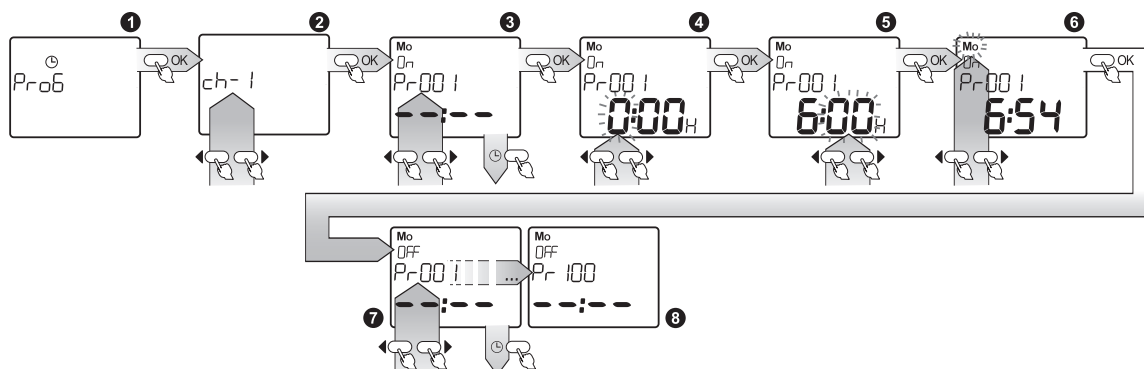
1. t, m, E^* - winter/summer time toggle mode selection: *Auto* - automatic time changing on the last March Sunday, at 2:00 into summer time and on the last October Sunday, at 3:00 into winter time, *User* - winter/summer timer toggle manual, by user; option entering after pressing OK;
2. \odot MODE SETTING - with $\leftarrow \rightarrow$ select *Auto* or *User* acknowledge with OK; after selecting *Auto*, winter/summer time will be toggled automatically; after selecting *User* mode you will enter the next window;
3. With $\leftarrow \rightarrow$ select winter/summer, where * is winter time, \star - summer time; if the time icon is changed, the timer will correct the current time appropriately; acknowledge by pressing OK;
4. After time mode selecting winter/summer time change window will be open.

OPERATING MODE CHANGE (AUTOMATIC, MANUAL, RANDOM)



1. 2. Before the op mode changing it is necessary, in the main window, to select with the cursors $\leftarrow \rightarrow$ channel *ch-1* or *ch-2*.
3. 4. 5. MANUAL OP MODE TOGGLE - if the main window is open and the timer is in the automatic mode \odot pressing the key \ominus will force the unit to toggle into the manual mode and the relay state changeover;
6. 7. 8. Successive \ominus key pressing will force the relay state changeover without the op mode changing;
9. 10. 11. AUTOMATIC MODE TOGGLE - if the main window is open and the timer is in the manual mode \odot pressing the key \odot will force the unit to toggle into the automatic mode and the relay state changeover;
12. 13. Successive \odot key pressing will force the relay state changeover without the op mode changing;
14. 15. RANDOM MODE TOGGLE - in order to enter the random mode it is necessary to press and hold \odot key for 3 secs;
16. 17. Pressing the key \ominus forces the relay state changeover; in order to exit the random mode it is necessary to press the key \odot .

PROGRAM SETTING

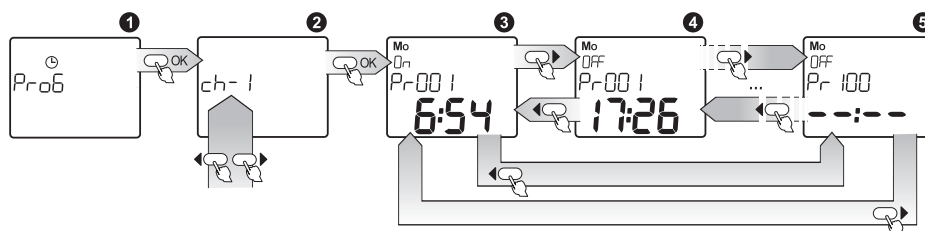


Week division combinations

1	Mo
2	Tu
3	We
4	Th
5	Fr
6	Sa
7	Su
8	Mo Tu We Th Fr Sa Su
9	Mo Tu We Th Fr
10	Sa Su
11	Mo Tu We Th Fr Sa
12	Mo We Fr
13	Tu Th Sa
14	Mo Tu We
15	Th Fr Sa Su
16	Mo We Fr Su

- 1 **ProG** - defining ON-times and OFF-times for the given week's days, for the given programs running in the automatic mode; enter edition by pressing OK; the programs are numbered as (ON / OFF) pair (0n / OFF). Maximum number of 0n / OFF programs is 100 pairs per channel;
- 2 With ◀ ▶ cursors select **ch-1** or **ch-2**;
- 3 With ◀ ▶ cursors select the program (e.g. **Pr-001** 0n) for its parameters editing and enter edition by pressing OK;
- 4 HOUR - with ◀ ▶ cursors select an hour and acknowledge by pressing OK;
- 5 MINUTE - with ◀ ▶ cursors select minutes and acknowledge by pressing OK;
- 6 WEEK'S DAY - with ◀ ▶ cursors select the week's day when the given program is to be active (there are 16 week division combinations available), acknowledge selection by pressing OK - the program will be saved;
- 7 The next saved program will be displayed (e.g. **Pr-001** OFF) - press OK to enter edition, in order to select the other program use the cursors ◀ ▶, in order to exit the mode press ⏻ or ⏹;
- 8 The last available program is **Pr-100** OFF.

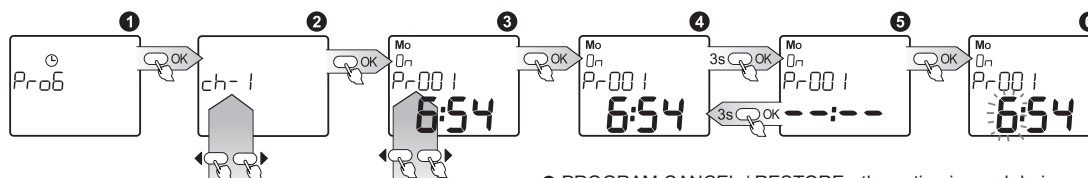
PROGRAM VIEWING



- 1 **PROGRAM VIEWING** - viewing settings for the switching programs (0n / OFF) i.e. hours, minutes and week's days; enter viewing by pressing OK;
- 2 With ◀ ▶ cursors select **ch-1** or **ch-2**;
- 3 In order to scroll programs press successively the cursors ◀ ▶; cursor ▶ increases program number; cursor ◀ decreases program number;
- 4 The programs are numbered in the form of (0n / OFF), pairs, where each program may be treated independently; there are 400 programs (100 0n / OFF pairs per channel).

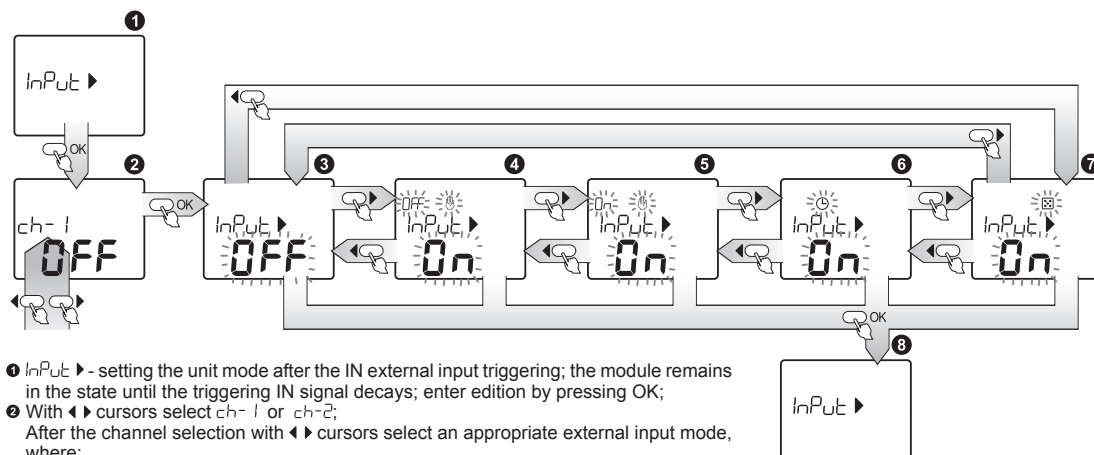
It is possible to exit every submenu window in any moment without saving settings by pressing the button ⏻ or ⏹.

PROGRAM CANCEL / RESTORE



- 1 **PROGRAM CANCEL / RESTORE** - the option is used during program setting and viewing for program cancelling (inactivation) and restoring; enter by pressing OK;
- 2 With ◀ ▶ cursors select **ch-1** or **ch-2**;
- 3 With ◀ ▶ cursors select the program to be cancelled / restored;
- 4 Press and hold OK for 3 seconds - if the program is active, it will be canceled (inactivated) and will not be checked during the timer operating in the automatic mode (however it will be saved in the storage and it will be possible to restore the program); horizontal lines will be displayed;
- 5 If the program is cancelled, it will be restored by pressing OK and its edition will be possible ⓐ, pressing and holding OK for 3 seconds will cause the program restoring without time edition possibility ⓑ.

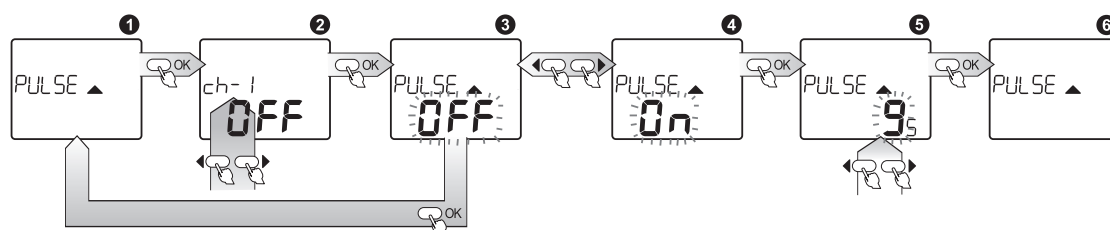
EXTERNAL INPUT SETTING



- 1 Input \blacktriangleright - setting the unit mode after the IN external input triggering; the module remains in the state until the triggering IN signal decays; enter edition by pressing OK;
- 2 With $\blacktriangleleft \blacktriangleright$ cursors select ch-1 or ch-2;
After the channel selection with $\blacktriangleleft \blacktriangleright$ cursors select an appropriate external input mode, where:
- 3 OFF - external input function is OFF;
- 4 ON - manual mode with the continuous relay OFF-state;
- 5 ON - manual mode with the continuous relay ON-state;
- 6 \odot - automatic mode, the relay switching ON / OFF according to the set programs;
- 7 \boxtimes - random mode according to settings from the menu RANDOM MODE SETTING;
- 8 Acknowledge the given mode selection by pressing OK; after acknowledgement the external input setting window will be open.

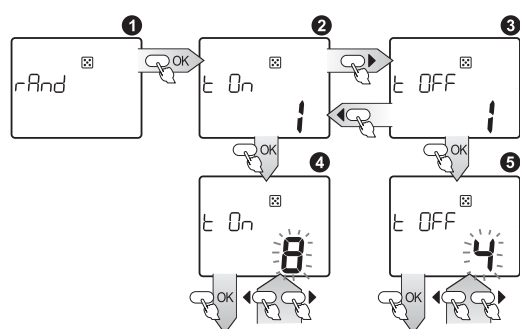
It is possible to exit every submenu window in any moment without saving settings by pressing the button \odot or \boxtimes .

IMPULSE PROGRAM SETTING



- 1 PULSE \blacktriangle - the impulse generating mode and impulse duration time setting; the impulse mode current state is shown in the display (ON - ON, OFF - OFF); enter edition by pressing OK;
- 2 With $\blacktriangleleft \blacktriangleright$ cursors select ch-1 or ch-2;
- 3 \odot With the cursors $\blacktriangleleft \blacktriangleright$ select one of the following options ON - ON or OFF - OFF for the impulse mode; acknowledge selection by pressing OK; in case of the OFF state selecting the impulse mode main window will be open;
- 4 After selecting ON option with $\blacktriangleleft \blacktriangleright$ cursors select impulse duration time in seconds; acknowledge selection by pressing OK;
- 5 After the selection acknowledgement the impulse mode setting window is open. In the impulse mode there are only ON programs.

RANDOM MODE SETTING

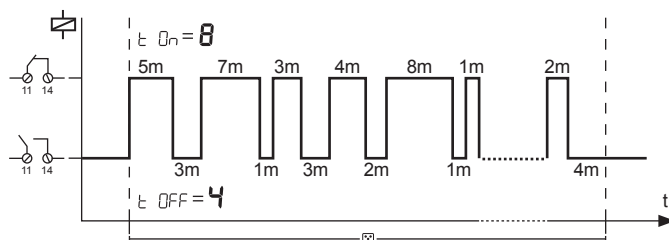


- 1 rAnd \boxtimes - setting maximum ON and OFF time for the relay in the random mode which is the same for both channels, but switched ON separately; enter the mode by pressing OK; with the cursors $\blacktriangleleft \blacktriangleright$ select demanded window, where:
- 2 t_{ON} - the relay maximum ON-time setting in minutes - the time will be randomized for the time range between 1 minute and t_{ON} minutes;
- 3 t_{OFF} - the relay maximum OFF-time setting in minutes - the time will be randomized for the time range between 1 minute and t_{OFF} minutes;

Window 2: press OK to enter; 4 with $\blacktriangleleft \blacktriangleright$ cursors set maximum ON-time (in minutes), acknowledge by pressing OK; you will enter window 4.

Window 5: press OK to enter; 5 with $\blacktriangleleft \blacktriangleright$ cursors set maximum OFF-time (in minutes), acknowledge by pressing OK; you will enter window 5.

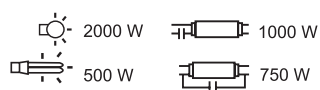
It is possible to exit every submenu window in any moment without saving settings by pressing the button \odot or \boxtimes .



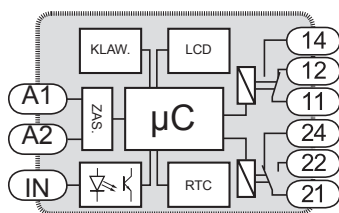
MOUNTING

1. Disconnect power supply by the phase fuse, the circuit-breaker or the switch-disconnector combined to the proper circuit.
2. Check if there is no voltage on connection cables by means of a special measure equipment.
3. Install the TDTS2C230B on the TH 35 DIN rail in the switchboard.
4. Connect the cables with the terminals in accordance with the installing diagram.
5. Switch on the power supply from the mains.

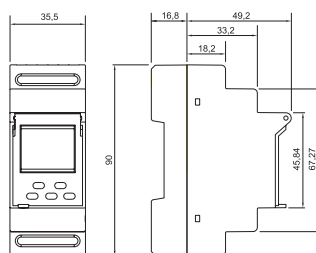
RELAY CAPACITY



INNER DIAGRAM



DIMENSIONS

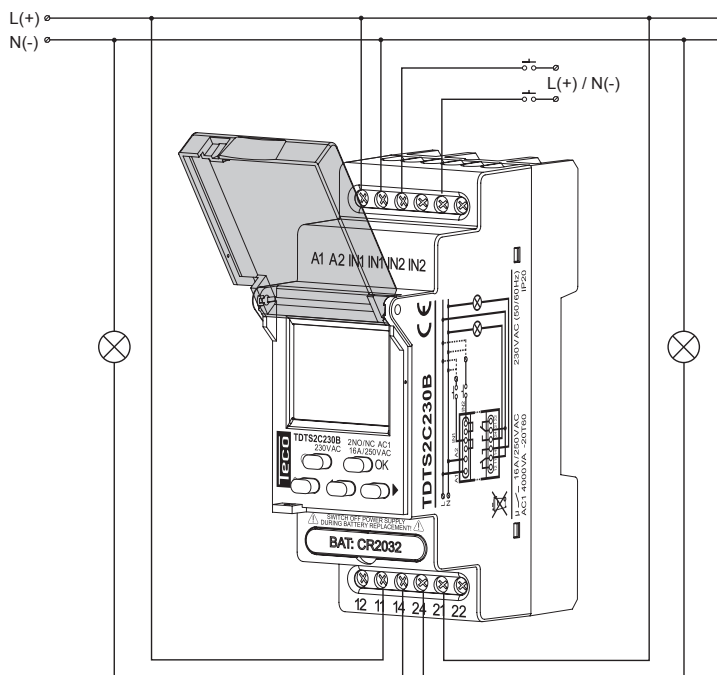


WARRANTY CARD

There is 60 months guarantee on the product

Salesman stamp and signature, date of sale

CONNECTION



ADVANTAGES



Intelligent calendar - the programmer is fitted with a built-in calendar which fits leap years automatically, disables entering incorrect dates, calculates a week's day on the basis of the current date and fits the summer / winter time change.



General purpose external input - the programmer is fitted with an external input that enables the operating mode change without operating a switchboard, e.g. by means of a remote push button.

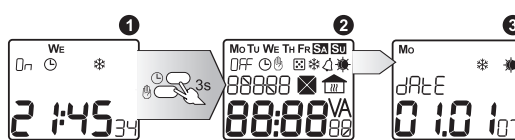


Programmable random mode - it is possible to set beginning and ending time, and the day of the random mode activity. Additionally, it is possible to program maximum ON and OFF times in dependence of user's needs.



Additional impulse mode - it is possible to switch the timer into the impulse mode which gives control units new capabilities.

MAIN RESET



- 1 In order to cancel the clock system (time, date, activity of given functions etc.) you should hold buttons (Mo Tu We Th Fr Sa Su) simultaneously in the main menu for **3 sec**;
- 2 All the display fields will light up;
- 3 After a while, the clock will automatically set date and time.

Attention: In order to restore factory settings, you should additionally hold button OK

1. Teconex provides a five-year warranty for its products.
2. The Teconex warranty does not cover:
 - a) mechanical defects resulting from transport, loading / unloading or other circumstances
 - b) defects resulting from incorrect installation or operation of Teco products;
 - c) defects resulting from any changes made by CUSTOMERS or third parties, to products sold or equipment necessary for the correct operation of products sold;
 - d) defects resulting from force majeure or other aleatory events for which Teconex is not liable;
 - e) power supply (batteries) to be equipped with a device in the moment of sale (if they appear);
3. All complaints in relation to the warranty must be provided by the CUSTOMER in writing to the retailer after discovering a defect;
4. Teconex will review complaints in accordance with existing regulations.;
5. The way a complaint is settled, e.g. replacement of the product, repair or refund, is left to the discretion of Teconex.
6. Guarantee does not exclude, does not limit, nor does it suspend the rights of the PURCHASER resulting from the discrepancy between the goods and the contract.