

TDTS1C230B TIME PROGRAMMER

WEEK'S - SINGLE-CHANNEL

INSTRUCTION MANUAL



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DESCRIPTION

Digital control time switches TDTS1C230B are used to realise the time functions in automation and control systems. Weekly programmers realise output relay control operations according to program adjustments (day, time). The device depending on its type has some additional functions e.g., a random function, which can be used to simulate presence, a control input function, which is used to change the operating mode of a system by means of an external push-button. The design of the casing allows the system to be mounted on a TH-35 rail and eventually to seal the device. The design of the system provides a battery back-up system for all adjustments in case of no voltage supply.

In order to protect the battery during storage, the TDTS1C230B 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,
- many programmes enabling various applications,
- mounted on TH 35 rail.

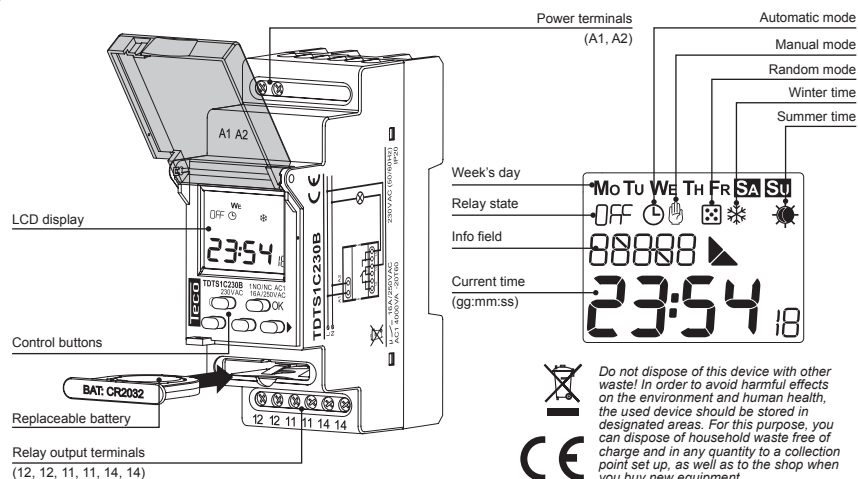


The device should be connected to a singlephase system according to current standards. The device connections will be described in this manual. Only qualified electricians are allowed to mount, connect and adjust the device. It is necessary to read this manual and know the unit functions before the device mounting. Do not disassembly the device casing or you will lose any warranty rights and expose yourself to the electric shock hazard. Before mounting operation make sure of disconnecting the connection wires from the electric network. Use a cross-head screwdriver of 3.5 mm diameter to mount the device. The relay should be carried, stored and used in an appropriate way. Do not mount the device in case of any device parts lack, damage or deformation. In case of malfunction please notify the manufacturer.

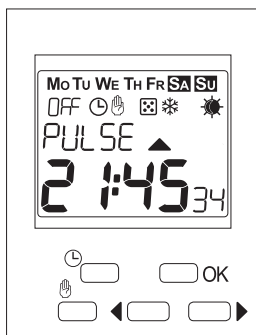
TECHNICAL DATA

Power supply terminals:	A1, A2
Input rated voltage:	230 V AC (-15 ÷ +10 %)
Nominal frequency:	50 / 60 Hz
Rated power consumption:	1,60 W / 17 VA 1,50 W / 3 VA
Number of channels:	1
Program quantity:	400 (200 On/Off pairs)
Program:	daily, week's
Operating modes:	manual, automatic, random, impulse
Change of season summer/ winter:	automatic, manual
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
Receiver input (supply) terminals:	11, 12, 14
Output relay parameters:	1 NO/NC-16 A/250 V AC1 4000 VA
Number of terminal clamps:	8
Section of connecting cables:	0,2 ÷ 2,50 mm ²
Ambient temperature range:	-20 ÷ +60 °C
Operating position:	freely
Mounting:	rail TH 35 (EN 60715)
Protection degree:	IP20 (EN 60529)
Overvoltage category:	II
Pollution degree:	2
Dimensions:	double-modular (35 mm) 90 x 35 x 66 mm
Weight:	0,140 kg
Reference standards:	EN 60730-1; EN 60730-2-7 EN 61000-4-2,3,4,5,6,11

APPEARANCE



DESCRIPTION



Description of elements and messages displayed

Mo Tu We Th Fr Sa Su - days of week

On OFF - relay status

☉ - automatic mode

☾ - manual mode

☼ - random mode

▲ - impulse mode

❄ - winter time

☀ - summer time

day - day, YEAR - year

Prog - program setting

time - current time setting and summer/winter time shift

dAtE - current date setting

rAnd - random mode setting

PULSE - impulse mode setting

Auto - automatic, USER - user's

On OFF - switched on/switched off

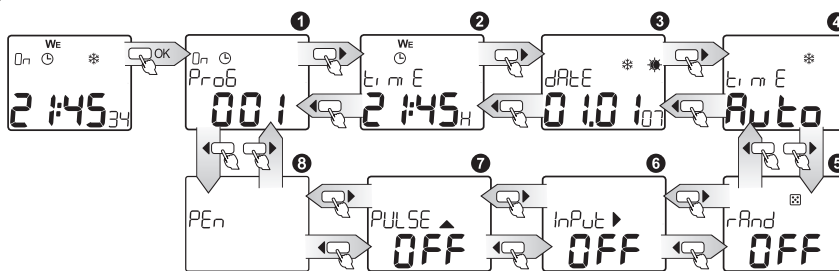
Push-buttons description

- ☉ • in the main window - enter into the automatic mode or change the relay status if the time switch is in the automatic mode,
- ☉ • in the main window (3 sec.) - random mode enter / exit,
- ☉ • in the random mode - manual change of an active / inactive randomness,
- ☉ • in other windows - exit to the previous level without data record;
- ☾ • in the main window - enter into the manual mode or change the relay status if the time switch is in the manual mode,
- ☾ • in the random mode - relay status change and randomness switch off,
- ☾ • in other windows - exit to the previous level without data record;
- OK • in the main window - enter the main menu,
- OK • in other windows - enter the sub menu or confirm the adjusted value;
- ◀ ▶ • switching the windows / menu options or increasing / decreasing the adjusted value;

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.

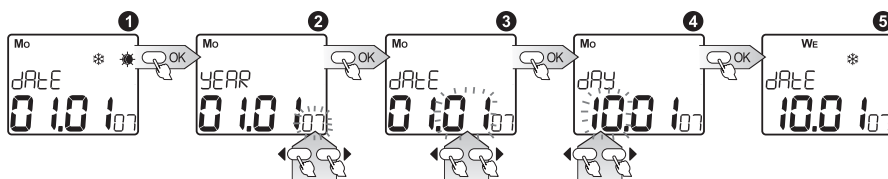
MAIN MENU



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

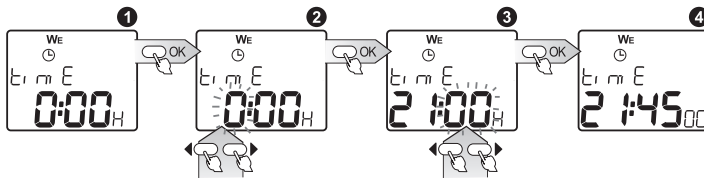
Function	Description
1 Prog	PROGRAM SETTING
2 time ☉	CURRENT TIME SETTING
3 dAtE **	CURRENT DATE SETTING
4 time *	WINTER/SUMMER TIME SETTING
5 rAnd ☼	RANDOM MODE SETTING
6 InPut ▶	EXTERNAL INPUT SETTING
7 PULSE ▲	IMPULSE MODE SETTING

DATE SETTING



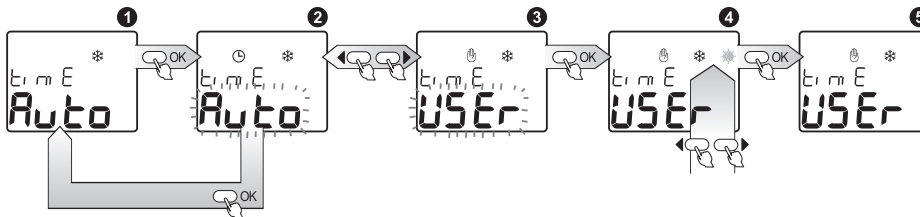
- 1 dAtE ** - Current date setting; entry after pressing OK;
 - 2 YEAR - choose adequate year with cursors ◀ ▶ confirm with OK, range of years: 2000+2099;
 - 3 MONTH - choose month with cursors ◀ ▶ confirm with OK;
 - 4 DAY - choose day with cursors ◀ ▶ confirm with OK; the system has a protection against 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



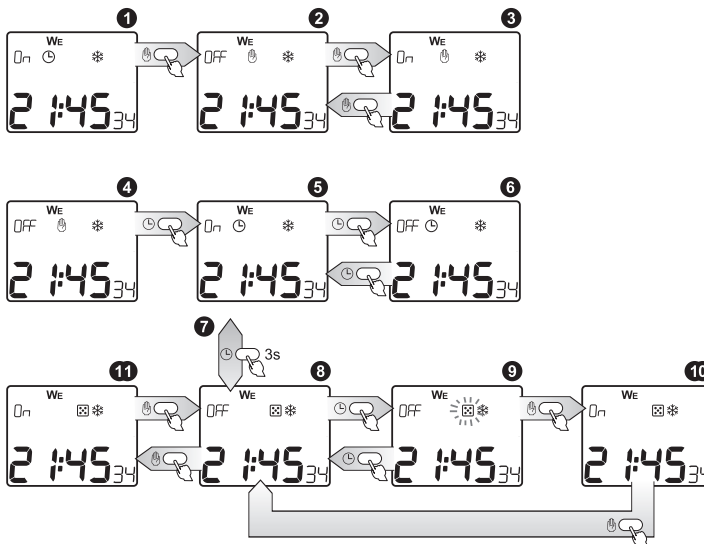
- ❶ $t_i m E$ - setting the current clock time; entry after pressing OK;
 - ❷ HOUR- choose adequate hour with cursor $\leftarrow \rightarrow$ which you can set in 1-24 H or 1-12 P (AM) and 1-12 P (PM) format; confirm with OK;
 - ❸ MINUTES - choose adequate parameter of minutes with cursors $\leftarrow \rightarrow$ confirm with OK;
 - ❹ 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



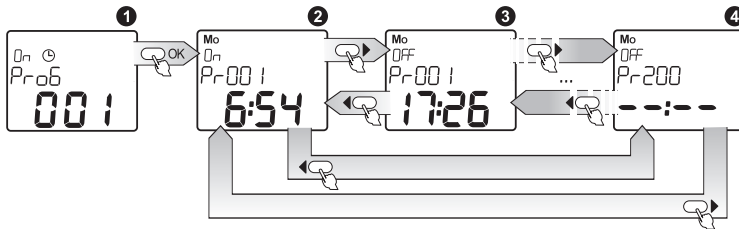
- ❶ $t_i m E^*$ - winter/summer time toggle mode selection: **Auto** - automatic time changing on the last March Sunday, at 2:00 into summer time and on the last October Sunday, at 3:00 into winter time, **USER** - winter/summer timer toggle manual, by user; option entering after pressing OK;
- ❷ MODE 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;
- ❸ With $\leftarrow \rightarrow$ select winter/summer, where $*$ is winter time, $*$ - summer time; if the time icon is changed, the timer will correct the current time appropriately; acknowledge by pressing OK;
- ❹ After time mode selecting winter/summer time change window will be open.

OPERATING MODE CHANGE (AUTOMATIC, MANUAL, RANDOM)



- ❶ MANUAL OP MODE TOGGLE - if the main window is open and the timer is in the automatic mode \odot pressing key \ominus will force the unit to toggle into the manual mode and the relay state changeover;
- ❷ \odot Successive \ominus key pressing will force the relay state changeover without the op mode;
- ❸ AUTOMATIC MODE TOGGLE - if the main window is open and the timer is in the manual mode \ominus pressing key \odot will force the unit to toggle into the automatic mode and the relay state changeover;
- ❹ \odot Successive \odot key pressing will force the relay state changeover without the op mode;
- ❺ RANDOM MODE TOGGLE - in order to enter the random mode it is necessary to press and hold \odot key for 3 secs;
- ❻ Continuous light \boxtimes indicates that the timer is not in the time range where ON/OFF states randomizing is to be active, and the pulsing light indicates that the unit is randomizing ON/OFF states according to RANDOM MODE SETTING menu settings; pressing key \odot forces randomizing ON/OFF states and the relay state changeover (\boxtimes pulsing \ominus), and RANDOM MODE SETTING menu settings are still binding; successive pressing \odot key forces randomizing to be OFF;
- ❼ \odot Pressing \ominus key forces the relay changeover and randomizing switch-OFF, if it was active (\boxtimes is lighting). The random mode exit is possible by pressing and holding \odot for 3 secs. ❺ Randomizing activity/inactivity update is being operated either in automatic or manual mode.

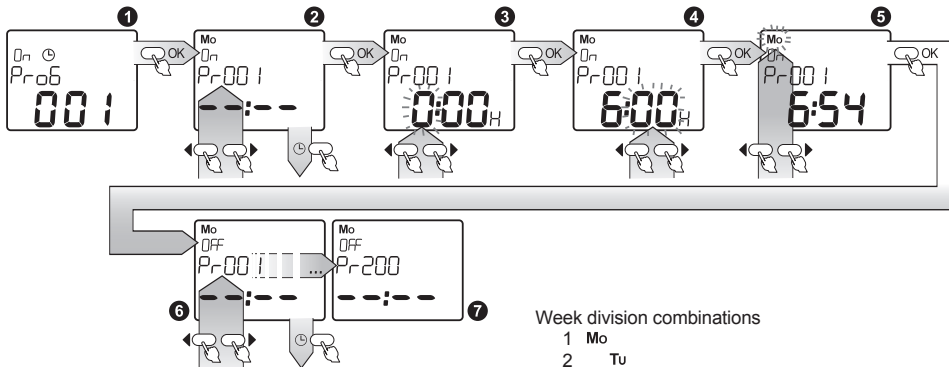
PROGRAM VIEWING



- ❶ PROGRAM VIEWING - viewing settings for the switching programs (ON / OFF) i.e. hours, minutes and the week's days; enter viewing with OK;
- ❷ In order to scroll the programs press successively cursor ◀ ▶; cursor ▶ increases the program no.; ◀ cursor decreases the program no.;
- ❸ The programs are numbered in the form of ON / OFF pairs (ON / OFF) where every program may be treated independently; there are 400 programs (200 pairs ON / OFF).

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

PROGRAM SETTING

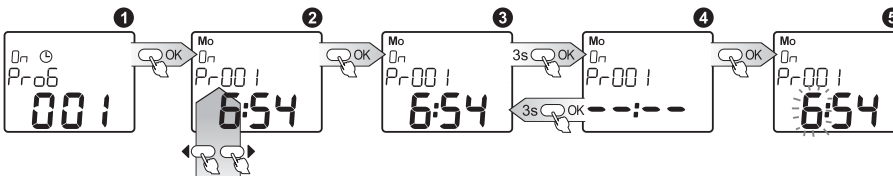


Week division combinations

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

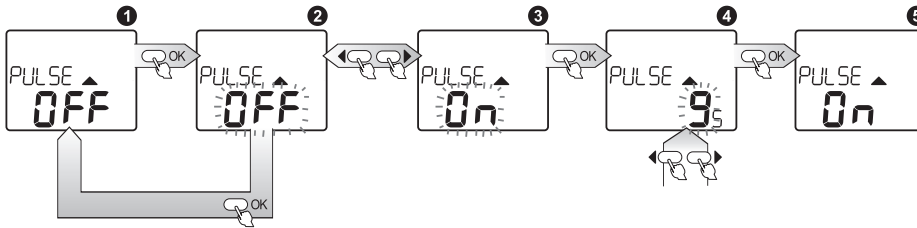
- ❶ Prog - defining ON-times and OFF-times for the given week's days for the given programs running in automatic mode messages on busy ON and OFF programs quantities are being showed alternatively in the current window ON, OFF (e. g. 00 i); edition entering by pressing OK; the programs are numbered as pairs (ON / OFF). Max programs quantity is equal to 200 ON / OFF pairs;
- ❷ With ◀ ▶ cursors select a program at (e.g. Pr-001 ON) for parameters editing and enter editing mode with OK;
- ❸ HOUR - with ◀ ▶ cursors select an hour, acknowledge with OK;
- ❹ MINUTE - with ◀ ▶ cursors select minutes, acknowledge with OK;
- ❺ 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 with OK - the program will be saved;
- ❻ The next stored program will be displayed (e.g. Pr-001 OFF) - Press OK. to enter edition; in order to select the other program use ◀ ▶ cursors, to exit programming press ⏻ or ⏹;
- ❼ The last program is Pr-200 OFF.

PROGRAM CANCEL / RESTORE



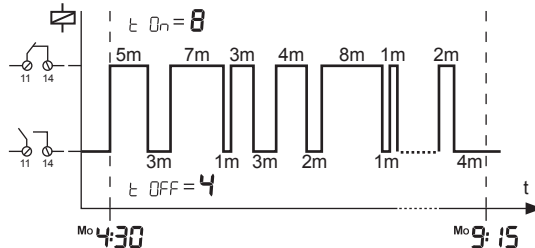
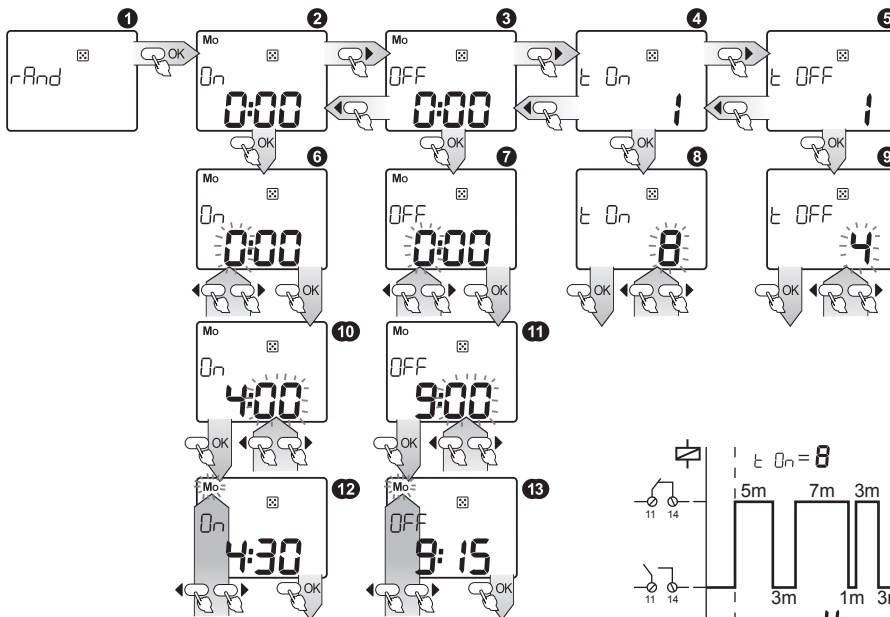
- ❶ PROGRAM CANCEL / RESTORE - the option is used during program setting and viewing for program cancelling (inactivation) and restoring; enter by pressing OK;
- ❷ With ◀ ▶ select the program to be cancelled / restored;
- ❸ Press and hold OK for 3 seconds - if the program is active it will be cancelled (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;
- ❹ 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 Ⓣ.

IMPULSE PROGRAM SETTING



- ❶ PULSE ▲ - the impulse generating mode switch ON / OFF and impulse duration time setting; the display shows the current mode state (0n - ON, OFF - OFF); enter edition with OK;
- ❷ With ◀ ▶ cursors select the mode state 0n or OFF; acknowledge selection with OK; if the option OFF selected, the main menu will be entered;
- ❸ If selected 0n set with ◀ ▶ cursors impulse duration time in seconds; acknowledge with OK;
- ❹ After setting acknowledgement the impulse mode setting window is entered. In the impulse mode only 0n programs are available.

RANDOM MODE SETTING



- ❶ rAnd - setting the time range and days when the randomize function is to be ON and defining maximum relay ON-time and OFF-time in the random mode; enter with OK; select the appropriate window with ◀ ▶ cursors, where:
- ❷ 0n - defining the time and day of the random mode beginning (active randomizing);
- ❸ OFF - defining the time and day of the random mode ending (inactive randomizing);
- ❹ 0n - defining maximum relay ON-time in minutes - the time will be randomized for the range from 1 minute to 0n minutes;
- ❺ OFF - defining maximum relay OFF-time in minutes - the time will be randomized for the range from 1 minute to OFF minutes;

Window ❷: press OK to enter; ❸ with ◀ ▶ cursors set randomizing ON hour, acknowledge with OK; ❹ with ◀ ▶ set randomizing ON minute, acknowledge with OK; ❺ with ◀ ▶ cursors set the days when randomizing is to be ON, acknowledge with OK; window ❷ will be open.

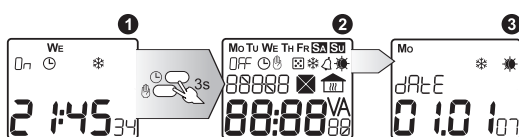
Window ❸: press OK to enter; ❶ with ◀ ▶ cursors set randomizing OFF hour, acknowledge with OK; ❷ with ◀ ▶ set randomizing OFF minute, acknowledge with OK; ❸ with ◀ ▶ cursors set the days when randomizing is to be OFF, acknowledge with OK; window ❸ will be open.

Window ❹: press OK to enter; ❶ with ◀ ▶ cursors set maximum ON- time (in minutes), acknowledge with OK; window ❹ will be open.

Window ❺: press OK to enter; ❶ with ◀ ▶ cursors set maximum OFF-time (in minutes), acknowledge with OK; window ❺ will be open.

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

MAIN RESET



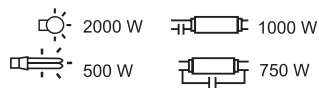
- ❶ In order to cancel the clock system (time, date, activity of given functions etc.) you should hold buttons (☺ and ⏻) simultaneously in the main menu for 3 sec;
- ❷ All the display fields will light up;
- ❸ After a while, the clock will automatically set date and time.

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

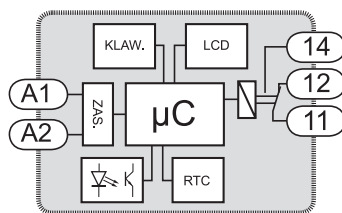
MOUNTING

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 TDTS1C230B 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.

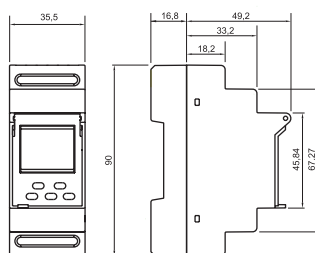
RELAY CAPACITY



INNER DIAGRAM



DIMENSIONS

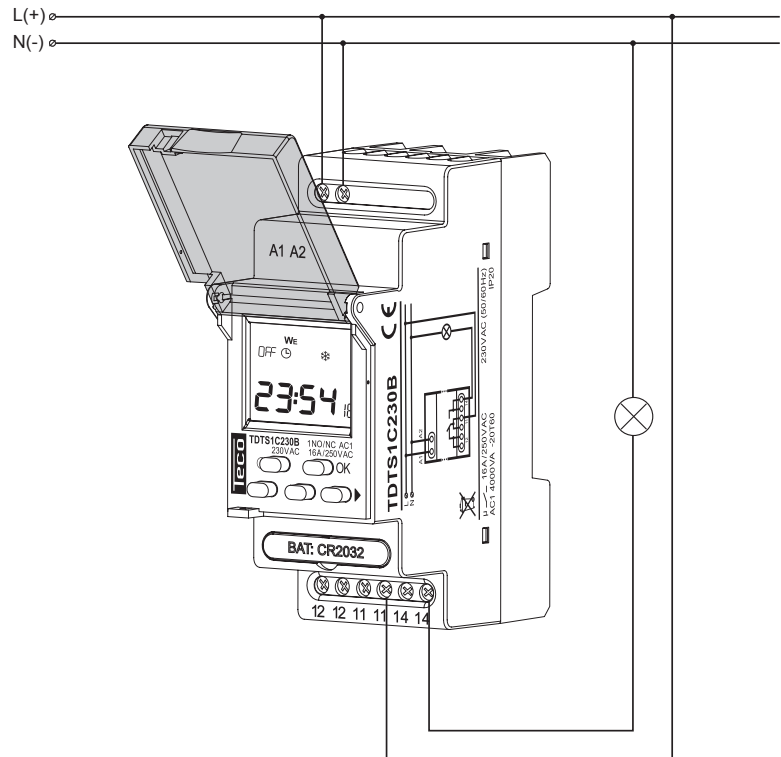


WARRANTY CARD

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.



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.

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.