ZCM-11, ZCM-11/U TIME PROGRAMMER
WEEK'S - SINGLE-CHANEL

INSTRUCTION MANUAL

Zakład Mechaniki i Elektroniki
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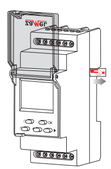
DESCRIPTION

Programmable control timers are designed for time functions execution in automatics and control systems. 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. A simple menu layout and an ergonomic keyboard enable easy and intuitive unit operating. **The construction of the system guarantees supporting of all the settings with battery energy when the electric power supply is off.**

CAUTION:
Before installing the device in the switchboard or starting the system operation in order to programme it, the battery security separator should be removed against discharging.



FEATURES

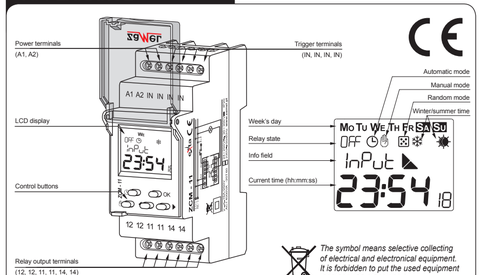
- Week's cycle control in dependence of the current hour,
- Double-module casing with a protection flap,
- Random op mode, additional control input IN,
- Many programmes enabling various applications,
- LCD display illumination,
- Mounted on TH 35 rail.

CAUTION 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

ZCM-11	
Power supply terminals:	A1, A2
Input rated voltage:	ZCM-12: 230 V AC (-15 ÷ +10 %) ZCM-12/U: 24 ÷ 250 V AC, 30 ÷ 300 V DC
Nominal frequency:	50 / 60 Hz
Rated power consumption:	2 W / 14 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
Colour of LCD panel lighting:	amber
Input:	yes
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:	IN, IN, IN, IN
Receiver input (supply) terminals:	11, 12, 14
Output relay parameters:	1 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)
Protection level:	II
Overvoltage category:	II
Pollution degree:	2
Dimensions:	double-modular (35 mm) 90x35x66 mm
Weight:	0,140 kg
Reference standards:	PN-EN 60730-1; PN-EN 60730-2-7 PN-EN 61000-4-2,3,4,5,6,11

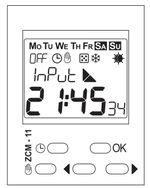
APPEARANCE



The symbol means selective collecting of electrical and electronical equipment. It is forbidden to put the used equipment together with other waste.

VER. 002_21.09.2009

DESCRIPTION



Description of elements and messages displayed

Mo Tu We Th Fr Sa Su - days of week
On OFF - transmitter's status
- automatic mode
- manual mode
- random mode
- impulse mode
- external input
- winter time
- summer time

dAy - day, YEAr - year
Prob - program setting
tIME - current time setting and summer/winter time shift
dAtE - current date setting
rAnd - random mode setting
InPut - extenal input setting
PULSE - impulse mode setting
Auto - automatic, USEr - user
On OFF - on/off

Button description

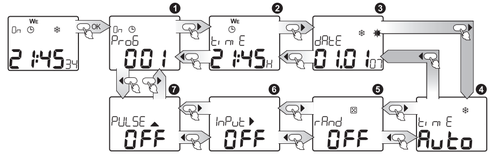
- in the main window - the automatic mode enter or relay state changeover, if the timer already in the automatic mode;
- in the main window (3 seconds) - the random mode enter / exit;
- in the random mode - randomizing active/inactive manual toggle;
- the other windows - exit to a higher level without changes saving;

- 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
- in the main window - the main menu enter;
- the other windows - a submenu enter or setting acknowledgement;

- window/option toggle or set value increase/decrease;

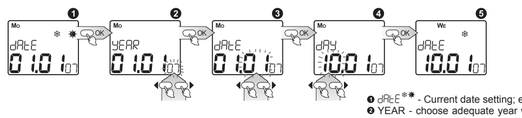
MAIN MENU



Menu enter by pressing OK;
menu items scrolling by means of cursors ◄ ►.

	Function	Description
1	Prob	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

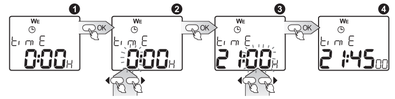
DATE SETTING



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 ✋.

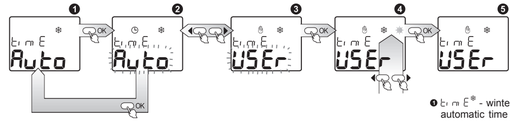
TIME SETTING



1. tIME - setting the current clock time; entry after pressing OK;
2. HOUR- choose adequate hour with cursor ◄ ► which you can set in 1-24 H or 1-12 A (AM) and 1-12 P (PM)format; confirm with OK;
3. MINUTES - choose adequate parameter of minutes with cursors ◄ ► 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.

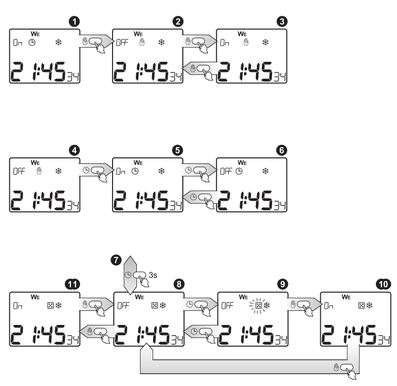
It is possible to exit every submenu window in any moment without saving settings by pressing the button ◷ or ✋.

WINTER / SUMMER TIME SETTING



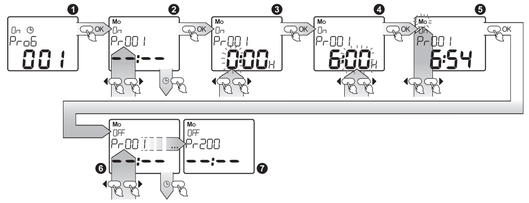
1. tIME ✱ - winter/summer time toggle mode selection: Auto - automatic time changing on the last March Sunday, at 2:00 into summer time and on the last October Sunday, at 3:00 into winter time, USEr - winter/summer timer toggle manual, by user; option entering after pressing OK;
2. ❶ MODE SETTING - with ◄ ► 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 ◄ ► 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;
4. After time mode selecting winter/summer time change window will be open.

OPERATING MODE CHANGE (AUTOMATIC, MANUAL, RANDOM)



1. MANUAL OP MODE TOGGLE - if the main window is open and the timer is in the automatic mode ◷ pressing key ✋ will force the unit to toggle into the manual mode and the relay state changeover;
2. ❶ Successive ✋ key pressing will force the relay state changeover without the op mode;
3. AUTOMATIC MODE TOGGLE - if the main window is open and the timer is in the manual mode ✋ pressing key ◷ will force the unit to toggle into the automatic mode and the relay state changeover;
4. ❸ Successive ◷ key pressing will force the relay state changeover without the op mode;
5. RANDOM MODE TOGGLE - in order to enter the random mode it is necessary to press and hold ◷ key for **3 secs**;
6. Continuous light ⊠ iindicates 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 ◷ orces randomizing ON/OFF states and the relay state changeover (⊠ pulsing ❻), and RANDOM MODE SETTING menu settings are still binding; successive pressing ◷ key forces randomizing to be OFF;
7. ❿ ⓫ Pressing ✋ key forces the relay changeover and randomizing switch-OFF, if it was active (⊠ is lighting). The random mode exit is possible by pressing and holding ◷ for **3 secs.** ❻. Randomizing activity/inactivity update is being operated either in automatic or manual mode.

PROGRAM SETTING

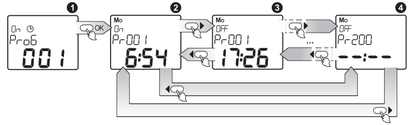


Week division combinations

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 Pr05 - 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 h); 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. Pr001 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. Pr001 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 Pr200 OFF.

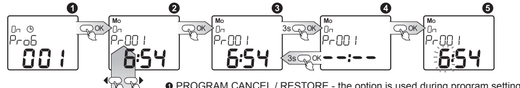
PROGRAM VIEWING



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 ❸ In order to scroll the programs press successively cursor ◖ ◗; cursor ◗ increases the program no.; ◖ cursor decreases the program no.;
❹ 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).

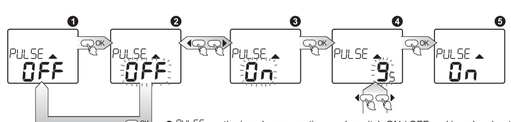
It is possible to exit every submenu window in any moment without saving settings by pressing the button ◷ or ⌂.

PROGRAM CANCEL / RESTORE



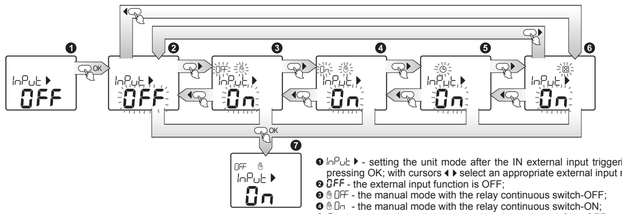
❶ PROGRAM CANCEL / RESTORE - the option is used during program setting and viewing for program cancelling (inactivation) and restoring; enter by pressing OK;
❷ With ◖ ◗ select the program to be cancelled / restored;
❸ Press and hold OK for 3 seconds - if the program is active it will be cancelled (inactivated) and will not be checked during the timer operating in the automatic mode (however it will by 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 ❸, pressing and holding OK for 3 seconds will cause the program restoring without time edition possibility ❸.

IMPULSE PROGRAM SETTING



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

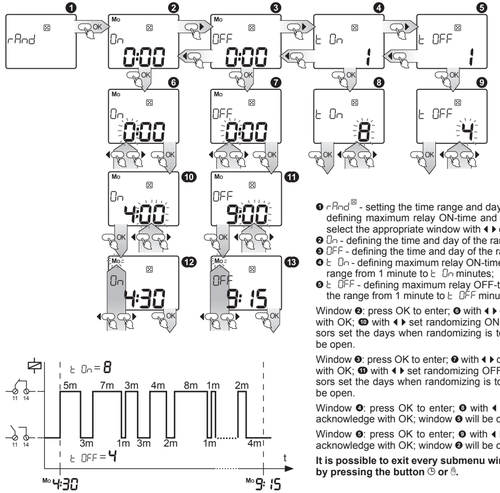
EXTERNAL INPUT SETTING



❶ InPut ◗ - setting the unit mode after the IN external input triggering; enter edition by pressing OK; with cursors ◖ ◗ select an appropriate external input mode, where:
❷ OFF - the external input function is OFF;
❸ ⌂ OFF - the manual mode with the relay continuous switch-OFF;
❹ ⌂ On - the manual mode with the relay continuous switch-ON;
❺ ◷ - the automatic mode, the relay is being switched ON / OFF according to the preset programs;
❻ ⊠ - the random mode according to the RANDOM MODE SETTING menu settings;
❼ Acknowledge selection with OK; after acknowledgement the external input settings window will be entered.

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

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 On - 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 t On - defining maximum relay ON-time in minutes - the time will be randomized for the range from 1 minute to t On minutes;
❺ t OFF - defining maximum relay OFF-time in minutes - the time will be randomized for the range from 1 minute to t OFF minutes;

Window ❷: press OK to enter; ❷ with ◖ ◗ cursors set randomizing ON hour, acknowledge with OK; ❿ with ◖ ◗ set randomizing ON minute, acknowledge with OK; ⓬ with ◖ ◗ cursors set the days when randomizing is to be ON, acknowledge with OK; window ❷ will be open.

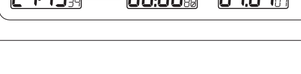
Window ❸: press OK to enter; ❸ with ◖ ◗ cursors set randomizing OFF hour, acknowledge with OK; ⓫ with ◖ ◗ set randomizing OFF minute, acknowledge with OK; ⓭ with ◖ ◗ cursors set the days when randomizing is to be OFF, acknowledge with OK; window ❸ will be open.

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

Window ❺: press OK to enter; ❺ 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



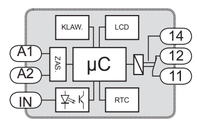
❶ In order to cancel the clock system (time, date, activity of given functions etc.) you should hold buttons (◷ and ⌂) simultaneously in the main menu for **3 sec**;
❷ All the display fields will light up;
❸ After a while, the clock will automatically set date and time.

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

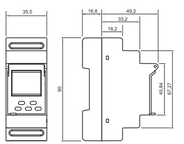
MOUNTING

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 ZCM-11 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.

INNER DIAGRAM



DIMENSIONS



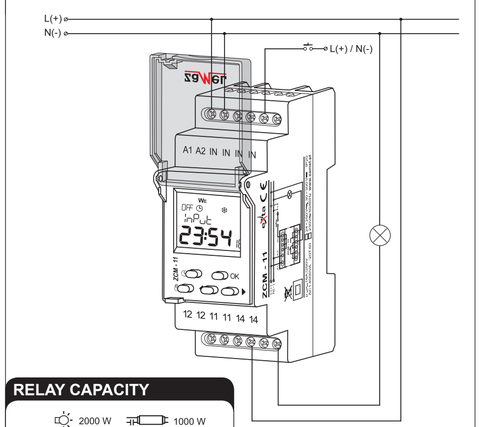
PRODUCT FAMILY

ZCM-11 Programmer belongs to ZCM family of products.

ZCM-xx/U

- Power supply:
  - ZCM-xx - 230 V AC
  - ZCM-xx/U - 24 ÷ 250 VAC, 30 ÷ 300 V DC
- Programmer type:
  - 11 - week (1 channel)
  - 12 - week (2 channel)
  - 21 - year
  - 31 - astronomical
- Device type

CONNECTION



RELAY CAPACITY

2000 W	1000 W
500 W	750 W

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.

WARRANTY CARD

There is 24 months guarantee on the product

Salesman stamp and signature, date of sale

1. ZMIE ZAMEL SP. J. assures 24 months guarantee for the product.
2. The manufacturer's guarantee does not cover any of the following actions:
   a) mechanical damage during transport, loading / unloading or under other circumstances,
   b) damage caused by incorrect product mounting or misuse,
   c) damage caused by unauthorised modifications made by the PURCHASER or any third parties to the product or any other devices needed for the product functioning,
   d) damage caused by Act of God or any other incidents independent of the manufacturer.
3. The PURCHASER shall lay any claims in writing to the dealer or ZMIE ZAMEL SP. J.
4. ZMIE ZAMEL SP. J. is liable for processing any claim according to current Polish legislation.
5. ZMIE ZAMEL SP. J. shall process the claim at its own discretion: product repair, replacement or money return.
6. The manufacturer's guarantee is valid in the Republic of Poland.
7. The PURCHASER's statutory rights in any applicable legislation whether against the retailer arising from the purchase contract or otherwise are not affected by this warranty.