Schelinger

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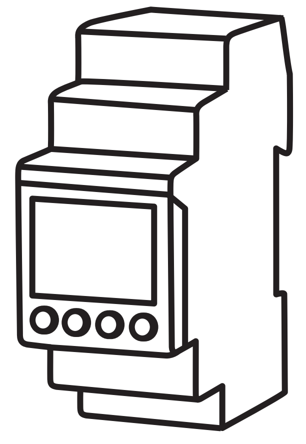
USER MANUAL

ASTRONOMICAL TIME SWITCH
24-264V AC/DC SINGLE CHANNEL



TPA1

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1. Description

TPA1 astronomical time switch is for realization of time functions in the systems of automatics and steering. The device has functions like: night break program, set the offset times and operation time of sunrise and sunset. It works according to a set time schedule planned by the user. There is an internal battery which can protect real time clock and all the settings when the power supply is off.

2. Features

- Digital time switch with astronomical program
- 2 year power reserve (lithium battery)
- Sealable cover of the front panel
- Easy setting by 4 keys
- Automatic summer / winter time switchover
- Backlighted LCD display
- Holiday mode
- Single channel
- Double-module, mounted on TH-35 rail

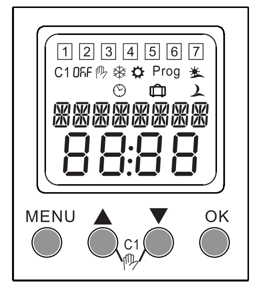
3. Maintenance / Operation

Please read this instruction manual carefully and familiarize yourself with device before using it for the first time. Please keep this manual for future reference. Making individual repairs and modifications results in the loss of the guarantee. Manufacturer is not responsible for any damages resulting from improper installation or exploitation of the device. The producer reserves the right to change the parameters and upgrade constructional solutions of the device. The device must be installed by a qualified person. Disconnect power suplly before working on the device. Don't touch any terminal when the power is ON.
Don't immerse the device in water or other liquids. Do not install or operate the device if the housing is damaged. Disassembly of the housing will void the warranty and create a risk of electric shock. Fail to follow these intructions can cause serious injury or death.

4. Technical data

Supply terminal	A1-A2
Rated voltage	24-264VAC/DC
Rated frequency	50/60Hz
Power consumption	0,5W
Supply voltage tolerance	± 10%
Number of channels	1
Program	Astronomical
Mode of work	manual / automatic / holiday
Summer / winter time	OFF / automatic changeover
Time tolerance	≤1s/day at 20°C
Power reserve	10 years
Data readout	backlighted LCD
Number of contacts	1 NC + 1 NO
Current of conntacts	16(8)A/250V~
Switching capacity	4000VA/AC, 384W/DC
Mechanical life	1 000 000
Electrical life	100 000
Rated insulation voltage	250V
Protection degree	P20
Pollution degree	3
Altitude	2000m
Ambient temperature	-30 ÷ +55°C
Permissable relative humidity	<40%
Storage temperature	-30 ÷ +55°C
Wire size	1 ÷ 4mm
Tightening torque	0,5Nm
Mounting	TH35
Dimmension	90 x 36 x 65mm
Standard	PN-EN 60730-1; PN-EN 60730-2-7

5. Display and Keys



Display

1 2 3 4 5 6 7 — Days of the week: Mon / Tue / We / Th / Fr / Sat / Sun

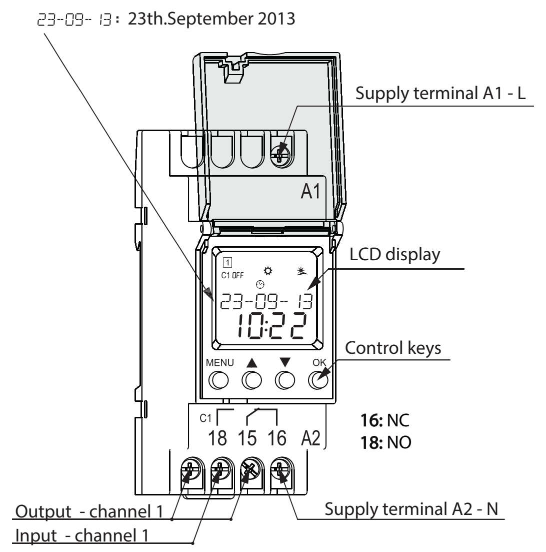
C1 — Channel 1	Sunrise
On / OFF — Relay status	Sunset
Automatic mode	Winter time
Manual mode	Summer time
Holiday mode	Prog — Program setting

Keys

The programmer display will light up when the device is connected to the power supply.

MENU: Enter main menu; Back to main menu	OK: Confirm selection
▲: Select menu; Increase a numerical value	▼: Select menu; Decrease a numerical value
▲▼ C1: C1 manual operation	

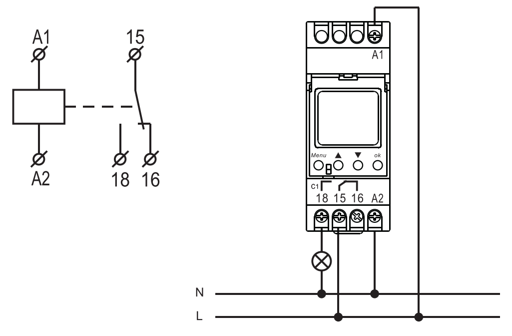
23-09-13: 23th.September 2013



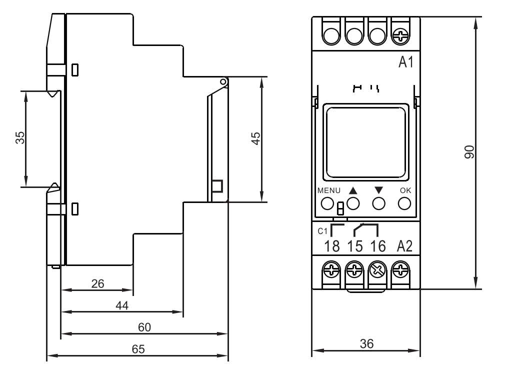
6. Maximum load power

incande-scent	halogens	T8 G13	T8 G13	LED / CFL
16A	16A	8A	8A	8A

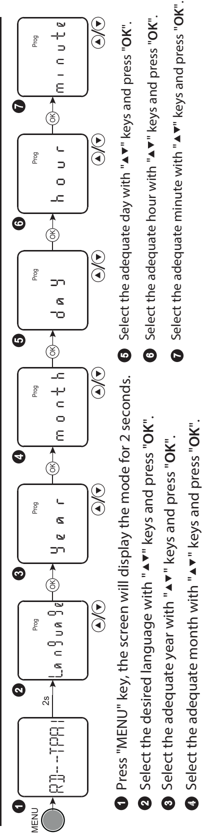
7.Wiring diagram



8. Dimensions



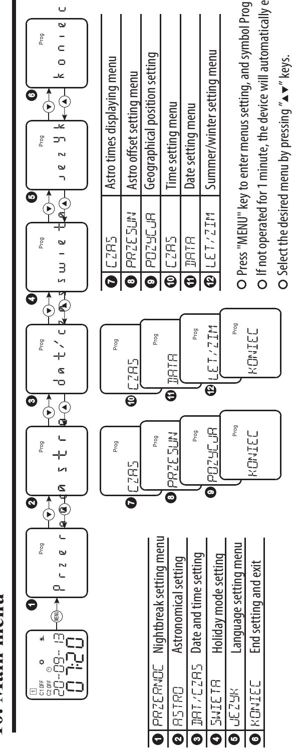
9. First run



1. Press "MENU" key, the screen will display the mode for 2 seconds.
2. Select the desired language with "▲▼" keys and press "OK".
3. Select the adequate year with "▲▼" keys and press "OK".
4. Select the adequate month with "▲▼" keys and press "OK".
5. Select the adequate day with "▲▼" keys and press "OK".
6. Select the adequate hour with "▲▼" keys and press "OK".
7. Select the adequate minute with "▲▼" keys and press "OK".

NOTE: *If settings were not ended and not operated by keys for 2 minutes, device will return to ENGLISH menu*

10. Main menu

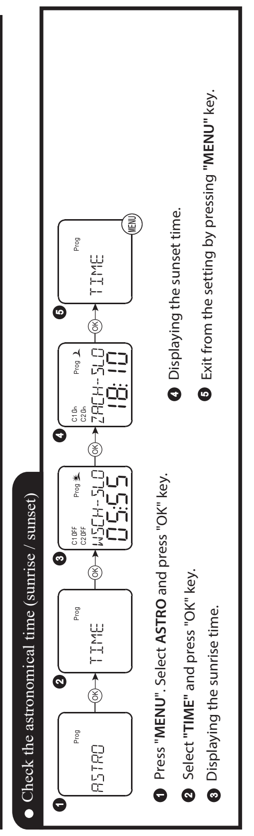


1	PRZERWOC	Nightbreak setting menu
2	ASTRO	Astronomical setting
3	DAT/CZAS	Date and time setting
4	SWIETA	Holiday mode setting
5	JEZYK	Language setting menu
6	KONIEC	End setting and exit
7	CZAS	Astro times displaying menu
8	PRZESUN	Astro offset setting menu
9	POZYCJA	Geographical position setting
10	CZAS	Time setting menu
11	DATA	Date setting menu
12	LET/ZIM	Summer/winter setting menu

- Press "MENU" key to enter menus setting, and symbol Prog appears.
- If not operated for 1 minute, the device will automatically exit from setting.
- Select the desired menu by pressing "▲▼" keys.

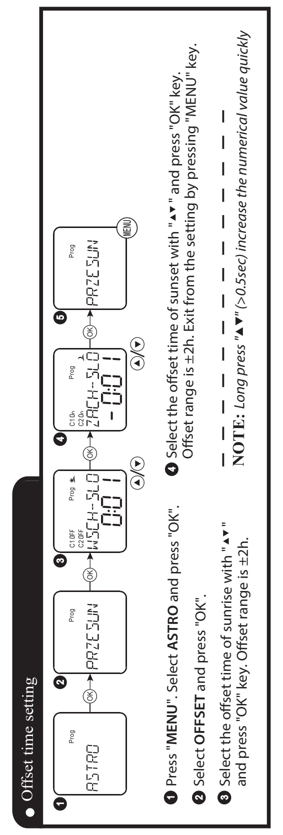
11. Astronomical time setting and display

- Check the astronomical time (sunrise / sunset)



1. Press "MENU". Select ASTRO and press "OK" key.
2. Select "TIME" and press "OK" key.
3. Displaying the sunrise time.
4. Displaying the sunset time.
5. Exit from the setting by pressing "MENU" key.

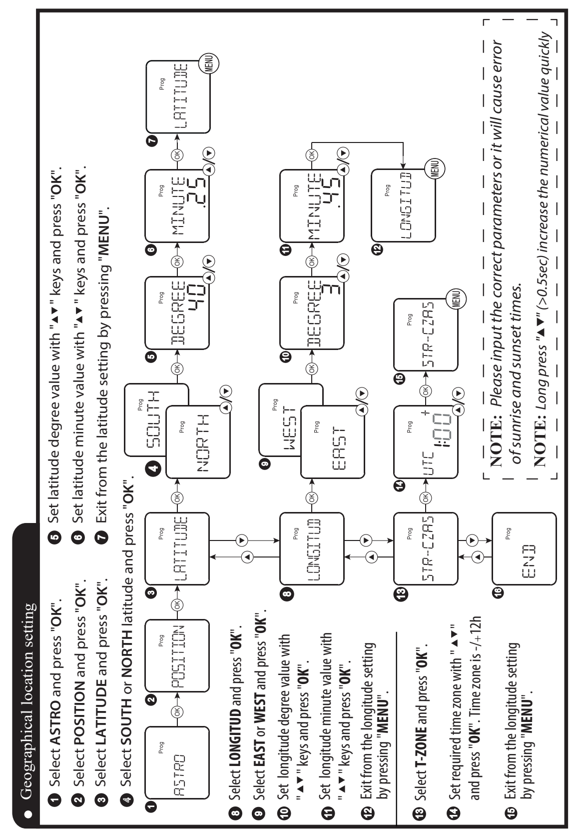
- Offset time setting



1. Press "MENU". Select ASTRO and press "OK".
2. Select OFFSET and press "OK".
3. Select the offset time of sunrise with "▲▼" and press "OK" key. Offset range is ±2h.
4. Select the offset time of sunset with "▲▼" and press "OK" key. Offset range is ±2h. Exit from the setting by pressing "MENU" key.

NOTE: *Long press "▲▼" (>0.5sec) increase the numerical value quickly*

- Geographical location setting



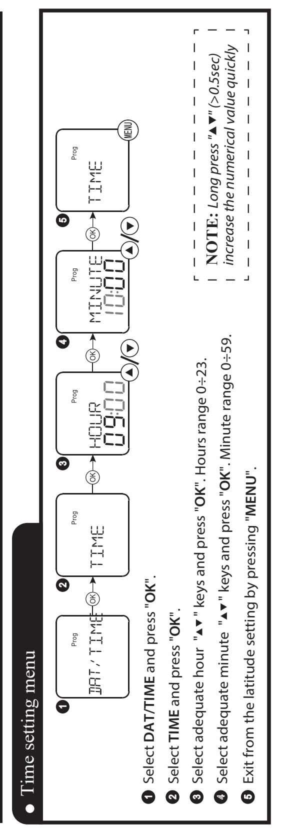
1. Select ASTRO and press "OK".
2. Select POSITION and press "OK".
3. Select LATITUDE and press "OK".
4. Select SOUTH or NORTH latitude and press "OK".
5. Set latitude degree value with "▲▼" keys and press "OK".
6. Set latitude minute value with "▲▼" keys and press "OK".
7. Exit from the latitude setting by pressing "MENU".
8. Select LONGITUD and press "OK".
9. Select EAST or WEST and press "OK".
10. Set longitude degree value with "▲▼" keys and press "OK".
11. Set longitude minute value with "▲▼" keys and press "OK".
12. Exit from the longitude setting by pressing "MENU".
13. Select T-ZONE and press "OK".
14. Set required time zone with "▲▼" and press "OK". Time zone is -/+ 12h
15. Exit from the longitude setting by pressing "MENU".

NOTE: *Please input the correct parameters or it will cause error of sunrise and sunset times.*

NOTE: *Long press "▲▼" (>0.5sec) increase the numerical value quickly*

12. Time and date setting menu

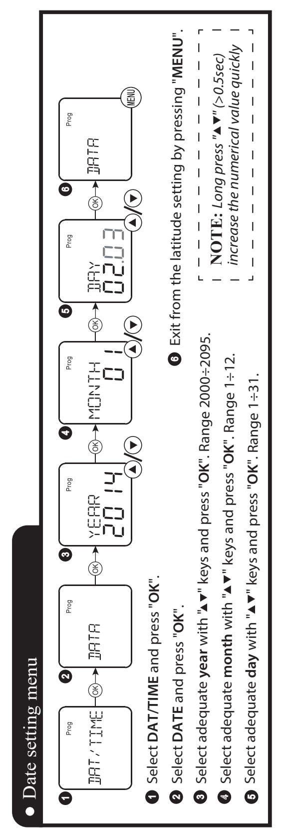
- Time setting menu



1. Select DAT/TIME and press "OK".
2. Select TIME and press "OK".
3. Select adequate hour "▲▼" keys and press "OK". Hours range 0÷23.
4. Select adequate minute "▲▼" keys and press "OK". Minute range 0÷59.
5. Exit from the latitude setting by pressing "MENU".

NOTE: *Long press "▲▼" (>0.5sec) increase the numerical value quickly*

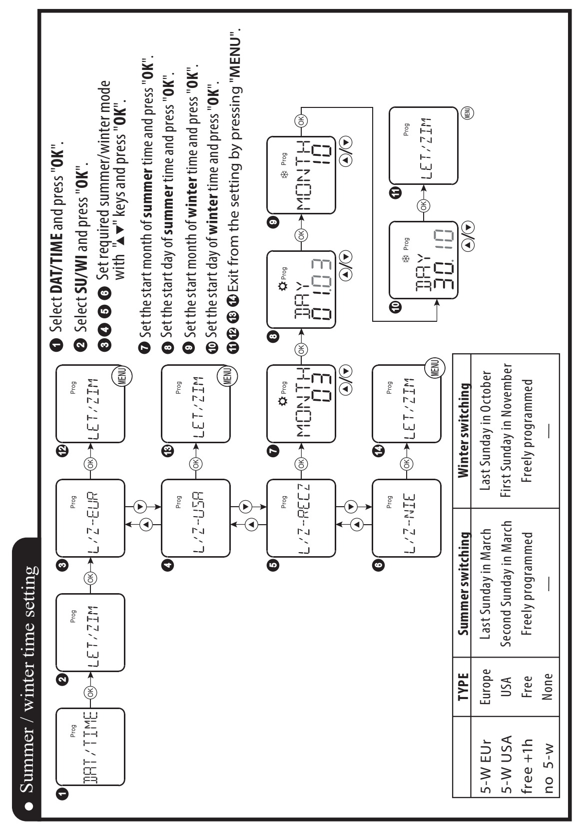
- Date setting menu



1. Select DAT/TIME and press "OK".
2. Select DATE and press "OK".
3. Select adequate year with "▲▼" keys and press "OK". Range 2000÷2095.
4. Select adequate month with "▲▼" keys and press "OK". Range 1÷12.
5. Select adequate day with "▲▼" keys and press "OK". Range 1÷31.
6. Exit from the latitude setting by pressing "MENU".

NOTE: *Long press "▲▼" (>0.5sec) increase the numerical value quickly*

- Summer / winter time setting



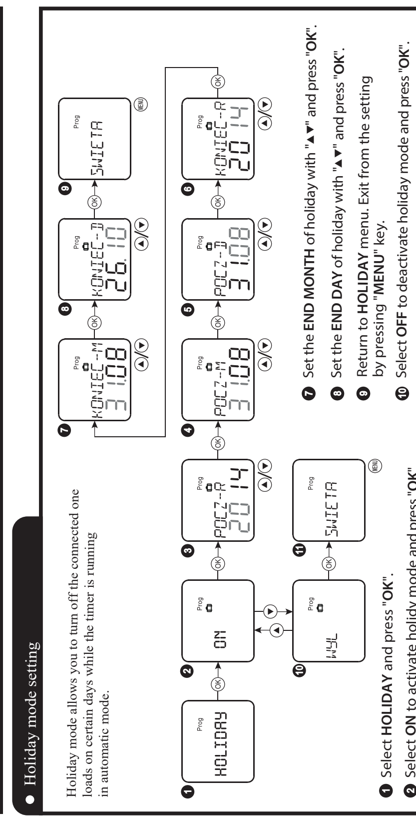
1. Select DAT/TIME and press "OK".
2. Select SU/WI and press "OK".
3. 4. 5. 6. Set required summer/winter mode with "▲▼" keys and press "OK".
7. Set the start month of summer time and press "OK".
8. Set the start day of summer time and press "OK".
9. Set the start month of winter time and press "OK".
10. Set the start day of winter time and press "OK".
11. 12. 13. 14. Exit from the setting by pressing "MENU".

	TYPE	Summer switching	Winter switching
S-W EUr	Europe	Last Sunday in March	Last Sunday in October
S-W USA	USA	Second Sunday in March	First Sunday in November
free +1h	Free	Freely programmed	Freely programmed
no S-w	None	—	—

13. Holiday mode

- Holiday mode setting

Holiday mode allows you to turn off the connected one loads on certain days while the timer is running in automatic mode.

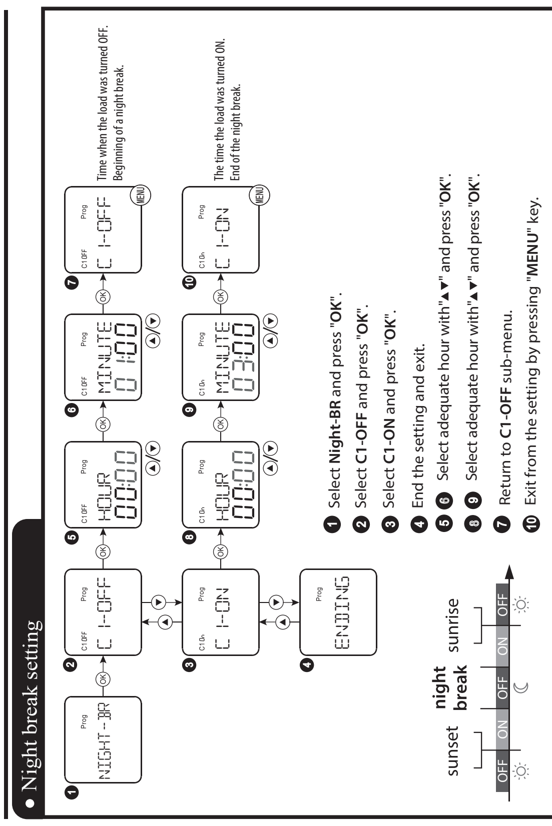


1. Select HOLIDAY and press "OK".
2. Select ON to activate holidy mode and press "OK".
3. Set the START YEAR of holiday with "▲▼" and press "OK".
4. Set the START MONTH of holiday with "▲▼" and press "OK".
5. Set the START DAY of holiday with "▲▼" and press "OK".
6. Set the END YEAR of holiday with "▲▼" and press "OK".
7. Set the END MONTH of holiday with "▲▼" and press "OK".
8. Set the END DAY of holiday with "▲▼" and press "OK".
9. Return to HOLIDAY menu. Exit from the setting by pressing "MENU" key.
10. Select OFF to deactivate holiday mode and press "OK".
11. Return to HOLIDAY menu. Exit from the setting by pressing "MENU" key.

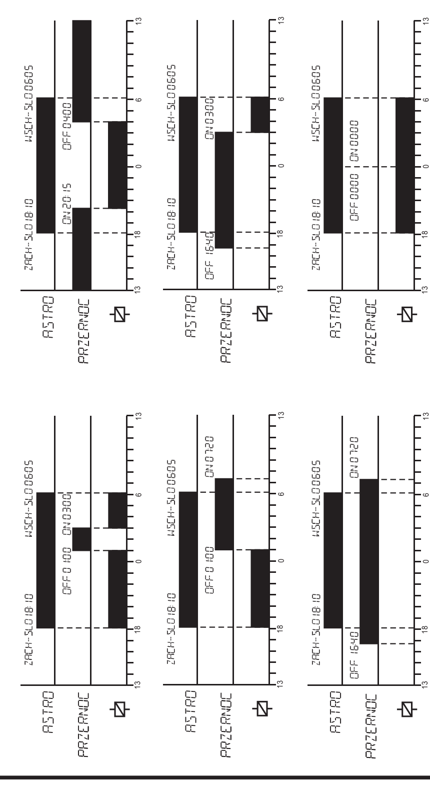
NOTE: *Long press "▲▼" (>0.5sec) increase the numerical value quickly*

14. Programme settings

- Night break setting



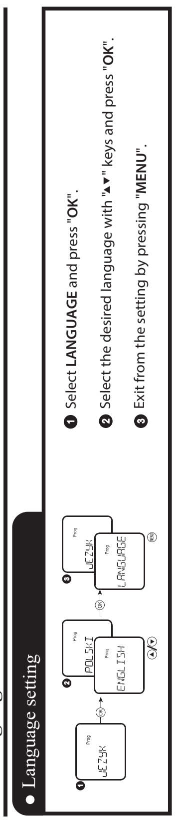
1. Select Night-BR and press "OK".
2. Select C1-OFF and press "OK".
3. Select C1-ON and press "OK".
4. End the setting and exit.
5. 6. Select adequate hour with "▲▼" and press "OK".
8. 9. Select adequate hour with "▲▼" and press "OK".
7. Return to C1-OFF sub-menu.
10. Exit from the setting by pressing "MENU" key.



NOTE: *Long press "▲▼" (>0.5sec) increase the numerical value quickly*

15. Language

- Language setting



1. Select LANGUAGE and press "OK".
2. Select the desired language with "▲▼" keys and press "OK".
3. Exit from the setting by pressing "MENU".

After setting the operating parameters, the machine starts executing the set program even in the case of no external power supply. The display will show the symbol informing about the work in automatic mode.

16. Reset and factory settings

Press the 4 keys simultaneously for 3 seconds to reset automatically. The device will be restored to factory settings.

17. Key combination for MANUAL control

- AUTO/MANUAL

Press "▲▼" keys simultaneously, the output state switches to MANUAL. When the output states of other operation modes was changed. Manual mode exits automatically.

- PERM ON/PERM OFF

Press "▲▼" keys simultaneously for >2sec, the output state switches to PERM ON / PERM OFF. Icon flashes.

>2S

AUTO	AUTO mode
MANUAL	MANUAL mode
PERM ON	PERMANENT ON mode
PERM OFF	PERMANENT OFF mode