PCZ-526.2 Z

PROGRAMMABLE CONTROL TIMERS
### astronomic type

CE

5908312591412

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F&F products are covered by an 24 months warranty from date of purchase

PURPOSE

Astronomical control timers is as for enclosing and switching off of illumination or according to other electric receivers 24 hours, astronomical points of west and sunrise

t

night break

joint 1-5

programmable enclosing point

t_1

t_2

programmable exclusioning point
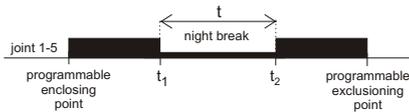
TECHNICAL DATA

supply	24÷264V AC/DC
current load	2×(<16A)
contacts	2×1P
display maintenance time	non
timer maintenance time	6 years
indication accuracy item	1sec
time deviation	±1s/24h
schedule time accurancy item	1min
corection activation and deactivation time	±0÷99min
power consumption	1,5W
working temperature	-20÷50°C
connection	screw terminals 2,5mm²
dimensions	2 modules (35mm)
fixing	on the rail TH-35

WIRING DIAGRAM

AC/DC

| 1 | 2 | 3 | 4 |

| 5 | 6 | 7 | 8 |
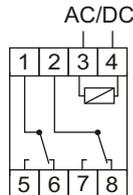
Chanell 1:
    joint 1-5 "ENCLOSE" [ON]
    joint 1-6 "EXCLUSION" [OFF]
Chanell 2:
    joint 2-7 "ENCLOSE" [ON]
    joint 2-8 "EXCLUSION" [OFF]

FUNCTIONING

The astronomical timer activates and deactivates a device at certain hour, i.e. at sunrise and sunset. Should more settings that are precise be required for locations of different geographical co-ordinates, there is an option to set a given longitude and latitude or select a special code which entails automatic setting of these co-ordinates for a given place in Europe (list of locations and their codes may be found in the manual). Time points of enclosing and exclusion are set by user by HOUR SLIP MODE or TIME CORRECTION MODE it means , posible is speed up or delay a programmable time points of enclosing or exlusioning for sunrise and sunset. Posible is programming a night break between enclusion and exclusion programming points (take off the power for hour to austerity energy).

ASSEMBLY

1. Take OFF the power.
2. Put on the control timer on the rail in the switchgear box.
3. Connect the power cables with wiring diagram.
4 Connect the reciuvers with wiring diagram.
5.Set a correct date (see p. 2) and time (see p3)
6.Set to user configuration (see p4)

Kod	Miasto	°N	°E	City	Kraj
1	Praga	50 08	14 25	Prague	CZECH REPUBLIC
2	Pilzno	49 47	13 22	Plzen	
3	Budejovice	48 58	14 29	Ceske Budejovice	
4	Brno	49 10	16 37	Brno	
5	Olomouc	49 35	17 15	Olomouc	
6	Ostrawa	49 51	18 19	Ostrava	
7	Hradec Kralowe	50 13	15 49	Hradec Kralove	
8	Bratysława	48 08	17 05	Bratislava	SLOWAKIA
9	Żylina	49 13	18 44	Zilina	
10	Banska Bystryca	48 44	19 08	Banska Bystrica	
11	Poprad	49 03	20 17	Poprad	
12	Koszyce	48 43	21 15	Kosice	HUNGARY
13	Budapeszt	47 30	19 04	Budapest	
14	Debrecen	47 33	21 37	Debrecen	
15	Szeged	46 15	20 08	Szeged	
16	Szombathely	47 13	16 37	Szombathely	
17	Gyor	47 40	17 38	Gyor	LITHUANIA
18	Wilno	54 42	25 17	Vilnius	
19	Kowno	54 54	23 53	Kaunas	
20	Kłajpeda	55 41	21 08	Klaipeda	
21	Poniewież	55 43	24 21	Panevezys	
22	Szawle	55 56	23 18	Siauliai	LATWIA
23	Ryga	56 57	24 06	Riga	
24	Lipawa	56 30	21 00	Liepaja	
25	Dyneburg	55 52	26 32	Daugavpils	
26	Aluksne	57 26	27 01	Aluksne	ESTONIA
27	Talin	59 25	24 42	Tallin	
28	Kuressaara	58 13	22 29	Kuressaare	
29	Marnawa	58 22	24 29	Parnu	
30	Tartu	58 22	26 43	Tartu	
31	Kijów	50 26	30 32	Kiev	UKRAINA
32	Lwów	49 51	24 01	Lvov	
33	Charków	50 00	36 12	Kharkiv	
34	Dniepropietrowsk	48 29	35 01	Dnipropetrovsk	
35	Doniec	48 03	37 45	Donetsk	
36	Kamieniec Podolski	48 40	26 31	Kamenets Polodol'skiy	
37	Zaporoże	47 52	35 08	Zaporizhzhya	
38	Krzywy Róg	47 54	33 20	Krivoy Rog	
39	Symferopol	44 58	34 04	Simferopol	
40	Odessa	46 29	30 40	Odessa	
41	Kirovohrad	48 31	32 16	Kirovohrad	BELARUS
42	Chmielnicki	49 25	26 59	Khmelnystkyy	
43	Minsk	53 55	27 32	Minsk	
44	Grodno	53 40	23 49	Grodno	

48	Moskwa	55 46	37 33	Moscow	
49	Petersburg	59 56	30 14	St Petersburg	
50	Niżny Nowgorod	56 20	43 53	Nizhniy Novgorod	
51	Smoleńsk	54 47	32 02	Smolensk	
52	Rastow	47 13	39 42	Rostov	
53	Wołgograd	48 45	44 24	Volgograd	
54	Kursk	51 43	36 08	Kursk	
55	Uhta	63 36	53 47	Ukhta	
56	Vorkuta	67 31	63 59	Vorkuta	
57	Murmańsk	68 58	33 05	Murmansk	
58	Archangielsk	64 32	40 33	Archangel	ROSJA
59	Kazań	55 50	49 03	Kazan	
60	Perm	58 01	56 13	Perm	
61	Ekaterinburg	56 51	60 35	Yekaterinburg	
62	Ufa	54 50	56 06	Ufa	
63	Celjabinsk	55 09	61 25	Chelyabinsk	
64	Syktywkar	61 38	50 52	Syktyvar	
65	Samara	53 12	50 07	Samara	
66	Omsk	54 58	73 22	Omsk	
67	Tomsk	56 30	84 58	Tomsk	
68	Abaka	53 43	91 26	Abakan	
69	Norylsk	69 18	88 12	Noril'sk	
70	Irkuck	52 20	104 12	Irkutsk	
71	Jakuck	62 02	129 42	Yakutsk	
72	Kamczacki Petropawłowsk	53 02	158 38	Petropavlovsk Kamchatskiy	
73	Habarowsk	48 25	135 06	Khabarovsk	
74	Alma-ata	43 15	76 53	Almaty	
75	Zezkazgan	47 46	67 39	Dzhezkazgan	KAZACHSTAN
76	Aterau	47 07	51 53	Atyrau	
77	Erewan	40 12	44 32	Yerevan	ARMENIA
78	Tybilisi	41 42	44 47	Tbilisi	GRUZJA
79	Warszawa	52 15	21 00	Warsaw	POLSKA
80	Baku	40 22	49 49	Baku	AZERBEJDŻAN
81	Taszkent	41 20	69 07	Toshent	
82	Nukus	42 27	59 36	Nukus	UZBEKISTAN
83	Biszkek	42 53	74 32	Bishkek	KIRGISTAN
84	Aszchabad	37 57	58 21	Ashgabat	TURKMENISTAN
85	Duszanbe	38 35	68 45	Dushanbe	TADZYKISTAN
86	Położenie Użytkownika	52 15	21 00	wartości ustawione	

ATTENTION!

It touches east and they are defined sunset as moment, when it touches center of sunny horizon it (parameter h = - 0,583 °). Deviation of row several minute commits from the point of view of simplification of account relatively to data by indicated „HM Nautical Almanac Office".

DESCRIPTION OF WORK AND FUNCTIONS

AUTOMATIC WORK - *according to program points of enclosures and switching off joint [sign ⏰ on the left of display]*
HANDIWORK- [ON] - *enduring connection of joint (position1-5) or [OFF]- enduring switch off joint (position 1-6) by activated AUTOMATIC WORK [lack of sign ⏰ on the left of display]*
PROGRAMMABLE POINT OF ENCLOSURE - *time of enclosure in foothold about astronomical point of sunset indicated joint (position 1-5) and HOUR SLIP by user program and TIME CORRECTION.*
PROGRAMMABLE POINT OF EXCLUSION- *time of exclusion in foothold about astronomical point of sunset indicated joint (position1 -6) and HOUR SLIP by user program and TIME CORRECTION.*
CONFIGURATION - *application of LOCALIZATION and assignment of POINT OF PROGRAM ENCLOSURE and EXCLUSION*
LOCALIZATION - *application of CODE COORDINATES or manual optional setups geographic coordinates (for CODE COORDINATES 86 - SITE USER)*
COORDINATES CODE - *for detailed cities assign city geographic facilitating inscription localization (coordinates and assign serve codes in table memorial)*
HOUR SLIP - *assignment of geographic time zone in range ±1÷12 relatively to universal time greenwich UT (00). For poland + 1 hour. Points of time east and sunset they undergo parallel slip about served value .*
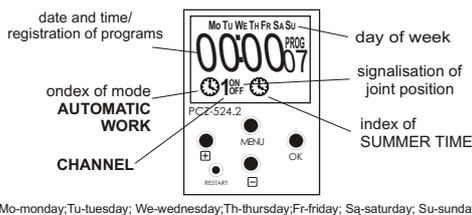**TIME CORRECTION -** *acceleration or delay of time of enclosure or relatively to astronomical time points of east exclusion (switching off) and sunset. Setups in range ±99min for point of west and sunrise are performed in apart.*
DST - *Daylight Saving Time - global name of summer time (free translation time of winning sunny light). Function enabling exclusion automatic change time.*
NIGHT BREAK - *set by user time of programming points of enclosure and exclusion.*
CHANNEL - *user programming line with sets in KONFIGURATION MODE and NIGHT BREAK sterring a enclosure joint.*

DESCRIPION OF DISPLAY AND PANEL STEERING

date and time/ registration of programs
day of week
signalisation of joint position
ondex of mode **AUTOMATIC WORK**
index of **SUMMER TIME**
CHANNEL

PCZ-524.2

MENU   OK
RESTART

Mo-monday;Tu-tuesday; We-wednesday;Th-thursday;Fr-friday; Są-saturday; Su-sunday

DESCRIPTION OFF BUTTONS FUNCTION

MENU:
- *passing from AUTOMATIC WORK to HANDIWORK and inversely (preeser <2sec)*
-*passing in CONFIGURATION mode (preeser >3sec). Time must be in AUTOMATIC WORK mode*
- *acceptance of settings DATE, TIME AND DST and the rest of settings of CONFIGURATION mode.*
OK:
- *approve of registration and passage to next position*
- *to peep settings podgląd ustawień PROGRAMMABLE POINTS OF ENCLOSURE AND EXCLUSION*
+:
- *change setting position by +1 in choosen programable position (preesing a button make intennsive changes in settings by +1 in loop)*
- *in HANDIWORK mode:permanent enclosure ON and exclusion OFF a joint*
- *in AUTOMATIC WORK mode:to peepsertting of date (dd-mm-yy)*
−:- *change setting position by +1 in choosen programable position (preesing a button make intennsive changes in settings by +1 in loop)*

RESET:

- *to reset a processor - in case of hook-up of function of work indispensable of timer. It does not erase setups of dates and time and registration settings.*
−+ MENU *("hard" reset) simultaneously prees:*
- *delete of all settings of date and time and all registration from memory (preesing >3sec two buttons simultaneously).*

PROGRAMMING

1. START
1.1 Take on the POWER
1.2 Timer started count time from hour. 00:00
ATTENTION! *If after took the power timer show another time and date then it means, in memory timer are earlier setting.*
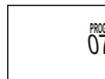

1.3Iin order to change of settings, preesing MENU >3sec.(see p2.1)
ATTENTION! *If timer have got in memories earlier settings, they could be deleted by "hard" reset (−+ MENU simultaneously prees >3sec.).*
ATTENTION! *All earlier configuration will be delete . Timer autoamticly go to setting mode of date (see 2.1).*

2. DATE

Prees a button MENU >3sec.
2.1 Timer pass to setting mode of year.

By buttons +/− set actual year and enter OK.

2.2 Timer pass to setting mode of month.

```
 0 i  PROG
    07
```

By buttons +/− set actual month and enter OK.
2.3 Timmer pass to setting mode a day of month.

```
 0 i03  PROG
       07
```

By buttons +/− set to actual day of month
*by button OK pass to configuration mode of hour (see p3.1)
* by button MENU accept to registry and out of programming mode.

ATTENTION! *Change from winter time to summer time and inversely is make automaticly. Choose a date definite a time(winter time or summer time).*
SUMMER TIME- added a sign ⊕ on the right side of display
WINTER TIME- lack a sign ⊕ on the right side of display
ATTENTION! *Posible is turn OFF automatic function of change a time (see p.4).*

3. TIME

Changes of time (hour;minute) make by prees MENU >3sec.
ATTENTION! *Changes of TIME mode are previoused by checking or changing a date (see p2.1)*
3.1 Timer pass to setting mode of minutes.

```
 Mo
 :00  PROG
 ⊕
```

By buttons +/− set to minutes and enter OK.

3.2 Timer pass to setting mode of hour.

```
 Mo
 00:23  PROG
 ⊕
```

By buttons ↑/↓ set a hour.
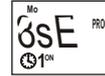**By button OK enter a hour .Timer automaticly pass to configuration mode of DST (see p4.1)*
* By button MENU accept all of registry and out of programming mode.

4. DST - automatic change of time winter/summer.

Changes in option DST prees MENU >3sec.
ATTENTION! *Changes of DST mode are previoused by checking or changing a date (see p2.1) and time (see p3.1).*
4.1 Timer pass to configuration mode of DST.

```
 Mo
 oSE  PROG
 ⊕1 ON
```

By button +/− set to :
ON - automatic change time function
OFF - lack of automatic change time function
*Enter to option by button OK. Timer automaticly pass to CONGIGURATION mode (see p5.1).
*By button MENU/DELETE accept settings and out of programming mode.

5. CONFIGURATION - set to CORRECTION OF TIME, LOCALIZATION AND HOUR DELAY.

Change CONFIGURATION by prees MENU >3sec.
ATTENTION! *Changes of CONFIGURATION mode are previoused by checking or changing a date (see p2.1), time (see p3.1) and option.*

5.1 Timer pass to CORRECTION MODE for sunset point.
ATTENTION!
Range from -99min to +99min. Value "-" (minus) to speed up to enclose by put number of minutes. Value "+" (plus) delay to enclose by put number of minutes .

```
 Mo Tu
 00  PROG
 1 ON
```

By buttons +/− set to number of minutes and enter OK.
5.2 Timer pass to CORRECTION TIME mode for sunrise point
ATTENTION!
Range from -99min to +99min. Value "-" (minus) to speed up switching off by put number of minutes. Value "+" (plus) to delay switching off by put number of minutes..

```
 Mo Tu We
 00  PROG
 1 OFF
```

By buttons +/− set to number of minutes and enter OK.
5.3 Timer pass to configuration mode of LOCALIZATION.
ATTENTION!
Check coordtinates code table and find a city which is near your localization and put suitable code. Standard set code is code 79 for Warsaw
ATTENTION!
Choose and accept of code 86 (USER COORDINATES) cause to pass to handiwork mode (see p7.2).

```
 Mo Tu We Th
 2 79  PROG
```

By buttons +/− set to code and enter OK.
5.4 Timer pass to HOUR SLIP mode..
ATTENTION!
Standard setting for POLAND +01. Range from -12hours to +12hours. Value "-" (minus) to move "for rear" parallel astronomical points of sunrise and sunset time by put of number hours.
Value "+" (plus) to move "forword" parallel astronomical point of sunrise and sunset time by number of put hours.

```
 Mo Tu We Th Fr Sa Su
 0 i  PROG
```

By buttonsi +/− set to a value of delay and enter OK.
*Timer automaticly pass to setting mode of NIGHT BREAK. (see p6.1)
*By button MENU accept allow registry and out of programming mode.

6. NIGHT BREAK

Change in option of NIGHT BREAK mode prees MENU >3sec.
ATTENTION! *Out of settings from NIGHT BREAK is previoused by checking and changing of date (see p2.1), time (see p3.1), option DST (seep 4.1) and KONFIGURATION (see p5.1).*

ATTENTION!
If timer have to work out from NIGHT BREAK set the same value of start and end times.

6.1 Timer pass to setting mode of start minutes of NIGHT BREAK P1 for channel 1(sign 2OFF on the right side).

```
 00  PROG
 P
 1 OFF
```

By buttons +/− set to a minutes and enter OK.
Timer pass to setting mode of start minutes of NIGHT BREAK..

```
00:30 PROG
         P
  1 OFF
```

By buttons +/− set to a hour and enter OK.
6.2 Timer pass to setting mode of end minutes of NIGHT BREAK.
(sign 1ON on right side).

```
  00 PROG
       P
 1 ON
```
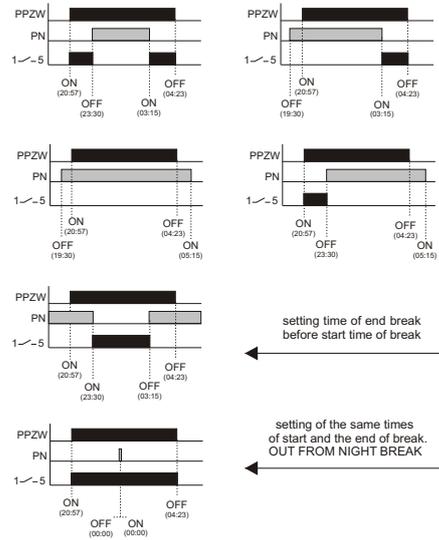
By buttons +/− set to a hout and enter OK.
*Timer again pass to setting mode of date.(see p2.1)
*By button MENU acept allow registry and out of programming mode.

By buttons +/− set to a minutes and enter OK.
*Timer pass to setting mode of hour of end of NIGHT BREAK **P2** for channel 2 (sigh 2OFF on right side). Repeat action p6.1 and p6.2 to channel 2.*

```
00:45 PROG
         P
  1 ON
```

ATTENTION!
* Set a time of NIGHT BREAK make a enclosing and exclusioning of iont. They are treat as orders and realized in chronology of set time. Posibility of setting of enclosing and exclusioning time of joints with accordance PROGRAMMING ENCLOSING AND EXLUSIONIN POINTS with NIGHT BRAK times are ilustarte by following diagrams.

PPZW - programmable points of enclosing and excusioning
PN - night break
⌒‾ - joint position (■ - joint enclosed)

setting time of end break
before start time of break

setting of the same times
of start and the end of break.
OUT FROM NIGHT BREAK

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7. HANDIWORK SETTING GEOGRAFICAL COORDINATES

7.1 Pass to handiwork setting mode of geografical coordinates is previoused by pass of CONFIGURATION MODE (see p5). In setting mode of COORDINATES CODE set to code of number 86 (USER COORDINATES) and enter OK.Timer pass to setting mode of geografical coordinates

ATTENTION!
Standarts setting coordinates for Warsaw (52°15'N 21°00'E)

*7.2 Timer pass to setting mode of width minutes (sign **L** on the left).*

```
Mo Tu We Th Fr
  1     PROG
        15
     🕐
```

By buttons +/− set to minutes and enter OK..

7.3 Timer pass to of setting mode of geografical coordinates.

```
Mo Tu We Th Fr
 52     PROG
        45
     🕐
```

ATTENTION!
Value up than "zero" mean north of geografical width coordinates.
Value down than "zero" mean south geografical width coordinates .

By buttons +/− set to value and enter OK..

7.4 Timer pass to of setting mode of minutes of geografical lenhgt coordinates.

```
Mo Tu We Th Fr Sa
 16     PROG
        00
     🕐
```

By buttons +/− set to minutes and enter OK..

7.5 ZTimer pass to of setting mode of minutes of geografical lenght coordinates..

```
Mo Tu We Th Fr Sa
  2     PROG
        15
     🕐
```

ATTENTION!
Value up than "zero" mean east of geografical lenght coordinates.
Value down than "zero" mean west of geografical lenght coordinates

By buttons +/− set to value and enter OK.
Timer pass to setting mode of HOUR SLIP (see p5.4).

8. DELETED MEMORIES - "hard" reset

If you want to delete all settings of DATE, TIME and CONFIGURATION you must together preesing a buttons MENU and ➖ for >3sec.

9. RESET
Restart od procesor is needed when all function of timer are to stoped. Don't delete settings of DATE, TIME and CONFIGURATION MODE from memories. Prees a button RESET for <1sec.

AUTOMATIC FUNCTION OF TIME CHANGE !

Changes time from winter time to summer time is autmaticly make at the last sunday of march at 2 a.m. (add 1 hour to actual time) .

ATTENTION! Possible is take OFF automatic function of time change (see p.4).

PEEP TO A DATE

*In **AUTOMATIC WORK** prees a button **+**. Timer displaing a set date (dd-mm-yy). After 5 sec timer automaticly pass to central level.*

PEEP TO A PROGRAMMABLE POINT OF ENCLOSURE AND EXCLUSION

In **AUTOMATIC WORK** mode next preeser a button **OK.** see a next seetings in configuration:
- programmable point of enclosure foe channel 1
- start of night break P1
- end of night break P1
- programmable point of exclusion for channel 1
- programmable point of exclusion for channel 2
- start of night break P2
- end of night break P2
- programmable point of exclusion for channel 2
After 5 sec. timer automaticly pass t o central level

Example table with enclosure and exclusion points on 22.06.2006 for choosen settings of CONFIGURATION				
ASTRONOMICAL POINT	SUNSET	19:59		
	SUNRISE	3:16		
TIME CORRECTION	ENCLOSURE	+20min		
	EXCLUSION	-15min		
HOUR SLIP		+01	00	-02
PROGRAMMABLE POINTS	ENCLOSURE	21:19	20:19	18:19
	EXCLUSION	4:01	3:01	1:19

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