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## PCZ-524.2 (E)

PROGRAMMABLE CONTROL TIMERS  
astronomic type



www.fif.com.pl

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

### 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). Furthermore, there is an option to shift the preset activation/deactivation time for  $\pm 99$  min. for sunrise and sunset times separately.

### ASSEMBLY

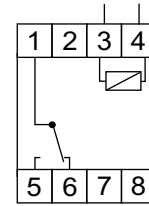
1. Take OFF the power.
2. Put on the control timer on the rail in the switchgear box.
3. Connect the power cables with wiring diagram.
4. Connect the receivers with wiring diagram.
5. Set a correct date (see p 1) and time (see p3,4)
5. Set to user configuration (see p4)

### TECHNICAL DATA

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

### WIRING DIAGRAM

AC/DC



Chanell 1:  
joint 1-5 "ACTIVATE" [ON]  
joint 1-6 "DEACTIVATE" [OFF]

CITY CODE	°N	°E
1. Albania Tiranë	41:20:00 °N	019:49:00 °E
2. Austria Salzburg	47:54:00 °N	013:03:00 °E
3. Austria Vienna	48:13:00 °N	016:22:00 °E
4. Belgium Brussels	50:50:00 °N	004:21:00 °E
5. Bosnia Sarajevo	43:52:00 °N	018:28:00 °E
6. Bulgaria Burgas	42:30:00 °N	27:28:00 °E
7. Bulgaria Plovdiv	42:18:00 °N	24:43:00 °E
8. Bulgaria Sofia	42:41:00 °N	23:19:00 °E
9. Croatia Osijek	45:33:00 °N	18:41:00 °E
10. Croatia Pula	44:52:00 °N	13:51:00 °E
11. Croatia Zagreb	45:48:00 °N	015:58:00 °E
12. Cyprus Nicosia	35:10:00 °N	033:22:00 °E
13. Czech Rep. Prague	50:05:00 °N	014:25:00 °E
14. Czech Rep. Olomouc	49:34:60 °N	17:15:00 °E
15. Denmark Copenhagen	55:43:00 °N	012:34:00 °E
16. Finland Helsinki	60:08:00 °N	025:00:00 °E
17. Finland Kuopio	62:54:00 °N	27:41:00 °E
18. Finland Rovaniemi	66:33:07 °N	25:50:51 °E
19. France Ajaccio	41:55:36 °N,	8:44:13 °E
20. France Bordeaux	44:50:00 °N	000:34:00 °W
21. France Brest	48:23:00 °N	004:30:00 °W
22. France Lyon	45:46:00 °N	004:50:00 °E
23. France Marseille	43:18:00 °N	005:22:00 °E
24. France Nantes	47:14:00 °N	001:35:00 °W
25. France Paris	48:52:00 °N	002:20:00 °E
26. France Strasbourg	48:35:00 °N	007:45:00 °E
27. Germany Berlin	52:30:00 °N	013:26:00 °E
28. Germany Frankfurt	50:06:00 °N	008:41:00 °E
29. Germany Hamburg	53:33:00 °N	010:00:00 °E
30. Germany Köln	50:53:00 °N	007:00:00 °E
31. Germany München	48:08:00 °N	011:35:00 °E
32. Germany Osnabruck	52:16:00 °N	008:02:00 °E
33. Greece Athens	38:00:00 °N	023:44:00 °E
34. Greece Iraklion	35:20:00 °N	25:09:00 °E
35. Greece Patra	38:14:40 °N	21:44.4 °E
36. Greece Thessalonika	40:38:00 °N	022:58:00 °E
37. Hungary Budapest	47:30:00 °N	019:00:00 °E
38. Island Reykjavik	61:09:00 °N	021:58:00 °W
39. Ireland Cork	51:54:00 °N	08:28:00 °W
40. Ireland Dublin	53:20:00 °N	006:15:00 °W
41. Italy Brindisi	40:38:00 °N	17:56:00 °E
42. Italy Cagliari	39:13:00 °N	009:08:00 °E

CITY CODE	°N	°E
43. Italy Florence	43:47:00 °N	011:15:00 °E
44. Italy Milan	45:28:00 °N	009:12:00 °E
45. Italy Palermo	38:08:00 °N	013:23:00 °E
46. Italy Rome	41:53:00 °N	012:30:00 °E
47. Luxembourg Luxembourg	49:37:00 °N	006:08:00 °E
48. Macedonia Skopje	42:00:00 °N	021:26:30 °E
49. Moldavia Chisinau	47:14:11 °N	28:49:30 °E
50. Netherlands Amsterdam	52:21:00 °N	004:54:00 °E
51. Norway North Cape	71:10:12 °N	025:47:24 °E
52. Norway Narvik	68:26:00 °N	017:25:00 °E
53. Norway Oslo	59:56:00 °N	010:17:00 °E
54. Norway Trondheim	63:36:00 °N	010:23:00 °E
57. Portugal Lisbon	38:44:00 °N	009:08:00 °W
58. Portugal Pôrto	41:09:00 °N	008:37:00 °W
59. Romania Bucharest	44:25:00 °N	026:07:00 °E
60. Romania Constanta	44:11:00 °N	28:39:00 °E
61. Romania Cluj	46:47:00 °N	23:36:00 °E
62. Slovakia Kosice	48:43:00 °N	21:15:00 °E
63. Slovenia Ljubljana	46:40:00 °N	014:30:00 °E
64. Spain Almeria	36:50:00 °N	2:27:00 °W
65. Spain Barcelona	41:25:00 °N	002:10:00 °E
66. Spain Bilbao	43:15:00 °N	002:56:00 °W
67. Spain La Coruna	43:22:00 °N	8:23:00 °W
68. Spain Seville	37:24:00 °N	005:59:00 °W
69. Spain Valencia	39:29:00 °N	000:24:00 °W
70. Sweden Goteborg	57:45:00 °N	012:00:00 °E
71. Sweden Lulea	65:36:00 °N	22:9:00 °E
72. Sweden Malmö	55:35:00 °N	013:00:00 °E
73. Sweden Stockholm	59:20:00 °N	018:05:00 °E
74. Switzerland Bern	46:57:00 °N	007:26:00 °E
75. Turkey Ararat	39:42:00 °N	44:17:00 °E
76. Turkey Istanbul	41:02:00 °N	028:59:00 °E
77. Turkey Izmir	38:25:00 °N	27:09:00 °E
78. Turkey Antalya	36:53:00 °N	30:42:00 °E
79. Turkey Diyarbakir	37:55:00 °N	40:14:00 °E
80. Turkey Samsun	41:17:00 °N	36:20:00 °E
81. UK Glasgow	55:52:00 °N	004:18:00 °W
82. UK London	51:30:00 °N	000:10:00 °W
83. UK Manchester	53:27:00 °N	002:15:00 °W
84. UK Plymouth	50:23:00 °N	004:08:00 °W
85. Yugoslavia Belgrade	44:45:30 °N	022:29:30 °E

### ATTENTION!

It touches east and they are defined sunset as moment, when it touches center of sunny disk horizon it ( parameter  $h = -0,583^\circ$  ). 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 (position 1-5) 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 (position 1-6) 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  $\pm 1+12$  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  $\pm 99$ min 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.

### 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.



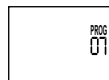
1.3 In order to change of settings, preesing MENU >3sec. (see p.2.1)

**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 autoamtically go to setting mode of date (see 2.1).

#### 2. DATE

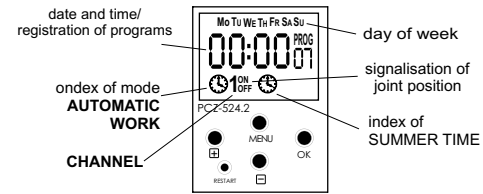
Prees a button MENU >3sec.

2.1 Timer pass to setting mode of year.



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

### DESCRIPION OF DISPLAY AND PANEL STEERING



Mo-monday; Tu-tuesday; We-wednesday; Th-thursday; F-friday; Sa-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 intensitive changes in settings by +1 in loop)

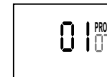
- in HANDIWORK mode: permanent enclosure ON and exclusion OFF a joint

- in AUTOMATIC WORK mode: to peepserting of date (dd-mm-yy)

-: change setting position by +1 in choosen programable position

(preesing a button make intensitive changes in settings by +1 in loop)

2.2 Timer pass to setting mode of month.



By buttons +/- set to actual day of month

\*by button OK pass to configuration mode of hour (see p.3.1)

\*by button MENU accept to registry and out of programming mode.

**ATTENTION!** Change from winter time to summer time and inversely is make automatically. Choose a date definite a time ( winter time or summer tim).

SUMMER TIME- added a sign ☉ on the right side of display

WINTER TIME- lack a sign ☉ on the right side of display

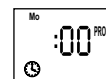
**ATTENTION!** Possible is turn OFF automatic function of change a time ( see p.4).

#### 3. TIME

Changes of time (hour:minute) make by prees MENU >3sec.

**ATTENTION!** Changes of TIME mode are prevised by checking or changing a date (see p.2.1)

3.1 Timer pass to setting mode of date.



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

3.2 Timer pass to setting mode of hour.



By buttons  $\uparrow/\downarrow$  set a hour.

\*By button OK enter a hour .Timer automatically pass to configuration mode of DST (see p.4.1)

\*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 preivoused by checking or changing a date (see p.2.1) and time (see p.3.1).

4.1 Timer pass to configuration mode of DST.



By button +/- set to :

ON - automatic change time function

OFF - lack of automatic change time function

\*Enter to option by button OK. Timer automatically pass to CONGIGURATION mode (see p.5.1).

\*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 preivoused by checking or changing a date (see p.2.1), time (see p.3.1) 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.



By buttons +/- set to a value of delay and enter OK.

\*Timer return to configuration mode of date. (see p.2.1)

\*By button MENU accept allow registry and out of programming mode.

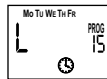
#### 6. HANDIWORK SETTING GEOGRAFICAL COORDINATES

6.1 Pass to handiwork setting mode of geographical coordinates is preivoused by pass of CONFIGURATION MODE (see p.5). In setting mode of COORDINATES CODE set to code of number 86 (USER COORDINATES) and enter OK. Timer pass to setting mode of geographical coordinates

**ATTENTION!**

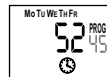
Standarts setting coordinates for Warsaw (52°15'N 21°00'E)

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



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

6.3 Timer pass to of setting mode of geographical coordinates.



**ATTENTION!**

Value up than "zero" mean north of geographical width coordinates.  
Value down than "zero" mean south geographical width coordinates.

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

6.4 Timer pass to of setting mode of minutes of geographical lenhgt coordinates.

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..



By buttons +/- set to number of minutes and enter OK.

5.3 Timer pass to configuration mode of LOCALIZATION.

**ATTENTION!**

Check coordinatnes 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 p..6.2).



By buttons +/- set to code and enter OK.

5.4 Timer pass to HOUR SLIP mode..

**ATTENTION!**

Standard setting for POLAND +01. Range from -12 hours. to +12 hours.

Value "-" (minus) to move "for rear" parallel astronomical points of sunrise and sunset time by put of number hours.

Value "+" (plus) to move "forward" parallel astronomical point of sunrise and sunset time by number of put hours.



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

6.5 ZTimer pass to of setting mode of minutes of geographical lenhgt coordinates..



**ATTENTION!**

Value up than "zero" mean east of geographical lenhgt coordinates.

Value down than "zero" mean west of geographical lenhgt coordinates

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

Timer pass to setting mode of HOUR SLIP (see p.5.4).

#### 7. DELETED MEMORIES! - "hard" reset

If you want to delete all settings of DATE, TIME and CONFIGURATION you must together preesing a buttons MENU and  $\overline{\text{=}}$  for >3sec.

#### 8. 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 automatically made at the last Sunday of March at 2 a.m. (add 1 hour to actual time).

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

**PEEP TO A DATE**

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

**PEEP TO A PROGRAMMABLE POINT OF ENCLOSURE AND EXCLUSION**

In **AUTOMATIC WORK** mode next press a button **OK**. see a next settings in configuration:

- programmable point of enclosure

- programmable point of exclusion

After 5 sec. timer automatically pass to central level

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

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