

Features

Mechanical time switches

- Daily time setting *
- Weekly time setting **

- **Type 12.01** - 1 Pole 16 A CO (SPDT)
35.8 mm width
- **Type 12.11** - 1 Pole 16 A NO (SPST-NO)
17.6 mm width
- **Type 12.31-0000** daily -
1 Pole 16 A CO (SPDT)
- **Type 12.31-0007** weekly -
1 Pole 16 A CO (SPDT)
- Minimum time interval setting:
1h (12.31-0007)
30 min (12.01)
15 min (12.11 - 12.31-0000)

* Same program every day

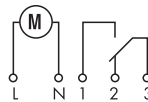
** Different program possible for each of the 7 days of the week

For outline drawing see page 10

12.01



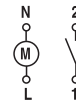
- Mechanical daily time switch
- 1 CO (SPDT)
- 35 mm rail (EN 60715) mount



12.11



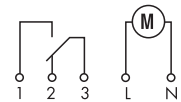
- Mechanical daily time switch
- 1 NO (SPST-NO)
- 35 mm rail (EN 60715) mount



12.31



- Mechanical daily or weekly
- 1 CO (SPDT)
- Front panel mounting



Contact specification

Contact configuration	1 CO (SPDT)	1 NO (SPST-NO)	1 CO (SPDT)
Rated current/Maximum peak current A	16/—	16/30	16/—
Rated voltage/Maximum switching voltage V AC	250/—	250/—	250/—
Rated load AC1 VA	4,000	4,000	4,000
Rated load AC15 (230 V AC) VA	750	420	420
Nominal lamp rating: incandescent (230 V) W	2,000 (NO contact)	2,000	2,000
compensated fluorescent (230 V) W	750 (NO contact)	750	750
uncompensated fluorescent (230 V) W	1,000 (NO contact)	1,000	1,000
halogen (230 V) W	2,000 (NO contact)	2,000	2,000
Minimum switching load mW (V/mA)	1,000 (10/10)	1,000 (10/10)	1,000 (10/10)
Standard contact material	AgCdO	AgCdO	AgCdO

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	230	230	120 - 230
	V DC	—	—	—
Rated power AC/DC	VA (50 Hz)/W	2/—	2/—	2/—
Operating range	AC (50 Hz)	(0.85...1.1)U _N	(0.85...1.1)U _N	(0.85...1.1)U _N
	DC	—	—	—

Technical data

Electrical life at rated load in AC1	cycles	50 · 10 ³	50 · 10 ³	50 · 10 ³
Type of time switch		daily	daily	daily weekly
Switching intervals /day		48	96	96 24 (168/week)
Minimum switching interval	min	30	15	15 60
Accuracy	s/day	1.5	1.5	1.5
Ambient temperature range	°C	-5...+50	-5...+50	-10...+50
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)



Features

12.51 - Digital (analogue-style) time switch, daily/weekly programming

- Can be programmed in "Classic" mode via the joystick, or "Smart" mode via smartphones with NFC communication
- 30 minutes interval setting
- Easily configurable for daily or weekly programming

12.81 - Digital astro-switch

- Can be programmed in "Classic" mode via the joystick, or "Smart" mode via smartphones with NFC communication
- Astro program: calculation of sunrise and sunset times through date, time and location coordinates
- Option for Astro ON period override, by timeswitch
- Location coordinates easily settable for most European countries through post codes
- Offset function: allows programming of switching times offset from the astronomic time (by up to 90 min, in 10 min steps)

- Summer/winter European, Astralian, Brazilian time
- 1 CO 16 A output contact
- LCD status indication, set-up and programming
- Lock with a 4-digit PIN
- Back-light display
- Internal battery for set-up and programming without supply, easily replaceable from the front
- Protective separation between supply and contacts
- 35 mm rail (EN 60715) mount
- Cadmium free contact material

For outline drawing see page 10

Contact specification

Contact configuration	1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current A	16 / 30 (120 A – 5 ms)	16 / 30 (120 A – 5 ms)
Rated voltage/Maximum switching voltage V AC	250/400	250/400
Rated load AC1 VA	4,000	4,000
Rated load AC15 (230 V AC) VA	750	750
Nominal lamp rating:		
230V incandescent/halogen W	2,000	2,000
fluorescent tubes with electronic ballast W	1,000	1,000
fluorescent tubes with electromechanical ballast W	750	750
CFL W	400	400
230V LED W	400	400
LV halogen or LED with electronic ballast W	400	400
LV halogen or LED with electromechanical ballast W	800	800
Minimum switching load mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material	AgSnO ₂	AgSnO ₂

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	110...240	110...240
	V DC	110...240	110...240
Rated power VA (50 Hz)/W		2.8 / 0.9	2.8 / 0.9
Operating range	AC (50 Hz)	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	(0.8...1.1)U _N	(0.8...1.1)U _N

Technical data

Electrical life at rated load in AC1 cycles		100 · 10 ³	100 · 10 ³
Switching intervals		48	—
Minimum switching interval min		30	—
Accuracy s/day		1	1
Ambient temperature range °C		-20...+50	-20...+50
Protection category		IP 20	IP 20

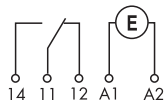
Approvals (according to type)



NEW 12.51



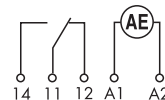
- Digital time switch
- 1 CO (SPDT)
- 35 mm rail (EN 60715) mount



NEW 12.81



- Astro-time switch
- 1 CO (SPDT)
- 35 mm rail (EN 60715) mount



Features

Electronic digital time switches

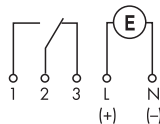
- Weekly time setting

- **Type 12.21** - 1 Pole 16 A CO (SPDT)
35.8 mm width
- **Type 12.22** - 2 Pole 16 A CO (DPDT)
35.8 mm width
- **Type 12.71** - 1 Pole 16 A CO (SPDT)
17.6 mm width
- Available for 230 V AC or 12, 24 V AC/DC supply
- Minimum time interval setting - 1 minute
- Internal battery for set-up without supply
- Impulse output function:
- 1s... 59: 59(mm:ss)
- Automatic adjustment for daylight saving
- 35 mm rail (EN 60715) mount

12.21



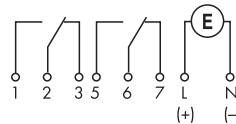
- Digital weekly time switch
- 1 CO (SPDT)
- 35 mm rail (EN 60715) mount



12.22



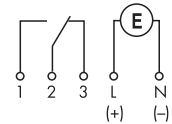
- Digital weekly time switch
- 2 CO (DPDT)
- 35 mm rail (EN 60715) mount



12.71



- Digital weekly time switch
- 1 CO (SPDT)
- 35 mm rail (EN 60715) mount



For outline drawing see page 10, 11

Contact specification

Contact configuration	1 CO (SPDT)	2 CO (DPDT)	1 CO (SPDT)
Rated current/Maximum peak current A	16/30	16/30	16/30
Rated voltage/Maximum switching voltage V AC	250/—	250/—	250/—
Rated load AC1 VA	4,000	4,000	4,000
Rated load AC15 (230 V AC) VA	750	750	420
Nominal lamp rating:			
230V incandescent/halogen W	1,200	1,200	400
fluorescent tubes with electronic ballast W	500	500	100
fluorescent tubes with electromechanical ballast W	400	400	100
CFL W	300	300	50
230V LED W	300	300	50
LV halogen or LED with electronic ballast W	300	300	50
LV halogen or LED with electromechanical ballast W	500	500	100
Minimum switching load mW (V/mA)	1,000 (10/10)	1,000 (10/10)	1,000 (10/10)
Standard contact material	AgCdO	AgCdO	AgNi

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	—	120 - 230	—	120 - 230	—	230
	V AC/DC	12 - 24	—	24	—	24	—
Rated power AC/DC VA (50 Hz)/W		1.4/1.4	2/—	1.4/1.4	2/—	1.4/1.4	2/—
Operating range	AC (50 Hz)	(0.9...1.1)U _N	(0.85...1.1)U _N	(0.9...1.1)U _N	(0.85...1.1)U _N	(0.9...1.1)U _N	(0.85...1.1)U _N
	DC	(0.9...1.1)U _N	—	(0.9...1.1)U _N	—	(0.9...1.1)U _N	—

Technical data

Electrical life at rated load in AC1 cycles		50 · 10 ³	50 · 10 ³	50 · 10 ³
Type of time switch		weekly	weekly	weekly
Memory locations for switching times *		30	30	30
Minimum interval setting min		1	1	1
Accuracy s/day		0.5	0.5	0.5
Ambient temperature range °C		-30...+55	-30...+55	-30...+55
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)



* Switching times in memory may be used more than once i.e. when selected for different days.

Features

Electronic digital time switches
- weekly time setting

- **Type 12.91...0000 "ZENITH"**
1 pole 16 A CO (SPDT)
35.8 mm width
- **Type 12.91...0090 "ZENITH"**
1 pole 16 A CO (SPDT)
35.8 mm width
version for programming via PC by a special Key Memory (included)
- **Type 12.92...0090 "ZENITH"**
2 pole 16 A CO (DPDT)
35.8 mm width
version for programming via PC by a special Key Memory (included)
- **Type 12.92 "ZENITH"**
2 Pole 16 A CO (DPDT)
35.8 mm width
- Astro program:
calculation of sunrise and sunset times through date, time and location coordinates (longitude and latitude)
- Offset function: allows programming of switching times offset (+ or -) from the astronomic time
- Minimum time interval setting - 1 minute
- Internal battery for set-up without supply
- Automatic adjustment for daylight saving
- 35 mm rail (EN 60715) mount

12.91...0000



12.91...0090/12.92...0090



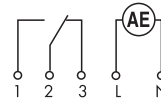
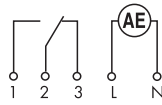
12.92



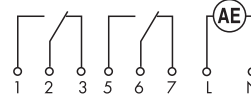
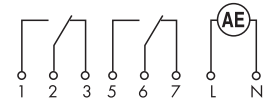
- Digital weekly time switch
- 1 CO (SPDT)
- 35 mm rail (EN 60715) mount

- Digital weekly time switch
- Type 12.91: 1 CO (SPDT)
- Type 12.92: 2 CO (DPDT)
- Version for programming via PC by a special key memory
- 35 mm rail (EN 60715) mount

- Digital weekly time switch
- 2 CO (DPDT)
- 35 mm rail (EN 60715) mount



12.91...0090



12.92...0000

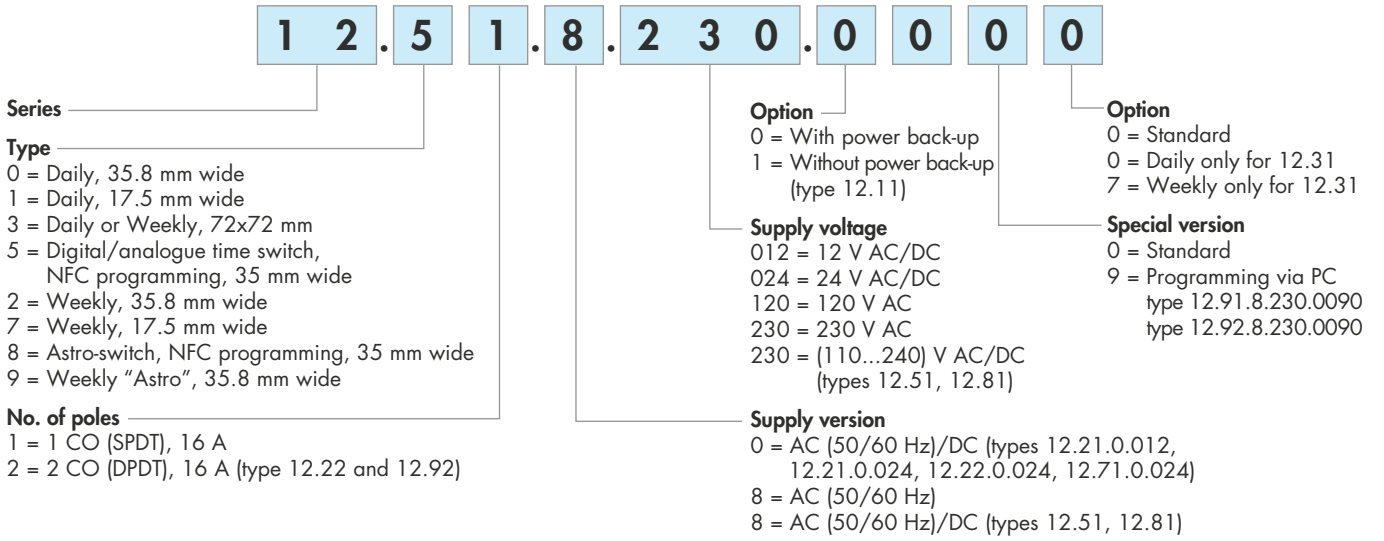
For outline drawing see page 11

Contact specification				
Contact configuration		1 CO (SPDT)	1 CO (SPDT) / 2 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	16/30	16/30	16/30
Rated voltage/Maximum switching voltage V AC		250/—	250/—	250/—
Rated load AC1	VA	4,000	4,000	4,000
Rated load AC15 (230 V AC)	VA	750	750	750
Nominal lamp rating:				
230V incandescent/halogen W		2,000	2,000	2,000
fluorescent tubes with electronic ballast W		1,000	1,000	1,000
fluorescent tubes with electromechanical ballast W		750	750	750
CFL W		400	400	400
230V LED W		400	400	400
LV halogen or LED with electronic ballast W		400	400	400
LV halogen or LED with electromechanical ballast W		800	800	800
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgSnO ₂	AgSnO ₂	AgSnO ₂
Supply specification				
Nominal voltage (U _N)	V AC (50/60 Hz)	230	230	230
Rated power AC/DC	VA (50 Hz)/W	2/—	2/—	2/—
Operating range	AC (50 Hz)	(0.85...1.1)U _N	(0.85...1.1)U _N	(0.85...1.1)U _N
Technical data				
Electrical life at rated load in AC1	cycles	50 · 10 ³	50 · 10 ³	50 · 10 ³
Type of time switch		weekly	weekly	weekly
Memory locations for switching times *		60	60	60
Minimum interval setting	min	1	1	1
Accuracy	s/day	0.5	0.5	0.5
Ambient temperature range		−30...+55	−30...+55	−30...+55
Protection category		IP 20	IP 20	IP 20
Approvals (according to type)				

12 Series - Time switches 16 A

Ordering information

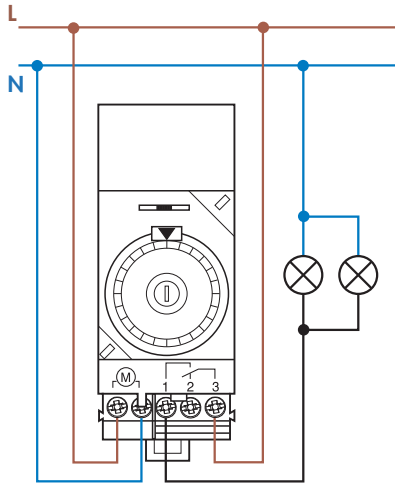
Example: 12 series digital/analogue time switch, 1 CO 16 A contact, (110...240) V AC/DC supply



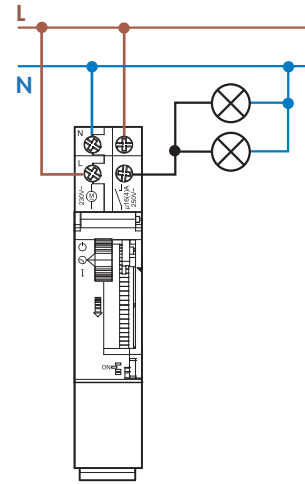
Technical data

Insulation		12.51, 12.81	12.01, 12.11, 12.31	12.21, 12.22, 12.71, 12.91, 12.92	
Dielectric strength between supply and contacts	VAC	4,000	4,000	4,000	
Dielectric strength between open contacts	VAC	1,000	1,000	1,000	
Rated impulse voltage (between supply and contacts)	kV/(1.2/50) μ s	6	6	6	
Rated impulse voltage (between open contacts)	kV/(1.2/50) μ s	1.5	1.5	1.5	
EMC specifications					
Type of test	Reference standard				
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV	6 kV	
	air discharge	EN 61000-4-2	8 kV	8 kV	
Radiated electromagnetic field (80...1,000 MHz)	EN 61000-4-3	10 V/m	10 V/m		
Fast transients (burst 5/50 ns, 5 and 100 kHz)	EN 61000-4-4	4 kV	4 kV		
Voltage pulses on supply terminals (surge 1.2/50 μ s)	common mode	EN 61000-4-5	4 kV	2 kV	
	differential mode	EN 61000-4-5	4 kV	2 kV	
Radiofrequency common mode voltage (0.15...80 MHz)	EN 61000-4-6	10 V	10 V		
Voltage dips	70 % U _N , 40 % U _N	EN 61000-4-11	10 cycles	10 cycles	
Short interruptions	EN 61000-4-11	10 cycles	10 cycles		
Radio frequency conducted emissions	0.15...30 MHz	EN 55014	class B	class B	
Radiated emissions	30...1,000 MHz	EN 55014	class B	class B	
Terminals					
Screw torque	Nm	0.8	1.2		
		12.51, 12.81		12.01, 12.11, 12.31	
Max. wire size		mm ²	AWG	mm ²	AWG
	solid cable	1 x 6 / 2 x 4	1 x 10 / 2 x 12	1 x 6 / 2 x 4	1 x 10 / 2 x 12
	stranded cable	1 x 4 / 2 x 2.5	1 x 12 / 2 x 14	1 x 6 / 2 x 2.5	1 x 10 / 2 x 14
Max. wire size		12.21, 12.22, 12.71, 12.91, 12.92			
		mm ²	AWG		
	solid cable	1 x 6 / 2 x 4	1 x 10 / 2 x 12		
	stranded cable	1 x 6 / 2 x 2.5	1 x 10 / 2 x 14		
Wire strip length	mm	9			
Other data					
Power back-up (Battery life)		6 years (12.51, 12.81, 12.21, 12.22, 12.71, 12.91, 12.92)			
Battery type		CR 2032, 3V, 230 mAh (12.51, 12.81)			
Power back-up		100 h (12.01, 12.11, 12.31 - following 80 h continuous energisation)			
Power lost to the environment		12.51, 12.81	12.01, 12.11, 12.31	12.21, 12.22, 12.71, 12.91, 12.92	
	in stand-by W	0.2	—	—	
	without contact current W	0.9	1.5	2	
	with rated current W	1.5	2.5	3 (for 1 pole)/4 (for 2 pole)	

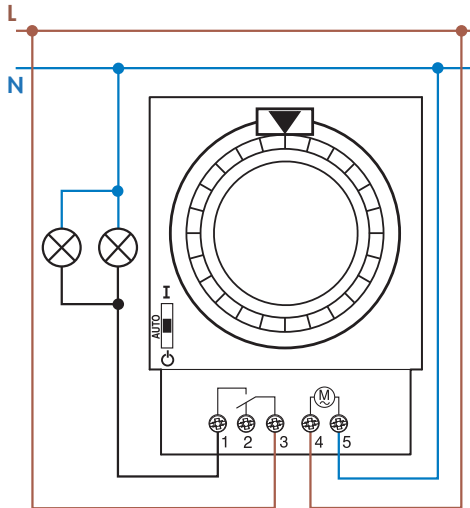
Wiring diagrams



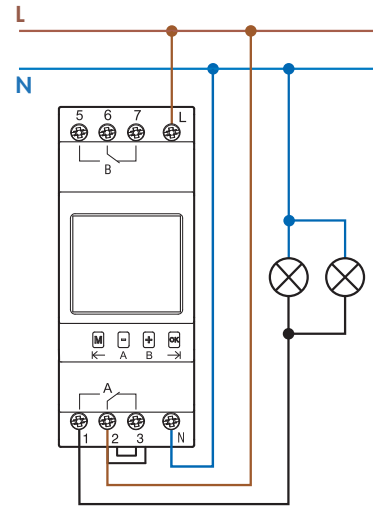
Type 12.01
Selector switch:
⊖ = Permanently OFF
AUTO = Automatic
I = Permanently ON



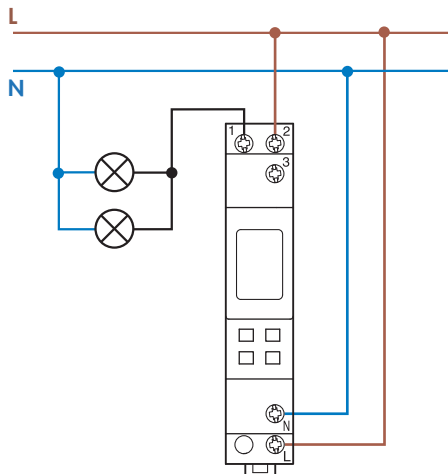
Type 12.11
Selector switch:
⊖ = Permanently OFF
⊕ = Automatic
I = Permanently ON



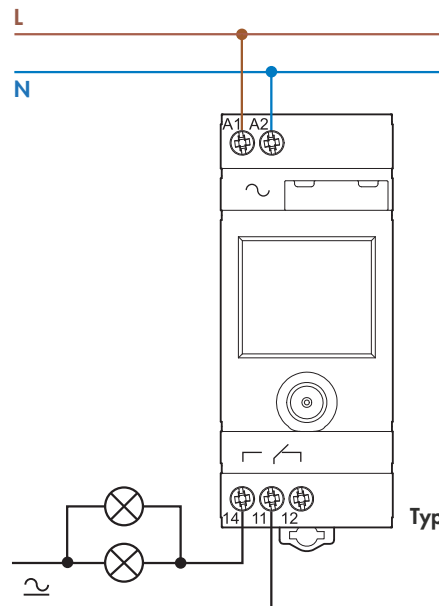
Type 12.31



Type 12.21
12.22
12.91
12.92



Type 12.71



Type 12.51
12.81

Two programming modes for type 12.51 and 12.81

“Smart”

Mode via smartphones with NFC communication using Finder toolbox Android App.



“Classic”

Mode via the joystick



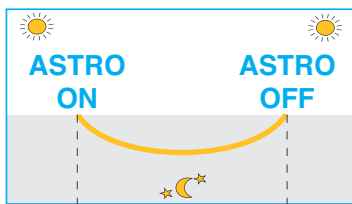
Finder Toolbox for programming

Once the App FINDER Toolbox is downloaded and installed, you can read an existing program, or program your device with maximum flexibility, changing the smallest details and saving your program directly to your smartphone. At this point you simply touch the time switch with the smartphone to transfer the data.

Finder Toolbox for reference

Finder Toolbox provides all technical data sheets and news from Finder.

Functions type 12.81



The Override feature permits the 12.81 three different ways of functioning:

- 1 Classic function where the **AstroON** and **AstroOFF** times are determined by the geographic coordinates. These times vary every day.
- 2 Functions such that the output turns on according to the **AstroON** time and turns off according to the clock off-time OFF . Application example: shop window lighting on by **AstroON** at sunset and off OFF at 00:30.
- 3 Functions such that the output turns on according to the **AstroON** time and turns off according to the clock off-time OFF , and then turns back on at the clock on-time ON (for the remainder of the ASTRO time period). Application example: company car park lighting, on by **AstroON** at sunset, off end of the evening shift at 23:00 OFF . On again at the beginning of the morning shift at 5:00 ON and off automatically by **AstroOFF** *.

* Depending on the time of year (summer specifically) it may be that the override ON time will fall after the AstroOFF time. In this case, the output switches off at the AstroOFF time and the override ON time is ignored.

Accessories for type 12.71 and 12.91

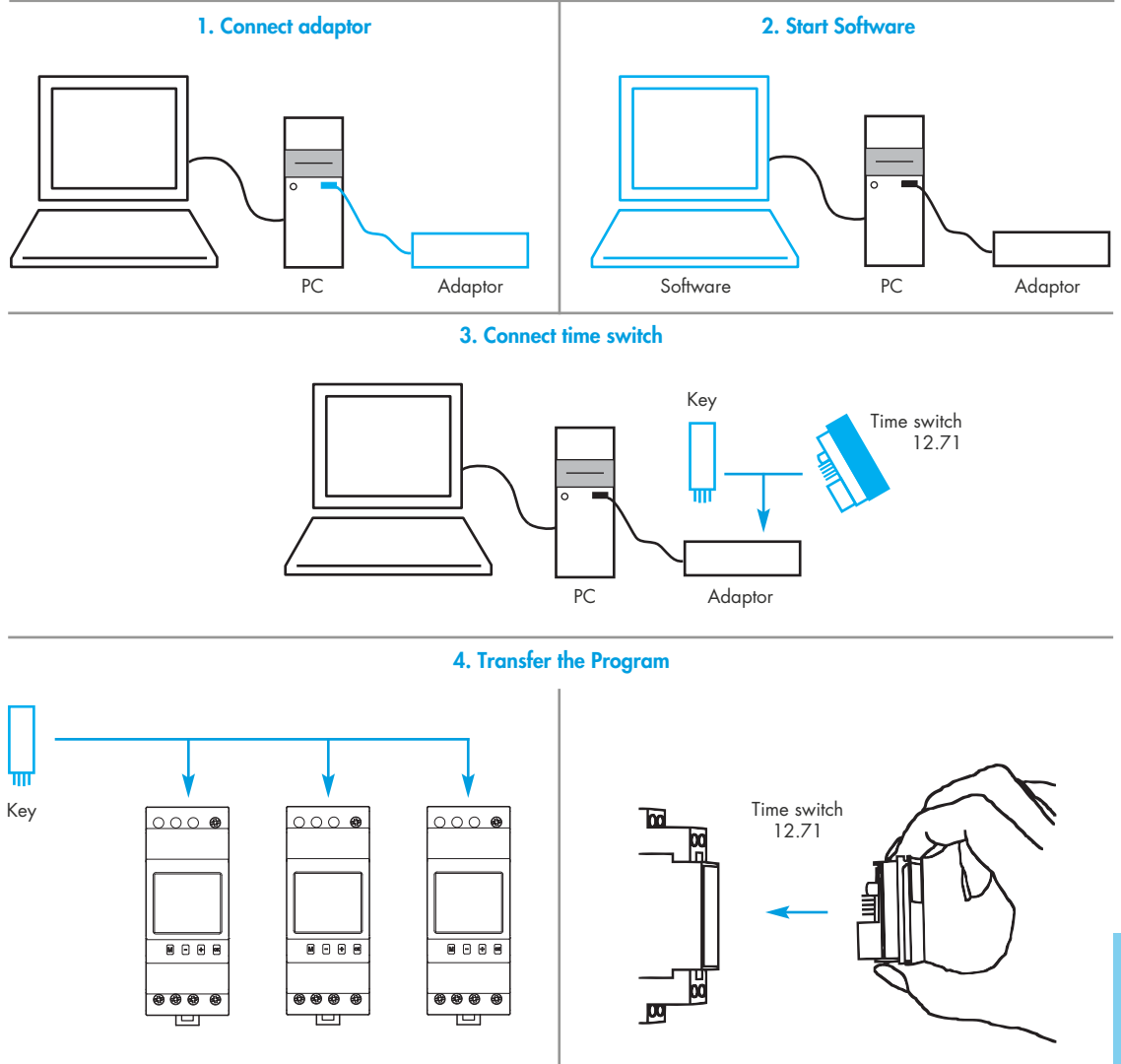


012.90

PC programming kit for type 12.71, 12.91.8.230.0090, 12.92.8.230.0090 | 012.90

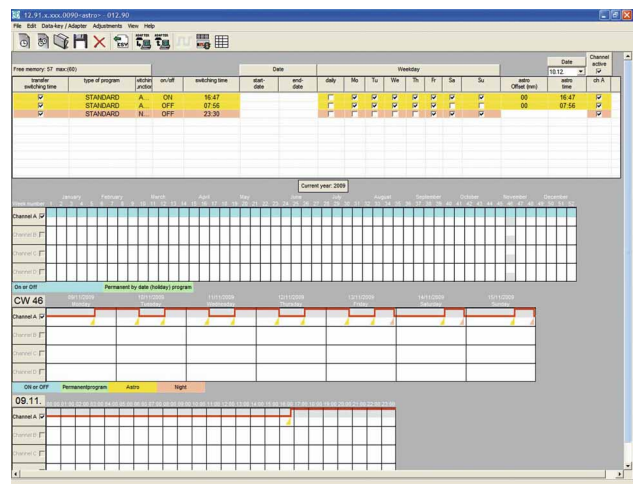
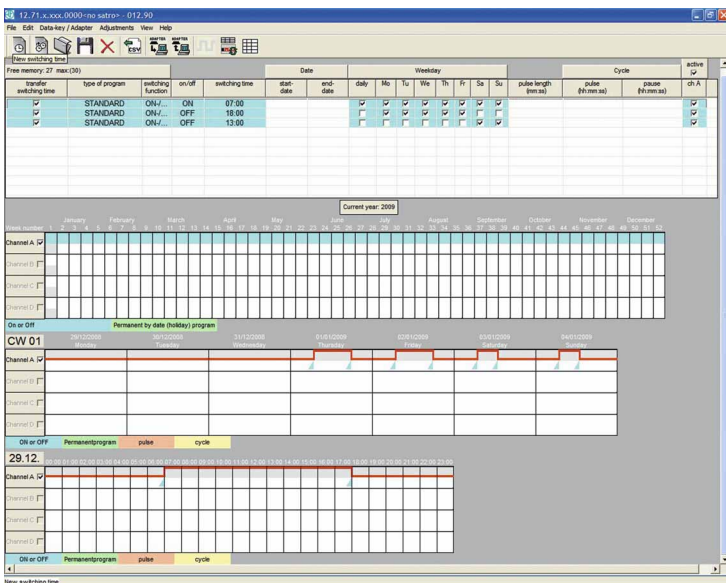
This special PC programming kit, permits fast and easy programming of the Time Switch with a PC or Laptop. The program transfer can be done by the special Key Memory (supplied with the 12.91.8.230.0090, 12.92.8.230.0090) or directly by the Time switch 12.71.

Contents: Programming adaptor, USB cable (1.8 meter length), Software.



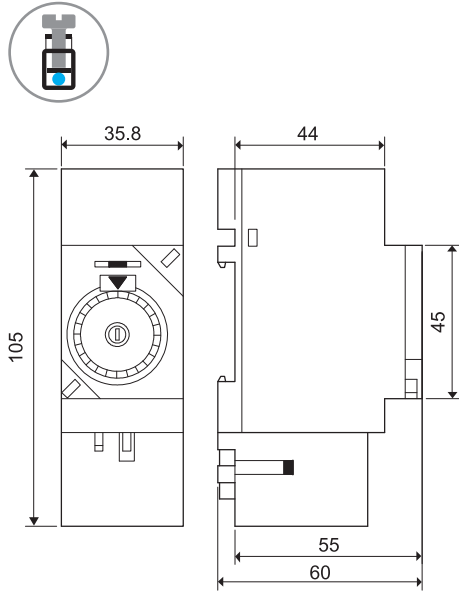
PC Programming software

Easy and intuitive software to create programs for the Time Switch, in a few fast steps. For Windows 7, 8, 2000/XP/Vista.

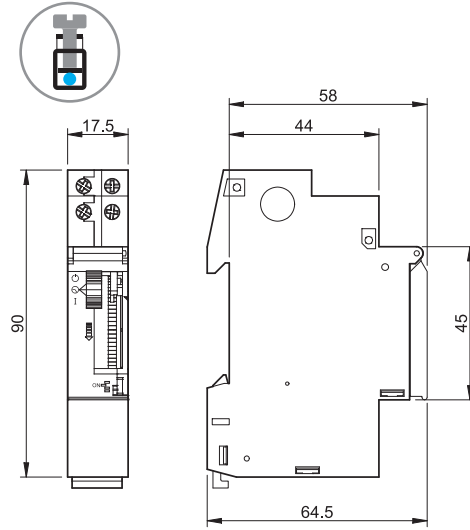


Outline drawings

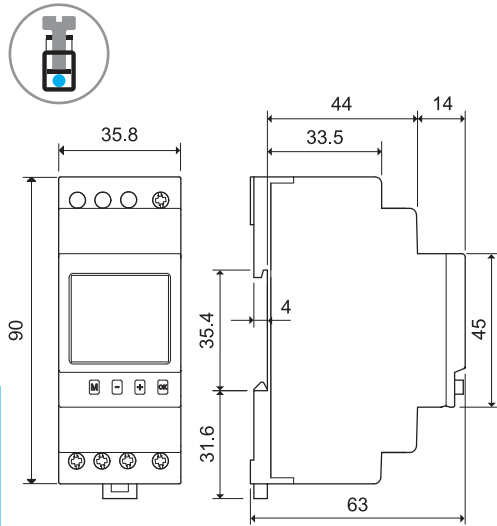
12.01
Screw terminal



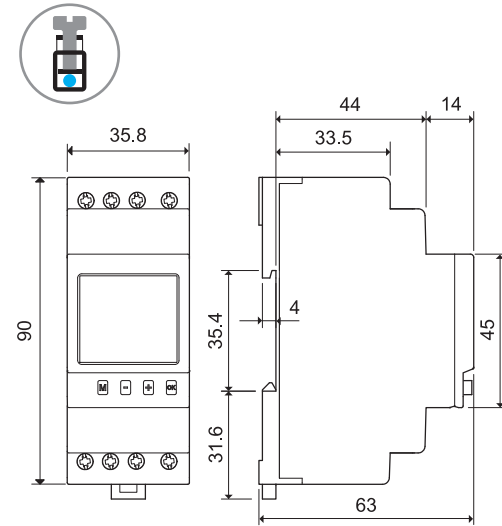
12.11
Screw terminal



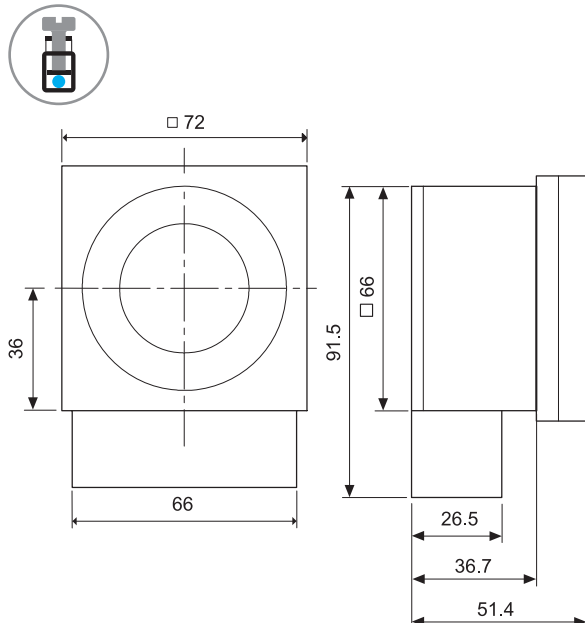
12.21
Screw terminal



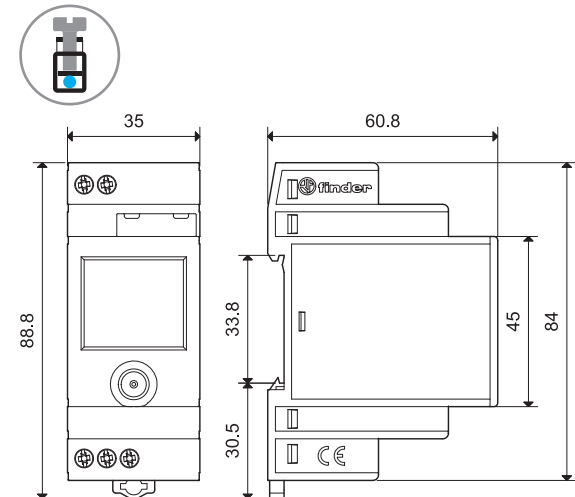
12.22
Screw terminal



12.31
Screw terminal

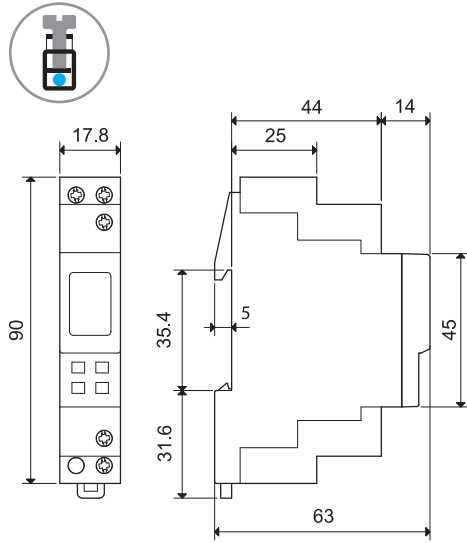


12.51/12.81
Screw terminal

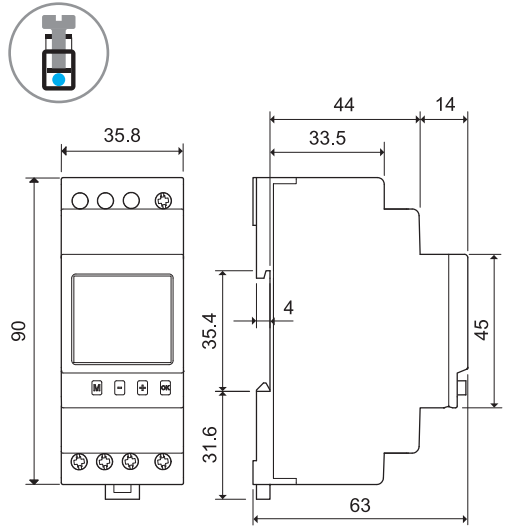


Outline drawings

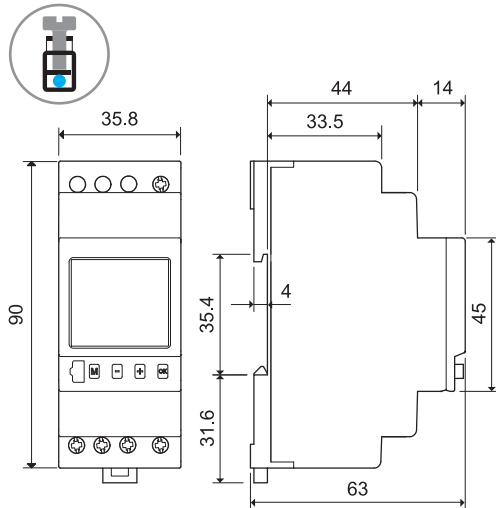
12.71
Screw terminal



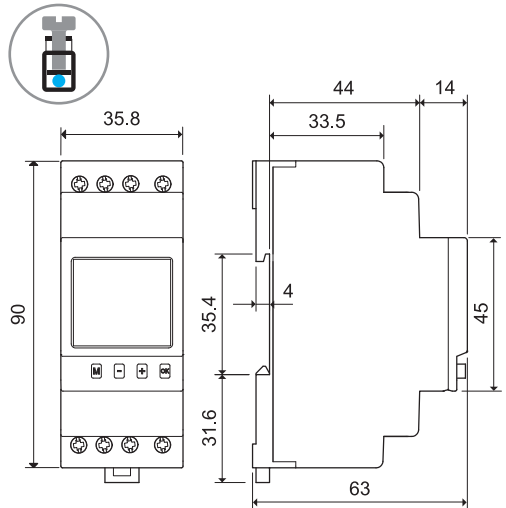
12.91...0000
Screw terminal



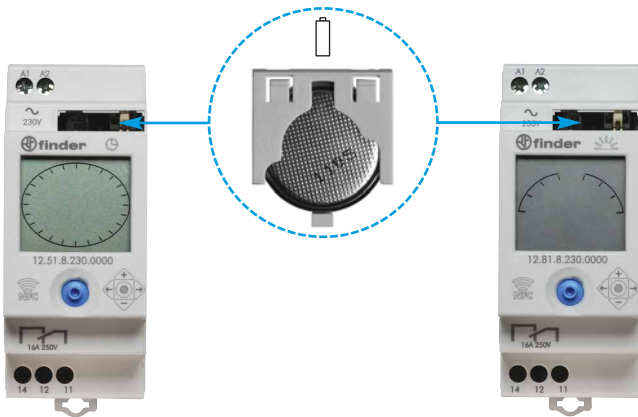
12.91...0090 / 12.92...0090
Screw terminal



12.92
Screw terminal



Battery replacement type 12.51 and 12.81



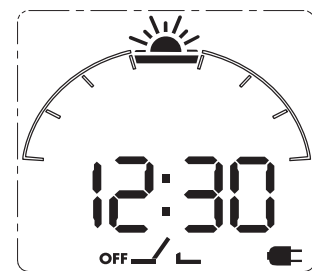
Power-save mode

If the 230 V AC supply is not connected, the time switch enters power-save mode: only the clock is maintained active whilst the display turns off so as to guarantee a long life for the built-in back-up battery. With a press to the joystick it is possible to “awake” the device and enter Display mode (with the “plug” symbol displayed). A further press to will enter the program or set-up mode as explained in the Display mode section above.

After about 1 minute of inactivity the power-save mode will start again. During program or set-up the current absorption is higher than in power-save mode, thus influencing the battery life.

In this mode the display back-light is not active. It is activated following a press to the joystick only with the 230 V AC supply connected, but after about 1 minute of inactivity the display back-light will turn off, and to activate it again it is necessary to press the joystick again.

Note: the output relay only functions if the power supply is connected.



Accessories type 12.51 and 12.81



011.01

Adaptor for panel mounting, 35 mm wide

011.01

