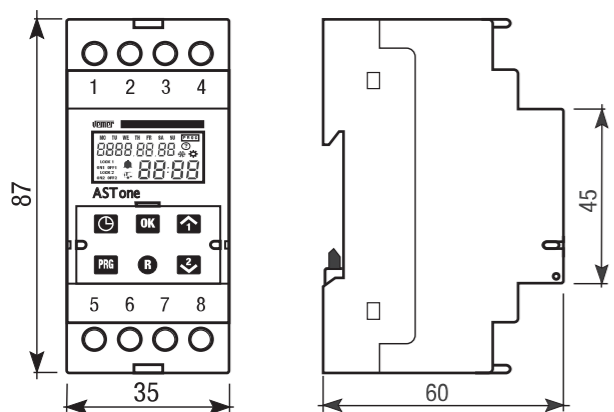V3IS00393-020

Vemer SPA

Mod. AST one

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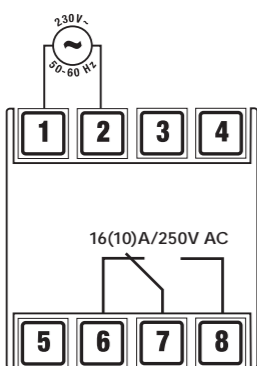e-mail: info@vemer.it - web site: www.vemer.it

CE

User Manual
ASTRONOMICAL TIME SWITCH
Read all the instructions carefully

■ The **AST one** device is an electronic time-switch to manage electrical appliances from sunset to dawn, according to the geographic area set. It performs type 1B actions and is designed for household and similar purposes in enviroments with normal pollution degree and overvoltage category III

Dimensions

Connection diagrams

230V~ 50-60 Hz

16(10)A/250V AC

SAFETY WARNINGS

To guarantee correct installation, proceed as follows:
1) *The device should be installed by a competent operator*
2) *The device should be installed in a panel in such a way as to guarantee that the terminals are inaccessible after fitting*
3) *Connect the device as shown in the alongside diagrams*
4) *Before touching the connector terminals make sure that the wires to be connected or already connected to the device are not live*
5) *Do not power or connect the device if any part of it is damaged*

NOTA: the appliance is switched off when supplied, to avoid unnecessary use of the battery. To switch it on, press "❂*".*

Code	Model	Description
VE048500	AST one	Astronomical Time Switch

TECHNICAL SPECIFICATIONS

- Power supply voltage: 230V AC (-15%/+10%) 50/60Hz
- Absorption: 8VA (2W)
- Outputs: relay 16(10)A/250V AC
- Contact capacity for lamps: - incandescent/halogen 1500W 240V AC
  - fluorescent 600W 240V AC
- Annual clock with calendar up to 31.12.2172
  - clock precision ±1s per day
  - precision of sunrise/sunset calculation ±1 minute
  - programming resolution 1 minute
  - charge reserve (with lithium battery) 4 years approx. (if not powered)
- LCD rear lit display
- Automatic change of summer/winter time with settable change mode
- Simplified programming in two languages:
  - Italian: provincial capital
  - English: latitude, longitude, time zone
- Operating timer for each channel max 99999 h
- Daily update of sunrise/sunset times
- Manual forcing of the temporary and permanent outputs
- 2 DIN module container
- Operating temperature: 0 ÷ +50 °C
- Relative humidity: 10% ÷ 90% non condensing
- Storage temperature: -10 ÷ +70 °C
- Protection level: IP20 at the connector terminals IP41 on the front panel
- Insulation: reinforced between live parts and accesible parts and between power supply and load

SETTING THE ASTRONOMICAL PARAMETERS

Note: for correct operation, it is essential to enter certain items of information (astronomical parameters) to enable the device to identify the geographical area in which it is to be installed.

- This operation is important as the instants of sunrise and sunset in calculated by the **AST one** appliance depend not only on the date set but also on the geographical location of installation.

PROVINCE CODE / CAPITAL

Codice Code	Sigla Abbrev.	Nome Name	Codice Code	Sigla Abbrev.	Nome Name	Codice Code	Sigla Abbrev.	Nome Name	Codice Code	Sigla Abbrev.	Nome Name
0	[AG]	Agrigento	26	[CR]	Cremona	52	[ME]	Messina	78	ROMA	Roma
1	[AL]	Alessandria	27	[KR]	Crotone	53	[MI]	Milano	79	[RO]	Rovigo
2	[AN]	Ancona	28	[CN]	Cuneo	54	[MO]	Modena	80	[SA]	Salerno
3	[AO]	Aosta	29	[EN]	Enna	55	[NA]	Napoli	81	RSM	San Marino
4	[AR]	Arezzo	30	[FE]	Ferrara	56	[NO]	Novara	82	[SS]	Sassari
5	[AP]	Ascoli Piceno	31	[FI]	Firenze	57	[NU]	Nuoro	83	[SV]	Savona
6	[AT]	Asti	32	[FG]	Foggia	58	[OR]	Oristano	84	[SI]	Siena
7	[AV]	Avellino	33	[FO]	Forli	59	[PD]	Padova	85	[SR]	Siracusa
8	[BA]	Bari	34	[FR]	Frosinone	60	[PA]	Palermo	86	[SO]	Sondrio
9	[BL]	Belluno	35	[GE]	Genova	61	[PR]	Parma	87	[TA]	Taranto
10	[BN]	Benevento	36	[GO]	Gorizia	62	[PV]	Pavia	88	[TE]	Teramo
11	[BG]	Bergamo	37	[GR]	Grosseto	63	[PG]	Perugia	89	[TR]	Terni
12	[BI]	Biella	38	[IM]	Imperia	64	[PS]	Pesaro	90	[TO]	Torino
13	[BO]	Bologna	39	[IS]	Isernia	65	[PE]	Pescara	91	[TP]	Trapani
14	[BZ]	Bolzano	40	[SP]	La Spezia	66	[PC]	Piacenza	92	[TN]	Trento
15	[BS]	Brescia	41	[AQ]	L'Aquila	67	[PI]	Pisa	93	[TV]	Treviso
16	[BR]	Brindisi	42	[LT]	Latina	68	[PT]	Pistoia	94	[TS]	Trieste
17	[CA]	Cagliari	43	[LE]	Lecce	69	[PN]	Pordenone	95	[UD]	Udine
18	[CL]	Caltanissetta	44	[LC]	Lecco	70	[PZ]	Potenza	96	[VA]	Varese
19	[CB]	Campobasso	45	[LI]	Livorno	71	[PO]	Prato	97	[VE]	Venezia
20	[CE]	Caserta	46	[LO]	Lodi	72	[RG]	Ragusa	98	[VB]	Verbania
21	[CT]	Catania	47	[LU]	Lucca	73	[RA]	Ravenna	99	[VC]	Vercelli
22	[CZ]	Catanzaro	48	[MC]	Macerata	74	[RC]	Reggio Calabria	100	[VR]	Verona
23	[CH]	Chieti	49	[MN]	Mantova	75	[RE]	Reggio Emilia	101	[VV]	Vibo Valentia
24	[CO]	Como	50	[MS]	Massa	76	[RI]	Rieti	102	[VI]	Vicenza
25	[CS]	Cosenza	51	[MT]	Matera	77	[RN]	Rimini	103	[VT]	Viterbo

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The procedures to be followed for this setting depend on whether the device is to be installed in Italy or abroad.
If the device is to be installed in Italy, the procedure is simplified, as it is not necessary to know the latitude or longitude of the place of installation, but merely to enter the code for the Italian province (see the **"Province code / Capital"** table). When the device is to be installed outside Italy, it is necessary to know the geographical data (latitude and longitude).

INITIAL SETTING (selection of language and place of installation)

- Press the "❂" key followed by the "PRG" key within 3 seconds. The message "SELEct Your CoUntry" will move across the screen.
  Use the "⬆" and "⬇" keys to make the selection between "ItAL IA" and "othEr CoUntry".
  Press "OK" to confirm and go on automatically to the astronomical parameter menu.
  The programming menu for Italy or abroad will appear, depending on the selection made.

SETTING THE ASTRONOMICAL PARAMETERS FOR ITALY

- If installation in Italy was selected in the previous point, the message "SELEct ItAL IAn ProU InC IAL CAP ItAL" will move across the screen. To select the code for the provincial capital, see the "Province code / Capital" table.
  - Press the button "⬆" or "⬇" to increase or decrease the field
  - Press "OK" to confirm the information and go to the next stage in the programming (the values that can be set range from 0 to 103)
- The message "SUnSEt t IME offSEt" will move across the screen
  Due to the characteristics of the location (altitude, surrounding mountains and other geographical features), the sunrise and sunset times may differ from those calculated, and this parameter provides a correction in minutes with respect to the sunset time
  - Press the button "⬆" or "⬇" to increase or decrease the field
  - Press "OK" to confirm the information and go to the next stage in the programming (the value of this parameter may range from +120 min to -120 min)
- The message "SUnr ISE t IME offSEt" will move across the screen (this parameter provides a correction in minutes with respect to the sunrise time)
  - Press the button "⬆" or "⬇" to increase or decrease the field
  - Press "OK" to confirm the information and go to the next stage in the programming (the value of this parameter may range from +120 min to -120 min)
- DISPLAY / ZEROING OF THE RELAY OUTPUT TIMER
  The number of hours for which the relay will be on is displayed (displayed as CH1). The timer can be zeroed by pressing the "PRG" key for at least 3 seconds
  The timer does not move forward if the device is not connected to the power supply
  - Press "OK" to confirm the information and go to Normal operation (the parameter range is 0-99999 h)
- The message "SEt PASS PEr bLoCCo" will move across the screen
  This is the password to disable the settings guard.
  The default password is "123".
  - Press the button "⬆" or "⬇" to increase or decrease the field
  - Press "OK" to confirm the information and go to NORMAL operation (the parameter range is 000÷999)

SETTING THE ASTRONOMICAL PARAMETERS FOR FOREIGN INSTALLATION

- This involves entering the degrees of latitude and longitude for the location This information can be obtained from an atlas.
- If you have selected "othEr CoUntry" from the "place of installation/language" settings, the message "LAt ItUdE north = PLUS S IGn" will move across the screen
  - Press the button "⬆" or "⬇" to increase or decrease the field
  - Press "OK" to confirm the information and go to the next stage in the programming (the parameter range is -60° ÷ +64°)

Note: the degrees latitude for the northern hemisphere are preceded by the plus sign

- The message "LonG ItUdE EASt = PLUS S IGn" will move across the screen
  - Press the button "⬆" or "⬇" to increase or decrease the field
  - Press "OK" to confirm the information and go to the next stage in the programming (the parameter range is ±180°)

Note: the degrees longitude for the eastern direction are preceded by the plus sign

- The message "t IME ZonE EASt = PLUS S IGn" will move across the screen.
  This parameter stands for the hours of difference from Greenwich meridian zero. The value proposed for this field is based on the previous latitude and longitude selection.
  If necessary, this can be modified in the following way:
  - Press the button "⬆" or "⬇" to increase or decrease the field
  - Press "OK" to confirm the information and go to the next stage in the programming (the parameter range is ±14 h in steps of 30')

Note: the plus sign corresponds to eastern longitudes

- For the other parameters (correction of sunset/sunrise time and display/zeroing of timer output), see the instructions for the "Setting the Astronomical Parameters for Italy" menu

Note: the "Astronomical Parameter Setting" menu can be entered in two ways:
- automatically after setting the installation zone and language
- later by holding down the "PRG" key

SETTING THE TIME AND DATE

- Press "OK" to synchronise the seconds
  - Press "⬆" to synchronise to the next minute
  - Press "⬇" to synchronise to the current minute
  (the seconds will flash in the field month with to the symbol " and the day of the week will disappear)
- Press "OK" to terminate the adjustment of the seconds and go on to the minute setting
  - Press "⬆" to increase the minutes
  - Press "⬇" to decrease the minutes
  (the seconds will disappear and YYYY.MM.DD and the minutes will appear in flashing mode)
- Press "OK" to terminate the minute setting and start the hour setting
  Proceed in the same way to adjust the hours, year, month and day. On completion, press "OK" to return to normal operation with the automatic update of the day of the week and flag ("☼" or "❅"), summer or winter time and the relay status.
  Normal operation is restored even if no key is pressed for 30 seconds.

PROGRAMMING THE CHANGE BETWEEN SUMMER AND WINTER TIME

- This is used to enable and disable the automatic change between summer and winter time. It also defines the time change method. The time change is enabled in Italian mode by default:

	in Italy	in UK	in North America
winter summer	last Sunday in March	last Sunday in March	1st Sunday in April
summer winter	last Sunday in October	4th Sunday in October	last Sunday in October

hold down "OK" for at least 3 seconds to see the "CHAnGE t IME EnAbLE" message move across the screen with the symbols "☼" or "❅". Select ON or OFF with the "⬆" and "⬇" keys.
Press "OK" to confirm the information and go to the next stage in the programming. If the previous parameter is OFF the programming will terminate, if ON the time change modes will be displayed. To modify, press "PRG". The following selections are possible:
1) in a pre-determined month and day (every year)
2) on the same day of the last week of a pre-determined month
3) on the same day of week 1, 2, 3 or 4 in a pre-determined month

SUMMER / WINTER TIME MODIFICATION

- After setting the winter time change mode, the symbol "❅" stays on. During the time change setting for summertime, the symbol "☼" stays on.
- Press "⬆" and "⬇" to select the time change mode (LAST, 1st, 2nd, 3rd, 4th, DATE): the display shows:

LAST	If the time change takes place on a determined day of the last week of a pre-determined month
1st	If the time change takes place on a determined day of the first week of a pre-determined month
2nd	If the time change takes place on a determined day of the second week of a pre-determined month
3rd	If the time change takes place on a determined day of the third week of a pre-determined month
4th	If the time change takes place on a determined day of the fourth week of a pre-determined month
DATE	If the time change takes place on a precise date (month and day)

press "OK" to confirm the selection.
- For LAST, 1st, 2nd, 3rd and 4th modes, the month, day of the week, hour and minutes have to be set (during modification, the parameter flashes in the relevant field); press "⬆" and "⬇" to select and "OK" to confirm
- For DATE mode, the month, number of the day, hour and minutes have to be set (during modification, the parameter flashes in the relevant field); press "⬆" and "⬇" to select and "OK" to confirm. Press "OK" consecutively to go to winter time setting

ADVANCED OPERATIONS

MANUAL OUTPUT FORCING

- From normal operating mode, it is possible to modify the status of output using the "⬆" key.
  The forcing of the output is temporary, up to the next programmed event (the current status is reset at the following midnight or when the programming parameters are modified), at which time the output will return to the status set in the programming. The output may be permanently forced if key "⬆" is held down for 3 seconds approx. In this way, the programming has no influence on the status of the output.
  The status of the output is indicated on the display:
  - temporary forcing is indicated by the flashing of the current relay status and permanent forcing is indicated by the "LOCK" message

SWITCHING THE DEVICE ON AND OFF

- When "❂" followed by "OK" are pressed, the message "ASt off" will appear on the display, then the device will switch off completely (use this method to avoid running down the battery if the device is to be switched off for a long time). Press "❂" to switch on.

Note: the relay output timer is not deleted

SETTINGS GUARD

- To enable the settings guard, hold down the keys "PRG" and "⬇" simultaneously for at least 3 seconds (until the display reads "bLoC").
  When enabled, this function inhibits keyboard operation (only the RESET key is active): after pressing of any key, the display will read "bLoC" for a few seconds.
- To disable the settings guard, hold down the keys "PRG" and "⬇" simultaneously for at least 3 seconds (until the display reads "000"), press the keys "⬆" or "⬇" to select the password and press "OK" to confirm.
  Note: to restore default password ("123") press "RESET".

SUNRISE-SUNSET TIME DISPLAY

The sunrise and sunset times for the current date can be displayed alternately by pressing "OK"
The message remains on the display for approximately 2 seconds, then the device returns to normal operation

Note: the time displayed takes the sunrise and sunset correction parameters into account.

REFERENCE STANDARDS

■ Conformity to the EU directives:
2006/95/EC (Low voltage - LVD)
2004/108/EC (Electromagnetic compatibility - EMC)
is declared with reference to the following standards:
EN 60730-2-7, EN 61000-6-1, EN 61000-6-3