

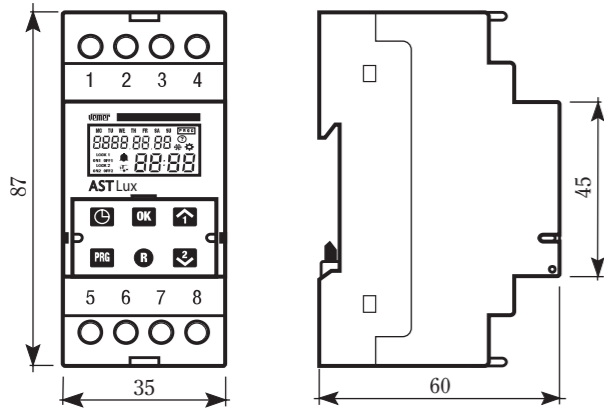


Mod. AST Lux

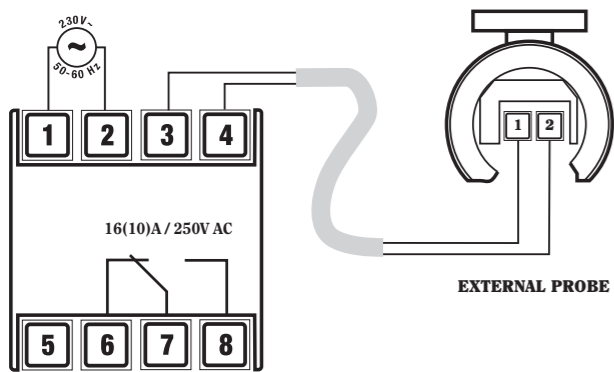
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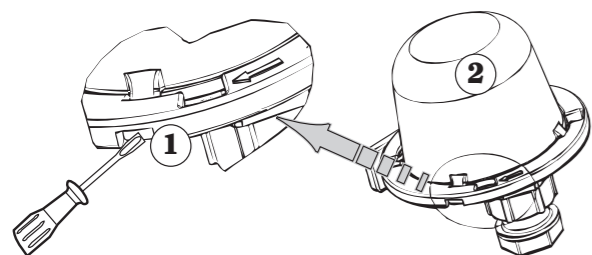
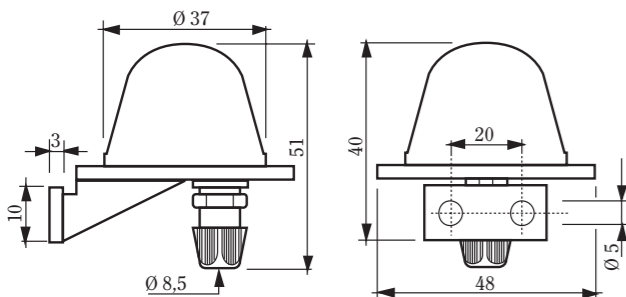
Dimensions



Connection diagrams



External probe



PROVINCE CODE / CAPITAL

Code	Abbrev.	Name	Code	Abbrev.	Name
0	[AG]	Agrigento	15	[BS]	Brescia
1	[AL]	Alessandria	16	[BR]	Brindisi
2	[AN]	Ancona	17	[CA]	Cagliari
3	[AO]	Aosta	18	[CL]	Caltanissetta
4	[AR]	Arezzo	19	[CB]	Campobasso
5	[AP]	Ascoli Piceno	20	[CE]	Isernia
6	[AT]	Asti	21	[CT]	Catania
7	[AV]	Avellino	22	[CZ]	Catanzaro
8	[BA]	Bari	23	[CH]	Chieti
9	[BL]	Belluno	24	[CO]	Como
10	[BN]	Benevento	25	[CS]	Cosenza
11	[BG]	Bergamo	26	[CR]	Cremona
12	[BI]	Biella	27	[KR]	Crotone
13	[BO]	Bologna	28	[CN]	Cuneo
14	[BZ]	Bolzano	29	[EN]	Enna

User Manual
ASTRONOMICAL TIME SWITCH
Read all the instructions carefully

- The **AST-Lux** device is an astronomic time-switch conceived to manage electric users from sunset to dawn, according to the geographic area set. The external probe permits diurnal lighting in case of little luminosity.

SAFETY WARNINGS

- The device should be installed by a competent operator
- The device should be installed in a panel in such a way as to guarantee that the terminals are inaccessible after fitting
- Connect the device as shown in the alongside diagrams
- Before touching the connector terminals make sure that the wires to be connected or already connected to the device are not live
- Before supplying power to the instrument, connect the probe and make sure this is correctly closed and positioned
- 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 "R".

Code	Model	Description
VE148300	AST Lux	Astronomical Time Switch with external probe

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
- Diurnal operating with external probe:
 - switch the threshold of intervention: 1÷10 lux
 - reading update: every 4 minutes
- 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
- External probe:
 - Protection level: IP65
 - Operating temperature: -20 °C ÷ +50 °C
 - Maximum distance between probe and device: 50 m

CONNECTING THE PROBE

- Insert a screwdriver in the slot and raise the attachment flap (1)
- Turn the probe cover in an anticlockwise direction until it stops and remove it (2)
- IMPORTANT: to maintain the IP level, do not lose the gasket
- Remove the cable clamp from the lower part
- Place the bi-polar cable in the cable clamp and then in the cable passage of the probe
- IMPORTANT: use a dual insulation cable
- Connect the two conductors to the terminals
- IMPORTANT: don't connect the terminals to accessible metal parts
- Tighten the cable clamp and return the cover of the probe by turning it in the clockwise direction
- Connect the cable to terminals "3" and "4" of the device

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. 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 "R" key. The message "SELETTA LA LINGUA E IL PAESE" will move across the screen. Use the "1" and "2" keys to make the selection between "ITALIA" and "ALTRE LINGUE". 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 "SELETTA IL CODICE DELLA PROVINCIA" will move across the screen. To select the code for the provincial capital, see the "Province code / Capital" table.
 - Press the button "1" or "2" 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)
- CORRECTION SUNSET TIME OFFSET
The message "CORREZIONE ORA DI TRAMONTO" 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 "1" or "2" 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)
- CORRECTION SUNRISE TIME OFFSET
The message "CORREZIONE ORA DI ALBA" will move across the screen (this parameter provides a correction in minutes with respect to the sunrise time).
 - Press the button "1" or "2" 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 Diurnal operation (the parameter range is 0-99999 h)
- SELECT THE DIURNAL OPERATING MODE
Enable/disable the diurnal operation (from dawn to sunset) of the AST-LUX using the external probe: the activation of the load take place in case the luminosity decrease under the threshold value set (for example in case of a storm).
 - When the message "FUNZIONAMENTO DIURNO" will move across the screen:
 - Press the button "1" or "2" to increase or decrease the field
 - Press "OK" to confirm the information and go to PASSWORD MODIFY operation (the parameter range is OFF, 1÷10, with 10= max threshol)
- MODIFY THE PASSWORD
The message "SELETTA LA PASSWORD" will move across the screen (use the password to disable the settings guard). The default password is "123".
 - Press the button "1" or "2" 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 "ALTRE LINGUE" from the "place of installation/language" settings, the message "LATITUDINE NORD - PLUS 5 50N" will move across the screen.
 - Press the button "1" or "2" 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 "LONGITUDINE ESTE - PLUS 5 50E" will move across the screen.
 - Press the button "1" or "2" 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 "ORA DI DIFFERENZA - PLUS 5 50H" 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 "1" or "2" 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, selection the diurnal operating mode, modify the password 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

TIME AND DATE

SETTING THE TIME AND DATE

- Press "C" to synchronise the seconds

- Press "1" to synchronise to the next minute
- Press "2" to synchronise to the current minute (the seconds will flash in the field month with the symbol "C" 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 "1" to increase the minutes
- Press "2" 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 "C" to return to normal operation with the automatic update of the day of the week and flag ("C" or "S"), 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	last Sunday in March	last Sunday in March	1st Sunday in April
summer	last Sunday in October	4th Sunday in October	last Sunday in October

hold down "C" for at least 3 seconds to see the "CHANGE E NE ENABILE" message move across the screen with the symbols "C" or "S". Select ON or OFF with the "1" and "2" 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 "S" stays on. During the time change setting for summertime, the symbol "C" stays on.
- Press "1" and "2" 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 "1" and "2" 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 "1" and "2" 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 "1" 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. 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 "R" followed by "OK" are pressed, the message "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 "R" to switch on.

NOTE: the relay output timer is not deleted

SETTINGS GUARD

- To enable the settings guard, hold down the keys "PRG" and "2" simultaneously for at least 3 seconds (until the display reads "BLC"). When enabled, this function inhibits keyboard operation (only the RESET key is active): after pressing of any key, the display will read "BLC" for a few seconds.
- To disable the settings guard, hold down the keys "PRG" and "2" simultaneously for at least 3 seconds (until the display reads "000"), press the keys "1" or "2" to select the password and press "OK" to confirm.

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)
89/336/EEC modified by 92/31/EEC and 93/68/EEC (EMC)
is declared with reference to the following harmonised standard:
EN 60730-2-7, EN 61000-6-1, EN 61000-6-3

PROVINCE CODE / CAPITAL

Code	Abbrev.	Name	Code	Abbrev.	Name	Code	Abbrev.	Name	Code	Abbrev.	Name
30	[FE]	Ferrara	49	[MN]	Mantova	68	[PT]	Pistoia	87	[TA]	Taranto
31	[FI]	Firenze	50	[MS]	Massa	69	[PN]	Pordenone	88	[TE]	Teramo
32	[FG]	Foggia	51	[MT]	Matera	70	[PZ]	Potenza	89	[TR]	Terni
33	[FO]	Forlì	52	[ME]	Messina	71	[PR]	Prato	90	[TO]	Torino
34	[FR]	Frosinone	53	[MI]	Milano	72	[RG]	Ragusa	91	[TP]	Trapani
35	[GE]	Genova	54	[MO]	Modena	73	[RA]	Ravenna	92	[TN]	Trento
36	[GO]	Gorizia	55	[NA]	Napoli	74	[RC]	Reggio Calabria	93	[TV]	Treviso
37	[GR]	Grosseto	56	[NO]	Novara	75	[RE]	Reggio Emilia	94	[TS]	Trieste
38	[IM]	Imperia	57	[NU]	Nuoro	76	[RI]	Rieti	95	[UD]	Udine
39	[IS]	Isernia	58	[OR]	Oristano	77	[RN]	Rimini	96	[VA]	Varese
40	[SP]	La Spezia	59	[PD]	Padova	78	[RM]	Roma	97	[VE]	Venezia
41	[AQ]	L'Aquila	60	[PA]	Palermo	79	[RO]	Rovigo	98	[VB]	Verbania
42	[LT]	Latina	61	[PR]	Parma	80	[SA]	Salerno	99	[VC]	Vercelli
43	[LE]	Lecce	62	[PV]	Pavia	81	[SM]	San Marino	100	[VR]	Verona
44	[LC]	Lecco	63	[PG]	Perugia	82	[SS]	Sassari	101	[VV]	Vibo Valentia
45	[LI]	Livorno	64	[PS]	Pesaro	83	[SV]	Savona	102	[VI]	Vicenza
46	[LO]	Lodi	65	[PE]	Pescara	84	[SI]	Siena	103	[VT]	Viterbo
47	[LU]	Lucca	66	[PC]	Piacenza	85	[SR]	Siracusa			
48	[MC]	Macerata	67	[PI]	Pisa	86	[SO]	Sondrio			