

**ASTRONOMICAL WATCH 2 RELAY SHIVA Amvaj**



**Instruction**

Through a microprocessor program, this device can accurately determine sunrise and sunset times without requiring an optical receiving, for the purpose of controlling lighting systems via two outputs. This clock requires no optical sensor and is suitable for indoor installation. The two output relays of the device act independently and can be adjusted separately for On/Off operation.

**Features**

- Microprocessor system for computing sunrise/sunset times based on geographical coordinates (latitude and longitude)
- Overtoltage/undervoltage protection
- Retaining (for 5 years) the time as well as the device settings in the absence of an input voltage
- Two independent output relays
- Adjustable timer for separately cutting off each output between 1 and 12 hours after sunset
- Independent setting of cutoff time (in hours and minutes) for each output
- Adjustable On/Off delay or hasten time for each output ( $\pm 120$  min relative to sunrise/sunset)

**Technical Specifications**

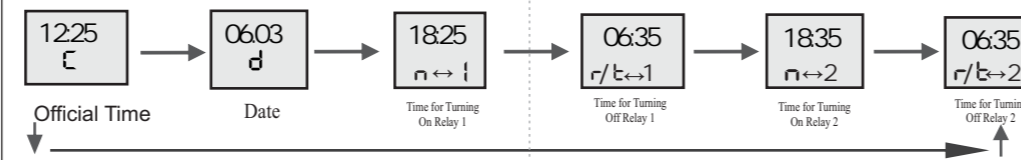
- supply Voltage: 165-260 V/50-60 Hz
- Cutoff Voltage:  Overtoltage: 255 V  Undervoltage: 170 V
- Working Conditions:  Temperature: -20°C to +65°C  Humidity: 70%
- Output: Two 10A relays

**Error Messages**

- bAŁŁ: Internal battery is depleted
- oVŁr: Overtoltage
- UŁdr: Undervoltage
- \* bAŁŁ error is sometimes through disorder of clock adjustment which is resolved by repeated adjustment.

**Normal Display**

The normal display of the astronomical clock is shown below

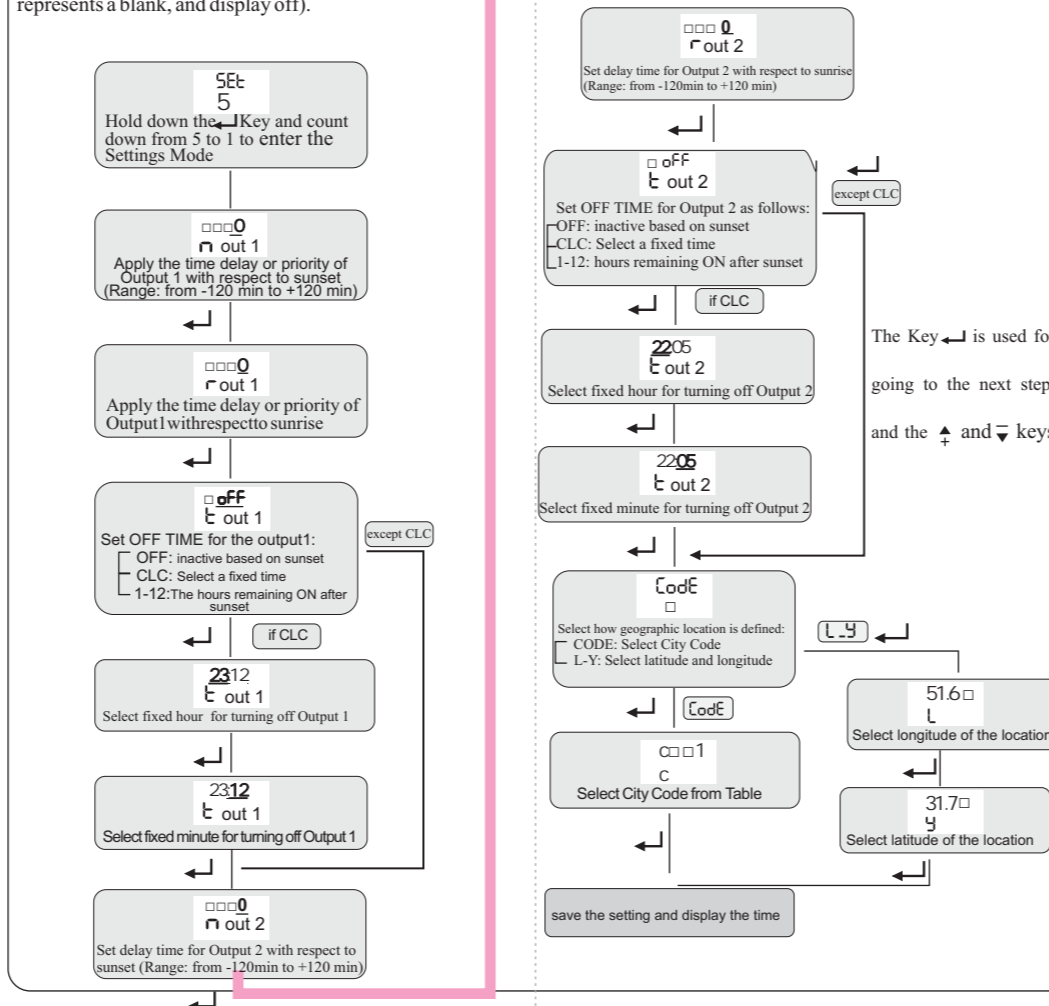


Note 1: The  $\leftrightarrow$  symbol indicates alternative display of a number and a letter. In time adjustment mode after sunset  $r/\text{Ł}\leftrightarrow 1$  and in sunset mode is  $r$

Note 2: If the output cutoff time is closer to sunrise, then the cutoff operation would be based on sunrise time, and if the cutoff time is closer to sunset, then the output cutoff operation would be based on  $\text{O}\text{O}\text{O}\text{O}$  hours. In this mode, the cutoff time is displayed by letter "Ł" instead of letter "Ł" (see the example).

**Main Device Settings**

The device settings are according to the following flowchart (the  $\square$  symbol represents a blank, and display off).



Example: If sunrise and sunset occur at 6:30 and 17:30 respectively, and if the clock is set for 14:30, then the output shall be on between 17:30 and 24:00 hours (because 14:30 is closer to sunset). However, if the clock is set at 11:00, then the output shall be on between 17:30 and 6:30 (because 11:00 is closer to sunrise).

**Manual and Automatic Modes**

During the maintenance of the lighting system, the Astronomical Clock must be set to Manual Mode to activate the manual relay and keeps the lighting system on for 4 hours.

To enter Manual Mode, press and hold down the  $\text{Ł}$  and the  $\text{Ł}$  keys to set Outputs 1 and 2 respectively, and observe the letters "hŁŁ" accompanied by the output number on the screen.

In this mode, the relevant LED starts blinking and the countdown starts from 5, after which the relay connects and the lighting system turns on. the display will then remain in this mode.

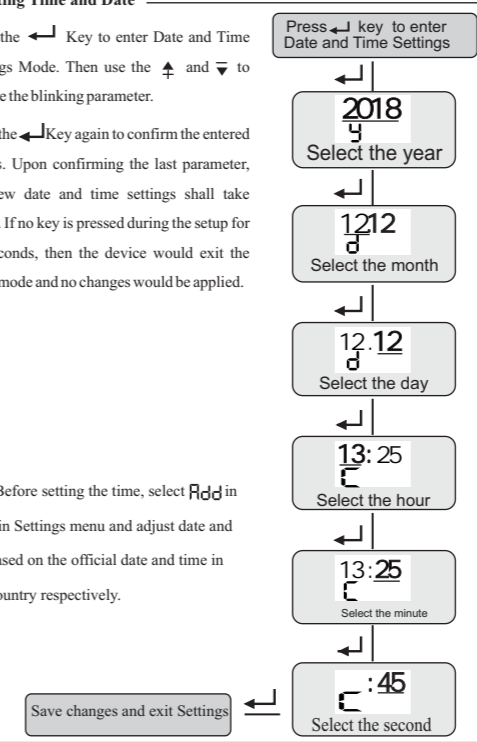
To return the device to Automatic Mode, repress and hold down the Output key until "Aut" and output number appear on the display and the countdown begins from 5, after which the Automatic Mode is activated the device resumes its normal

**Setting Time and Date**

Press the  $\text{Ł}$  Key to enter Date and Time Settings Mode. Then use the  $\text{Ł}$  and  $\text{Ł}$  to change the blinking parameter.

Press the  $\text{Ł}$  Key again to confirm the entered values. Upon confirming the last parameter, the new date and time settings shall take effect. If no key is pressed during the setup for 10 seconds, then the device would exit the setup mode and no changes would be applied.

Note: Before setting the time, select  $\text{Ł}\text{Ł}\text{Ł}$  in the main Settings menu and adjust date and time based on the official date and time in your country respectively.



**Voltage**

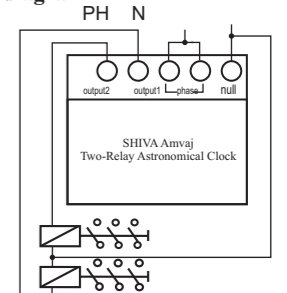
Grid voltage display: Press the key  $\text{Ł}$  to observe the grid voltage with the symbol "U" appearing on the lower display. Press any key to return the device to the normal operation mode.

Voltage Control: The outputs disconnect automatically if the grid voltage is outside the permissible range (170-255 V). The delay times for connection and disconnection are 5 and 3 seconds respectively and the device acts as a voltage protector during this time. Letters "Ł" and "Ł" appear on the lower display during the counting for connection delay and disconnection delay, respectively.

**Table of provincial capitals in IRAQ**

City	Code	City	Code
Karkook	06	Baghdad	01
Aamere	07	Karbala	02
Soleymanie	08	Basreh	03
Arbil	09	Moosel	04
		Najaf	05

**Electrical wiring diagram**



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- 3 year no question asked guarantee under these conditions;
- 1-at most it should be within 3 years from the date printed on the label of the product
- 2-the label on the product should be safe and sound

Shiva Amvaj products in accordance with international standards and with a 3 year no question asked guarantee are presented



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