APPLICATION NOTE:

LIGHT CONTROL WITH ASTRONOMICAL CALENDAR

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APPLICATION NOTE

Date	Version	Changes
15/12/2016	1.00	First issue

ATTENTION!

Contact your telephone provider for information on GSM and GPRS service costs. It is best to quantify log and SMS costs before setting up and installing Z-GPRS3, Z-UMTS, Z-LOGGER3.

The use of Z-GPRS3 and Z-UMTS is in data roaming mode (for example, abroad with an Italian SIM card) may generate unexpected costs. Contact your telephone provider for further information.

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ATTENTION!

-Contact your telephone service provider for GSM and GPRS service costs especially when using Z-GPRS3 or Z-UMTS with a sim card issued by a country other than the one in which it is used (international roaming).

-It is best to estimate telephone costs before setting up Z-GPRS3 and Z-UMTS.

-The cost of each SMS is set by the telephone service provider.

-GPRS send/receive costs can be tied to Kbytes sent/received, a monthly ceiling included in a package or GPRS connection time. Contact your telephone service provider for further information.

-Check the data quantity sent via GPRS and SMS before using Z-GPRS3 and Z-UMTS.

Please remember that mobile phone service providers consider the entire communication that permits file transmission as data traffic (and therefore data transmission overhead, the number of connection attempts, etc. must also be included in the count) and not just the dimensions of each 2G/3G transaction.

1. PRELIMINARY INFORMATION ON SEAL

Further information about SEAL can be found in the SEAL Quick Guide and the SEAL online help; further information on Z-GPRS3, Z-UMTS and Z-LOGGER3 can be found in the user manual.

The sample setting refers to Z-GPRS3 but it is the same for the other RTUs.

2. PURPOSE OF THE GUIDE

The purpose of this guide is to show the functionality of the RTUs as astronomical clock.

Via GPRS connection, the RTU acquires the GPS position of the cell it is connected with and, according to the current date, calculates sunrise and sunset times.

It is possible to enter an offset (with the "+" or "-" signs) on the time of sunrise and/or sunset.

The RTU can calculate automatically the moves from summer to solar time.

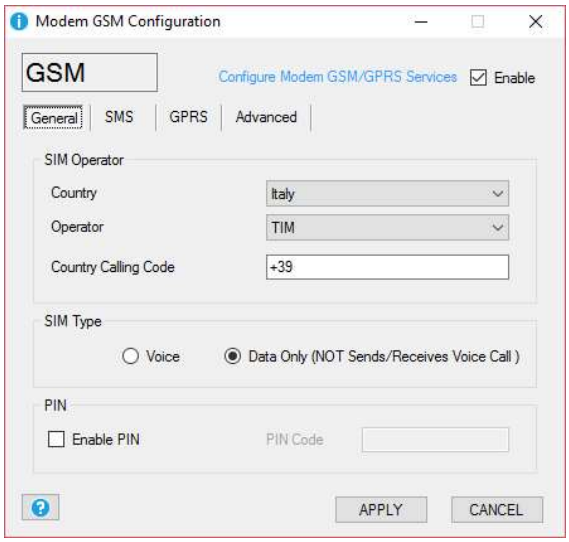
30 minutes before sunrise (offset -30 minutes), you want to switch the lights off opening OUT1 and OUT2.

30 minutes after sunset (offset + 30 minutes) you want to switch the lights on closing OUT1 and OUT2.

3. SETTING THE GPS POSITION

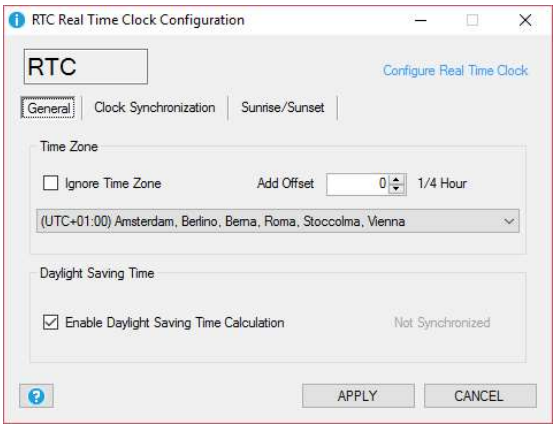
Via SEAL you can set a GPS fixed coordinate or one obtained using the GPRS connection.

If the RTU is fitted with a mobile modem, this needs to be activated:

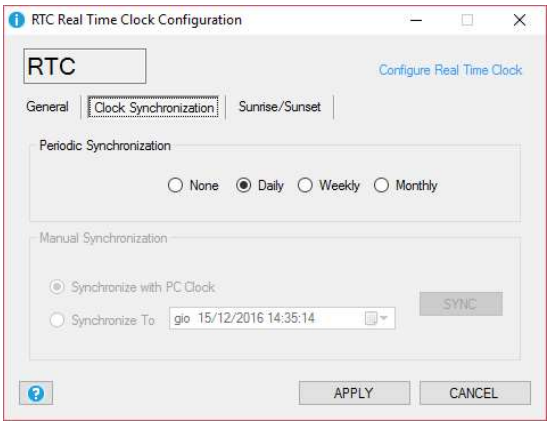


And then act on section 

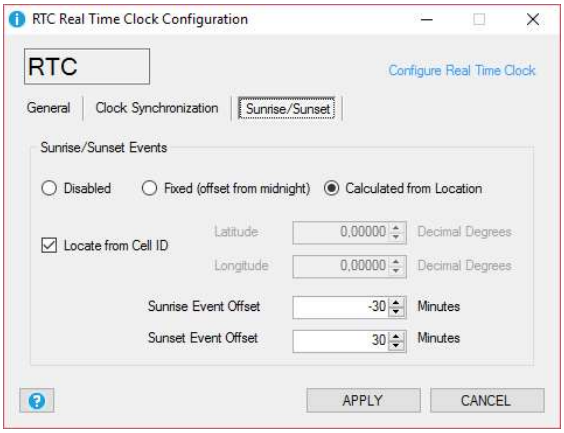
because for the calculation you need to set a correct time/date, enabling the calculation of summer / solar time too:



Set the update of the day time.



The acquisition of the GPS position from the GSM cell can now be enabled and an offset of -30 minutes for the sunrise and +30 minutes for the sunset can be entered:

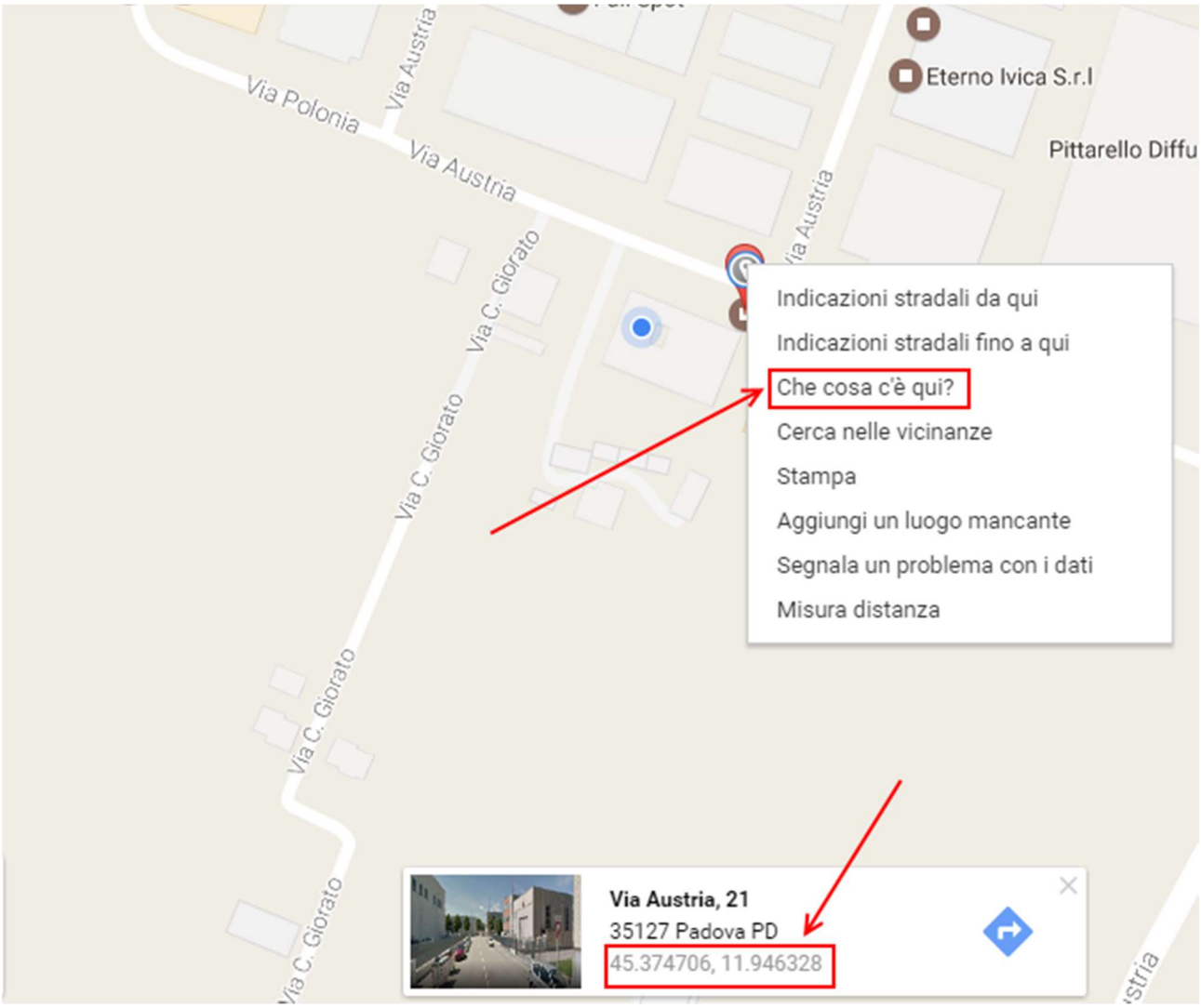


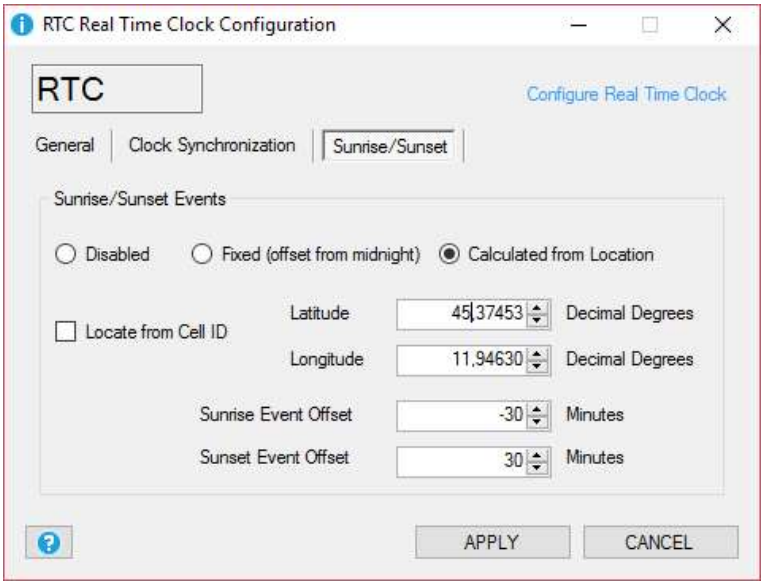
ATTENTION!

If you want to calculate the GPS position according to the GSM cell, the PPP on the GSM modem must have been switched off.

If the RTU is installed in a fixed position or if you wish to use the mobile modem (for instance if you are using Z-Logger3), you must enter the latitude and longitude manually.

For instance, if you connect to Google maps™, you can get the GPS coordinates of an installation site by right-clicking:





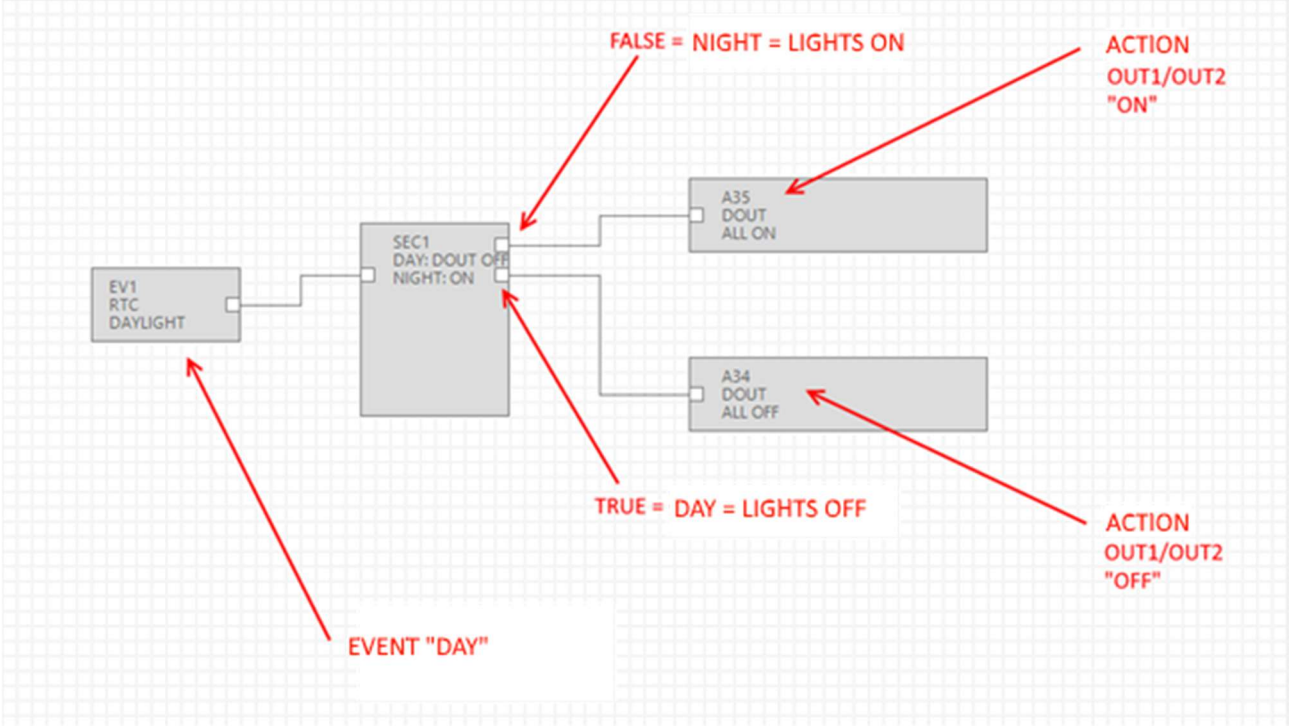
Careful to replace the "." Decimals with the Italian separator comma ",".

4. PROGRAMMING THE SWITCHING ON/OFF OF THE LIGHTS

In Seal, use the "RTC DAYLIGHT" event that is:

TRUE Between sunrise and sunset times

FALSE Between sunset and sunrise times



When it is day, both digital outputs are open while they are closed during the night.