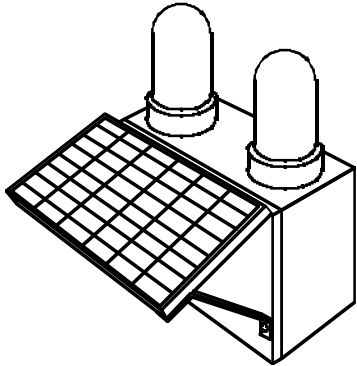


Installation and Operation Instructions Leaflet

Page 1 of 2



The MiniAutoSin 10.12.14 is designed to be installed on top of towers, to provide visual signalization (blinks) during the night, using the energy that is stored in batteries during the day.

The energy for the batteries charging is supplied by a photovoltaic module that converts the sunlight directly into electricity.

For safety and reliability enhancement, the system embodies two independent light emitting domes, each one containing 24 high intensity LEDs.

Two 12V VRLA type maintenance-free batteries, plus the photovoltaic polycrystalline module, assure good autonomy period and quick recharging.

What contains the package:

To assure a better protection during transportation, the solar module is shipped in a separate packing. The module connection cable is equipped with a strain-relief and terminals, to facilitate the installation.

The package contains:

- 1 An "L" corner plate (upper support for the solar module)
- 2 Lower supports for the solar module
- 4 M8 stainless steel bolts, with nuts and washers, for fastening the corner plate and lower supports
- 4 M4 stainless steel bolts, with nuts and washers, for fastening the solar module on the corner plate and lower supports
- 2 "U"-shaped fasteners for fastening the unit to a 2" post or tower structure
- 1 A thread of caulking dough, to be used on the bolts and the strain-relief

Solar Module Assembly Instructions:

Attach the "L" corner plate to the upper part of the unit door (see drawing), using two M8 bolts and caulking dough.

As shown in the drawing, fasten the lower supports, using two M8 bolts and caulking dough. ATTENTION: Right support (looking to the unit frontally) has the hole displaced to the right - and the left support has the hole displaced to the right.

As shown in the drawing, fasten the solar module to the corner plate and supports, using four M4 bolts and caulking dough. The module cable exit must point downwards.

Remove the nut from the cable strain-relief and lead the cable through the hole on the unit door. Apply some caulking dough, replace the nut and fasten it.

Do not yet remove the insulation tape from the terminals. The tape must be removed at the moment the connection is carried out, as follows:

Electrical Connections:

The solar module red cable must be attached to the "+P" terminal on the charge/discharge controller (see drawing) and the black cable to the "-P" terminal. If the connection is inverted, the "Painel Invertido" LED at the charge/discharge controller will lit, at the moment the solar module receives solar light.

Remove the protection tapes and insert the Faston connectors on the batteries terminals (red cable on the red terminal, black cable on the black terminal). If the connection is inverted, the "Bateria Invertida" LED at the controller will lit, and the fuse will blow. Correct the polarity and replace the fuse.

Solar-powered Dual Blinker

MiniAutoSin 10.12.14 - 2x24 LEDs

Installation and Operation Instructions Leaflet

Page 2 of 2

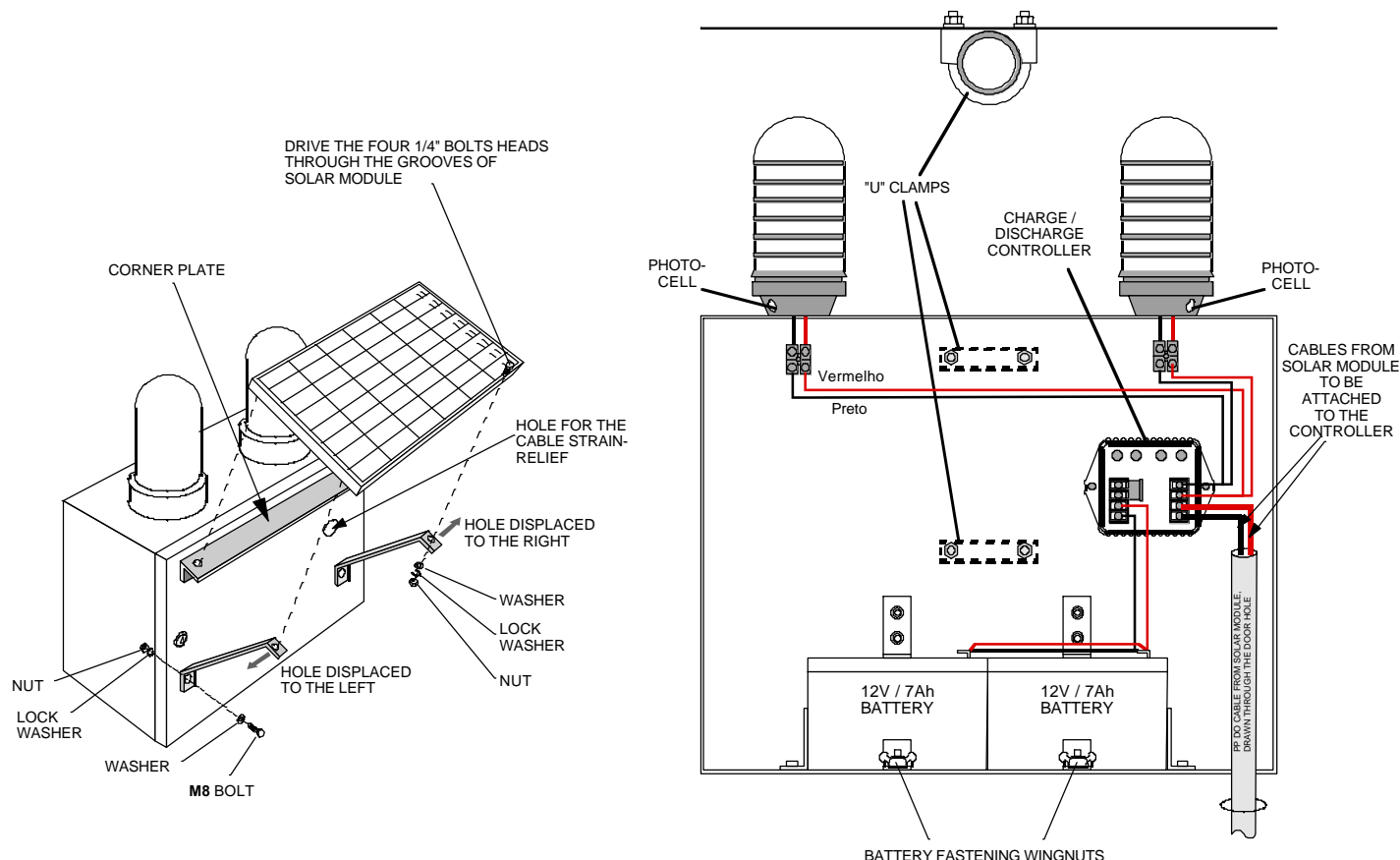
If the installation is carried out during full insolation hours (from 10 AM to 4 PM), wait a couple of minutes before testing the unit, **for the batteries must present at least 12.6V** to allow the system to work. Testing should only be carried out when the "Saída - pronta para uso" LED at the controller is lit.

If the installation is carried out at the end of the insolation period and the batteries voltage is under 12.6V ("Saída - pronta para uso" LED off), it will be only possible to test the system next morning, after the solar module raises the batteries voltage.

Fastening the Unit to a Support:

The unit must be installed so the solar module is directed to the sun ("sees" the sun) at noon, that is, the sun beams must hit the module at the best, during all the arch the sun describes in the sky. On the southern hemisphere, this means that the module must point North. And must point South if installed on the northern hemisphere. In other words, the shade the unit projects on the ground should be the smallest possible at noon.

ATTENTION: The module must not be shaded. The shade of a tree branch or even an electric wire may reduce substantially the electric energy produced by the module.



Test / Operation:

If the battery voltage is equal or over 26 $\pm 0,1V$, cover the photocell openings (see above drawing). The LEDs must start to flash at a rate around 3 seconds. Uncovering the photocell opening, the LEDs must stop flashing. In the unattended normal working condition, the LEDs will start to blink at nightfall and stop to blink at dawn.

Maintenance:

The VRLA batteries are maintenance-free. Might need to be replaced every 3 years.

Note: In areas where the temperature is high during the entire year, the replacement period might be shorter (about 2 years).