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Display for solar regulator MPPT SC300M

mod.: DT001

www.ndsenergy.it ~ e-mail: commer@ndsenergy.it

CONTENTS

1.Description ..... pag. 1
1.1 Main functions ..... *pag. 1*
2.INSIDE THE BOX ..... pag. 2
2.1 Device components ..... *pag. 3*
2.2 Accessories for installation ..... pag. 3
3.INSTRUCTIONS FOR INSTALLATION ..... *pag. 4*
3.1 Installing device DT001 ..... *pag. 4-5*
4.GETTING STARTED ..... pag. 6
4.1 Using Touch Screen ..... *pag. 6*
4.2 Initial settings ..... *pag. 7-8*
5.OPERATION ..... pag. 9
5.1 Main screen ..... *pag. 9*
5.2 symbols explanation ..... *pag. 10*
5.3 Visualization of the state of charge(SoC) ..... *pag. 11*
6.MANAGEMENT OF THE BATTERIES ..... pag. 12
6.1 Charge of the Engine battery ..... *pag. 12*
7.Setting Menu (Setting Button) ..... pag. 13
7.1 Setting Button ..... *pag. 13*
8.ADDITIONAL FUNCTIONS ..... pag. 13
8.2 Turn off display ..... *pag. 13*
9.TECHNICAL SPECIFICATIONS ..... pag. 14
10.WARRANTY ..... pag. 14

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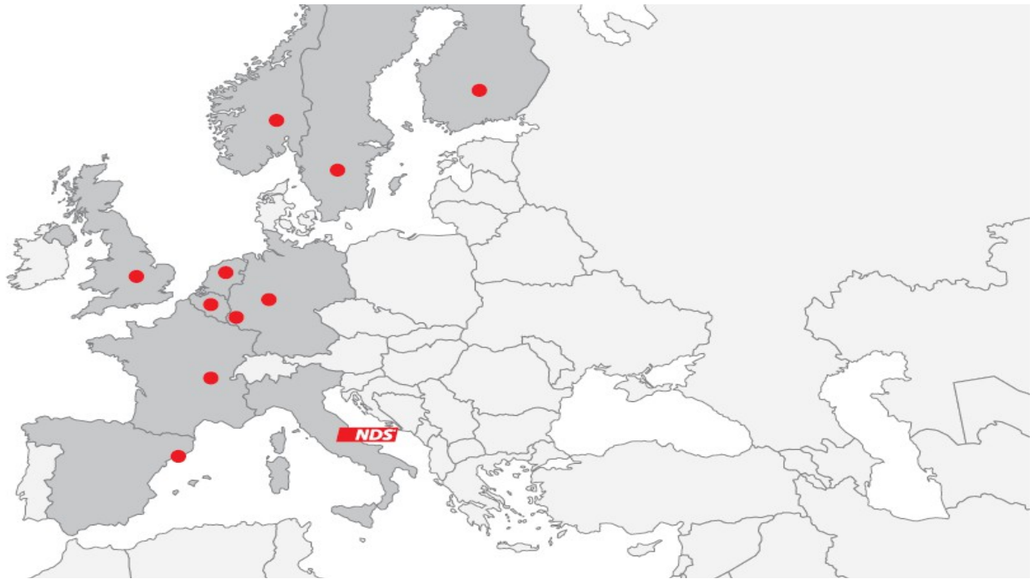


1. DESCRIPTION

DT001 is the diplay for the solar regulator SC300M for solar panels with MPPT technology. Thanks to the colored touch screen display, the device shows all the charging data of the service battery and of the engine battery, it shows also the status of the photovoltaic panels connected to the regulator.

1.1 Main functions

- Selection of the charging curve or technology of the service battery from the display
- Selection of the power of the photovoltaic panels connected to the two inputs of the SC300M
- Visualization of the status of charge of the accumulators
- Visualization of charge voltage and amperage
- Date and time

2. INSIDE THE BOX

Make sure the box includes the following components:

- Display '***DT001***'
- Communication cable '***DT001***'
- Assembling screw kit

The items provided are designed for this device exclusively and are not compati ble with other devices.

10.1 Warranty coupon

Mod. ..... Serial n.....

Date of purchase .....

Surname ..... Name .....

Street..... N° ..... P. CODE . .....

City .... Phone n. .....

I authorize the use of my personal data under the provisions of law “D.L. 30th June 2003 No.196”

Stamp and signature of the reseller

Signature of Customer

To send in a closed envelope to:
NDS ENERGY S.r.l. – Via G. Pascoli, 169 – 65010 Cappelle sul Tavo (PE) – Italy

10. WARRANTY

The manufacturer shall guarantee the proper functioning of the DT001 and undertake to make free replacement of partswhich should be deteriorated due to defects in construction within 24 months from the date of purchase, as evidenced by the validation slip (to be filled in each part and returned to the manufacturer).
The defects resulting from improper installation, use,tampering or negligence shall not be covered by warranty. Furthermore, we assume no liability for any direct or indirect damages.The DT001 returned, even if under warranty, will have to be shipped “Freight paid” and shall be returnedand on a “Freight collect” basis.
The certificate of warranty shall be valid only if accompanied by a official receipt or delivery document.

Mod. ..... Serial n. .....

Date of Purchase .....

CE

RoHS

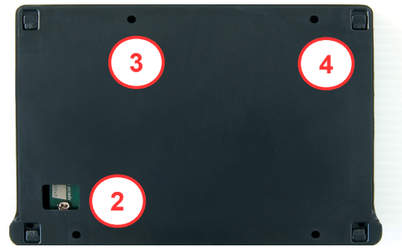
Stamp and signature of the reseller

2.1 Device components

››DT001

Front view:

Back view:



NUMBER	FUNCTION
1	Touch screen display
2	Bore for the communication cable
3	4 bores to fix the cover to the wall
4	System to fix the frame of the display to the cover

2.2 ACCESSORIES FOR INSTALLATION

n°1 Supply cable
n°1 Back cover to fix the display to the wall
n°4 Fixing screws

3. INSTRUCTIONS FOR INSTALLATION

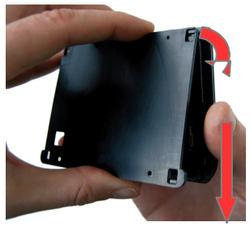
In order to install the device properly, Follow the instructions below

3.1 Installing the device DT001:

1. Disassemble the display frame of the DT001

a) Make the display frame slide upwards with respect to the cover behind

b) Lift the lower part of the display frame



c) Make the display frame slide downwards with respect to the cover and unhook

2. Fix the cover to the wall chosen for the installation. Identify the points to make the holes for the fixing screws (diameter 3mm) and the hole for the passage of the communication cable (mini diameter 7.2mm).

3. Perform the holes and tighten the cover behind the wall using the screws provided and being careful that they do not protrude the countersink once they have been fastened.

7. Setting Menu (Setting Button)

7.1 Setting button

Tapping the Settings button it is possible to access the initial setup menu, ie to the series of screens that appear at the first installation and that are always consultable and modifiable.

8. ADDITIONAL FUNCTIONS

8.1 Power off display

It is possible to turn off the display anytime with a simple click on the red icon with the Off symbol, located in the upper right corner of the screen.
When the display is off it is sufficient just to click on it to reactivate it.

9. TECHNICAL FEATURES

REMOTE SCREEN	
Display type	TFT 2,83" 262k Colors with Touch Screen
Average consumption	73mA@ max.lightning 33mA@Display OFF 8mA during night
Connection	RS232 with 7m cable
Working Temperature	-10°C - +70°C

6. MANAGEMENT OF THE BATTERIES

6.1 Charge of the engine battery

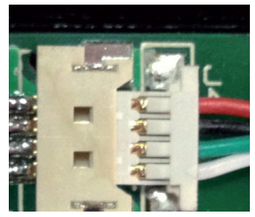
This feature is critical for storage periods, in fact, even after long stops avoids being with the engine empty battery that does not start anymore.
The SC300M regulator can automatically charge the engine battery only when it is actually needed, and there are the following conditions:
- Engine battery below 12.5V
- The service battery must be fully charged
- The photovoltaic panel/s must be able to supply energy.

The maximum current supplied to the engine battery is 4A.
The charge is also interrupted when the engine battery is fully charged or when the charging source is off.

The charging of the engine battery can be activated manually in case of need, by holding down the symbol  **when there is a charging source different from the alternator and the engine battery voltage is less than 12.5V.**

If in the electrical system there is the SC300M regulator and the iManager, it is convenient to connect the engine battery to the iManager and leave open the input for the SC300M.

4. Pass the communication cable through the hole especially made and insert it delicately inside the connector of the display board.



DO NOT FORCE, the connector's direction must be mandatorily complied with.

5. Fasten the display to cover on the back:

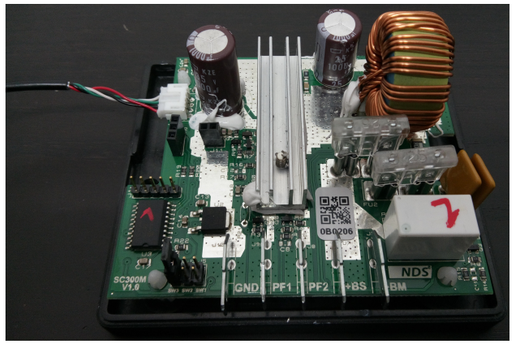
a) insert the plugs on the top of the display frame in the housings of the cover behind while keeping the lower part of the display frame with respect to the cover;

b) pull down the lower part of the display frame by attaching it to the cover

c) make the display frame slide downwards with respect to the cover.

CONNECTION TO THE SC300M:

Connect the white connector on the other end of the communication cable to the SC300M board, as shown in the picture:



4. GETTING STARTED

4.1 USING THE TOUCH SCREEN

The DT001 touch screen allows you to interact with the device by selecting the several functions easily.
For the proper use of the touch screen, follow the instructions below:

Do not exercise too much pressure with your fingers on the display surface and do not use sharp objects. By doing so, you may damage the device or cause it to malfunction.

Do not allow the display to come into contact with other electrical devices. Electrostatic discharges can cause it to malfunction.

Do not allow the display surface to come into contact with water. The touch screen may malfunction in humid conditions or when exposed to water or other liquids.

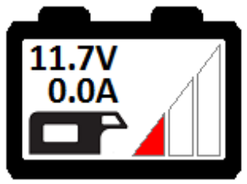
For best performance, tap the touch screen with your fingertip.
You can use plastic pens for a more accurate touch on the display, provided that they do not have sharp tips which can damage the surface.

5.3 Visualization of the State of Charge (SoC)

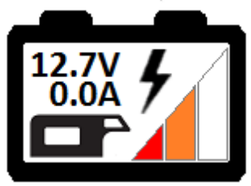
Within the area of each service battery depicted on the display, there is a sequence of 3 lines representing the state of charge as a percentage of the corresponding battery.
The indication of the SoC when the batteries are not charged by solar panels is not completely reliable, because it refers only to the voltage value without knowing the charge/discharge current.

Icons with state of charge:

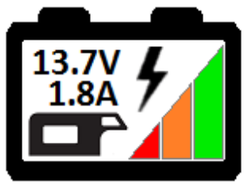
SoC < 33%



33% < SoC < 67%



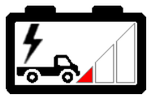
SoC > 67%



To get a reliable indication of the SoC, it is important to set correctly the required parameters in the initial settings.

Just after the installation it is possible that the state of charge displayed is not correct, but thanks to the self-learning algorithm of the device you will get the precise indication, even after the first use of batteries being charged.

5.2 Symbols explanation

SYMBOL	MEANING and FUNCTION
	Engine battery not connected or not in charge
	Engine battery in charge.
	Turn off symbol, when clicked switches the display off.
	Settings button, when clicked briefly accesses the initial setting menu.
	Service battery, information on charge status and voltage and charging current values.

4.2 INITIAL SETTINGS

Switching the device on
When the communication cable is connected, the display turns on and the initial screen appears, with the "SUN CONTROL" writing which will keep displaying until the device has not received the first data from the SC300M.

Initial settings
Once the data have been received, the display will show the connected batteries' data setup screen.

To ensure the proper functioning of the system, set the values requested in all the screens.

From this screen it is possible to set:

- Technology of the batteries (Agm, gel, Wet, LiFEPO4)
- Activate and/or deactivate the Desulfation phase

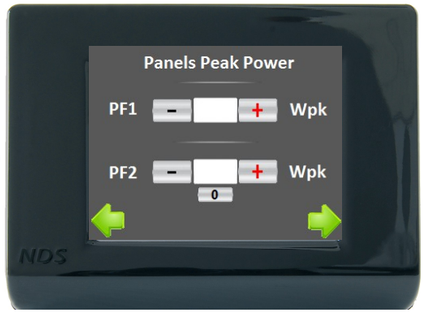
WARNING!
The construction technology of the service battery and the activation of the Desulphation phase may be set by the display only if on the PCB of the SC300M the selection Jumpers have been removed; otherwise the settings on the screen are not considered.

Photovoltaic modules setting:

Allows to set the power of the panels connected to the 2 inputs of the SC300M

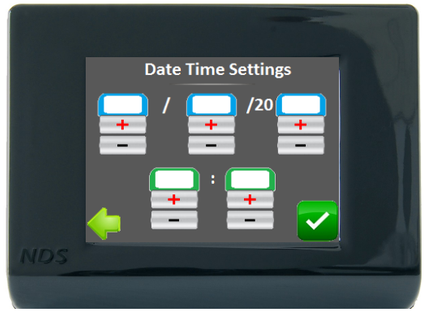
.

The proposed value is 100Wp per panel, but if you have only one panel, you can reset the value of power to Zero PF2 by clicking on this button under the corresponding white box.



Setting the date and time:

Input the current date and time by clicking the "+" (plus) or "–" (minus) icon under the relevant box.
By clicking on the arrow on the left, you can go back and change the input data.
By confirming, all the data inserted earlier are saved and you get to the DT001 main screen

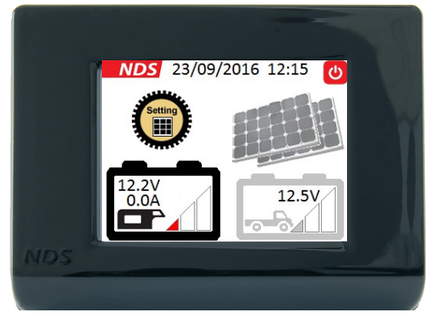


5. OPERATION

5.1 Main screen

In the main screen of DT001 it is possible to monitor all information about the battery status, tension, current, SoC, date and time and status of the solar panels. .

Main screen



The current is shown just for the service battery and refers oly to the charge current and only by solar panels. The display shows which panel is working in that precise moment and shows only the tension of the engine battery.