

## SPC20.V

### Installer Manual









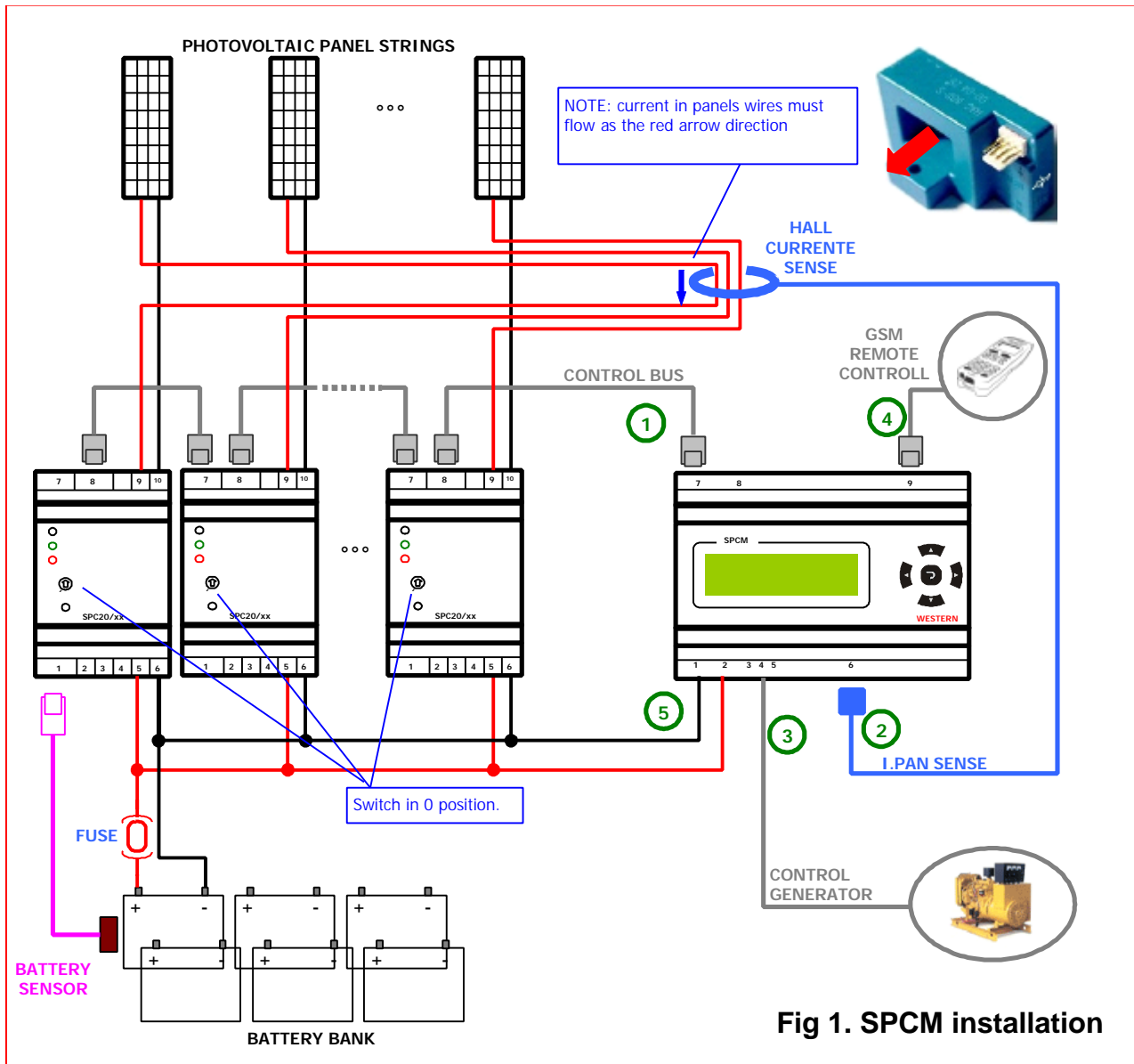
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#### General Description

SPCM module allows the monitoring of a PV system that has been realized using Western Co. charge regulators code SPC20/xx. SPCM functions are:

-  **It sets the working parameters of SPC20/xx regulators.**
-  **It measures the battery voltage and the current produced by the PV field.**
-  **It accounts the energy that is produced by the PV field.**
-  **It turns on and off an external electro-generator.**
-  **It commands and set the equalization cycle of batteries.**
-  **If supplied with a GSM module, it can send a SMS with the system data that are locally displayed.**



**Fig 1. SPCM installation**

In fig.1 you can see the cabling scheme. Please refer to SPC20/xx manual for the part concerning the regulators. Follow the under reported procedure for connecting SPCM module:

- ① **Connect to the connector 7 or 8 the CONTROL BUS with which SPCM can exchange data with SPC20/xx regulators. Use the proper cable (standard supplied). Set the rotary switch in 0 position on all SPC20/xx.**
- ② **Connect to the connector 4 the HALL CURRENT SENSE. The panel current must flow inside the sensor respecting the direction of the printed arrow. The cable I.PAN SENSE is standard supplied.**
- ③ **SPCM can command the turning on and off of an external electro-generator commanded by a contact NC (5-4) or NO (5-3).**
- ④ **Connect on proper connector (9) the GSM module. Note: GSM module is optional and you have to order it separately.**
- ⑤ **Connect SPCM to the battery package 1(-) 2(+). The battery can be either 12V or 24V. SPCM will recognize automatically the nominal voltage of the battery connected to it.**

## Instructions

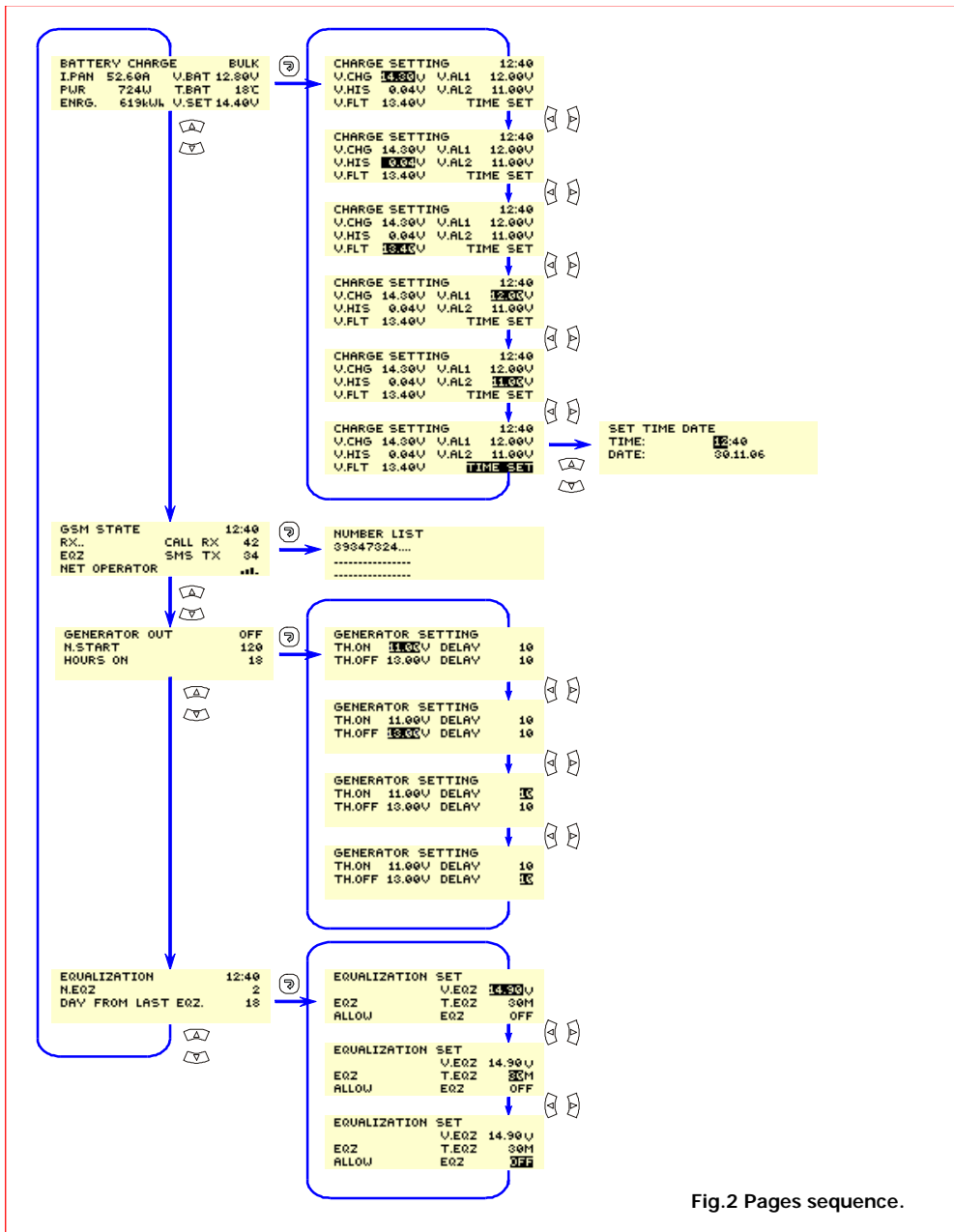
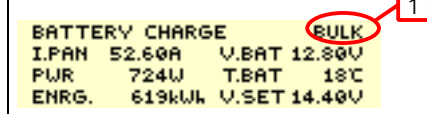




Fig.2 Pages sequence.

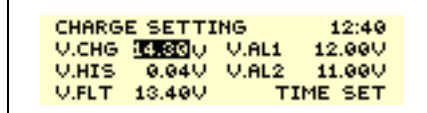
## BATTERY CHARGE page

There are the values that influence the battery recharge.

	<b>I.PAN</b>	PV field current that is read by the sensor (HALL CURRENT SENSE)
	<b>V.BAT</b>	Battery voltage that is read by SPC20/xx regulator through the data bus.
	<b>PWR</b>	Immediate power that is supplied by the PV field.. it corresponds to the product I.PAN * V.BAT
	<b>ENRG.</b>	Energy produced by the PV field. It is possible to reset this field by pressing the push-buttons at the same time   .
	<b>T.BAT</b>	Battery temperature that is read by SPC20/xx regulator through the data bus.
	<b>V.SET</b>	Recharge voltage at temperature: T.BAT. It depends from T.BAT and from V.CHG in CHARGE SETTING page.
	<b>1</b>	In the upper left side of the page there is the recharge phase of the battery. This can be: <b>BULK</b> (bulk), <b>ABS</b> (absorption), <b>FLT</b> (float), <b>EQZ</b> (equalization). If the communication bus is not connected towards the regulators SPC20/xx or if they have not all switches in 0 position, in this field will appear: <b>ERR</b> lightning.

## CHARGE SETTING page

In this page you can change the system recharge parameters. Consult the batteries manual to choose the correct recharge parameters.

	<b>V.CHG</b>	Recharge voltage at a 25°C. Set this parameter according to the technical features of the battery.
	<b>V.HIS</b>	The reconnecting voltage of the panel V.CHG – V.HIS. This parameter influences the frequency of connection / disconnection of the panel: lower is V.HIS higher is the frequency of connection / disconnection of the panel. Increasing V.HIS can be useful to reduce eventual electromagnetic disturbances that the system can produce in close equipments.
	<b>V.FLT</b>	It is 'FLOAT' voltage of the system (it must be set according to the battery technical features).
	<b>V.AL1 / V.AL2</b>	They are the voltages of alarm signalling in SPC20/xx regulator. We remember that they are active when the battery voltage is lower than the thresholds of V.AL1 e V.AL2 respectively.
	<b>TIME SET</b>	You can set watch and internal calendar.

## GSM STATE page

You can enter this page only if the external GSM module has been connected (GSM module accessory must be ordered separately).

With GSM module, SPCM can transmit info about the PV system by sending a SMS to any mobile phone. The user can call the telephone number that is associated to the SIM mounted on GSM module (the user must buy and insert the sim in the GSM modem) and, after some seconds, SPC20V will send it a SMS with the system data. To avoid that anyone can have this service (thus consuming credit in the SIM) SPC20V sends a reply SMS only to callings coming from numbers that are in the list of telephone Numbers. You can visualize the phone numbers in the page **NUMBER LIST** , while to insert or modify the numbers in the list you have to insert temporarily the SIM card of the modem in any mobile phone and to register in the first three positions the phone numbers that can receive the data. You can insert max three phone numbers in the list. **Note: numbers must be preceded by the international prefix (ex.+39 for Italy) and they must be memorized in the first three positions.**

<p>GSM STATE 12:40  <b>1</b> RX.. CALL RX 42  <b>2</b> NET OPERATOR SMS TX 34  <b>3</b> .ll.</p>	<b>CALL RX</b>	Number of received calls. You can delete this field by pressing the pushbuttons   at the same time .
	<b>SMS TX</b>	Number of SMS trasmitted in reply at one call.
	<b>1</b>	It signals the state of GSM module. It can show the following values: <b>INIT..</b> (inizialation phase is in course), <b>SIM ERROR</b> (there is not the sim card in the modem), <b>RX..</b> (the modem is ready, waiting for a call)), <b>CALL</b> (call in course).
	<b>2</b>	Phone operator with whom the modem is connected.
	<b>3</b>	Field level that is measured by the modem.

### GENERATOR OUT page

This page shows the state of the electro-generator.

<p>GENERATOR OUT  <b>1</b> OFF          N.START 120          HOURS ON 18</p>	<b>N.START</b>	Number of times that SPCM starter the electro-generator. You can delete this field by pressing the pushbuttons   at the same time .
	<b>HOURS ON</b>	Number of working times of the electro-generator.
	<b>1</b>	It signals the state: <b>ON/OFF</b> of the generator.

### GENERATOR SETTING page

In the terminals 5-4(NC) and 5-3(NO) there are two contacts (Max 125V, 2 A) with which you can turn on or turn off the electro-generator. The control logic of the generator can be set through the page: GENERATOR SETTING.

<p>GENERATOR SETTING          TH.ON 11.00V DELAY 10          TH.OFF 13.00V DELAY 10</p>	<b>TH.ON</b>	It is the level of battery voltage under which the electro-generator is activated. When the battery threshold goes under TH.ON level for a time longer than the one in the relative DELAY field, the electro-generators turns on.
	<b>TH.OFF</b>	It is the level of battery voltage above which the electro-generator is deactivated. When the battery threshold goes over TH.OFF level for a time longer than the one in the relative DELAY field, the electro-generators turns off.
	<b>DELAY</b>	Delays of turnings on / turnings off of the electro-generator.

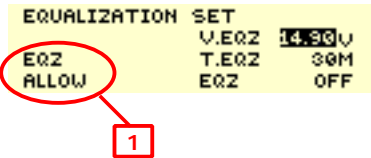


### EQUALIZZATION page

It shows equalization statistics.

<p>EQUALIZATION 12:40          N.EQZ 2          DAY FROM LAST EQZ. 18</p>	<b>N.EQZ</b>	Number of times that equalization has been activated. You can delete this field by pressing the pushbuttons   at the same time .
	<b>DAY FROM LAST EQZ.</b>	It shows how many days are from the last equalization.

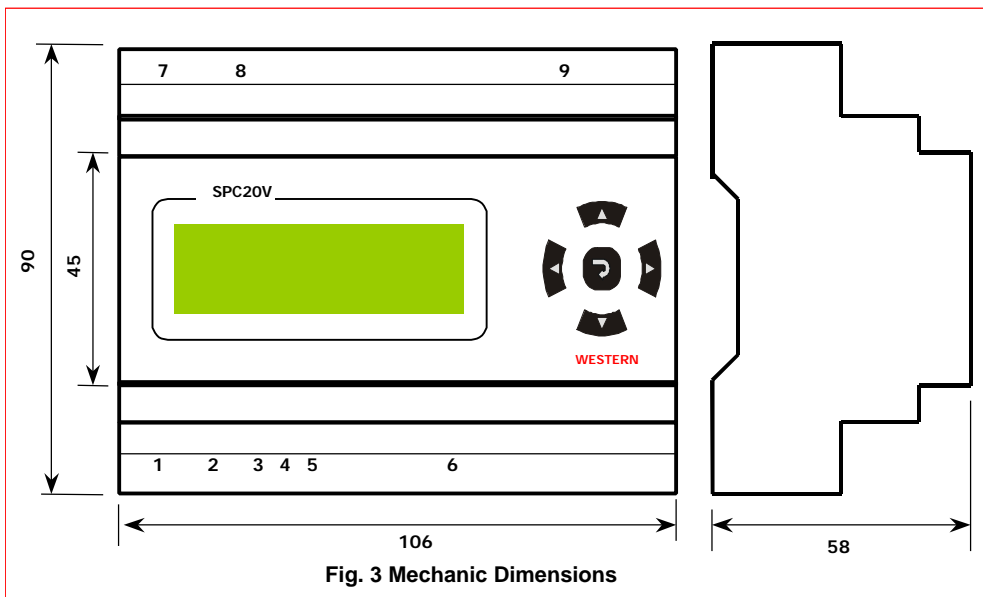
## EQUALIZATION SET page

It shows statistics and allows the starting of equalization operation.

	<b>V.EQZ</b>	Voltage level of equalization at 25°C.
	<b>T.EQZ</b>	Duration in minutes of equalization process.
	<b>EQZ</b>	It is possible to start or stop the equalization by pressing the pushbuttons   when this field is selected.
	<b>1</b>	Equalization is allowed only if the system is at end-charge, in FLOAT state. The field 1 shows if in this moment equalization is admitted or not.

## Dimensions

SPC20V has got a DIN Rail connection of 35mm.



**Table 1. Electric features**

	SYMB.	DESCRIPTION	MIN	TIP	MAX	UNIT
Battery voltage	V <sub>BATT</sub>	Battery nominal voltage 12V/24V	9.6	-	32	V
Battery current	I <sub>BAT</sub>	GSM modem: not connected	-	60	-	mA
		GSM modem: connected	-	70	-	mA
Out generator voltage	V <sub>NC/NO</sub>	Contacts voltage NC / NO	-	-	125	V
Out generator current	I <sub>NC/NO</sub>	Current of contact NC / NO a 24V dc	-	-	1	A
		Current of contact NC / NO a 120V ac	-	-	0.5	A
Hall current sense	I.PAN	Current on sense I.PAN	0	-	100	A
Environment temperature	T <sub>AMB</sub>	Working temperature	-10	-	40	°C
Section of battery conductors	-	Terminals 1 and 2	-	-	2.5	mm <sup>2</sup>
Out generator conductors section	-	Terminals 3, 4 and 5	-	-	2.5	mm <sup>2</sup>
Control bus connectors	-	Connectors 7,8	plug 4/4			
GSM connector	-	Connector 9	plug 8/8			
Box protection degree	-		-	IP20	-	

## Accessories:

**CONTROL BUS cable**  
Standard supplied



Code **SPC20.CP**

**HALL CURRENT SENSE**  
Standard supplied



-

**GSM Modem**  
Supplied on demand



Code **SPC20.GSM**