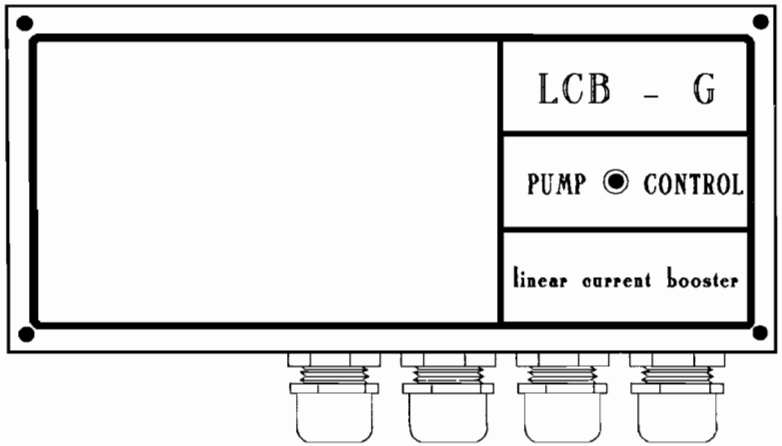
Installation Manual for the
LCB - G75 Pump Controller



The "LCB - G75" pump controller is a high quality DC power converter designed as an interface between a DC (Solar)-Pump (e.g. SHURflo 9300) and a DC power source, like solar panels, wind generators, batteries etc.. The main function of this controller is to maximize the daily water output while providing protection for the pump. The controller can be used in 12V and 24V systems.

The solid state controller will protect the pump system and give trouble free service for many years. When used in a solar pumping system, directly connected to the solar power, it will protect the pump from over voltage and over current conditions as well as will provide current boosting in low sunshine (radiation) conditions.

The manual will show you how to make the connection for your particular system configuration and the wiring diagram is given.

LCB - G75 Specification

* Maximum input voltage		45 VDC (Open Circuit) under all conditions
* Start up voltage with	12.5 V	one module 17,5 mpp
* Start up voltage with	25.0 V	two modules 17,5 mpp in series
* Maximum output voltage		29 volts
* Maximum power consumption of the PV-pump-system		150 Watts
* Maximum output current		5 Amps
* Power consumption		25 mA
* Fuse		10 Amps (optional inserted on the battery cable)
* Ambiente temperature		14°F - 113°F (-10°C...+45°C)
* Short-circuit protection		

Installation

1) If installing on a post, you may use the included Bracket and screws.

2) Connect the PV-panel cable, while covering the solar modules against sunshine (radiation). Correct connection will be indicated by the GREEN LED.

3) Attach the HI/LOW/GRD sensors at the desired depth with the pressure pipe of the solar pump and the safety rod.

4) Connect the solar pump cable. Tighten carefully!

5) Test the function by switching the manual switch (inside enclosure, upper right corner) to the "ON" position some seconds.

6) Connect the sensor cable while using the black isolation tube. Insert all 3 wires through the isolation cable and then insert through the cable connector. Tighten carefully!! Follow the sequence of the sensor settings, HIGH-sensor to the HIGH-cable connector, etc.

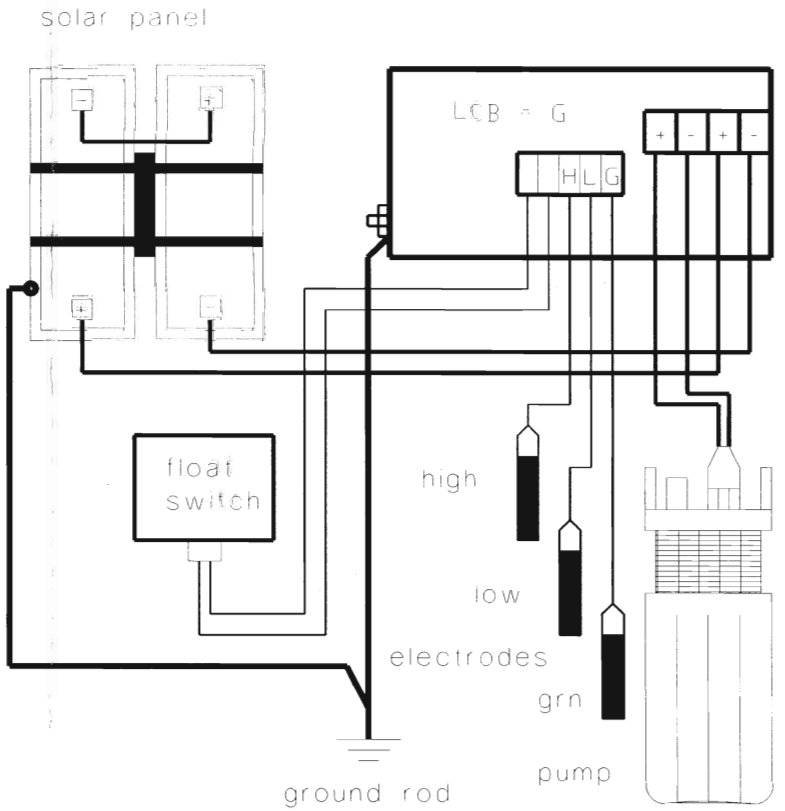
IMPORTANT:

If the HI/LOW/GRD terminals are not used with level sensors they must be bridged. The RED LED is in function when there is a low water level.

7) If required, connect the float switch with the terminals. "Bridged", Stops the pump "RED LED".

WIRING DIAGRAM

LCB-G



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Features

1) Current boosting for matching the load requirements of the pump motor.
2) Adjustable voltage of the starting point of the pump.
3) Weatherproof cast aluminum enclosure.
4) 4x water tight cable inlets
5) Voltage limiting for pump protection
6) Remote float switch circuit.
7) Low water cut off circuit with adjustable set points.
8) ON / OFF Pump switch (inside enclosure)
9) Power-in indicator (green LED, inside enclosure) ("ON", if the wiring from the panel is correct)
10) Pump-out indicator (red LED, outside)
11) One year limited warranty

Power Matching of the Controller

For use on panel direct systems, the LCB Pump Controller is set to hold the voltage constant around the maximum power point of the panels, and match the electric requirements of the pump motor. The purpose for the matching of the electric conditions of the power source (MPP) with the consumer (load) is to maximize the daily output of the solar pumping system.

Wiring the LCB Pump Controller

a. Float switch (remote) ON/OFF Circuit is used to turn the pump on and off from a remote location, e.g. a float switch in a reservoir. (Short the two terminals to turn the pump off.) The resistant on the wire should not exceed 250 ohms.

b. HIGH water level sensor turns the pump on. (* Mount the brass electrode below the static water level at the desired turn point.)

c. LOW water level sensor turns the pump off. (Mount the brass electrode 1 foot above the ground sensor.

d. GROUND or common water level sensor must be under water all times. Mount the electrode 1 foot (30cm) above the pump.

*** The distance between the HIGH and GROUND sensor should not exceed 60cm (2 feet). It depends on the water conductivity**
If more distance is required a test will give best results

e. PV- (IN) Negative wire from the PV array.
f. PV+ (IN) Positive wire from the PV array.
g. PUMP- (OUT) Negative wire from the pump (load).
h. PUMP+ (OUT) Positive wire from the pump (load).
i. ON/OFF Switch MANUAL SWITCH turns the pump on / off.
k. 12V/24V Switch select system voltage.
(presentadjustment:25V)

Switch no.		1	2	3	4
25 V solar direct	two modules in series **"direct"**	ON	OFF	OFF	OFF
22 V battery based	two batteries in series	OFF	ON	OFF	OFF
12.5V solar direct	one module **"direct"**	OFF	OFF	ON	OFF
11 V	one battery	OFF	OFF	OFF	ON

* Note:

If the low water level circuit (HI/LOW/GRD) is not used, jumper wires must be connected all three terminals.
Do not extend sensor wires more than 300 feet (100 m) total length

IMPORTANT = Watch for the correct electric connection = IMPORTANT
("+" / "-" cable connection)

DO NOT EXPOSE THE CONTROLLER INTO DIRECT SUNLIGHT

Function of the LED

* Green Light: The green LED is inside of the controller. If the wiring from the panel correct, the green light (LED) will be on.

* Red Light: The red LED is on the front side of the controller. The red light is on:

a. If the float switch (remote control) is on a high position and the reservoir is full (bridged).

b. If the water table inside the well is lowered to the level of the LOW sensor and the dry running protection of the pump is in function.

Battery Use

If the LCB Pump Controller is used in conjunction with batteries and charge regulators, there must be a 10 A fuse on the cable to the battery.

*** IMPORTANT: Check for the correct cable ("+" /"-") connection!!**