

PLI

RS232 Computer Interface for PL series controllers

The PLI is a device to allow the PL series solar controllers to communicate with a computer. It converts the signals from the PL into a form which a computer can recognise. It also converts signals from the computer to suit the PL controller. *You will also need cables to connect the PLI to the PL controller.*

Description

The PLI is an RS232 interface for PL series regulators. It allows data communication between a computer and the regulator (via a modem if necessary). It allows serial communication at speeds of 300, 1200, 2400 and 9600 baud. The speed (baud rate) is selected by two jumpers on the circuit board. The computer (or modem) baud rate must be the same as the baud rate selected on the PLI for communication to occur. Select the fastest speed that the connection will support. Start at 9600 baud and if it does not work or has too many errors, then reduce the speed until the link works reliably.

To prevent problems due to ground potential differences, the PLI uses optical coupling. This means that there is no electrical connection between the computer side and the PL side.

The energy to operate the PL side is drawn from the battery bank connection of the PL controller. The energy required to operate the computer side is drawn from the computer serial port connection. A small amount of power will be drawn from the computer's TX, RTS and DTR lines.

The interface can be powered from the TX line only (i.e. with RTS and DTR not connected to the PLI) if there is a shortage of connecting wires available. In this case, the on board DC/DC converter needs some assistance to start up. This is done by sending a short burst of data on the transmit line (for about 100 msec - send a byte with mostly zeros in it). After it starts up, it will remain running until the computer serial port powers down. The software supplied will automatically send a transmission burst until the PLI powers up and answers the computer back.

PL Connection

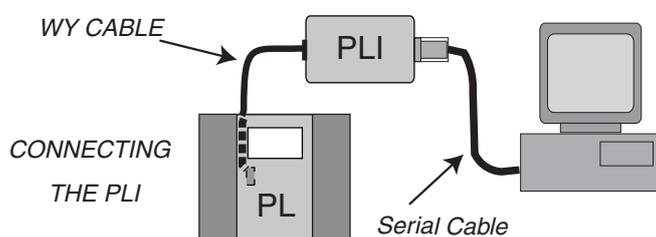
The PLI can be connected to a computer with a standard IBM serial cable. The PLI has a 9 pin female D connector (DB9). If you wish to connect a modem to the PLI you will need a null modem cable. To extend the length of an existing cable (either style) a minimum of three wires are needed :

PIN 2 (TX) at the PLI end

PIN 3 (RX) at the PLI end

PIN 5 (Signal ground) at the PLI end.

Longer runs may require lower baud rates for reliable transmission.



Connecting the PLI to a PL20 or 40.

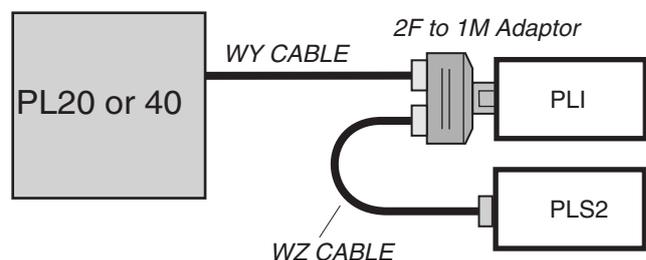
For a PL60 use a WZ cable.

There are two types of cable used with PLIs (and other accessories). A "WY" cable Connects a PL20 or PL40 to a single PLI. A "WZ" cable connects one PLI to another OR a PL60 to a PLI.

When using a WY cable the phone plug end connects to the PLI and the 8 way connector plugs onto the 8 way pin header under the lid of the PL20 or PL40 controller. Run the cable beside the display on the PL and then out from under the lid at the cut out tab. Do not allow the cable to touch any part of the PL heatsink. (One socket of the header plug is blocked up - this matches the cut off pin). The cables may all be extended if required.

For a PL60, the WZ cable connects to the RJ11 socket on the board. See the diagram inside the lid of the PL60 for more information.

To connect two accessories to a PL controller- use a US standard (RJ11 or RJ12) double adaptor and a WZ cable as shown below. You can also connect two accessories to a PL60- use two WZ cables and a double adaptor.



Software

Download PLCOM from our website. This is a Win 95/98/NT program to communicate with the PL controller. A DOS program is also available to download from our website.

Protocol

The PL controller does not send data to the computer unless requested. The computer is the master and the PL is the slave. The computer can send commands to the PL. Some of these commands will result in the PL sending a byte of data back to the computer. There is also a loopback command which is replied to by the PLI, not by the PL controller. There is approximately a 70msec delay between the end of transmission of a command and the start of transmission of a reply.

SPECIFICATIONS

Line Speeds	300, 1200, 2400, 9600 Baud
RS232 Input Levels required	>+/- 5V
RS232 Drive levels	>+/-5V
Min Load Impedance	3K
Output impedance TX	300 ohm
DC Isolation	500V
Temperature range	-20 to +70 °C
Supply current	10mA (from PL supply)
	1.5mA on RS232 side
Supply voltage	10 to 100V