

# Serial Port Programming

WattmonPRO comes with an RS-232 serial interface on pins 7 and 8 and an RS-485 port on an RJ45 connector. The device is configured by default for RS-232 voltage levels and by using a simple DB9 cable can be connected to any serial device. For specific devices that require TTL levels, a jumper setting inside the device can bypass the level converter IC and it can thus be used to interface with sensors or other devices at 3.3V DC.

## Using the RS-232 Serial Port

To open the serial port, use the `fseropen()` function. The serial port is treated like a file after opening and standard file functions such as `fread()`, `fwrite()`, `fgets()` and `fsize()` apply.

An example of using the serial port is shown below:

```
<?
// Open the serial port at 115200 baud in non-blocking mode
$fp=fseropen(115200,0);
if (!$fp) {
    print("Serial open failed");
} else {
    $res=fwrite($fp,"Hello from wattmon");
    if ($res) {
        print("An error occurred while trying to write to the port");
    }
    fclose($fp);
}
?>
```

## Jumper Settings Inside Wattmon

 < Settings for RS-232 Mode  < Settings for TTL Mode

## RS-232 Cable Connection

In order to connect to a device you will need to procure a DB9 cable (male or female) and connect it up as shown in the following diagram: 

## Using the RS-485 Serial Port

In order to use the RS-485 port, you need to disable modbus polling. This is done from the Devices > Options > Edit Communication Settings as shown here:



To open the RS-485 port, use the `f485open()` function. The RS-485 serial port is treated like a file after opening and standard file functions such as `fread()`, `fwrite()`, `fgets()` and `fsize()` apply.

An example of using the RS-485 serial port is shown below:

```
<?
// Open the 485 port at 115200 baud with no parity
$fp=f485open(115200,0);
if (!$fp) {
    print("Serial open failed");
} else {
    $res=fwrite($fp,"Hello from wattmon");
    if ($res) {
        print("An error occurred while trying to write to the port");
    }
    fclose($fp);
}
?>
```

## RS-485 Cable Connection

Use a standard RJ-45 cable and cut it to connect your RS-485 device to WattmonPRO.

| PIN | Color      | Description |
|-----|------------|-------------|
| 1,2 | Orange     | GND         |
| 4   | Blue       | D+ / A      |
| 5   | White-Blue | D- / B      |



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