

PowerSwitch v1 Interface Manual

Manual version 1.0 :: 16.12.2006 – Radu Negut :: radu@opalid.ro

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Firmware reference version 1 – Radu Negut

WARNING

Dangerous and even life-threatening voltages run inside the PowerSwitch. Do NOT turn on or operate the device if wet, when condensing or high humidity conditions appear, or while disassembled. NEVER make assumptions about whether a port is live or not. This appliance has not been officially tested and is NOT industrially graded.

The safety margins on the reference design are as follows:

Max 5A on one output port

Max 8A on one output block (4 ports = 1 block) / one input port

Never overstep these limits as the appliance is only passively cooled and may otherwise overheat. Always operate in dry, dust-free and properly cooled environments and use grounded inputs!

Intoductory Notes

This manual describes the command interface for the PowerSwitch power management appliance. Please note that even though there are hardware related notes, there is no general hardware description, as this document only addresses the user interface. This version of the manual is correct only for version 1 of the firmware, and for appliances powered by the **Microchip PIC16F628A** microcontroller in the reference design. Make no assumptions of correct operation for firmware running on different microcontrollers/designs.

The Command Line

The main way of administering the PowerSwitch appliance is through a serial connection and issuing text commands on the command line. All the keywords are only three letters long, and the interpreter is very limited, in that it doesn't understand command line editing. If the interpreter reads a command it doesn't understand, it will display the following error message:

```
err:cmd
```

If a correct command keyword is received but its parameters are incorrect (misordered, out-of-bounds, etc.), the following error message is printed:

```
err:arg
```

Note that the command interpreter issues no prompt while waiting for input; also note that (currently) there is no form of access control implemented in the firmware. You will have to depend on physical security, as any connection to the console has administrative capabilities.

As a general guideline, in all circumstances **0** means OFF and **1** means ON. Port numbering starts with port 0. By default all ports are shut down, but never make assumptions when using hazardous voltages! Always check the LEDs on the front of the device; if a LED is lit up, that particular port is live.

Connecting to the appliance

The PowerSwitch has a male DB9 RS232 serial interface mounted on the front side. You will need a null-modem serial cable to connect to it. On the host side configure the serial port with the following settings: **baud rate 9600, 8 data bits, 1 stop bit, no parity, no flow control**. If you have the right cable and serial port configuration, you will see the following banner when the appliance is powered on:

```
RN PowerSwitch v1
```

Command Line Reference

`dsp`

Arguments: none

Example: `dsp`

Sample output:

```
0 0
```

```
1 0
```

```
2 0
```

```
3 0
```

```
4 0
```

```
5 0
```

```
6 0
```

```
7 0
```

Description: the 'dsp' (display) command shows the state of all the output power ports of the switch, in a tabular way. The first column represents the number of the port and the second represents the status: 0 - power to the port is cut off, 1 – port is active, supplying power.

`get`

Arguments: port number

Example: `get 0`

Sample output:

```
0 0
```

Description: queries the status of a specific power port. The first digit in the column indicates confirms

the port number that was queried, while the second show the status of the port. 0 – port is shut off, 1 – port is turned on

gvr

Arguments: none

Example: **gvr**

Sample output:

1

Description: gets the version of the embedded firmware; this should be 1 for the reference design.

hlp

Arguments: none

Example: **hlp**

Sample output:

dsp:rst:get:set:gvr:hlp

Description: help command; displays a colon separated list of available commands.

rst

Arguments: <port_number> <interval_seconds>

Example: **rst 0 2**

Sample output: none

Description: the reset command turns a specific port off for the specified number of seconds. Note that this is fully implemented inside the firmware – there is no need to turn the specified port back on manually afterwards. This has been designed so that the appliance can power-cycle the management host itself if needed (and which would be otherwise unable to turn itself back on). The maximum number of seconds for the power-cycle interval is 9.

set

Arguments: <port_number> <status>

Example1: **set 2 1**

Sample output1:

2 1

Example2: **set 2 0**

Sample output2:

2 0

Description: the 'set' commands turns the specified power port on or off. For confirmation it outputs the port status afterwards (equivalent output for the 'get' command). A status of '0' turns a port off and a status of '1' turns the port on.