

PowerShield SNMP Adaptor

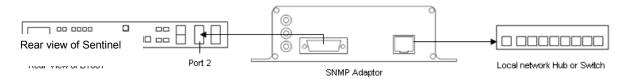
This manual describes the setup and operation of the PowerShield SNMP adaptor for the Sentinel battery monitoring system

Published: April 2015

1. Connecting the SNMP Adaptor

The SNMP adaptor must be connected to a PowerShield battery monitoring system that has strings already configured and is properly working. The SNMP adaptor cannot monitor a system with strings that are "INVALID" or don't exist.

a) The SNMP adaptor must be connected to PORT2 of the Sentinel using a null modem serial cable and to the local Ethernet network using a patch network cable. These connections are located on the front panel of the adaptor.



b) The device needs to be powered with a regulated 5V DC supply. This connection is located on the rear of the adaptor.

	ſ	o c	1
SV DC Regulated Power Supply			
Power Supply			
		o	X

The power supply must be 5V DC. The centre pin is positive.

2. Configuring the SNMP Adaptor

The PowerShield SNMP adaptor is configured using PowerShield Config software. To edit the configuration you will need to be using Config with 'Installer' level access. The required settings as detailed by the following instructions are located in the 'System' area of Config.



Configuration Part 1

Check that 'PORT 2' of the Sentinel is enabled. For the SNMP adaptor to function the status must be "Installed" and the Card Type must be "SNMP Interface Card" as shown in the picture below.

System Monitors	Communications SNMP Port 2	Modbus Diagnostic
│ Monitor Port 2 se	-	
Status:	Installed	
Card Type:	SNMP Interface Card	
Protocol:	Modbus ASCII	
Baud rate:	9600 -	
Flow control:	None 🗸	
Modbus Address:	1	
Recovery count		
Count:	0 Clear	
Last recovery:		
_ Test		
	ename by reading 16 input) at address 0002.	
Receive time:	20-Oct-10 10:51:53	
Transmit time:	20-Oct-10 10:51:53	
	Clear	
	😂 <u>R</u> efresh	
	Show Port 2 tester	

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Configuration Part 2

The parameters of the SNMP adaptor must be specified. These parameters are located under the 'SNMP' tab.

System Monitors Communications SNMP Port 2 Modbus

Enter the parameters with values that are **specific** to your organization. You may need to contact your system administrator to obtain a dedicated IP address for the adaptor and to confirm the trap destination IP address. The image below shows an **example** set of parameters only.

Enable DHCP	 System location:	Battery monitor
IP Address:	Read-only Community	public
Subnet mask:	Write Community:	private
Gateway:	Trap Community:	public
	Trap Destination IP:	192.168.1.127

Once completed, the parameters need to be saved. This can be achieved by clicking on the 'Update SNMP Parameters' button as shown in the picture below.

Update SNMP Parameters

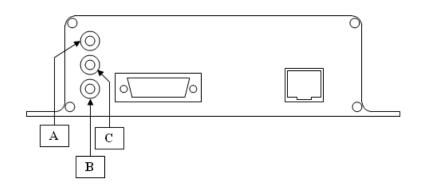
Then press the 'Save Configuration' button on the 'System' tab.

\sub PowerShield Conf	iguration SNMP test (Admin)	
<u>File C</u> onfigure <u>H</u> elp		
Disc <u>o</u> nnect	System Monitors Communications SNMP Time Warp Port 2 Modbus Debug Diagnostic	
Monoblock	Date: 21/10/2010 Time: 14:38:49 Change Date & Time	
String	Site ID: Change ID Change Password	
Alarms	Name: SNMP test Change Name	
Memories	Connected using: TCP/IP Link (192.168.1.4) Module Type — Charging Regime —	
Current / Temp	Measurement Module (orange case) Measurement Module (orange case) Measurement Module (orange case) Float Charge	
System	Alarm Sensitivity This controls the length of time that an alarm condition must exist for, before an alarm is raised	
	Configuration Load Factory Defaults V EEPROM configuration updated Backup to PC Restore from PC Save Configuration	
	TCP/IP CONNECTED INSTALLER Ready PC Time: 14:39:03 21/10/201	LO:

Once the parameters have been saved, the SNMP adaptor will need to be restarted for the new parameters to take effect.

3. Operation

Ensure that the SNMP adaptor is powered, connected to the Sentinel and configured from within Config. The adaptor should now be operational. Operation is indicated by the LEDs on the SNMP adaptor.



Connector	Туре	Description
A	Monitor Online LED	Indicates the adaptor is connected and communicating with the Sentinel
В	Power LED	Indicates the device is powered and turned on
с	Status LED	Flashes at regular intervals to indicate the adaptor is operating.

Ensure that the 'Power LED' and the 'Monitor Online LED' are on and the 'Status LED' is constantly flashing. Note that it may take up to 30 seconds after the SNMP adaptor has been switched on before the LED's display this state. If the 'Monitor Online LED' failed to switch on, there is either a problem with the serial connection from the Sentinel to the SNMP adaptor or 'Port 2' of the Sentinel is not configured. If the later is the case, please consult 'Configuration Part 1' of this manual.

When the SNMP adaptor starts, it will fetch a list of valid strings. Any string labelled as "Invalid", at the time the SNMP adaptor starts, will not be monitored. If there are no strings configured, or all strings have an "Invalid" state the adaptor will reset and try again. It will continue to do this until there are valid strings present.

String states can be confirmed under the "Statistics" tab of the "String" page in Config. In the scenario presented by the following image, String 2 is labelled as "INVALID" and will not be monitored.

Configuration	Limits	Statistics					🛛 😂 <u>R</u> efre	sh
String statistics	for string 2		-		STRING	STATE		
String <u>n</u> umber:			2	•	1	FLOAT		
Total number of	monoblocks	in string:	0		2	INVALID		
					3			

4. SNMP Monitoring

The PowerShield Sentinel MIB files needs to be downloaded and compiled. The MIB file can be located by browsing to the SNMP adaptor using your web browser. Type the IP address into the address bar. The IP address is the same address as specified in the SNMP configuration parameters as shown in the "Configuring the SNMP adaptor" section of this manual.

00-	E http://192.168.1.110/	✓ 🗟 4 ×
~ ~		

The following webpage should be displayed.

PowerShiel	SNMP Adapter
MIB file download: NONITOR.MIB Status: Click here Firmware updater: click here Reboot: click here SNMPB Client: Download Website GPL Compliance	
	© Powershield Ltd - 2010

Save the "MONITOR.MIB" file to your computer.

Installing the MIB file

The process of compiling and installing the MIB file will be specific to the SNMP management software you are using.

5. SNMP Monitoring using SNMPB

If you do not have existing SNMP monitoring software you may wish to use a free solution such as SNMPB. This can be obtained from <u>http://sourceforge.net/projects/snmpb/</u> or the SNMP adaptor itself, located on the same webpage as the MIB file.

The following instructions are specific to SNMPB software.

- 1) Download, install then run SNMPB
- 2) Select the "Editor" tab.

_								
	[ree	Modules	Editor	Discovery	Traps	Graphs	Log	

3) Select "Open MIB..." from the file menu. Locate and select the PowerShield B1001 MIB file provided with the adaptor.

III SnmpB	
File Tools Options Help	
New MIB Ctrl+N ➢ Open MIB Ctrl+O I Save MIB Ctrl+S	Discovery Traps Graphs Log
Save MIB As Exit	

- 4) Select "Save MIB As..." from the file menu. Save the MIB file to the "mibs" folder of SNMPB. Use the filename "POWERSHIELD-SENTINEL.mib".
- 5) Close then Reopen the SNMPB program.
- 6) Select the "Modules" tab.



7) Scroll down the list then locate and select "POWERSHIELD-SENTINEL.mib". Click the right arrow button "->" to move it to the list on the right side.

wailable MIB modules			Loaded MIB modules			
Module	<u>^</u>		Module	Required	Language	1
PKTC-IETF-MTA-MIB			IF-MIB	no	SMIv2	
PKTC-IETF-SIG-MIB			SNMPv2-SMI	no	SMIv2	
POLICY-BASED-MANAGEMENT-MIB			SNMPv2-TC	no	SMIv2	
POLICY-DEVICE-AUX-MIB			SNMPv2-CONF	no	SMIv2	
POLICY-FRAMEWORK-PIB			SNMPv2-MIB	no	SMIv2	
POWER-ETHERNET-MIB		->	RFC1213-MIB	no	SMIv1	
POWERSHIELD-SENTINEL.mib		ت	RFC1155-SMI	no	SMIv1	
PPP-BRIDGE-NCP-MIB		<-	RFC-1212	no	SMIv1	
PPP-IP-NCP-MIB		Ľ	SNMP-FRAMEWORK-MIB	no	SMIv2	
PPP-LCP-MIB	_		SNMP-NOTIFICATION-MIB	no	SMIv2	
PPP-SEC-MIB			SNMP-TARGET-MIB	no	SMIv2	
PPVPN-PIB			SNMPv2-TM	no	SMIv2	
PTOPO-MIB			SNMP-VIEW-BASED-ACM-MIB	no	SMIv2	
PerfHist-TC-MIB			T11-FC-FABRIC-ADDR-MGR-MIB	no	SMIv2	
Printer-MIB	_		EC-MGMT-MIR	nn	SMI∨2	1
O-BRIDGE-MIB	~		<			>

You are now ready to use SNMPB to monitor the PowerShield Sentinel.

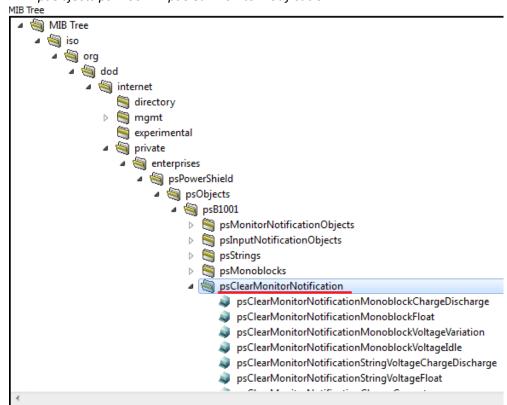
6. Alarm clearing using SNMPB

This functionality is only available for PowerShield SNMP adaptors running firmware 3.2.xx or later.

1) Select the "Tree" tab.



2) Expand the MIB tree until psClearMonitorNotification is shown.
 MIB Tree ->iso -> org -> dod -> internet -> private -> enterprises -> psPowershield > psObjects psB1001 -> psClearMonitorNotification



3) Select a type of an alarm to be cleared.

/ · · · · · · · · · · · · · · · · · · ·	psClearMonitorNotification
	psClearMonitorNotificationMonoblockChargeDischarge
	psClearMonitorNotificationMonoblockFloat
	psClearMonitorNotificationMonoblockVoltageVariation
	psClearMonitorNotificationMonoblockVoltageIdle
	psClearMonitorNotificationStringVoltageChargeDischarge
	psClearMonitorNotificationStringVoltageFloat
4	

Node Info

psClearMonitorNotificationMonoblockFloat
1.3.6.1.4.1.35154.1.1001.5.2
:Integer32
INTEGER
current
read-write
Scalar
OBJECT-TYPE
01
PS-POWERSHIELD-SMIV2-MIB
Clear Monoblock Float

4) Right click on selected alarm type and select "Set...".

	a 🧠 psClearMonitorNotification			
	a psClearMonitorNotificationMono	block	ChargeDischarge	
	a psClearMonitorNotificationMono	block	Float	
	a psClearMonitorNotificationMono	ai E	Expand	
	psClearMonitorNotificationMono	-	Collapse	
	psClearMonitorNotificationString psClearMonitorNotificationString		Walk	
•			Stop	
lode Info			Get	
Name:	psClearMonitorNotificationMonoblockFloat		Get Next	
Oid:	1.3.6.1.4.1.35154.1.1001.5.2			
Composed Ty	pe:Integer32		Get Bulk	
Base Type:	INTEGER		Set	
Status:	current			
Access:	read-write		Table View	
Kind:	Scalar		Multiple Varbinds	
SMI Type:	OBJECT-TYPE		wurupie varbinds	

Size

Module:

Description:

0..1

PS-POWERSHIELD-SMIV2-MIB

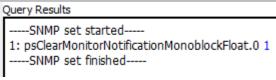
Clear Monoblock Float

Find

🗉 Set	×
OID:	
1.3.6.1.4.1.35154.1.1001.5.2	
 mgmt experimental private netrprises psPowerShield psObjects psB1001 psMonitorNotifica psInputNotificatio psStrings psMonoblocks psClearMonitorNo psClearMonito psClearMonito psClearMonito psClearMonito 	
Syntax:	
Integer32	•
Value:	
Range: 0 1	

5) In the following "Set" window, enter **1** in "Value" tab and click "OK" button.

6) Below result will be displayed on "Query Results" and alarm is now cleared.



7. Troubleshooting

The status may only display intermittently on the LEDs, stop then after a short delay, display again. The Orange LED will flash and not remain constantly on.

Symptom	Led	Solution
Not Working	\bigcirc	The SMNP adaptor is failing to communicate with the Sentinel. Check the "SNMP Interface Card" is detected under the "Port 2 Modbus" Tab in settings. If it is, confirm it is working with the "Port 2 Tester".
Not Working + "ColdStart" traps being received.		The SNMP adaptor is communicating, but it can not detect any strings, so it restarts thus sending another "ColdStart" trap. In the "Statistics" tab under "Strings", ensure that there are strings present and that no strings have an "Invalid" state.

8. SNMP Adaptor Firmware Upgrade

The following section provides instructions for upgrading the firmware of the SNMP adaptor. PowerShield may release upgrades to match new features or requirements. Please note that some upgrades may produce a break in operation and require a new MIB file and additional work to be done at the customer SNMP interface side.

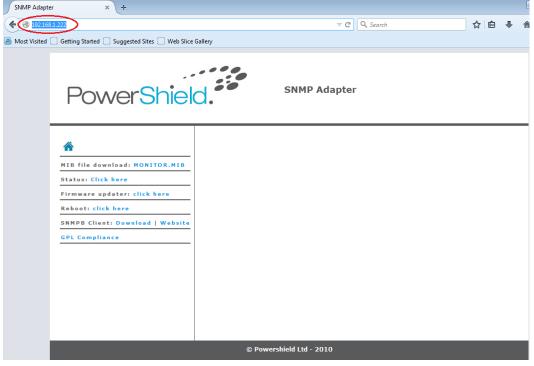
Firmware version	MIB version	Release date	
3.0.x.x	3.0.x.x	2010	
3.2.x.x	3.2.x.x	2015	Customer side work required after
upgrade			

Prior to any upgrade, you will require the appropriate *.tgz file, an example shown below.

🔚 Upgrade 3.2.0.3.tgz	8/04/2015 1:37 p.m.	WinRAR archive	169 KB

1) Access SNMP adaptor web interface by entering IP address of SNMP adaptor in Firefox browser. (page may not load fully on IE or Chrome)

Note: Default IP address for SNMP adaptor is 192.168.1.222



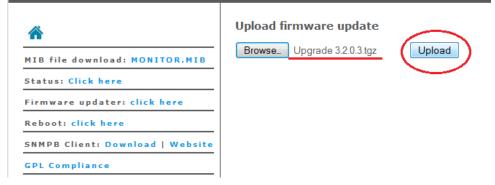
2) Click "click here" button beside "Firmware update:" then click "browse" button.

MIB file download: MONITOR.MIB	Upload firmware update Browse_ No file selected.	Upload
Status: Click here		
Firmware updater <u>click here</u>		
Reboot: click here		
SNMPB Client: Download Website		
GPL Compliance		

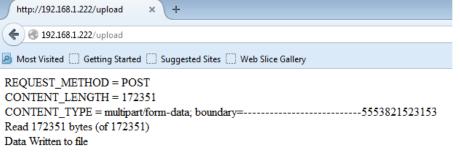
3) Select an upgrade file eg "Upgrade 3.2.0.3.tgz" and click "Open" button.

😻 File Upload			×
Desktop	 ✓ ✓ ✓ Search I 	Desktop	٩
Organize 🔻 New folder		N	0
 ★ Favorites ■ Desktop ● Downloads ™ Recent Places ○ Libraries ○ Documents ○ Music ■ Pictures ■ Videos ♥ Computer ♥ Network 	54.3 MB ExtraPuTTY-0.28-RC1-installer ExtraPuTTY 0.28:v1 ExtraPuTTY MONITOR MIB File 88.3 KB SnmpB Shortcut 963 bytes snmpb-0.8 8/04/2015 3:43 p.m. 9.54 MB Upgrade 3.2.0.3.tgz TGZ File 168 KB		• • •
File name:	← All Files	Cance	- -

4) Ensure correct firmware upgrade file has been selected and click "Upload" button.



5) System will be automatically rebooted after an upgrade with below page shown.



Rebooting, please wait ...

The upgrade process is complete for the SNMP adaptor. Remember that you may need to do some work at the SNMP interface side too.

If you are using SNMPB monitoring software, you will need to perform the following steps too. Note the following instructions are specific to SNMPB software.

6) After an upgrade, re-access SNMP web interface and download MIB file for upgraded version of firmware. By clicking "Monitor.MIB" file beside "MIB file download"

PowerShiel	Opening MONITOR.MIB
	You have chosen to open:
*	which is: MIB file (88.4 KB) from: http://192.168.1.222 What should Firefox do with this file?
MIB file download MONITOR.MIB	 Open with Notepad (default) Save File
Firmware updater: click here Reboot: click here	Do this <u>a</u> utomatically for files like this from now on.
SNMPB Client: Download Website GPL Compliance	OK Cancel

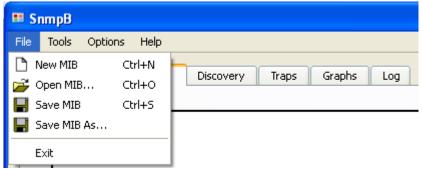
 Copy the downloaded mib file to following directory "C:\Program Files (x86)\SnmpB\mibs"

🗸 🔍 « Local Dis	k (C:) 🕨 Program Files (x86) ।	→ SnmpB → mibs →
e 🔻 🦳 Open	 Compatibility files 	New folder
orites esktop ownloads	Name MOBILEIPV6-MIB	Date mod 7/07/2008 7/07/2008
ecent Places	MONITOR MPLS-FTN-STD-MIB	8/04/2015 7/07/2008

8) Open SnmpB program and Select the "Editor" tab.

Tree Modules Editor	Discovery	Traps	Graphs	Log	
---------------------	-----------	-------	--------	-----	--

9) Select "Open MIB..." from the file menu. Locate and select the newly download "Monitor.MIB" file.



- 10) Select "Save MIB As..." from the file menu. Save the MIB file to the "mibs" folder of SNMPB. Use the filename "POWERSHIELD-SENTINEL.mib".
- 11) Close then Reopen the SNMPB program.
- 12) Select the "Modules" tab.

Tree	Modules	Editor	Discovery	Traps	Graphs	Log

13) Scroll down the list then locate and select "POWERSHIELD-SENTINEL.mib". Click the right arrow button "->" to move it to the list on the right side.

Available MIB modules		Loaded MIB modules	Loaded MIB modules			
Module	<u>^</u>	Module	Required	Language	1	
PKTC-IETF-MTA-MIB		IF-MIB	no	SMIv2		
PKTC-IETF-SIG-MIB		SNMPv2-SMI	no	SMIv2		
POLICY-BASED-MANAGEMENT-MIB		SNMPv2-TC	no	SMIv2		
POLICY-DEVICE-AUX-MIB		SNMPv2-CONF	no	SMIv2		
POLICY-FRAMEWORK-PIB		SNMPv2-MIB	no	SMIv2		
POWER-ETHERNET-MIB	-	RFC1213-MIB	no	SMIv1		
POWERSHIELD-SENTINEL.mib		RFC1155-SMI	no	SMIv1		
PPP-BRIDGE-NCP-MIB		RFC-1212	no	SMIv1		
PPP-IP-NCP-MIB		SNMP-FRAMEWORK-MIB	no	SMIv2		
PPP-LCP-MIB		SNMP-NOTIFICATION-MIB	no	SMIv2		
PPP-SEC-MIB		SNMP-TARGET-MIB	no	SMIv2		
PPVPN-PIB		SNMPv2-TM	no	SMIv2		
PTOPO-MIB		SNMP-VIEW-BASED-ACM-MIB	no	SMIv2		
PerfHist-TC-MIB		T11-FC-FABRIC-ADDR-MGR-M	IB no	SMIv2		
Printer-MIB		EC-MGMT-MIB	nn	SMI∨2	1	
Q-BRIDGE-MIB	~	<			>	

You are now ready to use SNMPB to monitor the PowerShield Sentinel with upgraded firmware.

Specifications

The PowerShield SNMP adaptor is an addition to the Sentinel battery monitoring system. It supports SNMP V1 and V2C and provides monitoring for the following parameters.

Traps/Informs
Monoblock voltage - charge / discharge
Monoblock voltage – float
Monoblock voltage – variation
Monoblock voltage – idle
String voltage - Charge / Discharge
String voltage – Float
Charge Current
Discharge Current
Float Current
String mode – Charge
String mode – Discharge
String mode – Float
String mode – Idle
Module failure
Battery monitor offline
Memory format
Memory Full
Long term memory low
Long term memory full
String ambient
Monitored mains
Comms notification
Input Alarm
String Information
String Number
First Monoblock Number
Last Monoblock Number
String State
String Voltage
String Temperature
String Current
Time of the last string update
Monoblock Information
Monoblock Number
String Number
Voltage
Temperature
Impedance
Time of the last monoblock update

Not all items are available for all systems. Refer to your product documentation or PowerShield for further information.