Internal UPS SNMP Agent

User's Manual

User Manual for Milpower Source Internal SNMP Agent

For M359 and M362 UPSs

February 24, 2025

Contents

Chapter 1. Introduction

General

The UPS's internal SNMP agent will allow you to monitor and control Milpower Source's UPS from any PC station on the LAN by using–

- Milpower Source's UPS application allowing remote monitoring and shutdown control.
- SNMP protocol and any SNMP network management systems.

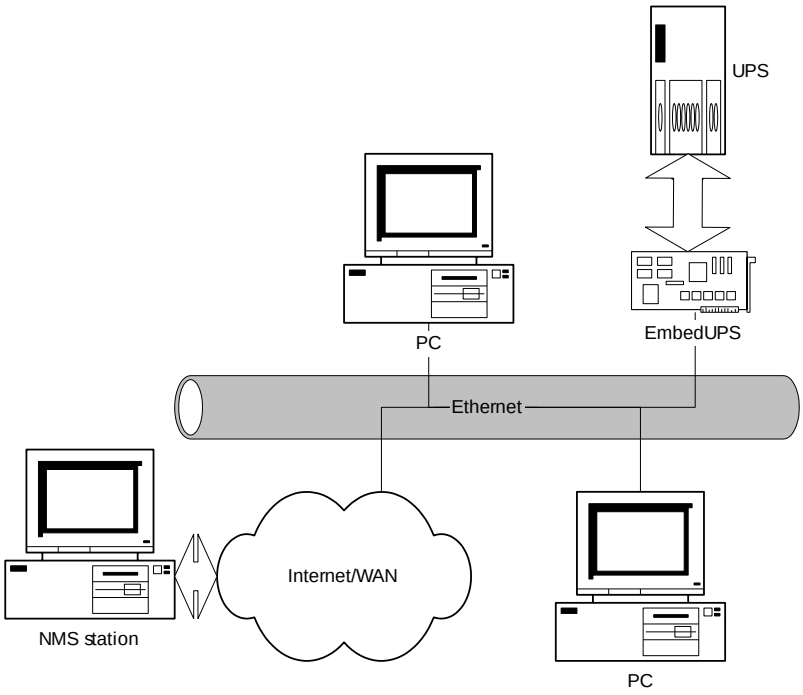
this document describes the SMNPv1/2 Agent of the M359-X-X-1 and M362-X-X-1 UPSs.

Features List

The UPS's internal SNMP agent highlights –

- A standard RS232 port is used as a Console interface for various configuration options.
- 10/100 Base Tx Network interface
- SNMP Traps for Network Management Systems (NMS) for remote alarming and monitoring.
- Milpower Source's UPS application support for remote monitoring and shutdown control.
- Firmware update
  The UPS's internal SNMP agent firmware may be remotely updated.
  (see Milpower Document: "M359 Firmware Upgrade Procedure 1")

A typical installation follows in the illustration below. UPS's internal SNMP agent communicates with the UPS main control circuitry, informing it on various power conditions.



Chapter 2. Installation

How to connect the UPS's internal SNMP agent ?

Please follow the following instructions –

1. Turn the UPS OFF
2. Connect the "Console" serial port on the UPS's internal SNMP agent adapter to the serial port on the PC.
3. Connect the UPS's internal SNMP agent to your LAN, using the 10/100BaseT RJ45 connector.
4. Turn the UPS ON.
5. Allow UPS's internal SNMP agent 5 seconds to boot-up.

How to Configure the UPS's internal SNMP agent ?

Before configuring the UPS's, internal SNMP agent make sure that you have all relevant data in your hands – The IP address, netmask and gateway.
Configuration can be done in one of the two following options.

Terminal Mode

Before UPS's internal SNMP agent can communicate over the LAN with various applications, it must be assigned an IP address using a direct serial cable connection and a terminal program. This configuration must be done before installing UPS's internal SNMP agent in your LAN. The procedure is as follows:
Using a Direct Cable connect the Console serial port of the UPS's (J5, DB9, Female) to the serial port on your PC (or terminal). Please note that the UPS side is a "DCE".

J5 DB9 Pin-out

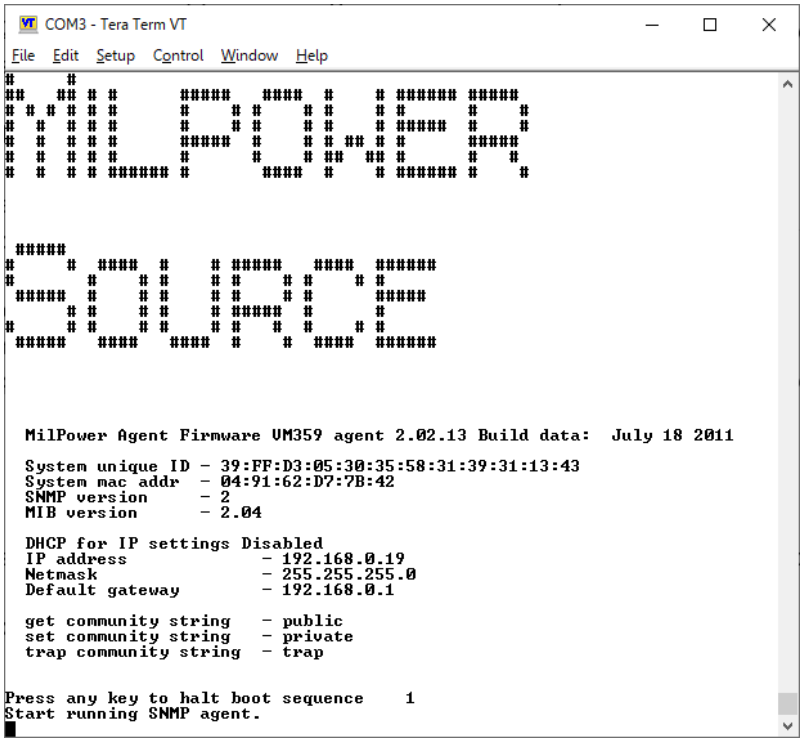
Pin #	**Des.**	**Description**
1	***N/A***	
2	**RXD**	**Transmitter output from the UPS**
3	**TXD**	**Receiver input into the UPS**
4	**N/A**	
5	**SG**	**Signal Ground**
6	**N/A**	
7	**N/A**	
8	**N/A**	
9	**N/A**	

Configure the Console as a VT100 compatible terminal with the following settings:

Setting	Value
Baud rate	19,200
Data	8 bits
Parity	none
Stop bit	1
Flow control	none

Set the terminal program to use the correct serial port.

Turn-on the UPS. The bootloader application should now start and look like the following screen shot:

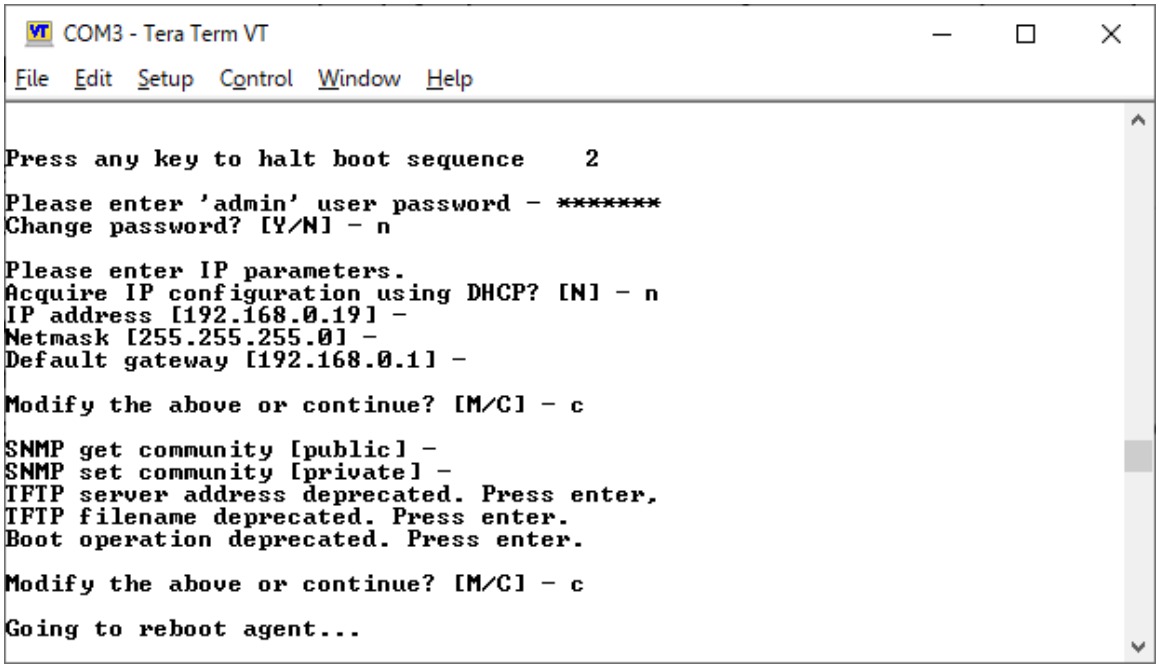


After pressing any key the user is prompted to enter its CLI password (default set as "webpass").

You are now able to change the following parameters –

- DHCP Support
- IP address
- Netmask address
- Gateway address
- SNMP "Get" community
- SNMP "Set" community

After inputting all the above parameters, you will be prompted to conclude the configuration session and launch the application:



Windows console program - alternative way to configure SNMP agent

The Agent can be configured using a dedicated Windows console program from a PC using an RS232 interface (see "M359_Console_UM").

Chapter 3. SNMP

The UPS's internal SNMP agent allows a UPS to be managed by various SNMP tools, using the UPS SNMP agent and the UPS SNMP MIB.
The UPS SNMP agent responds to standard SNMP commands (get, get next and set) and will generate SNMP traps if configured to do so.
The MIB (Management Information Base) determines what parameters can be monitored and controlled. The UPS SNMP MIB must be installed on each management station that will monitor the UPS. The EmbedUPS supports two MIBs – UPS- MIB II and a proprietary MIB of MilPower.

Supported MIB's Description

MIB II systemGroup section

Field	Description
sysObjectID	The vendor's authoritative identification of the network management subsystem contained in the entity.
sysUpTime	The time (in hundredths of a second) since the network management portion of the system was last re-initialized.
sysContact	The contact person for this managed node.
sysName	An administratively-assigned name for this managed node.
sysLocation	The physical location of this node.

MilPower private MIB UPS section

Name	Type	OID	Value - Description
upsInput	Integer [R]	1.3.6.1.4.1.10 790.31.1.3.1	1 - ok 2 - fail
upsChargeLevel	Integer [R]	1.3.6.1.4.1.10 790.31.1.3.2	1 – below 4% 2 – 5% to 14% 3 – 15% to 24% 4 – 25% to 34% 5 – 35% to 44% 6 – 45% to 54% 7 – 55% to 64% 8 – 65% to 74% 9 – 75% to 84% 10 – 85% to 94% 11 – above 95%
upsLoadLevel	Integer [R]	1.3.6.1.4.1.10 790.31.1.3.3	1 – below 15% 2 – 16% to 23% 3 – 24% to 38% 4 – 39% to 53% 5 – 54% to 68% 6 – 69% to 83% 7 – 84% to 100% 8 – 101% to 115% 9 – 116% to 125% 10 – 126% to 135% 11 – above 135%
upsOutputStatus	Integer [R]	1.3.6.1.4.1.10 790.31.1.3.4	1 – other (output fail or turned Off by user) 3 – normal (output ok) 5 – battery (output supported by battery)

upsBatteryState	Integer [R]	1.3.6.1.4.1.10 790.31.1.3.5	1 - other 2 – batteryNormal 3 – batteryLow (low threshold defined by "upsSetLowBattLevelCmd" OID) 4 – batteryDepleted
upsAmbTemp.	Integer [R]	1.3.6.1.4.1.10 790.31.1.3.6	UPS ambient temperature in 0.1 deg. Celsius.
upsExternalBattNumber (*M362 only*)	Integer [R]	1.3.6.1.4.1.10 790.31.1.3.7	0 – none 1 – one 2 – two 3 – three 4 – four 5 – other
upsOutputTwoStatus (*M362 only*)	Integer [R]	1.3.6.1.4.1.10 790.31.1.3.8	1 – other (output fail or turned Off by user) 3 – normal (output ok) 5 – off (output automatically turned off when on batt)
upsInputStts	Integer [R]	1.3.6.1.4.1.10 790.31.1.50.1	1 – alarmCleared (=input ok) 2 – alarmActivated (=input fail)
upsBatterySтts	Integer [R]	1.3.6.1.4.1.10 790.31.1.50.2	1 – alarmCleared (=battery OK) 2 – alarmActivated (=low or depleted)
upsOverTempStts	Integer [R]	1.3.6.1.4.1.10 790.31.1.50.3	1 – alarmCleared (=temp ok) 2 – alarmActivated (=over temp)
upsInternalFailStts	Integer [R]	1.3.6.1.4.1.10 790.31.1.50.4	1 – alarmCleared (=ups ok) 2 – alarmActivated (=ups internal fail)
upsChargeFailStts	Integer [R]	1.3.6.1.4.1.10 790.31.1.50.5	1 – alarmCleared (=charger ok) 2 – alarmActivated (=charher fail)
upsBatteryFailStts	Integer [R]	1.3.6.1.4.1.10 790.31.1.50.6	1 – alarmCleared (=battery OK) 2 – alarmActivated (=battery fail)

A change in any of the ups####Stts variables will generate a TRAP message with the relevant variable attached.

MilPower private MIB Command section

Commands Table – see detailed description below this table

Name	Type	OID	**Value - Description**
upsShutdown	Integer [R/W]	1.3.6.1.4.1.10790.31.1.2.1	1 – shutdown (after a delay defined by upsShutdownDelay) 2 - abortShutdown
upsBattleMode	Integer [R/W]	1.3.6.1.4.1.10790.31.1.2.2	1 – disable Battle Mode 2 – enable Battle Mode
upsShutdownDelay	Integet [R/W]	1.3.6.1.4.1.10790.31.1.2.3	Value in seconds of the delayed shutdown
upsStandbyCmd	Integer [R/W]	1.3.6.1.4.1.10790.31.1.2.4	1 – on (ups operational) 2 – off (ups is standby, output is off)
upsAudioCmd	Integer [R/W]	1.3.6.1.4.1.10790.31.1.2.5	1 – disable (=mute) audible alarm 2 – enable audible alarm
upsBattTestCmd	Integer [R/W]	1.3.6.1.4.1.10790.31.1.2.6	1 – doBatteryTest
upsBattTestRslt	Integer [R]	1.3.6.1.4.1.10790.31.1.2.7	0 – testNotMade 1 – good 2 – bad 3 – notFull 4 – inUse 5 – loadToolLow 6 – testNotCompleted 7 – errorValue
upsShutdownDiagnosticCmd	Integer [R/W]	1.3.6.1.4.1.10790.31.1.2.8	1 – sendRequest
upsShutdownDiagnosticRslt	Octet String	1.3.6.1.4.1.10790.31.1.2.9	String size 0 - 40
upsProtectionResetCmd	Integer [R/W]	1.3.6.1.4.1.10790.31.1.2.10	1 – sendCommand

upsSetLowBattLevel Cmd	Integer [R/W]	1.3.6.1.4.1.10790. 31.1.2.11	0 – setTo 35% (default) 1 – setTo 10% 2 – setTo 20% 3 – setTo 30% 4 – setTo 40% 5 – setTo 50% 6 – setTo 60% 7 – setTo 70% 8 – setTo 80% 9 – setTo 90%

upsShutdown, upsShutdownDelay

This command allows the host to shutdown the UPS (in case of input power loss) prior to complete depletion of the internal battery. The UPS responds to this command by disconnecting the UPS output and battery after a delay specified by upsShutdownDelay. If input power is not available, this will cause an immediate and total UPS shutdown. When input power recovers, the UPS will automatically turn on and provide output power. If input power is on when the Remote Shutdown command is received, the UPS will reconnect the output and battery after a minimum delay of five seconds and resume "Normal" operation (assuming other internal conditions do not prevent this.)
This command can be canceled only during the delay (before actual shutdown).

upsBattleMode

Enables/Disable Battle Mode. This command remains in effect for ten minutes from the last time it was issued, and then it is reset. While in Battle Mode, the following conditions will not cause the UPS to switch to the Standby Mode (and disconnect the output):

- Over Temperature
- Undervoltage Protection
- Prolonged Overload

upsStandbyCmd

This command allows the host to turn off the UPS output without a complete shutdown (Standby Mode). The UPS responds to this command by entering the "Standby State" during which the UPS output is disconnected, but communications and battery charging are still active.

upsAudioCmd

Enables/Disable the audible alarm. Any one of the following conditions will activate the alarm. The conditions are listed in descending order of priority.

- Over Temperature Warning / Shutdown
- Low Battery
- Input Power Loss (battery operation)

upsBattTestCmd, upsBattTestRslt

Causes the UPS to initiate a single battery test sequence. Upon completion of the test, the upsBattTestRslt will be updated in accordance with the table below:

Status Mnemonic	Description
0– testNotMade	Battery Test not made yet
1– good	Battery Test Passed
2– bad	Battery Test Failed
3– notFull	Battery Test Denied because battery charge was below 85%.
4– inUse	Battery Test Denied due to Input Voltage Failure
5– loadToolLow	Battery Test Denied because output load was too low (below 35%)
6– testNotCompleted	Battery Test was not completed
7– errorValue	Some other error

upsShutdownDiagnosticCmd, upsShutdownDiagnosticRslt

Requests a Diagnostic Status Report. The UPS responds by updating the upsShutdownDiagnosticRslt with a string which contains eight report types. These reports reflect the various reasons that may have caused output failure.
Prior to executing upsShutdownDiagnosticCmd the reports are stored in the UPS Controller's EEPROM. They are cleared automatically five minutes after output recovery, or immediately after being reported. So executing two sequential upsShutdownDiagnosticCmd will result in all reports being cleared.

Status Mnemonic	Description
OL1	Overload Shutdown
TS1	Over Temperature Shutdown
OV1	Over Voltage Shutdown
DO1	DC Offset Shutdown
OS1	Output Shorted Shutdown
SF1	Source Fail Condition(simultaneous input power fail and empty battery).
UB1	UPS Bad Condition - shutdown due to internal failure
SB1	UPS in Standby Mode

upsProtectionResetCmd

This command allows the UPS to recover from a shutdown caused by a fault condition (e.g. overload, overvoltage, output shorted, etc.). If issued following a shutdown, the UPS will attempt to turn on the output.

upsSetLowBattLevelCmd

Sets the "Low Battery Level" (in percent of battery charge). When the battery charge drops below this level, the "Low Bat" panel indicator turns on, the audible alarm sounds and the upsBatterySttsTRAP is sent.

MilPower private MIB Trap section

trapDestinations Table

Name	Type	OID	Description
TrapDestinations Index (Table Index)	Integer	1.3.6.1.4.1. 10790.31.1.6.1 .1.1.1	Index
TrapDestinations Address	IP Address	1.3.6.1.4.1. 10790.31.1.6.1 .1.1.2	Destination IP address

trapDestinationsCommands Group

trapDestTempAddress

Type	OID	Description
IP Address	1.3.6.1.4.1. 10790.31.1.6.7.1	Temporary IP Address.

trapDestCommand

Type	OID	Description
Integer	1.3.6.1.4.1. 10790.31.1.6.7.2	Trap destination command to be executed by the agent: 1-add 2-remove