Warranty Registration: Register online today for a chance to win a FREE Tripp Lite product—www.tripplite.com/warranty

Owner's Manual

Programmable MODBUS Card

Model: MODBUSCARD

RoHS COMPLIANT

Introduction	2
Installation	2
Features	2
Configuration	3
Operation	5
Warranty & Warranty Registration	18

TRIPP·LITE

1111 W. 35th Street, Chicago, IL 60609 USA
www.tripplite.com/support

Copyright © 2010 Tripp Lite. All rights reserved.

Introduction

The MODBUSCARD provides UPS systems with the functionality of communication with PCs through MODBUS protocol:

- Implements MODBUS RTU protocol
- Provides MODBUS functions including Read Coils, Discrete Inputs, Holding Registers, Input Registers, Write Single Coil and Single Register
- Provides RS-422/485 and RS-232 interfaces (PC communicates with UPS via RS-422/485 or RS-232 or both at the same time)

Installation

The MODBUSCARD should be installed in the accessory slot intended for Tripp Lite's SNMPWEBCARD.

Remove your UPS system's SNMPWEBCARD from its accessory slot. Align the MODBUSCARD with the guides in the accessory slot and push the card into the slot until the ports are nearly even with the rear surface of the UPS.

If your UPS system does not have an SNMPWEBCARD installed, use a screwdriver to remove the accessory slot cover from the UPS. While the UPS is turned on, align the MODBUSCARD with the guides in the accessory slot and push the card into the slot until the ports are nearly even with the rear surface of the UPS.

Important Installation Note: Be sure to fully configure all your MODBUSCARD's switches to match your configuration before installation.

Features

A MODBUS Card ID Configuration Switch

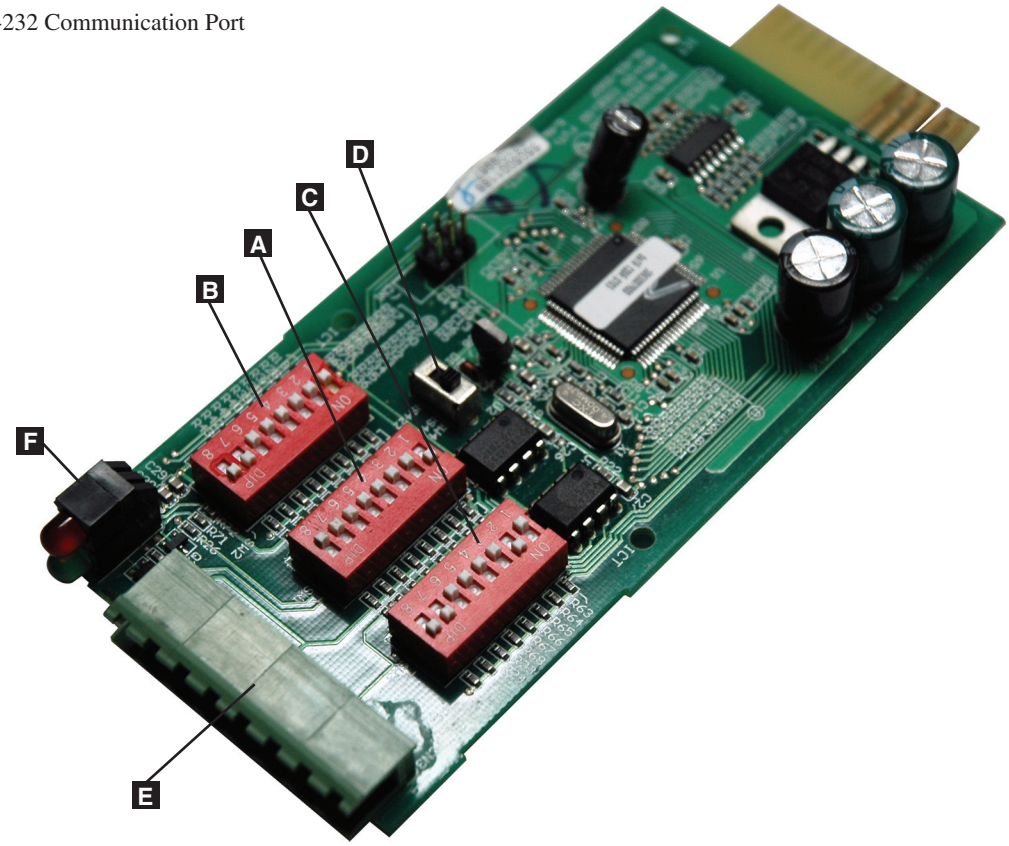
B RS-232 Port Configuration Switch

C RS-422/485 Port Configuration Switch

D RS-422/485 Selection Switch

E RS-422/485 & RS-232 Communication Port

F Diagnostic LEDs



Configuration

Configuration of RS-232 Port

Use SW2 to configure the RS-232 interface.

Pin	Function
6	Card TxD - transfer data to PC
7	Card RxD - receive data from PC
8	GND

Function	Switch		Value
ON/OFF	SW-1	SW-2	
	OFF	OFF	MODBUS OFF
	ON	ON	MODBUS ON
Baud-Rate	SW2-1	SW2-2	
	OFF	OFF	2400 (Default)
	ON	OFF	4800
	OFF	ON	9600
	ON	ON	19200
Parity Check	SW2-3	OFF	Disable Parity Check (Default)
		ON	Enable Parity Check
	SW2-4	OFF	Even Parity (Default)
		ON	Odd Parity
Protocol	SW2-5	SW2-6	
	OFF	OFF	MODBUS Protocol (Default)
	ON	OFF	Regular Protocol
	OFF	ON	3-Phase Protocol
	SW2-7	Reserved	
	SW2-8	Reserved	

Configuration continued

Configuration of RS-422/485 Port

Use SW3 to configure the RS-422/485 interface.

Pin	Function
1	Card D+ (T+)
2	Card D- (T-)
3	Card R+
4	Card R-

Switch	Setting	Function
SW4	RS-485	Enable RS-485
	RS-422	Enable RS-422

Function	Switch		Value
Baud-Rate	SW3-1	SW3-2	
	OFF	OFF	2400 (Default)
	ON	OFF	4800
	OFF	ON	9600
	ON	ON	19200
Parity Check	SW3-3	OFF	Disable Parity Check (Default)
		ON	Enable Parity Check
	SW3-4	OFF	Even Parity (Default)
		ON	Odd Parity
Protocol	SW3-5	SW3-6	
	OFF	OFF	MODBUS Protocol (Default)
	ON	OFF	Regular Protocol
	OFF	ON	3-Phase Protocol
Termination Resistor	SW3-7	OFF	Disable RS-485/422 Termination Resistor (Default)
		ON	Enable RS-485/422 Termination Resistor
	SW3-8	OFF	Disable RS-422 Termination Resistor (Default)
		ON	Enable RS-422 Termination Resistor

LED Indicators

LED	Status	Description
RED	OFF	UPS disconnected
	Flashing (1 second)	UPS connected
GREEN	Illuminated (0.2 seconds)	Receiving PC request

Discrete Inputs (Range 0x0100 - 0x012F, Read Function 0x02)

The Read Discrete Inputs function code is used to read 1-2000 contiguous status of Discrete Inputs in a remote device. The starting address and number of inputs is specified by the request Protocol Data Unit. Addresses start at 0 and Discrete Inputs numbered 1-16 would address as 0-15.

Description	Address	Value 0	Value 1
Alarm Temperature	0x0100	OK	Over Temperature
Alarm Input Bad	0x0101	OK	Input Bad
Alarm Output Bad	0x0102	OK	Output Bad
Alarm Overload	0x0103	OK	Overload
Alarm Bypass Bad	0x0104	OK	Bypass Bad
Alarm Output Off	0x0105	Output On	Output Off
Alarm UPS Shutdown	0x0106	OK	Shutdown
Alarm Charger Failure	0x0107	OK	Charger Failure
Alarm System Off	0x0108	System On	System Off
Alarm Fan Failure	0x0109	OK	Fan Failure
Alarm Fuse Failure	0x010A	OK	Fuse Failure
Alarm General Fault	0x010B	OK	General Fault
Alarm Awaiting Power	0x010C	OK	Awaiting Power
Alarm Shutdown Pending	0x010D	OK	Shutdown Pending
Alarm Shutdown Imminent	0x010E	OK	Shutdown Imminent
Buzzer Status	0x010F	Silence	Alarm
Economy Mode	0x0110	No	Yes
Alarm Inverter Bad	0x0111	OK	Inverter Bad
Emergency Power Off	0x0112	Off	On
Buzzer State	0x0113	Disable	Enable
Battery Ground Fault	0x0114	OK	Battery Ground Fault
Reserved	0x0115		
Reserved	0x0116		
Reserved	0x0117		
Alarm Rectifier Main Fail	0x0118	OK	Rectifier Main Fail
Alarm Rectifier Hi DC Stop	0x0119	OK	Rectifier Hi DC Stop
Alarm Over Temp or Fuse Fail	0x011A	OK	Over Temp or Fuse Fail
Alarm Battery Low	0x011B	OK	Battery Low
Alarm Battery Low Stop	0x011C	OK	Battery Low Stop
Alarm Battery Ground Fault	0x011D	OK	Battery Ground Fault
Inverter On	0x011E	Inverter Off	Inverter ON
Alarm Inverter Overload	0x011F	OK	Inverter Overload
Alarm Inverter Abnormal	0x0120	OK	Inverter Abnormal
Alarm Load on Reserve	0x0121	Load Not On Reserve	Load on Reserve
Alarm Reserve Mains Fail	0x0122	OK	Reserve Mains Fail
Alarm Reserve Freq. Abnormal	0x0123	OK	Reserve Freq. Abnormal
Alarm Test In Progress	0x0124	No Test In Progress	Test In Progress
Alarm Test Error	0x0125	No Test Error	Test Error
UPS In Sleep Mode	0x0126	UPS Not In Sleep Mode	UPS In Sleep Mode
Reserved	0x0127		
Alarm Bypass Volt/Freq Bad	0x0128	OK	Bypass Volt/Freq Bad
Alarm Bypass Phase Sequence Bad	0x0129	OK	Bypass Phase Sequence Bad
Alarm Bypass STS Overload	0x012A	OK	Bypass STS Overload
Alarm Bypass STS Over	0x012B	OK	Bypass STS Over
Alarm Bypass STS Fault	0x012C	OK	Bypass STS Fault
Reserved	0x012D		
Reserved	0x012E		
Reserved	0x012F		

Note: Your UPS may not support all fields.

Coils (Range 0x0200 - 0x020F, Read Function 0x01, Write Function 0x05)

The Read Coils function reads 1-2000 contiguous status of coils in a remote device. The starting address and number of coils is specified by the request Protocol Data Unit. Addresses start at 0 and Coils numbered 1-16 would address as 0-15.

The Write Coils function writes a single output to ON/OFF in a remote device. A specified constant in the data field requests the ON/OFF state. Addresses start at 0 and Coils numbered 1 would address as 0.

Description	Address	Value 0	Value 1
UPS Buzzer	0x0200	Silence	Alarm
Shutdown Type	0x0201	UPS Output	UPS System
Economy Mode Setting	0x0202	Disable	Enable
ATX PC Reboot Function	0x0203	Disable	Enable
AC Fail & Restore Auto-Reboot	0x0204	Disable	Enable
ATX PC Resume Function	0x0205	Disable	Enable
Enable/Disable Inverter	0x0206	Disable	Enable
EPO Setting	0x0207	Disable	Enable
Enable/Disable Inverter	0x0208	Disable	Enable
Clear SRAM	0x0209	Clear SRAM	Clear SRAM
Cancel Shutdown Restart	0x020A	Cancel Shutdown Restart	Cancel Shutdown Restart
Set Output On/Off	0x020B	OFF	ON
Reserved	0x020C		
Reserved	0x020D		
Reserved	0x020E		
Reserved	0x020F		

Note: Your UPS may not support all fields.

Holding Register (Range 0x0300 - 0x0321, Read Function 0x03, Write Function 0x06)

The Read Holding Registers function code is used to read contents of a contiguous block of Holding Registers in a remote device. Starting register address and number of registers is specified by the request Protocol Data Unit. Addresses start at 0 and registers numbered 1-16 address as 0-15.

The Write Single Register function code is used to write a Single Holding Register in a remote device. The address of the register to be written is specified by the request Protocol Data Unit. Addresses start at 0 and registers numbered 1 address as 0.

Description	Address	Value	Unit
Shutdown Action	0x0300	0-999 (0=Abort)	Seconds
Shutdown Restart	0x0301	0-65535	Minutes
Test	0x0302	0: Abort Test	
		1: General Test	
		2: BTV Test	
		3: Test for 10 seconds	
		4: Test until battery low	
UPS Identification	0x0303	0-99	
Low Transfer Voltage	0x0304	0-999	Voltage
High Transfer Voltage	0x0305	0-999	Voltage
Voltage Sensitivity	0x0306	0: Normal	
		1: Reduced	
		2: Low	
Last Battery Replace Date-Year	0x0307	0-9999	
Last Battery Replace Date-Month	0x0308	1-12	
Last Battery Replace Date-Day	0x0309	1-31	
Next Battery Replace Date-Year	0x030A	0-9999	
Next Battery Replace Date-Month	0x030B	1-12	
Next Battery Replace Date-Day	0x030C	1-31	

Holding Register (Range 0x0300 - 0x0321, Read Function 0x03, Write Function 0x06) continued

Description	Address	Value	Unit
UPS Periodic Auto-Test	0x030D	1: Disable	
		2: Daily	
		3: Weekly	
		4: Bi-Weekly	
		5: Monthly	
Buzzer Test	0x030E	1-99	Seconds
UPS Boot Delay	0x030F	0-999	Seconds
Bypass Freq. Tolerance	0x0310	5-50	0.1 Hz
Select Output Voltage	0x0311	0-999	Voltage
Test Time	0x0312	1-60	Minutes
Test Voltage	0x0313	0-999	Voltage
Reserved	0x0314		
Reserved	0x0315		
External Battery Pack	0x0316	0-10	
Dry Contact W1	0x0317		
Dry Contact W2	0x0318		
Dry Contact W3	0x0319		
Dry Contact W4	0x031A		
Dry Contact W5	0x031B		
Dry Contact W6	0x031C		
Bypass Low Transfer Voltage	0x031D	0-999	Voltage
Bypass High Transfer Voltage	0x031E	0-999	Voltage
Bypass Voltage Tolerance	0x031F	0-999	Voltage
Dry Contact Input Status 1	0x0320		
Dry Contact Input Status 2	0x0321		

Note: Your UPS may not support all fields.

Input Register (Range 0x0400 - 0x051C, Read Function 0x04) Rating Value

The Read Input Registers function code is used to read 1-125 contiguous input registers in a remote device. The starting register address and number of registers is specified by the request Protocol Data Unit. Addresses start at 0 and registers numbered 1-16 address as 0-15.

Description	Address	Value	Unit
Series	0x0400	0: T	
		1: H	
		2: NT	
		3: NH	
Rating Input Voltage	0x0401	0-999	Voltage
Rating Input Frequency	0x0402	0-999	0.1 Hz
Rating Output Voltage	0x0403	0-999	Voltage
Rating Output Frequency	0x0404	0-999	0.1 Hz
Rating VA	0x0405	0-65534	10 VA
Rating Output Power	0x0406	0-65534	10 Watt
Low Battery Time	0x0407	0-99	Minutes
Low Tx Voltage Point	0x0408	0-999	Voltage
High Tx Voltage Point	0x0409	0-999	Voltage
Low Tx Voltage Upper Bound	0x040A	0-999	Voltage
Low Tx Voltage Lower Bound	0x040B	0-999	Voltage
High Tx Voltage Upper Bound	0x040C	0-999	Voltage
High Tx Voltage Lower Bound	0x040D	0-999	Voltage

Input Register (Range 0x0400 - 0x051C, Read Function 0x04) Rating Value continued

Description	Address	Value	Unit
UPS Type	0x040E	0: On-Line	
		1: Off-Line	
		2: Line-Interactive	
		3: 3-Phase	
		4: Split Phase	
		5: Others	
Rating Battery Voltage	0x040F	0-999	Voltage
Low Tx Frequency Point	0x0410	0-999	0.1 Hz
High Tx Frequency Point	0x0411	0-999	0.1 Hz
Bypass Rating Frequency	0x0412	0-999	0.1 Hz
Bypass Freq Max Tolerance	0x0413	5-50	0.1 Hz
Bypass Freq Set Tolerance	0x0414	5-50	0.1 Hz
Bypass Low Tx Voltage Point/Bypass Rating Voltage	0x0415	0-999	Voltage
Bypass High Tx Voltage Point	0x0416	0-999	Voltage
Bypass Low Tx Voltage Upper Bound/ Bypass Voltage Max Tolerance	0x0417	0-999	Voltage
Bypass Low Tx Voltage Lower Bound/ Bypass Voltage Set Tolerance	0x0418	0-999	Voltage
Bypass High Tx Voltage Upper Bound	0x0419	0-999	Voltage
Bypass High Tx Voltage Lower Bound	0x041A	0-999	Voltage
Reserved	0x041B		
Reserved	0x041C		
Reserved	0x041D		

Battery Status

Description	Address	Value	Unit
Battery Condition	0x041E	0: Good	
		1: Weak	
		2: Replace	
Battery Status	0x041F	0: OK	
		1: Low	
		2: Depleted	
Battery Charge	0x0420	0: Floating	
		1: Charging	
		2: Resting	
		3: Discharging	
Seconds on Battery	0x0421	0-65534	Seconds
Estimated Minutes Remaining	0x0422	0-999	
Estimated Charge Remaining	0x0423	0-999	
Battery Voltage	0x0424	0-9999	0.1 Voltage
Battery Current	0x0425	0-9999	0.1 Amp
Temperature	0x0426	0-999	Degrees Celsius
Battery Level	0x0427	0-999	%
External Battery Pack #	0x0428	0-10	
Negative Battery Voltage	0x0429	0-9999	0.1 Voltage
Negative Battery Current	0x042A	0-9999	0.1 Amp
Negative Battery Temp	0x042B	0-999	Degrees Celsius
Negative Battery Level	0x042C	0-999	%
Reserved	0x042D		
Reserved	0x042E		
Reserved	0x042F		

Input Status

Description	Address	Value	Unit
Input Number Lines	0x0430	0-9	
Input Frequency 1	0x0431	0-999	0.1 Hz
Input Voltage 1	0x0432	0-9999	0.1 Voltage
Input Current 1	0x0433	0-9999	0.1 Amp
Input Power 1	0x0434	0-65534	10 Watt
Input Frequency 2	0x0435	0-999	0.1 Hz
Input Voltage 2	0x0436	0-9999	0.1 Voltage
Input Current 2	0x0437	0-9999	0.1 Amp
Input Power 2	0x0438	0-65534	10 Watt
Input Frequency 3	0x0439	0-999	0.1 Hz
Input Voltage 3	0x043A	0-9999	0.1 Voltage
Input Current 3	0x043B	0-9999	0.1 Amp
Input Power 3	0x043C	0-65534	10 Watt
Input Voltage 12	0x043D	0-9999	0.1 Voltage
Input Voltage 23	0x043E	0-9999	0.1 Voltage
Input Voltage 31	0x043F	0-9999	0.1 Voltage
Reserved	0x0440		
Reserved	0x0441		

Output Status

Description	Address	Value	Unit
Output Source	0x0442	0: Normal	
		1: Battery	
		2: Bypass (Reserve)	
		3: Reducing	
		4: Boosting	
		5: Manual Bypass	
		6: Other	
		7: None	
Output Frequency	0x0443	0-999	0.1 Hz
Output Number Lines	0x0444	0-9	
Output Voltage 1	0x0445	0-9999	0.1 Voltage
Output Current 1	0x0446	0-9999	0.1 Amp
Output Power 1	0x0447	0-65534	10 Watt
Output Load 1	0x0448	0-999	%
Output Voltage 2	0x0449	0-9999	0.1 Voltage
Output Current 2	0x044A	0-9999	0.1 Amp
Output Power 2	0x044B	0-65534	10 Watt
Output Load 2	0x044C	0-999	%
Output Voltage 3	0x044D	0-9999	0.1 Voltage
Output Current 3	0x044E	0-9999	0.1 Amp
Output Power 3	0x044F	0-65534	10 Watt
Output Load 3	0x0450	0-999	%
Output Voltage 12	0x0451	0-9999	0.1 Voltage
Output Voltage 23	0x0452	0-9999	0.1 Voltage
Output Voltage 31	0x0453	0-9999	0.1 Voltage
Reserved	0x0454		
Reserved	0x0455		

Bypass Status

Description	Address	Value	Unit
Bypass Frequency	0x0456	0-999	0.1 Hz
Bypass Number Lines	0x0457	0-9	
Bypass Voltage 1	0x0458	0-9999	0.1 Voltage
Bypass Current 1	0x0459	0-9999	0.1 Amp
Bypass Power 1	0x045A	0-65534	10 Watt
Bypass Voltage 2	0x045B	0-9999	0.1 Voltage
Bypass Current 2	0x045C	0-9999	0.1 Amp
Bypass Power 2	0x045D	0-65534	10 Watt
Bypass Voltage 3	0x045E	0-9999	0.1 Voltage
Bypass Current 3	0x045F	0-9999	0.1 Amp
Bypass Power 3	0x0460	0-65534	10 Watt
Bypass Voltage 12	0x0461	0-9999	0.1 Voltage
Bypass Voltage 23	0x0462	0-9999	0.1 Voltage
Bypass Voltage 31	0x0463	0-9999	0.1 Voltage
Bypass STS Temperature	0x0464	0-999	Degrees Celsius
Reserved	0x0465		
Reserved	0x0466		

Test Status

Description	Address	Value	Unit
Test Result	0x0467	0: No Test Performed	
		1: Test Passed	
		2: Test In Progress	
		3: General Test Fault	
		4: Battery Test Fault	
		5: Deep Battery Test Fault	
		6: Test Aborted	

Output Relay

Description	Address	Value	Unit
Number of Output Relay	0x0468	0: Not Available	
		>0: Available (<=99)	

Environment

Description	Address	Value	Unit
Temperature	0x0469	0-999	Degrees Celsius
Humidity	0x046A	0-999	
Relay 1	0x046B	0: Off, 1: On	
Relay 2	0x046C	0: Off, 1: On	
Relay 3	0x046D	0: Off, 1: On	
Relay 4	0x046E	0: Off, 1: On	
Reserved	0x046F		
Reserved	0x0470		

Select Voltage

Description	Address	Value	Unit
Selected Output Voltage	0x0471	0-999	Voltage
Select Output Voltage 1	0x0472	0-999	Voltage
Select Output Voltage 2	0x0473	0-999	Voltage
Select Output Voltage 3	0x0474	0-999	Voltage

SRAM Exist

Description	Address	Value	Unit
SRAM EXIST	0x0475	0: Doesn't Exist 1: Exists	

Note: Currently, this field is not supported by UPS.

TempStatus

Description	Address	Value	Unit
TempStatus Byte 1, 2	0x0476	Low: Byte 1, Hi: Byte 2	
TempStatus Byte 3, 4	0x0477	Low: Byte 3, Hi: Byte 4	
TempStatus Byte 5, 6	0x0478	Low: Byte 5, Hi: Byte 6	
TempStatus Byte 7, 8	0x0479	Low: Byte 7, Hi: Byte 8	
TempStatus Byte 9, 10	0x047A	Low: Byte 9, Hi: Byte 10	
TempStatus Byte 11, 12	0x047B	Low: Byte 12, Hi: Byte 12	
TempStatus Byte 13, 14	0x047C	Low: Byte 13, Hi: Byte 14	
TempStatus Byte 15, 16	0x047D	Low: Byte 15, Hi: Byte 16	
TempStatus Byte 17, 18	0x047E	Low: Byte 17, Hi: Byte18	
TempStatus Byte 19, 20	0x047F	Low: Byte 19, Hi: Byte 20	
Reserved	0x0480		
Reserved	0x0481		

Temp Byte 1 (Lo): R Phase Inverter Temperature
Temp Byte 2 (Hi): B0: Temperature Warning (>=75C)
B1: High Temperature Shutdown (>=85C)
B2: Inverter Voltage Too Low
B3: Inverter Voltage Too High
B4: Overload Warning
B5: Overload Shutdown
B6: Inverter Fuse Fail Shutdown
B7: Inverter PCB Communication Abnormal
Temp Byte 3 (Lo): S Phase Inverter Temperature
Temp Byte 4 (Hi): B0: Temperature Warning (>=75C)
B1: High Temperature Shutdown (>=85C)
B2: Inverter Voltage Too Low
B3: Inverter Voltage Too High
B4: Overload Warning
B5: Overload Shutdown
B6: Inverter Fail Shutdown
B7: Parallel Communication Abnormal
Temp Byte 5 (Lo): T Phase Inverter Temperature
Temp Byte 6 (Hi): B0: Temperature Warning (>=75C)
B1: High Temperature Shutdown (>=85C)
B2: Inverter Voltage Too Low
B3: Inverter Voltage Too High
B4: Overload Warning
B5: Overload Shutdown
B6: Inverter Freq Abnormal Shutdown
B7: Parallel Communication Fail
Temp Byte 7 (Lo): B3..B0: The Summary of UPS Run at Inverter Test Mode
B7..B4: The Summary of UPS at Inverter Mode
Temp Byte 8 (Hi): B0: Power Fail
B1: EPO Happened
B2: MB_ON (To Bypass)
B3: Low Battery Warning
B4: Battery Low Shutdown
B5: Master UPS (Output Synch)
B6: Inverter DC Bus Abnormal Shutdown
B7: Short Circuit Shutdown
Temp Byte 9 (Lo): Heatsink Temperature
Temp Byte 10 (Hi): B0: Bypass Voltage Over
B1: Bypass Voltage Under
B2: Bypass Freq Abnormal
B3: Bypass Phase Abnormal
B4: Rectifier Voltage Over
B5: Rectifier Voltage Under
B6: Rectifier Freq Abnormal
B7: Rectifier Phase Abnormal
Temp Byte 11 (Lo): Ambient Temperature
Temp Byte 12 (Hi): B0: Bypass Voltage Over
B1: Bypass Voltage Under
B2: SSW at Bypass Side
B3: SSW at Inverter Side
B4: Rectifier Voltage Over
B5: Rectifier Voltage Under
B6: Rectifier Input Over Current
B7: Rectifier Input Current Unbalanced

TempStatus continued

Temp Byte 13 (Lo): Battery Temperature
Temp Byte 14 (Hi): B0: Bypass Voltage Over
B1: Bypass Voltage Under
B2: Low Battery Shutdown
B3: Low Battery Warning
B4: Rectifier Voltage Over
B5: Rectifier Voltage Under
B6: Rectifier Fail
B7: DC Bus Over Voltage
Temp Byte 15 (Lo): B0: TR1 Over Temperature (O/P TR Over Heat Shutdown)
B1: TR2 Input Choke Over Heat (I/P TR Over Heat Shutdown)
B2: Rectifier Over Temperature Warning (>=75C)
B3: Rectifier Over Temperature Shutdown (>=85C)
B4: Static Switch Over Temperature Warning (>=75C)
B5: Static Switch Over Temperature Shutdown (>=85C)
B6: Static Switch Overload
B7: Static Switch Fail
Temp Byte 16 (Hi): B0: Converter Board Power Abnormal
B1: EPO Happened
B2: Manual Bypass On
B3: Converter Board Communication Error
B4: Battery Cabinet Over Temperature Warning (>=75C)
B5: Battery Ground Fault
B6: Battery Test in Progress
B7: Battery Test Fail
Temp Byte 17: Reserved
Temp Byte 18: Reserved
Temp Byte 19: Reserved
Temp Byte 20 (Hi): B5: Ambiance Over Temperature
B7: Auxiliary Power Fail

Note: Currently, TempStatus is not supported by UPS.

Parallel Master ID

Description	Address	Value	Unit
Parallel Master ID	0x0482	0 - 99	

Available Event Log

Description	Address	Value	Unit
UPS Event Log	0x0483	0-500	
Event Log Report Format	0x0484	0-1	
Event Reporting Method	0x0485	0-1	

Event Log Report Format: 0: NT 9 byte format
1: NH 8 byte format

Power Module Attribute

Description	Address	Value	Unit
Power Module ID / Attribute	0x0486	Lo: ID (1-4), Hi: Attribute	
Power Module ID / Attribute	0x0487		
Power Module ID / Attribute	0x0488		
Power Module ID / Attribute	0x0489		
Reserved	0x048A		
Reserved	0x048B		

Power Module Attribute: which is used to identify the attribute of the power module.
B0: PFC
B1: Rectifier
B2: Charger
B3: Inverter
B4: Bypass
B5: TBD
B6: TBD
B7: TBD

Power Module General Status

Description	Address	Value	Unit
Power Module ID / General Status	0x048C	Lo: ID (1-4), Hi: Status	
Power Module ID / General Status	0x048D		
Power Module ID / General Status	0x048E		
Power Module ID / General Status	0x048F		
Reserved	0x0490		
Reserved	0x0491		

Power Module General Status:
B0: The power module exists or the power module is powered
B1:
B2:
B3:
B4:
B5:
B6:
B7: Fault shutdown

Power Module PFC Status

Description	Address	Value	Unit
Power Module ID	0x0492	1-4	
PFC Status 0,1	0x0493	Lo: Status 0, Hi: Status 1	
Power Module ID	0x0494		
PFC Status 0,1	0x0495		
Power Module ID	0x0496		
PFC Status 0,1	0x0497		
Power Module ID	0x0498		
PFC Status 0,1	0x0499		
Reserved	0x049A		
Reserved	0x049B		
Reserved	0x049C		
Reserved	0x049D		

PFC Status:
B0: PFC fuse open shutdown
B1: PFC over temperature warning
B2: PFC over temperature shutdown
B3: DC bus over voltage warning
B4: DC bus over voltage shutdown
B5: DC bus under voltage warning
B6: DC bus under voltage shutdown
B7: PFC circuit general fault
B8: Fan failure
B9: TBD
B10: TBD
B11: TBD
B12: Inner communication failure
B13: TBD
B14: TBD
B15: Not calibrated (used to indicate whether the power module has been calibrated)

Power Module Inverter Status

Description	Address	Value	Unit
Power Module ID / Status 0	0x049E	Lo: ID (1-4), Hi: Status 0	
Inverter Status 1,2	0x049F	Lo: Status 1, Hi: Status 2	
Power Module ID / Status 0	0x04A0		
Inverter Status 1,2	0x04A1		
Power Module ID / Status 0	0x04A2		
Inverter Status 1,2	0x04A3		
Power Module ID / Status 0	0x04A4		
Inverter Status 1,2	0x04A5		
Reserved	0x04A6		
Reserved	0x04A7		
Reserved	0x04A8		
Reserved	0x04A9		

Inverter Status:
B0: Inverter Fuse Open
B1: Inverter Over Temperature Warning
B2: Inverter Over Temperature Shutdown
B3: Fan Failure
B4:
B5: Inverter Short Circuit
B6: Inverter STS Failure
B7: Inverter Voltage Abnormal
B8: Inverter Circuit General Fault
B9: DC Bus Over Voltage Shutdown
B10: Inverter Overload
B11:
B12: Inner Communication Loss (includes the communication to system or other modules)
B13: EPO Shutdown
B14: Inverter Parallel Communication Loss
B15: Inverter Parallel Failure (which may due to any of ID, or rating setting conflict, etc…)
B16: TBD
B17: TBD
B18: TBD
B19: TBD
B20: TBD
B21: TBD
B22: TBD
B23: Not calibrated (used to indicate whether the power module has been calibrated)

Power Module Charger Status

Description	Address	Value	Unit
Power Module ID / Charger Status	0x04AA	Lo: ID (1-4), Hi: Status	
Power Module ID / Charger Status	0x04AB		
Power Module ID / Charger Status	0x04AC		
Power Module ID / Charger Status	0x04AD		
Reserved	0x04AE		
Reserved	0x04AF		

Charger Status:
B0: Charger Circuit General Fault
B1-B7: Reserved

Power Module Temperature Status

Description	Address	Value	Unit
Power Module ID	0x04B0	1-4	
Temperature PFC	0x04B1	0-9999	0.1 Voltage
Temperature TBD	0x04B2	0-9999	0.1 Voltage
Temperature INV	0x04B3	0-9999	0.1 Voltage
Temperature INV R	0x04B4	0-9999	0.1 Voltage
Temperature INV S	0x04B5	0-9999	0.1 Voltage
Temperature INV T	0x04B6	0-9999	0.1 Voltage
Power Module ID	0x04B7	1-4	
Temperature PFC	0x04B8	0-9999	0.1 Voltage
Temperature TBD	0x04B9	0-9999	0.1 Voltage
Temperature INV	0x04BA	0-9999	0.1 Voltage
Temperature INV R	0x04BB	0-9999	0.1 Voltage
Temperature INV S	0x04BC	0-9999	0.1 Voltage
Temperature INV T	0x04BD	0-9999	0.1 Voltage
Power Module ID	0x04BE	1-4	
Temperature PFC	0x04BF	0-9999	0.1 Voltage
Temperature TBD	0x04C0	0-9999	0.1 Voltage
Temperature INV	0x04C1	0-9999	0.1 Voltage
Temperature INV R	0x04C2	0-9999	0.1 Voltage
Temperature INV S	0x04C3	0-9999	0.1 Voltage
Temperature INV T	0x04C4	0-9999	0.1 Voltage
Power Module ID	0x04C5	1-4	
Temperature PFC	0x04C6	0-9999	0.1 Voltage
Temperature TBD	0x04C7	0-9999	0.1 Voltage
Temperature INV	0x04C8	0-9999	0.1 Voltage
Temperature INV R	0x04C9	0-9999	0.1 Voltage
Temperature INV S	0x04CA	0-9999	0.1 Voltage
Temperature INV T	0x04CB	0-9999	0.1 Voltage
Reserved	0x04CC		
Reserved	0x04CD		
Reserved	0x04CE		
Reserved	0x04CF		
Reserved	0x04D0		
Reserved	0x04D1		
Reserved	0x04D2		
Reserved	0x04D3		
Reserved	0x04D4		
Reserved	0x04D5		
Reserved	0x04D6		
Reserved	0x04D7		
Reserved	0x04D8		
Reserved	0x04D9		

Power Module Inverter Voltage

Description	Address	Value	Unit
Power Module ID	0x04DA	1-4	
Inverter Voltage R	0x04DB	0-9999	0.1 Voltage
Inverter Voltage S	0x04DC	0-9999	0.1 Voltage
Inverter Voltage T	0x04DD	0-9999	0.1 Voltage
Power Module ID	0x04DE	1-4	
Inverter Voltage R	0x04DB	0-9999	0.1 Voltage
Inverter Voltage S	0x04DC	0-9999	0.1 Voltage
Inverter Voltage T	0x04DD	0-9999	0.1 Voltage
Power Module ID	0x04DE	1-4	
Inverter Voltage R	0x04DF	0-9999	0.1 Voltage
Inverter Voltage S	0x04E0	0-9999	0.1 Voltage
Inverter Voltage T	0x04E1	0-9999	0.1 Voltage
Power Module ID	0x04E2	1-4	
Inverter Voltage R	0x04E3	0-9999	0.1 Voltage
Inverter Voltage S	0x04E4	0-9999	0.1 Voltage
Inverter Voltage T	0x04E5	0-9999	0.1 Voltage
Power Module ID	0x04E6	1-4	
Inverter Voltage R	0x04E7	0-9999	0.1 Voltage
Inverter Voltage S	0x04E8	0-9999	0.1 Voltage
Inverter Voltage T	0x04E9	0-9999	0.1 Voltage
Reserved	0x04EA		
Reserved	0x04EB		
Reserved	0x04EC		
Reserved	0x04ED		
Reserved	0x04EE		
Reserved	0x04EF		
Reserved	0x04F0		
Reserved	0x04F1		

Battery Cabinet Temperature

Description	Address	Value	Unit
Battery Cabinet #1 Temperature	0x04F2	0 – 999	Degrees Celsius
Battery Cabinet #2 Temperature	0x04F3	0 – 999	Degrees Celsius
Battery Cabinet #3 Temperature	0x04F4	0 – 999	Degrees Celsius
Battery Cabinet #4 Temperature	0x04F5	0 – 999	Degrees Celsius
Reserved	0x04F6		
Reserved	0x04F7		

Manufacture

Description	Address	Value	Unit
Manufacture Byte 0, 1	0x04F8	Lo: Byte 0, Hi: Byte 1	
Manufacture Byte 2, 3	0x04F9	Lo: Byte 2, Hi: Byte 3	
Manufacture Byte 4, 5	0x04FA	Lo: Byte 4, Hi: Byte 5	
Manufacture Byte 6, 7	0x04FB	Lo: Byte 6, Hi: Byte 7	
Manufacture Byte 8, 9	0x04FC	Lo: Byte 8, Hi: Byte 9	
Manufacture Byte 10, 11	0x04FD	Lo: Byte 10, Hi: Byte 11	
Manufacture Byte 12, 13	0x04FE	Lo: Byte 12, Hi: Byte 13	
Manufacture Byte 14, 15	0x04FF	Lo: Byte 14, Hi: Byte 15	
Reserved	0x0500		
Reserved	0x0501		
Reserved	0x0502		

Model

Description	Address	Value	Unit
Model Byte 0, 1	0x0503	Lo: Byte 0, Hi: Byte 1	
Model Byte 2, 3	0x0504	Lo: Byte 2, Hi: Byte 3	
Model Byte 4, 5	0x0505	Lo: Byte 4, Hi: Byte 5	
Model Byte 6, 7	0x0506	Lo: Byte 6, Hi: Byte 7	
Model Byte 8, 9	0x0507	Lo: Byte 8, Hi: Byte 9	
Model Byte 10, 11	0x0508	Lo: Byte 10, Hi: Byte 11	
Model Byte 12, 13	0x0509	Lo: Byte 12, Hi: Byte 13	
Model Byte 14, 15	0x050A	Lo: Byte 14, Hi: Byte 15	
Reserved	0x050B		
Reserved	0x050C		
Reserved	0x050D		

Firmware Version

Description	Address	Value	Unit
Firmware Version Byte 0, 1	0x050E	Lo: Byte 0, Hi: Byte 1	
Firmware Version Byte 2, 3	0x050F	Lo: Byte 2, Hi: Byte 3	
Firmware Version Byte 4, 5	0x0510	Lo: Byte 4, Hi: Byte 5	
Firmware Version Byte 6, 7	0x0511	Lo: Byte 6, Hi: Byte 7	
Firmware Version Byte 8, 9	0x0512	Lo: Byte 8, Hi: Byte 9	
Firmware Version Byte 10, 11	0x0513	Lo: Byte 10, Hi: Byte 11	
Firmware Version Byte 12, 13	0x0514	Lo: Byte 12, Hi: Byte 13	
Firmware Version Byte 14, 15	0x0515	Lo: Byte 14, Hi: Byte 15	
Reserved	0x0516		
Reserved	0x0517		
Reserved	0x0518		

CPU

Description	Address	Value	Unit
CPU Byte 0, 1	0x0519	Lo: Byte 0, Hi: Byte 1	
CPU Byte 2, 3	0x051A	Lo: Byte 2, Hi: Byte 3	
Reserved	0x051B		

UPS Connection Status

Description	Address	Value	Unit
UPS Connection Status	0x051C	0: Disconnection 1: Connection	

Note: Filed value 0xFFFF in Input Registers represents that field is not supported by UPS.

Warranty & Warranty Registration

LIMITED WARRANTY

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in materials and workmanship for a period of 2 years (except internal UPS system batteries outside USA and Canada, 1 year) from the date of initial purchase. If the product should prove defective in material or workmanship within that period, Seller will repair or replace the product, in its sole discretion. Service under this Warranty can only be obtained by your delivering or shipping the product (with all shipping or delivery charges prepaid) to: Tripp Lite, 1111 W. 35th Street, Chicago, IL 60609, USA. Seller will pay return shipping charges. Visit www.tripplite.com/support before sending any equipment back for repair.

THIS WARRANTY DOES NOT APPLY TO NORMAL WEAR OR TO DAMAGE RESULTING FROM ACCIDENT, MISUSE, ABUSE OR NEGLECT. SELLER MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY EXPRESSLY SET FORTH HEREIN. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ALL IMPLIED WARRANTIES, INCLUDING ALL WARRANTIES OF MERCHANTABILITY OR FITNESS, ARE LIMITED IN DURATION TO THE WARRANTY PERIOD SET FORTH ABOVE; AND THIS WARRANTY EXPRESSLY EXCLUDES ALL INCIDENTAL AND CONSEQUENTIAL DAMAGES. (Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This Warranty gives you specific legal rights, and you may have other rights which vary from jurisdiction to jurisdiction.)

WARNING: The individual user should take care to determine prior to use whether this device is suitable, adequate or safe for the use intended. Since individual applications are subject to great variation, the manufacturer makes not representation or warranty as to the suitability or fitness of these devices for any specific application.

Not compatible with PoE (Power over Ethernet) applications.

WARRANTY REGISTRATION

Visit www.tripplite.com/warranty today to register the warranty for your new Tripp Lite product. You'll be automatically entered into a drawing for a chance to win a FREE Tripp Lite product!*

* No purchase necessary. Void where prohibited. Some restrictions apply. See website for details.

Regulatory Compliance Identification Numbers

For the purpose of regulatory compliance certifications and identification, your Tripp Lite product has been assigned a unique series number. The series number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to the series number. The series number should not be confused with the marking name or model number of the product.

Tripp Lite has a policy of continuous improvement. Product specifications are subject to change without notice.

1111 W. 35th Street, Chicago, IL 60609 USA
www.tripplite.com/support

201003113 • 93-2987