MIDDLE ATLANTIC.

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NEXSYS™

UPS Communication Protocol
User Manual

100-00094 Rev A

Contents

IMPORTANT SAFETY INSTRUCTIONS - EN

SAVE THESE INSTRUCTIONS - This manual contains important instructions that should be followed during installation and maintenance of the UPS and batteries.

For complete safety instructions, refer to either Line Interactive UPS or Online UPS User Manuals (100-00072 and 100-00092, respectively) at www.legrandav.com.

- Only use attachments and accessories specified by the manufacturer.
- Read all instructions before using the product.

INSTRUCTIONS IMPORTANTES SUR LA SÉCURITÉ - FR

CONSERVER CES INSTRUCTIONS - Ce manuel contient des instructions importantes qui doivent être suivies lors de l'installation et de la maintenance de l'onduleur et des batteries.

Pour obtenir des instructions de sécurité complètes, reportez-vous aux manuels d'utilisation Line Interactive UPS ou Online UPS (100-00072 et 100-00092, respectivement) à www.legrandav.com.

- Utiliser uniquement les accessoires spécifiés par le fabricant.
- Lisez toutes les instructions avant d'utiliser le produit.

Protocol Transports

Communication Parameters, USB

Baud Rate   2400
Parity   None
Data Bits   8
Stop Bits   1

Acknowledgement Rule of End of Data Packet
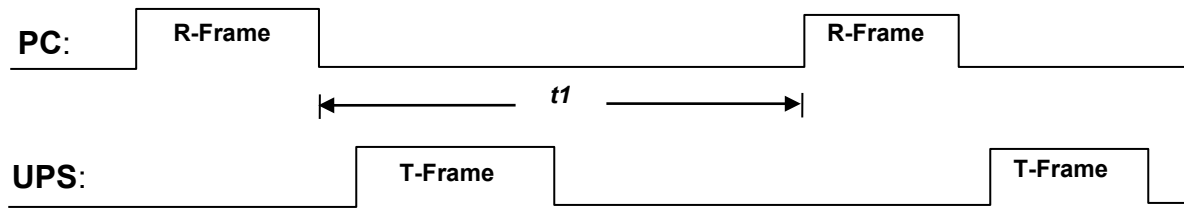
1. On PC side, a received time-out *t1* is measured from the command packet sent to the UPS which equals to 1000 ms, points out that the received data package from UPS should be completed in 1 second.
2. If there are consecutive commands send to the UPS then only the first received command is going to parse and execute, the others should be ignored. After replying, the UPS then receives the new command from the PC and parses the first received command again.

Communication Parameters, SSH

Network IP Address @ Port 22
Encryption: Yes, default SSH
SSH Version: 2.0, Dropbear.

> **NOTE**   Version 1.0 interfaces not supported due to security vulnerabilities.

Checksum: Optional on SSH from user. Responses from UPS will have checksum.
Credentials: Use website login credentials.
Inactivity Timeout: 60 seconds.
Recommended Test Methods: Putty, uCon. These interfaces will prompt for user and/or password and create certificates automatically. Certificates may be saved for future sessions.

> **NOTE**   There is also a user text-based text menu hosted on the SSH port. This text menu is described in the user manual. It can be accessed by a local user pressing <enter> twice. Thus, sending <carriage return><linefeed> twice in a script would trigger this menu, exiting the command protocol in this document.

Sample Putty and uCon logins:
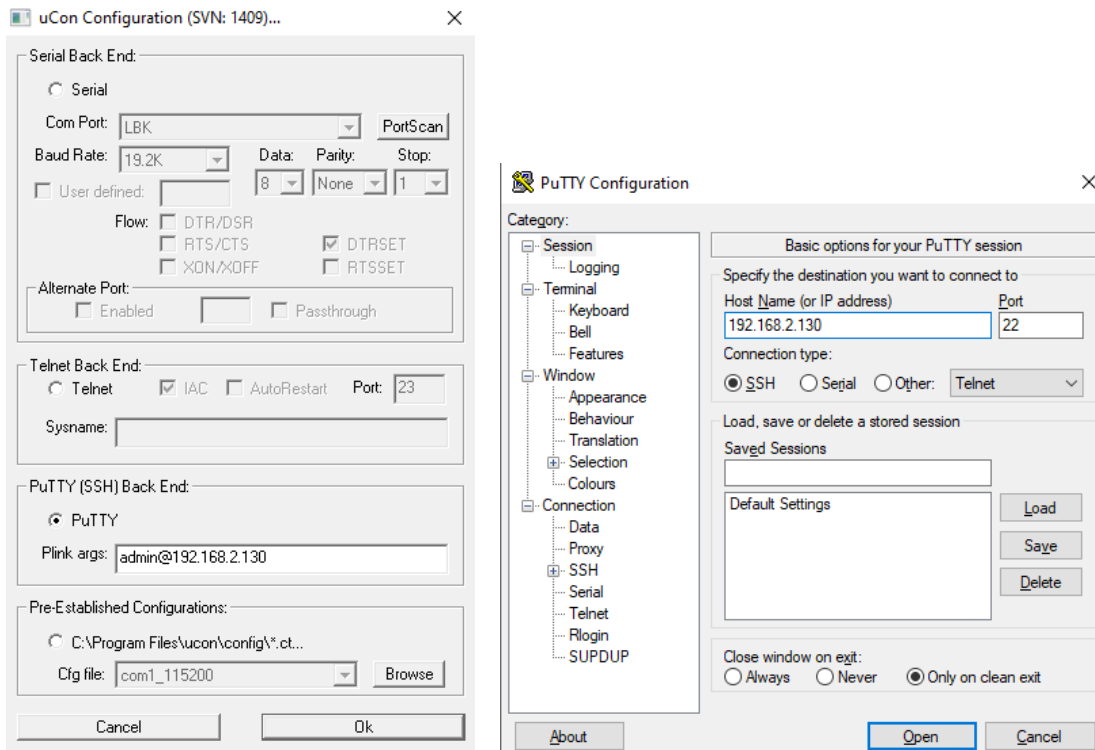
Regular Format

Header	ID	Type	Length	Data	Checksum
1 byte	2 bytes	1 byte	3 bytes	256 bytes max	2 bytes

Header: The header will be a '~' character.

ID: Default value is '00'.

Type: R-Rejected, A-Accepted, P-Poll, S-Set, D-Data Return

Length: The size of the data (command, fields, field separators). Does not include the checksum.

Data: Includes 3 characters for the command type, plus any parameters. If multiple parameters will be returned, they will be separated by a semicolon (;). There is no field separator between the 3-character command and the first parameter. If a field value is not currently available, there will be no value, just a ';' field separator indicating to skip to the next field.

Checksum: The total sum from Header to the end of Data in a data packet. Each ASCII character is converted to an (unsigned char) hex equivalent, then summed with all over values in the data packet. The resulting hexadecimal sum is then converted to 2 ASCII bytes. For example: If the checksum is 0x8e, the field value in Checksum would be '8' and 'E'.

> 👆 **REMINDER**   For customer request, the checksum can be omitted on the latest SSH protocol.

Regular Format Example

2.2.1 Get the input information with checksum
    PC -> UPS: ~00P003STIB1
    UPS -> PC: ~00D0323;600;2200;;;600;2200;;;600;220046

2.2.2 Get the output information with checksum
    PC -> UPS: ~00P003STOB7
    UPS -> PC: ~00D0490;600;3;2200;10;220;5;2200;10;225;5;2200;10;223;5C4

2.2.3 Get the alarm status without checksum (***)
    PC -> UPS: ~00P003STA
    UPS -> PC: ~00D0220;0;0;0;;0;;;;;;0;;;;1

2.2.4 Get the battery status without checksum (***)
    PC -> UPS: ~00P003STB
    UPS -> PC: ~00D0220;0;1;0;;0;414;;28;100

2.2.5 Set Relay On command without checksum
    PC -> UPS: ~00S007RON1;30 (this command means Relay 1 turn on after 30 second)
    UPS -> PC: ~00A1F or ~00A0600.

> **NOTE**   The second format has 2 extra bytes "06". Disregard. For future use.

(***) : This is only for monitor software to support legacy UPS protocol. The command without checksum is no longer supported in the new design.

Protocol Message Structure

    <Header><Address><Command Type><Length><Command ID><Data Parameters>

- Header
    - Value: '~'
    - Data Length: 1 Byte
- Address
    - Value: '00'
    - Data Length: 2 Bytes
- Command Type
    - Values:
        - 'P' – poll
        - 'S' – set
        - 'R' - read
    - Data Length: 1 Byte, ascii character

- Length
    - o Total Length of the command plus data parameters
        - ▪ Value Example 1: "003" for "STI" command with no parameters
        - ▪ Value Example 2: "007" for "RON1;10" command with
    - o Data Length: 3 Bytes
- Data Envelope
    - o Content and Data Length: Varies. Can be empty for basic polls with no parameters.

Control Commands

RON - Outlet Relay ON

OUTLET / BANK ON		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'S' for set
4,5,6	Length (ASCII)	Length of the below pieces
7,8,9	Command	"RON" for relay on
10	Relay Number	Relay or bank number, starting with 1
11	Field Separator	Always ';' semicolon
12,13,14 (size varies)	Time before ON	Time before relay ON executes, in seconds. **Example**: '001', '2', '999', '23', etc.
15,16	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Example: ~00S006RON2;1
Description: Turn on outlet 2 in 1 second

Response for Outlet ON (RON)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	'A' for Accepted 'R' for Rejected
4,5	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Example: ~00A1F

ROF - Outlet Relay OFF

Byte Index	Description	Note
OUTLET / BANK OFF		
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'S' for set
4,5,6	Length (ASCII)	Length of the below pieces
7,8,9	Command	"ROF" for relay off
10	Relay Number	Relay or bank number, starting with 1
11	Field Separator	Always ';' semicolon
12,13,14 (size varies)	Time before OFF	Time before relay OFF executes, in seconds. **Example**: '001', '2', '999', '23', etc.
15,16	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Example: ~00S006ROF1;5

Description: Turn off outlet 1 in 5 second

Byte Index	Description	Note
Response for Outlet OFF (ROF)		
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	'A' for Accepted 'R' for Rejected
4,5	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Example: ~00A1F

RSC - Outlet Relay Cycle

Byte Index	Description	Note
OUTLET / BANK CYCLE		
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'S' for set
4,5,6	Length (ASCII)	Length of the below pieces
7,8,9	Command	"RSC" for relay cycle

OUTLET / BANK CYCLE		
Byte Index	Description	Note
10	Relay Number	Relay or bank number, starting with 1
11	Field Separator	Always ';' semicolon
12,13,14 (size varies)	Time before OFF	Time from NOW before relay OFF executes, in seconds. **Example**: '001', '2', '999', '23', etc.
15	Field Separator	Always ';' semicolon
16,17,18 (size varies)	Time before OFF	Time from NOW before relay ON executes, in seconds. **Example**: '001', '2'
19,20	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Example: ~00S010RSC3;10;15

Description: Outlet 3 off in 10sec, back on 5sec later (15sec from present)

NOTE	• This command can be used to cycle an outlet ON then OFF, or OFF then ON. Make sure the turn on time is greater than turn off time when power cycling a live device to reset it. For example, if the desired operation is to cycle outlet 1 off for 5 seconds after a 3 second delay, the command would be ~00S008RSC1;3;8. • Relay On/Off timer is counted at same time from the time the command is received, so if user set On/Off timer with same value, UPS will turn on then turn off immediately.

~00S008RSC1;3;8

After 3 seconds off then 5 seconds turn on
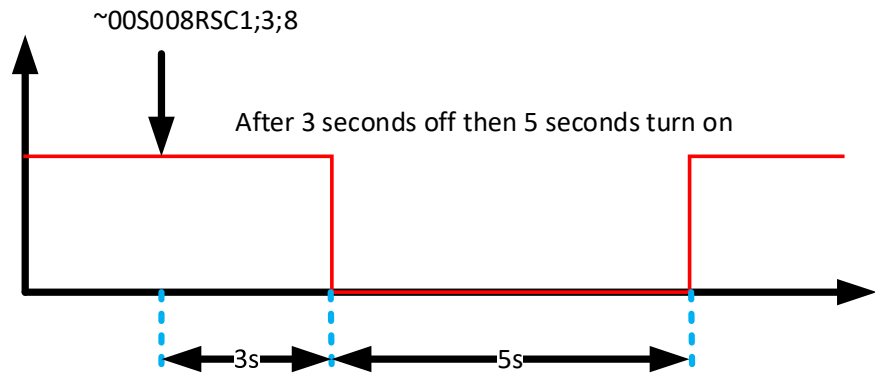
Response for Cycle (RSC)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	'A' for Accepted 'R' for Rejected
4,5	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Example: ~00A1F

OLN – SET Outlet Name

Set Outlet Name (OLN)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'S' for set
4,5,6	Length (ASCII)	Length of the below pieces
7,8,9	Command	OLN – Read/Set outlet name
10	Outlet Index	Index of outlet to name. 1 to 8
11	Field Separator	Always ';' semicolon
12-X	New Name	Characters in ASCII of name, in sequence
X+1, X+2	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Example: ~00S012OLN1;

Description: Outlet 1

Outlet Name Response (OLN)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	'A' for Accepted 'R' for Rejected
4,5	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Example: ~00A1F

BRD – SET Battery Replacement Dates

Set Battery Replacement Dates (BRD)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'S' for poll
4,5,6	Length (ASCII)	Length of the below pieces, always "020"
7,8,9	Command	"BRD" for battery replacement date
10-17	Last Replacement Date	8 characters, YYYYMMDD
18	Field separator	Always a semicolon ';'
19-26	Next replacement date	8 characters, YYYYMMDD

Set Battery Replacement Dates (BRD)		
Byte Index	Description	Note
27,28	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Response for Battery Date Set (BRD)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	'A' for Accepted 'R' for Rejected
4,5	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Example: ~00A1F

BTV – Battery Time/Voltage Test

Battery Test (BTV)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'S' for set
4,5,6	Length (ASCII)	Length of the below pieces, always "004"
7,8,9	Command	"BTV" for start self-test
10,11	Time Limit Parameter	Stop after X minutes (1 to 60 minutes)
12	Field Separator	Always a semicolon ';'
13	Voltage Parameter	Test fails if lower than this voltage threshold. 0 to 999 volts
14, 15	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Response for Battery Test Start (BTV)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	'A' for Accepted 'R' for Rejected

Response for Battery Test Start (BTV)		
Byte Index	Description	Note
4,5	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Example: ~00A1F

Status Read Commands

STI - Input State

Read Input State (STI)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces
7,8,9	Command	"STI" for read input states
10, 11	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

STI Response Format		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'D' for data
4,5,6	Length (ASCII)	Length of the below pieces
7	Field 1	Number of Phases See below chart of response fields
8	Field Separator	Always ';' semicolon
9,10,11 (varies)	Field 2	Input Frequency 1 See below chart of response fields
…	Field Separator	Always ';' semicolon
…	….	Pattern of responses and field separators continues

UPS Input State Response Fields (STI Command)			
Name	Type	Range/Length	Note
Input Num Lines (Phases)	Integer	0 to 9	Number of input lines
Input Frequency1	Integer	0 to 999	0.1Hz
Input Voltage1	Integer	0 to 9999	0.1Volt
Input Current1	Integer	0 to 99999	0.1Amp
Input Power1	Integer	0 to 999999	Watt
Input Frequency2	Integer	0 to 999	0.1Hz
Input Voltage2	Integer	0 to 9999	0.1Volt
Input Current2	Integer	0 to 99999	0.1Amp
Input Power2	Integer	0 to 999999	Watt
Input Frequency3	Integer	0 to 999	0.1Hz
Input Voltage3	Integer	0 to 9999	0.1Volt
Input Current3	Integer	0 to 99999	0.1Amp
Input Power3	Integer	0 to 999999	Watt
Input Voltage12	Integer	0 to 9999	0.1Volt
Input Voltage23	Integer	0 to 9999	0.1Volt
Input Voltage31	Integer	0 to 9999	0.1Volt
Input Energy1	Integer	0 to 9999999	1kWh
Input Energy2	Integer	0 to 9999999	1kWh
Input Energy3	Integer	0 to 9999999	1kWh
Input Energy Total	Integer	0 to 9999999	1kWh
Input Frequency	Integer	0 to 999	0.1Hz

STO - Output State

Read Input State (STO)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces
7,8,9	Command	"STO" for read output states
10, 11	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

STO Response Format		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'D' for data

STO Response Format		
Byte Index	Description	Note
4,5,6	Length (ASCII)	Length of the below pieces
7	Field 1	Number of Phases See below chart of response fields
8	Field Separator	Always ';' semicolon
9,10,11 (varies)	Field 2	Input Frequency 1 See below chart of response fields
…	Field Separator	Always ';' semicolon
…	….	Pattern of responses and field separators continues

UPS Output State Response Fields (STO Command)			
Name	Type	Range/Length	Comment
Output Source	Integer	0 to 9	0 = Normal 1 = Battery 2 = Bypass-3phase Reserve Pwr Path 3 = Reducing 4 = Boosting 5 = Manual Bypass 6 = Other 7 = No output 8 = On ECO 9 = Load Transfer Break
Output Frequency	Integer	0 to 999	0.1Hz
Output Num Lines (Phase)	Integer	0 to 9	Number of output lines
Output Voltage1	Integer	0 to 9999	0.1Volt
Output Current1	Integer	0 to 99999	0.1Amp
Output Power1	Integer	0 to 999999	Watt
Output Load1	Integer	0 to 999	Percent
Output Voltage2	Integer	0 to 9999	0.1Volt
Output Current2	Integer	0 to 99999	0.1Amp
Output Power2	Integer	0 to 999999	Watt
Output Load2	Integer	0 to 999	Percent
Output Voltage3	Integer	0 to 9999	0.1Volt
Output Current3	Integer	0 to 99999	0.1Amp
Output Power3	Integer	0 to 999999	Watt
Output Load3	Integer	0 to 999	Percent
Output Voltage12	Integer	0 to 9999	0.1Volt
Output Voltage23	Integer	0 to 9999	0.1Volt

UPS Output State Response Fields (STO Command)			
Name	Type	Range/Length	Comment
Output Voltage31	Integer	0 to 9999	0.1Volt
Total Output Power KW	Integer	0 to 99999	0.1KW
Total Output Power KVA	Integer	0 to 99999	0.1KVA
Total Output Power Factor	Integer	0 to 999	KW/KVA %
Output Energy1	Integer	0 to 9999999	1kWh
Output Energy2	Integer	0 to 9999999	1kWh
Output Energy3	Integer	0 to 9999999	1kWh
Output Energy Total	Integer	0 to 9999999	1kWh
Total Output Load	Integer	0 to 999	Percent
Output Power Factor1	Integer	0 to 999	KW/KVA %
Output Power Factor2	Integer	0 to 999	KW/KVA %
Output Power Factor3	Integer	0 to 999	KW/KVA %

STB - UPS Battery State

Read Input State (STB)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces
7,8,9	Command	"STB" for read battery status
10, 11	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

STB Response Format		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'D' for data
4,5,6	Length (ASCII)	Length of the below pieces
7	Field 1	Number of Phases . See below chart of response fields
8	Field Separator	Always ';' semicolon
9,10,11 (varies)	Field 2	Input Frequency 1 . See below chart of response fields

STB Response Format		
Byte Index	Description	Note
…	Field Separator	Always ';' semicolon
…	….	Pattern of responses and field separators continues

UPS Battery Status Response Fields (STB Command)			
Name	Type	Range/Length	Comment
Battery Condition	Integer	0 to 2	0 = Good 1 = Weak 2 = Replace
Battery Status	Integer	0 to 2	0 = OK 1 = Low 2 = Depleted
Battery Charge	Integer	0 to 3	0 = (obsolete) 1 = Charging 2 = Resting 3 = Discharging
Seconds on Battery	Integer	0 to 99999	Seconds
Estimated Minutes Remaining	Integer	0 to 9999	Estimated time from backup to low battery shutdown.
Estimated Charge Remaining (Not used, reserved)	Integer	0 to 999	Estimated of percent battery charge remaining.
Battery Voltage	Integer	0 to 9999	0.1Volt
Battery Current	Integer	0 to 99999	0.1Amp
UPS Internal Temperature	Integer	0 to 999	Degree Celsius
Battery Level	Integer	0 to 100	%
External Batt-Pack Number	Integer	0 to 10	Number of External Battery Pack
Negative Battery Voltage	Integer	0 to 9999	-0.1Volt
Negative Battery Current	Integer	0 to 99999	0.1Amp
not used, reserved			
Negative Battery Level	Integer	0 to 999	%
Positive Charging Current	Integer	0 to 9999	0.1Amp
Negative Charging Current	Integer	0 to 9999	0.1Amp
Battery Charge Mode	Integer	0 to 2	0 = None 1 = Boost charge 2 = Float charge
Battery Low Limit	Integer	0 to 100	%, if this field is available then the BLA command is supported

STA - UPS Alarms State

Read Alarms State (STA)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces
7,8,9	Command	"STA" for read alarm states
10, 11	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

STA Response Format		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'D' for data
4,5,6	Length (ASCII)	Length of the below pieces
7	Field 1	Number of Phases See below chart of response fields
8	Field Separator	Always ';' semicolon
9,10,11 (varies)	Field 2	Input Frequency 1 See below chart of response fields
…	Field Separator	Always ';' semicolon
…	….	Pattern of responses and field separators continues

UPS Alarms State Response Fields (STA Command)			
Name	Type	Range/Length	Comment
Alarm Over Temperature	Integer	0 or 1	0 = OK 1 = Over Temperature
Alarm Input Out of Range	Integer	0 or 1	0 = OK 1 = Input Bad
Alarm Output Bad (Obsolete, reserved)	Integer	0 or 1	0 = OK 1 = Output Bad
Alarm Overload	Integer	0 or 1	0 = OK 1 = Overload

UPS Alarms State Response Fields (STA Command)			
Name	Type	Range/Length	Comment
Alarm Bypass Out of Range	Integer	0 or 1	0 = OK 1 = Bypass Bad
Alarm Output Off	Integer	0 or 1	0 = Output On 1 = Output Off
Alarm UPS Shutdown	Integer	0 or 1	0 = OK 1 = Shutdown
Alarm Charger Fail	Integer	0 or 1	0 = OK 1 = Charger Failed
Alarm Standby	Integer	0 or 1	0 = Others 1 = Standby
Alarm Fan Fail	Integer	0 or 1	0 = OK 1 = Fan Fault
Alarm Fuse Fail	Integer	0 or 1	0 = OK 1 = Fuse Fault
Alarm Other Warning	Integer	0 or 1	0 = OK 1 = General Fault
Alarm Awaiting Power	Integer	0 or 1	0 = OK 1 = Awaiting Power
Alarm Shutdown Pending	Integer	0 or 1	0 = OK 1 = Shutdown Pending
Alarm Shutdown Imminent	Integer	0 or 1	0 = OK 1 = Shutdown Imminent
Buzzer Status	Integer	0 or 1	0 = UPS Buzzer Silence 1 = UPS Buzzer is Alarming
Economic Mode	Integer	0 or 1	0 = No 1 = Yes
Alarm Inverter Fail	Integer	0 or 1	0 = No 1 = Yes
Emergency Power Off	Integer	0 or 1	0 = Off 1 = On
Buzzer State	Integer	0 or 1	0 = UPS Buzzer Disable 1 = UPS Buzzer Enable
Battery Ground Fault	Integer	0 or 1	0: Normal 1: ground fault
Alarm Output Voltage Over Limit	Integer	0 or 1	0: Normal 1: Alarm
Alarm Output Voltage Under Limit	Integer	0 or 1	0: Normal 1: Alarm

UPS Alarms State Response Fields (STA Command)			
Name	Type	Range/Length	Comment
Alarm Power Module	Integer	0 or 1	0: Normal 1: Alarm
Alarm Output Breaker Open	Integer	0 or 1	0: Close 1: Open
Alarm Phase Asynchronous	Integer	0 or 1	0: Phase Synchronous 1: Phase Asynchronous
Alarm Rectifier Abnormal	Integer	0 or 1	0: Normal 1: Alarm
Bypass Breaker Open	Integer	0 or 1	0: Close 1: Open
Main Input Breaker Open	Integer	0 or 1	0: Close 1: Open
Alarm Redundancy Loss	Integer	0 or 1	0: Normal 1: Alarm
Manual Bypass Breaker Open	Integer	0 or 1	0: Close 1: Open
Green Mode	Integer	0 or 1	0: Disable 1: Enable
Alarm Battery Fault	Integer	0 or 1	0: Normal 1: Alarm
Load Transfer Breaker Open (TSMC)	Integer	0 or 1	0: Close 1: Open
Alarm Notification	Integer	0 or 1	0: Normal 1: Alarm

VER – Read UPS Firmware Version

Read UPS Version (VER)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces
7,8,9	Command	"VER" for read UPS version
10, 11	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

LET – Read Number of Outlets

Read Number of Outlets (LET)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces
7,8,9	Command	"LET" for read outlet count
10, 11	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

SOL – Read Status of Single Outlet

Read Single Outlet State (SOL)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces, always "004"
7,8,9	Command	"SOL" for read single outlet state
10	Outlet number	Outlet number, starting with 1 for first outlet
11, 12	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Response for Single Outlet Read (SOL)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'D' for data
4,5,6	Length (ASCII)	Length of the below pieces
7	Response	0: Normal, closed, on 1: Shutdown, open, off
8, 9	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

OL8 – Read Status of All Outlets at Once

Byte Index	Description	Note

Read All Outlet States (OL8)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces, always "003"
7,8,9	Command	"OL8" for read all outlets
10, 11	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Response for Read All Outlets (OL8)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'D' for data
4,5,6	Length (ASCII)	Length of the below pieces
7	Outlet 1 Status	0: Normal, closed, on 1: Shutdown, open, off
8	Field separator	Always a semicolon ';'
9	Outlet 2 Status	0: Normal, closed, on 1: Shutdown, open, off
10	Field separator	Always a semicolon ';'
11	Outlet 3 Status	0: Normal, closed, on 1: Shutdown, open, off
12	Field separator	Always a semicolon ';'
13	Outlet 4 Status	0: Normal, closed, on 1: Shutdown, open, off
14	Field separator	Always a semicolon ';'
15	Outlet 5 Status	0: Normal, closed, on 1: Shutdown, open, off
16	Field separator	Always a semicolon ';'
17	Outlet 6 Status	0: Normal, closed, on 1: Shutdown, open, off
18	Field separator	Always a semicolon ';'
19	Outlet 7 Status	0: Normal, closed, on 1: Shutdown, open, off

Response for Read All Outlets (OL8)		
Byte Index	Description	Note
20	Field separator	Always a semicolon ';'
21	Outlet 8 Status	0: Normal, closed, on 1: Shutdown, open, off
22	Field separator	Always a semicolon ';'
23,24	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

OLN – Read Outlet Name

Read Outlet Name (OLN)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces
7,8,9	Command	OLN – Read/Set outlet name
10	Outlet Index	Index of outlet to name. 1 to 8
11,12	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Example: ~00P004OLN1

Description: Poll outlet 1 name

Outlet Name Response (OLN)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'D' for data
4,5,6	Length (ASCII)	Length of the below pieces
7 to N	Outlet Name	Outlet Name in ASCII

Example: ~00A1F

BRD – Read Battery Replacement Dates

Read Battery Replacement Dates (BRD)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'

Read Battery Replacement Dates (BRD)		
Byte Index	Description	Note
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces, always "012"
7,8,9	Command	"BRD" for read serial number
10, 11	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Response for Battery Date Read (BRD)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'D' for data
4,5,6	Length (ASCII)	Length of the below pieces (always "017")
7-14	Last Replacement Date	8 characters, YYYYMMDD
15	Field separator	Always a semicolon ';'
16-23	Next replacement date	8 characters, YYYYMMDD
24, 25	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

EBP – Read Number of External Batteries Connected

Read Number of External Batteries (EBP)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces, always "003"
7,8,9	Command	"EBP" for read external batteries
10, 11	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Response for Read External Batteries (EBP)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'

Response for Read External Batteries (EBP)		
Byte Index	Description	Note
3	Command Type	Always 'D' for data
4,5,6	Length (ASCII)	Length of the below pieces
7 to N	Number of Ext Batteries	ASCII number representing the number of batteries. 0 to 100.
N+1, N+2	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

SER – Read Serial Number of UPS

Read Serial Number of UPS (SER)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces, always "003"
7,8,9	Command	"SER" for read serial number
10, 11	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Response for Serial Number READ (SER)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'D' for data
4,5,6	Length (ASCII)	Length of the below pieces
7 to N	Serial Number	Serial Number in ASCII, up to 20 characters
N+1, N+2	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

TSR – Read Last Self-Test Results

Read Self-Test Results (TSR)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'

Read Self-Test Results (TSR)		
Byte Index	Description	Note
2	Address byte 2	Always '0'
3	Command Type	Always 'P' for poll
4,5,6	Length (ASCII)	Length of the below pieces, always "003"
7,8,9	Command	"TSR" for read test results
10, 11	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Response for Read Test Results (TSR)		
Byte Index	Description	Note
0	Start Character	Always '~' tilde
1	Address byte 1	Always '0'
2	Address byte 2	Always '0'
3	Command Type	Always 'D' for data
4,5,6	Length (ASCII)	Length of the below pieces, always "001"
7	Test Results	0 = No test performed 1 = Test passed 2 = Test in progress 3 = General test failed (Obsolete) 4 = Battery test failed 5 = Deep battery test failed (Obsolete) 6 = Test Aborted
8,9	Checksum (optional for SSH)	Sum of all above hex values, in ASCII

Warranty

For warranty information, refer to www.legrandav.com/policies/warranty_information.

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