

Communication Protocol 0004

I. Controls:

Command	Response	Function	Data Format
:A#<	A<	Activate Self-Test	
:C#<	C<	Cancel Inverter Shutdown	
:G#<	G<	Shutdown Inverter after Pre-Delay	
:Hhh#<	H<	Shutdown after Pre-Delay & Wakeup After Delay	hhh = 2 ²⁴ seconds (binary)
:Kk#<	K<	Control Relays after Pre-Delay	k = 0/1 (Master off/on); k = 2/3 (K1 off/on); k = 4/5 (K2 off/on); k = 6/7 (K3 off/on)
:Nnn#<	N<	Set Pre-Delay Timer	nn = 2 ¹⁶ seconds (binary)
:Q#<	Q<	Perform 10 sec Reboot	
:Ii#<	I<	Write Unit ID Number	ii = 2 ¹⁶ (binary)
:Z#<	Z<	Zero Vmin & Vmax register values	

II. Queries:

Command	Response	Function	Data Format
:D#<	Daadd<	Voltage Data (AC, DC)	aa = 2 ⁹ as if 120V input; dd = 2 ⁸ of 10 * voltage as if 12V battery (all ASCII encoded hex)
:F#<	Fffffr<	Line uC Firmware (P/N, Rev)	
:L#<	Lllbbzz<	Levels (% Load, % Batt Cap, Batt Curr)	ll = 2 ⁸ ; bb = 2 ⁸ ; zz = 2 ⁸ (all ASCII encoded hex)
:M#<	Miimm<	Min, Max Vin (read only)	ii = 2 ⁸ ; mm = 2 ⁸ (all ASCII encoded hex)
:P#<	Ppppp<	Power Rating	pppp = VA rating / 10
:R#<	Rmr<	Relay Status	m = 0/1 (master off/on); r = 8 bit (0/1 = off/on) receptacle status map (all binary)
:S#<	Slcpiyw<	Status (low batt, self-test, tap, inverter, freq, load)	l = 0/1 (battery low/OK); c = 0-5 (OK, Batt Fail, In Progress, Overcurrent, Unknown, Batt Fail & Overcurrent); p = 0-3 (Norm, Cut, Boost1, Boost2); i = 0-3 (Inverter/Recptacles: off/off, on/off, off/on, on/on); y = 0/1 (50Hz/60Hz mode); w = 0-2 (Normal, Load Warning, Overload)
:T#<	Tttfff<	Temperature, Frequency	tt = 2 ⁸ of ADC count; ffff = 2 ¹⁶ of 10*frequency (all ASCII encoded hex)
:U#<	Uuu<	Unit ID Number	uu = 2 ¹⁶ (binary)
:V#<	Vaddb<	Model Version (Vac, Vdc, # banks)	a = 0-3 (100V, 120V, 230V, 208V); dd = battery voltage / 6; b = 0-3 (switchable load banks)
:0#<	0ppxxx<	Communication Protocol ID	pp = 0-2 ¹⁶ hex communication protocol ID. This protocol has been assigned ID number 4. xxx = ASCII XXXX. Note that the zero in :0 is hex 0 not ASCII 0.
:1#<	1xxyyzz<	USB ID (Mfg, Product, BCD Dev Rel)	xx = 09AE (binary); yy = 2 ¹⁶ (binary); zz = 10 ² (BCD)
:2#<	2aaaaa<	USB ID (Product Name - 1)	Product name characters 1 thru 6 (6 blanks)
:3#<	3aaaaa<	USB ID (Product Name - 2)	Product name characters 7 thru 12 (SMART)
:4#<	4aaaaa<	USB ID (Product Name - 3)	Product name characters 13 thru 18 (3000RM, 2200RM, 1400RM or UPS)

:5#<	5aaaaaa<	USB ID (Product Name - 4)	Product name characters 19 thru 24 (2U , XL2U , XL2U or 6 blanks)
:6#<	6aaaaaa<	USB ID (Product Name - 5)	Product name characters 25 thru 30 (6 blanks)

III. Notes:

1. # = two's complement checksum of all characters except : and < (added - checksum not used in Gen 2.1).
2. < = carriage return.
3. All characters (except checksums, the hhh parameter of the :H control, the nn parameter of the :N control; the :R response and the :1 response) are ASCII encoded.
If indicated, the decoded ASCII character will be interpreted as a hex value.
4. The response for control commands was changed from <line feed> to <command character><carriage return>.
5. The response for query commands was changed from <line feed><response characters><line feed><carriage return> to <command character><response characters><carriage return>.
6. If a command is in process, then the action taken with a new command was changed from interruption of the in process command to rejection of the new command until the in process command is finished.
7. The :1 response represents: xx = USB Vendor ID for Tripp Lite, which is 09AE; yy = USB Product ID number, which is 0001; zz = USB BCD Device Release Number, which is 0001.
8. The % Load response to the :L command will be 100% at line rated output current in both Line and Invert modes. No correction factor is needed in PowerAlert for Invert mode.
9. :0 has been added. Note that the zero in :0 is hex 0 not ASCII 0