Pegasus Astro
Ultimate Powerbox v2 Serial Command Language
Firmware >=v.2.4 (Feb 2021)

Abbreviations used:

nnnn.. = one or more digits
b = Boolean (0 or 1 digit)
New /updated commands are marked with a yellow line

Connection Settings: 9600, 8N1
(All commands should be terminated by new line /n)

Command	Description	Response
P#	Status	UPB2_OK
PE:*bbbb*	Set Power Outputs on boot. Every number represents 1-4 power outputs. (0=OFF, 1=ON).	*PE:1*
PE:99	Reports Power Outputs on boot	*E.g: PE:bbbb*
P1:*b*	ON/OFF Power 1, (0=OFF, 1=ON)	P1:b
P2:*b*	ON/OFF Power 2, (0=OFF, 1=ON)	P2:b
P3:*b*	ON/OFF Power 3, (0=OFF, 1=ON)	P3:b
P4:*b*	ON/OFF Power 4, (0=OFF, 1=ON)	P4:b
P5:*nnn*	PWM Duty Cycle Power 5 (DewA) X=0-255 (0-100%)	P5:nnn
P6:*nnn*	PWM Duty Cycle Power 6 (DewB) X=0-255 (0-100%)	P6:nnn
P7:*nnn*	PWM Duty Cycle Power 6 (DewC) X=0-255 (0-100%)	P7:nnn
P8:nn	Variable Output Voltage (Set a value from 3V to 12V e.g P8:5) Setting is stored in EEPROM	P8:nn
PS	Print Power Status on boot : Print Variable Voltage Setting. E.g PS:1111:8	E.g PS:1111:8
U1	ON/OFF USB3 Port1 , (0=OFF, 1=ON)	U1:b
U2	ON/OFF USB3 Port2 , (0=OFF, 1=ON)	U2:b
U3	ON/OFF USB3 Port3 , (0=OFF, 1=ON)	U3:b
U4	ON/OFF USB3 Port4 , (0=OFF, 1=ON)	U4:b
U5	ON/OFF USB2 Port5 , (0=OFF, 1=ON)	U5:b
U6	ON/OFF USB2 Port6 , (0=OFF, 1=ON)	U6:b
US:bbbbbb	Set USB Ports on boot. Every number represents 1-6 USB ports. (0=OFF, 1=ON).	US:1
US:99	Reports USB Port status on boot	E.g: US:bbbbbb
PF	Reboot Device / Reload Firmware	-
PA	Print Power and Sensor Readings	[Check table below]
PC	Print Power Consumption Readings	avgAmps:ampHours:wattHours:uptime * uptime is in milliseconds
PD:*b*	Enable Auto Dew Feature (stored in EEPROM) 0 // Disable AutoDew 1 //Enable All Dew Outputs (CH[1-3])	PD:n

	2 // Enable Channel 1 3 // Enable Channel 2 4 // Enable Channel 3 5 // Enable CH1 & CH2 6 // Enable CH1 & CH3 7 // Enable CH2 & CH3 ==Above value 8 it sets and stores to EEPROM the Auto-Dew Aggressiveness levels.== ==Accepts value 8-254 (default value is 210)==	
PV	Firmware Version	n.n
PZ	ON/OFF All 4 Outputs + Dew Heaters	PZ:b
PI	I2C Protocol Reset	PI:1
PR	I2C Connected Device List	PR:XXX: … "DHT" = Stock Env Sensor presence "HDC" = High Accuracy (HDC1080) Env Sensor "XS" = eXternal Motor Controller "MHC" = Motor Hand Controller "DM" = DewMaster Example: PR:DHT:XS
PL:*b*	ON/OFF Led Indicator (0=OFF, 1=ON) ==DO NOT USE THIS AS STEPPER MOTOR IC RELIES ON THIS SIGNAL PIN (KEEP LED ALWAYS ON) – LED OFF SETS MOTOR TO SLEEP IN NEW PCB REVISIONS (>=RevC)==	PL:b
SA	Stepper Motor Information	[Check table below]
SP	Stepper Current Motor Position	nnnn..
SH	Stepper Motor Halt	SH
ST	Stepper Temperature	nn.nn
SI	Stepper Motor Moving Status (0 = idle, 1 = moving)	0 or 1
==SJ:b==	==disable stepper motor acceleration without acceleration feature the motor will instantly start and stop. Acceleration helps to accelerate and decelerate and not overshoots target position.== ==1 = disable acceleration== ==0 = normal with acceleration== ==(setting is stored in eeprom)== ==SJ:99 reports if acceleration is disabled (SJ:1 || SJ:0)==	==SJ:b==
SM:nnnn..	Stepper Move to New Position	SM:nnnn..
SR:b	Stepper Reverse Motor Direction (0 = normal, 1 = reverse)	SR:b
SC:nnnn..	Stepper Set Current Position	-
SS:nnnn..	Stepper Set Max Speed in EEPROM	-
SG:nnnn..	Stepper Move Motor to + or - steps	SG:nnnn..
SS	Stepper Report Max Speed	nnnn..
SS:nnn..	Stepper Set Max Speed	nnn..

SB:nnn..	Stepper Backlash Steps (0 = disable, any other positive number sets backlash steps)	SB:nnn..
DA	Reports the Auto-Dew Aggressiveness level	DA:nn..

Transmit: PA
Receive: UPB:12.2:0.0:0:23.2:59:14.7:1111:111111:0:0:0:0:0:0:0:0:0:0:0:0000000:0

Meaning:

UPB2:voltage:current:power:temp:humidity:dewpoint:portstatus:usb_status:dew1:dew2:dew3:current_port1:current_port2:current_port3:current_port4:current_dew1:current_dew2:current_dew3:overcurrent_bool:autodew_interger

UPB	Device Name
Voltage	Voltage in volts (decimal) e.g 12.2
Current	Current in Amps (decimal) e.g 0.4
Power	Power in Watts (integer) e.g 10
Temp	Temp in Celsius Degrees (decimal) e.g 23.2
Humidity	Relative Humidity in % (decimal) e.g 59
Dewpoint	Dewpoint in Celsius Degrees (decimal) e.g 14.7
portstatus	Every Boolean represents one of 4x12V output ports e.g 1111 (1 means port is ON, 0 means port is OFF)
usb_status	Every Boolean represents one of 6 x USB ports e.g 1111 (1 means port is ON, 0 means port is OFF)
Dew1	Power dew1 duty cycle 0-255
Dew2	Power dew2 duty cycle 0-255
Dew3	Power dew3 duty cycle 0-255
Current_port1	Output 1 Sens current (need to convert to Amps by dividing by 480
Current_port2	Output 2 Sens current (need to convert to Amps by dividing by 480
Current_port3	Output 3 Sens current (need to convert to Amps by dividing by 480
Current_port4	Output 4 Sens current (need to convert to Amps by dividing by 480
Current_dew1	Dew1 Sens current (need to convert to Amps by dividing by 480
Current_dew2	Dew2 Sens current (need to convert to Amps by dividing by 480
Current_dew3	Dew2 Sens current (need to convert to Amps by **dividing by 700** (yes, 700 as it is a different mosfet)
Overcurrent_bool	Every Boolean represents one of 4x12V output ports + 3 x dew ports e.g 0000000 (0 is working normal, 1 is flag for short-circuit or overcurrent). When overcurrent detected UPB will shut down affected port
Autodew_integer	Integer for autodew function 0 // Disable AutoDew 1 //Enable All Dew Outputs (CH[1-3]) 2 // Enable Channel 1 3 // Enable Channel 2

	4 // Enable Channel 3
	5 // Enable CH1 & CH2
	6 // Enable CH1 & CH3
	7 // Enable CH2 & CH3

Transmit: SA
Receive: 17899:0:1:0

Meaning: position: running: invert: backlash_steps

Stepper position	Long value
Motor is running	Boolean: 0 = motor idle , 1 =motor running
Motor Invert	Boolean: 0 = clockwise positive steps, 1 = anticlockwise positive steps
Backlash Steps	0= disabled, positive values only = backlash is enabled and steps are defined

eXternal Motor Controller (XMC) Command Set (through powerbox)

Below command language should be given from the USB serial (9600/8N1) of the Powerbox.
The I2C command language is not described here.

XS:[command number]#value

Command	Description	Response
XS	Status	200 response = discovered 000 response = non present E.g XS:200:0
XS:1	Motor is running (1) or is idle (0)	XS:1#b
XS:2	Motor current position (long value)	XS:2#nn...
XS:3#nn..	Move to position (long value)	XS:3#nn
XS:4#nn..	Goto +steps from current position (long value)	XS:4#nn..
XS:5#nn..	Set a new motor position (long value)	XS:5#nn
XS:6	Halt motor	XS:6#1
XS:7#nn..	Set / Get motor max speed	XS:7#nn..
XS:8#b	Set motor reverse (0 = normal, 1= reverse)	XS:8#b
XS:9#n	Set Microstepping drive 1 = FULL 2 = HALF 3 = 1/4 4 = 1/8	XS:9#n
XS:10#nn..	Set Motor Backlash (enables backlash compensation). Set 0 disabled the backlash compensation	XS:10#nn