Full Power Grid Command List

Below are the commands for each model in the Power Grid kit

*Note: the commands "*ID?" and getCommands work for all models.*

- ***ID?** returns the name of the device.*
- ***getCommands** returns a list of all the commands the model recognizes*

Overview of House Load model Commands

Command	Description	Number of parameters sent or returned
autoOn	Initiates random house lighting. Any number or pattern of houses may be lit.	
autoOff	Turns off the auto load lighting function	
setLimits	This determines if a load can be turned on or not. If a 0 is sent, it will be set as off on and unable to be turned on until a 1 is sent. Send four separate numbers (either 1 or 0) after the setLimits command is sent.	4 sent
getAll	This returns seven numbers from the House Load. These are: House Load kilowatt capacity, the current KW level being generated, the load allocated to the HLm, the difference between what's being generated and the load assigned to it, the type of energy (1=renewable, 0=non-renewable, and -1 meaning neither like a house load, and line voltage	7 returned
getLoads	Returns the current load settings	4 returned
getLoadVal	Returns the load value of the combined load of all lit houses	1 returned
getKW	Returns the kilowatt value the of all the lit houses.	1 returned
getCarbon	This returns the about of carbon dioxide the HLm is generating measured in tons. This value will be zero	1 returned
blinkHouses	This Blinks the houses one time	
lightsOut	This turns off lights in all houses	
lightAll	This turns on all lights in the four houses	
light0	This turns on the lights in the first house	
light1	This turns on the lights in the second house	
light2	This turns on the lights in the third house	
light3	This turns on the lights in the fourth house	
chaseOn	This turns on the chase pattern of lights	

chaseOff	This turns off the chase pattern	
off	This turns off the HLm. Typically done before disconnecting the HLm from the USB connector	
eoc	Indicates end of command list	

Overview of Power Plant model Commands

Command	**Description**	**Number of parameters sent or returned**
init	Determines full range and sets PPm to initial states	
runRange	Initiates a run up of the generator to determine the maximum voltage at the maximum load	
setVolts	Sets the target line voltage for the Power Plant. Default is 120 volts. Note – this is a representative number. The power plant model generates voltages below and around 5 volts DC.	1 sent
setLoad	Sets the KW load assigned to the Power Plant	1 sent
setMot	This sets the speed of the motor. Values range from 0 (off) to 255 (max speed)	1 sent
setKp>1	Sets the proportional coefficient for PID control	1 sent
setKi>1	Sets the integral coefficient for PID control	1 sent
setKd>1	Sets the differential coeeficient for PID control	1 sent
trackOn	Initiates a tracking routine to maintain the specified line voltage	
trackOff	Exits the tracking function	
autoOn	Initiates a sinusoidal target voltage setpoint	
autoOff	Exits the auto function	
motOn	Sets the steam turbine motor to max speed	
motOff	Turns the steam turbine motor off	
getVal<1	Returns the most recent line voltage value	1 returned
getKW<1	Returns the most recent KW power value generated	1 returned
getCarbon	This returns the about of carbon dioxide the plant is generating measured in tons. Note: this is a representative number, the Power Plant model generates no CO2	1 returned
getlAll	This returns seven numbers from the Power Plant. These are: Power Plant kilowatt capacity, the current KW level being generated, the load allocated to the PPm, the difference between what's being generated and the load assigned to it, the type of energy (1=renewable, 0=non-renewable, and -1 meaning neither like a house load, and line voltage	7 returned

getLoad<1	Returns the most recent calculated and set load value	1 returned
off	Shuts down power plant, stops motors, returns 0 values	
eoc	Indicates end of command list	

Overview of Fan model Commands

Command	Description	Number of parameters sent or returned
init	Sets the fan to its initial condition	
autoOn	Initiates a random breeze function. The Fm will vary its wind output simulating changes in wind speed	
autoOff	Turns off the auto-breeze function	
fanOn	Turns Fm on to maximum wind value	
fanOff	Turns the Fm off	
setSpeed	Sets the fan speed of the Fm	1 sent
getKW	Returns the kilowatts value the Fm is using. This value will be zero.	1 returned
getCarbon	This returns the about of carbon dioxide the Fm is generating measured in tons. This value will be zero	1 returned
getlAll	This returns seven numbers from the Fan. These are: Fan kilowatt capacity, the current KW level being generated, the load allocated to the Fm, the difference between what's generated and the load assigned to it, the type of energy (1=renewable, 0=non-renewable, and -1 meaning neither like a house load, and line voltage	7 returned
off	This sets the fan to it's off state. This command is usually issued before disconnecting the fan from USB	
eoc	Indicates end of command list	

Overview of Wind Turbine model Commands

Command	Description	Number of parameters sent or returned
init	This moves the wind turbine to home and then to the front facing position	
setLoad	Sets the KW load assigned to the wind turbine	1 sent

runScan	Initiates a 320 degree scan and determines the maximum light level and positions the panel at that angle	
trackOn	Initiates a tracking routine to seek and follow the brightest light source	
trackOff	Exits the tracking function	
getIAll	This returns seven numbers from the wind turbine. These are: wind turbine kilowatt capacity, the current KW level being generated, the load allocated to the wind turbine, the difference between what's generated and the load assigned to it, the type of energy (1=renewable, 0=non-renewable, and -1 meaning neither like a house load, and line voltage	7 returned
goHome	Returns the panel to the home position	
goMax	Rotates the panel to the last know maximum light position	
goL	Rotates the panel to the left position	
goF	Rotates the panel to the front position	
goR	Rotates the panel to the right position	
moveCW	This will rotate the panel clockwise a given number of steps. The "1" signifies that it requires one number after the moveCW command is issued. To run this command, type moveCW then a CR/LF and then a single number afterwards with another CR/LF	1 sent
moveCCW	This will rotate the panel counter-clockwise a given number of steps. The "1" signifies that it requires one number after the moveCCW command is issued. To run this command, type moveCCW then a CR/LF and then a single number afterwards with another CR/LF	1 sent
lookCW	This will rotate the panel clockwise and if the light level is greater, the panel will remain there, else the panel will return to its original position	
lookCCW	This will rotate the panel ccounter-lockwise and if the light level is greater, the panel will remain there, else the panel will return to its original position	
getVal	This returns the current voltage value being generated by the wind turbine	1 returned
getKW	This returns the current kilowatt value being returned by the wind turbine.	1 returned
getCarbon	This returns 0, the level of carbon emissions from the wind turbine	1 returned
setRange	Sets the distance the turbine stand rotates when looking for max wind speed	1 sent
getMax	This returns the position of the maximum light level.	1 returned
setDwel	Sets time turbine waits or dwells for the determining wind speed when looking for max	1 sent

getPos	Returns the current position of the wind turbine	1 returned
setSteps	Sets the number of steps the lookCW and look CCW use to determine how far ahead to look	1 sent
on	Enables the wind turbine to send its current power values	
off	Sets current power value to 0	
eoc	Indicates end of command list	

Overview of Solar Panel model Commands

Command	**Description**	**Sent or Returned**
init	This moves the panel to hits home position and start state	
runScan	Initiates a 320 degree scan and determines the maximum light level and positions the panel at that angle	
trackOn	Initiates a tracking routine to seek and follow the brightest light source	
trackOff	Exits the tracking function	
goHome	Returns the panel to the home position	
goMax	Rotates the panel to the last know maximum light position	
go1Q	Rotates the panel to the 9 o'clock position	
go2Q	Rotates the panel to the 12 o'clock position	
go3Q	Rotates the panel to the 3 o'clock position	
go4Q	Rotates the panel to the 6 o'clock position	
moveCW	This will rotate the panel clockwise a given number of steps. The "1" signifies that it requires one number after the moveCW command is issued. To run this command, type moveCW then a CR/LF and then a single number afterwards with another CR/LF	1 sent
moveCCW	This will rotate the panel counter-clockwise a given number of steps. The "1" signifies that it requires one number after the moveCCW command is issued. To run this command, type moveCCW then a CR/LF and then a single number afterwards with another CR/LF	1 sent
lookCW	This will rotate the panel clockwise and if the light level is greater, the panel will remain there, else the panel will return to its original position	
lookCCW	This will rotate the panel ccounter-lockwise and if the light level is greater, the panel will remain there, else the panel will return to its original position	
getVal	This returns the current voltage value being generated by the solar panel	

getKW	This returns the current kilowatt value being returned by the solar panel.	
getCarbon	This returns 0, the level of carbon emissions from the solar panel	
getMax	This returns the position of the maximum light level.	1 returned
getIAll	This returns seven numbers from the Solar Panel. These are: Solar Panel kilowatt capacity, the current KW level being generated, the load allocated to the solar panel, the difference between what's generated and the load assigned to it, the type of energy (1=renewable, 0=non-renewable, and -1 meaning neither like a houseload, and line voltage	7 returned
getPos	Returns the current position of the panel	1 returned
setSteps	Sets the number of steps the runScan, lookCW and look CCW functions use to determine how far ahead to look	1 sent
setLoad	Sets the KW load assigned to the solar panel	1 sent
on	Enables the solar panel to send its current power values	
off	Sets current power value to 0	
eoc	Indicates end of command list	