Integration Guide

The following charge settings are recommended when pairing a Pytes V5° battery with a Magnum system. Please consult the Magnum Programming Guide for detailed instructions on how to adjust the settings.

Magnum MS4448PAE Inverter Battery Turn On/Off Levels Setting

Parameters	Setting
Low Battery Cutout	49.5 Vdc
LBCO Delay	120 seconds
Low Battery Cut-in	52 Vdc
High Battery Cutout	57 Vdc
HBCO Delay	10 seconds
High Battery Cut-in	54 Vdc

Low Battery - The inverter will shut off whenever the battery voltage falls to the LBCO (Low Battery Cut Out) level to protect the batteries from being over-discharged. After the inverter has reached the LBCO level and turned off, the inverter will automatically restart after one of the following conditions:

- AC Power is applied and the inverter begins operating as a battery charger.
- Battery voltage rises to the LBCI (Low Battery Cut In) level.

High Battery - In the event the battery voltage approaches the HBCO (High Battery Cut Out) level, the inverter will automatically shut down to prevent the inverter from supplying unregulated AC output voltage. The inverter's status LED turns off when a high battery fault condition occurs. The inverter will automatically restart when the battery falls to the HBCI (High Battery Cut In) level.

*High battery voltage may be caused by excessive or unregulated voltage from the solar panels or other external charging sources.

Magnum MS4448PAE Inverter/Charge

Parameters	Setting
Shore Max	30A
01 Search Watts	5W
02 LowBattCutOut	49.5 Vdc
03 Batt AmpHrs	100 Ah per V5°
04 Battery Type	48 Vdc models
05 Charge Rate**	100%
06 VAC Dropout	80 Vac

- Shore Max - This setting ensures the inverter AC loads receive the maximum current available from the utility or generator power. When the total current used to power the AC loads and charge the batteries begins to approach the Shore Max setting, the current that was used for charging the batteries will automatically be reduced.
- 01 Search Watts - This setting allows you to turn off the power-saving Search Mode circuitry or adjust the power level at which the inverter will “wake up” and start inverting.
- 02 Low Battery Cut Out Voltage - This setting determines when the inverter will turn off based on low battery voltage. The inverter turns off automatically after the battery voltage has been below this setting for more than one minute. This protects the batteries from over-discharge and the AC loads from unregulated power (brown-outs).
- 03 Batt AmpHrs (see “Max Bulk and/or Discharge Current”) - This setting allows the user to input the battery bank size in amp hours which tells the charger how long to charge the batteries in the Absorb charge stage.
- 04 Battery Type - Sets the type of batteries being used in the system; this information tells the charger what voltage level to use to charge the batteries.
- 05 Charge Rate - This setting can be used to turn off the charger, limit the amount of current that the charger can use (leaving more current available to power loads); or to ensure small battery banks are not overheated because of a charge rate that is too high.
- 06 VAC Dropout - Sets the minimum AC voltage that must be present on the AC input before the unit transfers from Standby Mode to Inverter Mode. This protects the AC loads from utility outages and brown-outs. On MS-PAE models, when two inputs (leg 1 and leg 2) are used, the VAC Dropout voltage is determined by the sum of the two inputs ÷ 2. For example, if input 1 = 120VAC and input 2 = 110 VAC, the sum (230) ÷ 2 = 115. In this example, 115 VAC is what the inverter’s AC input is sensing to determine when to stay connected or disconnect and start in.

In a DC coupled system, solar controller(s) must be used to regulate the PV power and charge the batteries. Please select the Charge controller which are compatible with Pytes E-BOX batteries. We use MAGNUM PT-100 MPPT Charge Controller as example here.

Parameter	Setting
Battery Type	Custom
Eqlz Support	Disable
Bulk Voltage	56.8 Vdc
Absorb Voltage	56.8 Vdc
Float Voltage	56 Vdc
EQ Volts	N/A
EQ Done Time	N/A
Absorb Done Time	2 hr
Absorb Done Amps	5 A
Battery Capacity	100 Ah per V5°
Max Charge Rate	75 A per V5°
Max Charge Time	Total capacity(Ah)/Charge current +1hr
Bulk Starts Volts	51 Vdc
Daily/ Sunup	YES, to set the PT-100 to start a Bulk charge cycle each new day at sun-up
Bulk Start SOC	50% (ME-BMK is required for this setting)
Battery Temp Compensation	0mV/C
PT Alarm	PT controller can be programmed for a low battery voltage alarm