

2.11 Stacking Installation - Wiring Multiple PT Controllers Together

A single PT controller can provide up to 100 amps of charging current to the battery bank. When more charging current is required than can be provided by a single PT controller, up to seven PT controllers can be connected (or “stacked”) together to increase the charge current capability.

Advantages when Stacking

Rather than having separate and independent controllers charging the same battery bank, stacking multiple controllers has distinct advantages, such as:

- Coordinated battery charging profiles. The target voltage, charge time and charge mode are coordinated between each controller—preventing charging conflicts between multiple controllers on the same battery bank.
- Setup from one convenient place using a networked remote.
- Only one BTS sensor is required for the entire inverter/multi-controller system.
- System current information from all controllers is provided using the remote.

Stack Installation Requirements

When connecting PT controllers together in a stacked system configuration, certain installation requirements have to be met to allow proper communication and charging operation.

1. Each PT controller must be connected to the same battery bank (see Figure 2-25).
2. The PV input must be connected to its own independent PV array, ensuring that no wires are interconnected between any charge controller (see Figure 2-25).
3. Each controller must be connected to each other using a Stacking cable - connected in a daisy chain style as shown in Figure 2-26.
4. No more than seven PT controllers can be connected together in a stacked configuration.
5. When multiple controllers are mounted together, there must be at least 2” between each controller to allow for free air flow and to prevent over-temperature conditions. In hot climates, some additional clearance between units may be needed to prevent thermal derating.
6. One of the controllers in the stacked configuration must be networked to a Magnum inverter, and this inverter must be connected to a remote (refer to Figure 2-26 and Table 2-10).
7. DIP switch 10 must be enabled (UP) on each stacked controller (see Figure 2-26).
8. Each PT controller must have it’s own unique network address (from C01 to C07). Use DIP switches 7, 8, and 9 to set the network address on each controller [refer to Figure 2-26 and Section 3.1 (Switches 7, 8 & 9)]. *Note: When controllers are networked together, the controller configured with the lowest network address becomes the master controller and all other controllers become slave controllers, and therefore follow the master.*
9. If a BTS is connected to the inverter, no other BTS is required. When the inverter and controllers are networked, the inverter’s BTS information will be used to temperature compensate the inverter and the controller’s charging voltage. *Note: If the BTS is only connected to a controller, the BTS information on the controller’s will not be used by the inverter.*

Stacking with Ground Fault Protection

If the PT controller’s internal Ground Fault Detection and Interruption (GFDI) feature is being used—rather than an external GFDI device—in a multiple controller installation, the following requirements must be met to ensure the GFDI circuit works properly.

- All PT controllers stacked together must have DIP switch 2 in the DOWN position (GFDI enabled).
- Only one controller (preferably the master) must have the GFDI fuse installed, all other controllers must have the fuse removed. This is so that only a single negative-ground connection is made in the system. See Section 5.5 to remove the GFDI fuse.

Once the PT has been wired in a stacked configuration, refer to Section 4.13 for information on the stacking operation.

High Voltage Network Wiring

All wiring within the PT controller’s wiring compartment must have insulation rated for the highest voltage within this compartment. When wiring the network cable and stacking cables from one controller to another (as shown in Figure 2-26), ensure the supplied yellow communication cables with 300-volt rated insulation are used (see Section 2.10 for more information on these cables).

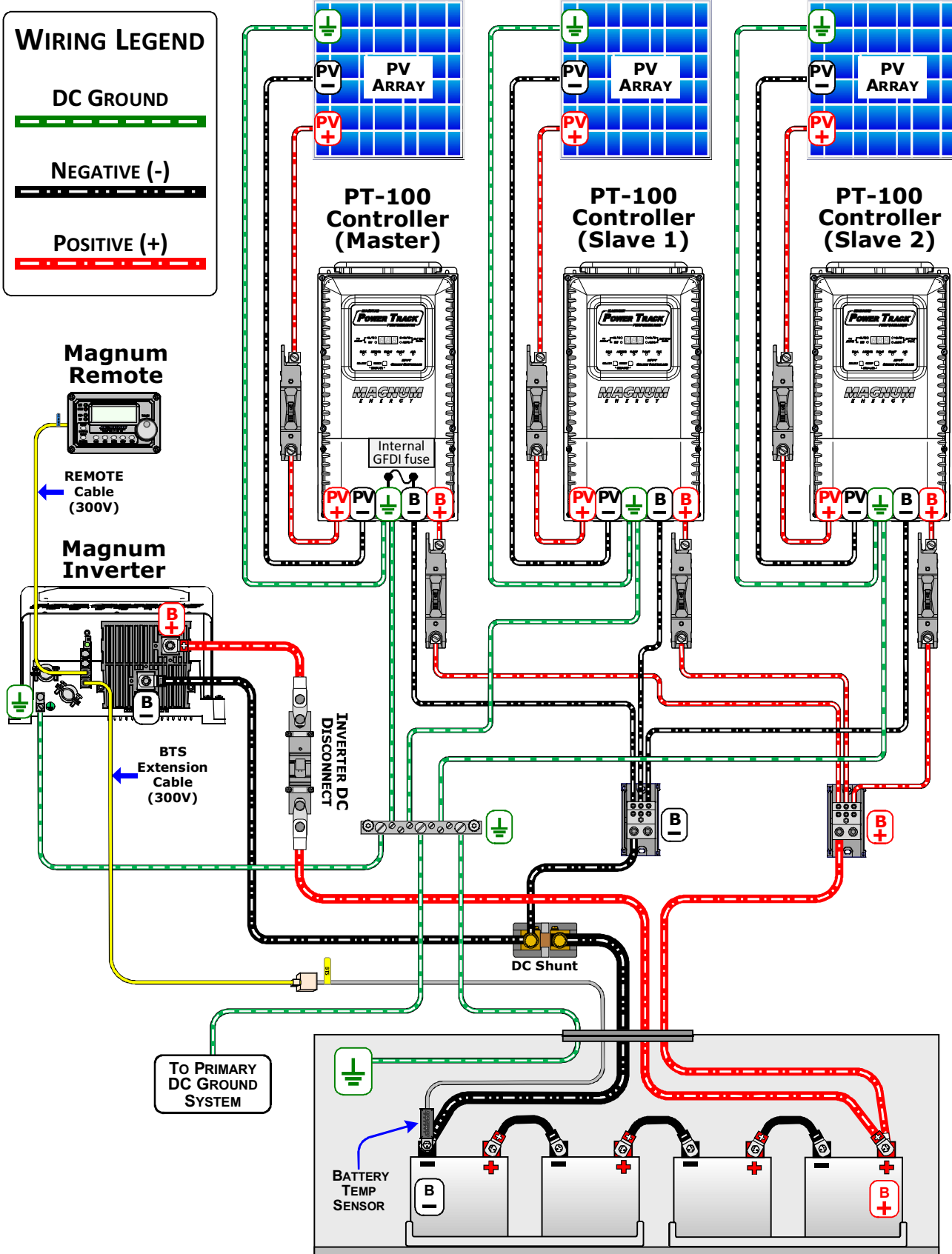


Figure 2-25, Wiring Multiple Controllers

PT-100 MPPT Charge Controller's

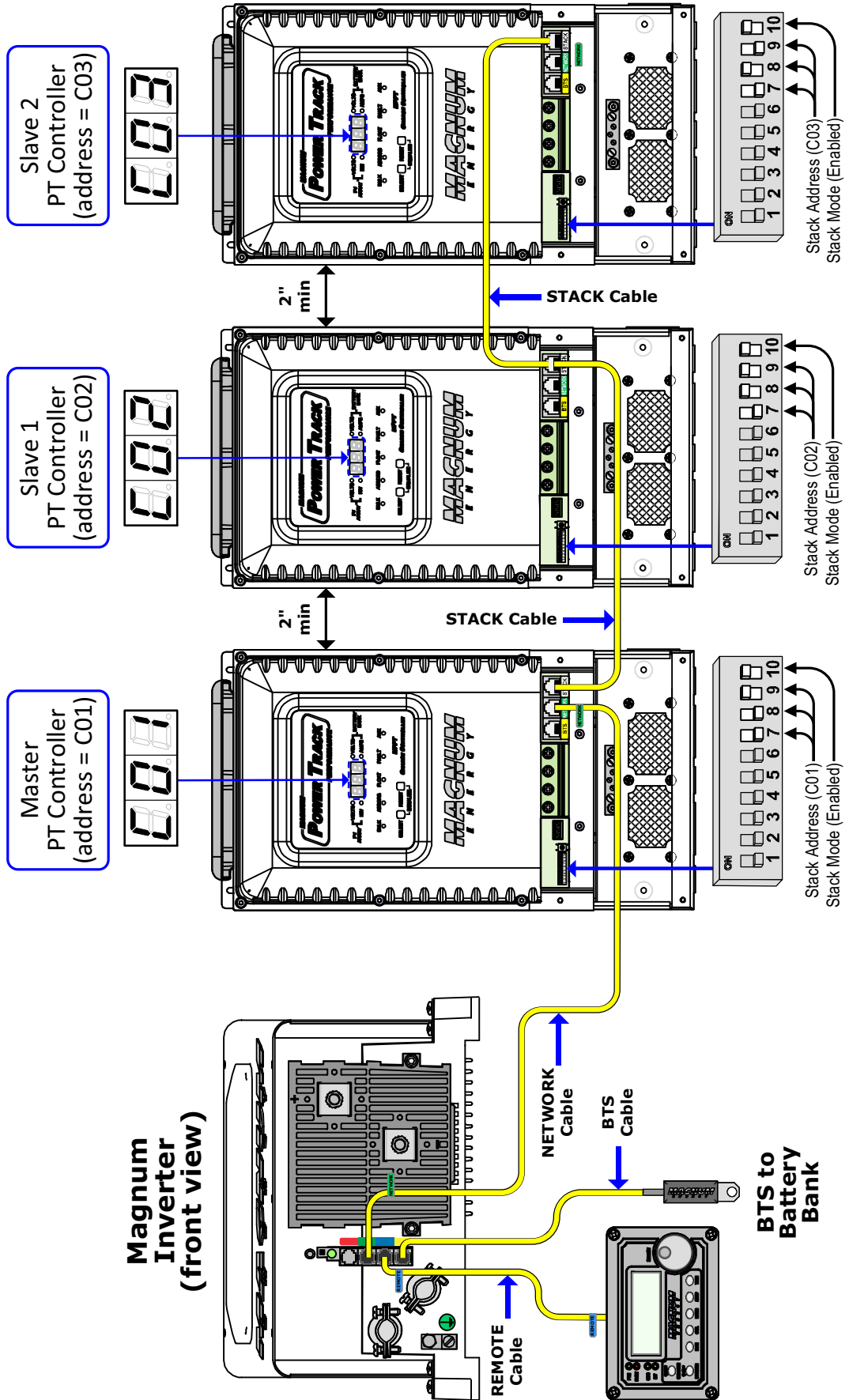


Figure 2-26, Stacking Multiple PT Controller's