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ACC-5EP3 MACRO Interface for Etherlite

The Power PMAC Etherlite network controller uses the ACC-5EP3 for the MACRO interface. This device can be configured with one or two PMAC3-style "DSPGATE3" MACRO ICs. Each IC supports up to 32 nodes of communication over the ring, in two banks, with a separate "master IC" number for each bank in the IC. The registers of each IC can be accessed with the **Gate3[*i*]** data structure, or its "alias" of the **Acc5EP3[*i*]** data structure. Note that an IC with a single data structure index ***i*** supports two separate "master IC" numbers on the ring, so in general, the index and the IC number will not match.

MACRO Interface for Power Brick

The optional MACRO interface for the Power Brick line of controllers and integrated controller/amplifiers uses the same PMAC3-style "DSPGATE3" ICs that are used for the servo and I/O interfaces within the Brick. It can be configured with one or two of these ICs. Each IC supports up to 32 nodes of communication over the ring, in two banks, with a separate "master IC" number for each bank in the IC. The registers of each IC can be accessed with the **Gate3[*i*]** data structure, or its "alias" of the **PowerBrick[*i*]** data structure. Note that an IC with a single data structure index ***i*** supports two separate "master IC" numbers on the ring, so in general, the index and the IC number will not match.

Configuring Master and Slave Devices

The MACRO ring is a "master/slave" network, a configuration that is more deterministic than "peer-to-peer" networks. This is important for high-performance real-time control. In general, a controller is a "master" on the ring, and a drive or and I/O device is a slave.

In addition, a MACRO ring can be configured as a "multi-master" network, with each master device commanding its own slave devices over a common ring. In this setup, one of the master devices must be configured as the "synchronizing master", which provides the overall control of the ring. Other masters on the same ring must be configured as "non-synchronizing" masters. In the physical connection of the ring, the synchronizing master must be "upstream" of the other masters. (In a single-master ring, the master device must be configured as a synchronizing master.)

Note that a single device on a MACRO ring may have multiple MACRO ICs, and each IC must be configured as to its function on the ring. Only a single IC on the ring may be configured as a synchronizing master. Other ICs on master devices, even if on the same device as the IC configured as a synchronizing master, must be set up as non-synchronizing masters.

The function of a MACRO IC on a ring is determined by a saved setup element for the IC. The exact functionality of this setup element differs based on the IC used.

PMAC2-Style MACRO IC

In a PMAC2-style "DSPGATE2" MACRO IC, the IC's function on the ring is determined by saved setup element **Gate2[*i*].MacroMode**. (Remember that you can also use the accessory name for the structure, so you could refer to it as **Acc5E[*i*].MacroMode**.) The important bits in this element are bit 4, bit 5, and bit 7.

Bit 4 (value $10) should be set to 1 if the IC is used as a master on the ring, synchronizing or not. It should be set to 0 if the IC is used as a slave on the ring.

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