

CHAPTER

4

AXIS CONFIGURATION

Overview The PCI 208 is designed to allow for a wide variety of possible axis configurations. The flexibility is achieved by the physical installation of option modules and the installation, via software, of “Feature Enable Codes”. In addition the programmer can adjust, with restrictions, the axis types (ATYPEs) after the initial configuration.

Axis Configuration on Power Up

The axis configuration of the PCI 208 is controlled by the installed feature enable codes (FEC's) and by the fitting of P184 / P185 option modules. The P184 provides 4 voltage outputs for the +/-10 volt controlled servo drives. The P185 provides 8 voltage outputs for +/-10 volt analog servo drives. FEC's are passwords which are unique for each PCI 208. If the FEC for servo operation has been installed the axis can be set (using ATYPE=1) for servo or stepper operation. Any mix of stepper/servo axes can be used.

Axis Configurations:

	Stepper:	Voltage Output Servo:	
Axis 0			Axis 0 & 1 operation doesn't require FEATURE ENABLE CODES (FEC's)
Axis 1			
Axis 2	FEC 2 REQUIRED	FEC 10 REQUIRED	Requires P184
Axis 3	FEC 3 REQUIRED	FEC 11 REQUIRED	
Axis 4	FEC 4 REQUIRED	FEC 12 REQUIRED	Requires P185
Axis 5	FEC 5 REQUIRED	FEC 13 REQUIRED	
Axis 6	FEC 6 REQUIRED	FEC 14 REQUIRED	
Axis 7	FEC 7 REQUIRED	FEC 15 REQUIRED	

Note that axes 0 and 1 can be set to any axis configuration without restriction.

There are 7 types of axis currently available supported:

Axis Description	ATYPE/ COMMS TYPE
Unused Axis	0
Stepper	1
Servo Encoder	2
Reference Encoder	3
Stepper Encoder **	4
Remote CANopen Position Control Servo	18
Remote CANopen Speed Control Servo	19
Remote SERCOS *	24

* future enhancement

** The PCI 208 hardware interface can be set for encoder input or stepper output. When ATYPE=4 the “encoder” interface can therefore only count the stepper pulses. This can be useful for registration.

Note: For volume / OEM applications, Trio can produce custom interfaces for specific customer applications where required.

Changing Axis ATYPES After Power Up

Each axis of the PCI 208 is set to an ATYPE of 0 (unused), 1 (stepper) or 2 (servo encoder) when the unit powers up, or when the unit is reset.

The initial ATYPE that the axis is set to on power up is configured by the installed feature enable codes. For example on axis 2; if FEC 2 is set axis 2 will be set to ATYPE=1, if FEC 10 is set axis 2 will be set to ATYPE=2, if BOTH FEC codes are set axis 2 will be set to ATYPE=2.

The software will allow the ATYPE to be changed by the programmer with some restrictions:

If the axis FEC set it as a stepper axis, it can be set via software to ATYPE =0, 4, or 1.

If the axis FEC set it as a servo encoder axis, it can be set via software to `ATYPE=0,1,2,3` or `4`.

The `ATYPE` can be changed in BASIC by assignment of the axis parameter:

`ATYPE=1`

or

`ATYPE AXIS(4)=0`

P184/P185 DAC Modules

The P184 and P185 DAC Modules are designed to provide 4 or 8 voltage outputs for analog servo drives. The analog outputs are not built on to the main P180 board since they are not required by stepper systems, CAN open servos, SERCOS servo drives, and other digital interfaces.

The P184 and P185 are detected by the software automatically. The user can check the parameter `COMMSTYPE SLOT(0)` to see the module fitted:

Module Fitted	COMMS TYPE
Unused	0
P184 (4 DAC Modules)	26
P185 (8 DAC Modules)	27

P184/P185 Module Insertion

The P184 or P185 is inserted into the PCI 208 as shown. A standoff pillar secures the board to the PCI 208. Check that the pillar is attached with 2mm screws to both the P184/P185 and the PCI 208.

