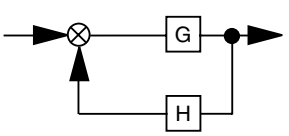
General Description

The PMC series digital closed loop motion controllers are available in one and two axes configurations, and can be ordered with either encoder or magnetostrictive feedback sensor interfaces. The PMC series controllers are stand-alone motion controllers requiring no additional components to implement up to two closed loop motion control axes per controller. Dual axes controllers can be programmed to operate either axis independently, coordinate both axes, or gear one axis to another.

A user friendly interface including a keypad and display are used to enter program steps, setup control parameters, monitor performance, and provide access to all available control functions.

The PMC motion controllers' output drivers can be configured to directly drive servo valves with current, or proportional valve interface electronics with voltage.



#1 WAIT TIL INPUT 1
#2 ACCEL 10.0 IN/SS
#3 VELOCITY 5.0 IN/S
#4 POSITION 22.0 IN
#5 WAIT IN POS
#6 END

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Features

- Stand alone digital motion controller.
- One or two control axis versions available.
- Optional interfaces for encoder or magnetostrictive feedback transducers.
- User friendly programming interface.
- Natural language programming commands such as 'WAIT', 'REPEAT', 'RAMP'.
- Up to 8 programs per axis can be stored internally.
- Independent, interlocked or geared axes options.
- Programmable digital I/O: 10 inputs, 12 outputs.
- Valve output drivers can be set for current or voltage.

Specifications

Processor	16-bit 80188 CPU
Encoder Feedback Interface	+5 or +12 VDC bipolar or unipolar; quadrature with marker; max. input rate =.5 mHz; software scaling for 1x, 2x or 4x.
Magnetostrictive Feedback Interface	Pulse width modulated with external interrogation (Temposonics or equivalent) (1)
Control Algorithm	Proportional, integral, derivative (PID), dbl. derivative (acceleration), and feed forward loop compenations — 2ms loop update time
Servo Output	Jumper selectable: ±10VDC differential, 0 to +10VDC, and ±5VDC single ended or differential, and ±50 mA. Other current outputs available by request.
Input/Output	14 input and 5 output dedicated functions; 10 inputs and 12 outputs user programmable; optical isolation – 7500 V
Operator Panel	20-key pad with 3 software-defined functon keys
Display	4 lines by 16 character backlit LCD
Serial Interface	RS232, RS485 for 8 units in a multi-drop network, each with its own ID
Power Requirements	117 VAC ±10% (220 VAC available) 60 Hz, 1Amp continuous, 5Amp – inrush
Operating Environment	0°C to +50°C (+32°F to +122°F); 10% to 90% humidity, non-condensing
Weight	3.4 kg (7.5 lbs.)

(1) Temposonics is a trademark of MTS Corporation

Operation

A PMC series controller can be used in the following ways:

- Independently, as a stand-alone control system. In this mode, the controller can be programmed from the on-board keypad. The stored programs can then be run from the keypad or by an external switch or relay control. In addition, direct operator control is possible. An axis may be jogged or stepped from the keypad.
- With digital I/O connections to an external PLC (programmable logic contoller). In this mode, stored programs are selected and started by the PLC. The PLC also has the ability to interact with the running program via the digital inputs and outputs.
- Integrated through the serial interface into a multiple controller system. In this mode, up to eight PMC controllers can be connected to a host device (such as a personal computer or PLC) for two-way communications.

Interfacing

Transducer Interface – Temposonics (1)

Each Temposonics tranducer interface is designed to work with a 15 V Temposonics tranducer. Each interface provides connections for plus and minus interrogate signals, plus and minus gate signals, +15 VDC, +5 VDC, and a ground for the shielded connections, all on one terminal strip.

Transducer Interface – Encoder

Each encoder tranducer interface is designed to work with an incremental encoder requiring either +5 VDC or +12 VDC. The encoder may have either TTL or differential outputs. Each interface provides connections for A+, A-, B+, B-, Marker+, Marker-, +5 VDC (or +12 VDC) and a ground for the encoder, all on one terminal strip.

Servo Interface

Each servo interface can be independently configured to drive current or voltage outputs. Jumper selectable configurations are ±10VDC differential, 0 to +10VDC and ±5VDC sgl. ended or differential, and ±50 mA. Other current outputs available by request.

Communications

Serial Communications

The standard RS232 serial interface allows programs and setup data to be sent to a printer or transferred to or from a personal computer or other external device. Alternatively, the RS232 interface allows two-way communications with an external host, such as a personal computer.

The RS485 serial communications mode (jumper selectable) allows a multi-drop configuration using a host plus up to eight PMC controllers, controlling up to 16 axes.

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Digital I/O

The PMC provides 20 inputs and 16 outputs, which can be operated on internal or external power. The 20 inputs incude the following:

Run X	Starts the currently selected program for Axis X.
X Select 1, 2 and 4	Selects a program for Axis X.
Run Y	Starts the currently selected program for Axis Y.
Y Select 1, 2 and 4	Selects a program for Axis Y.
Interlock	If off, stops the running program(s) and disables both axes.
Access	If off, allows opetrator to establish presets, run and monitor programs, but prevents operator access to programming and setup functions.

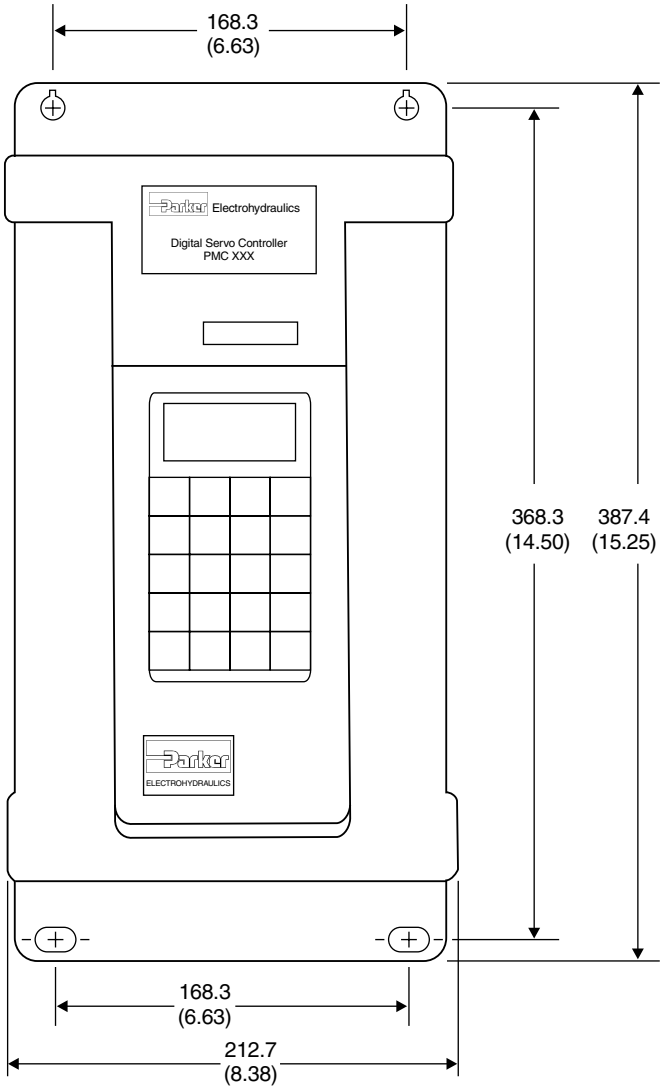
The remaining 10 inputs are user programmable. They can be used to tie external events to a running program. For example, if a “move next distance” switch for Axis X is connected to Input 1, then the program instruction WAIT TIL INPUT 1 can be used to make the running program stop at this point and wait for an operator response.

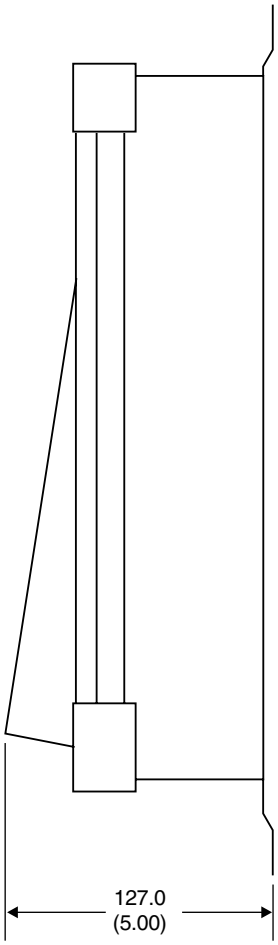
The PMC provides 16 outputs, including the following:

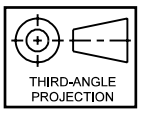
X Ready	Indicates that the X axis is not running a program and is clear of errors.
Y Ready	Indicates that the Y axis is not running a program and is clear of errors.
Status	Indicates that there are no errors on any axis. Twelve outputs are user programmable. They can be used to tie external events to a running program. For example, if Output 10 is connected to an LED, then the axis is at or beyond the specified position.

Dimensions

Inch equivalents for millimeter dimensions are shown in (**)







PMC10T/20T

Ordering Information

PMC
Motion Controller

Configuration

Code	Description
10T	Single Axis, Temposonics Feedback
20T	Dual Axis, Temposonics Feedback
10E	Single Axis, Encoder Feedback
20E	Dual Axis, Encoder Feedback
RK	Remote Kit

Design Series
Not required for ordering

Weight:
PMC10T 3.4 kg (7.5 lbs.)
PMC20T 3.4 kg (7.5 lbs.)
PMC10E 3.4 kg (7.5 lbs.)
PMC20E 3.4 kg (7.5 lbs.)
RK 3.4 kg (7.5 lbs.)

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