PTC 80 CONTROLLER OPERATORS MANUAL

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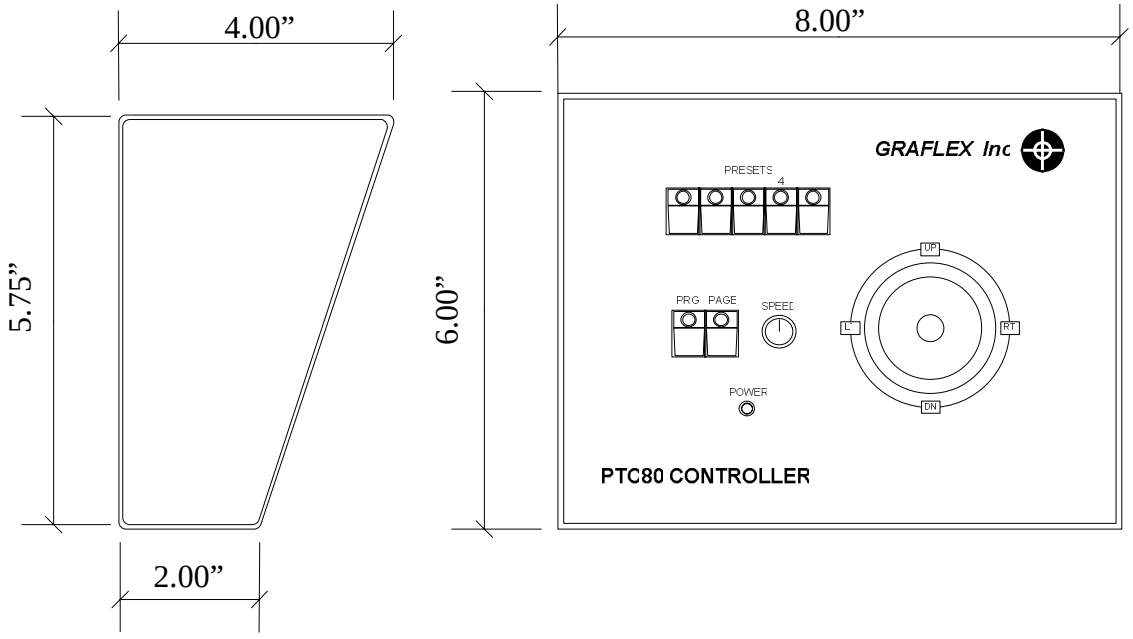
IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the PTC80 Controller. Follow the safety instructions listed below. Keep these operating instructions handy for future reference. A dimension drawing of the PTC80 Controller is shown at the bottom of this page.

1) Read these instructions.
2) Keep these instructions.
3) Pay attention to all warnings.
4) Follow all instructions.
5) Do not install this unit by suspending it.
6) Do not install this unit on its side.
7) The power must be off while installation or cable connections are underway.
8) Do not connect the serial I/O Connector and power connector until checking for proper connections and the power switch being in the OFF Position.
9) Do not operate the PTC80 Controller under any circumstances while installation is underway.



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1.0 Introduction

1.1 Overview

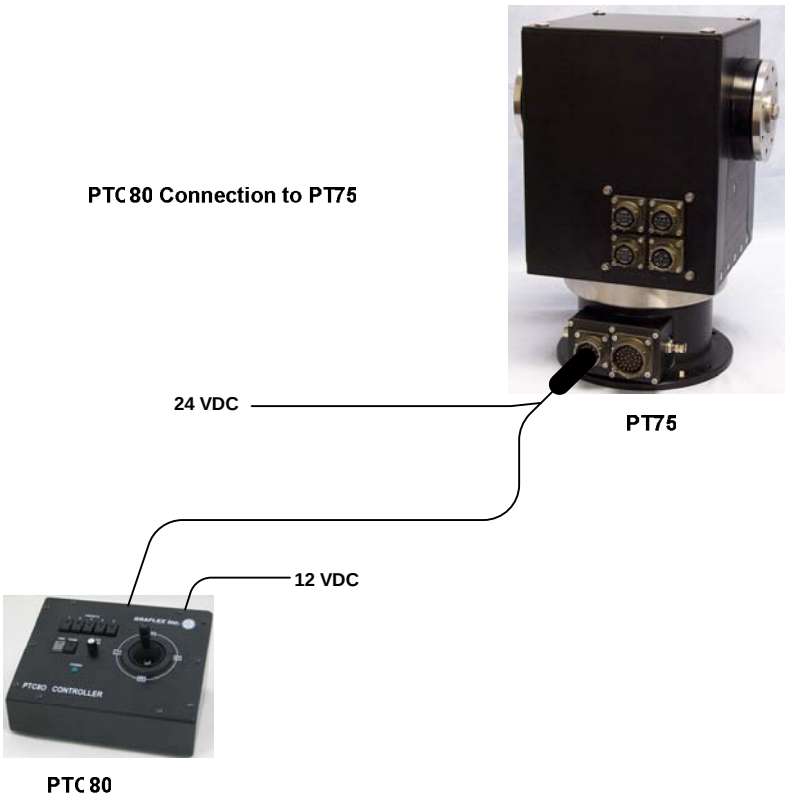
The PTC80 Controller may be used to control any of the Graflex family of Pan & Tilt Heads. The Graflex PT150, PT90E , PT75and PT40E Pan & Tilt Heads may be controlled by the PTC80. The functions controllable by the PTC80 include:

- Manual pan & tilt motion
- Presets, 10 each
- Sequencing: 2 each (Presets 1-5 and Presets 6-10)
- Zero pan & zero tilt

1.2 Interface Diagram

An interface diagram of the PTC80 connected to a PT75 is shown in Figure 1.1 below

Figure 1.1



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1.3 Deliverable Items

The PTC80 Controller is delivered with the PTC80 Controller and a +12 VDC power Supply. The deliverable hardware is shown in Figure 1.3 below.

Figure 1.3

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2.0 Installation

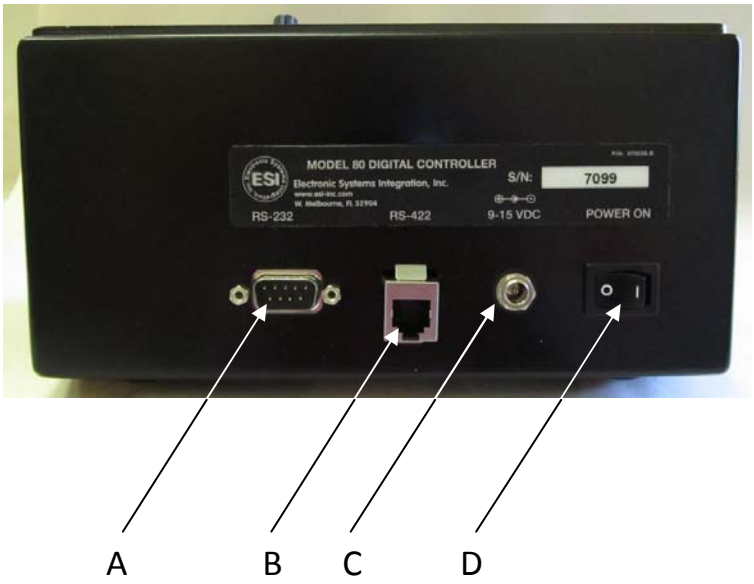
2.1 Chassis Design

The PTC80 is a “Table Top” design intended for being installed on a flat surface.

2.2 Chassis Rear

All of the connections are located on the rear of the chassis. A photo of the rear of the chassis is shown in Figure 2.2 below. Connectors A and B are used for communications. The serial protocol is 38400 BAUD, 1 start bit, 1 stop bit, no parity and 8 data bits.

Figure 2.2



A.) RS-232 Connector: The RS-232 (9 Pin Male) connector allows the PTC80 to communicate to a Graflex pan & tilt head using the serial RS-232 communications standard. The connections are described below:

Pin 1: No connection
Pin 2: Data to the PTC 80 from the pan & tilt head
Pin 3: Data from the PTC 80 to the pan & tilt head
Pin 4: No connection
Pin 5: Ground
Pin 6-Pin 9: No connection

RS-232

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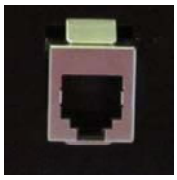
2.2 Chassis Rear (continued)

B.) RS-422 Connector: The RS-422 (RJ-11) connector allows the PTC80 to communicate to a Graflex pan & tilt head using the serial balanced RS-422 communications standard. The connections are described below:

RS-422



Pin 1: Data to the PTC 80 from the pan & tilt head -
Pin 2: Data to the PTC 80 from the pan & tilt head +
Pin 3: Data from the PTC 80 to the pan & tilt head -
Pin 4: Data from the PTC 80 to the pan & tilt head +

C.) Power Connector: The power (DC jack) connector provides power to the PTC80. The connections are described below:

DC Jack

Center Pin: Ground
Outer Shield: +12 VDC

D.) Power Switch: The power switch turns the +12VDC input power ON (1) or OFF (O). The switch is shown below:

Power Switch

2.3 Power Up

After all connections have been made and verified, the power switch may be placed in the ON position. The front panel red LEDs should sequence from all off to all on and then back to all off.

The front panel Green LED will remain ON and the unit is ready to use.

3.0 Operation

3.1 Front Panel

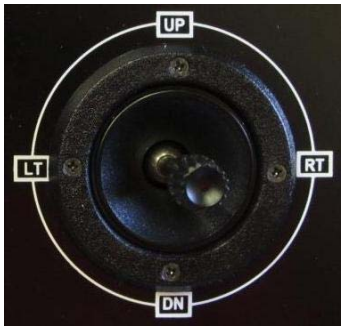
The front Panel of the PTC80 Controller is shown below in Figure 3.1. Each of the control groups is identified with a letter and explained in the following paragraphs.

Figure 3.1

A.) Joystick: The joystick, shown in Figure 3.1A, provides a proportional speed control over pan & tilt. The further the joystick is deflected, the faster the pan & tilt head will move. Both axes may be moved simultaneously.

The speed of the joystick is further controlled by the Speed range potentiometer item B. As the Speed Range potentiometer is increased, rotated clockwise, the maximum speed of the joystick is increased. Conversely, as the Speed Range Potentiometer is rotated counter-clockwise, the maximum speed of the joystick is decreased.

Figure 3.1A



B.) Speed Range Potentiometer: As described in the joystick discussion, the Speed Range potentiometer, shown in Figure 3.1B, controls maximum speed of the joystick.

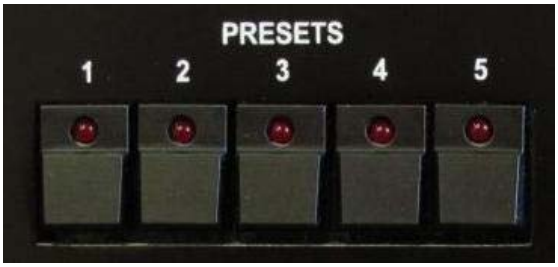
Figure 3.1B

During a preset move, the Speed Range potentiometer controls how fast the pan & tilt head will move between presets. Again, the further the potentiometer is rotated clockwise, the faster the preset motion.

C.) Presets: There are two sets of preset switches which work together to provide the ability to program and recall up to 10 presets. The Preset Switch group shown in Figure 3.1C and the PRG/PAGE switch group shown in Figure 3.1D are used to operate the preset functions.

To program a preset, position the pan and tilt head to the desired pan and tilt positions and depress the PRG switch. The PRG LED will then be illuminated and stay illuminated until either a preset switch is depressed or the PRG switch is again depressed.

Figure 3.1C



To complete the programming of preset 1-5, simply depress the preset switch 1, 2, 3, 4 or 5. The selected preset LED will become illuminated and the PRG LED will be extinguished.

To Program presets 6-10, once again depress the PRG switch but this time also depress the PAGE switch. Both the PRG and PAGE LEDs will become illuminated. As before, complete the programming by selecting a preset switch (1 through 5)and depress the switch. The PRG LED will be extinguished but the PAGE LED and the selected Preset LED will remain illuminated.

Figure 3.1D

To recall preset 1 through 5, make sure the PRG and PAGE LEDs are not illuminated and depress the desired preset switch. The pan and tilt head will then return to the pan and tilt positions programmed for this preset. To recall preset 6 through 10, make sure the PRG LED is not illuminated but the PAGE LED is illuminated. Depress the desired preset switch and the pan and tilt head will then return to the pan and tilt positions programmed for this preset

3.2 Special Functions

There are several functions which may be selected by using the preset switches in combinations described below. Figure 3.2 shows a label located on the bottom of the chassis. The label is a description of these functions .

Figure 3.2

To activate any of these functions, both the PRG and the PAGE switches must be simultaneously depressed and held down.

A.) Depress and release Preset Switch 1 and then release the PRG and PAGE switches.
The pan & tilt head will begin a continuous preset 1 to 5 sequence and continuously repeat the sequence until another control is activated.

B.) Depress and release Preset Switch 2 and then release the PRG and PAGE switches.
The pan & tilt head will begin a continuous preset 6 to 10 sequence and continuously repeat the sequence until another control is activated.

C) *Not Used*

D.) Depress and release Preset Switch 4 and then release the PRG and PAGE switches.
The azimuth position encoders will be zeroed.

E.) Depress and release Preset Switch 5 and then release the PRG and PAGE switches.
The elevation position encoders will be zeroed.

3.3 PCB Functions

There are several functions which may be selected by using the switches located on the PCB (Printed Circuit Board) inside of the PTC80 Controller. Figure 3.3A illustrates the PCB inside the chassis and Figure 3.3B is shows the actual switches. Figure 3.3 C shows the label attached to the inside bottom of the chassis describing the function of each switch.

Figure 3.3 A

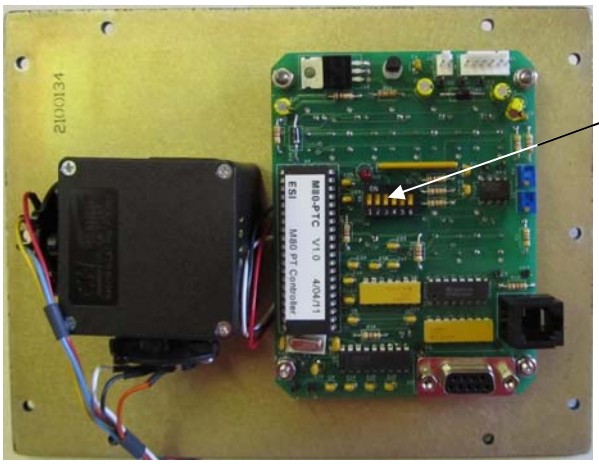


Figure 3.3 B

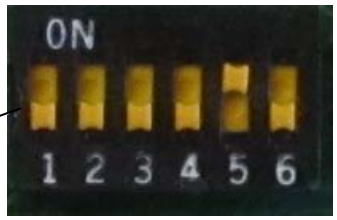


Figure 3.3 C

The switches are numbered 1 through 6 and may either be ON (0) or OFF (1). The listing below describes the function of each switch.

Switch #1: Not Used

Switch #2: Not Used. The label says to but in the ON (0) position but this has no effect.

The PTC80 Controller transmits in both RS-232 and RS-422 communications for mats simultaneously. Simply connect to the one desired and ignore the other.

Switch #3: ON (0) reverses the pan direction of the joystick

Switch #4: ON ((0) reverses the tilt direction of the joystick. This is sometimes used by people who want the joystick to operate like an aircraft stick.

Switch #5 and Switch #6 work together to select the proper BAUD Rate.

Make sure that Switch #5 is ON (0) and Switch #6 is OFF (0). This setting is for 38400 BAUD which is the BAUD rate used by all Graflex pan and tilt heads. Set ting Switch #5 and Switch #6 to any other positions will prevent the PTC80 from communicating with the pan and tilt head.

4.0 Basic Specifications

Characteristics:

Dimensions	8.0 (w) x 4.0 (h) x 5.75 (d)
Weight	Less than 4 pounds
Construction	Aluminum
Color	Black
Mounting	Table top with sloped panel
Voltage Input	9 to 20 VDC
Current	0.3 Amperes
Power Supply	Supplied with wall mount supply
Serial RS-232 Connector	9 Pin D male
Serial RS-422 Connector	RJ-11
Max Distance to PT	2000 feet with RS-422

Controls

Power On/Off	Rear mounted rocker switch
Power ON LED	Green LED, front panel mounted
Pan & Tilt Joystick	Proportional control
Speed Control	Front panel potentiometer
Presets	10
Preset Sequences	2

Environmental:

Operating Temperature	40 to 104 degrees F
Operating Environment	Indoors