DCS SYSTEM ROBOTIC POSITIONER

PRO/FOUR™
VIDEO PRODUCTS, INC.

MODEL 1010RP USER'S GUIDE

15 POUND RATED DCS SYSTEM ROBOTIC POSITIONER

- Studio Silent Operation
- On-Board Receiver
- Internal Cabling
- Status Indication
- Lens Header

PRODUCT DESCRIPTION

The Model 1010RP is a second generation version of Pro/Four's silent precision Model 1000RP Robotic Positioner. This new offering features an on-board receiver, combined with internal cabling for camera power, video, and command signals for both positioner and zoom lens. The unit simplifies setup and operation through the use of status indicator lights and mounting orientation programming.

IMPORTANT INSTRUCTIONS - PLEASE READ CAREFULLY BEFORE INSTALLING OR OPERATING EQUIPMENT

PRO/FOUR'S UNIQUE DCS ROBOTIC CONTROL SYSTEM HAS BEEN ENGINEERED TO PROVIDE YEARS OF TROUBLE FREE OPERATION. YOUR FAMILIARITY WITH THE SYSTEM WILL PROVIDE YOU WITH FULL KNOWLEDGE OF IT'S CAPABILITIES.

CAREFULLY READ THE REMAINDER OF THE INFORMATION CONTAINED IN THIS MANUAL. IF YOU ARE FULLY AWARE OF PROPER INSTALLATION AND OPERATION OF THIS EQUIPMENT IT WILL SERVE YOU WELL.

1. Before opening the shipping carton check for any visible damage to the box.
2. If damage is seen, open the shipping carton, remove the unit and check for any visible damage to the unit.
3. If any question as to the possibility of damage exists, notify your dealer or Pro/Four at once.
4. Remove the plastic accessory bag from the carton. It should contain the following:

1 - Distribution Module	4080DM (incl. pwr. cbl. No. 283000C)
1 - Camera Mounting Screw	(Part No. 61564008)
1 - Hex Key	(Part No. 69010600)
1 - Camera Power Connector	(Part No. 18044000)
2 - Video Connector	(Part No. 18044100)
2 - Data/Power Connector RJ45	(Part No. 18044200)
2 - Data Connector (RJ-11)	(Part No. 18044700)
1 - 3 In Data Jumper	(Part No. 282000C)
1 - 6 In AC Power Jumper	(Part No. 286000C)
1 - 18 In Video Cable (RG-59)	(Part No. 285000C)
1 - Camera bracket assembly	(Part No. 11028000)
1 - Camera Power Connector	(Part No. 18044300)

OPTIONAL MOUNTING ACCESSORIES

Model 4220L Camera Leveler
Model 4000W Wall Mount
Model 4100T Tripod Mount
Model 4050P Accessory Base Plate
Model 4075C Column Mount

CAUTION

The Model 1010RP Robotic Positioner must be installed in conformance with all applicable code requirements, local, state, and national.

INSTALLATION

IMPORTANT - PLEASE NOTE: The unit has a label marked "**FRONT**" on the Camera Platform. The camera should be mounted facing toward the "**FRONT**" label in order to function properly with the Controller. A travel limit of 330 degrees protects the unit from windup of cables. A **center of travel** mark has been inscribed on the Base and Body to indicate where the unit is at any time. When shipped from the factory the unit is positioned with the two indicators in line, the center of travel limits.

The Model 1010RP is not orientation sensitive. It may be mounted either upright or inverted. Before attempting to install the unit refer to Figure 1 to become familiar with it's design and adjustments. **Refer to "Inverting Axis Direction"**

The Following Methods of mounting maybe employed:

1) Base mounting - Using the four 1/4-20 threaded holes on the Base to attach directly to a horizontal surface.

2) Surface mounting - Using a PRO/FOUR **Model 4050P Accessory Base Plate** which may, in turn, be mounted to a horizontal surface for either upright or inverted mounting.

3) Wall mounting - Using a PRO/FOUR **Model 4000W Wall Mount** which, in turn, may be mounted on any suitable vertical surface.

4) Tripod mounting - Using a PRO/FOUR **Model 4100T Tripod Adaptor** which may be mounted to a tripod using either a 1/4 inch or 3/8 inch thread adapter.

5) Column mounting - Using a Pro/Four Model 4075C Column Mount which may be oriented either upright or inverted.

Note: Templates are supplied with the unit and accessories to locate mounting holes.

CAMERA/LENS MOUNTING

Before installation of the Positioner - Assemble the Camera and Lens. Of the two units, the Lens is often heavier and wider than the Camera.

To insure best performance of the 1010RP follow the following steps.

1. After assembling the Lens and Camera *(see Fig. 1)*, note the gap between the mounting surfaces and 1/4-20 thread mounting holes of both. It is sometimes advisable to mount the Camera/Lens assembly to a Model 4220L Camera Leveler to best mount to the 1010RP. *(See Accessories)*
2. If a Leveler is selected, assemble the Camera and Lens in accordance with the instruction provided with the Model 4220L Unit.
3. If a Leveler is not considered necessary, remove the Camera Mounting Platform using Hex Key 69010600 (supplied).
4. Loosely attach the Camera assembly using the 1/4-20 Screw 61564008 (supplied).
5. Using a round object, such as a pen or pencil, locate the front to back point at which the Camera/-Lens assembly most closely balances. Lock the Mounting Screw at this point. This is the location which should be over the center of the Camera platform (CG) mounting hole. *(see Fig. 2).*

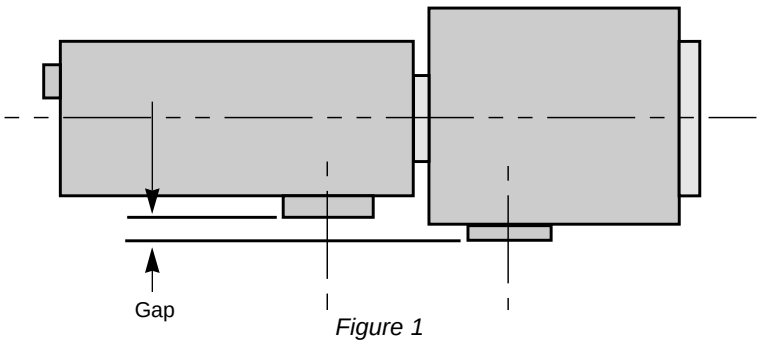


Figure 1

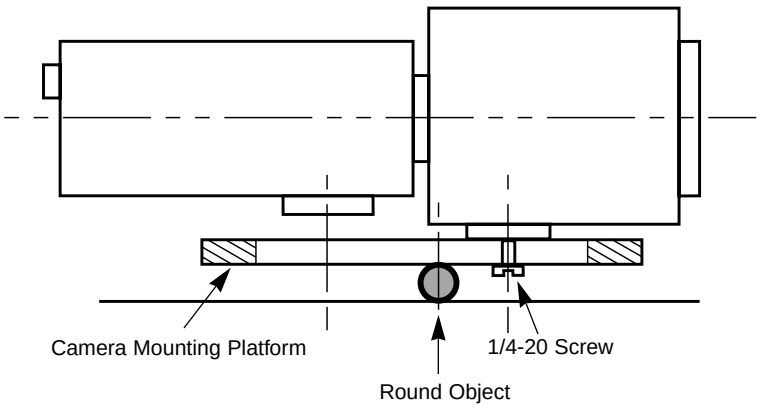


Figure 2

6. Before mounting the Camera/Lens Assembly, loosen Screws (1) and adjust the Vertical Position of the platform so that an imaginary line through the center point of the height of the Camera/Lens pair (A) would pass as closely as possible through the center of the Camera Platform Tilt axis (B). *(see Fig. 4).*
7. Remount the Camera Mounting Platform. Adjust the In-out position to accommodate the width of the Camera/Lens combination. Lock Screws (2) to secure the In/Out position of the Camera Platform, insuring that the Camera/Lens assembly clears the vertical portion of the Camera Platform (C). (*Fig. 3).*
8. Mount the 1010RP with the Camera in the position desired, again noting that "FRONT" is facing the camera aiming direction.

Note: *The above procedure is intended to balance the Camera load. Most installations are such that the Camera is always aimed at some position close to, or below, horizontal. By shifting the Camera slightly forward, the Positioner load is always maintained in the same direction and any: "backlash" in the system is eliminated, improving the accuracy of positioning. This technique is recommended whenever the aiming range is close to or below horizontal to further down.*

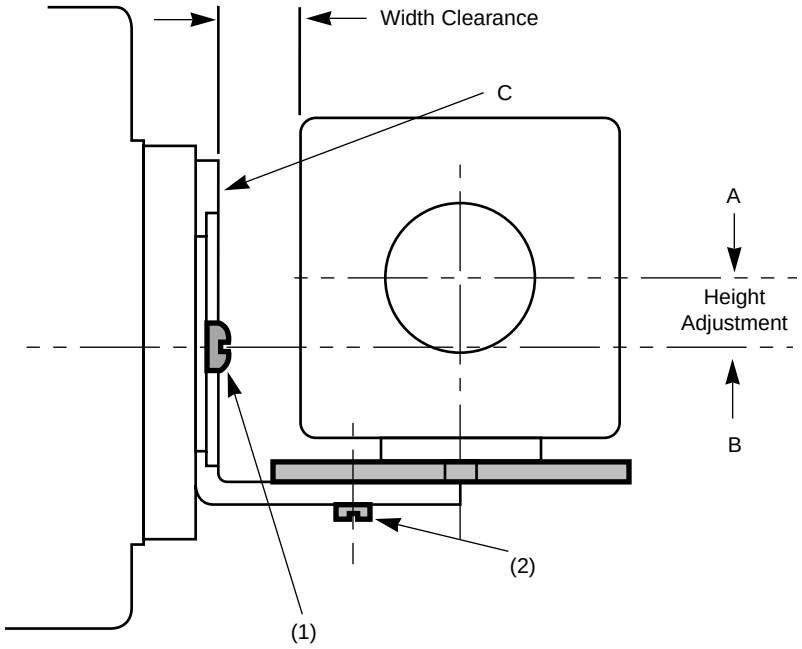


Figure 3

The Camera Platform has been designed to accommodate a wide range of Camera/Lens combinations. The preferred Horizontal (front to back) location is at the same location found in steps 4 and 5 (above).

LIMIT STOP ADJUSTMENT

1. After installation connect the unit to a controller.
2. Loosen both Pan (horizontal drive) and Tilt (vertical drive Limit Stop Locking Screws (3).
3. Slowly rotate the camera to the up/down and left/right limits desired and move and lock the corresponding stops so that the Limit Stop actuates at the desired limits of travel.
4. After locking the Stop positions recheck, first slowly, and then at full speed to insure proper settings.

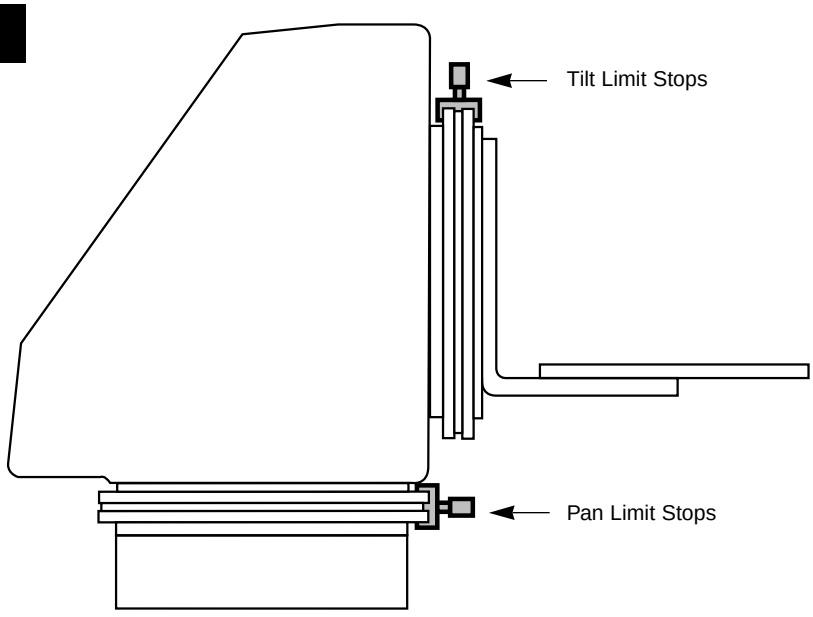


Figure 4

WIRING

NOTE: The 1010RP has been designed to operate with Pro/Four's DCS Digital Control System. The 1010RP will operate with systems designed to communicate using Pro/Four protocol. An intermediate module which converts RS-232 to RS-485 is available which will permit the 1010 to operate from PC generated control commands. Pro/Four does not assume any responsibility for operation or safety of controls other than Pro/Four units without the express written confirmation or approval by Pro/Four. Refer to Wiring Diagram for System wiring.

Control Connection

Refer to Fig. 5

The unit has been designed to operate with the Model 2100 Control. The Control system has been designed for maximum flexibility of location. The DCS System permits data transmission over distances up to 2000 feet. The Data/Power separation permits distances up to 250 feet. Refer to the appropriate Control for Installation instructions.

Cable Harness Reduction

The 1010RP has been designed to simplify Cabling and to eliminate Cable Dressing problems. Provision has been made for all cables to enter through the unit's stationary base, eliminating the need for allowance for cable movement.

PAN/TILT POWER and **DATA COMMAND SIGNALS** are routed through a single cable. **CAMERA POWER** may be routed through a Mini DIN type connector (provided). **VIDEO** may be routed through BNC type connectors (supplied).

The **LENS CONTROL** connector is located on the upper portion of the 1010RP. Most Teleconferencing Lenses provide sufficient cable length to reach this location. Pro/Four has additional cables available if greater length is required.

SYSTEM INTERCONNECTION (REFER TO FIG. 5)

The **4080DM DISTRIBUTION MODULE** serves as a distribution point for **DATA AND POWER**. Data signals loop through the **DISTRIBUTION MODULE** and permit daisy chain system setup. **AC POWER** for Distribution Modules may be looped through from one module to the next. Provision is made to attach modules to each other, eliminating need for component cages, and creating a single package look. An **AC POWER JUMPER (P/N 286000C)** is provided with each 4080DM for this purpose.

The most efficient wiring normally occurs with placement of the 4080DM in close proximity to the 2100 Control Unit. DATA/POWER is then route as a single cable to the 1010RP location.

WIRING THE SYSTEM (Bold Numbers refer to Fig. 5)

4080DM Distribution Module

(6) DATA – The DATA Cable is the connection from the **2100 Control** to the **4080DM**.

NOTE: DATA CABLES ARE AVAILABLE FROM PRO/FOUR – (Cable 284XXXC)*. Pro/Four also supplies a* ***9 PIN D SHELL to RJ11 ADAPTER*** *with each 2100ARUC Controller to facilitate interconnection between the 2100 unit and the Data Cable (P/N 18044600).*

Base Input Panel

(3) DATA/POWER – The DATA/POWER Cable is the connection from the **4080DM** to the **1010RP Base Input Panel**. **(See Fig. 6)**.

NOTE: DATA/POWER CABLES ARE AVAILABLE FROM PRO/FOUR – (Cable 281XXXC).

(1) CAMERA POWER – (customer furnished) is wired from **LOCAL POWER** in accordance with each Camera manufacturers' Power Supply for their Camera. Pro/Four supplies a **CAMERA POWER CONNECTOR** (P/N 18044000) for termination at the 1010RP (See Fig. 7).

(2) VIDEO OUT – (customer furnished) Pro/Four supplies a **BNC CONNECTOR** (18044100) with each 1010RP for Video wiring. Output Video is routed from the Base to Customer equipment. (See Fig. 8).

Interconnect Panel

(8) VIDEO IN – is an 18 inch **JUMPER CABLE** (285000C) furnished with the 1010RP, connecting Camera Video to the Interface Panel.

(10) CAMERA POWER – (customer furnished) is a **JUMPER CABLE**, terminated at one end with a **CONNECTOR – P/N 18044000** (supplied) which attaches at the **Interface Panel** and is terminated at the **Camera**, using the Connector supplied by the Camera manufacturer.

NOTE: The 1010RP Interface Panel contains a Plug-In HEADER. The Header is internally wired to conform with wiring of the make and model Lens being used. Since Lenses may be wired differently, Pro/Four offers a series of Headers wired to insure proper operation with the 1010RP. The 1010RP is factory supplied with a Header wired for the CanonKTS and Fujinon BMD Teleconferencing Lenses. (P/N 29POOOH).

(9) LENS CONTROL – is normally connected to the Interface Panel using the Lens Cable (part of the Lens). Length dictates whether Pro/Four extra Cable **(Series 29XXXXC)** is required. Lens make and Model Number determine need for a Header. The Lens Control Cables are supplied as **Cable only**, **Header only**, or **Cable plus Header**, based on this criteria. See 1010RP Systems Connections Sheet for listing of Lenses and Headers. See Fig. 9 for Lens Cable wiring.

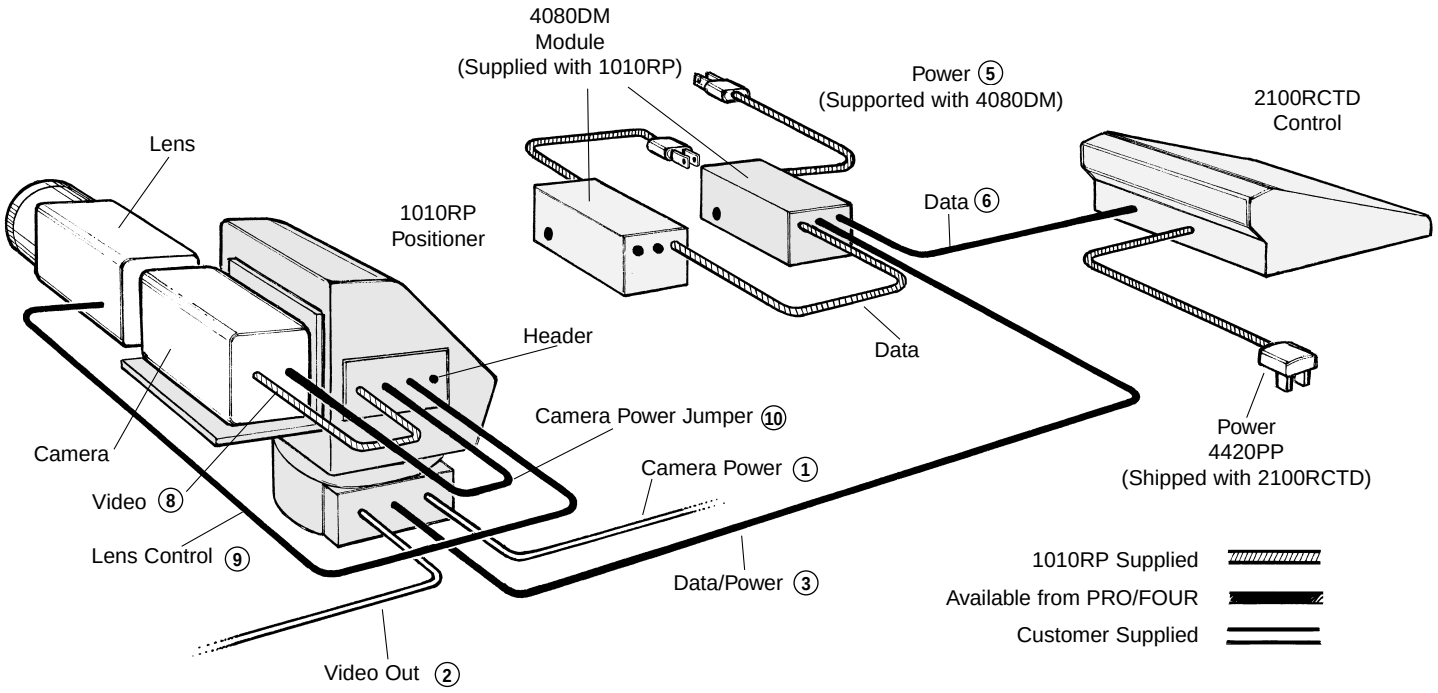
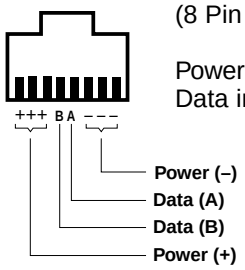


Figure 5

I/O CONNECTORS



RJ45 Connector
(8 Pin Modular plug)

Power input: 15-30 VDC @15W
Data input: EIARS - 485 (120Ω impedance)

Figure 6

VIDEO FEED-THROUGH

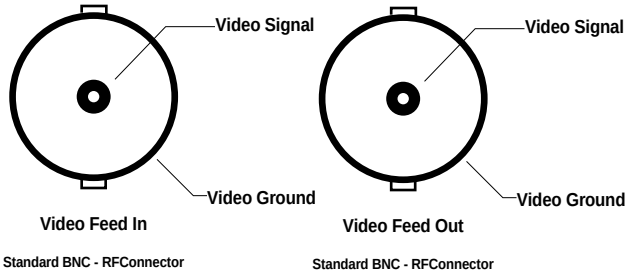


Figure 8

CAMERA POWER FEED-THROUGH

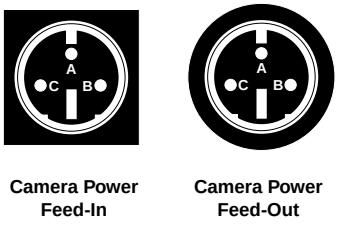
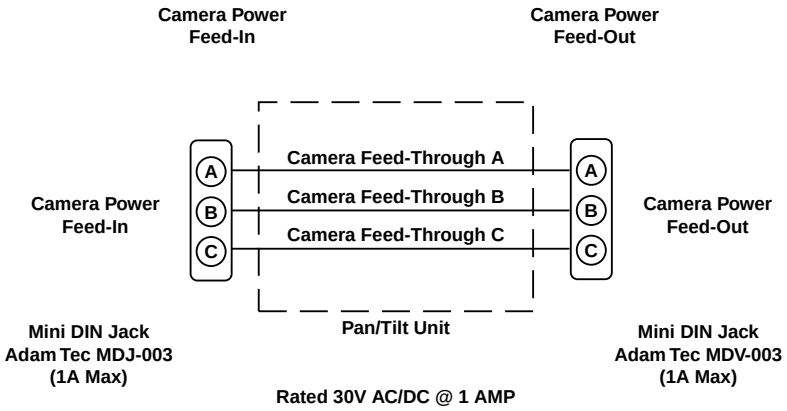
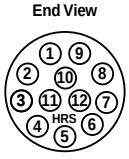


Figure 7



LENS CONNECTION



HRS HR10-R-12PS

Zoom Signal	(+V: Tel)	9
Focus Signal	(+V: Far)	8
Iris Signal	(+V: Open)	5
COM +V	(7.5V)	11
Zoom Position/Speed Select	(+V: Position, ∞: Speed)	2
Focus Position/Speed Select	(+V: Position, ∞: Speed)	1
Iris Position/Speed Select	(+V: Position, ∞: Speed)	10
COM -V	(2.5V)	12
Auto Iris Enable	(0V: Manual, ∞: Auto)	4
+12V	(12V)	6
OV	(9V)	3
COM	(5V) (Not Used)	7

Figure 9

1010RP ENHANCED FEATURES

DEVICE STATUS INDICATORS

○ Light Off
● Light On
✷ Light Blinking

Device Power:

○ Unit Is Not Receiving Power
● Unit Is Receiving Power

Device Status:

○ Driver Is Not Running
● Driver Is Running

Device Data:

○ Unit Is Not Receiving Data
● Unit Is Receiving Data
✷ Unit Is Receiving Data and Is The Current Selected Camera

INVERTING AXIS DIRECTION

Sometimes mounting the 1010RP in different positions will cause its motion to appear "backwards." I.e. hanging the Pan/Tilt upside down will cause both Pan and Tilt movement to appear "backwards." The 1010RP can be easily adjusted to accommodate these changes.

Use the following steps to change the normal direction of motion on Pan, Tilt, Zoom or Focus.

Using the 2100 RCTD Control:

While holding the STO Button, press and release the PGM IRIS AM Button, then release the STO Button.

Now move the joystick so that the axis moves in the desired direction. Note that the axis will only move in one direction. For example: Since the tilt only moves down in this mode, moving the joystick both up or down will cause the tilt to move down. Moving the joystick DOWN will program *tilt* down when the joystick is moved *down*. (Tilt up when the joystick is moved up.) Moving the joystick UP will program *tilt down* when the joystick is moved *up*. (Tilt up when the joystick is moved down.)

Press and Release the STO Button to end the programming mode and store the changes.

CHANGING PAN & TILT CAMERA SELECT ADDRESS

When using multiple Pan & Tilt units it is necessary to give each unit its own separate Camera Select Address; so that the units may be selected individually. Each unit is shipped from the factory with the address **CAMERA GROUP 1, CAM 1.**

To change the Pan & Tilt Camera Select Address complete the following steps:

First, unplug either data or power from all other receivers and Pan/Tilt Units on the buss. Programming the Camera Select will affect all other units connected to the buss thus only the unit being currently programmed should be on/receiving data.

Using the 2100 RCTD Control:

Enter the *programming mode* using the following procedure:

While holding the STO Button, press and release the PGM IRIS AM Button, then release the STO Button.

Select the desired *Camera Select Address* as follows:

Select *Camera Group* by pressing A CAMERA GROUP or B CAMERA GROUP .

Select *Camera* by pressing 1 CAM , 2 CAM , 3 CAM or 4 CAM .

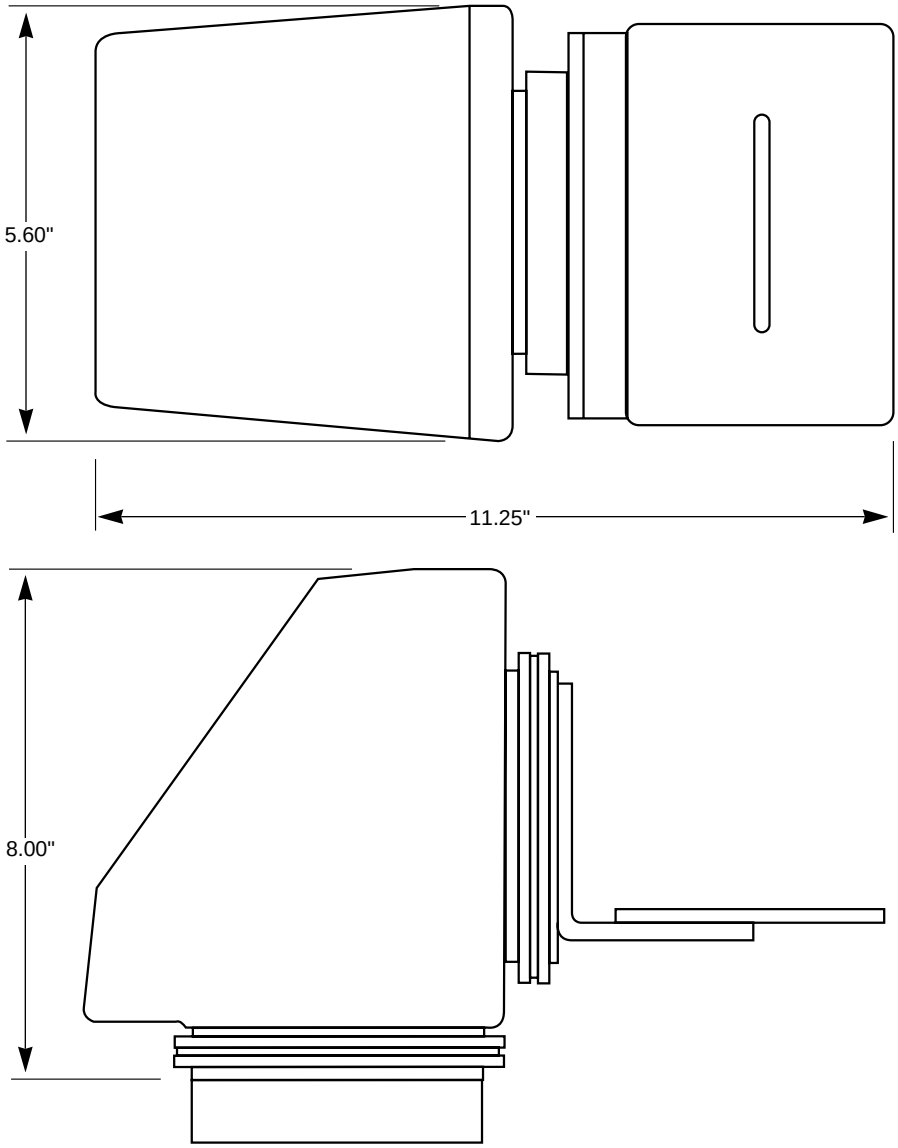
Press and Release the STO Button to end the programming mode and store the changes.

LENS CONFIGURATION HEADER

The 1010RP can drive a variety of Teleconferencing and ENG type lenses through the Lens Control Connector. To insure that the lens receives its proper control format, Pro/Four has provided a **Lens Configuration Header** that configures the controller to the lens being used.

The 1010RP is shipped from the factory configured for *Standard Teleconferencing Lenses* these include most *Fujinon* BMD and *Cannon* KTS lenses.

When a different lens is used, Pro/Four will provide the Lens Configuration Header with the adapter cable to the lens. (See 1010RP Systems Connections Sheet).



SPECIFICATIONS

Mechanical

Size ..... Height	8.00 inches	
Width	5.60 inches	
Depth	11.25 inches (Includes Camera Support)	
Weight	6 lbs. (6-1/2 lbs with 4220L)	
Camera Mounting Adj. ..	**Three axis**	
	Standard	**4220L**
Width	0.80 inches	2.60 inches
Height	1.75 inches	1.75 inches
Front/Back	2.50 inches	3.25 inches
Camera/Lens Mounting Hole Spacing ..	3.00 inches to 6.25 inches	
Angular Travel	Tilt - +/- 90 degrees	
Pan	Approx. 330 degrees	
Limit Stops	Externally Adjustable for Vertical and Horizontal travel Easily accessible with the camera and lens in place.	
Unit Mounting	3-3/4 inch diameter base with two 1/4-20 screws 2 inches on center.	
Construction	Cast vinyl coated aluminum housing. External aluminum parts anodized for outdoor use non-aluminum parts stainless steel.	
Drive	Precision worm gear.	

Electrical

Voltage	15-30 volts VDC
Power Consumption	15 watts
Power Input	RJ-45
Data Input	EIA RS-485 (120Ω impedance)
Camera Power Feed-Thru ..	1 Amp AC/DC (30V max.)

Operational

Operating Speeds	Pan (horizontal) 0-15
.....	degrees/second
.....	Tilt (vertical) 0-15
.....	degrees/second
Maximum Load	15 pounds
Preset Accuracy	+/- 20 arc minutes

INSTRUCTIONS FOR ASSEMBLY OF CAMERA MOUNTING BRACKET AND PLATE

TO INSURE PROTECTION FROM SHIPPING DAMAGE THE MODEL 1000RP IS SHIPPED FROM THE FACTORY WITHOUT THE CAMERA MOUNTING SYSTEM ASSEMBLED. PLEASE FOLLOW THE STEPS OUTLINED TO ASSEMBLE THESE PARTS. (See illustration)

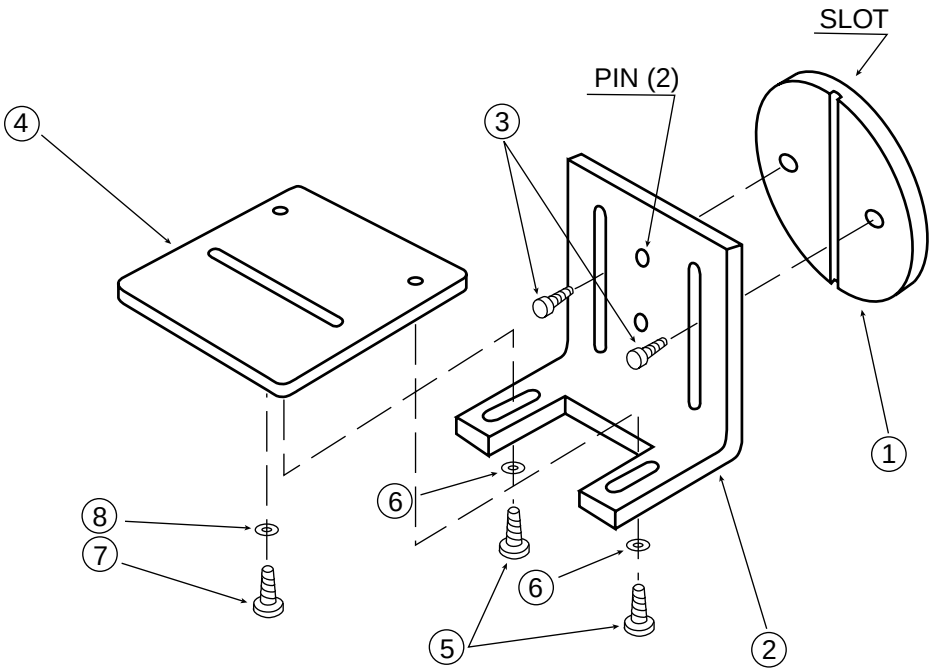
1. Align BRACKET (2) so that PINS are aligned with SLOT in round front plate of POSITIONER.

2. Insert SCREWS (3) through slots in BRACKET (2) into POSITIONER PLATE (1).

3. Position CAMERA PLATE (4) so that holes are in line over slots in BRACKET (2).

4. Insert SCREWS (5) and washers (6) through slots in BRACKET (2) into CAMERA PLATE (4).

NOTE: Adjustment of Bracket Assembly and use of Camera Mounting Screw (7) is described in INSTALLATION AND ADJUSTMENT in User Guide (Supplied).



1010RP CAMERA MOUNTING ASSEMBLY
PRO/FOUR P/N 11028000

1 - 1010RP Tilt Plate	(ON 1010RP Unit)
2 - Bracket	11031100
3 - Screw, 1/4-20 x 3/8	61501006
4 - Camera Plate	11031200
5 - Screw, 8-32 x 3/8	61322406
6 - Washer, No 8	63300000
7 - Camera Mtg. Screw, 1/4-20 x 1/2	61564008
8 - 1/4 in flat wash	63500000

OPERATION

(Refer to Service Manual for the Control)

MAINTENANCE

The Model 1010RP has been designed to eliminate the need for periodic maintenance. Lubrication for all moving parts is permanent. Motors, switches, and other moving parts are rated in excess of normal expected operating life of the unit. **DO NOT** attempt to open the unit to make any adjustments or repairs. Unauthorized repairs or adjustments may void the Pro/Four warrantee. In the event that an operating problem occurs contact your dealer or Pro/Four Video Products, Inc.

SERVICE

PRO/FOUR equipment is warrantied for a period of One (1) year from date of first sale. In the event of failure of equipment to properly operate, PRO/FOUR maintains a technical service **HOTLINE** *to assist in returning the faulty unit (s) to service with the least possible delay.*

If Failure Occurs: CALL PRO/FOUR OR YOUR DEALER

CALL PRO/FOUR at 1-800-254-6573 any time within the hours of **9:00 AM to 5:00 PM (EST), Monday through Friday.**

A Service Specialist will take your call and attempt to solve the problem over the telephone. If the Specialist is unable to resolve the problem, you will be issued a **RETURN AUTHORIZATION NUMBER**, and instructions for return of the faulty unit(s).

UNDER NO CIRCUMSTANCES RETURN EQUIPMENT WITHOUT A RETURN AUTHORIZATION AS DESCRIBED ABOVE. The PRO/FOUR warrantee specifically excludes equipment returned with no Return Authorization Number from warrantee coverage.

IMPORTANT INFORMATION

When requesting information, supplies, or service always refer to the model and serial number of your unit. The model and serial number"s plate (Main Name Plate) is located on the bottom of the machine.

For your convenience, space is provided below to record the information you may need in the future.

MODEL NO. 1010RP SERIAL NO. Date of Purchase

Dealer Address

City State Zip Telephone

Supplies Telephone Service Telephone

PRO/FOUR VIDEO PRODUCTS, INC. 2131 Sunnydale Boulevard, Clearwater, FL 33765
Telephone 727-447-6389 • FAX 727-442-2461 • 800-457-8130 • E-Mail profour@ix.netcom.com

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