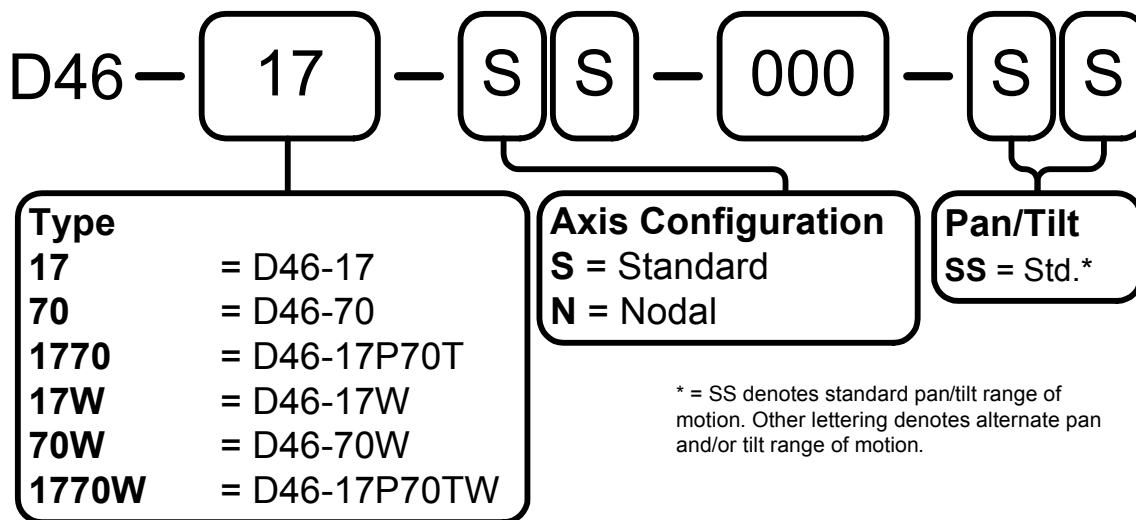


This *Configuration Guide* lists the configuration options and accessories for the PTU-D46 pan-tilt units (PTU-D46) manufactured by FLIR Motion Control Systems, Inc. Additional information and instructions for the PTU-D46 are available in the following documents:

- PTU-D46 *Datasheet*
- PTU-D46 *User Manual*
- Pan-Tilt Unit *Command Reference Manual*

## Model Numbers



*Note: The PTU-D46 uses an external controller that can be mounted in a convenient location separate from the PTU itself. Please refer to the PTU-D46 User Manual for additional information.*

## Available Options

The following configuration and options are available for the PTU-D46:

- **Type:** The PTU-D46 is available in several types that offer an assortment of resolution, speed, and maximum payload options. Page 2.
- **Weatherization:** The PTU-D46 can be weatherized for use in outdoor locations. Page 2.
- **Rotation:** The PTU-D46 can be configured for standard or nodal rotation. Page 3.
- **Side Mounting Bracket:** You may order a side bracket instead of the standard top bracket. Page 3.
- **Range of Motion:** If needed, you may request special limits. Page 4.
- **Pan-Tilt Controls:** The PTU-D46 can be controlled using an ASCII command set, Ethernet/web connection, or binary command set. Page 5.
- **Accessories:** Available accessories include cables, converters, power supplies, and starter kits. Page 6.

# PTU-D46 Series Configuration Guide

## Type

The following PTU-D46 variants offer an assortment of resolution, speed, and payload ratings:

Type	Pan Axis Resolution	Max. Pan Axis Speed	Tilt Axis Resolution	Max Tilt Axis Speed	Rated Payload
D46-17 or D46-17W	0.013°	300°/second	0.013°	300°/second	6 lbs.
D46-70 or D46-70W	0.003°	60°/second	0.003°	60°/second	9 lbs.
D46-17P70T or D46-17P70TW	0.013°	300°/second	0.003°	60°/second	9 lbs.

**Part Number:** D46-17-\_\_S-000-\_\_ (PTU-D46-17)  
D46-70-\_\_S-000-\_\_ (PTU-D46-70)  
D46-1770-\_\_S-000-\_\_ (PTU-D46-17P70T)



*Note: Please refer to the PTU-D46 Datasheet for complete specifications.*

## Weatherization

The PTU-D46 is available with the following IP65-compliant weatherization for outdoor use:

- Clear epoxy coating added to motors
- Silicone sealant around screws and cable attachments
- Rubber seals and plastic washers around knobs
- Gasket sealing around outside edges of motors
- Stainless steel screws
- Interfacial seal on Pan-tilt head connector

**Part Number:** D46-17W-\_\_S-000-\_\_ (PTU-D46-17W)  
D46-70W-\_\_S-000-\_\_ (PTU-D46-70W)  
D46-1770W-\_\_S-000-\_\_ (PTU-D46-17P70TW)



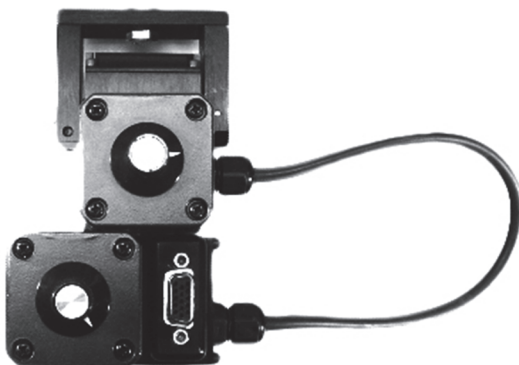
**CAUTION: THE PTU CONTROLLER IS NOT WEATHERIZED. TO AVOID DAMAGING THE PTU AND/OR CONTROLLER, ALWAYS EITHER MOUNT IT INDOORS (PREFERRED) OR IN AN APPROPRIATE WEATHERPROOF ENCLOSURE WHEN MOUNTED OUTDOORS (ACCEPTABLE).**



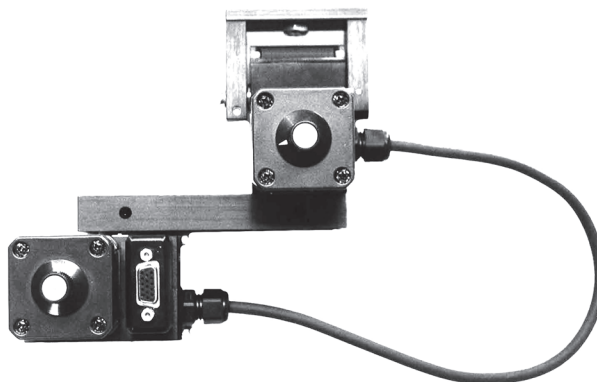
**CAUTION: STANDARD CONTROLLER CABLE IS NOT WEATHERIZED. TO AVOID DAMAGING THE PTU AND/OR CONTROLLER, ALWAYS USE WEATHERIZED CABLE TO CONNECT TO A PTU THAT IS MOUNTED OUTDOORS AND/OR WHEN THE CABLE NEEDS TO BE LOCATED OUTDOORS FOR ANY PORTION OF ITS RUN. SEE PAGE 7.**

## Rotation

The PTU-D46 can be configured for standard or nodal (gimbal) rotation. Nodal rotation allows the payload to be mounted at the center of rotation of both pan and tilt axes, which allows you to program payload movement as pure rotation in both axes without translation.



PTU-D46 with standard rotation



PTU-D46 with nodal rotation

**Part Number:** D46-\_\_-S\_-000-\_\_ (no slip ring)  
D46-\_\_-N\_-000-\_\_ (with slip ring)

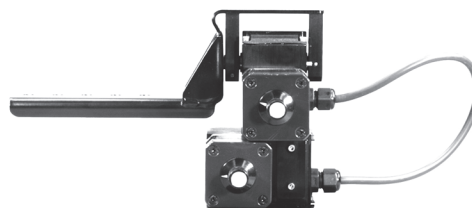


*Note: A PTU-D46 that has been manufactured with nodal rotation cannot be converted to standard rotation.*

## Side Mounting Bracket

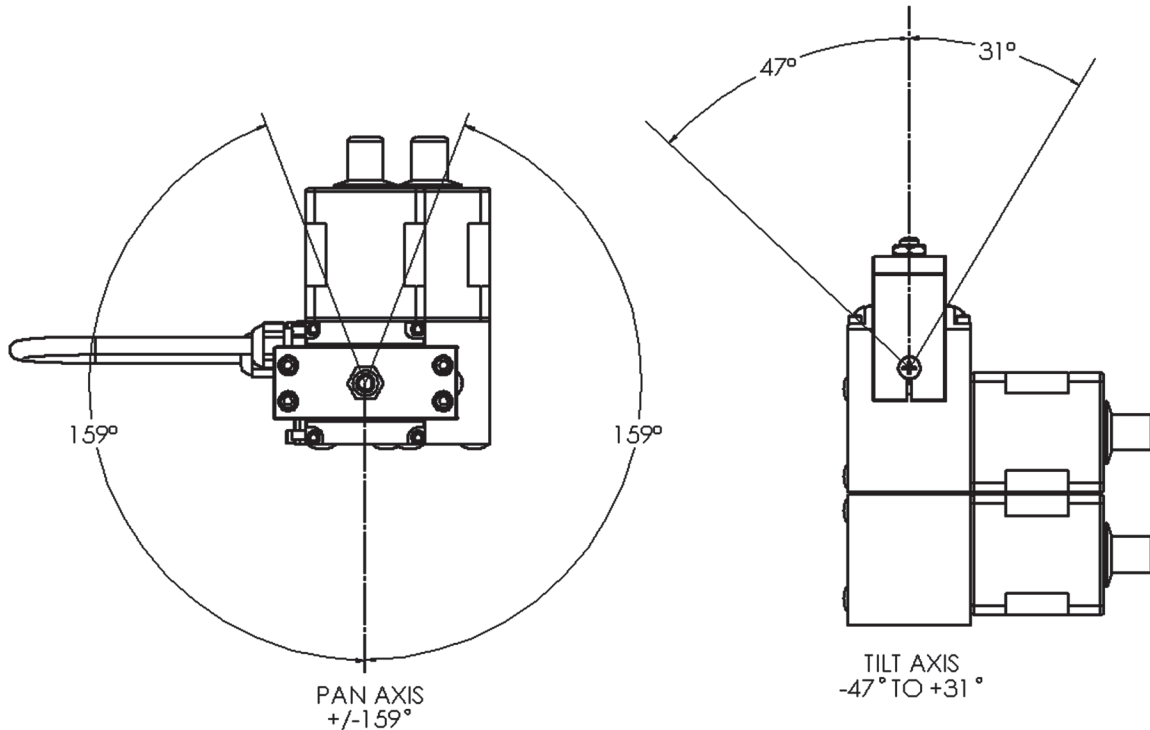
The PTU-D46 normally ships with a top bracket. For side-mounted payloads, order a side mounting bracket as shown here.

**Part Number:** D46-BKT-ZSTD



## Range of Motion

The PTU-D46 has the following standard factory pan and tilt axis limits. Factory limits define the range of motion allowed for an axis when limits are enabled, and that axis cannot travel beyond those limits.



*Note: You may special order a PTU-D46 with custom hard stops installed and/or with custom bracket positioning, factory ranges of motion, etc. Please contact FLIR Motion Control Systems, Inc. for assistance.*

*Note: The PTU-D46 supports extended pan axis limits of +/-180° and tilt axis limits of -80° to +31° when limits are disabled on a standard unit.*

*Note: The PTU-D46 explores the full range of motion automatically when powered on.*

### Pan Range Options

**Part Number:** D46-\_\_-\_\_-000-\*\_

### Tilt Range Options

**Part Number:** D46-\_\_-\_\_-000-\*\_

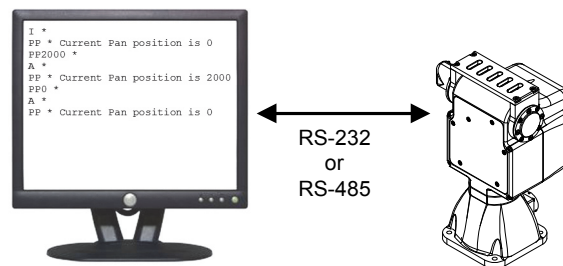
The part number on your PTU-D46 may vary as shown here to reflect any special-ordered custom limits, stops, etc.

## Pan-Tilt Controls

PTUs support serial, Ethernet/web, binary, and joystick control interfaces that provide a wide range of system control architectures. The following options are available (external controller not shown):

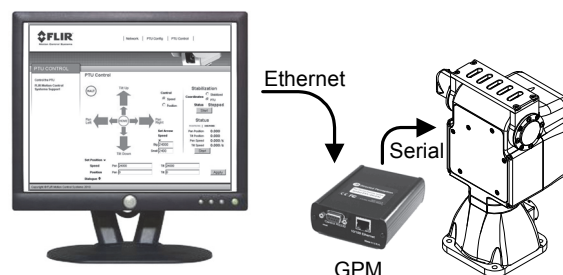
### ASCII Command Set

Your PTU can be controlled via the standard built-in serial port (RS-232 or RS-485) using simple ASCII commands. (See the *Command Reference Manual*.) This can be done using a terminal program or a custom application.



### Ethernet/Web Interface & GPM

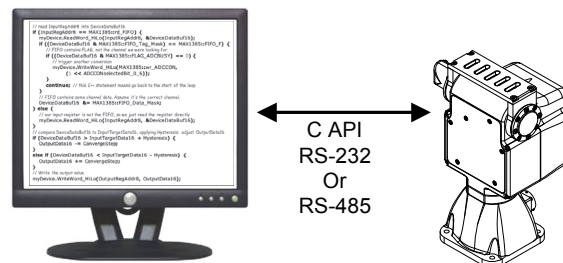
Your PTU can be controlled via Ethernet/IP using the Geo-Pointing Module (GPM), which includes a simple web-based interface for PTU control and configuration from a mouse and entered commands. The GPM also allows PTU control using latitude, longitude, and altitude commands. (See the *Geo Pointing Module Users Manual*.)



**Part Number:** PTU-DGPM

### Binary Command Set (C API)

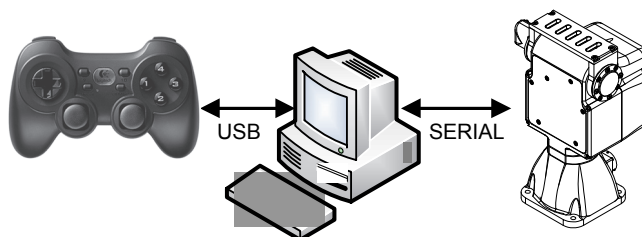
Your PTU can also accept binary commands using the optional C Language Binary Command Set (PTU-CPI), which is provided as ANSI C Source Code that you can compile into your application on most computing platforms (CPU/OS). The binary command format is recommended for high-performance applications such as tracking.



**Part Number:** PTU-CPI

### Gamepad Controller

A USB gamepad controller is available to control a single PTU and up to two VISCA-compatible cameras that are connected to a host computer via a serial connection. The PTU Joystick Control utility is included with PTUs.



**Part Number:** PT-PSC



*Note: Cameras should be connected to the host PC using a dedicated serial connection for each camera.*

## Accessories

The following accessories may be ordered for your PTU. These accessories simplify system prototyping and fielding.

### Power Supply

AC/DC international power supply 100-240VAC, 47-63Hz, 30VDC, 24W, IEC receptacle.

**Part Number:** [PT-PS-INT30V-NA](#) (North America) or  
[PT-PS-INT30V-EC](#) (Europe)



*Note: Input voltages under 30V can reduce the maximum speed of the unit by an amount that is proportional to the voltage difference.*



### RS-485 to RS-232 Converter

Bi-directional module that converts signals from RS-232 to RS-485. Includes power supply, coupler, and cable.

**Part Number:** [PTU-CONV-RS485C](#)



### Geo-Pointing Module and Ethernet/Web Interface

The Geo-Pointing Module (DGPM) provides both an Ethernet/web interface for PTU control and geo-pointing capabilities. Please see the following documents for additional information:

- [Geo-Pointing Module Datasheet](#)
- [Geo-Pointing Module User's Manual](#)

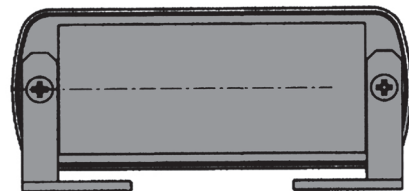
**Part Number:** [PTU-DGPM](#)



### Controller Mounting Bracket

The Controller Mounting Bracket kits offers a convenient method of mounting your PTU controller in a variety of locations.

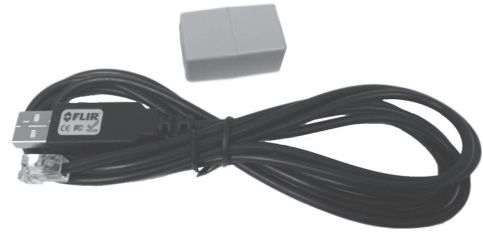
**Part Number:** [ENC-PTCB-BKT](#)



## USB to RS-485 Adapter Cable

Cable that converts USB to RS-485 serial connections.

**Part Number:** PTU-CONV-USB-RS485



## Controller Cables

These cables connect a PTU to its external controller and are available in various lengths to allow you to mount the controller in a convenient location away from the PTU.



*Note: Unless otherwise specified, the PTU-D46 includes a 7-foot cable.*



Standard cables connect to a PTU that is mounted in an indoor or other protected location.

**Part Number:** PT-CABLE-CE (7 feet)  
PT-CABLE-CE-3 (3 feet)  
PT-CABLE-CE-14 (14 feet)  
PT-CABLE-CE-28 (28 feet)  
PT-CABLE-CE-56 (56 feet)

Weatherized cables connect to a weatherized PTU that is mounted in an outdoor location, or where the cable must be partially run outdoors.

**Part Number:** PT-CABLE-CEW (7 feet weatherized)  
PT-CABLE-CE-3W (3 feet weatherized)  
PT-CABLE-CE-14W (14 feet weatherized)  
PT-CABLE-CE-28W (28 feet weatherized)  
PT-CABLE-CE-56W (56 feet weatherized)



**CAUTION: STANDARD CONTROLLER CABLE IS NOT WEATHERIZED. TO AVOID DAMAGING THE PTU AND/OR CONTROLLER, ALWAYS USE WEATHERIZED CABLE TO CONNECT TO A PTU THAT IS MOUNTED OUTDOORS AND/OR WHEN THE CABLE NEEDS TO BE LOCATED OUTDOORS FOR ANY PORTION OF ITS RUN.**