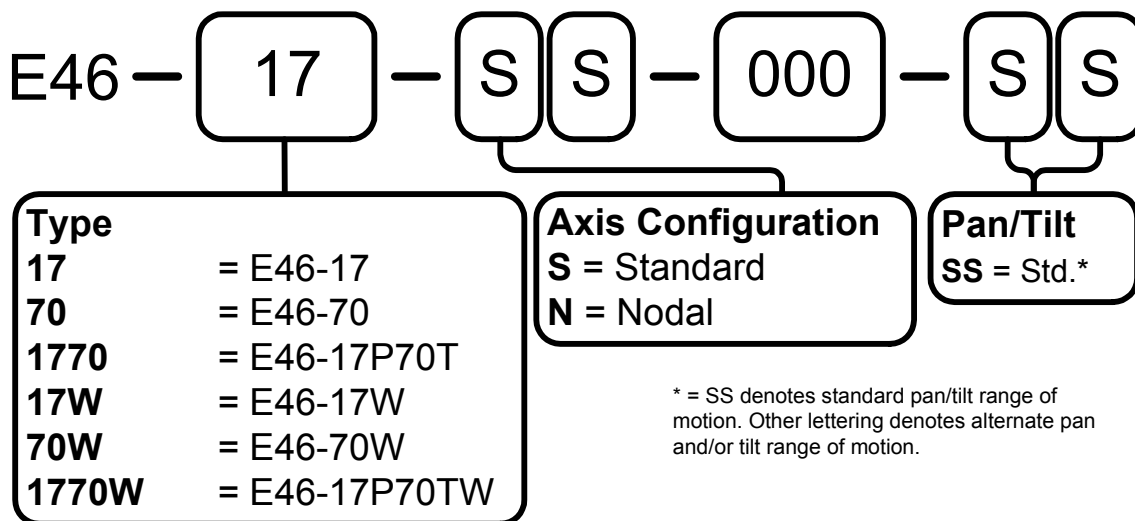This *Configuration Guide* lists the configuration options and accessories for the PTU-E46 pan-tilt units (PTU-E46) manufactured by FLIR Motion Control Systems, Inc. Additional information and instructions for the PTU-E46 are available in the following documents:

- PTU-E46 *Datasheet*
- PTU-E46 *User Manual*
- Pan-Tilt Unit *Command Reference Manual*

Model Numbers

E46 — 17 — S S — 000 — S S

Type
17	= E46-17
70	= E46-70
1770	= E46-17P70T
17W	= E46-17W
70W	= E46-70W
1770W	= E46-17P70TW

Axis Configuration
S = Standard
N = Nodal

Pan/Tilt
SS = Std.*

* = SS denotes standard pan/tilt range of motion. Other lettering denotes alternate pan and/or tilt range of motion.

Note: The PTU-E46 uses an external controller that can be mounted in a convenient location separate from the PTU itself. Please refer to the PTU-E46 User Manual for additional information.

Available Options

The following configuration and options are available for the PTU-E46:

- **Type:** The PTU-E46 is available in several types that offer an assortment of resolution, speed, and maximum payload options. Page 2.
- **Weatherization:** The PTU-E46 can be weatherized to IP65. Page 2.
- **Rotation:** The PTU-E46 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-E46 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.

Type

The following PTU-E46 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
E46-17 or E46-17W	0.013°	300°/second	0.013°	300°/second	6 lbs.
E46-70 or E46-70W	0.003°	60°/second	0.003°	60°/second	9 lbs.
E46-17P70T or E46-17P70TW	0.013°	300°/second	0.003°	60°/second	9 lbs.

Part Number: E46-**17**-_S-000-__ (PTU-E46-17)
                   E46-**70**-_S-000-__ (PTU-E46-70)
                   E46-**1770**-_S-000-__ (PTU-E46-17P70T)

Note: Please refer to the PTU-E46 Datasheet for complete specifications.

Weatherization

The PTU-E46 is available with the following IP65 weatherization:

• 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: E46-**17W**-_S-000-__ (PTU-E46-17W)
                   E46-**70W**-_S-000-__ (PTU-E46-70W)
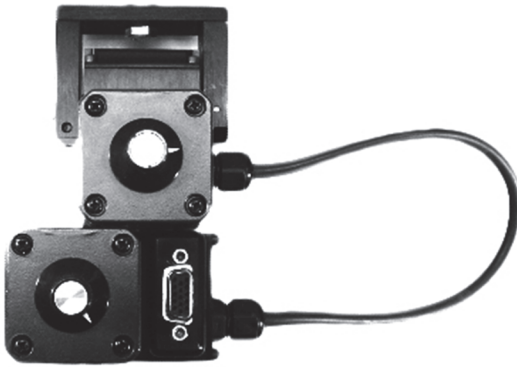   E46-**1770W**-_S-000-__ (PTU-E46-17P70TW)

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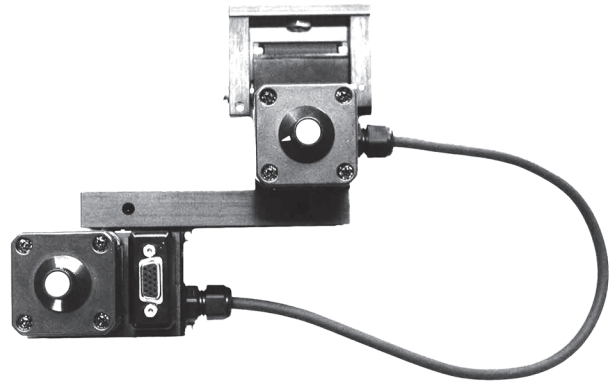
> ⚠️ *CAUTION: STANDARD CONTROLLER CABLE IS NOT WEATHERIZED. TO AVOID DAMAGING THE PTU AND/OR CONTROLLER, ALWAYS USE WEATHERIZED CABLE TO CONNECT TO A PTU THAT IS MOUNTED OUTDOORS AND/OR WHEN THE CABLE NEEDS TO BE LOCATED OUTDOORS FOR ANY PORTION OF ITS RUN. SEE PAGE 7.*

Rotation

The PTU-E46 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-E46 with standard rotation   *PTU-E46 with nodal rotation*

Part Number: E46-__-**S**_-000-__ (standard axes)
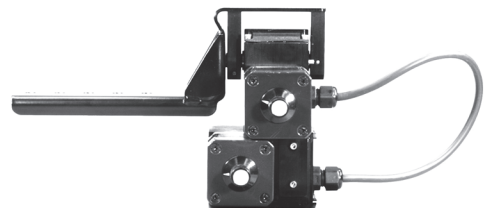   E46-__-**N**_-000-__ (nodal axes)

Note: A PTU-E46 that has been manufactured with nodal rotation cannot be converted to standard rotation.
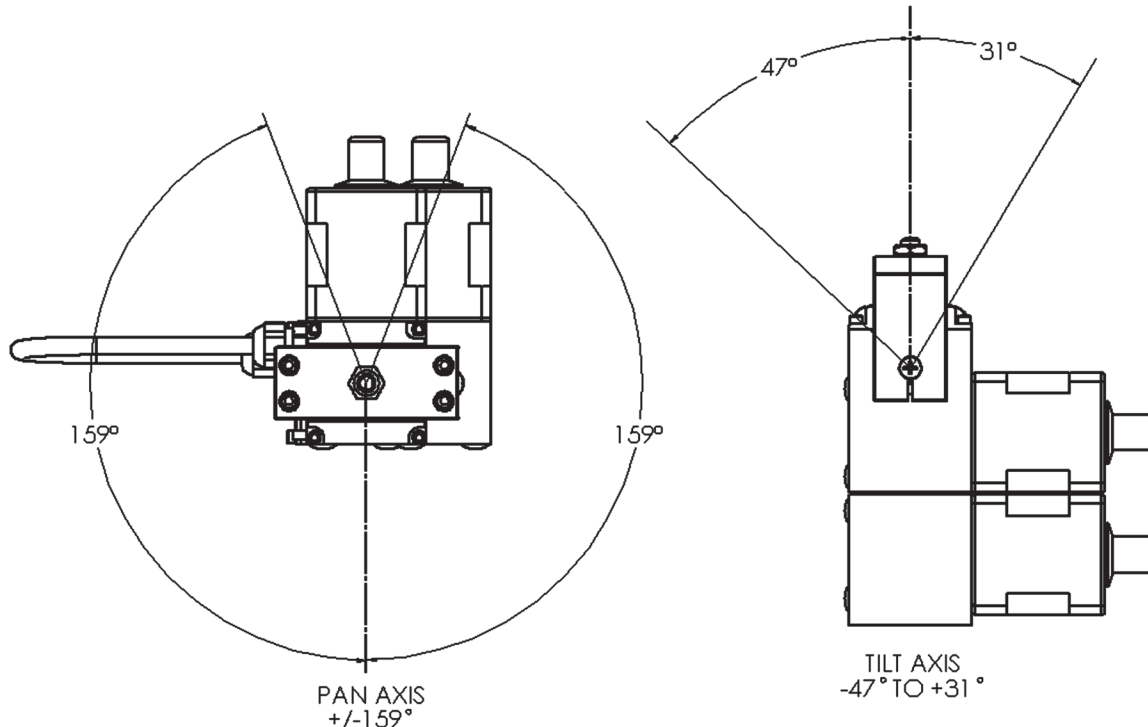
Side Mounting Bracket

The PTU-E46 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-E46 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.

PAN AXIS
+/-159°

TILT AXIS
-47° TO +31°

Note: You may special-order a PTU-E46 with alternate ranges of motion. Please contact FLIR Motion Control Systems, Inc. for assistance.

Note: The PTU-E46 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-E46 explores the full range of motion automatically when powered on.

Pan Range Options

Part Number: E46-__-__-000-*****_

Tilt Range Options

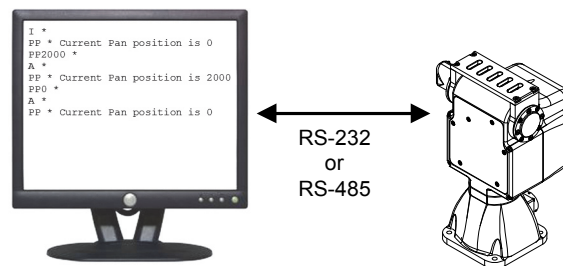**Part Number:**   E46-__-__-000-_*****

The part number on your PTU-E46 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):
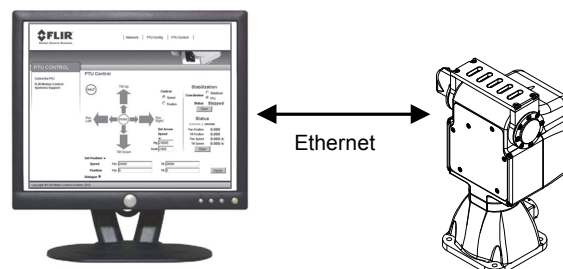
ASCII Command Set

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.
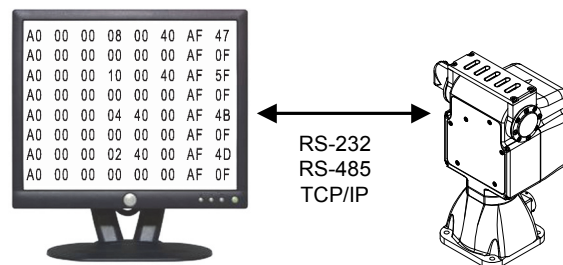
RS-232
or
RS-485

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 *Command Reference Manual*.)
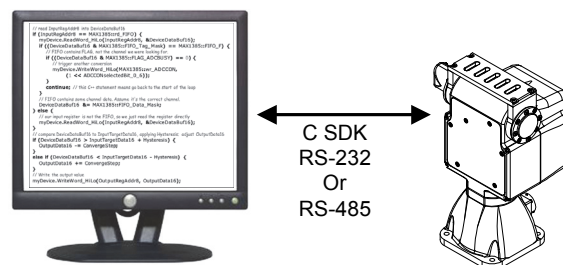
Ethernet

Pelco D Protocol

E Series PTUs with firmware version 3.1.1 and newer support the standard pan/tilt portions of the proprietary Pelco D protocol. Both the web interface and ASCII commands support various Pelco configuration options.

RS-232
RS-485
TCP/IP

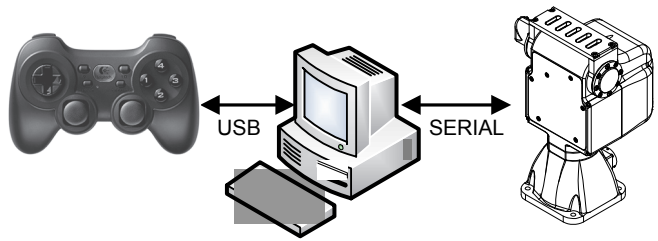## Software Development Kit (C SDK)

Your PTU can also accept binary commands using the optional C Language Software Development Kit (PTU-SDK), 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.

C SDK
RS-232
Or
RS-485

Part Number: PTU-SDK

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.

RS-485 to RS-232 Converter

Bi-directional module that converts signals from RS-232 to RS-485. Includes power supply, coupler, and cable.
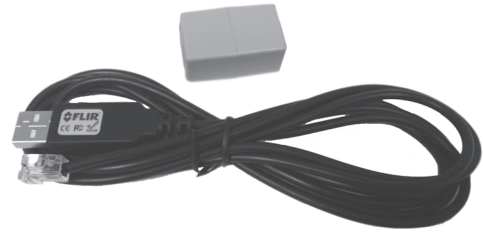
Part Number: PTU-CONV-RS485C

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-E46 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.*