

PT-10-FB

PAN & TILT UNIT WITH FEEDBACK



Internal limit switches and feedback potentiometers provide orientation information at control station

13.56 N-m (10 lb-ft) at 5%/s of output torque on each axis handles moderately heavy loads

Optional RS-485 control for advanced control options and features



Dual axis pan & tilt with position feedback and optional RS-485 control to remotely orient camera systems, acoustic equipment, and other instrumentation.

The unparalleled reliability of the PT-10-FB is due in part to its rugged construction. Housings and machined components are made of corrosion resistant, hard-anodized aluminum. All external hardware is made of stainless steel for deep water or hazardous environment applications.

The PT-10-FB provides 13.56 N-m (10 lb-ft) @5%/s of output torque on each axis. Heavy-duty ball bearings supporting the output shaft allow it to accommodate heavier payloads up to 25 pounds. The drive train for each axis of the pan & tilt uses either a reversible synchronous motor or a brushless stepper motor coupled to low backlash gearing. The rugged design of the gear train allows stalling of either output shaft without damage to the gears or the motors.

This positioner is equipped with internal limit switches (not available on the RS 485 units) and position feedback potentiometers on both axes. The potentiometers sense pan and tilt orientation angles for display at the remote control station.

With the choice of different power configurations, AC or DC, the PT-10-FB can be used in a wide array of varying environments and applications. Additionally, the 24 VDC model with optional RS-485 communication protocol is highly configurable and precision controllable.

The PT-10-FB pan & tilt complements all ROS underwater lights and camera systems and was designed to be an integral part of turnkey, remotely operated, video inspection systems.

All ROS positioning units are available in either dual or single axis configurations.

PT-10-FB - Pan & Tilt Unit with Feedback

PERFORMANCE

Power:	120 VAC, 0.135 amps per axis; 24 VAC option available 24 VDC, 1.5 amps per axis
Torque:	10 lb-ft (13.56 N-m) per axis @5 degrees/s
Rotation Speed (88:1 gears):	
60 Hz:	4.9 degrees/second (0.82 RPM)
24 VDC:	5.5 degrees/second (0.92 RPM)
RS-485 model only:	Programmable, 0.5 to 20 degrees/second (0.08 to 3.3 RPM)
Harmonic gear backlash (88:1 gears):	0.6 degrees (36 arc minutes); robotic anti-backlash gears available
Scan Range (both axes):	+/- 170 degrees max when used with external hard stops
Scan Range with optional yoke bracket:	+/- 170 degrees pan axis, +/- 90 degrees tilt axis
Feedback Potentiometer:	Absolute position (1000 ohm wire-wound)
Resolution:	+/- 0.5 degrees (30 arc minutes)
Static braking option (24 VDC model only):	Requires an additional connector pin for non-RS-485 units
Control protocol option (24 VDC model only):	RS-485, 2-wire half duplex, 8 bit data, 1 stop bit, no parity, no hardware flow control
Networkability (RS-485 model only):	Up to 32 ROS RS-485 nodes sharing the same cable for power and communication

MECHANICAL

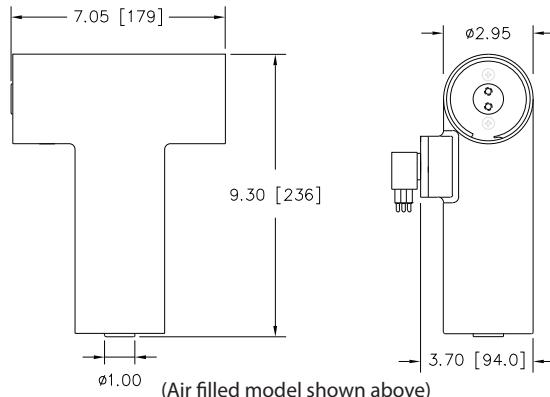
	Anodized 6061-T6 Aluminum		Electropolished 316 Stainless Steel	
Housing Material:				
Height:	236 mm (9.30 in)		236 mm (9.30 in)	
Width:				
Air-filled:	179 mm (7.05 in)		179 mm (7.05 in)	
Oil-filled with bellofram:	219 mm (8.64 in)		219 mm (8.64 in)	
Length without connector:	94.0 mm (3.70 in)		94.0 mm (3.70 in)	
Main Body Diameter:	74.9 mm (2.95 in)		74.9 mm (2.95 in)	
Output Shaft Diameter:	25.4 mm (1.00 in)		25.4 mm (1.00 in)	
Weight in Air:				
Air-filled:	3.6 kg (8.0 lbs)	4.0 kg (8.8 lbs) *	6.5 kg (14.3 lbs)	7.4 kg (16.4 lbs) *
Oil-filled:	4.2 kg (9.3 lbs)	4.6 kg (10.0 lbs)	7.1 kg (15.6 lbs)	8.0 kg (17.7 lbs)
Weight in Water:				
Air-filled:	2.1 kg (4.7 lbs)	2.3 kg (5.2 lbs)	4.9 kg (10.9 lbs)	5.8 kg (12.7 lbs)
Oil-filled:	2.6 kg (5.8 lbs)	2.9 kg (6.3 lbs)	5.5 kg (12.1 lbs)	6.3 kg (14.0 lbs)
Standard Connectors:	LPBH-9-MP, MHDG-10-BCR, MSSJ-9-BCR, LPMBH-4-MP (RS-485 model only)			
Housing Mounting:	Two 1/4-20 threaded holes in output pan shaft			
Equipment Mounting:	Two 1/4-20 threaded holes in output tilt shaft			
Mounts:	ROS mounting plate and yoke bracket optional (this option not available on RS 485 units)			
External Mechanical Limits:	ROS stop collar optional (this option not available on RS 485 units)			
Compensator (oil-filled units only):	Bellofram (* weights with mounting plate & stop collar)			

ENVIRONMENTAL

Operating Depth:	
Air-filled:	30 m (100 ft)
Oil-filled:	3,000 m (10,000 ft) standard 6,000 m (20,000 ft) available
Operating Temperature:	0°C to +50°C (32°F to 122°F)
Storage Temperature:	-20°C to +60°C (-4°F to 140°F) in air
Radiation Tolerance:	1 x 10 ⁸ rad (max accumulated dose)

ROS STANDARD PIN-OUT

- (Not for RS-485 units)
- 1 - COMMON
 - 2 - TILT CCW
 - 3 - TILT CW
 - 4 - PAN CW
 - 5 - PAN CCW
 - 6 - +15 VDC FEEDBACK EXCITATION
 - 7 - -15 VDC FEEDBACK EXCITATION
 - 8 - TILT FEEDBACK
 - 9 - PAN FEEDBACK
 - 10 - BRAKING (OPTION)



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