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Wireless Technology, Inc. ®

SW720HV-H.264-TI

Installation and Operation Manual

11/14

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INFORMATION

READ THIS MANUAL
Every effort has been made to insure that this WTI system is of the highest quality. This product has been carefully inspected to comply with rigid quality standards before shipment to you. In consideration of your investment and the desire to obtain full performance capability engineered into your new WTI product, we recommend that you read this manual before attempting to operate your system.

FOR MORE ASSISTANCE OR MORE INFORMATION
WTI (Wireless Technology, Inc.)
2064 Eastman Avenue, Suite 113
Ventura, CA 93003-7787

TOLL FREE. 866/gotowti (468-6984)
TEL. 805/339-9696
FAX. 805/339-0932

EMAIL: sales@gotowti.com

INTERNET: http://www.gotowti.com

PRODUCT WARRANTY AND REPAIR

PRODUCT WARRANTY

We appreciate your purchase of *Wireless Technology, Inc. (WTI)* security products. We take pride in the quality of our products and have manufactured each new WTI product to exacting quality standards. In normal use, it will provide you with years of satisfactory performance. However, should you experience difficulty; you are protected under the provisions of this warranty.

WTI warrants to the original user a product that is free of defects in materials and workmanship in normal use. WTI warrants to the original user that WTI's products will be free of defects in materials and workmanship in normal use for a period of 24 months from the date of sale. WTI's obligation under this warranty shall be limited to the repair, including all necessary parts and the cost of labor connected therewith, or at our option, the replacement of any product that shows evidence of a manufacturing defect within the warranty period. This warranty is extended to all WTI products purchased and used within the United States of America and is valid only when service is rendered by the authorized WTI (*Wireless Technology, Inc.)* Warranty Station.

This warranty shall not apply to appearance or accessory items including, but not limited to, knobs, connectors, cabinets and connecting cables. This warranty shall not, in addition, apply to repairs or replacements necessitated by any cause beyond the control of WTI including, but not limited to, acts of nature, improper installation, misuse, lack of proper maintenance, accident, voltage fluctuations, unauthorized repairs or modifications.

This warranty becomes void in the event serial numbers are altered, defaced or removed, or an attempt is made to field service or alter performance of any WTI products.

WTI reserves the right to make changes in design, or to make additions to, or improvements upon, products without incurring any obligation to install the same on products previously manufactured.

The foregoing is in lieu of all other warranties expressed or implied and WTI neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the sale of our products. In no event shall WTI or its Authorized Dealers be liable for special or consequential damage arising from the use of this product, or any delay in the performance of this warranty due to causes beyond its control.

REPAIR AUTHORIZATION

Please contact *Wireless Technology, Inc. (WTI),* to obtain a repair authorization number (RA) and provide the following information:

1.) Product Model & Serial Numbers

2.) Date of shipment, purchase order number, sales order number or WTI invoice number.

3.) Details of the defect or malfunction. If there is a dispute regarding the warranty or product, which does not fall under the warranty conditions stated within the description of the written warranty, please include a written explanation with the product when returned.

SHIP FREIGHT PRE-PAID TO:
> *WTI (Wireless Technology, Inc.)*
> 2064 Eastman Avenue, Suite 113
> Ventura, CA 93003-7787
> TEL 805/339-9696
> FAX 805/339-0932

RETURNS

No unauthorized returns will be accepted. All returns must have an authorized (RA) number issued by the factory (CA number if returned for credit and RA number if returned for repair). Products returned for repair or credit will be rejected if no authorization number has been issued or freight has not been pre-paid. All merchandise returned for credit will be subject to a 20% restocking and refurbishing charge.

IMPORTANT SAFEGUARDS

1.) Read Instructions. It is important to read all safety and operating instructions before installing or using this equipment.

2.) Retain Instructions. Retain this manual and any supplements for future reference.

3.) Follow Instructions. Follow all instructions herein for use of this equipment.

4.) Heed all warnings. Adhere to all warnings on the equipment, and in this manual.

5.) To reduce the risk of electric shock or equipment damage, work on the unit only when the power is shut off and is unplugged from its power source to prevent accidental activation. Also take precautions to avoid contact between the equipment and other electrical wires or power sources that may be present at the installation site.

The Sidewinder SW720HV-H264-TI is a pan-tilt-zoom camera system that provides 320x240 8-14uM thermal video over an Ethernet connection, using H.264 or MJPEG video compression. The camera provides 360 degree rotation in both the pan and tilt axes, and provides a digital zoom magnification of up to 4 times. A hard carbon coating is provided on the front lens window of the camera to protect the lens surface. An anti-reflection coating is provided on the inside of the front lens window to increase the sensitivity of the camera sensor.

The Sidewinder SW720HV-H264-TI camera operates on AC line voltages within a voltage range of 85VAC to 265VAC and an operating frequency of 47Hz to 63Hz. Ethernet 10/100Base-T communication is used for transport of the video and control signals. Power and Ethernet signals are provided via a 36 inch long bottom egress umbilical cable bundle using an outdoor rated SJOOW #18x3 power cable and an outdoor rated CAT-5e Ethernet cable, or terminated using a side egress MS connector. The 36 inch umbilical cables can also be terminated with an 18 pin MS style connector.

The Sidewinder SW720HV-H264-TI camera is capable of supporting an H.264 and a second H.264 or MJPEG compressed video stream simultaneously. Support is provided for unicasting and multicasting.

The SW720HV-H264-TI camera provides Ethernet ports for support of industry standard PTZ control protocols such as Pelco D, COHU, NTCIP and ONVIF. Legacy support for physical camera control units can be implemented using serial port to Ethernet converters.

RECOMMENDED TOOLS FOR PROPER INSTALLATION

1) Tie wraps to secure cable runs.
2) Set of open end wrenches including 7/16" for mounting bolts.
3) Cordless power drill for mounting some brackets.
4) Safety cable recommended (prevents camera falling during overhead installations).
5) Self-sealing connector tape to weatherproof all cable connections.

INSTALLATION PLANNING

1) The maximum cable length that should be planned for is 100 meters, based on the limit for 10/100Base-T Ethernet connections.
2) The Sidewinder SW720HV-H264-TI camera draws up to 50 Watts maximum, which translates to about 0.59 Amps at the low line voltage limit of 85VAC.
3) Be sure to verify that there are no physical obstructions that might prevent the camera from turning freely in all directions.
4) Be sure to verify that there are no physical obstructions in the way of any required viewing directions.
5) Be sure that there is access to the end of the umbilical cable on the bottom of the camera to facilitate connecting and disconnecting the camera while it is in place on the mounting bracket or pole.

UNPACKING

Please examine the equipment carefully when unpacking the shipping container. If any damage is noted please be sure to file a claim with the carrier. WTI is not responsible for any damage that occurs during shipping. Please verify that all of the contents are present and carefully check the packing material for any loose items before recycling it.

EQUIPMENT SUPPLIED WITH UNIT

1.) Camera
2.) 4 each ¼-20 x ¾" mounting screws with washers
3.) Quick Start Manual
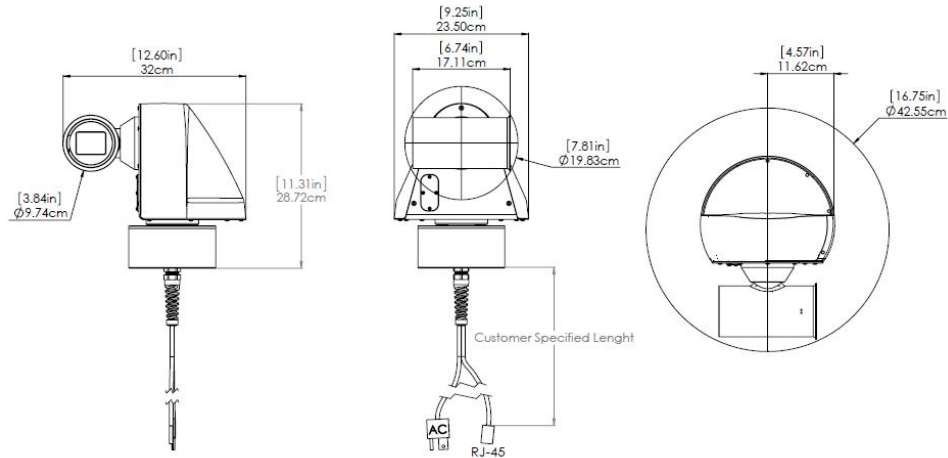
EQUIPMENT THAT MAY BE REQUIRED, BUT NOT SUPPLIED WITH UNIT

1.) Mating connector and strain relief for umbilical extension cable
2.) Camera mounting bracket
3.) Interconnect cables
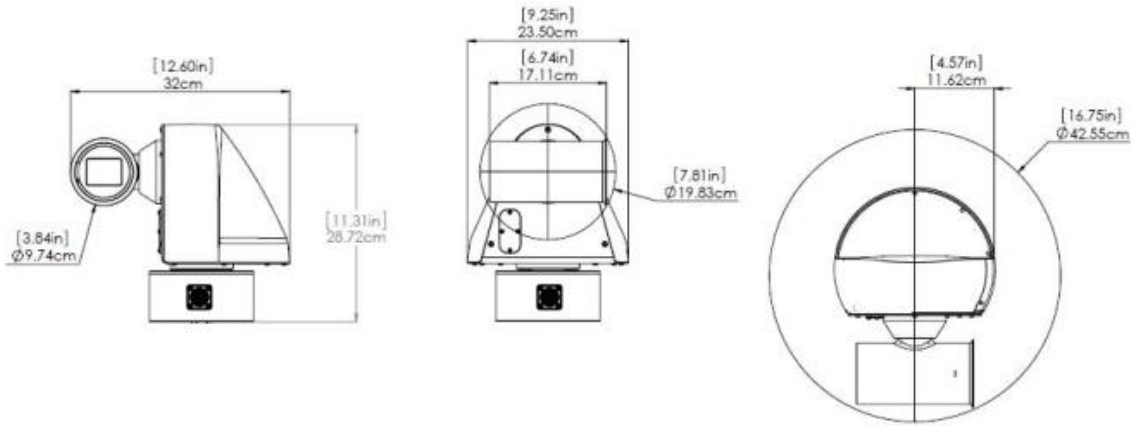4.) Video monitor
5.) PC or laptop computer
6.) Setup software

MECHANICAL DIMENSIONS

Bottom Egress

Side Egress

MOUNTING

The Sidewinder SW720HV-H264-TI camera should normally be mounted in an upright orientation, as shown above. The camera may also be mounted upside down if desired, but a cover of some sort should be placed over the bottom of the camera, extending out to about 6 inches past the camera all around, to prevent debris, dirt or snow and ice from accumulating on the bottom of the camera housing, since the conical shaped profile of the camera will no longer be able to naturally shed material to the sides. The camera may NOT be mounted with the base facing horizontally.
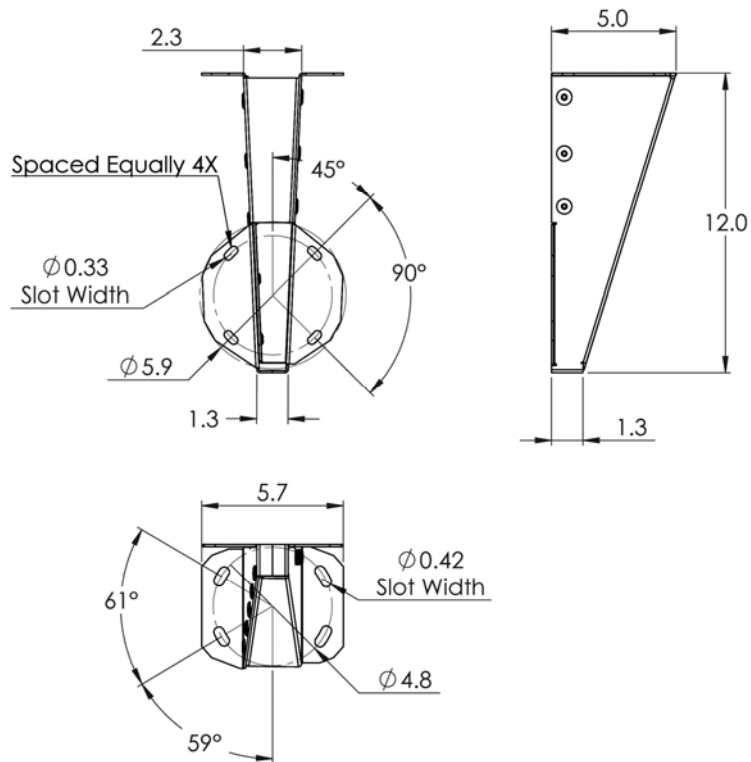

SIDEWINDER BASE MOUNTING HOLE LAYOUT
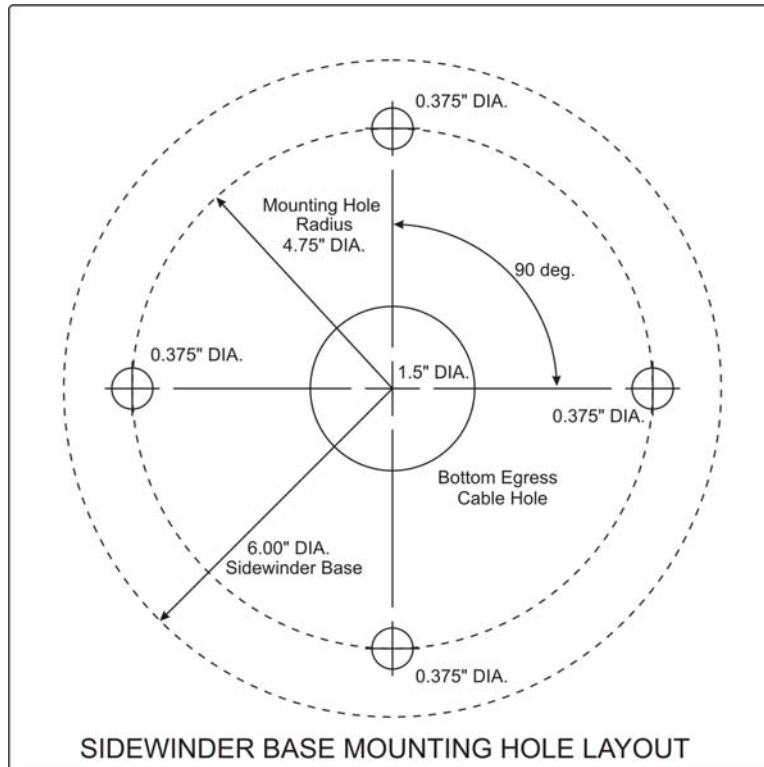
The base of the Sidewinder SW720HV-H.264-TI camera has four ¼-20 screw holes that are equally spaced, 90 degrees apart, on a 4.75" diameter circle, as shown in figure 2 (Note that 24VAC versions of the Sidewinder camera will have 5/16" mounting screws). If mounting screws other than those provided with the camera are used, the length of the mounting screws should be selected so that the screws penetrate no more than 0.75 inches into the base.

WTI manufactures several different mounts for the Sidewinder camera series that allow the camera to be attached to pole tops, horizontal poles, vertical poles and walls.

SWWM1 – Wall Mount Option
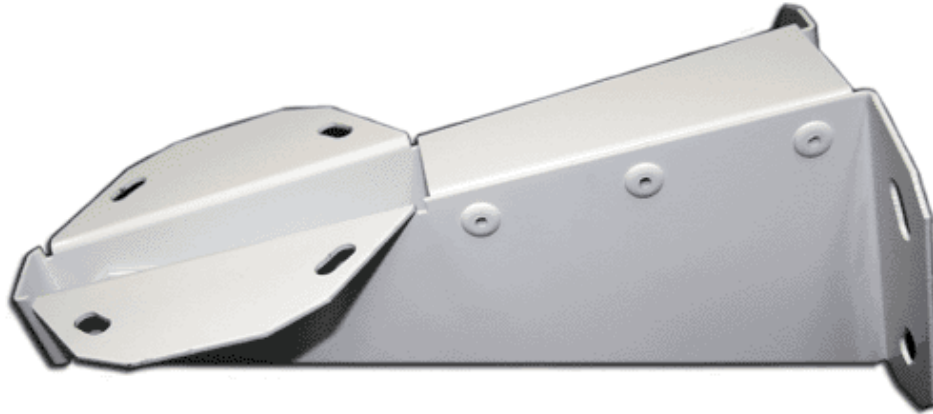
SWWM1 + SWVPA – Wall Mount with Vertical Pole Adapter

2.8

2.8

11.6

5.00

Ø 4.8

90° 4X

14.8

12.0

Ø 5.9

Ø 0.33
Slot Width

Spaced Equally 4X

1.3
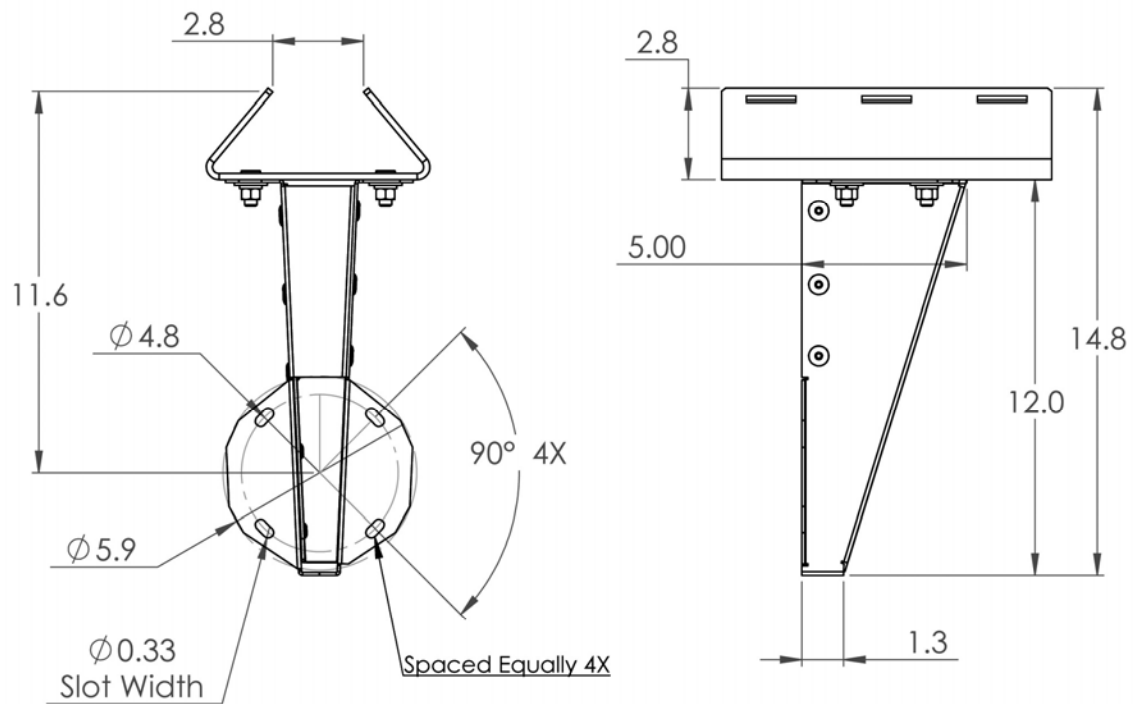
Units = Inches

SWPTM1 – Pole Top Mount

Units = Inches
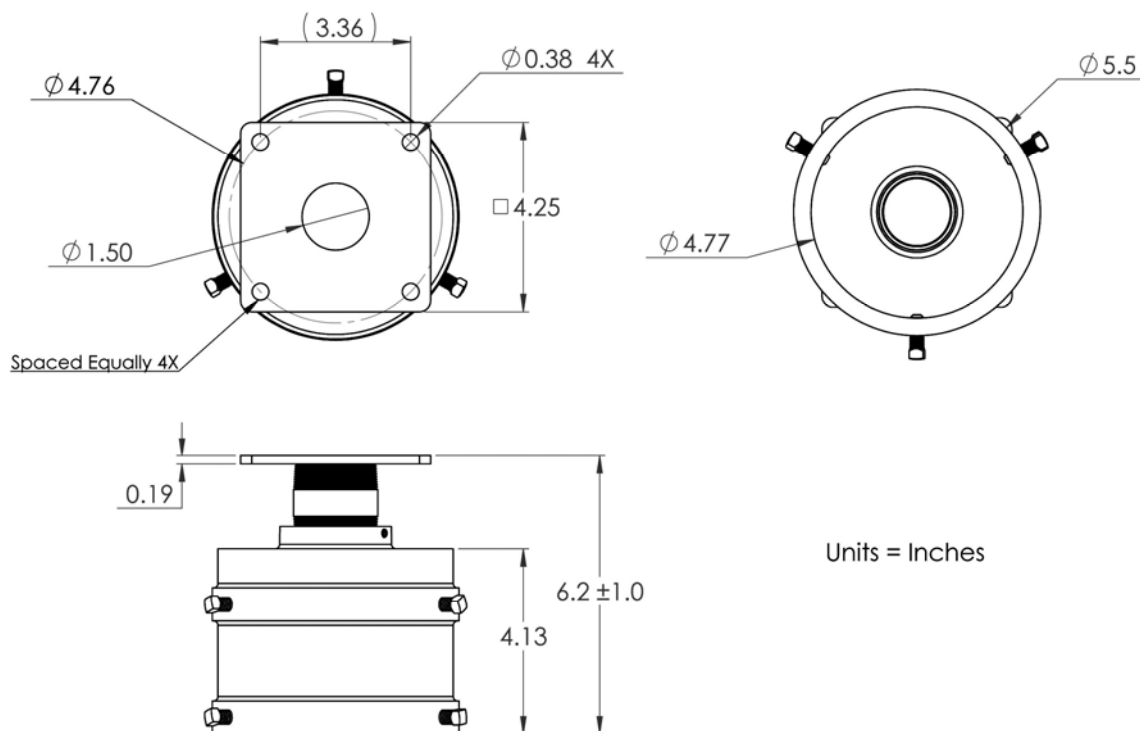
SWHPM1 – Horizontal Pole Mount

Units = Inches
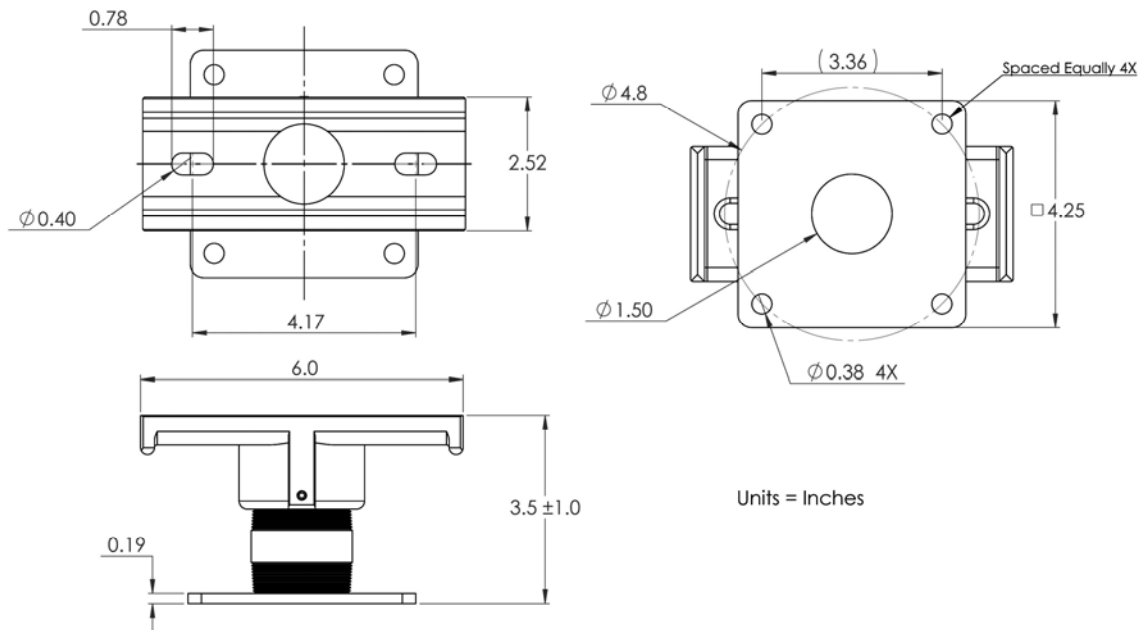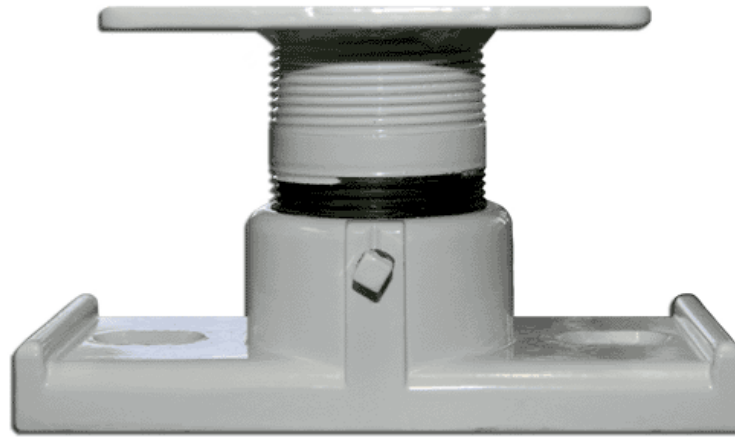
15-4-1430 – 6"x6"x3/8" Square Mounting Plate

Ø0.50 4X

5.125 4X

A

4 x Ø 0.397 THRU ALL
⌵ Ø 0.762 X 100°
SPACED EQUALLY

Ø1.50

Ø4.75

□6.00 ±0.020

0.44

A

0.44

0.38

SECTION A-A
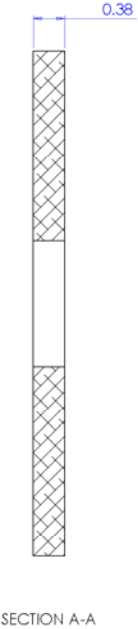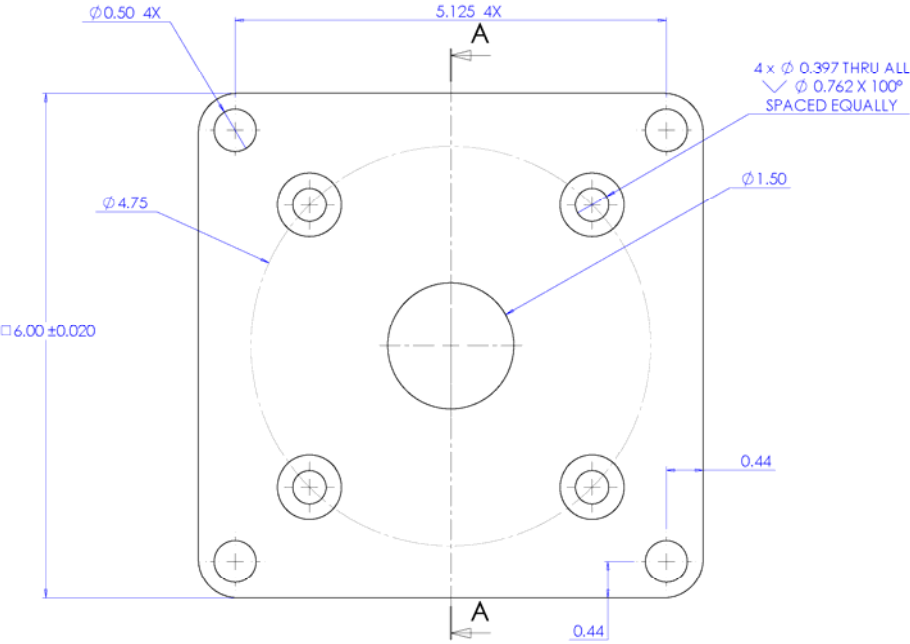
15-4-913 – 6"Round Riser Mounting Base

0.25

0.25

6.00 Dia.

6.00 Dia.

3.50 Dia. Tube - 0.125 Thick Wall

1.50

1.50 Dia.

0.187 " Fillet Typical

2.00 Dia.

4.75 Dia.

4.75 Dia

2.00 Dia.

6.00
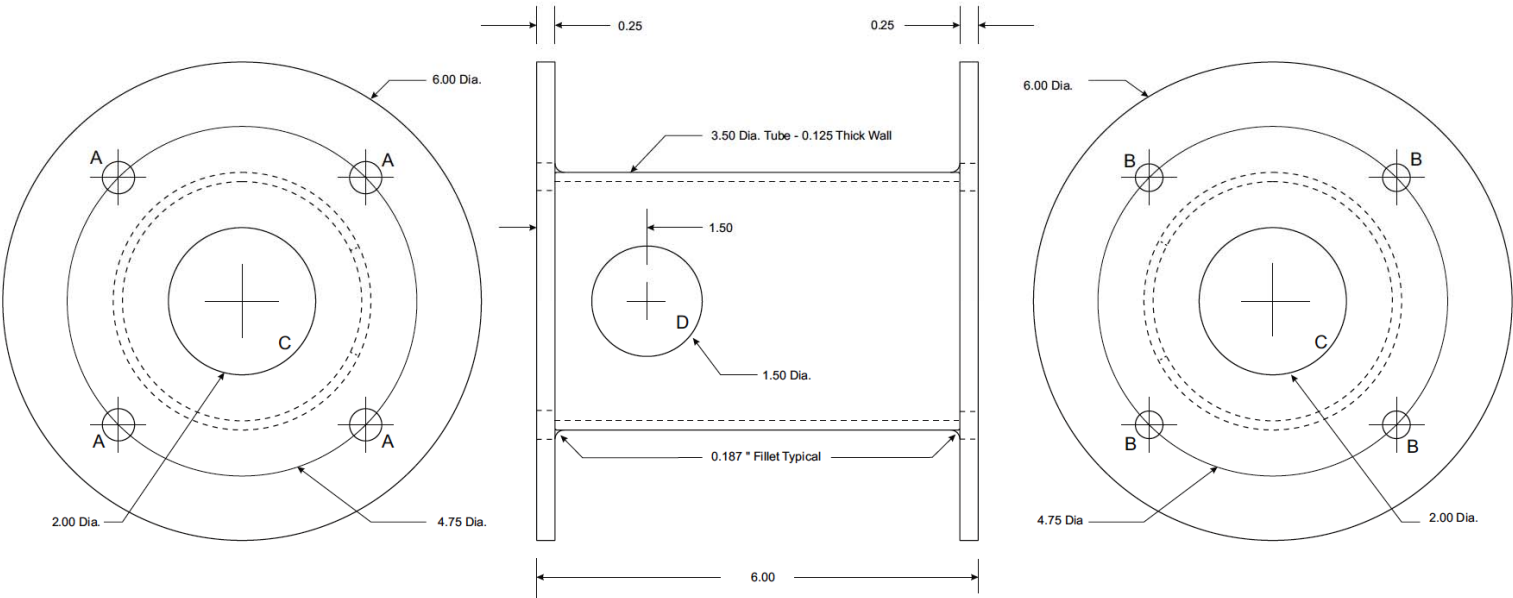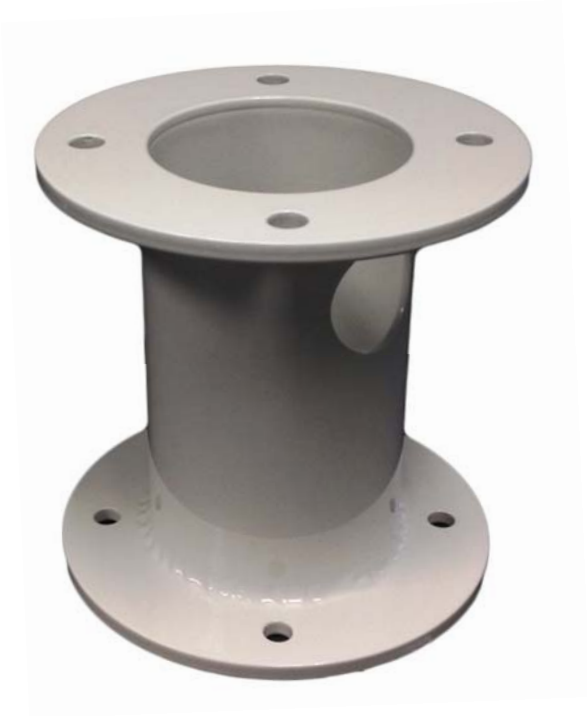
SIGNAL CONNECTIONS

The Sidewinder SW720HV-H.264-TI camera is provided with a side egress MS connector. The MS connector provides the power and Ethernet data and control signals for the camera. The connector pin outs and suggested cable wire color code are as follows:
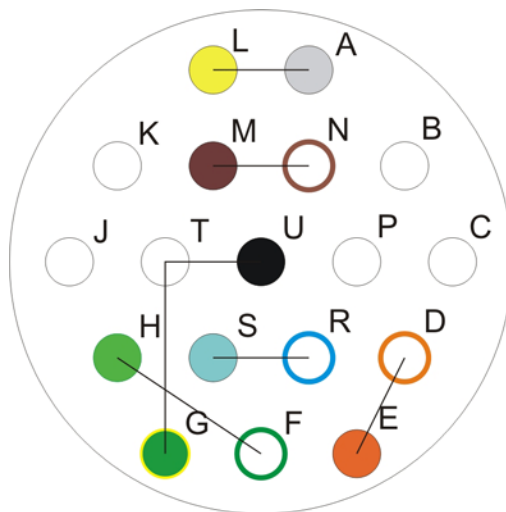
PIN	Signal Description	Wiring Color Code and Wire Recommendations
A	*(Analog Video Ground)	RG-59U Shield
B		
C		
D	Tx+	Orange/White CAT-5e
E	Tx-	Orange CAT-5e
F	Rx+	Green/White CAT-5e
G	AC Safety Ground	Green 22 AWG Minimum (Same or heavier than AC Line Input)
H	Rx-	Green CAT-5e
J		
K		
L	*(Analog Video Out)	RG-59U Center Conductor
M	*(RS-422 RX +)	Brown CAT-5e
N	*(RS-422 RX -)	Brown/White CAT-5e
P		
R	*(RS-422 TX -)	Blue/White CAT-5e
S	*(RS-422 TX +)	Blue CAT-5e
T	AC Line Neutral (low)	White 22 AWG Minimum
U	85-265 AC Line Input (high/hot)	Black 22 AWG Minimum

* Optional

AC LINE CONNECTIONS

The AC Line connections should be connected to an AC mains source with a voltage of 85VAC to 265V AC, operating at a frequency of 47Hz to 63Hz. The nominal operating voltage is normally 115VAC or 230VAC. The camera draws 50 Watts maximum, which translates to about 0.6 Amps at the worst case low line voltage of 85VAC.

The "hot" side of the AC mains connections should applied to Pin U of the 18 pin MS connector.

The "low" side of the AC mains connections should applied to Pin T of the 18 Pin MS connector.

The AC mains safety ground connection should applied to Pin G of the 18 Pin MS connector.

ETHERNET DATA AND VIDEO CONNECTIONS

The PTZ camera control functions and video streaming functions to and from the SW720HV-H264-TI camera are transmitted over a 100Base-TX Ethernet connection using specific Ethernet ports assigned for each of the various functions and protocols.

CAMERA PTZ CONTROL PROTOCOLS AND PORTS

The SW720HV-H264-TI camera supports COHU, Pelco D, WTI, NTCIP and Web/ONVIF protocols over Ethernet and through the optional RS-485 data connections.

The various protocols are accessed through the use of different port numbers when sending camera control commands to the Sidewinder using an Ethernet connection.

COHU Protocol: 55002
Pelco D Protocol: 55001
WTI Protocol: 53935
NTCIP Protocol: 55000
Web/ONVIF Protocol: 55003

OPTIONAL HARD WIRED PTZ CONTROL PORT

An optional hard wired RS-485 port can be configured on the SW720HV-H264-TI camera for special situations. These signals are provided on pins M, N, R and S of the 18 pin MS connector and can be wired to the normally unused Blue and Brown twisted pairs on the CAT-5e extension cable (see wiring chart). This option MUST be ordered at time of purchase.

There are internal 120 Ohm termination resistors for both the TX and RX signal pairs. The factory shipped default state for the 120 Ohm terminations is for both the TX and RX terminations to be enabled. Applications that involve multiple cameras on the same RS-485 communications lines will require that the terminations on all cameras but one be turned off.

VIDEO STREAMING PROTOCOLS AND PORTS

The SW720HV-H264-TI camera supports the following video streaming formats on the following ports:

> RTSP Server (TCP): 8554
> RTP Video Data (UDP) Stream 1: 18888
> RTP Video Data (UDP) Stream 2: 18890
> RTCP Video Reception Data Stats (UDP) Stream 1: 18889
> RTCP Video Reception Data Stats (UDP) Stream 2: 18891

OPTIONAL ANALOG VIDEO CONNECTIONS

An optional NTSC standard definition video signal connection provide a 1Vpp NTSC video signal with a 75 Ohm drive impedance on Pins L and A of the 18 pin MS connector (see wiring chart).

SURGE PROTECTION

The SW720HV-H264-TI camera provides internal surge protection for all of the power, data and video signals.

1.) The AC line power connections are provided with 275 volt 135 Joule MOV surge arrestors rated for 6000 Amp pulses. A 3A SMT fuse is included in the primary circuit to prevent catastrophic printed circuit board damage in the case of gross AC line input overloads.

2.) The video signal lines incorporate a two stage protection circuit consisting of a primary 90V gas discharge tube, followed by a high speed, low capacitance 6.2V 2kW peak power transient voltage suppressor.

3.) The data signal lines incorporate a two stage protection circuit consisting of a primary 90V gas discharge tube, followed by an 18V, 300W, 40A transient voltage suppressor.

SEALING AND PRESSURIZATION

The SW720HV-H264-TI camera provides two levels of sealing and pressurization. The entire camera, including the base, housing and camera tube are all sealed to IP66/67 levels to prevent any ingress of dust or moisture. An additional option is available, in which the camera housing tube is pressurized to 5 psi with dry nitrogen gas.

The SW720HV-H264-TI camera with the pressurization option is provided with a Schrader valve to allow periodic replenishment of the dry Nitrogen in the camera housing tube. Since no sealing system will remain 100% airtight indefinitely, it may be necessary to replenish the dry Nitrogen occasionally. This can be done at the same time that the regular camera cleaning is performed. A 15psi pressure relief safety valve is provided to prevent damage to the seals and to prevent blowing out the front or back plates of the

camera housing if an unregulated high pressure dry Nitrogen tank were to be connected to the Schrader valve.