

3220 SERIES ANALOG ENVIRONMENTAL CAMERA INSTALLATION MANUAL



RS-232
RS-422

Figure 1. Model 3220 NTSC or PAL Camera

CAUTION
Do not power the 24 V ac version of this camera directly from a Variac. It will blow up the power supply.



**Figure 2. Camera Version with Pigtail Cable
(Model 3221 or Model 3223)**

**Also available without factory wired pigtail cable to allow for direct connections to internal terminals
(Model 3222 or Model 3224)**

Two other manuals related to this camera are available:

- 1. Manual 6X-1084. The setup GUI - for configuring camera characteristics**
- 2. Manual 6X-1085. The protocol - for use by programmers to write software for controlling camera functions**

1.0 GENERAL DESCRIPTION

This introduction briefly describes the overall characteristics of the Model 3220 Camera (figure 1) related to its installation. Complete specifications can be found on the CD supplied with this camera.

1.1 Electrical Characteristics

The 3220 provides a highly sensitive CCD camera in an environmental housing.

The 3220 is available with either NTSC or PAL video output, depending on the model. Operating power is either 12 V dc or 24 V dc/ac — again depending on the model.

It has an integrated camera module with 3.3 mm to 99 mm zoom lens.

Data communications with the camera can be either RS-232 or RS-422 for control of DSP functions.

It has a day/night feature that increases sensitivity by reverting from color to monochrome output in low light conditions. This feature can be made to operate automatically or by manual control when desired.

A model number interpretation diagram appears in figure 4. That diagram shows the various basic configurations of the 3220.

1.1.1 Initial Setup Software

Graphical User Interface (GUI) software is available for setting the address and performing field tests and setups for each camera. This is included on a CD provided with the camera. The reference manual for this GUI is technical manual 6X-1084 which is also included on the CD.

1.1.2 Camera Firmware Protocol

The protocol for a programmer to develop software for controlling the camera is available on the CD provided with the camera. Refer to technical manual 6X-1085.

1.2 Mechanical Characteristics

Dimensions are shown in figure 5. The 3220 consists of an IP66 environmentally sealed camera module. This housing is not pressurized with an inert gas such as dry nitrogen.



Figure 3. Camera Front View

An integral sun shield over the camera module housing minimizes heat build up that could result from direct sun light on the camera module housing.

The mounting base (figure 5) for the 3220 has a two-hole pattern on a sliding “T” slot type bar for attachment to a suitable base.

A 3220 can be mounted on any one of five mechanical configurations. The model number defines the mounting equipment supplied as part of the 3220. Table 1 lists the mounting items supplied for each of the mounting configurations available with a 3220.

2.0 INSTALLATION

This section covers the general requirements of installing the 3220 including cabling and power requirements. In addition to the actual installation requirements, this section covers a number of other items including static discharge protection and proper shipping and handling of the 3220.

2.1 Unpacking and Receiving Inspection

This item was thoroughly tested and carefully packed in the factory. Upon acceptance by the carrier, they assume responsibility for its safe arrival. Should you receive this item in a damaged condition, apparent or concealed, a claim for damage must be made to the carrier.

If a visual inspection shows damage upon receipt of this shipment, it must be noted on the

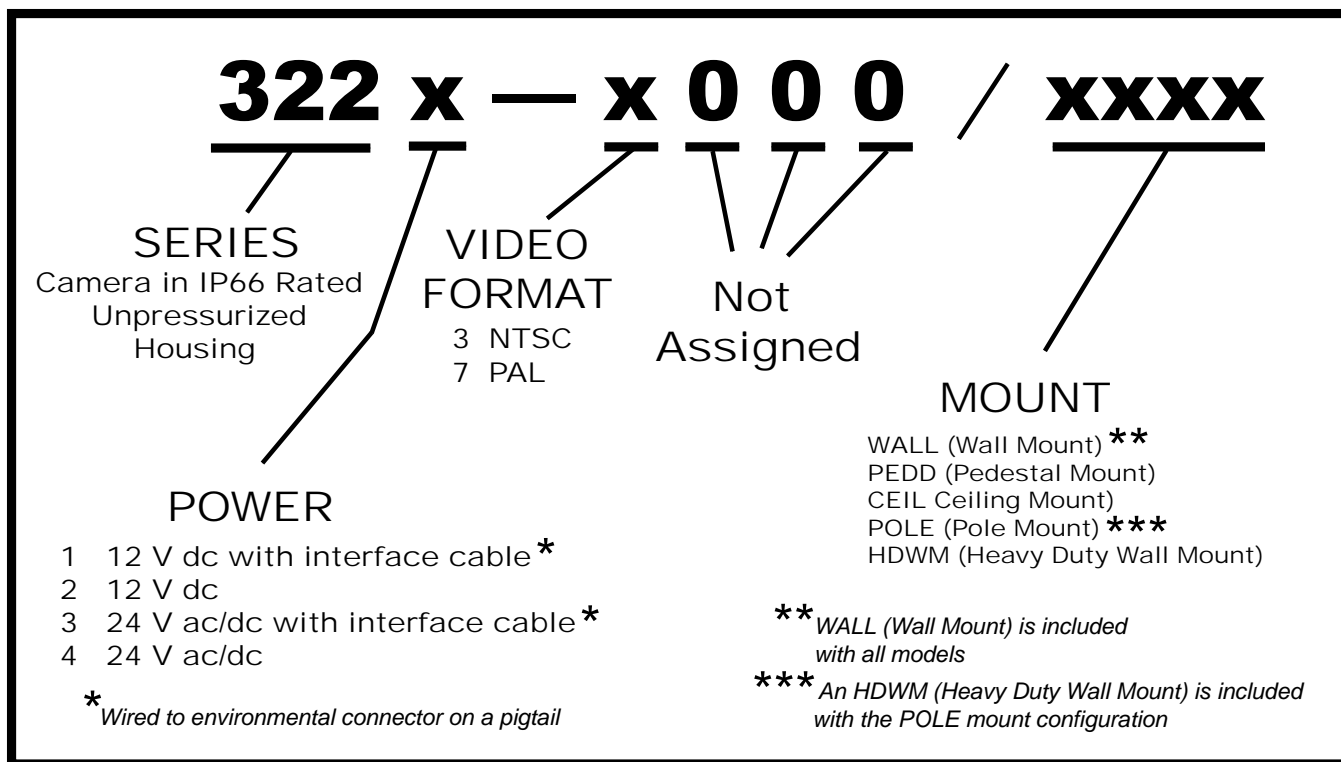


Figure 4. Model Number Interpretation Diagram

freight bill or express receipt and the notation signed by the carrier's agent. Failure to do this can result in the carrier refusing to honor the claim.

When the damage is not apparent until the unit is unpacked, a claim for concealed damage must be made. Make a mail or phone request to the carrier for inspection immediately upon discovery of the concealed damage. Keep all cartons and packing materials.

Since shipping damage is the carrier's responsibility, the carrier will furnish you with an inspection report and the necessary forms for filing the concealed-damage claim.

To return the product to the factory for service, please contact the Customer Service Department for a Return Authorization (RA) Number.

2.2 Static Discharge Protection

In the event that a disassembled 3220 is being handled, the following precautions should be followed:

CAUTION

This 3220 contains sensitive devices that can be damaged by static discharge. Use appropriate static control methods when working inside the 3220.

Components used in modern electronic equipment, especially solid state devices, are susceptible to damage from static discharge. The relative susceptibility to damage for semiconductors varies from low with TTL to high with CMOS. Most other semiconductors fall between TTL and CMOS in susceptibility to static discharge. As a minimum, therefore, observe the following practices when working inside this or any other electronic equipment:

1. Use conductive sheet stock on the work bench surface.
2. Connect the sheet stock to ground through a 1 megohm or greater value resistor.
3. Use a wrist strap connected to ground through a 1 megohm or greater value resistor when working at the bench.

Table 1. Mounting Configurations

| MOUNT DESIGNATION | MOUNT DESCRIPTION | ITEMS SUPPLIED | | | | | |
|-------------------|------------------------------|----------------|------------|----------------|---------------|-----------------------|------------|
| | | 3220 CAMERA | WALL MOUNT | PEDESTAL MOUNT | CEILING MOUNT | HEAVY DUTY WALL MOUNT | POLE MOUNT |
| WALL | Wall Mount | • | • | | | | |
| PEDD | Pedestal Mount | • | • | • | | | |
| CEIL | Ceiling Mount | • | • | | • | | |
| HDWM | Heavy Duty Wall Mount | • | • | | | • | |
| POLE | Pole Mount | • | • | | | • | • |

Note: Read the table horizontally. A dot “•” designates an item supplied for each mounting configuration. As an example, for the CEIL (Ceiling Mount) three items are supplied: a 3220 camera, a wall mount, and a ceiling mount.. Notice in the Wall Mount column that it is always supplied with a camera. It is required only for a WALL mount installation, but can be used if desired as an alternate mounting method if the need arises.

4. Maintain relative humidity of the room above 30 percent. This may require a room humidifier. Working on circuits with relative humidity below 30 percent requires extraordinary procedures not listed here.

5. Use antistatic bags to store and transport an exposed chassis, circuit boards, and components. Use new antistatic bags. Old, used bags lose their static protection properties.

This list serves as a reminder of the minimum acceptable practices. Be sure that all static discharge devices at the work bench are properly installed and maintained. Standard grounding mats and wrist straps purchased for use at work benches are supplied with leads having current limiting resistors for safety. Never substitute with a grounding lead not having the resistor.

2.3 Equipment Supplied

The basic configuration consists of the camera and a wall mount arm. The housing is fitted with an integral sun shield assembly that covers the camera module housing. This sun shield minimizes heat buildup inside the camera by shielding it from the direct rays of the sun.

If either a model 3221 or model 3223 has been supplied (9-inch pigtail cable attached to camera) a

mating connector is supplied for the system interconnection cable. These are 18-pin MS type metal connectors. Figure 29 shows this connector kit.

Two hex (Allen) wrenches are also supplied with the camera. One is for removing housing screws to gain access to the interior of the camera and the other hex wrench is for the ball head adjustment on the basic WALL mount.

2.3.1 Mounting Hardware Supplied

Several assortment of nuts, bolts, flat washers, and locking washers may be provided depending on which mounting configuration has been selected.

1. The standard wall (WALL) mount supplied with all cameras is shipped with a 1/4-20 x 1/2 inch bolt and a locking washer.
2. Pedestal, ceiling, heavy duty wall mounts, and pole mounts are shipped with hardware kit 8498-8 — which supplies various bolts and washers to choose from when attaching a camera to the mount being used.

The pole mount is also shipped with an additional hardware kit for attaching the clamp to the pole and for attaching the heavy duty wall mount to the clamp. See figure 26.

Table 2. Mounting Hardware Kit 8498-8

| ITEM | DESCRIPTION | QTY | PART NUMBER | WHERE USED |
|------|------------------------------|-----|-------------|-------------------------------|
| 1 | 1/4-20 x 1/2 Hex Head Screw | 2 | 2010730-006 | Pedestal Mount |
| 2 | 1/4-20 x 5/8 Hex Head Screw | 2 | 2010730-005 | Ceiling Mount |
| 3 | 1/4 Spring Lock Washer | 2 | 2010732-002 | Pedestal Mount; Ceiling Mount |
| 4 | 1/4 Flat Washer | 2 | 2010731-002 | Pedestal Mount; Ceiling Mount |
| 5 | 1/4-20 x 1/2 Flat Head Screw | 2 | 0310010-091 | Heavy Duty Wall Mount |

Notes: All dimensions in inches. This kit provides the hardware necessary to attach a 3220 series camera to a Heavy Duty Wall Mount, a Ceiling Mount, or a Pedestal Mount. This hardware must be used in place of the metric hardware included with these mounts. (The two flathead screws in item 5 are required for the Pole mount option, too, since it uses the Heavy Duty Wall Mount as part of its assembly.)

2.3.1 Mounting Hardware Not Supplied

No hardware is supplied for securing a wall, ceiling, or pedestal mount to their mounting surface.

However, the pole mount does not require any additional hardware to mount it to a pole. It can be clamped to a pole with two threaded rods that are supplied in its hardware kit.

2.4 Equipment Required but Not Supplied

As a minimum the 3220 requires a source of operating power, a monitor on which to view the scene, an interconnection cable, and a computer running Graphical User Interface (GUI) software for control of the 3220 if this is desired.

During maintenance and setup operations using either a laptop or desktop PC it is likely that a USB to RS-232 converter will be required.

Typically PC's have had only an RS-232 port — and rarely an RS-422 port.

However, newer PC's and laptops no longer have an RS-232 port and instead rely on USB and other newer type ports.

With these computers, a USB to RS-232 converter will be required. Be aware that some of these converters do not provide reliable RS-232 communications. If problems are experienced determine whether it is the converter.

If it is desired to use the RS-422 feature of the camera it will then be necessary to add an RS-232 to RS-422 converter.

Or a USB to RS-422 converter could be used directly but these are not common devices.

2.5 Cabling Requirements

Two versions of the camera have slightly different cabling requirements. With one version the system interconnection cable plugs into a camera connector. With the second version the system interconnection cable must be directly wired to internal terminals inside the camera.

2.5.1 Model 3221 and 3223 Cameras

For the model 3221 and model 3223 versions of the camera, system interconnections are made to the connector on a permanently attached 9-inch "pigtail" cable. A connector (figure 29) is provided to mate with this pigtail connector.

Figure 6 through figure 15 show typical cables available for use with the pigtail connector.

2.5.2 Model 3222 and 3224 Cameras

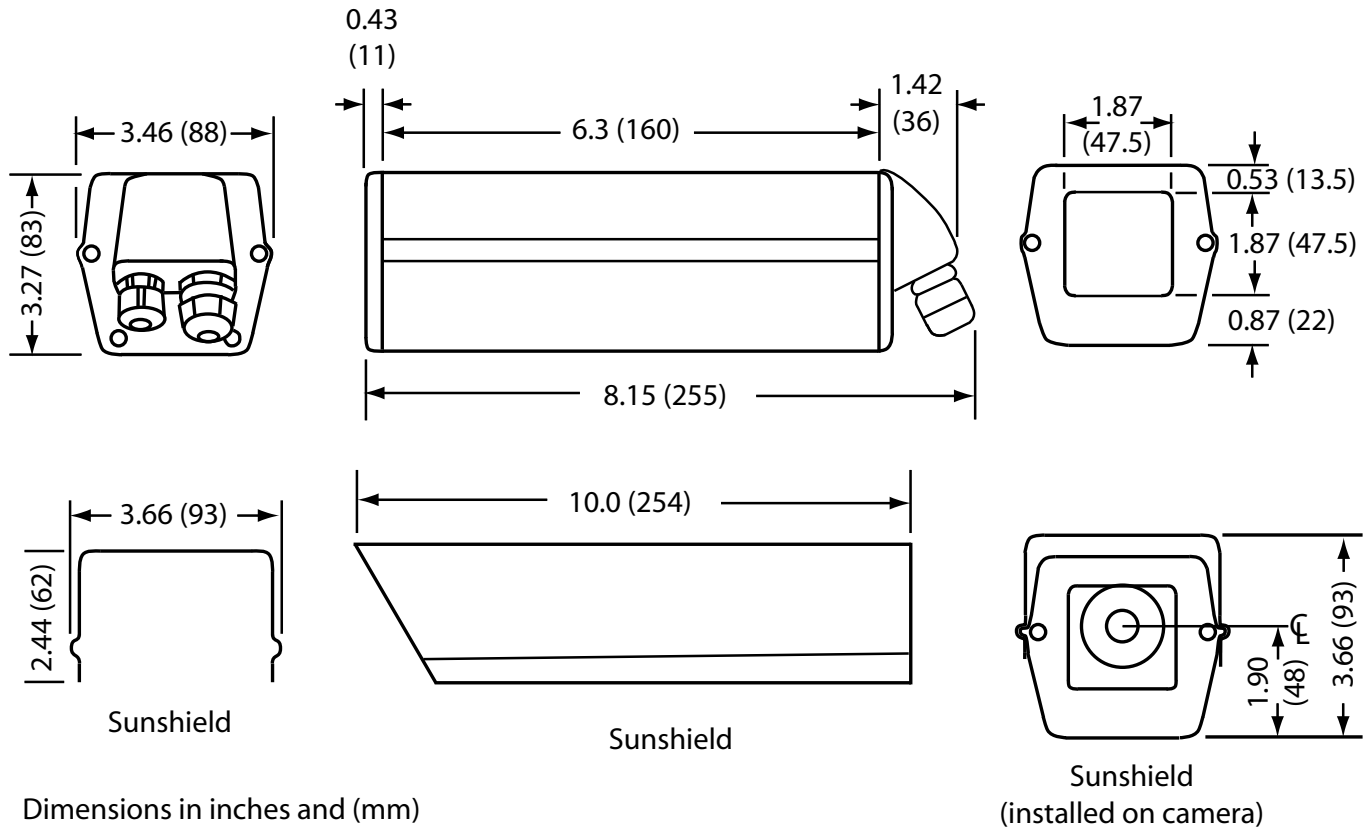
For the model 3222 and model 3224 versions of the camera, system interconnections are made directly to terminals inside the camera (figure 16 and figure 17).

2.5.3 Customer Supplied Cable

A high quality multiconductor shielded cable must be used with this camera both to minimize EMI radiation and to reduce susceptibility to interference.

The cable must have an overall shield with at least 95 percent coverage.

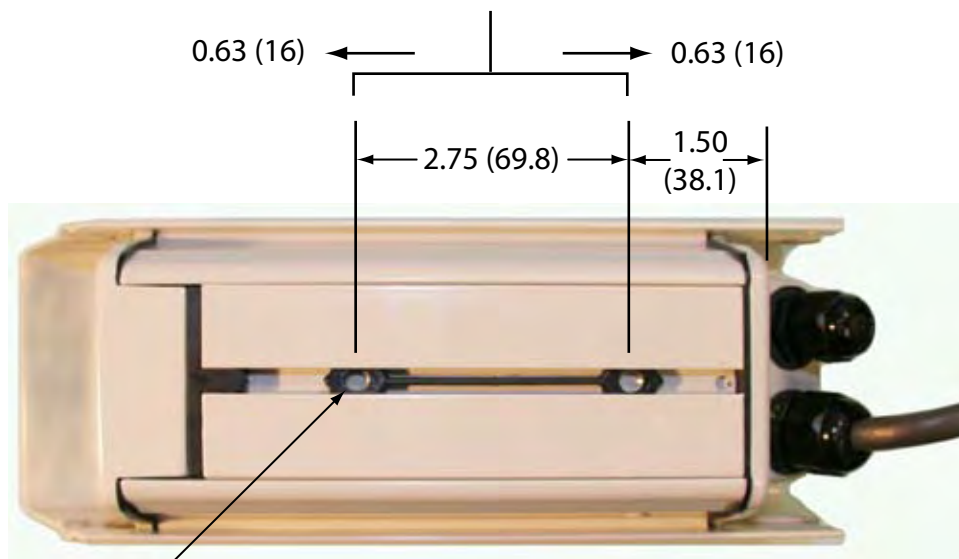
Data wiring must be twisted pairs similar to that used in CAT-5e cable. A data ground wire must be used.



Dimensions in inches and (mm)

See photo below for bottom mounting dimensions

Note: Mounting bracket slides 0.63 inches right or left from centered position shown



1/4-20
(Typical two places)

Note: 1/4-20 bolts must not protrude more than 5/16 inch past bottom of camera

Figure 5. Dimensions, Model 3220 Series Cameras

Table 3. System Interconnection Cable Characteristics

| ITEM | CABLE TYPE | DATA TYPE | VIDEO CONNECTION | POWER CONNECTION | DATA CONNECTION |
|--------------------------|------------|-----------|------------------|------------------|-------------------|
| 12 V dc | | | | | |
| 1 | CA-253A | RS-232 | stripped leads | stripped leads | stripped leads |
| 2 | CA-253B | | BNC | stripped leads | D9 female |
| 3 | CA-254A | RS-422 | stripped leads | stripped leads | stripped leads |
| 4 | CA-254B | | BNC | stripped leads | 232/422 converter |
| 5 | CA-254M | | BNC | stripped leads | RJ-45 |
| 24 V ac / 24 V dc | | | | | |
| 6 | CA-292A | RS-232 | stripped leads | stripped leads | stripped leads |
| 7 | CA-292B | | BNC | stripped leads | D9 female |
| 8 | CA-293A | RS-422 | stripped leads | stripped leads | stripped leads |
| 9 | CA-293B | | BNC | stripped leads | 232/422 converter |
| 10 | CA-293M | | BNC | stripped leads | RJ-45 |

Coaxial cable must be 75 ohm RG-59/U and not have any type of iron conductors. Belden 8241F is a typical good coax.

Power wiring must be of sufficient size to maintain proper operating voltage at the camera. Power wires can be paralleled to reduce voltage drop.

2.5.2 Pigtail Connector Pinout

Table 5 lists pin functions on the pigtail connector for various versions of the model 3221 and 3223 cameras.

2.5.3 System Interconnection Cables

Eight system interconnection cables are available for use with the model 3221 and 3223 cameras.

Table 3 lists these cables and describes their characteristics.

The major breakdown between cables types is whether they are for 12 or 24 volt cameras.

Each of these two groups is then further subdivided into whether a camera is to use RS-232 or RS-422 communications.

The final determination is whether the cable should have stripped leads for all the field installation connections or whether certain connectors and/or data converters should be provided with the cable.

2.6 Power Requirements

Two versions of the 3220 are available in relation to power input requirements:

1. The model 3221 and model 3222 operate from 12 V dc +/- 10 percent;
2. The model 3223 and model 3224 operate from either 24 V ac or 24 V dc +/- 10%.

Power consumption is less than 4 watts when the internal heater is off and less than 20 watts when the thermostat turns the heater on.

CAUTION

Do not power the 24 V ac version of this camera directly from a Variac. It will blow up the power supply.

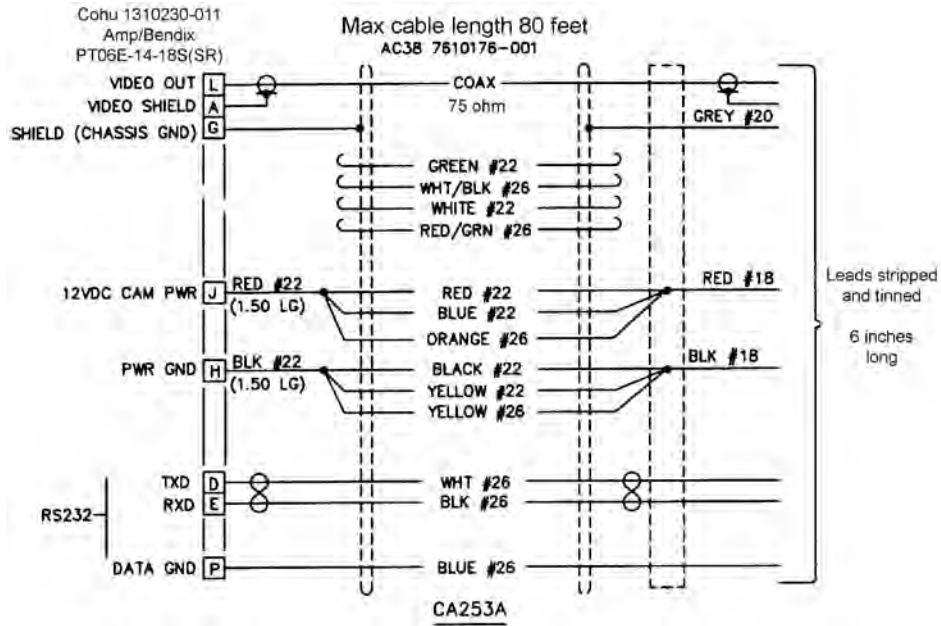


Figure 6. Type CA-253A System Interconnection Cable

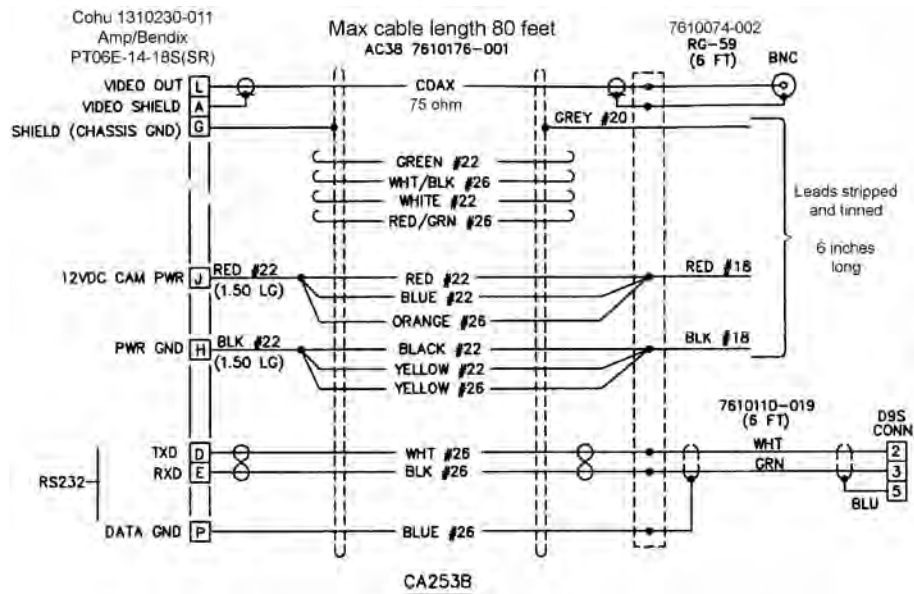


Figure 7. Type CA-253B System Interconnection Cable

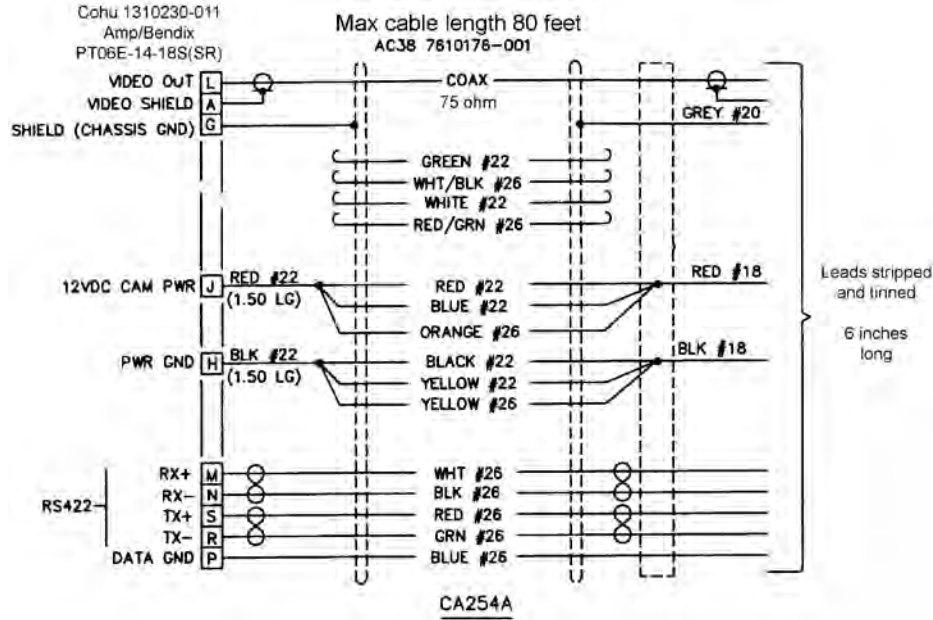


Figure 8. Type CA-254A System Interconnection Cable

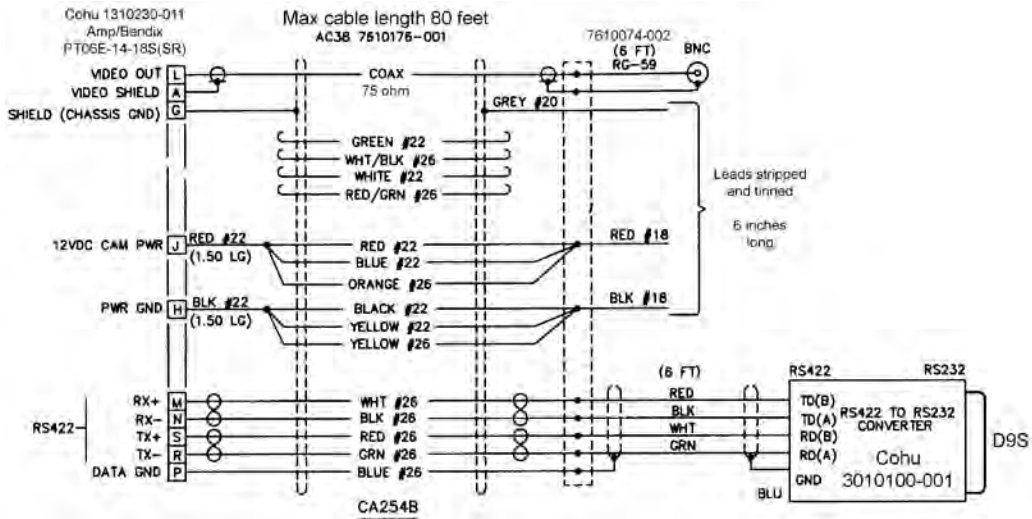


Figure 9. Type CA-254B System Interconnection Cable

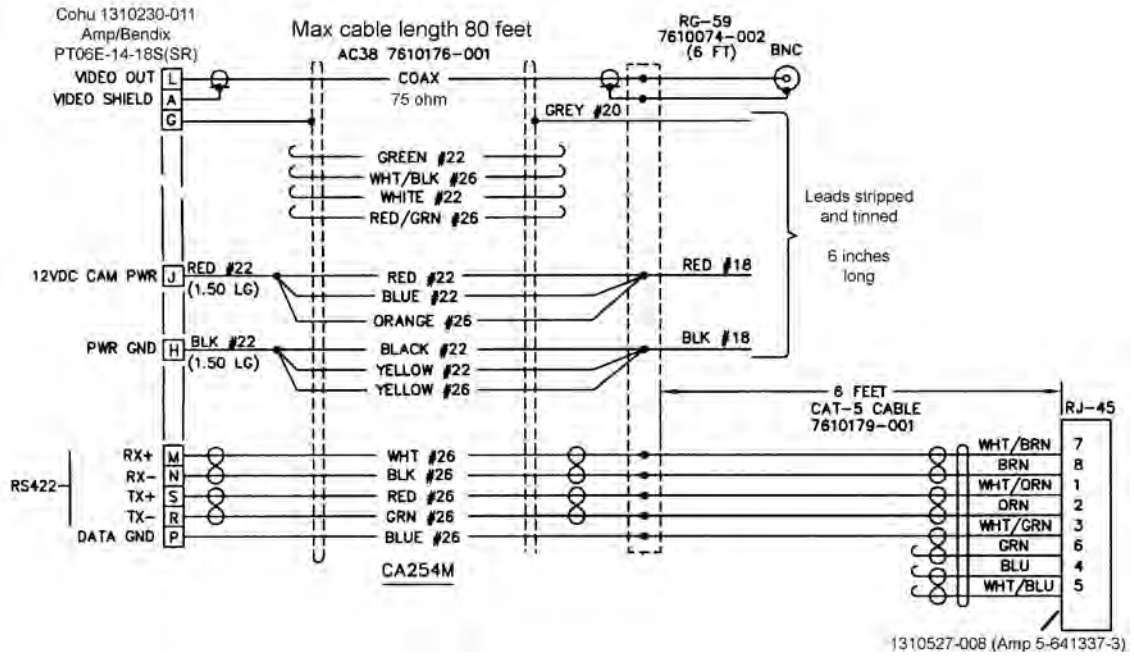


Figure 10. Type CA-254M System Interconnection Cable

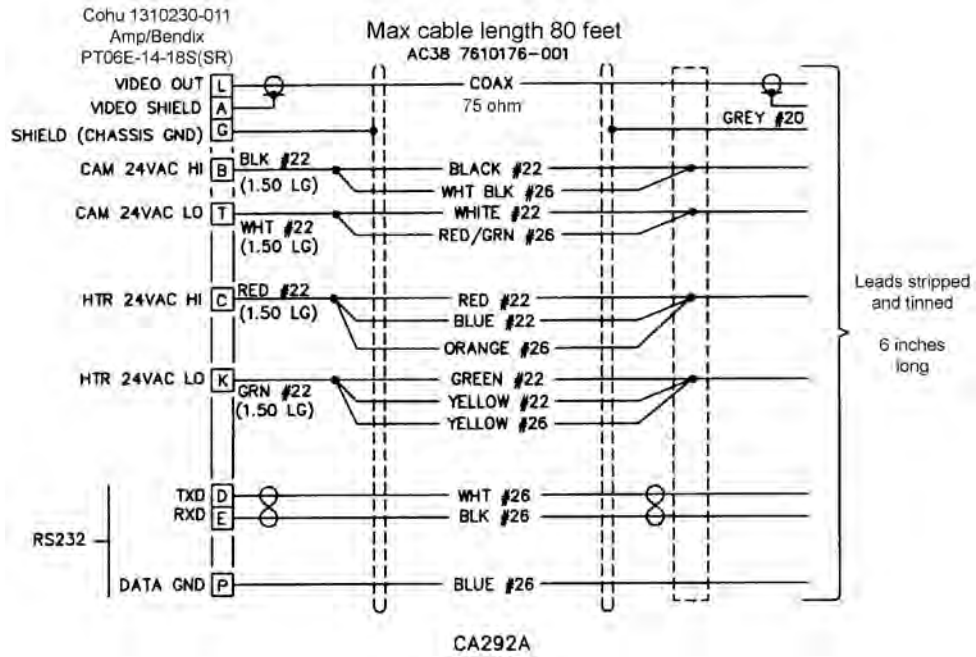


Figure 11. Type CA-292A System Interconnection Cable

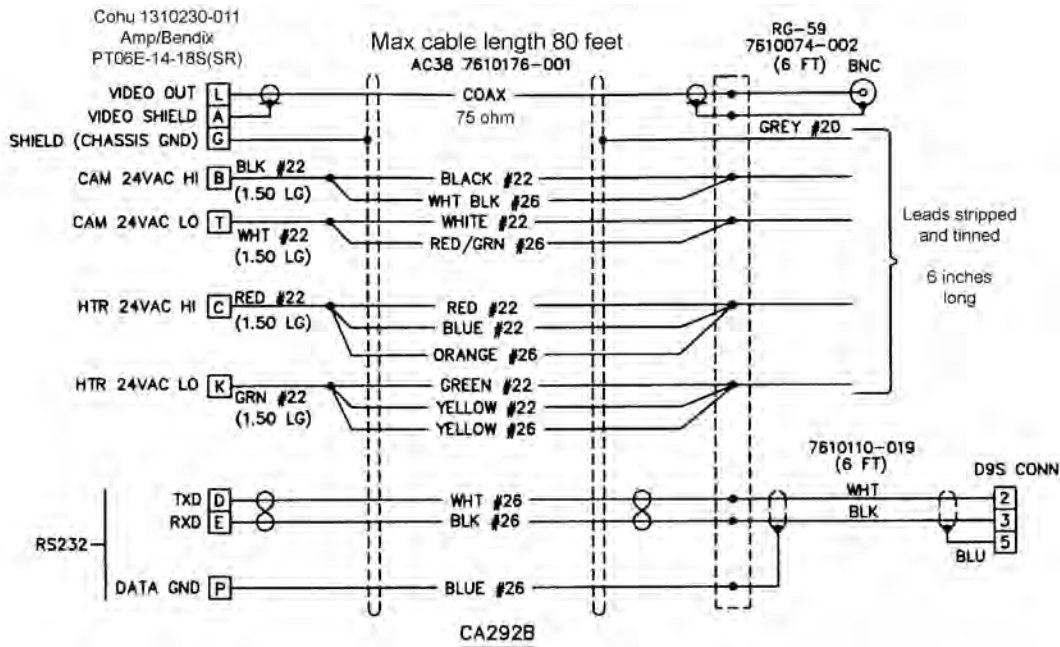


Figure 12. Type CA-292B System Interconnection Cable

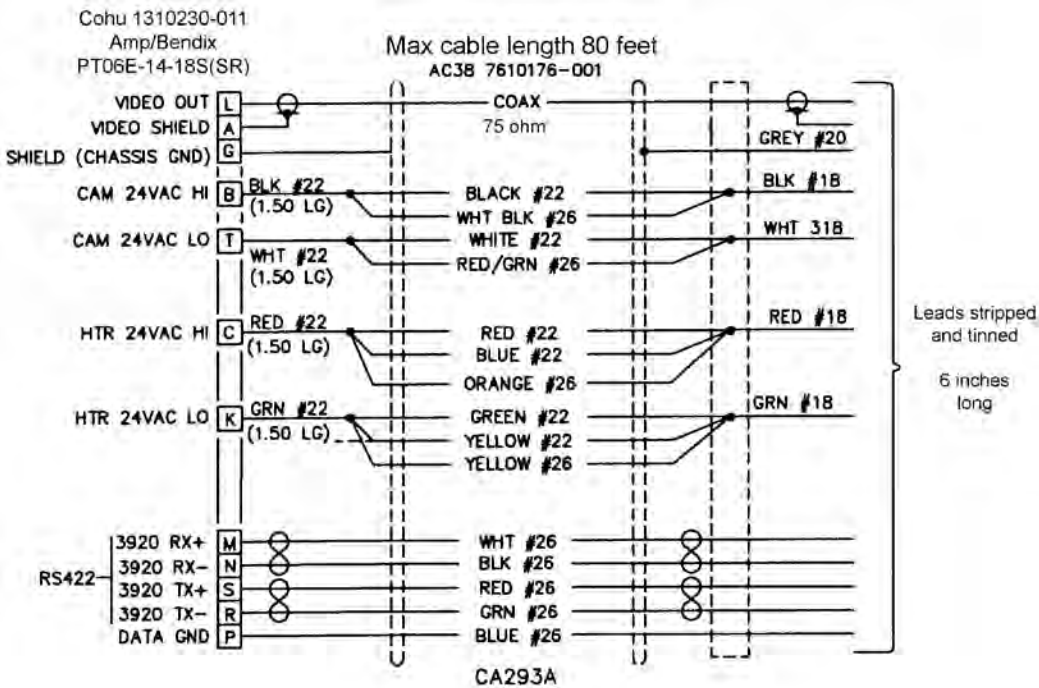


Figure 13. Type CA-293A System Interconnection Cable

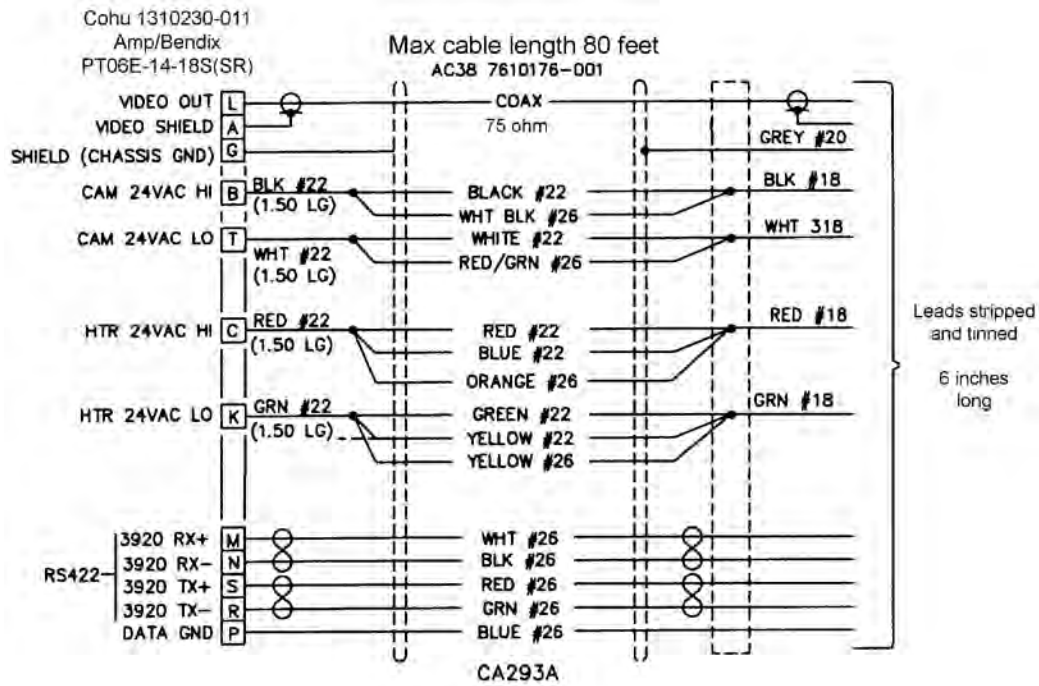


Figure 14. Type CA-293B System Interconnection Cable

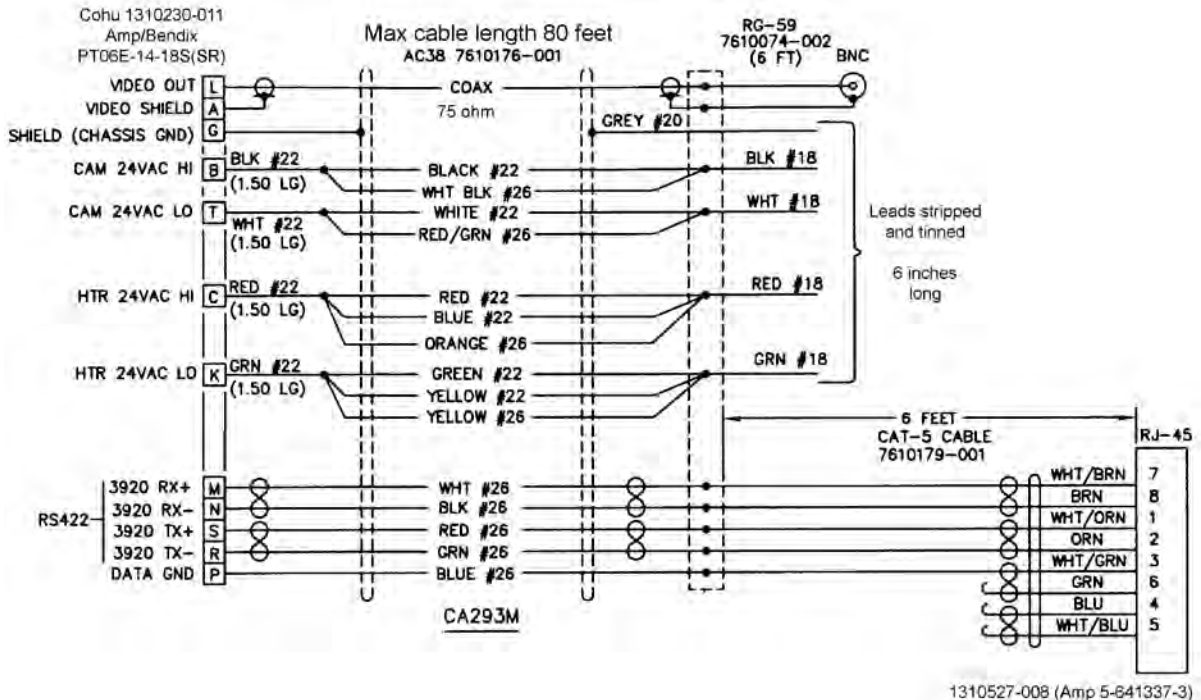


Figure 15. Type CA-293M System Interconnection Cable

2.7 RS-422 and RS-232 Wiring

The Tx+ Tx- and Rx+ Rx- notations for these RS-422 connectors and all other RS-422 connectors in a system using this notation can cause much confusion for field installers. There is a tendency to want to connect Tx to Tx and Rx to Rx. This almost always is wrong.

The Tx+ output of one piece of hardware should go to the Rx+ input of another. And Tx- goes to Rx-.

To add to the confusion Tx and Rx are not universally used notations for the same functions. Sometimes Command Out is used for Tx and Command In for Rx. Other naming conventions are also used among different equipment manufacturers and their cables. "TD" is sometimes used — the "D" indicating that it is a data line not a line for some other function.

Identifying labels that connectors and wires are assigned can sometimes appear to be arbitrary to those not familiar with all the various subtleties involved in serial communications.

Wiring for RS-232 has the same situation. Tx typically goes to Rx and at the other end Rx to Tx.

If any confusion exists it is best to contact the Customer Support department at Cohu or your local Cohu representative.

2.8 Mounting Requirements

The dimensions shown in figure 5 relate to mounting the camera. It can be optioned for four different mounting configurations:

1. Wall Mount (WALL). Mounting to an arm which attaches to a wall or ceiling. See figure 18.
2. Pedestal Mount (PEDD). Direct mounting of the camera to the top of a short pedestal (figure 20) or tall pole. The pedestal or pole must have a mounting hole pattern to which the camera can be secured. See section 4.1 for details about this standard mounting base.
3. Ceiling mount (CEIL). This mounting arrangement uses a ceiling mount arm to which the camera is secured. See figure 22.

4. Heavy Duty Wall Mount (HDWM). This mounting arrangement uses a wall mount arm designed for rugged duty use (See figure 24).

5. Pole Mount (POLE). When the camera must be mounted to a pole this option provides both a clamp to attach to the pole and also the heavy duty wall mount (HDWM) on which to fasten the camera (See figure 26).

Hardware is provided for mounting the camera to these various configurations.

The following paragraphs describe some of the features of the 3220 related to the installation process.

2.9 Installation Procedure

It is important to carefully plan for all cable routing before starting an installation. In some situations cable will have to be pulled through conduit or other narrow places before adding a connector to the end of a system cable. Any through-wall holes may require weatherproofing.

Installing the 3220 is straightforward. It is only necessary to mount the 3220 to a suitable base, mate the cable connector to the system cable and apply power. (Or connect to the camera with an on-site cable.) This assumes the other end of the cable is properly connected to a source of power, a tv monitor, a graphical user interface (GUI), and any other required equipment.

2.9.1 Camera Module Rear Panel Features

A packing gland on the rear panel is used to secure either the factory installed pigtail cable or a field wired cable that connects to internal terminals.

2.9.2 18-pin MS (Metal) Connector

This connector is attached to the 9 inch long cable that is permanently attached to the base of the 3220. Table 5 lists pin functions for the cable.

Figure 28 is the pin location diagram of this connector. It is a view from the mating side of the connector. This view can be used as a wiring view of the mating connector (supplied) for the system in-

CAUTION
Do not power the 24 V ac version of this camera directly from a Variac. It will blow up the power supply.

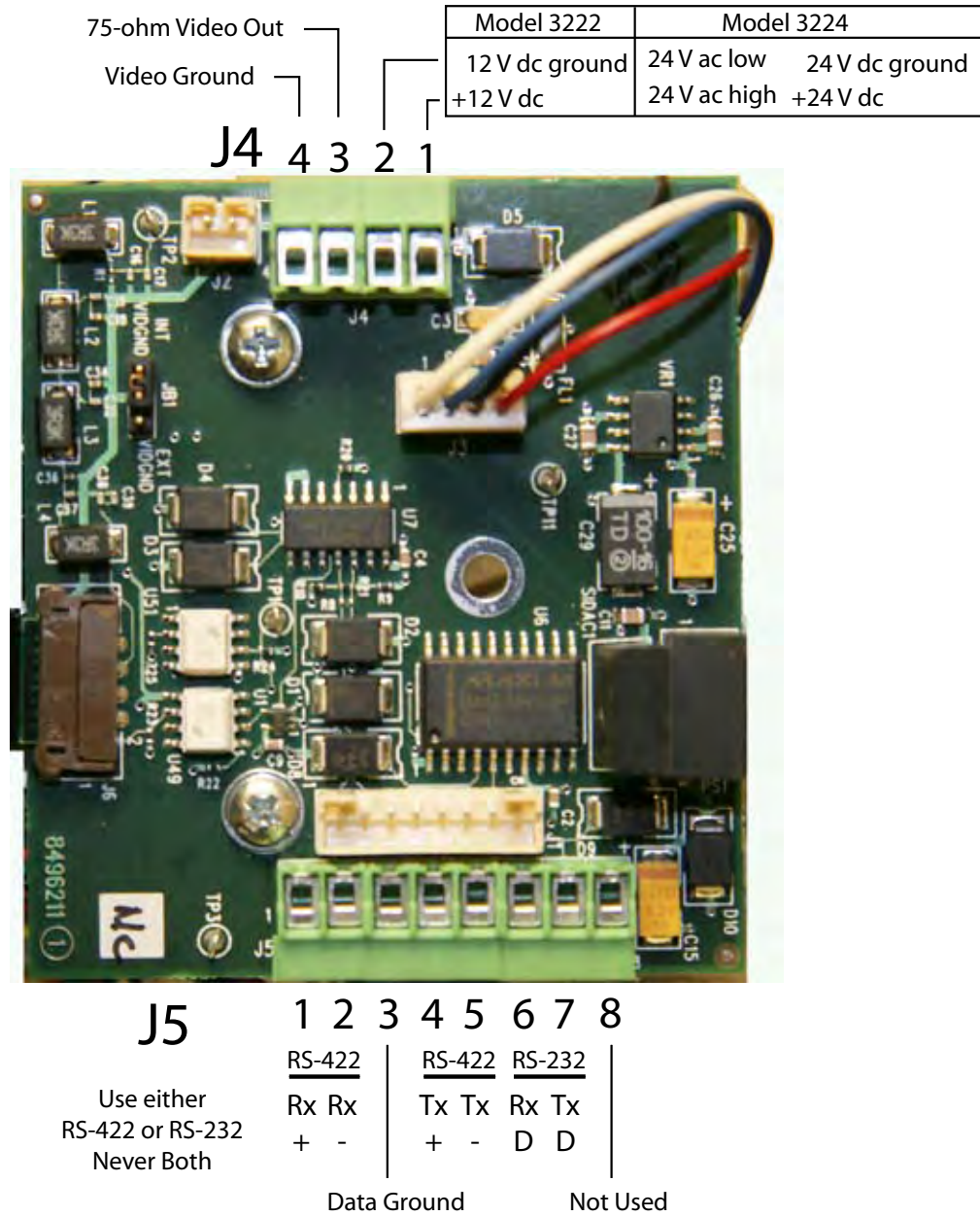


Figure 16. Model 3222 or Model 3224 Camera Internal Cable Wiring



E1 Chassis Ground
 Ground Lug for Cable Overall Shield
 (Solder direct or use spade lug)

Figure 17. Model 3222 or Model 3224 Camera Internal Wiring Ground Lug

terconnection cable that plugs into this 3220 pigtail connector.

The connector supplied for the system cable should not be installed until it is verified that the cable can be pulled through any conduit or other restricted passage on its way to the mounting location of the 3220. (Or the cable could be pulled through conduit in the opposite direction if the other end has stripped leads.)

2.10 Connector Sealing

Even though the connector used with this camera is designed to maintain a weather tight seal with mating system cable plugs, it is recommended that for additional protection against moisture in severe conditions a sealing wrap be used on the connectors.

Coax Seal is the recommended product:

www.coaxseal.com

sales@coaxseal.com

United States: 1-800-241-8171

or international: 1-828-293-2222

This product is available from a variety of commercial supply houses, consumer stores, and in the U.S. Government supply channels as GSA Schedule GS-07F-5739R

This product is a plastic tape-like material separated by a paper divider in its roll to prevent bonding to itself before use. After this material is wrapped around a connector, it forms a permanent weather-tight seal.

The cable and connectors should be clean and dry before wrapping with Coax-Seal.

Use a full wrap of this tape on the cable at the beginning. Then continue with a diagonal half overlap wrap up to the iDome housing. Then add a full wrap at the end of the coverage.

Squeeze together the wrapping so that it forms a tight bond both to itself and the mating connectors.

The web site for Coax-Seal has complete information about this product.



All cameras are shipped with this wall mount arm, 1/4-20 bolt, and lock washer

Figure 18. Standard Wall (WALL) Mount

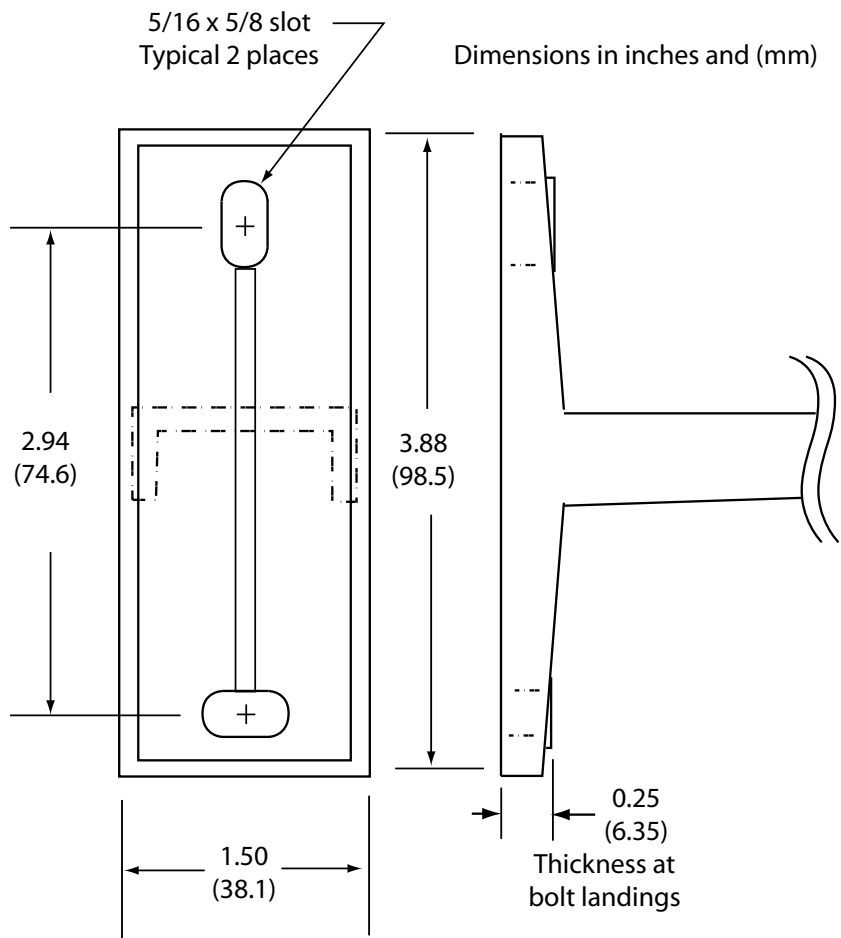


Figure 19. Mounting Dimensions, Standard Wall (WALL) Mount

Figure 20. Pedestal (PEDD)

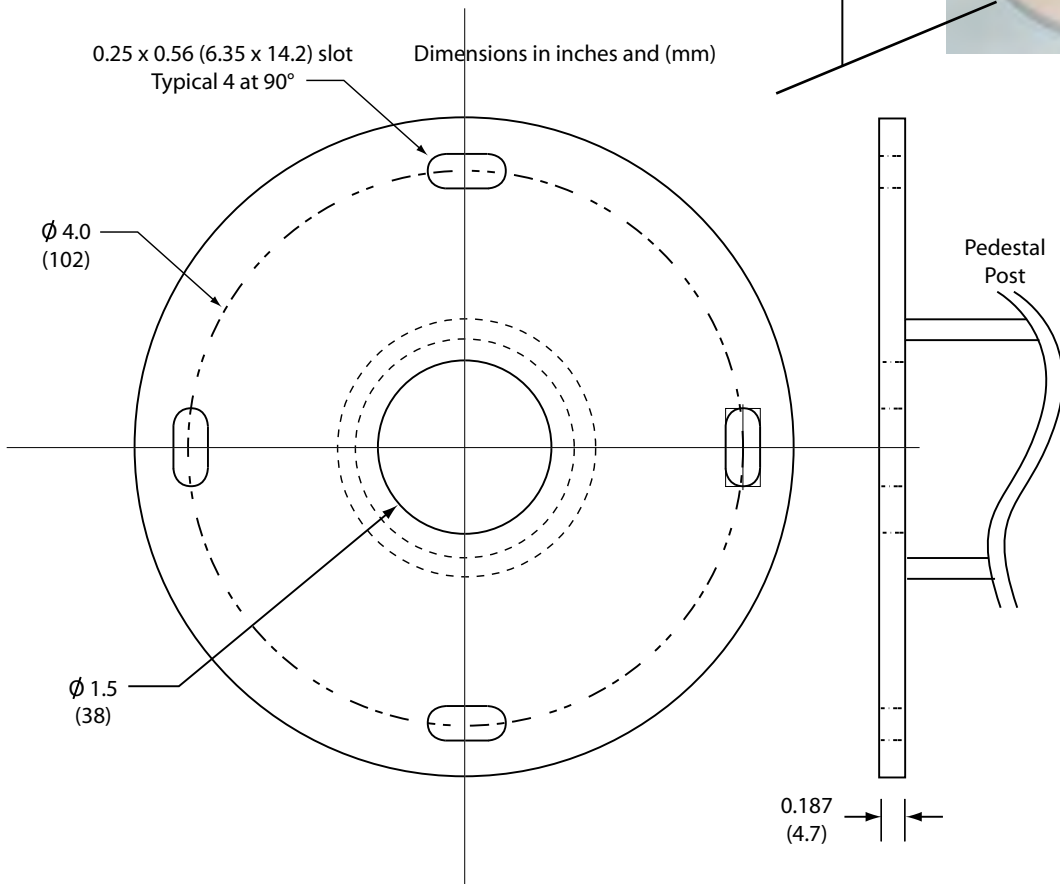
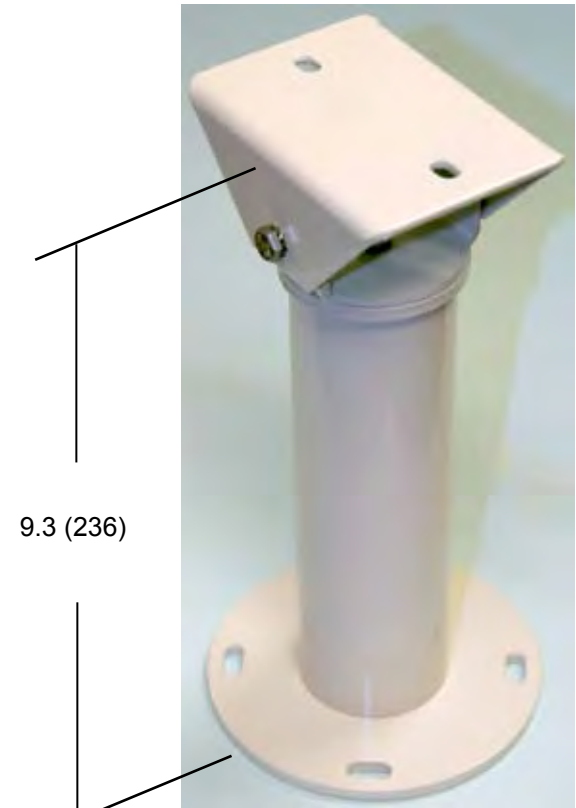


Figure 21. Mounting Dimensions, Pedestal (PEDD) Mounting Base



Figure 22. Ceiling (CEIL) Mount

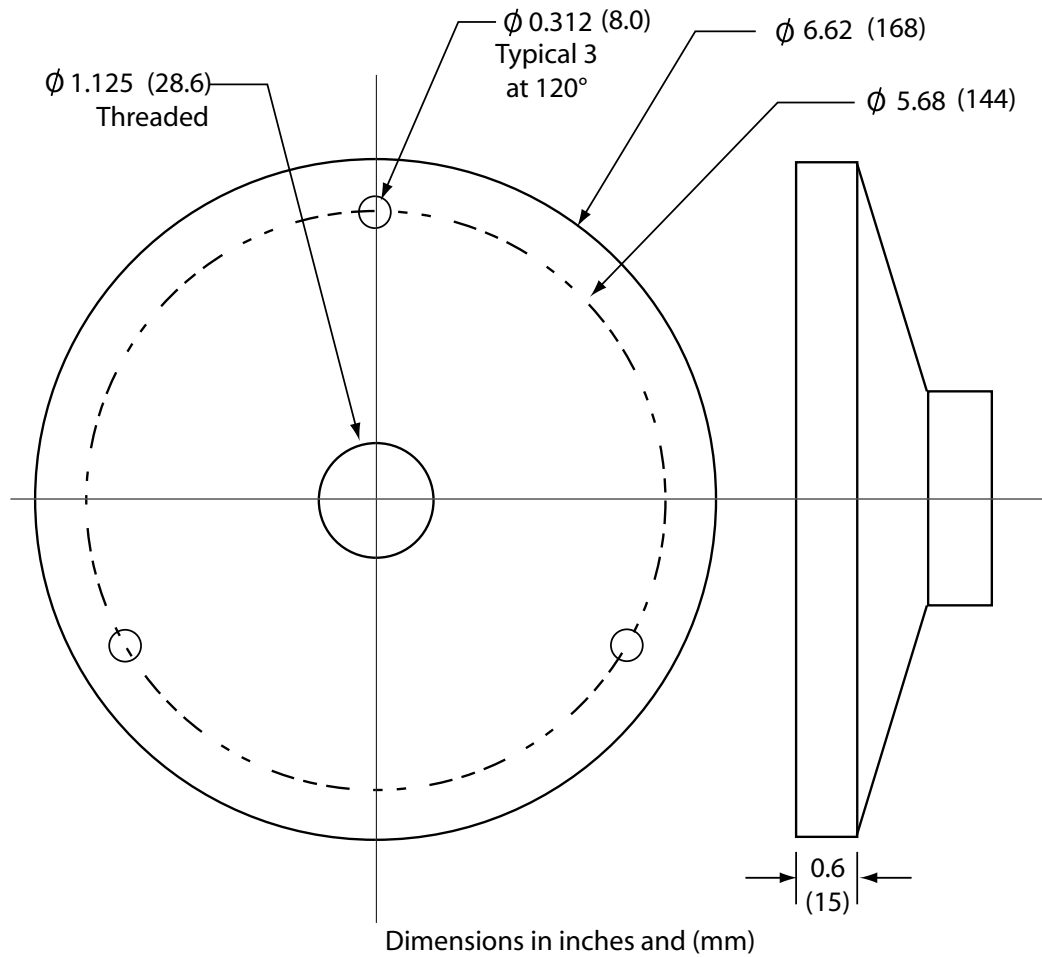


Figure 23. Mounting Dimensions, Ceiling (CEIL) Mount Plate



Figure 24. Heavy Duty Wall Mount (HDWM)

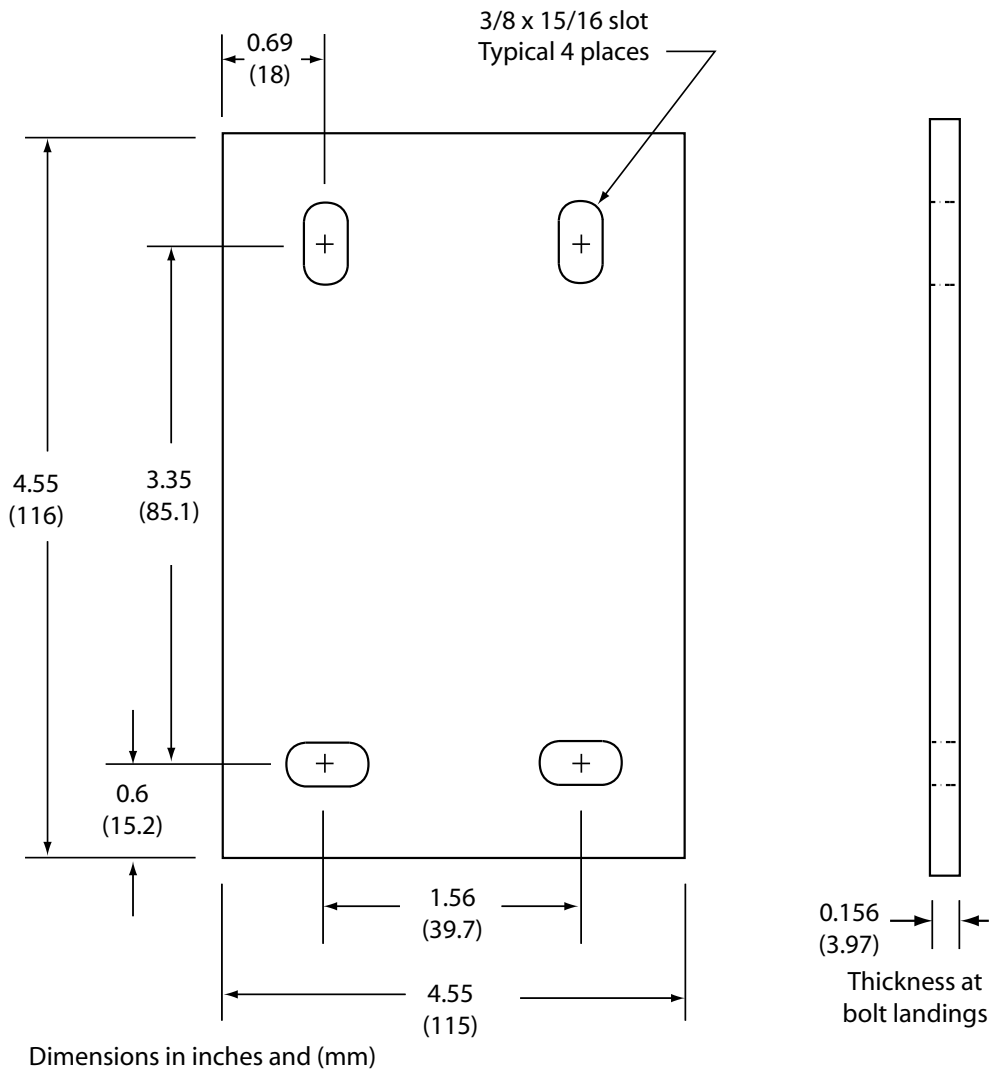
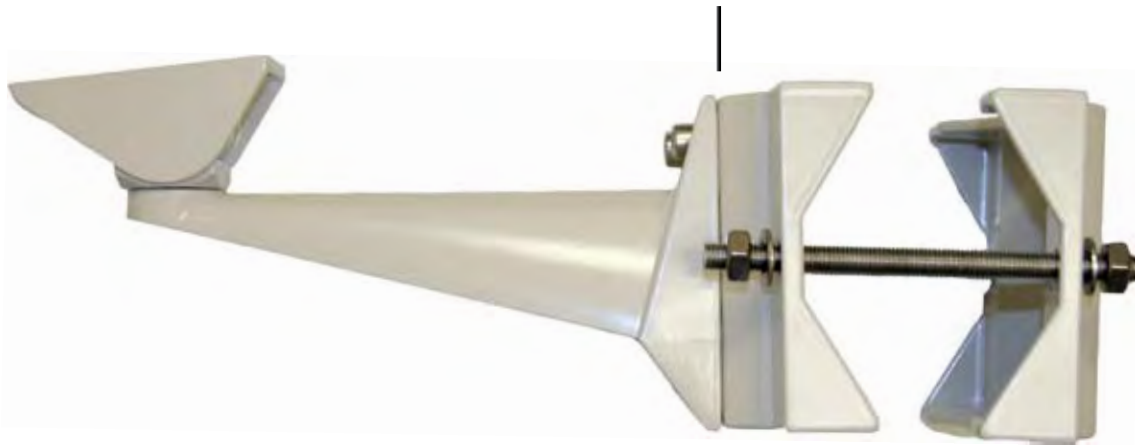
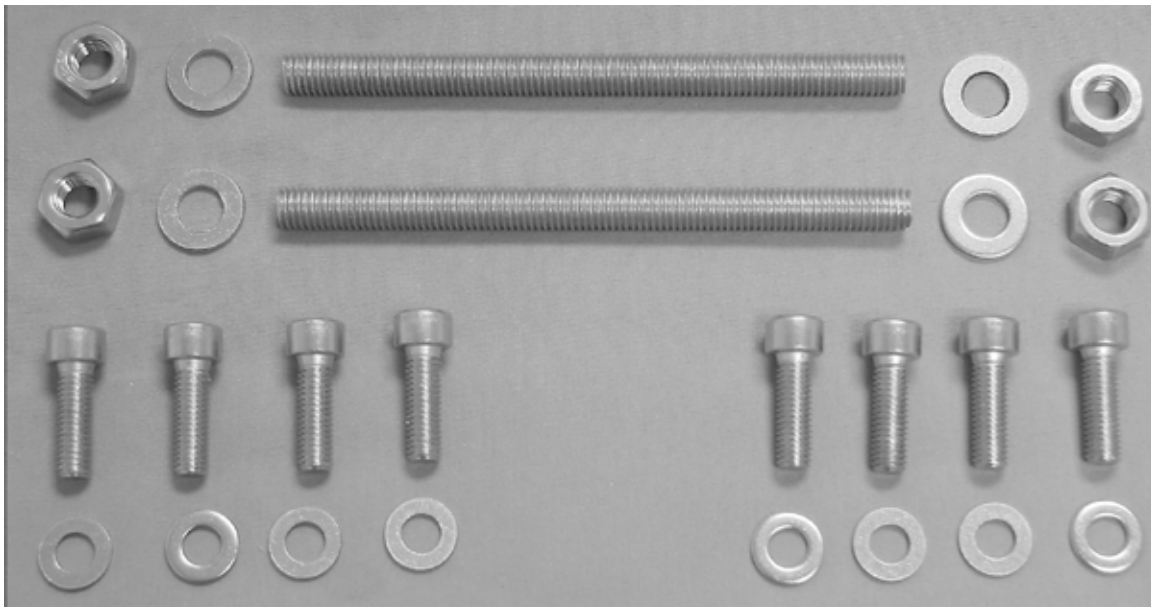


Figure 25. Mounting Dimensions, Heavy Duty Wall Mount (HDWM) Wall Mount Plate



Pole mount bracket can clamp to pole diameters from 2.5 to 4.3 inches (65 to 110 mm)

**Figure 26. Pole (POLE) Mount Assembly
(Consists of Heavy Duty Wall Mount to Left and a Pole Bracket to Right)**



*Note: Four cap screws and flat washers from this kit are not used.
Also, two 1/4-20 x 1/2 inch flat head screws from hardware kit 8498-8 must be used to mount camera*

Figure 27. Pole Mount Hardware Kit

2.12 Preparation for Shipment and Storage

For shipment, package with enough foam padding or other packing material to prevent damage that can occur during shipping. The original shipping carton is a good container if it has not been damaged or subjected to excessive moisture. For shipping to the factory by Common Carrier, use the following address:

**Cohu Electronics
3912 Calle Fortunada
San Diego, CA 92123-1827**

Please contact the Customer Service Department for a Return Authorization (RA) number before sending any shipments to the factory:

cst@cohu.com

Prominently display the RA number on the outside of the shipping container(s) and on paperwork contained inside. Give a brief description of why the equipment is being returned and list the symptoms of any problems being experienced with the equipment.

3.0 CAMERA SETUP

A GUI specific to the model 3220 provides all setup communications.

A separate manual describes features of this GUI (Manual Number 6X-1083).

3.1 GUI Installation Setup

From the home window of the GUI other windows can be accessed to perform various setup and control functions.

The information here describes initial use of the GUI for use with the 3220.

3.2 Checkout Procedure

After communications has been established with the 3220 various functions should be tested to verify proper operation. Use the GUI interface to perform tests and setups.

Table 4. 18-pin Pigtail Connector & Mating System Cable Plug

| DESCRIPTION | CAMERA PIGTAIL CONNECTOR | MATING SYSTEM CABLE PLUG |
|---|--|---|
| Connector: Cohu P.N. MS P.N. Amp/Bendix P.N. | 1310230-017 MS3111F-124-18P PT01E-14-18P(SR) | 1310230-011 MS3116F-14-18S PT06E-14-18S(SR) |
| One end of camera 9-inch pigtail connector cable is permanently attached to camera and the other end is terminated with the pigtail connector | | |

4.0 MOUNTING METHODS

Since installation of a 3220 may require that it be mounted to any of a variety of structures, different types of mounting assemblies are required. This section is a generic description of typical installations for each of the mounting assemblies that can be optioned with the 3220. Each mounting site will likely have its own unique requirements.

A 3220 can be ordered with any one of five mounting arrangements. One of these is related to direct base plate mounting for the 3220 and the remaining four use mounting arms and brackets for an installation.

Before preparing to mount a 3220 it is important to have either pre-installed the system cable or to have verified that the cable can be routed to the location of the mounting assembly. This often requires pulling cable through conduit and other tight places. It is also necessary to plan for weatherproofing any through-wall holes

4.1 Wall Mount

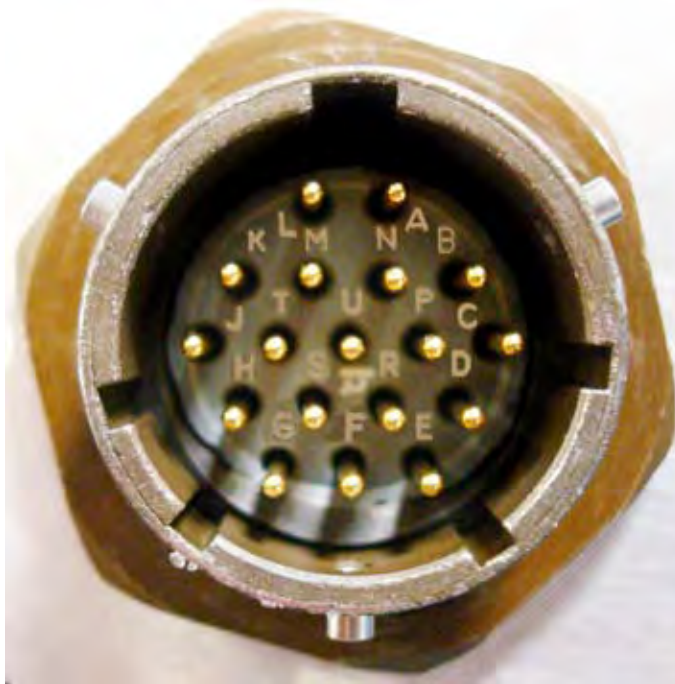
The standard wall mount (figure 18) fastens to the wall with two bolts. A single bolt secures the camera to the adjustable head assembly on the wall mount arm.

Adjusting the movable head assembly up/down and right/left is accomplished by loosening a single bolt. A 5/32-inch (4 mm) Allen (hex) wrench can be used to loosen and tighten this bolt.

4.2 Pedestal (PEDD)

The pedestal mount (figure 20) is 9.3 inches (236 mm) tall. It has a bottom plate with four mounting holes and a moveable head on top for adjustments up/down and right/left. The two-hole pattern on the moveable head aligns with the threaded holes on the bottom of the camera.

| Table 5. Pigtail Cable Connector Pin Assignments | | | | | |
|--|---------------------------|--------------------------|--------------------------|-----------------------------|-----------------------------|
| TABLE REF NO. | FUNCTION | RS-232 12 Vdc Model 3221 | RS-422 12 Vdc Model 3221 | RS-232 24 Vac/dc Model 3223 | RS-422 24 Vac/dc Model 3223 |
| | | Cable CA-253 | Cable CA-254 | Cable CA-292 | Cable CA-293 |
| 101 | Video Out | L | L | L | L |
| 102 | Video Shield | A | A | A | A |
| 103 | Chassis Ground | G | G | G | G |
| 104 | +12 V dc | J | J | - | - |
| 105 | Power Ground | H | H | - | - |
| 106 | RS-422 Rx + | - | M | - | M |
| 107 | RS-422 Rx - | - | N | - | N |
| 108 | RS-422 Tx + | - | S | - | S |
| 109 | RS-422 Tx - | - | R | - | R |
| 110 | Data Ground | P | P | P | P |
| 111 | RS-232 Rx D | E | - | E | - |
| 112 | RS-232 Tx D | D | - | D | - |
| 113 | 24 Vac High; 24 Vdc + | - | - | B | B |
| 114 | 24 Vac Low; 24 Vdc Ground | - | - | T | T |



CAUTION
 Do not power the 24 V ac version of this camera directly from a Variac. It will blow up the power supply.

Figure 28. Pin Location Diagram, Model 3221 and Model 3223 Pigtail Connector

Connector (Plug) for the System Cable that Connects to Camera Pigtail Connector



Kit as Typically Packaged



Front Side - Mating Sockets



Wiring Side - Solder Cups



Connector Kit Contents

Figure 29. Type 1310230-011 System Cable 18-pin MS Type Connector Kit

4.3 Ceiling (CEIL) Mount

The ceiling mount (figure 22) has a round plate for securing to the ceiling with three fasteners and a curved tubular arm that threads into the center. This arm has a ball joint assembly on the lower end to which the camera can be bolted for movement up/down and right/left.

A stamped wrench is provided to tighten the double nuts that secure the threaded arm to the ceiling plate

4.4 Heavy Duty Wall Mount (HDWM)

This heavy duty wall mount has a four-hole pattern for fastening to the wall whereas the standard wall (WALL) mount has only a two hole pattern.

On the adjustable pan/tilt head this heavy mount has two mounting holes to secure the camera unlike the standard wall mount which has only one.

Overall construction of this HDWM is also much more durable than the standard WALL mount.

4.5 Pole Mount (POLE)

The pole mount (figure 26) consists of the following two assemblies that must be bolted together:

1. A clamp for mounting to a pole, and

2. The heavy duty wall mount (HDWM) shown in figure 24

Provided with the Pole mount are two hardware kits.

One kit (figure 27) provides hardware for attaching the Heavy Duty Wall Mount to the Pole clamp and also the two threaded rods for tightening the two halves of the clamp to the pole (figure 26). All the hardware in this kit is metric. This kit does not have a part number since it is supplied only with the Pole mount option.

The second hardware kit (see table 2 - kit 8498-8) provides an assortment of screws, washers, and lock washers used to secure the camera to the various mounting arms. Only the two 1/4-20 x 1/2 inch flathead screws (item 5 in table 2) from this kit are used with the pole mount option..

The pole clamp can accommodate diameters from 2.5 inches (65 mm) to 4.3 inches (110 mm)..

Note while this POLE mount is supplied with only one heavy duty wall mount arm the pole clamping bracket can actually mount two of them. The hardware kit (figure 27) supplies the four additional cap screws and washers to mount the second arm.

- end text-

COHU ELECTRONICS WARRANTY

Cohu, Inc., Electronics Division warrants equipment manufactured to be free from defects of material and workmanship. Any such defective part or parts will be repaired or replaced when confirmed by Cohu examination to have become defective within two years from the date of shipment to the original purchaser for standard CCD, CMOS and uncooled thermal cameras and one year from date of shipment to the original purchaser for image intensified cameras, and all other Cohu manufactured products.

Pressurized Housings: Pressurized camera products include a lifetime pressurization warranty. Cohu will re-pressurize, at no charge, returned environmental cameras not exhibiting evidence of physical damage due to misuse. All warranty repairs will be performed at the Cohu factory or as otherwise authorized by Cohu in writing. Purchaser shall prepay transportation charges to Cohu.

Extended IR Cameras: Cameras utilizing extended infrared (extended IR) sensors found to exceed acceptable white blemish specifications within one month of delivery shall be repaired or replaced without charge.

This Warranty does not extend to Cohu equipment subjected to misuse, accident, neglect, improper application, or repaired or altered other than by Cohu, or unless authorized by Cohu in writing. Cameras utilizing extended IR sensors are not warranted for use in areas of elevated levels of cosmic radiation.

Television image pickup tubes, image intensifiers, lenses, and products manufactured by companies other than Cohu are warranted by their original manufacturers. This Warranty is in lieu of all other warranties, express, implied, or statutory, including warranties of fitness for a particular purpose and merchantability, and this Warranty sets forth the purchaser's sole remedy in connection with such warranties. Whether as a result of breach of contract or warranty, tort (including negligence) or otherwise, Cohu shall not be liable for any penalties regardless of reason, including but not limited to collateral, consequential, incidental, or exemplary damages, including without limitation, any loss of profit or revenues, loss of use of any equipment or goods, or removal or re-installation of equipment without prior written approval.

A Return Authorization (RA) Number must be obtained from Cohu prior to returning any item for warranty repair or replacement.

11-06

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