VOYAGER II

INSTALLATION GUIDE

FLIR®

Document History

Revision	Date	Comment
100	Feb 2008	Initial Release
110	Jan 2009	Voyager II: includes NMEA interface, updated drawings, added TOC and page numbers, other minor changes

Contents

VOYAGER II INSTALLATION

Introduction

Thank you for buying your new Voyager II! This manual describes the physical mounting and electrical connection of the Voyager II camera. If you need help during the installation process, call 888.747.3547 to speak with one of FLIR's Applications experts. The Voyager II should be installed by a qualified marine electronics technician, as incorrect installation could void the warranty.

The Voyager II comes with these standard components:

- Camera Body
- Bulkhead Box
- NMEA Interface Board (in a separate bag inside the Bulkhead Box)
- 50' or 100' main sensor cable (depending on what you ordered) - connects the Camera Body to the Bulkhead Box
- Joystick Control Unit (JCU) with 100' cable that connects to the Bulkhead Box
- System Power cable (10')
- Voyager Documentation Package

You may need to supply:

- 16- gauge electrical wire; up to 100' (3-conductor, for system power)
- Six (6) ¼-20 stainless steel bolts for attaching the Voyager II Camera Body. Note that bolt length may be dependant on mounting platform thickness
- Four (4) bolts or screws for attaching the Bulkhead Box as required
- Miscellaneous electrical hardware, connectors and tools

If using the NMEA interface features, you will need to provide a 2-wire serial cable to the Bulkhead Box from your NMEA device.

Installation Preparation

- Find a good place to mount the Voyager II's components:
    - o Mount the Voyager II as high as practical, but without interfering with any radar, navigational or communications electronics, and minimizing the degree to which vessel structures block the camera's view.
    - o Mount the Voyager II as close to the vessel's centerline as possible so you will have a symmetrical view of on-coming traffic.
    - o Voyager II should be mounted on a flat surface with the base on the bottom and the camera on top. Do not hang the Voyager II upside down; the picture will display upside down, and you may damage the Voyager II.

Prior to Cutting/Drilling Holes

- Once the mounting location has been selected, verify both sides of the mounting surface are accessible.
- Determine if any interior trim panels must be removed in order to gain access to the mounting hardware, and remove them ahead of time.
- When selecting a mounting location for the Voyager II, consider cable lengths and routing. Ensure the cables are long enough, given the proposed mounting locations and cable routing requirements, and route the cables before you install the components.

PHYSICAL INSTALLATION

Voyager II Camera Body

Using the template supplied with this Installation Manual as a guide, mark the location of the holes for mounting the Voyager II. Make sure the template is aligned so that the Voyager II will point straight ahead, and that the cable will exit towards the stern of the vessel.

Mount the Voyager II's camera body with 6 1/4x20 bolts and washers. There is also a 3/8x16 center insert which can be used for added support.

Voyager II Bulkhead Box

NOTE:

> FLIR recommends that you terminate all cable ends inside the Bulkhead Box BEFORE you mount it. Refer to the section on detailed cable preparation and termination for these instructions.

Mount the Bulkhead Box in an area that:

- Is sheltered from the weather
- Has good airflow
- Is not exposed to direct sunlight
- Is within easy reach of all required cables
- Provides room for adequate service loops as depicted in the installation drawings supplied

Voyager II Joystick Control Unit (JCU)

Mount the JCU in a convenient area that is close to the monitor that will display the Voyager II video output. Make sure the area you choose will leave enough room for the connector and cable under the JCU (refer to the drawing package supplied for dimensions).

Using the template supplied with the Installation Manual as a guide, mark the locations of the holes to be cut and drilled for the JCU.

Cut the hole that will allow the JCU to be recessed in the vessel's control console per the installation drawings supplied, and drill the holes for the four mounting studs.

Route the JCU cable through the JCU munting hole. Connect the terminated end of the cable to the JCU, insert the JCU into its mounting location and secure with the supplied mounting studs.

The following sections (Electrical Interconnect and NMEA Interface) describe the connections to the Voyager. Refer to the NMEA O183 Standard for details on interconnecting the Voyager II with other marine electronic devices.

ELECTRICAL INTERCONNECT

Main Sensor Cable

After routing the main sensor cable between the Camera Body and the Bulkhead Box, install the Camera Body and connect the terminated end of the main sensor cable to the connector on the back of the Camera Body's base.

This section describes the procedures required to prepare the main sensor cable, JCU cable and main power cable for termination inside the Bulkhead Box. The following tools and documents are recommended to complete the job:

- The installation drawings and templates (FLIR p/n 432-0002-00-19) at the end of this manual
- Ruler or measuring tape
- Exacto knife
- Scissors
- Wire cutter
- Wire stripper for 20 gauge wires
- Crimping tool for BNC connector
- Channel locks
- 2mm flathead screw driver

Installation Steps

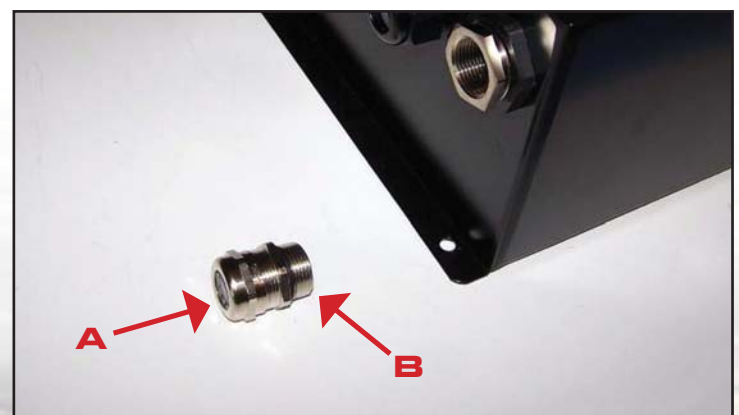#### Step 1:

Remove the main sensor cable feed through grommet (**A**) by unscrewing it from the lock nuts (**B**) and (**C**) on the Bulkhead Box.
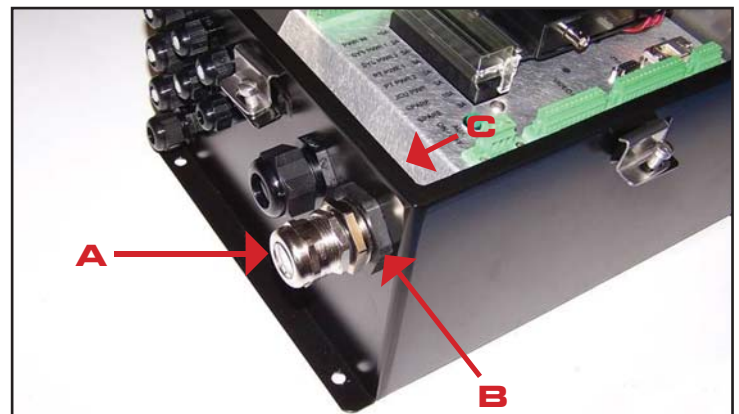
Step 2:

Unscrew the grommet cap (**A**) from the cable gland (**B**) to expose the grommet seal

Step 3:

Remove the grommet seal from the cable gland by inserting a finger and pulling it out.

Step 4:

Now that the grommet cap (**A**), seal (**B**), and cable gland (**C**) have been disassembled, remove the other sections of the grommet from the front of the Breakout Box, including the 1" reducer (**D**), and the inner lock nut (**E**).
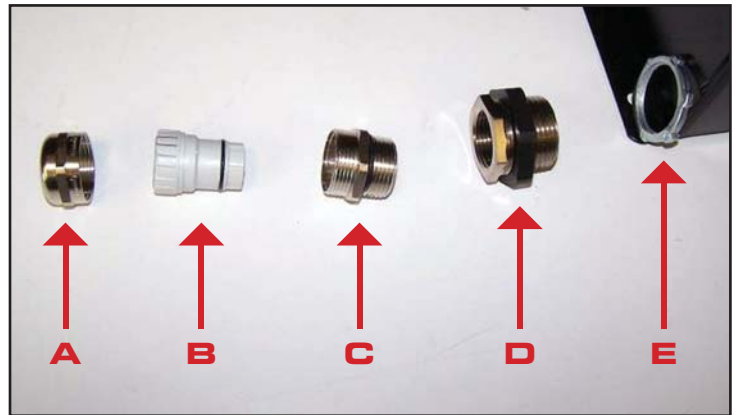
Step 5:

Now prepare the main cable ends for attachment to the inside of the Bulkhead Box. As directed by the drawing supplied in this Installation Manual, measure 13.5" from the end of the cable, carefully cut around the outer black cable jacket until you can slide it off, and remove it. Be careful not to cut into the metal braid beneath the outer jacket.

Step 6:

Slide the black outer jacket off the cable, exposing the inner metal braid

Step 7:

Push the braid back over the black outer jacket an inch or two, creating an area of slack in the braid. Carefully insert scissor tips into the braid, and cut all the way around it as shown. Slide the excess braid off the cable and discard it
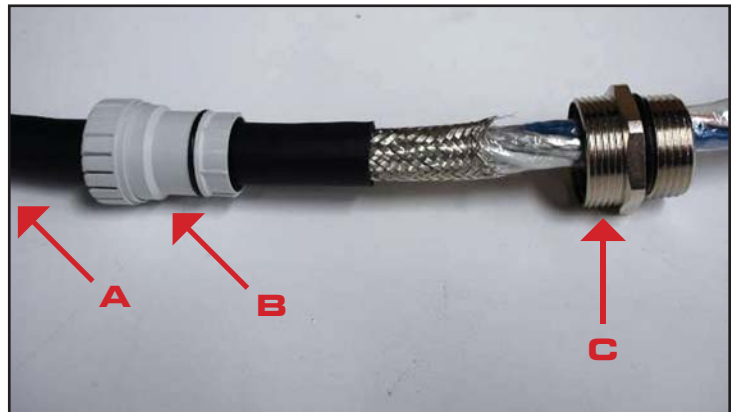
Step 8:

Working with the shorter length of braid, trim it so that only 1" extends beyond the black outer jacket as shown.

Step 9:

Slide the grommet cap (**A** – not shown), seal (**B**), and cable gland (**C**) over the cable

Step 10:

Slide the grommet seal up the cable so that the front edge just lines up with the end of the black outer cable jacket as shown

Step 11:

Carefully fold the metal braid back over the grommet seal as shown

Step 12:

Trim the metal braid as shown, so that the black o-ring seal is clear of the metal braid.

Step 13:

Slide the cable gland over the grommet seal as shown, capturing the metal braid between the two

Step 14:

Screw the grommet cap onto the cable gland as shown.

You are now ready to prepare the cable ends for connection to the Bulkhead Box's internal termination blocks
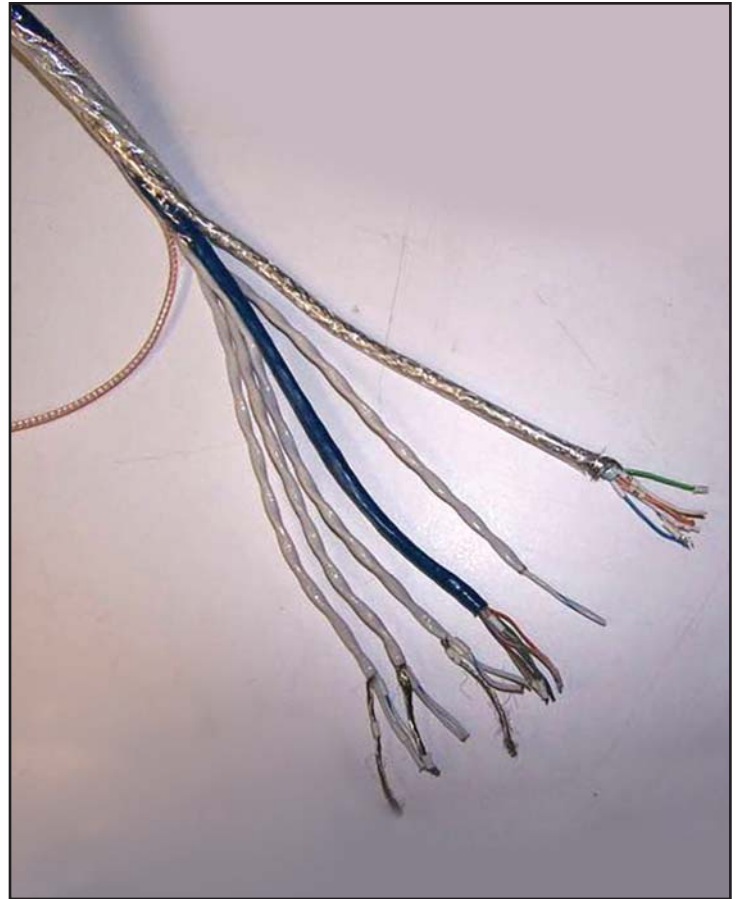
Step 15:

Trim the clear Mylar sheath back so the individual wire bundles can be spread apart as shown. This will make them easier to identify and work with.

Cut the blue Ethernet cable to 12.5" long, measured from the end of the cable gland.

Cut the wire bundle inside a clear jacket and steel braid to measure 11.5" long.

Cut the bundle of 4 twisted pairs inside a white outer jacket to measure 11.5" long.

The video cable should be cut to 9.5"

Step 16:

Prepare the video cable by securing the crimpable 75-ohm BNC connector (provided) onto the RG-179 cable.
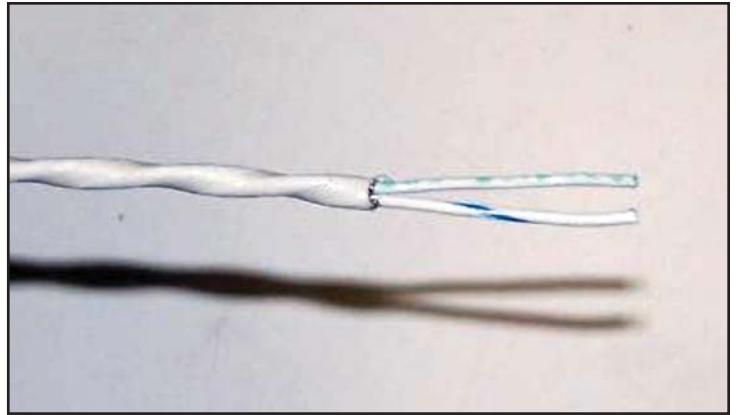
Step 17:

The rest of the wires will need to be prepared in a fashion similar to the following progression.

Carefully cut around the outer insulation as shown.

Step 18:

Slide the outer insulation off, and separate the two inner wires as shown

Step 19:

Strip ¼" from the end of each wire as shown. When this is done, they are ready for termination in the Bulkhead Box.
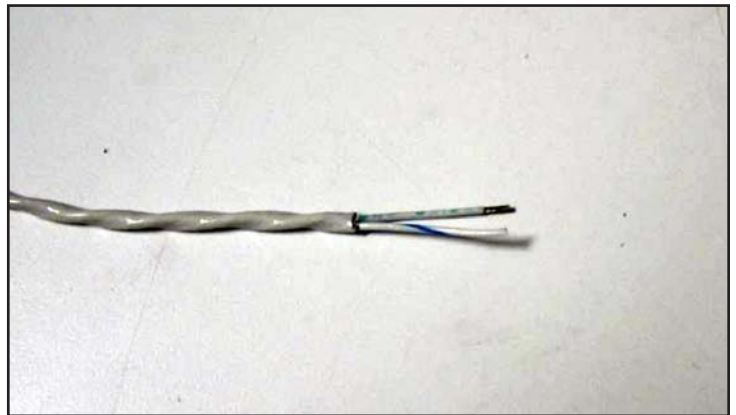
Step 20:

Slide all of the prepared wires and the video cable through the 1" reducer. Then carefully pass all of the prepared wires and the video cable through the hole in the front of the Bulkhead Box.
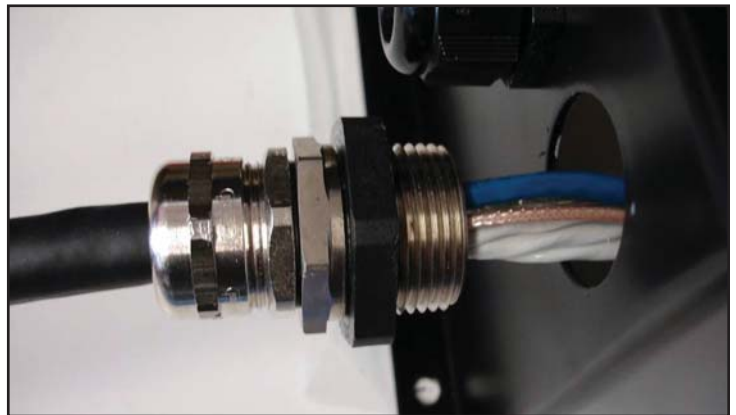
Step 21:

Slide all of the prepared wires and the video cable through the lock nut, and secure it to the 1" reducer as shown

Step 22:

Connect the wires from the main sensor cable to terminal blocks **J6**, **J7**, **J8**, and Video In using the drawings provided at the end of this manual for guidance.

Step 23:

Connect the wires from the system power cable to **J5**. The cable ends are prepared using the same procedures you used for everything in the main sensor cable except the video cable.

Step 24:

Connect the wires from the Joystick Control Unit (JCU) to the **J1** terminal block. The cable ends are prepared using the same procedures used for the main sensor cable.

Step 25:

Install additional (optional) JCUs and other connections as required to **J2** - **J4**, as shown on the next page.

When all wires have been connected, mount the Bulkhead Box in the selected location.

J4

J3   J3

J2   J2

J1

VIDEO OUT

J8

J10

J7   J7
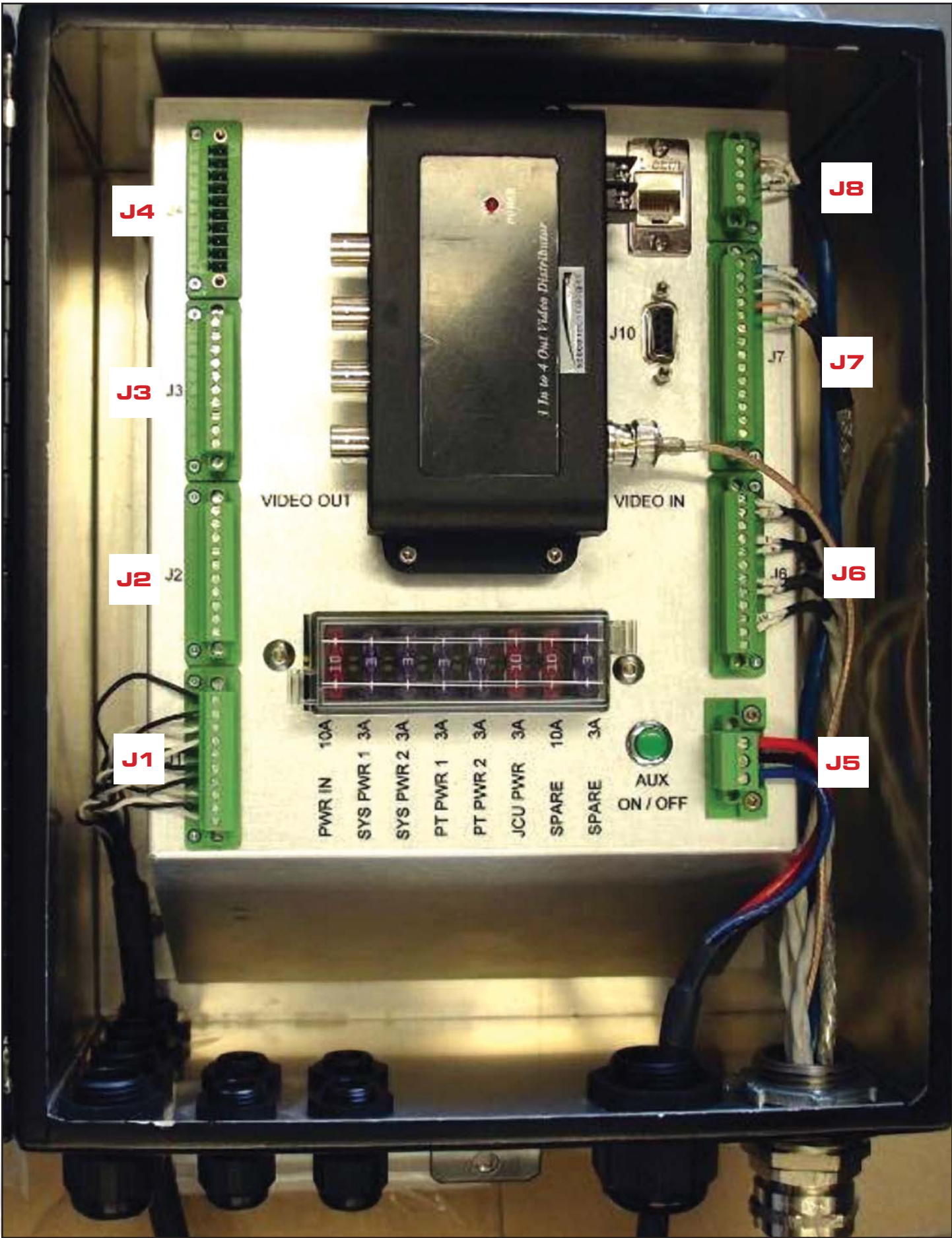
VIDEO IN

J6   J6

J5

PWR IN   10A

SYS PWR 1   3A

SYS PWR 2   3A

PT PWR 1   3A

PT PWR 2   3A

JCU PWR   3A

SPARE   10A

SPARE   3A

AUX
ON / OFF

1 In to 4 Out Video Distributor

NMEA INTERFACE

The Voyager II has the capability to "listen" to (or take commands from) radar, GPS or other devices using the National Marine Electronics Association (NMEA) 0183 Protocol. The NMEA 0183 protocol is a combined electrical and data specification for communication between marine electronic devices. Additional information regarding the protocol can be found on the NMEA web site: http://www.nmea.org/pub/0183/

According to the NMEA protocol, the Voyager II is known as a listener, and another device such as a radar or multi-function display is known as a talker. This protocol allows the talker to send positional information to the Voyager II camera, and it responds by automatically pointing toward vessels and other objects that show up on the display and tracking their movement.
The Voyager II connects to the other equipment via a serial cable (not provided with the Voyager II). The serial cable connects to the Voyager II through an unused Joystick Control Unit (JCU) slot on the Voyager Bulkhead Box.

This document describes the steps necessary to install and verify the Voyager II NMEA 0183 interface. Operation of the Voyager II NMEA interface is described in the Voyager II User's Guide Addendum.

References

• Voyager Installation Guide, FLIR Document Number: 432-0002-00-11
• National Marine Electronics Association, NMEA 0183 Version 2.0
  Note, the Voyager II does not support the NMEA 0183-HS (High Speed) protocol

NMEA INTERFACE INSTALLATION

NMEA Installation Card

The Voyager II communicates with other devices through a custom interface card. The card is plugged into one of the four JCU connector slots in the Bulkhead Box. The interface card has pigtail wires to connect to the other NMEA device.
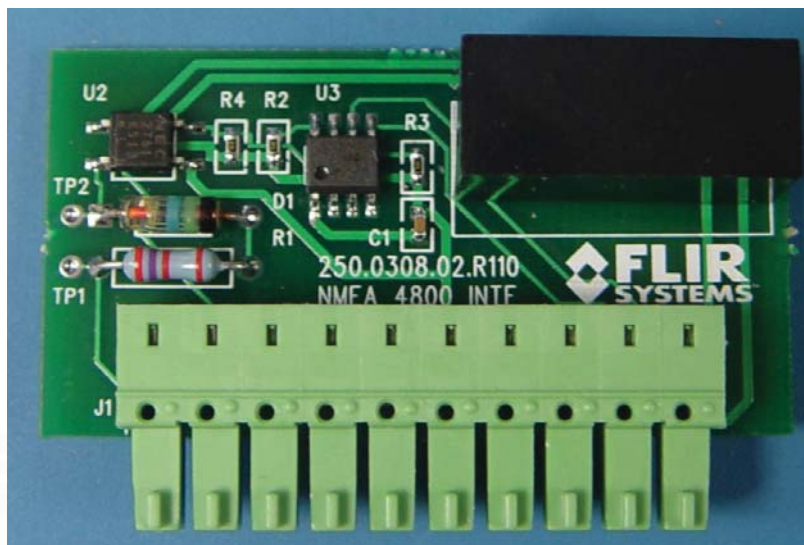

Figure 1: NMEA Interface Card

Connector Slot

The interface card comes installed in slot J4 by default. The card must be moved to the JCU slot after the last active JCU. For a system with one JCU, the module should be plugged into the J2 slot; for systems with 2 JCUs, the module must use the J3 slot (as pictured below). For a system with 3 JCUs, the module must use slot J4.
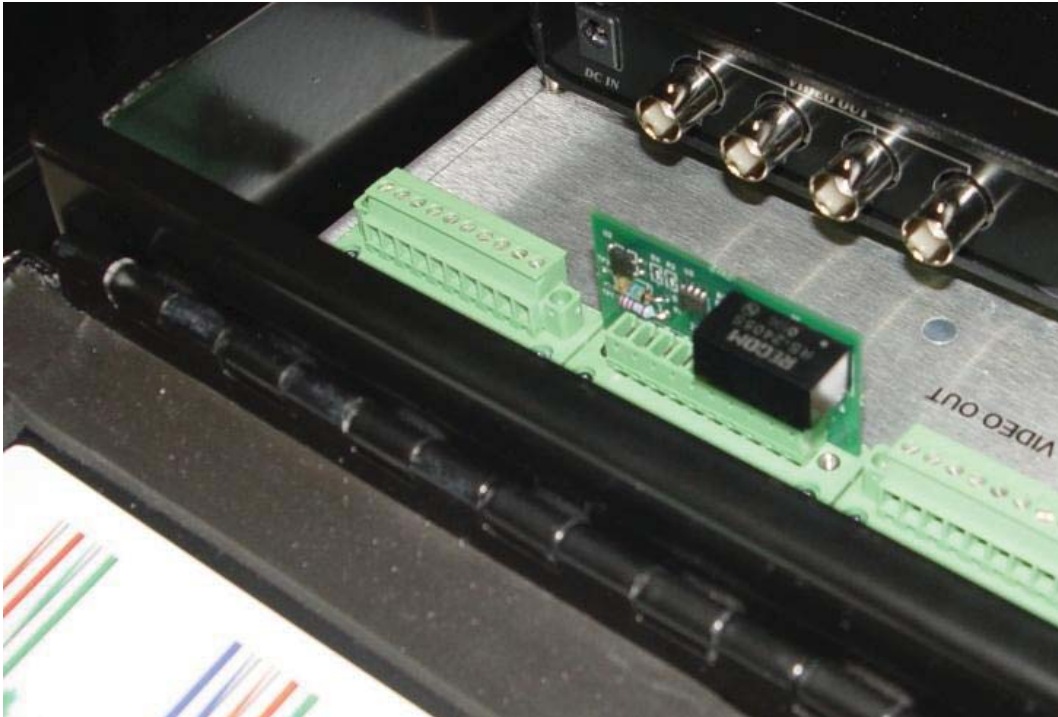
Figure 2: Bulkhead box JCU connection with NMEA card installed in Slot 3

NMEA Interface Wiring

The connection from the other NMEA device must be routed through one of the JCU cable glands located on the bottom wall of the Bulkhead Box.

Figure 3: Cable Glands on the Bulkhead Box

There are two methods for connecting the NMEA cable to the NMEA interface card. The first method makes use of a spare JCU slot (in the case when only one or two JCUs are used); the second method makes use of a pigtail connection when 3 JCUs are in use and the NMEA card occupies the 4th slot.

Spare JCU Slot (1 or 2 JCUs in use)

For a configuration that uses one or two JCUs and with the NMEA card plugged into the second or third slot, the empty adjacent slot (J3 or J4, respectively) can be used to connect NMEA signals as shown in Figure 4.
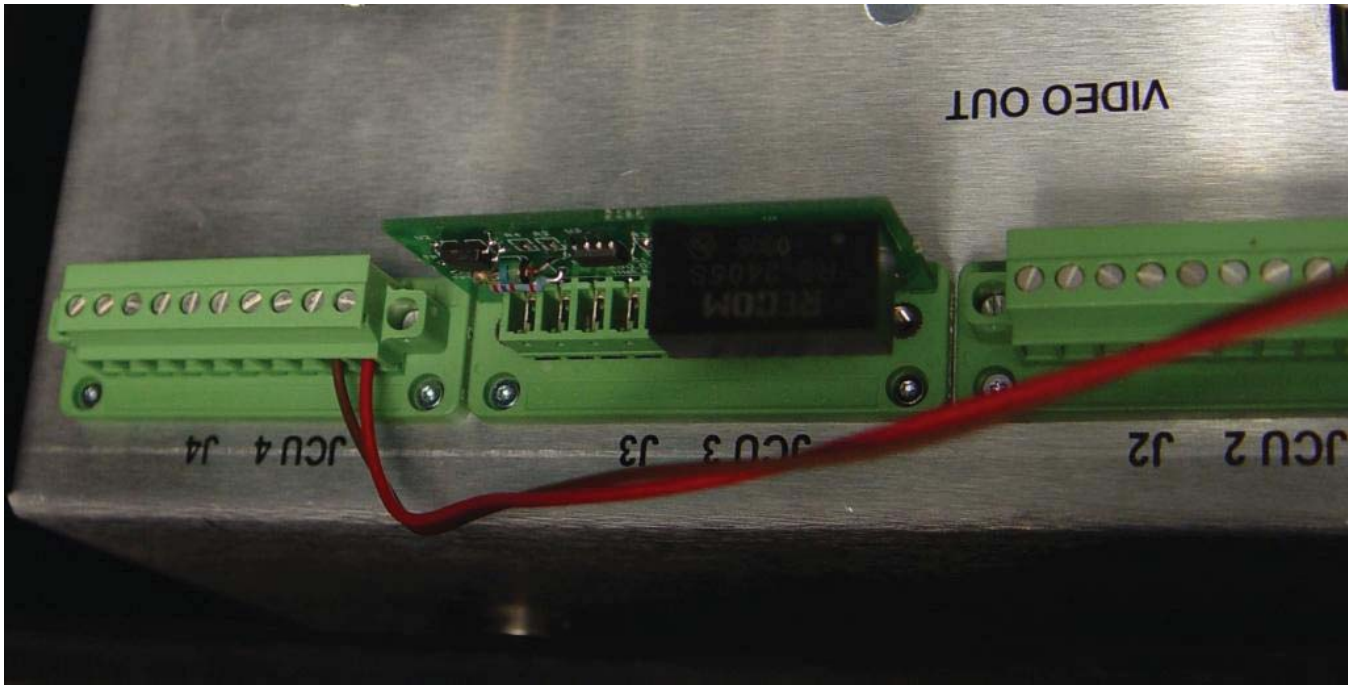
15

Figure 4: NMEA Interface card on Slot J3; NMEA connection in Slot J4

For this connection, attach NMEA "A" and "B" signal wires to connector terminals 1 and 2 respectively. These terminals are interconnected to the appropriate terminals in the previous slot within the Bulkhead Box. No additional jumpers are necessary.

Pigtail Connection (3 JCUs in use)

For a Voyager II configuration with 3 JCUs and a NMEA interface, all four JCU slots are occupied. The NMEA card will reside in the JCU slot J4. Route the NMEA interface cable up to the JCU slot J4 and, using a cable tie, anchor the NMEA cable to the 3rd JCU cable. Cutoff the shrink wrap insulator on the end of the wires and using in-line crimp splices and attach the NMEA talker signals A and B to the pigtail red and yellow wires respectively.
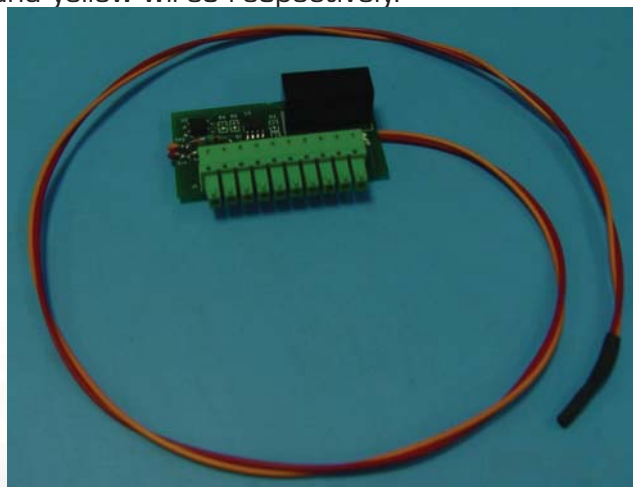

Figure 5: NMEA Interface Card with Pigtail cable

Electrical Checkout

Disable the NMEA talker and verify the static RS-422 signal levels by measuring the voltage differ-

ence between the differential RS-422 outputs.

The voltage should be measured on the adjacent JCU; namely, if the module is plugged into JCU J3 slot, then the measurement should be on the connector residing in the JCU J2 slot.

Using a volt meter, measure the voltage difference from pin 8 (hot probe) and pin 9 (return probe of the VOM). The voltage reading should be greater than +2.0V.
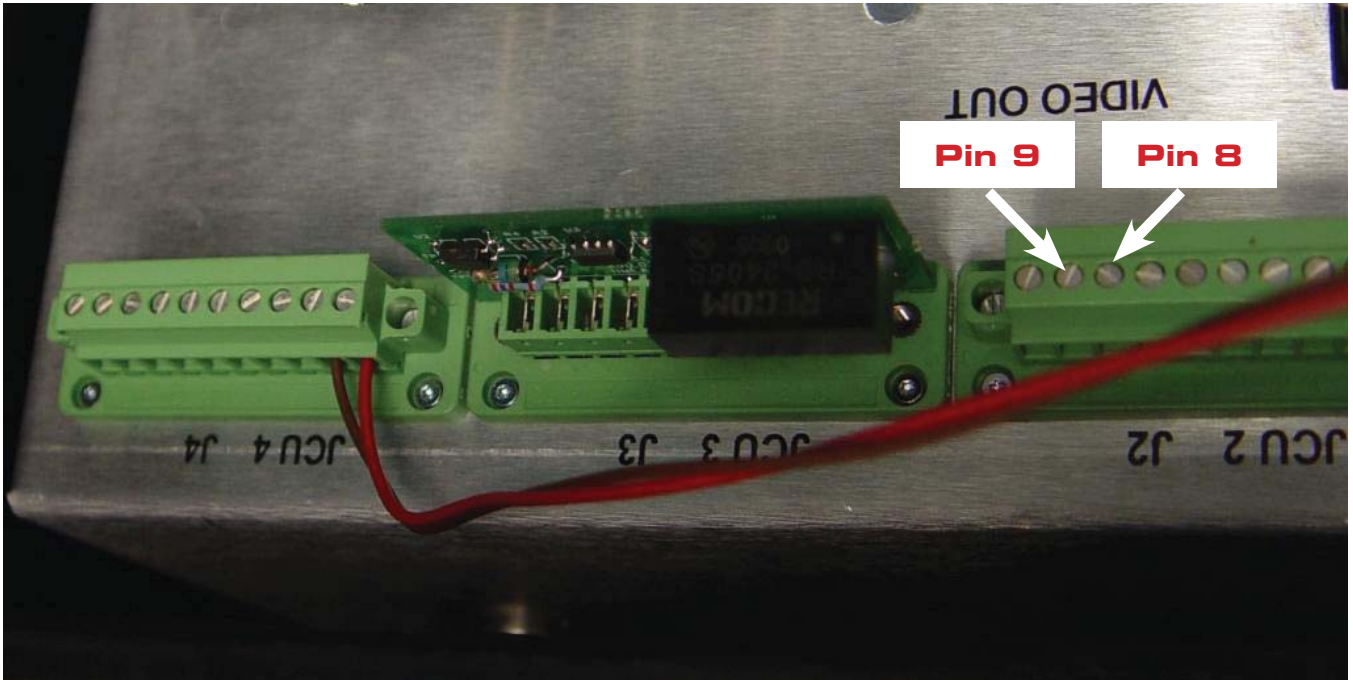

Figure 6: Voltage Test Points

Testing the NMEA Interface

Message Checkout
Refer to the user manual for the other NMEA device (the talker) for information on how to install the connection and how to enable and control the NMEA messages it will generate.

Enable the NMEA talker and set the Baud Rate to 4800. Use the SETUP/NMEA menu and enable RSD to allow the Voyager system to respond to the RSD message (refer to the Voyager II Operator's Manual Addendum for information on how to access the SETUP menu.) Next, get the NMEA talker to generate an RSD message. For example, using the cursor on the multifunction display unit, move the cursor and verify that the Voyager responds to the RSD message.

If the talker is configured to send only the cursor message, there may be delays due to packetizing of the NMEA messages by the JCU. Under "normal" circumstances, a significant volume of other NMEA messages are present and this allows good packetization that results in minimal delay.

CONNECTIONS QUICK REFERENCE

LEFT SIDE BREAKOUT BOX CONNECTIONS			
Connector	Terminal Opening	Wire Color & Marking	Wire Bundle
JCU 1 – 4 (P1 – P4)	1	White #1	JCU Cable(s)
	2	Black #1	
	3	White #3	
	4	Black #3	
	5	Shield from twisted pair #1	
	6	Black #4	
	7	White #4	
	8	White #2	
	9	Black #2	
	10	Overall Shield	

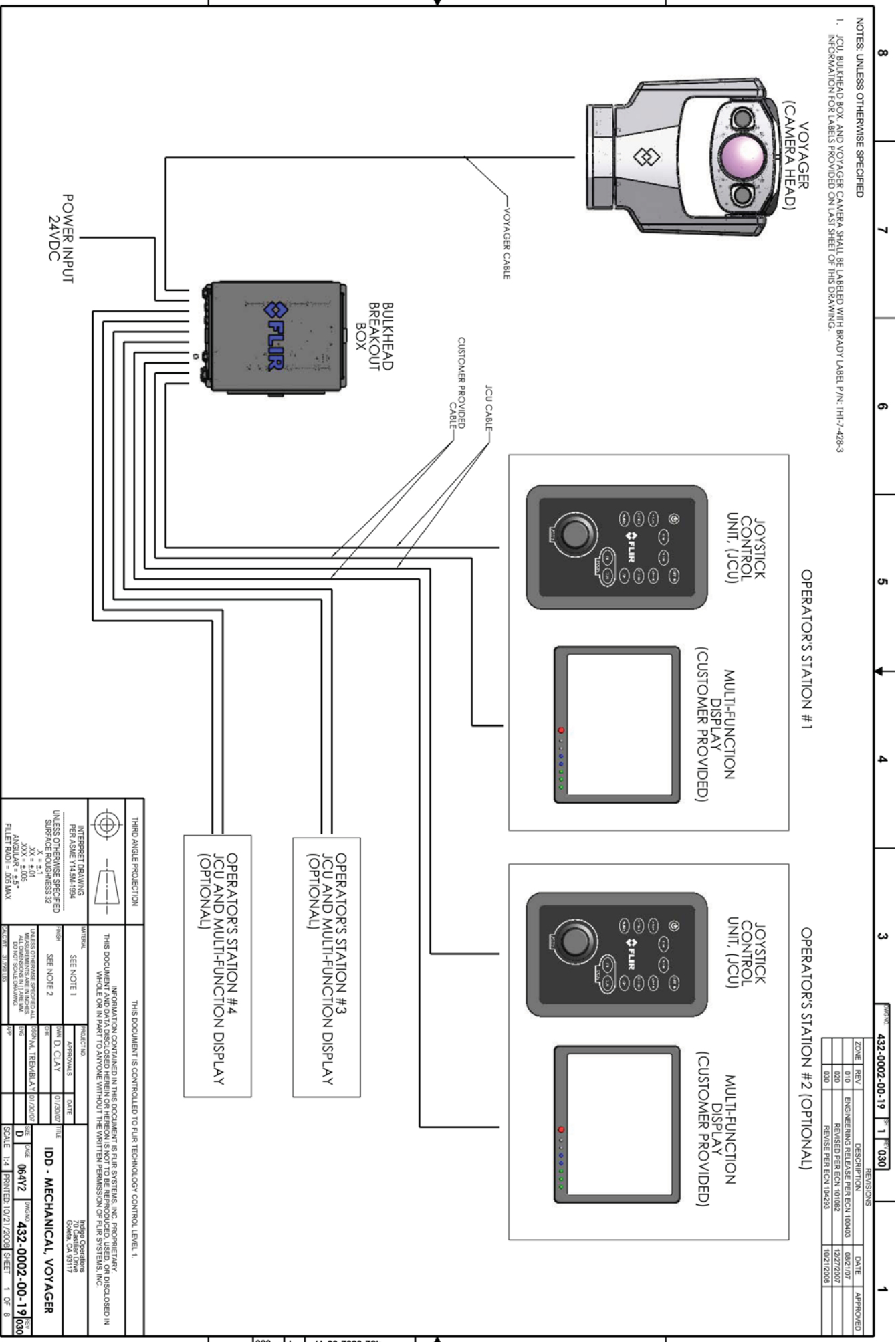| RIGHT SIDE BREAKOUT BOX CONNECTIONS			
Connector	Terminal Opening	Wire Color & Marking	Wire Bundle
Power Input (P5)	1	Red (+24 VDC)	Power Input Cable
	2	Black (-24 VDC)	
	3	Blue (ground)	
Pan/Tilt & System Power (P6)	1	White "j"	Main Sensor Cable – White Outer Jacket
	2	White/Blue "b"	
	3	N/C	
	4	White "f"	
	5	White/Blue "h"	
	6	N/C	
	7	White "g"	
	8	White/Blue "Z"	
	9	N/C	
	10	White "w"	
	11	White/Blue "a"	
	12	N/C	
Communication (P7)	1	Blue "M"	Main Sensor Cable – Clear Outer Jacket; Stainless Steel Braid
	2	White/Blue "P"	
	3	White/Orange "N"	
	4	Orange "R"	
	5	Green "c"	
	6-14	N/C	
Ethernet (P8)	1	White/Orange "G"	Main Sensor Cable – Blue Outer Jacket
	2	Orange "F"	
	3	Green/White "D"	
	4	Green "E"	
	5	N/C	

DRAWINGS & INSTALLATION TEMPLATES

The drawings provide more detailed dimensions and mounting information. If you have any questions, call FLIR's Applications Experts at 888.747.3547.

Use the templates to locate the holes required to mount the Voyager II's Camera Body and JCU.

NOTES: UNLESS OTHERWISE SPECIFIED

1. JCU, BULKHEAD BOX, AND VOYAGER CAMERA, SHALL BE LABELED WITH BRADY LABEL P/N: THT-7-428-3
INFORMATION FOR LABELS PROVIDED ON LAST SHEET OF THIS DRAWING.
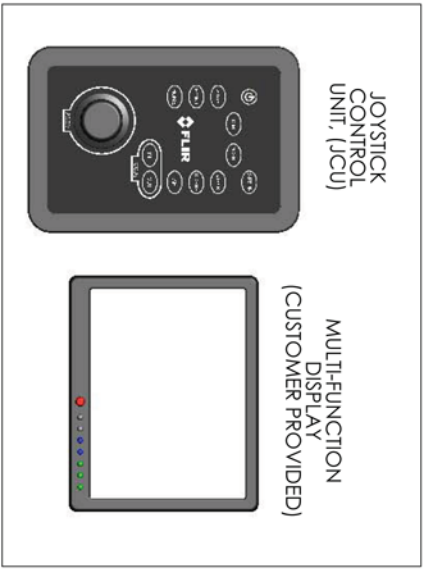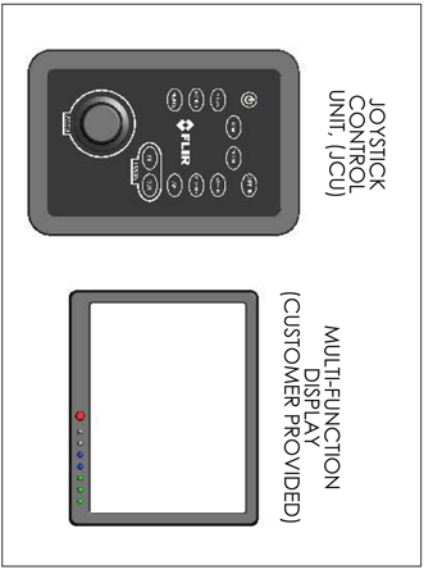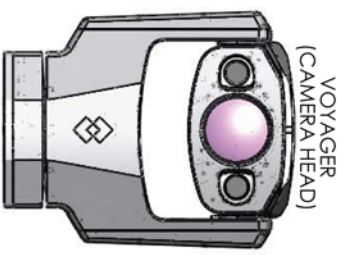
VOYAGER
(CAMERA HEAD)

VOYAGER CABLE

POWER INPUT
24VDC

BULKHEAD
BREAKOUT
BOX

CUSTOMER PROVIDED
CABLE

JCU CABLE

OPERATOR'S STATION # 1

JOYSTICK
CONTROL
UNIT, (JCU)

MULTI-FUNCTION
DISPLAY
(CUSTOMER PROVIDED)

OPERATOR'S STATION # 2 (OPTIONAL)

JOYSTICK
CONTROL
UNIT, (JCU)

MULTI-FUNCTION
DISPLAY
(CUSTOMER PROVIDED)

OPERATOR'S STATION #4
JCU AND MULTI-FUNCTION DISPLAY
(OPTIONAL)

OPERATOR'S STATION #3
JCU AND MULTI-FUNCTION DISPLAY
(OPTIONAL)

THIRD ANGLE PROJECTION

INTERPRET DRAWING
PER ASME Y14.5M-1994

UNLESS OTHERWISE SPECIFIED
SURFACE ROUGHNESS 32
.X = ± .1
.XX = ± .01
.XXX = ± .005
ANGULAR = ± .5°
FILLET RADII = .005 MAX

MATERIAL
SEE NOTE 1

FINISH
SEE NOTE 2

PROJECT NO

APPROVALS
DSGN M. TREMBLAY 01/30/07
DRN D. CLAY 01/30/07
CHK ERG 01/30/07
APP

UNLESS OTHERWISE SPECIFIED ALL
MEASUREMENTS ARE IN INCHES.
ALL DIMENSIONS IN [ ] ARE MM.
DO NOT SCALE DRAWING

Indigo Operations
70 Castilian Drive
Goleta, CA 93117

SIZE D   CAGE 06AY2

TITLE
IDD - MECHANICAL, VOYAGER

SCALE 1:4   PRINTED 10/21/2008   SHEET 1 OF 8

DWG NO. 432-0002-00-19   REV 030

SOLIDWORKS MODEL Indigo Operations
MODEL REVISION P01-INC

DWG NO 432-0002-00-19

7.09

360° FULL ROTATION
(PAN VOLUME)

Ø15.50

5.10
CABLE STRAIGHT RELIEF

3/8-16 UNC HELICAL COIL INSERT

6X 1/4-20 HELICAL COIL INSERT
EQ. SP. ON NOTED BOLT CENTER

Ø4.75 (BOLT CENTER)

18.68

14.97

10.00

7.59

15.18

MINIMUM KEEP OUT VOLUME
CYLINDER: 22 X 15.50 DIA

IDD - MECHANICAL, VOYAGER

SIZE D | CAGE 064Y2 | DWG NO. 432-0002-00-19 | REV 030

SCALE 2:1 | PRINTED: 10/21/2008 | SHEET 2 OF 8

SOLIDWORKS MODEL: tmws Steward
MODEL REVISION: P01-WC

8.75
2.38
2.39
6.00

HOME
POINT
STAB
⏻
UIM
NIGHT
IN
FOCUS
OUT
AF
ScFNF
VIS/IR
SETUP
ZO.7M
◆FLIR

4X R.75

2.38
.19
2.49
4X .95

4X MOUNTING STUDS
M5 X .8

4.75
5.78
(1.030)
Ø.44
2.000
R1.00

AREA FOR CABLE
SERVICE LOOP

CLEARANCE FOR
CABLE REMOVAL AND
INSTALLATION

4X M5 X .8 FLANGE HEX NUT

CLEARANCE FOR
CABLE REMOVAL AND
INSTALLATION

Ø2.0

2.08
1.53
2.00
1.46
1.83
2X .27

SEAL, DASHBOARD

2X 5.45
4.91
2X 4.00
7.66

DWG NO. 432-0002-00-19   SHT 3   REV 030

BULKHEAD BOX ASSEMBLY,
VOYAGER

19.31

13.50

10.97

10.42

(10.42)

(6.00)

AREA FOR
CABLE SERVICE LOOP

1.41

7.45

6.26

6.87

.56

8.00

12.75

6X ⌀.312

SIZE: D
CAGE: 064Y2
DWG NO: 432-0002-00-19
REV: 030

SCALE: 1:1
PRINTED: 10/21/2008
SHEET: 4 OF 8

SOLIDWORKS MODEL: 500-0348-00 Bulkhead box voyager
MODEL REVISION: DWG IAC
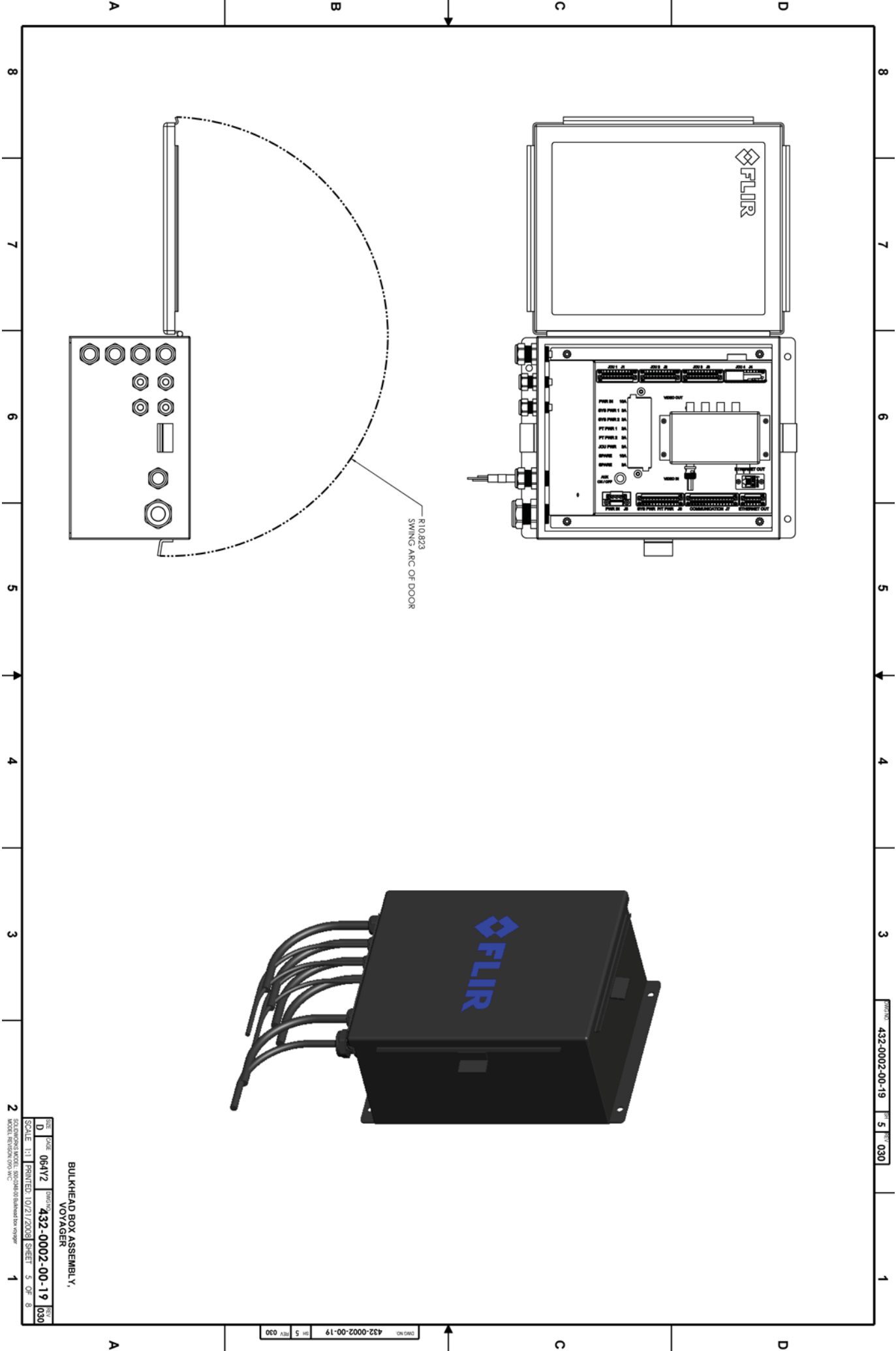
R10.823
SWING ARC OF DOOR

PART NO. 432-0002-00-19
SHEET 5
REV 030

P7
COMMUNICATION

P6
SYSTEM POWER
PAN/TILT POWER

P8
ETHERNET

TO VIDEO AMP
"VIDEO IN"

(FLIR SYSTEMS P/N: 202-0003-12)

CRIMPABLE CENTER CONDUCTOR

CRIMP BARREL STYLE IS FOR REFERENCE ONLY
MAY BE HEXAGONAL OR CYLINDRICAL

"COAX" CABLE FROM VOYAGER CABLE
(308-0149-XXX)

P7 COMMUNICATION

N/C
N/C
N/C
N/C
N/C
N/C
BLU WIRE, (308-0149-XXX) LABELED "M"
WHT/BLU WIRE, (308-0149-XXX) LABELED "P"
WHT/ORN WIRE, (308-0149-XXX) LABELED "N"
ORN WIRE, (308-0149-XXX) LABELED "R"
GRN WIRE, (308-0149-XXX) LABELED "C"

(CLEAR OUTER JACKET, STAINLESS STEEL BRAID)

P6 SYSTEM POWER / PAN/TILT POWER

WHT WIRE, (308-0149-XXX) LABELED "T"
WHT/BLU WIRE, (308-0149-XXX) LABELED "b"
N/C
WHT WIRE, (308-0149-XXX) LABELED "t"
WHT/BLU WIRE, (308-0149-XXX) LABELED "h"
N/C
WHT WIRE, (308-0149-XXX) LABELED "g"
WHT/BLU WIRE, (308-0149-XXX) LABELED "Z"
N/C
WHT WIRE, (308-0149-XXX) LABELED "w"
WHT/BLU WIRE, (308-0149-XXX) LABELED "a"
N/C

P/T PWR 2
P/T PWR 1
SYS PWR 2
SYS PWR 1

4 TWISTED PAIRS
(WHITE OUTER JACKET)

P8 ETHERNET

WHT/ORN WIRE, (308-0149-XXX) LABELED "G"
ORN WIRE, (308-0149-XXX) LABELED "F"
GRN/WHT WIRE, (308-0149-XXX) LABELED "D"
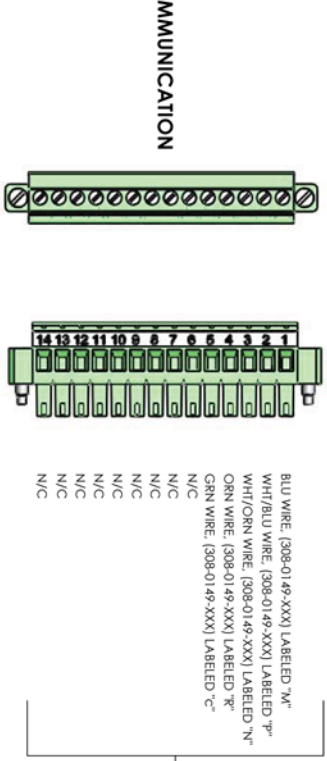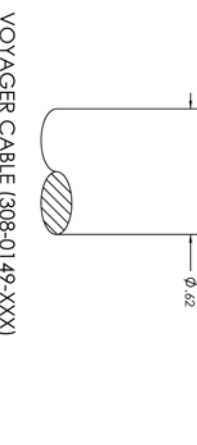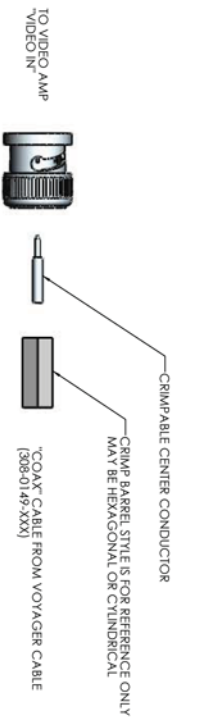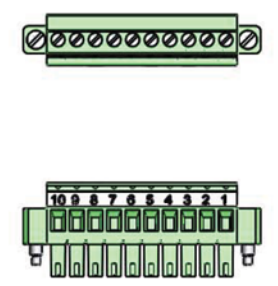GRN WIRE, (308-0149-XXX) LABELED "E"
N/C

ETHERNET CABLE
(BLUE OUTER JACKET)

VOYAGER CABLE (308-0149-XXX)
STRIP CABLE APPROXIMATELY AS SHOWN

1.00
12.50
11.50
8.50
9.50

Ø.62

OUTER JACKET (BLACK)

STEEL BRAID

COAX

(CLEAR OUTER JACKET, COPPER BRAID)
4 TWISTED PAIR (WHITE OUTER JACKET)
P6 SYS PWR, P/T PWR

(CLEAR OUTER JACKET, STAINLESS STEEL BRAID)
P7 COMMUNICATION

(BLUE OUTER JACKET)
P8 ETHERNET

JCU 1 THRU 4
P1 THRU P4

POWER INPUT
P5

NMEA 4800 INTERFACE BOARD

WHT WIRE, (308-0139-XXX, WHT #1)
BLK WIRE, (308-0139-XXX, BLK #1) — TWISTED PAIR #1
WHT WIRE, (308-0139-XXX, WHT #3)
BLK WIRE, (308-0139-XXX, BLK #3) — TWISTED PAIR #3
SHIELD FROM TWISTED PAIR #1, (308-0139-XXX) SHALL BE ISOLATED FROM OTHER WIRES AND SHIELD(S) USING PROVIDED TUBING.
WHT WIRE, (308-0139-XXX, WHT #4)
BLK WIRE, (308-0139-XXX, BLK #4) — TWISTED PAIR #4
WHT WIRE, (308-0139-XXX, WHT #2)
BLK WIRE, (308-0139-XXX, BLK #2) — TWISTED PAIR #2
OVERALL SHIELD, (308-0139-XXX) SHALL BE ISOLATED FROM OTHER WIRES AND SHIELD(S) USING PROVIDED TUBING.
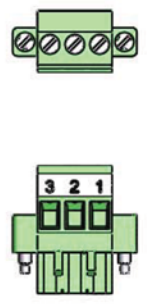
RED WIRE, (POWER INPUT CABLE, 4104680)
BLK WIRE, (POWER INPUT CABLE, 4104680)
BLU WIRE, (POWER INPUT CABLE, 4104680)

YELLOW WIRE
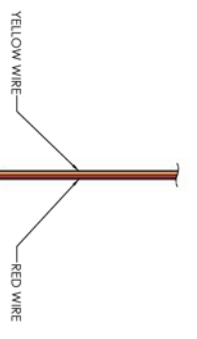RED WIRE

PIGTAIL OF NMEA 4800 INTERFACE.
THE ENDS OF THESE WIRES WILL
HAVE PROTECTIVE COVERING.
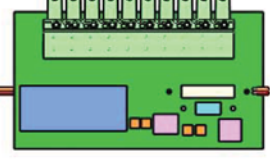
ONE JCU:
INSTALL NMEA INTERFACE BOARD INTO
CONNECTOR J2. NMEA WIRES FROM
VESSEL TO BE INSTALLED AS FOLLOWS:
SIGNAL "A" TO PIN 1
SIGNAL "B" TO PIN 2
OF CONNECTOR J3.

TWO JCUs:
INSTALL NMEA INTERFACE BOARD INTO
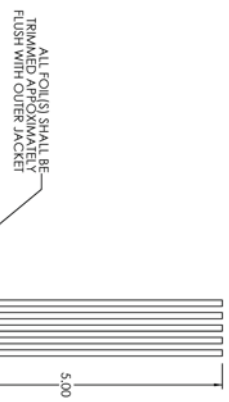CONNECTOR J3. NMEA WIRES FROM
VESSEL TO BE INSTALLED AS FOLLOWS:
SIGNAL "A" TO PIN 1
SIGNAL "B" TO PIN 2
OF CONNECTOR J3.

THREE JCUs:
INSTALL NMEA INTERFACE BOARD INTO
CONNECTOR J4. NMEA WIRES FROM
VESSEL TO BE SPLICED TO PIGTAIL WIRES
FROM NMEA 4800 INTERFACE BOARD.
NMEA SIGNAL "A" TO RED WIRE.
NMEA SIGNAL "B" TO YELLOW WIRE.

POWER INPUT CABLE
(4104680)

Ø.37
2.75

"OUTSIDE" THE ENCLOSURE

OUTER JACKET
(308-0139-XXX)

ALUMINUM ENCLOSURE

CABLE GLAND

AT A MINIMUM,
.50 IN. OF CABLE SHALL
PROTRUDE BEYOND THE
CABLE GLAND.

ALL FOIL(S) SHALL BE
TRIMMED APPROXIMATELY
FLUSH WITH OUTER JACKET

Ø.44
5.00

CABLE STRIP DETAIL
JCU CABLE, J1 - J4
"INSIDE" THE ENCLOSRUE

432-0002-00-19
SH 7 REV 030

SIZE D
CAGE 06AY2
DWG NO. 432-0002-00-19 REV 030
SCALE 2:1
SHEET 7 OF 8

SOLIDWORKS MODEL: terminal install J,81 78pce 189427
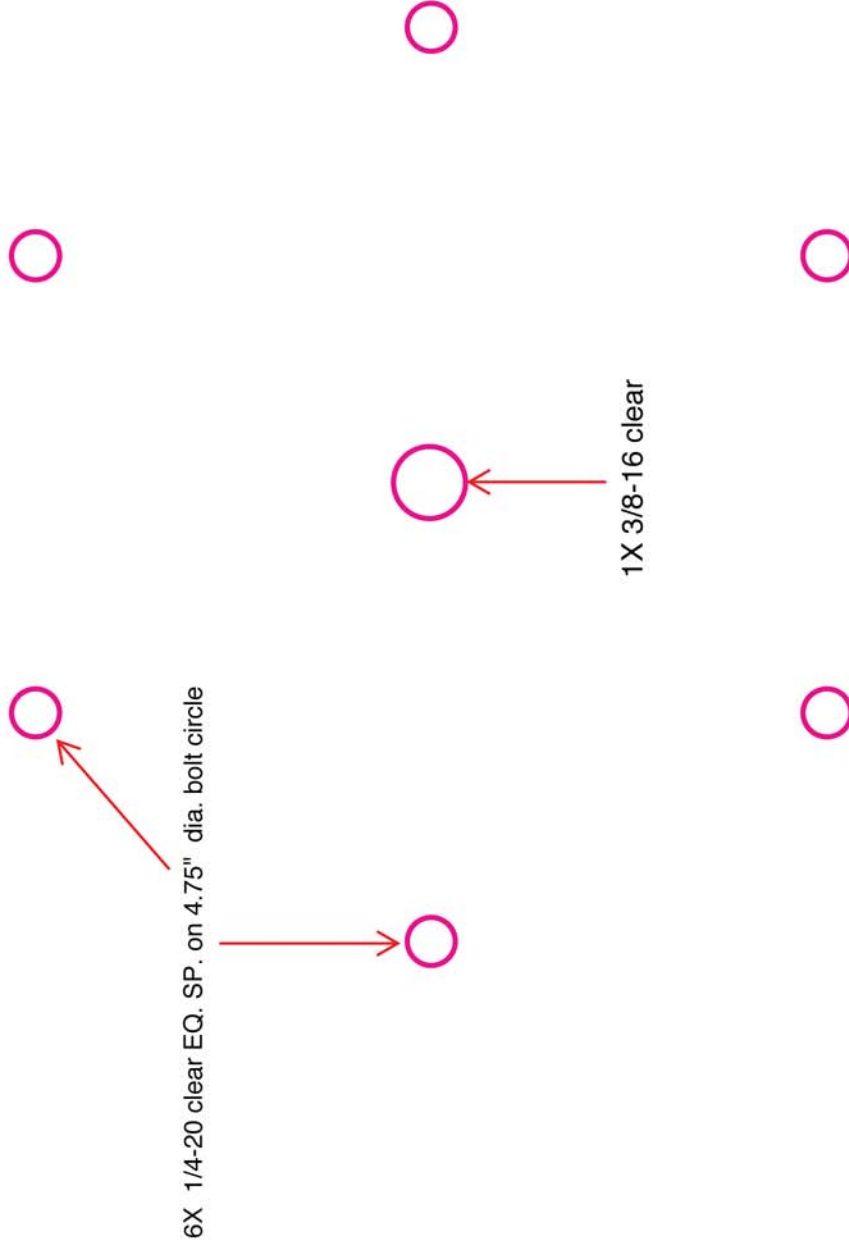MODEL REVISION: P/01 A'C
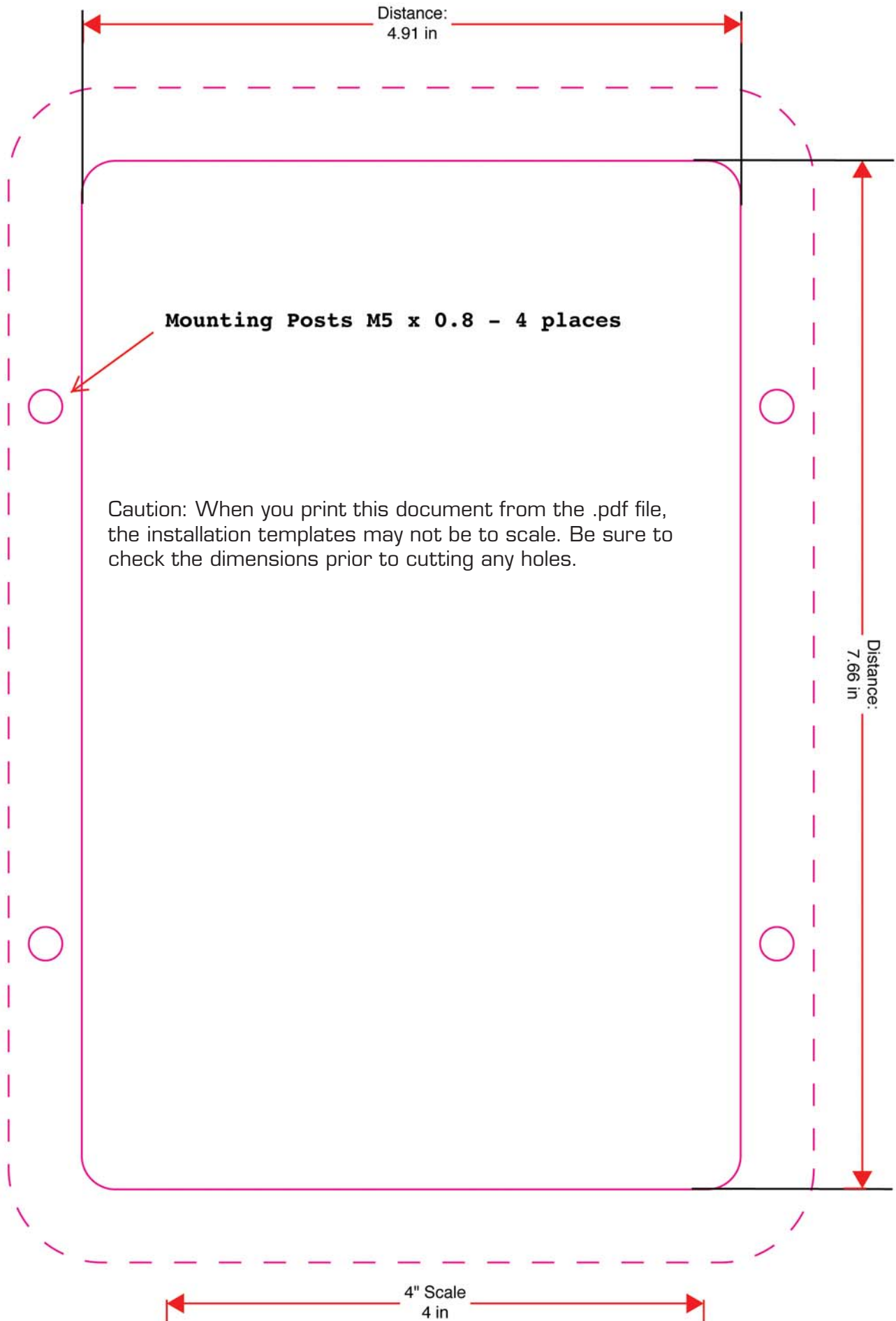
PRINTED: 10/21/2008

DWG NO. 432-0002-00-19   SH 7 REV 030

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Caution: When you print this document from the .pdf file, the installation templates may not be to scale. Be sure to check the dimensions prior to cutting any holes.

1X 3/8-16 clear

6X 1/4-20 clear EQ. SP. on 4.75" dia. bolt circle

FORWARD

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Distance:
4.91 in

Distance:
7.66 in

Mounting Posts M5 x 0.8 - 4 places

Caution: When you print this document from the .pdf file, the installation templates may not be to scale. Be sure to check the dimensions prior to cutting any holes.

4" Scale
4 in

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