

# QLA-360MPT-50

AUTO ACQUISITION and PROGRAM TRACKING FOR SATELLITES



The QLA-360MPT-50 is designed for Low Earth Orbiting (LEO) tracking satellite applications.

The embedded antenna controller with built in GPS and digital compass has a full featured web based user interface which provides rapid and accurate antenna pointing. The user interface includes manual control and status along with a stored satellite database and two line element set program track capability which allows easy tracking of satellites in low or medium earth orbit. We also offer a command line interface for customers that want to add our solution into a larger system.

The QLA-360MPT-50 is typically paired with 1.0 to 2.4 meter antennas, payloads up to 500 lbs (159 kg), and offers 360° of azimuth and ±90° (180°) of elevation range. Optional cross elevation accessory available to eliminate keyhole effect for overhead passes.

## TECHNICAL SPECIFICATIONS - QLA-360MPT-50

Power	48 Volt DC input 10 Amps (Power Supply and Power Cable Included)
Material / Finish	Aluminum with stainless steel hardware / Hard coat anodize
Positioner Travel	
Azimuth	540° (+/-270°)
Elevation	180° (+/-90°)
Positioner Drive Rate	
Azimuth	Variable, up to 12°/sec no load
Elevation	Variable, up to 12°/sec no load
Temperature	
Operational	-40 to 140°F (-30 to 60°C)
Non-Operational	-40 to 158°F (-40 to 70°C)
Feedback Resolution	0.1°
Backlash (Az/EI)	less than 0.1°
Torque	
Continuous (Az&EI)	500 ft-lbs (678 Nm)
Peak (Az&EI)	750 ft-lbs (1017 Nm)
Payload (Including Counterweights)	500 lbs (159 kg)*
Dimensions (Not Including Counterweights)	Height: 36.80" (93.5 cm), Width: 25.43" (64.6 cm), Depth: 13.90" (35.3 cm)
Weight	415 lbs (188 kg) including 150 lbs (68 kg) of counterweights
Mounting Interface	Table top mount (See ICD for details)
Antenna Mount Options	1/2-13 threaded holes (See ICD for details)
Communication Interface	
User Interfaces	Web based hosted internal to unit or company proprietary command protocol
Ethernet	10/100 Ethernet
Serial	RS-232
Other	Satellite Modem Interfaces for Acquisition and Tracking

\*Contact QPARUSA for alternate configurations

Specifications subject to change without notice

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REV	DESCRIPTION	DATE	APPROVED
A	IR800574	2019-09-25	CLC

- NOTES: UNLESS OTHERWISE SPECIFIED
- QLA-360MPT-50 CONFIGURABLE OPTIONS PER TABLE I, SHOWN WITHOUT COUNTERWEIGHTS. LINKALIGN-360MPT-50 SUPPLIED WITH 150 LBS OF COUNTERWEIGHTS (EQUIVALENT TO 150 FT-LBS OF TORQUE)
  - USE INTERFACE CONTROL DRAWING IN CONJUNCTION WITH DATASHEET N500170
  - SEE TABLE II FOR AVAILABLE LINKALIGN-360MPT-50 ACCESSORY OPTIONS
  - 48VDC POWER SUPPLY INCLUDED WITH POSITIONER. NOT SHOWN IN DRAWING
  - HARD COAT ANODIZE ALUMINUM CONSTRUCTION WITH STAINLESS STEEL HARDWARE
  - 540° (+/-270°) AZIMUTH TRAVEL WITH 12°/SEC DRIVE RATE (NO LOAD)
  - 180° (+/-90°) ELEVATION TRAVEL WITH 12°/SEC DRIVE RATE (NO LOAD)
  - 40° TO 140°F (-30° TO 60°C) OPERATIONAL TEMPERATURE RANGE; -40° TO 138°F (-40 TO 70°C) NON-OPERATIONAL TEMPERATURE RANGE
  - 0.1° FEEDBACK RESOLUTION IN ALL AXES
  - AZIMUTH AND ELEVATION BACKLASH LESS THAN 0.1°
  - 36.80" (93.5 cm) HIGH X 25.43" (64.6 cm) WIDE X 13.90" (35.3 cm) DEEP. DIMENSIONS APPLY WHEN POSITIONER IS AT 0° AZIMUTH AND 0° ELEVATION ANGLES
  - WEIGHT APPROXIMATELY 415 LBS (188 kg) INCLUDING 150 LBS (68 kg) OF COUNTERWEIGHTS
  - PAYLOAD SHALL NOT EXCEED 500 LB (159 kg) (INCLUDING COUNTERWEIGHTS) OR 500 FT-LBS OF TORQUE ABOUT THE ELEVATION AXIS. EFFORT SHOULD BE MADE TO BALANCE ELEVATION PAYLOAD AS MUCH AS POSSIBLE BY USING THE (6) 25 LB COUNTERWEIGHTS PROVIDED TO CALCULATE TORQUE. TAKE THE DISTANCE FROM THE PAYLOAD CENTER OF GRAVITY TO DATUM -B- IN FEET AND MULTIPLY BY THE PAYLOAD WEIGHT. CUSTOM CONFIGURATIONS AVAILABLE UPON REQUEST
  - TABLE TOP MOUNTING HOLES
  - CENTER OF GRAVITY 0" IN THE X-DIRECTION, 15.1" (38.4 cm) IN THE Y-DIRECTION AND 0" IN THE Z-DIRECTION

NOTES CONTINUED ON SHEET 7

TABLE I	
BUILDING A PART NUMBER	STANDARD OPTIONS
LA-360MPT - 50 - 100	<<EXAMPLE
SHIELDED ETHERNET CABLE STANDARD LENGTHS	
050 = 50 ft	
100 = 100 ft	
150 = 150 ft	
200 = 200 ft	
250 = 250 ft	
300 = 300 ft	
300 = 300 ft	
XXX = Custom length in feet	
XXXC = Add 'C' to end of cable length for unterminated mating connector	
CUSTOM CONFIGURATION	
= Standard options - leave blank	
MOTOR DRIVES AND PAYLOAD	
50 = ALZ 8 ET 500 ft lbs @ 12"/s, 350 lb payload, typically paired with 1 - 2.4 meter antenna	
MODEL	
LA-360MPT = LinkAlign-360MPT (See motor drives and payload section for positioner travel range info)	

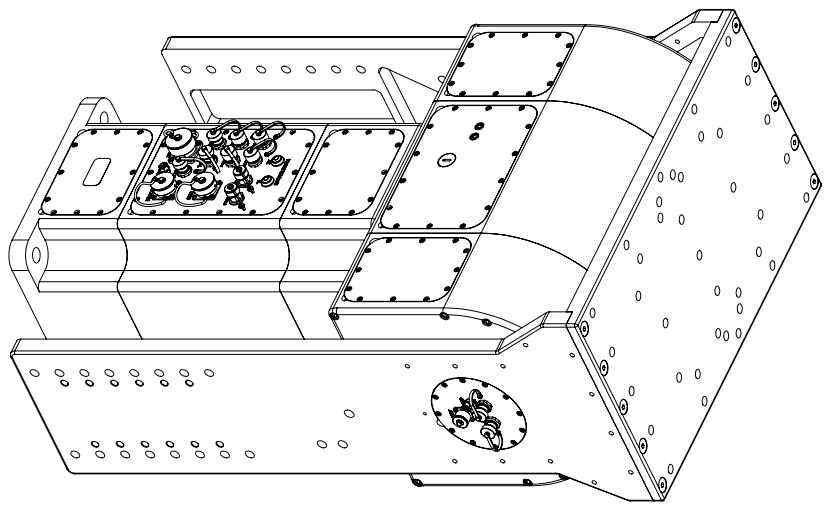
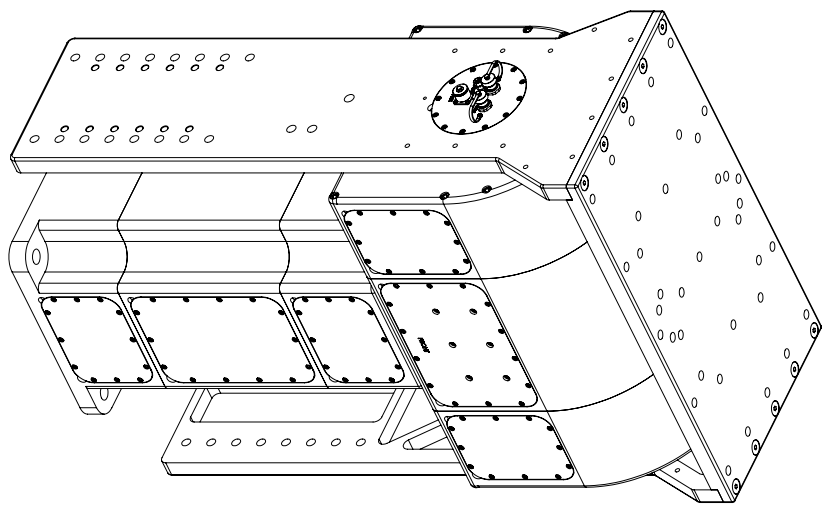


TABLE II (MPT-5X ACCESSORY OPTIONS)		
ACCESSORY DESCRIPTION	ACCESSORY PART NUMBER	ACCESSORY ICD
CROSS ELEVATION DRIVE ASSEMBLY KIT, MPT-5X	ACC-N900652-1	ICDN900652

<p><b>SYMBOL KEY</b></p> <p><input type="checkbox"/> NOTE</p> <p><input type="checkbox"/> PL ITEMS</p> <p><b>PROPRIETARY AND CONFIDENTIAL</b></p> <p>THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF QUALITY. ANY REPRODUCTION OR TRANSMISSION OF THIS INFORMATION IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF QUALITY IS PROHIBITED.</p> <p>QPAR ANTENNAS USA, LLC LAS VEGAS, NV 89171 WWW.QPARUSA.COM</p>	<p><b>UNLESS OTHERWISE SPECIFIED:</b></p> <p>DIMENSIONS ARE IN INCHES</p> <p>ANGLE TOLERANCES UNLESS OTHERWISE SPECIFIED:</p> <p>THREE PLACE DECIMAL, ±.005</p> <p>TWO PLACE DECIMAL, ±.010</p> <p>ONE PLACE DECIMAL, ±.030</p> <p>FINISH: 14.5UM 12/2</p>	<p><b>HARD ANGLE PROJECTION</b></p> <p>DO NOT SCALE DRAWING</p>	<p><b>PART NO.</b></p> <p>SEE TABLE I</p>	<p><b>DATE</b></p> <p>2019/09/25</p>	<p><b>CHECKED</b></p> <p>S: CHENE</p>	<p><b>DATE</b></p> <p>2019/09/25</p>	<p><b>CHECKED</b></p> <p>C: CHENE</p>	<p><b>DATE</b></p> <p>2019/09/25</p>	<p><b>DRAWN</b></p> <p>ME: APPEL</p>	<p><b>DATE</b></p> <p>2019/09/25</p>
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**QPAR Antennas USA, LLC**

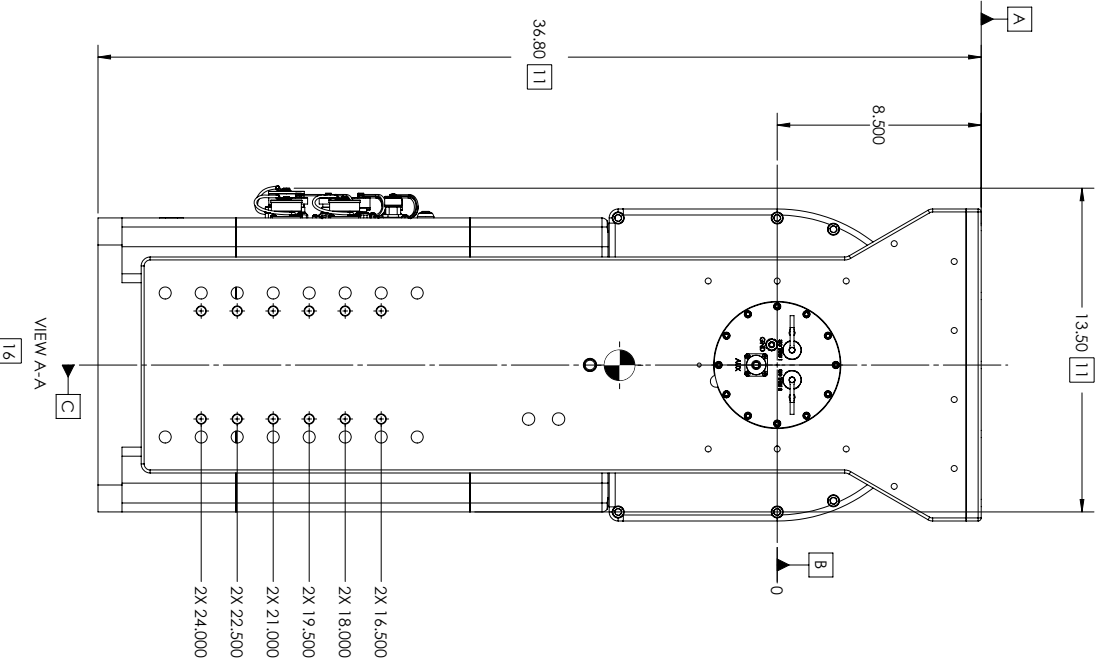
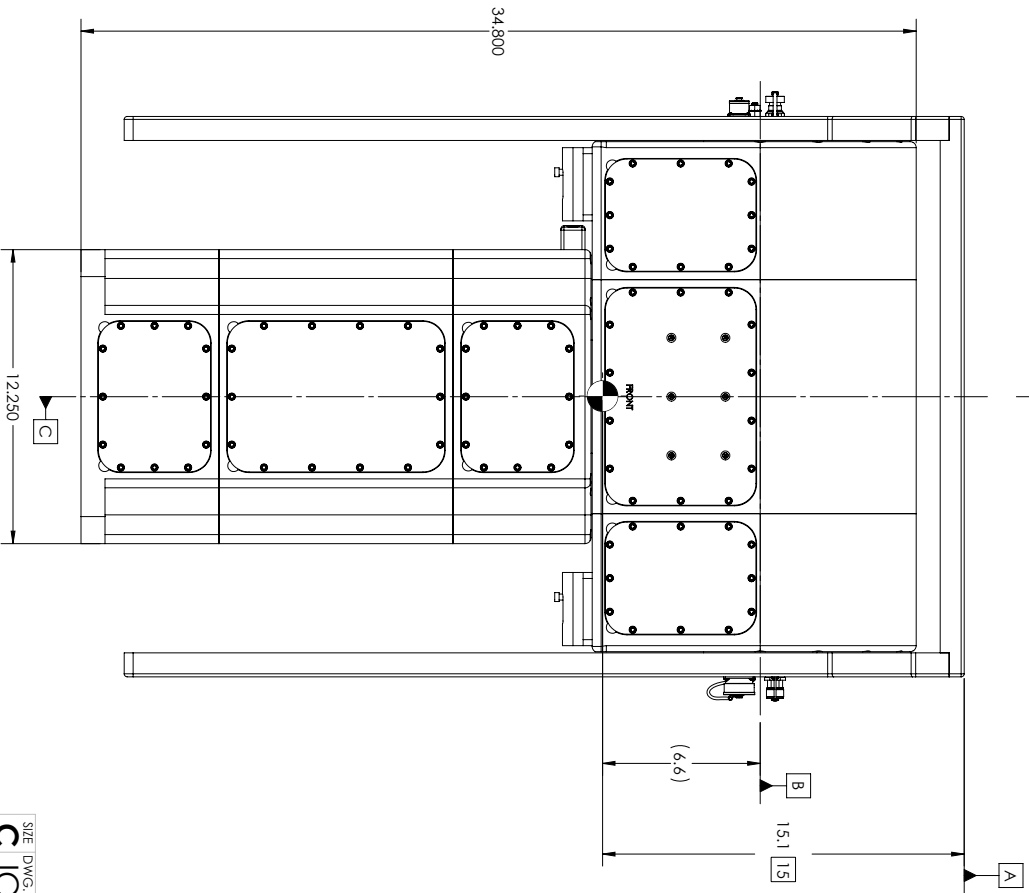
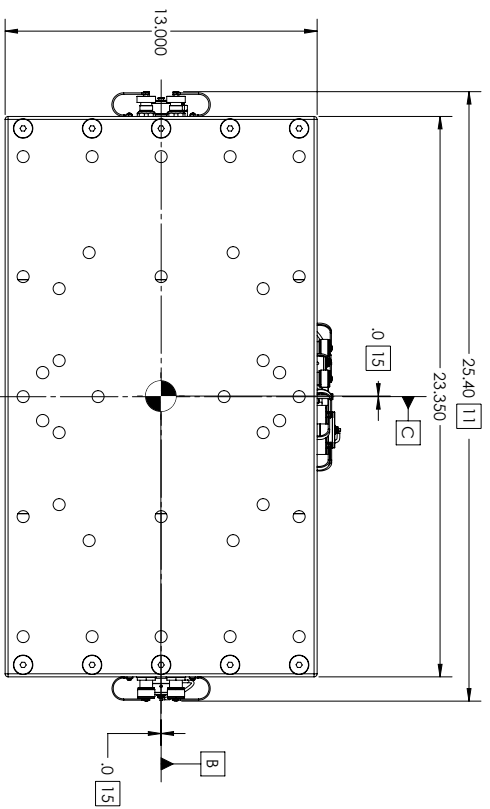
**QLA-360MPT-5X INTERFACE CONTROL DRAWING**

SIZE: DWG. NO. **C ICDN900697**

SCALE: 1:5

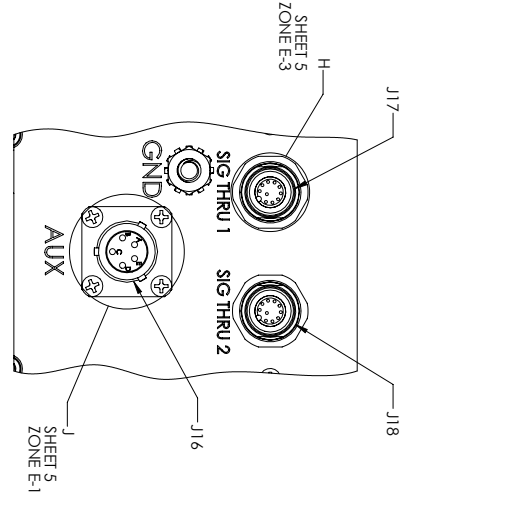
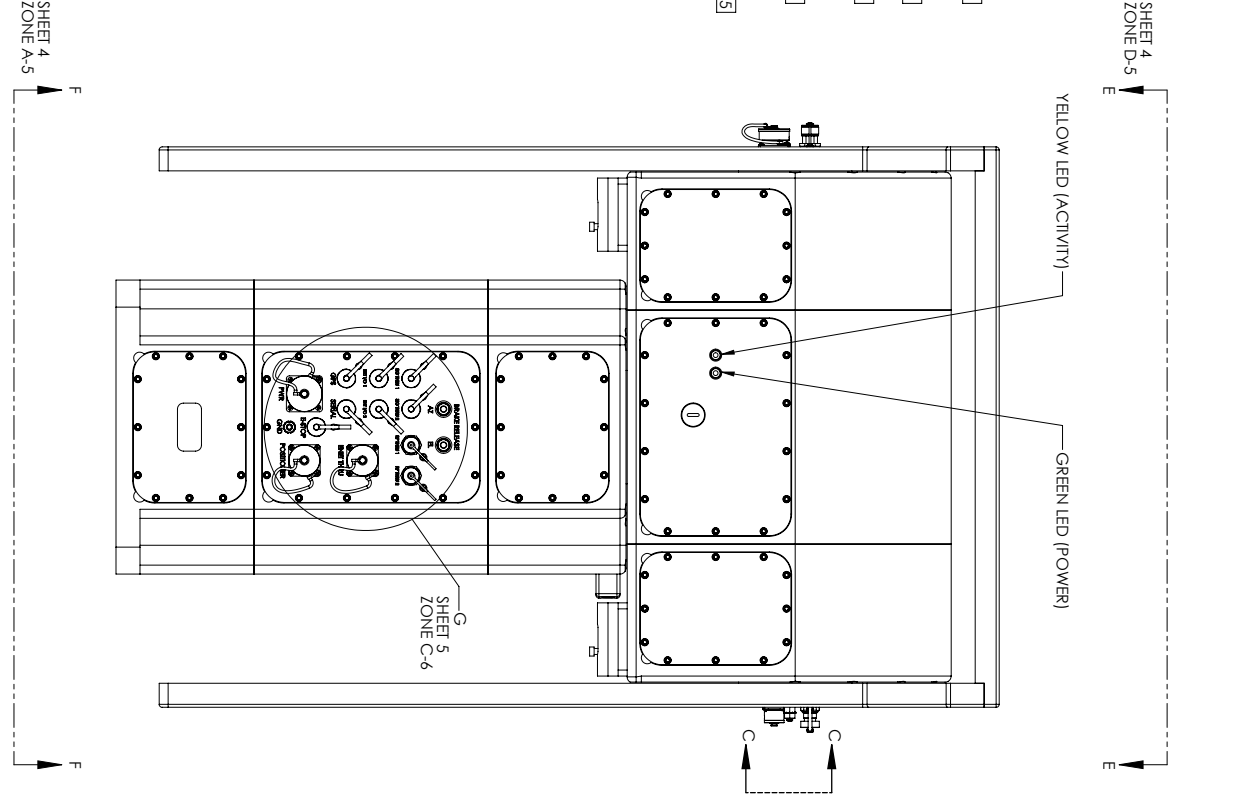
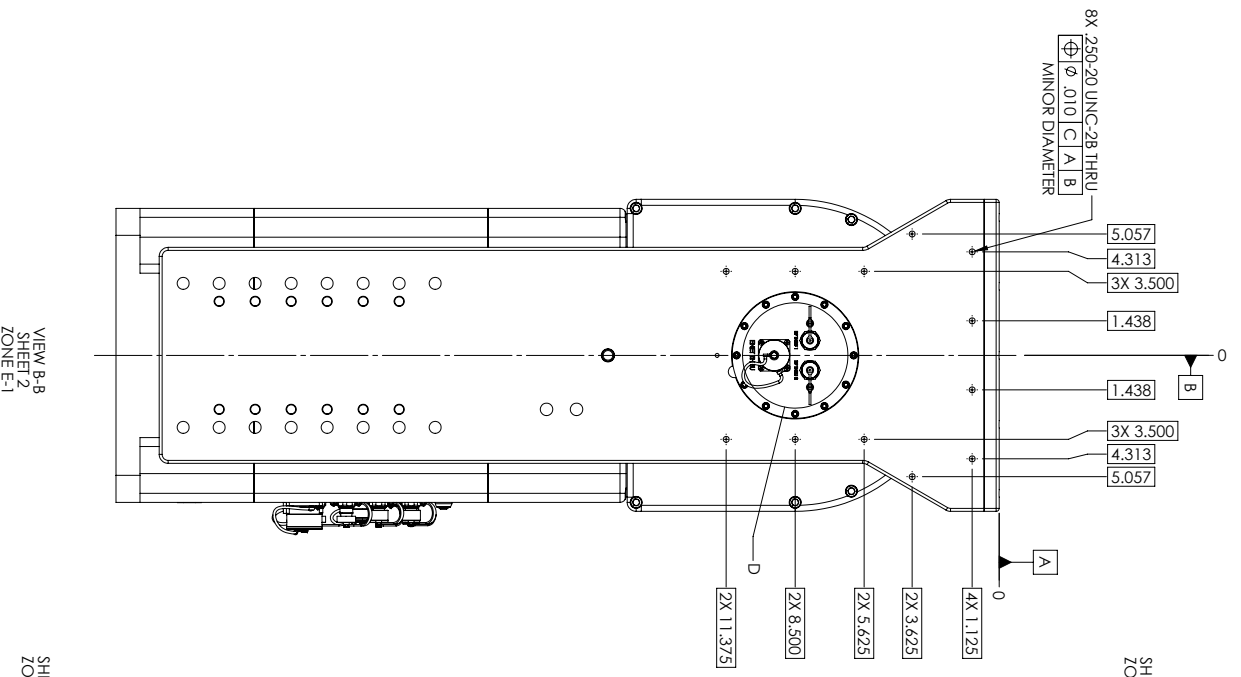
REV **A**

SHEET 1 OF 7

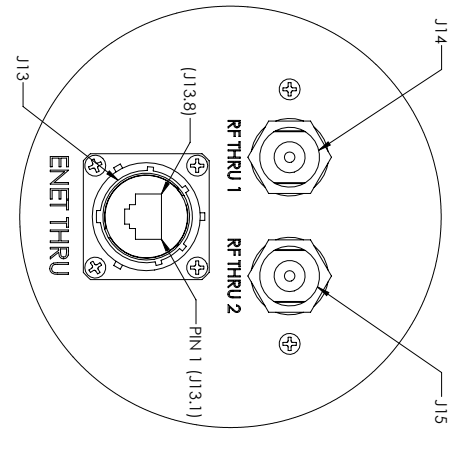


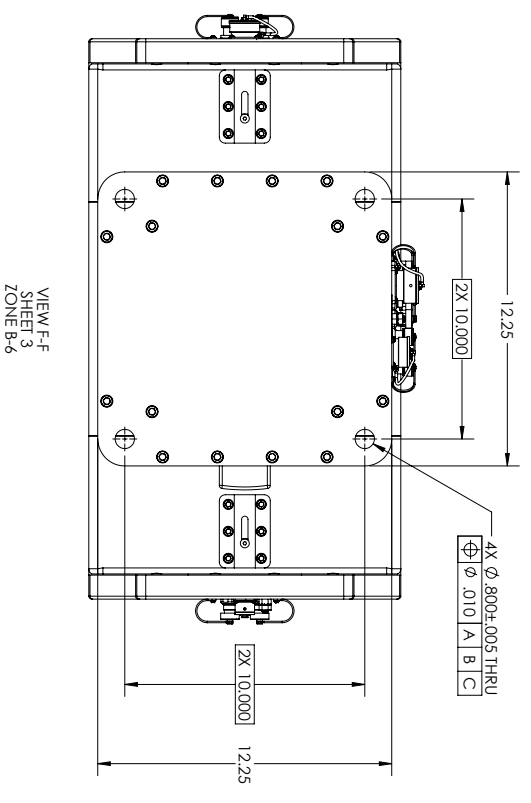
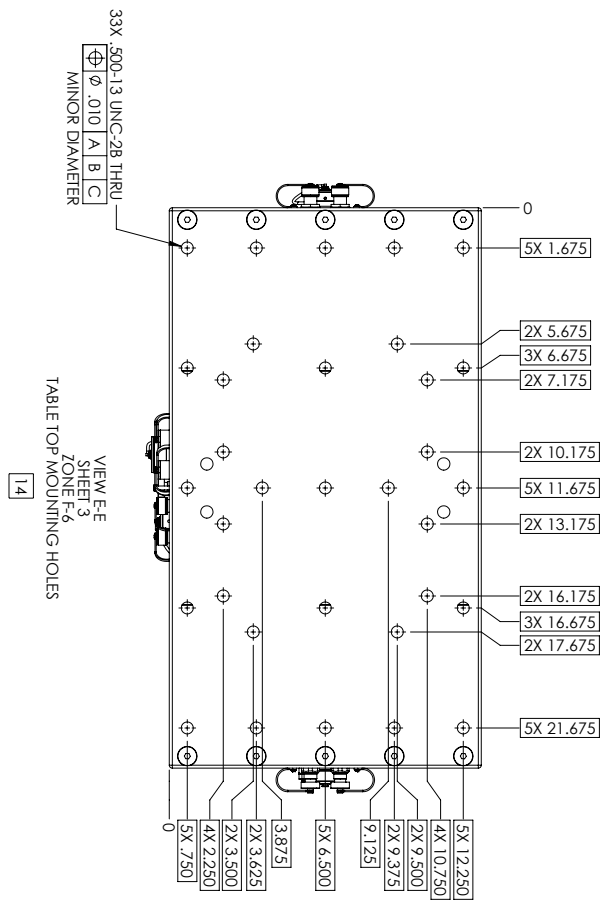
SHEET 3  
ZONE B-7

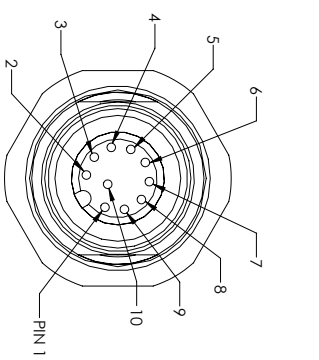
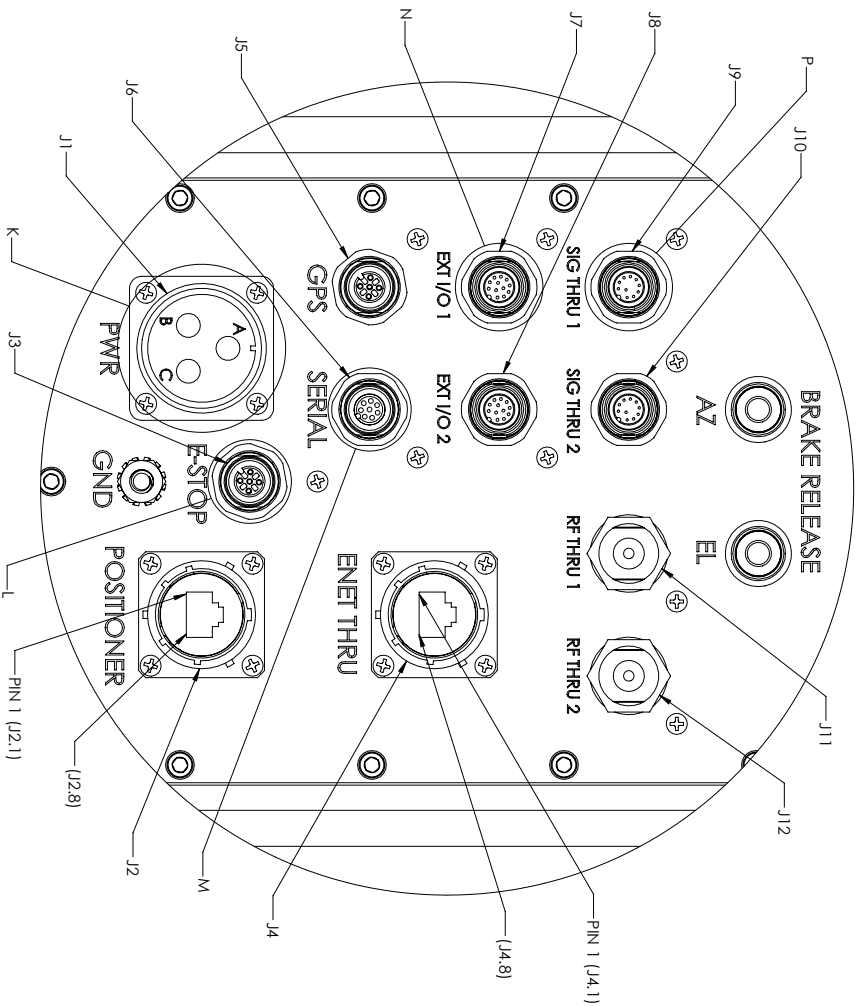
SIZE DWG. NO.  
**C ICDN900697**  
SCALE: 1:4  
SHEET 2 OF 7



VIEW C-C  
SCALE 1:1  
SHOWN WITHOUT PROTECTIVE CAPS

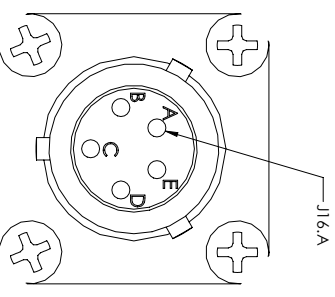






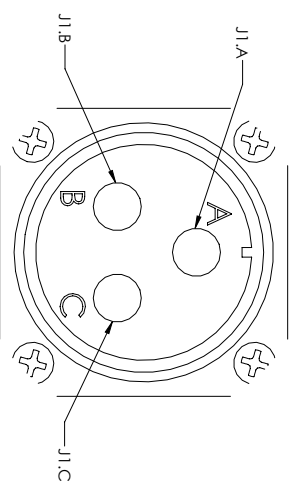
J17 & J18 SHOWN FROM MATING SIDE  
 MATES WITH TURCK P/N RS 101-1\* (\* LENGTH IN METERS)

DETAIL H  
 SCALE 3 : 1  
 SHEET 3  
 ZONE D-2  
 SEE TABLE IX FOR CONNECTOR PINOUT DETAILS



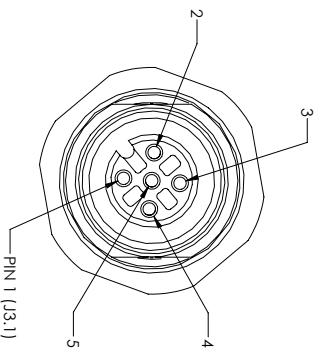
J16 CONNECTOR SHOWN FROM MATING SIDE  
 AMPHENOL P/N P102E-10-55

DETAIL J  
 SCALE 3 : 1  
 USED FOR OPTIONAL GROSS ELEVATION ACCESSORY  
 SEE TABLE II FOR ACCESSORY DETAILS  
 SEE TABLE VII FOR CONNECTOR PINOUT DETAILS



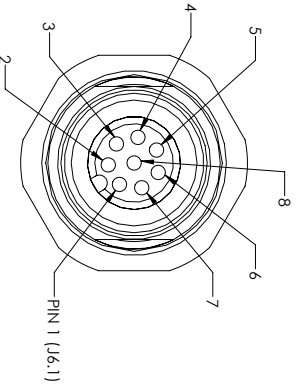
J1 CONNECTOR SHOWN FROM MATING SIDE  
 AMPHENOL P/N MS3102E20-19P

DETAIL K  
 SCALE 2 : 1  
 SEE TABLE III FOR CONNECTOR PINOUT DETAILS



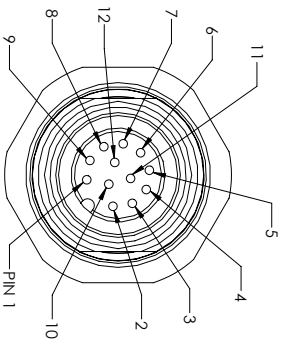
J3 CONNECTOR SHOWN FROM MATING SIDE  
 MATES WITH TURCK P/N RS 4.5-T-1\* (\* LENGTH IN METERS)

DETAIL L  
 SCALE 3 : 1  
 SEE TABLE V FOR CONNECTOR PINOUT DETAILS



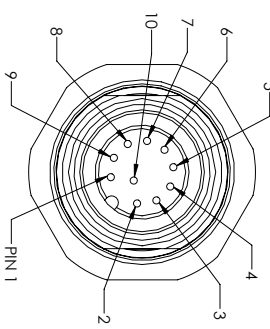
J6 CONNECTOR SHOWN FROM MATING SIDE  
 MATES WITH TURCK P/N RS 8-T-1\* (\* LENGTH IN METERS)

DETAIL M  
 SCALE 3 : 1  
 SEE TABLE VI FOR CONNECTOR PINOUT DETAILS



J7 & J8 CONNECTORS SHOWN FROM MATING SIDE  
 MATES WITH TURCK P/N RK 12-T-1\* (\* LENGTH IN METERS)

DETAIL N  
 SCALE 3 : 1  
 SEE TABLE VIII FOR CONNECTOR PINOUT DETAILS



J9 & J10 CONNECTOR SHOWN FROM MATING SIDE  
 MATES WITH TURCK P/N RK 10-T-1\* (\* LENGTH IN METERS)

DETAIL P  
 SCALE 3 : 1  
 SEE TABLE IX FOR CONNECTOR PINOUT DETAILS

CONNECTOR DESIGNATION	FUNCTION
J1.A	P48V_RTN
J1.B	P48V
J1.C	GND

CONNECTOR DESIGNATION	FUNCTION
J2.1	DATA PAIR 1
J2.2	DATA PAIR 1
J2.3	DATA PAIR 2
J2.4	+48-56VDC PoE POWER INPUT
J2.5	+48-56VDC PoE POWER INPUT
J2.6	DATA PAIR 2
J2.7	DC RETURN FOR PoE INPUT
J2.8	DC RETURN FOR PoE INPUT

CONNECTOR DESIGNATION	FUNCTION
J3.1	NOT USED
J3.2	E-STOP NC
J3.3	E-STOP COM
J3.4	E-STOP NO
J3.5	NOT USED

CONNECTOR DESIGNATION	FUNCTION
J6.1	5V
J6.2	GND
J6.3	12V
J6.4	GND
J6.5	RS232_UART14 Tx
J6.6	RS232_UART14 Rx
J6.7	RS232_UART15 Tx
J6.8	RS232_UART15 Rx

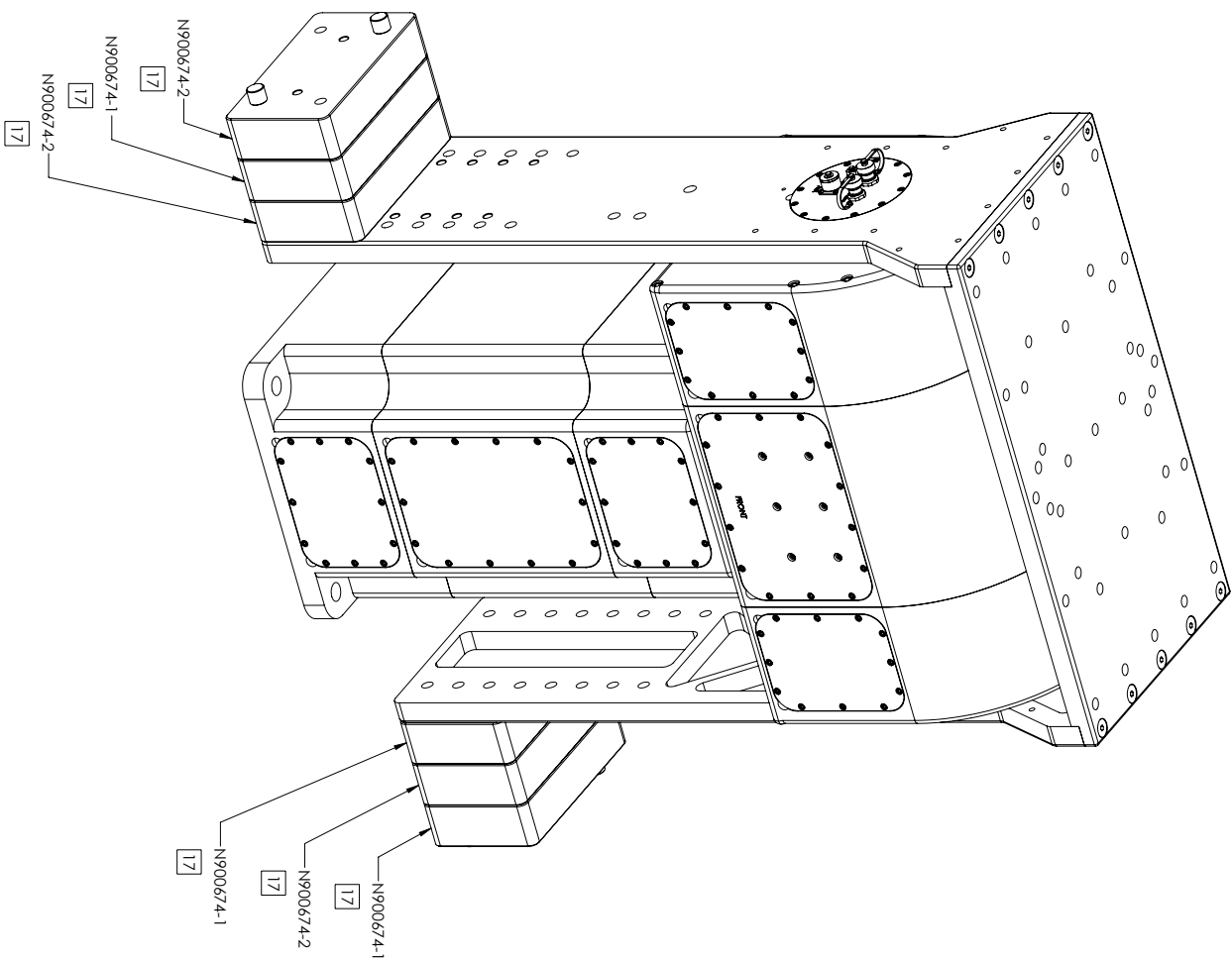
CONNECTOR DESIGNATION	FUNCTION
J16.A	GND
J16.B	MOTOR +
J16.C	MOTOR -
J16.D	POT WIPER
J16.E	+3.3V

CONNECTOR DESIGNATION	FUNCTION
J7.1	ADC_1+
J7.2	GND
J7.3	IN2_IN_GPIO_1_27
J7.4	IN1_IN_GPIO_1_16
J7.5	COM
J7.6	IN3_IN_GPIO_1_24
J7.7	OUT1_OUT_GPIO_1_15
J7.8	OUT4_OUT_GPIO_1_22
J7.9	ADC_1-
J7.10	OUT3_OUT_GPIO_1_21
J7.11	IN4_IN_GPIO_1_14
J7.12	OUT2_OUT_GPIO_1_17
J8.1	ADC_2+
J8.2	GND
J8.3	N/C
J8.4	N/C
J8.5	N/C
J8.6	N/C
J8.7	N/C
J8.8	N/C
J8.9	ADC_2-
J8.10	N/C
J8.11	N/C
J8.12	N/C

FROM	TO
J4.1	J13.1
J4.8	J13.8
J9.1	J17.1
J9.10	J17.10
J10.1	J18.1
J10.10	J18.10
J11.1	J14.1
J12.1	J15.1

NOTES CONTINUED:

- 16 COUNTERWEIGHTS SHOWN AT MAXIMUM ADDITIONAL ELEVATION TORQUE OF 500 FT-LBS TO ADJUST ELEVATION TORQUE. COUNTERWEIGHT LOCATIONS MAY BE ADJUSTED USING MOUNTING HOLES ON ELEVATION ARM. SEE DIMENSIONS ON VIEW A-A (SHEET 2) TO CALCULATE TORQUE VALUES AT RESPECTIVE MOUNTING HOLE LOCATIONS.
- 17 COUNTERWEIGHTS MUST ALTERNATE FROM N900674-1 TO N900674-2 OR VICE VERSA WHEN COUNTERWEIGHTS ARE STACKED TOGETHER.



SHOWN WITH COUNTERWEIGHTS

16