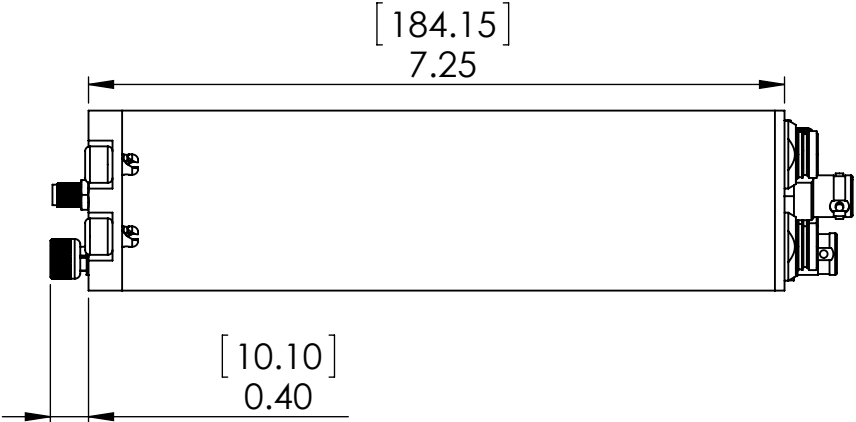
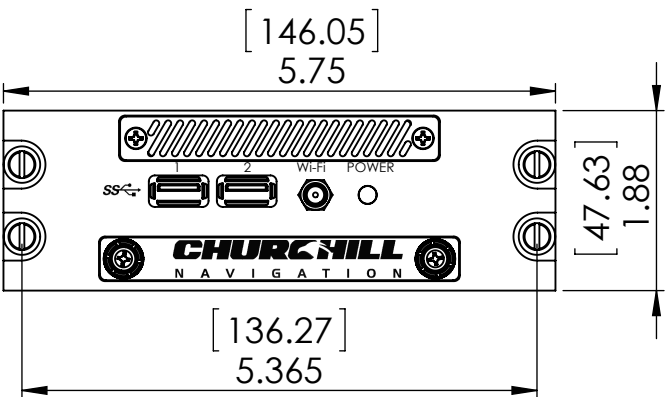
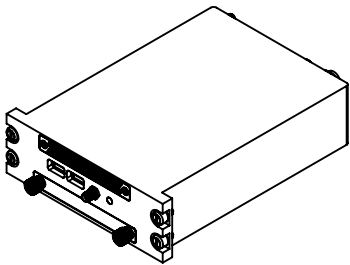


SYSTEM WEIGHT: 2.875 lbs [1.3 kg]
±.05 lbs [0.02 kg]

INSTALLATION NOTES:

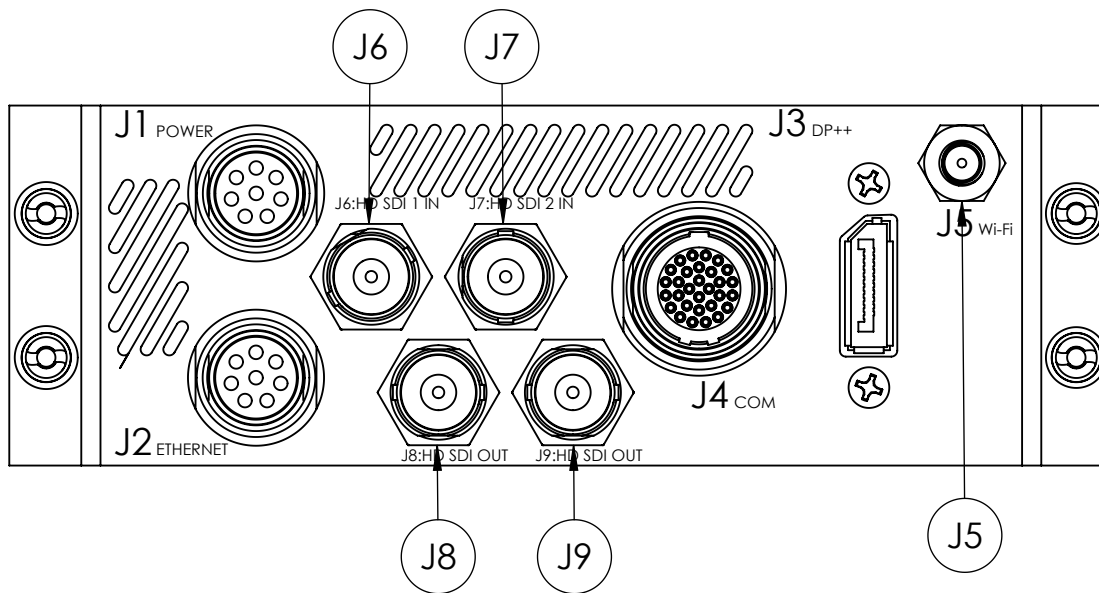
- 1. ATOM IS CASE GROUNDED THROUGH DZUS MOUNT. IF THE DZUS MOUNT IS NOT DIRECTLY GROUNDED TO THE CHASIS, USE A MINIMUM OF 16-GAUGE WIRE TO GROUND THE DZUS MOUNT PRIOR TO ATOM OPERATION.
- 2. EXPOSED ALUMINUM IS CHROMATED. DO NOT CHEMICALLY COAT OR COVER WITH NON-CONDUCTIVE MATERIAL.
- 3. ALL GROUND PINS ARE GROUND CONTINUOUS TO CASE.
- 4. 28V INPUT IS REVERSE-POLARITY PROTECTED.
- 5. RECOMMENDED POWER WIRE SIZE: 22AWG.
- 6. AVERAGE POWER DRAW IS 45 WATTS (1.6A ON 28VDC).
- 7. MAXIMUM POWER DRAW IS 65 WATTS (2.3A ON 28VDC).



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	NAME	DATE	TITLE:		
DRAWN BY:	NHM	12/10/20	ATOM		
CHECKED BY:	JLH	12/10/20			
ALL DIM IN INCHES [MM] WEIGHT IN LBS [KG]			SIZE	HARDWARE REV:	DRAWING REV:
			A	2.2	7
DO NOT SCALE DRAWING					SHEET 1 OF 7



BNC CONNECTION:
CENTER PIN: SIGNAL
SHELL: GROUND

HD-SDI VIDEO 1 IN:
J6

HD-SDI VIDEO 2 IN:
J7

HD-SDI VIDEO OUT:
J8

HD-SDI VIDEO OUT:
J9

RP-F SMA Wi-Fi:
J5 AND FRONT Wi-Fi

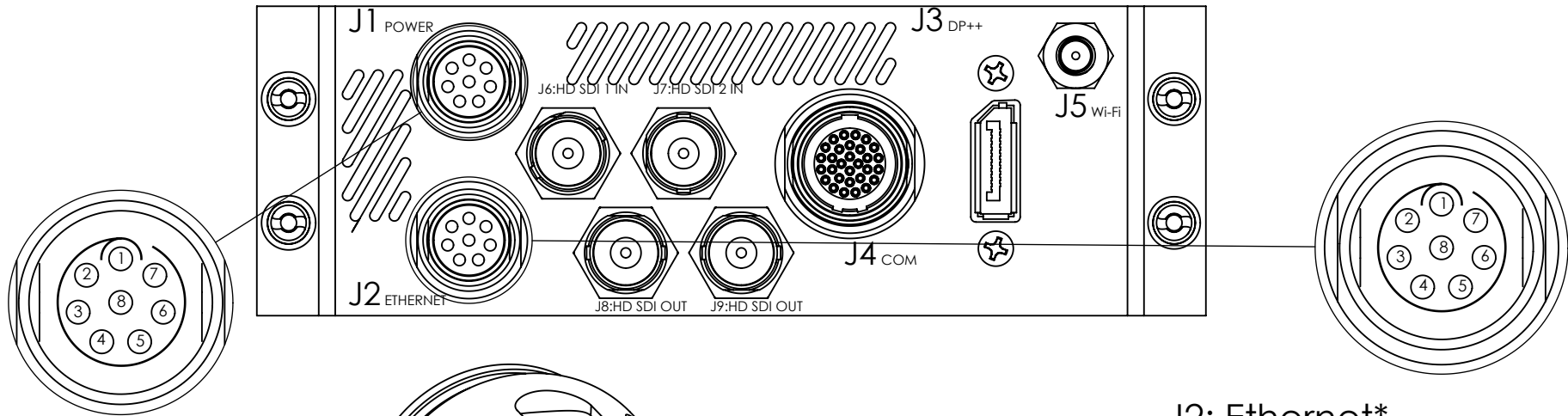
For remote maintenance CONN-WIFI-ANTENNA
can be plugged into rear J5 or front Wi-Fi port to
access network connection.

For use with gyro-stabilized gimbals, HD-SDI
video 1 is typically used for Video In Command,
HD-SDI video 2 is typically used for hoist camera

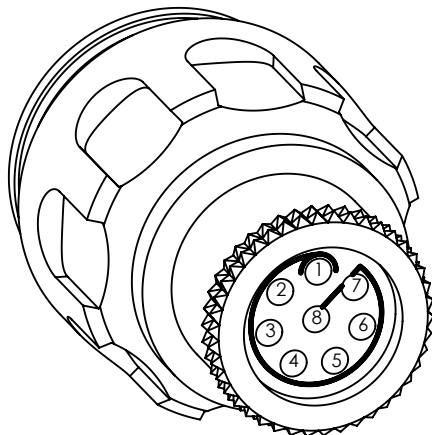
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CHECKED BY:	JLH	12/10/20			
ALL DIM IN INCHES [MM] WEIGHT IN LBS [KG]			SIZE	HARDWARE REV:	DRAWING REV:
			A	2.2	7
DO NOT SCALE DRAWING					SHEET 2 OF 7



J1: Power/GPIO
 1:28V
 2:28V GND
 3:NC
 4:NC
 5:NC
 6:NC
 7:NC
 8:NC



Mating Connector
 (Specifically FGN.1M.308.XLCM)

While populating LEMO connectors, please follow the pattern on the rear of the male LEMO, as seen above

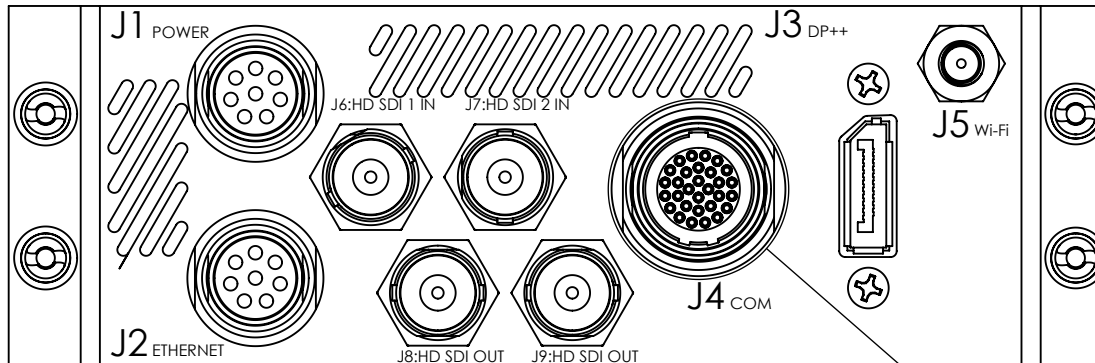
J2: Ethernet*
 1:Bi_DA-/TX- (Orange)
 2:Bi_DA+/TX+ (Orange/White)
 3:Bi_DB-/RX- (Green)
 4:Bi_DB+/RX+ (Green/White)
 5:Bi_DD- (Brown)
 6:Bi_DD+ (Brown/White)
 7:Bi_DC+ (Blue)
 8:Bi_DC- (Blue/White)

*For 2 pair/4wire Ethernet (10 mbit and 100 mbit) Bi_DA and Bi_DB will automatically adjust to be TX or RX in runtime but installers should make sure that polarity is correct.

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OVER**

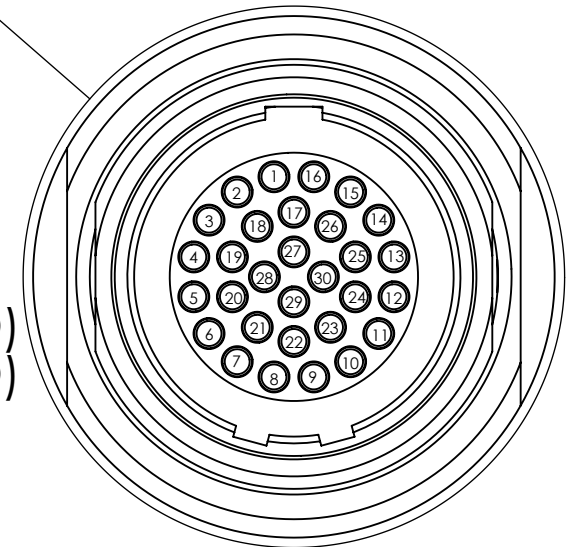
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DRAWN BY:	NHM	12/10/20	ATOM		
CHECKED BY:	JLH	12/10/20			
ALL DIM IN INCHES [MM] WEIGHT IN LBS [KG]			SIZE A	HARDWARE REV: 2.2	DRAWING REV: 7
DO NOT SCALE DRAWING					SHEET 3 OF 7



J4: SERIAL PORTS

- | | | |
|-------------------|---------------------|-----------------|
| 1: AUDIO OUT L | 11: RS232C RX | 21: GND(PS/2) |
| 2: USB D- | 12: RS232B TX | 22: GND(232A) |
| 3: USB D+ | 13: RS422 TX+* | 23: RS232C TX |
| 4: USB 5V | 14: RS422 RX -* | 24: RS232B RX |
| 5: PS/2 5V | 15: RS422 RX +* | 25: RS422 TX-* |
| 6: PS/2 CLK MOUSE | 16: AUDIO IN L | 26: GND(422) |
| 7: PS/2 DATA KEYB | 17: AUDIO IN R | 27: GND (AUDIO) |
| 8: PS/2 CLK KEYB | 18: AUDIO OUT R | 28: GND (AUDIO) |
| 9: RS232A TX | 19: GND(USB) | 29: GND(232C) |
| 10: RS232A RX | 20: PS/2 DATA MOUSE | 30: GND(232B) |



MAXIMUM SPEEDS FOR
CABLES LESS THAN 25FT
RS232: 256kbps
RS422: 8Mbps

*TWISTED PAIR REQUIRED

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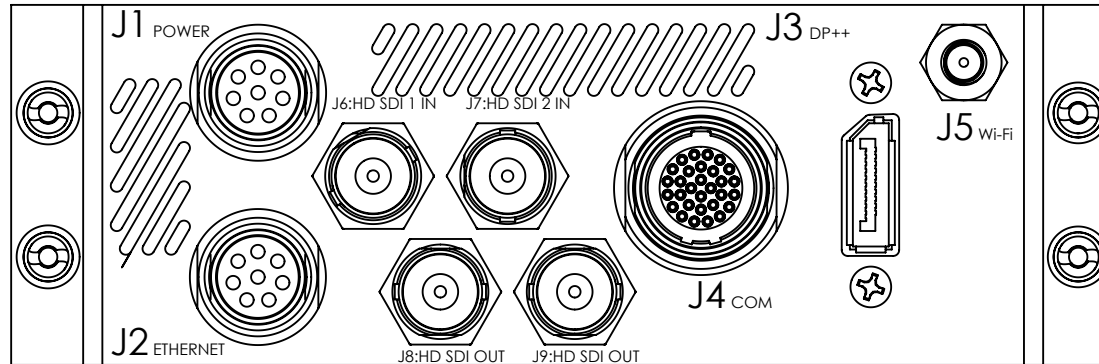
	NAME	DATE	TITLE:		
DRAWN BY:	NHM	12/10/20	ATOM		
CHECKED BY:	JLH	12/10/20			
ALL DIM IN INCHES [MM] WEIGHT IN LBS [KG]			SIZE	HARDWARE REV:	DRAWING REV:
			A	2.2	7
DO NOT SCALE DRAWING			SHEET 4 OF 7		

MATING CONNECTOR PLUGS (CABLE TERMINATION)

- J1: FGN.1M.308.XLCM (One Provided with each ATOM)
- J2: FGU.1M.308.XLCM
- J4: FGN.3M.330.XLCM

Churchill has stock of all necessary connectors and tools

All ATOM Lemo Connectors Use:
Crimp tool: DPC.91.701.V
Pin Positioner: DCE.91.070.5MVC
Pin Extractor: DCF.93.070.4LT



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CHECKED BY:	JLH	12/10/20			
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			A	2.2	7
DO NOT SCALE DRAWING					SHEET 5 OF 7

CABLING REQUIREMENTS

In order to ensure a properly working Churchill Navigation ATOM System, these cabling requirements are highly recommended and any variations will be at the sole responsibility of the installer. Please also install each cable with an 8 inch service loop for easy removal and replacement of unit.

Power Cable

The connection to 28V input on the Ion and 28V GND are highly recommended to be a twisted pair.

75ohm HD-SDI COAX CABLE

Option A

PicWire PIC V73263 is highly recommended. The proper connector is PicWire P/N 190712. These are available from Churchill Navigation or at http://www.picwire.com/pdfs/PIC_Connectors/PIC_190712.pdf.

RG59 is also highly recommended. The proper connector is Amphenol Connex 112123. These are available from Churchill Navigation or at <http://www.digikey.com/product-search/en/connectors-interconnects/coaxial-connectors-rf/1443098?k=112123>

Option B

If RG179 is required by other equipment (ex. MX-10 gimbal), then for EMI purposes, DOUBLE high performance 360 degree EMC individual braid shielding must be done to RG179 cable from end to end. The proper connector is Amphenol Connex 112133. These are available from Churchill Navigation or at http://www.digikey.com/product-search/en?wt.z_cid=ref_hearst_0211_buynow&site=us&mpart=112133&v=115

CRIMPING TOOL

You will need the correct crimping tool for the connectors selected. A few examples are listed below and are available through Churchill Navigation:

Connector:	Crimp Die:
Picwire P/N 190712	M22520/5-41
Amphenol 112123	.255/.213/.068
Amphenol 112133	.178/.128/.068

All Lemo Connectors Crimp tool: DPC.91.701.V Pin Positioner: DCE.91.070.5MVC Pin Extractor: DCF.93.070.4LT

USB CABLE

USB performance cannot be guaranteed at cable lengths greater than 15ft without the use of an extender. Contact Churchill Navigation for further details.

Option A

Carlisle 28433/02171LX-4 <http://www.carlisleit.com/product/usb-cables>. This cable can be purchased directly from Carlisle

Option B

EMTEQ U090-0422-100: http://www.emteq.com/cmsdocuments/EMTEQ_U090-0422-100.pdf & <http://www.emteq.com/entertainment.php> This cable can be purchased directly from Emteq.

ETHERNET CABLE

Picwire PIC E50824 is highly recommended. This can be purchased directly from PICwire at http://www.picwire.com/products/data_mates.php

EMTEQ D100-0824-006 is also highly recommended. This can be purchased directly at <http://www.emteq.com/ethernet-and-databus-cables.php>

DISPLAY PORT CABLE

DisplayPort performance cannot be guaranteed at cable lengths greater than 25ft without the use of an extender. Contact Churchill Navigation for further details.

ALL OTHER CABLES - **MUST BE SHIELDED**

All other cable can be selected by installer and all cables must be shielded, including power cables.

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CHECKED BY:	JLH	12/10/20			
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					SHEET 6 OF 7

AVAILABLE FROM SHOTOVER SYSTEMS

CONN-ATOM ATOM Connector Kit (Includes all below)			
Churchill Navigation P/N	Manufacturer P/N	Description	Quantity
KIT-FGN.1M.308.XLCM	FGN.1M.308.XLCM	J1 plug for Power - LEMO w/ pins	1
	Amphenol M85049/38-9N	Strain Relief Backshell Size 9	1
KIT-FGU.1M.308.XLCM	FGU.1M.308.XLCM	J2 plug for Ethernet - LEMO w/ pins	1
	Amphenol M85049/38-9N	Strain Relief Backshell Size 9	1
KIT-FGN.3M.330.XLCM	FGN.3M.330.XLCM	J4 plug for Serial - LEMO w/ pins	1
	Amphenol M85049/38-13N	Strain Relief Backshell Size 13	1
CONN-PICWIRE-190712	Picwire P/N 190712	75Ω BNC plug for PICWire V73263	4
CONN-AMPHENOL-112123	Amphenol 112123	75Ω BNC plug for RG59	4
CONN-AMPHENOL-112133	Amphenol 112133	75Ω BNC plug for RG179	4
CONN-FER-S	74271142S*	Small Snap on Ferrite	4
CONN-FER-L	74271112S	Large Snap on Ferrite	4
CONN-FER-K	74271	Ferrite Key	1
CONN-LED-NVIS	6890-0344	LED NVIS Dimmer Sticker	1
CONN-WIFI-ANTENNA	W1010	SMA Wi-Fi ANTENNA	1
CONN-DP	DP-Bracket 1-0	Displayport Support Bracket	1

Tools		
Churchill Navigation P/N	Manufacturer P/N	Description
TOOL-RG59	47-10070	Crimp tool and die for 112123 BNC (.255/.213/.068)
TOOL-RG179	47-10150	Crimp tool and die for 112133 BNC (.178/.128/.068)
TOOL-PIC	HX4 5120-01-335-8575	Hand crimp tool for PICWire BNC (No Die)
TOOL-PIC-DIE	M22520/5-41	Die set for PICWire 190712 BNC (.290/.178)
TOOL-LEMO	DPC.91.701.V*	Hand crimp tool for LEMO Crimps
TOOL-LEMO-PTNR	DCE.91.070.5MVC	Pin Positioner for Small LEMO Crimps
TOOL-LEMO-EXTR	DCF.93.070.4LT	Pin Extractor for Small LEMO Crimps

*or alternate

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CHECKED BY:		JLH		
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			DRAWING REV: 7	
DO NOT SCALE DRAWING			SHEET 7 OF 7	