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PROPRIETARY INFORMATION

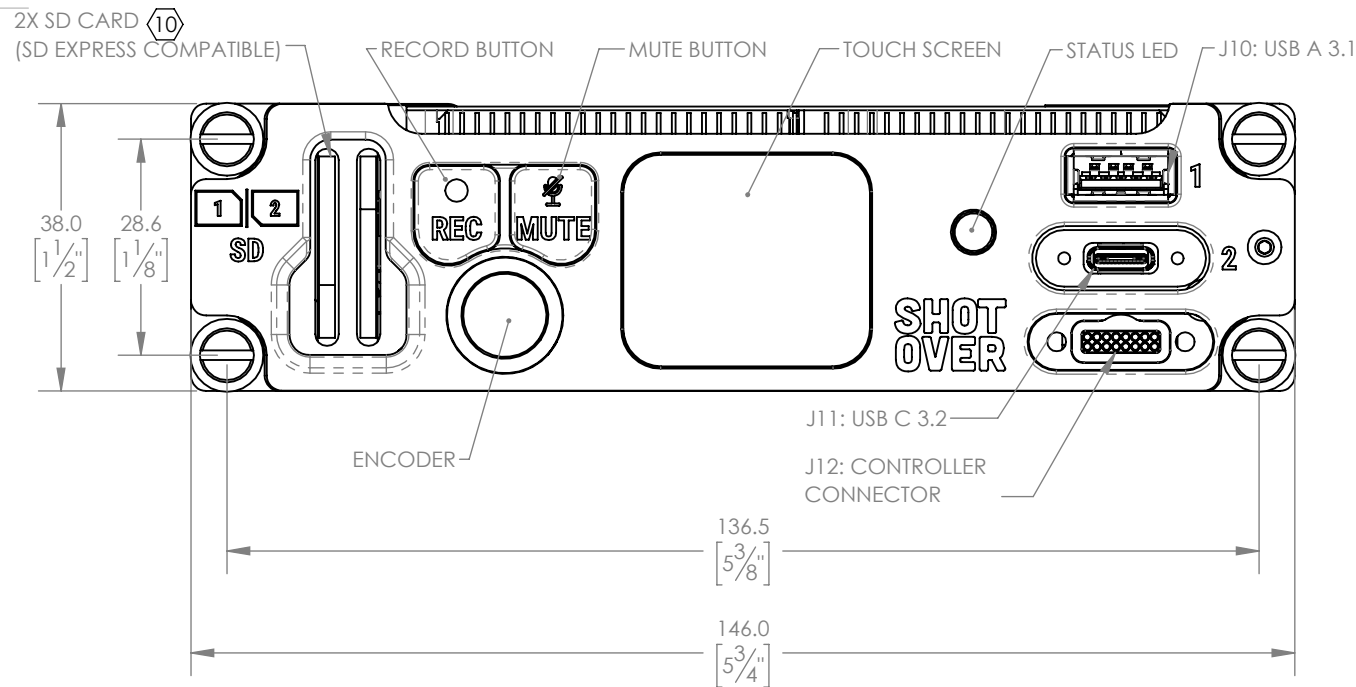
INSTALLATION NOTES:

- OSCAR IS GROUNDED THROUGH THE DZUS MOUNT AND OPTIONAL GROUNDING STUD ON THE REAR PANEL. ENSURE THE DZUS RACK IS GROUNDED. IF NOT USE A MINIMUM OF 16-GAUGE WIRE TO GROUND THE DZUS RACK TO THE AIRCRAFT CHASSIS PRIOR TO OSCAR OPERATION.
- 28V INPUT IS REVERSE-POLARITY PROTECTED.
- ALLOW AT LEAST 100mm OF CLEARANCE BEHIND OSCAR FOR AIR FLOW AND CABLE CLEARANCE.
- INPUT VOLTAGE: 28VDC (RANGE 12-30VDC).
- AVERAGE POWER DRAW IS 81 WATTS (2.9A AT 28VDC).
- MAXIMUM POWER DRAW IS 180 WATTS (6.4A AT 28VDC).
- RECOMMENDED CIRCUIT BREAKER SIZE FOR OSCAR IS 10A FOR 28VDC SYSTEM.
- AMBIENT AIR WHERE OSCAR IS INSTALLED SHOULD NEVER EXCEED 70°C. AMPLE ROOM IS REQUIRED IN FRONT AND REAR OF OSCAR FOR PROPER AIRFLOW. IF ENCLOSED, SPACE AROUND OSCAR SHALL BE ACTIVELY VENTILATED OR HAVE SUFFICIENT SPACE TO COOL AVERAGE POWER LISTED ABOVE.
- IF ACCESS COVER SCREWS ARE REMOVED, REINSTALL WITH 'LOCTITE 222MS (MIL-S-461 63A TYPE II GRADE M)' IAW MANUFACTURERS INSTRUCTIONS.
- SD CARDS CAN ONLY BE INSTALLED WITH CONTACT PIN SIDES FACING EACH OTHER.

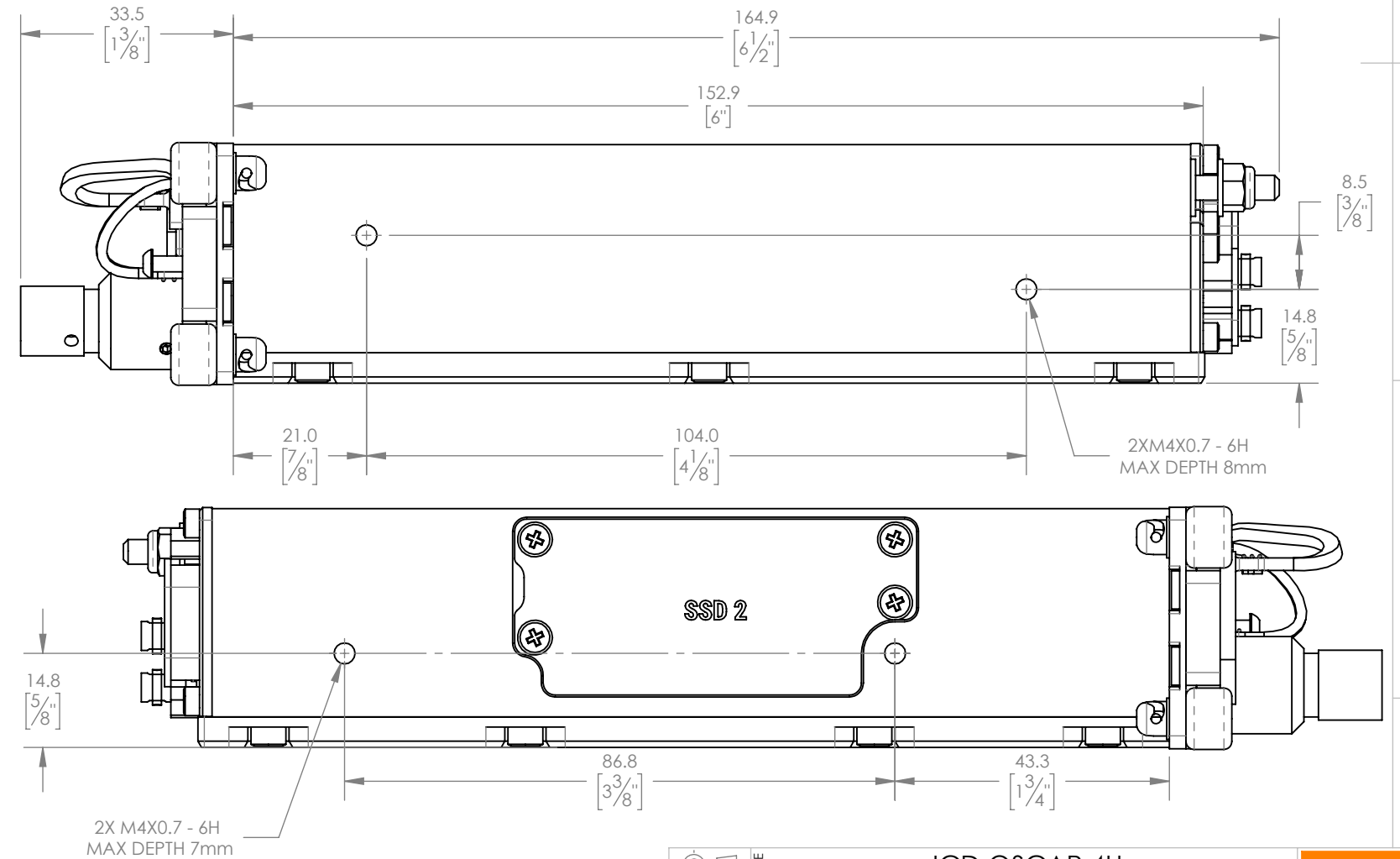
SPECIFICATIONS

WEIGHT : 1.15 KG[2.54 LBS] +/- 0.10 KG[0.22 LBS]

SURFACE COATING : ANODIZED & ELECTROLESS NICKEL



M.2 DRIVE ACCESS COVER
DRIVE SPEC
SSD M.2 NVME 2230 OR 2242



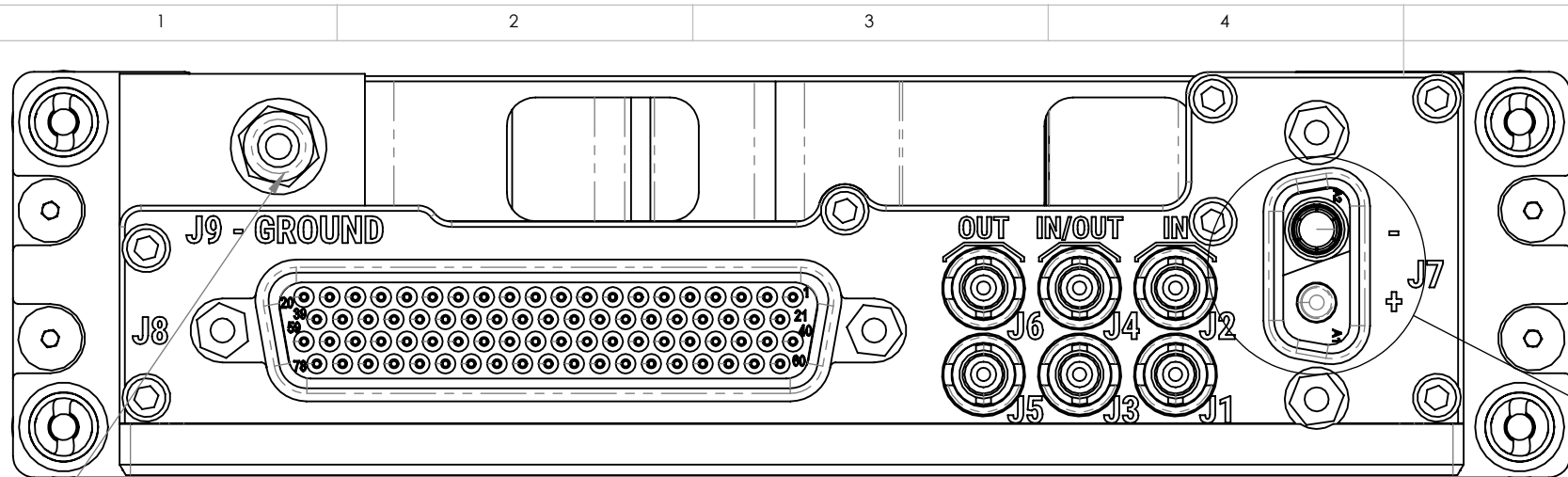
ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
SENSITIVE DEVICES

REVISIONS					
REV.	ECN	ZONE	DESCRIPTION	DATE	INIT
1	EPN170		SUPERCEDES 002-9451	2025-09-30	JD
2	ECN0191	F6, 2-E2, 5-A1	TITLE BLOCK UPDATES, HCX ICD REFERENCE	2026-07-02	JD

THIRD ANGLE PROJECTION		TITLE		ICD OSCAR 4U	
SHEET SIZE: A3		DWG		AIRSCAPE-OSCAR, AIRSCAPE-OSCAR-A	
SCALE: 1:1		REV		ION-OSCAR, OSCAR-MC	
SHEET 1 OF 5		002-9565		APPROVED	
		2D		CHKD SM	
		2			
		2			
		STATE			

SHOT
OVER

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J9: GROUND STUD

- M4 THREAD
- TORQUE GROUNDING NUTS TO 2.9 NM/2.14 FT LB.

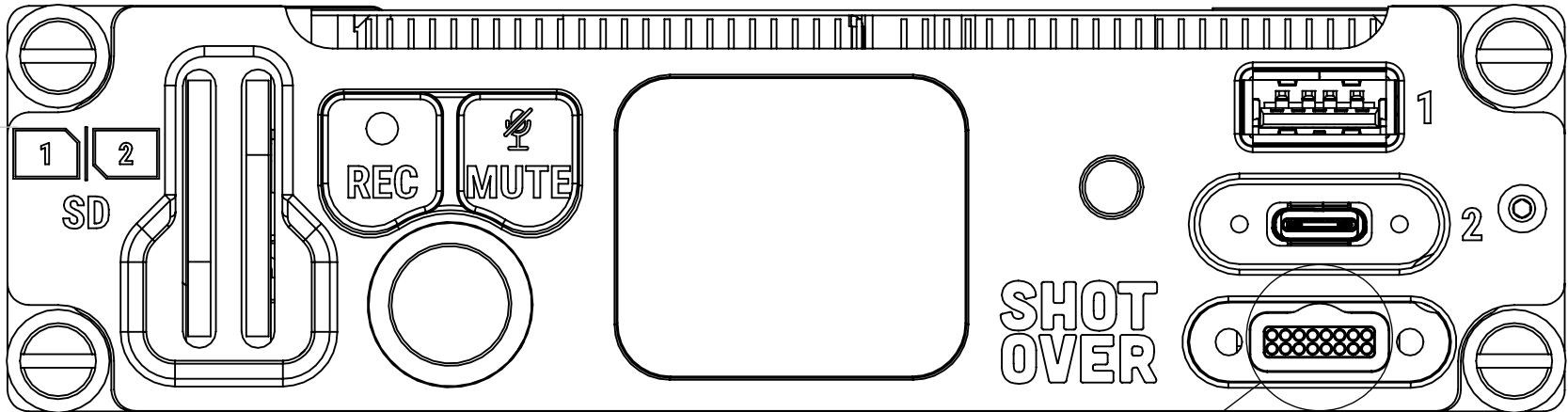
MEDIA PORTS

J1: 3G SDI VIDEO IN
J2: 3G SDI VIDEO IN
J3: 3G SDI VIDEO IN
J4: 3G SDI VIDEO IN/OUT (CONFIGURABLE)
J5: 3G SDI VIDEO OUT
J6: 3G SDI VIDEO OUT

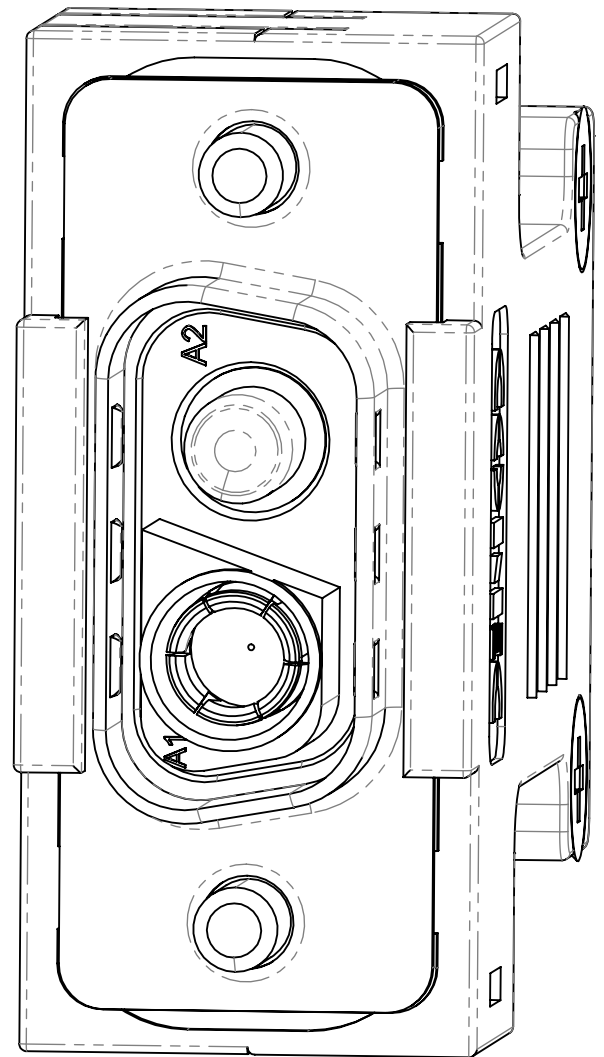
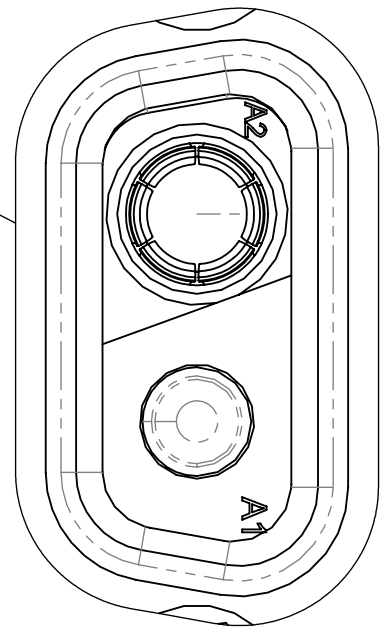
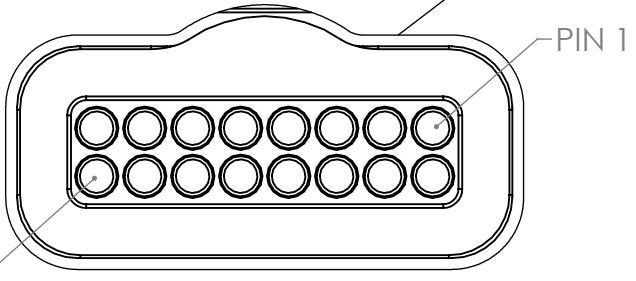
J1-J6 HD BNC CONNECTION	
CENTER PIN	SIGNAL
SHELL	GROUND

MATING CONNECTOR:

- MANUFACTURER PART NO: PICWIRE 110717
- SHOTOVER RECOMMENDED CABLE: SEE PAGE 4



J12: HAND CONTROLLER CONNECTOR
MATING CONNECTOR: SEE HCX ELECTRICAL ICD



J7: POWER CONNECTOR
MATING CONNECTOR: CONEC D-SUB PLUG 2POS (2W2C) CRIMP

- SHOTOVER PART NO: 002-63346
- MANUFACTURER PART NO: 302W2CPXX99A10X
- SHOTOVER RECOMMENDED WIRE SIZE : SEE PAGE 4
- CONTACTS: SEE PAGE 5

J7: POWER CONNECTOR PINOUT	
A1	POWER IN
A2	POWER RETURN ⁽¹⁾

J12: CONTROLLER CONNECTOR PINOUT

CONNECTOR ROW 1	PIN	15	13	11	9	7	5	3	1
	SIGNAL	ETH3 D-	ETH3 D+	ETH3 C-	ETH3 C+	RESERVED1	RESERVED2	RESERVED3	FIRE POINT
CONNECTOR ROW 2	PIN	16	14	12	10	8	6	4	2
	SIGNAL	ETH3 B+	ETH3 B-	ETH3 A+	ETH3 A-	PWR GND	PWR EN	FIRE SOURCE	FIRE ILLUM

- NOTES:
- ⁽¹⁾ CIRCUIT GROUND IS ISOLATED FROM PIN
 - 12. ETH3 HAS POWER OVER ETHERNET [POE] TYPE 3 60W CAPABILITY, 100W MAX IS SHARED BETWEEN ETH1 AND ETH3

TITLE

SHEET SIZE: A3

SCALE: 3:2

DWG

SHEET 2 OF 5

002-9565

REV 2 30 2

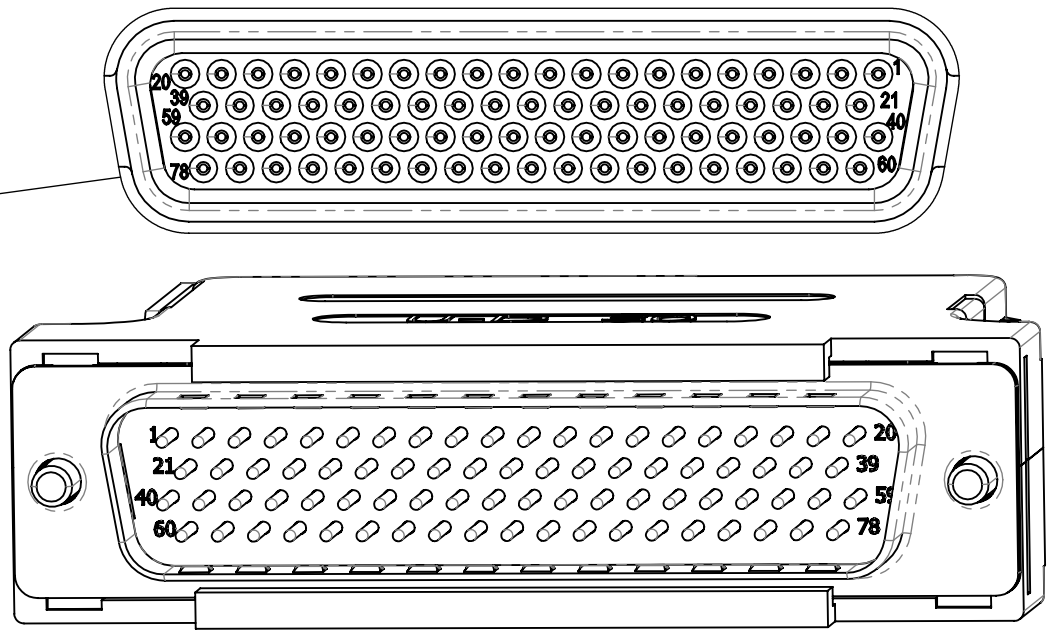
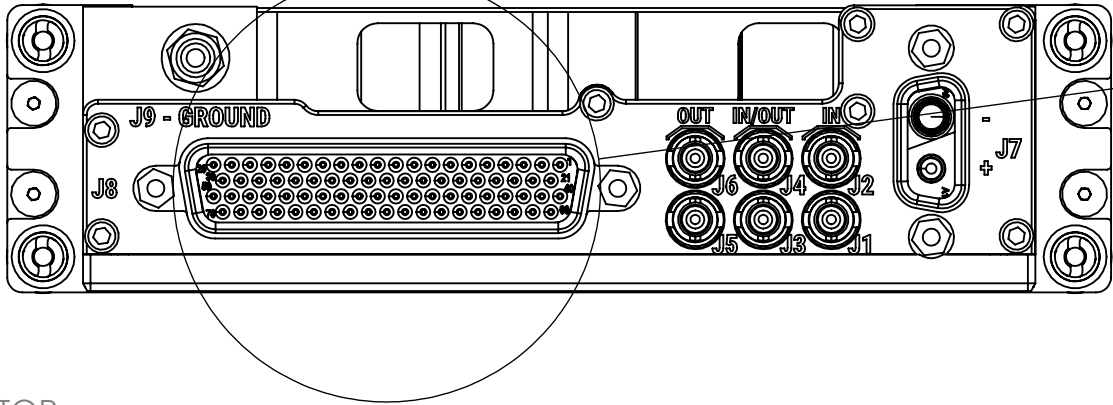
STATE

APPROVED

CHKD SM

ICD OSCAR 4U
AIRSCAPE-OSCAR, AIRSCAPE-OSCAR-A
ION-OSCAR, OSCAR-MC

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J8: COMMS CONNECTOR
MATING CONNECTOR: CONEC D-SUB HIGH DENSITY CONNECTORS 78P HD PLUG

- SHOTOVER PART NO: 002-63347
- MANUFACTURER PART NO: 163X10209X
- SHOTOVER RECOMMENDED WIRE SIZE : SEE PAGE 4
- CONTACTS: SEE PAGE 5

PIN	CONNECTOR ROW 1	PIN	CONNECTOR ROW 2	PIN	CONNECTOR ROW 3	PIN	CONNECTOR ROW 4
1	AUDIO OUT L	21	AUDIO IN R LOW	40	AUDIO IN L HIGH	60	AUDIO SHD1
2	AUDIO OUT R	22	AUDIO IN R HIGH	41	AUDIO IN L LOW	61	AUDIO SHD2
3	AUDIO GND	23	AUDIO GND	42	AUDIO GND	62	AUDIO SHD3
4	UART TX2 P	24	UART RX2 N	43	UART RX3 P	63	GND
5	UART TX2 N	25	UART RX2 P	44	UART RX3 N	64	GND
6	UART RX1 P	26	UART TX3 P	45	UART TX1 P	65	SHIELD1
7	UART RX1 N	27	UART TX3 N	46	UART TX1 N	66	SHIELD2
8	ETH2 B+	28	ETH2 C+	47	ETH2 A+	67	ETH2 D+
9	ETH2 B-	29	ETH2 C-	48	ETH2 A-	68	ETH2 D-
10	FP RESERVED3	30	FP RESERVED2	49	PWR1 GND	69	SHIELD3
11	FP RESERVED1	31	FIRE POINT	50	PWR1 EN	70	ETH1 A+
12	FIRE ILLUM	32	FIRE SOURCE	51	ETH1 B+	71	ETH1 A-
13	ETH1 C+	33	ETH1 D+	52	ETH1 B-	72	SHIELD4
14	ETH1 C-	34	ETH1 D-	53	A429_OUT_B	73	SHIELD5
15	CAN L	35	CAN H	54	A429_OUT_A	74	SHIELD6
16	GND	36	GND	55	A429_IN_A	75	GND
17	GPIO4	37	GPIO6/PS2 CLK1	56	A429_IN_B	76	USB DP1/PS2 CLK2
18	GPIO3/PS2 DAT1	38	GPIO5	57	USB DP2	77	USB DM1/PS2_DATA2
19	GPIO2	39	GND	58	USB DM2	78	5V
20	GPIO1			59	5V		

UART CONFIGURATION		
IC PINS	RS485/422	RS232
RXP	A	RX
RXN	B	CTS
TXP	Y	TX
TXN	Z	RTS

NOTES:
13. ETH1 HAS POWER OVER ETHERNET [POE] TYPE 3 60W CAPABILITY, 100W MAX IS SHARED BETWEEN ETH1 AND ETH3

GND
THESE PINS PROVIDE DIRECT 0V REFERENCE FOR GPIO AND COMMUNICATIONS CIRCUITS.
SHD/SHIELD
THESE PINS ARE INTENDED FOR THE CONNECTION OF CABLE SHIELDS. THEY CONTAIN RESISTOR/CAPACITOR NETWORKS TO CHASSIS TO AVOID UNINTENDED DC CURRENT.
AUDIO INPUT IMPEDANCE
DIFFERENTIAL INPUT (AUDIO IN HIGH TO AUDIO IN LOW) - 600Ω
SINGLE ENDED INPUT (AUDIO IN HIGH TO AUDIO GND) - 300Ω
GPIO
GPIO ARE INDEPENDENTLY CONFIGURABLE MULTIFUNCTION IO PINS WITH ALL INPUTS ACCEPTING UP TO 30V. ALL INPUTS ARE HIGH IMPEDANCE ON POWER UP.

- CONFIGURATION OPTIONS:
- ADC - READS UP TO 30V.
 - LOW SIDE SWITCH - SINK UP TO 50mA CURRENT.
 - HIGH SIDE SWITCH - PROVIDE UP TO 25mA CURRENT.
 - OPEN COLLECTOR OUTPUT - WITH OR WITHOUT PULL UP RESISTOR.
 - LOGIC INPUT - SEE LOGIC THRESHOLDS TABLE FOR LOGIC LEVELS OF THE GPIO PINS.
 - PS/2 - GPIO 3 AND 6 ONLY.

WHEN BEING USED AS A HIGH SIDE SWITCH OR WITH OPEN COLLECTOR OUTPUT WITH PULLUP RESISTORS, THERE ARE TWO BANKS OF GPIOs.
A 28/12V GPIO BANK AND 3V3 GPIO BANK.

- 3V3 GPIO BANK - GPIO 1-3
- 28/12V GPIO BANK - GPIO 4-6

FOR THE 28/12V GPIO BANK, THE VOLTAGE CAN BE SWITCHED BETWEEN 12V AND 28V TO SELECT THE CORRECT VOLTAGE LEVEL FOR THE INSTALLATION. THIS VOLTAGE IS APPLIED TO ALL PINS IN THE 28/12V GPIO BANK.

TRANSITION TO:	3V3 GPIO BANK (GPIO 1-3)	28/12V GPIO BANK (GPIO 4-6)
HIGH	2V	4V
LOW	0.8V	1.6V

FIVE VOLT SUPPLY PINS
THERE ARE TWO PINS SUPPLYING 5V. THESE ARE INDIVIDUALLY CURRENT LIMITED TO 200mA.

THIRD ANGLE PROJECTION

SHEET SIZE: A3

SCALE: 1:1

SHEET 3 OF 5

DWG

TITLE

ICD OSCAR 4U
AIRSCAPE-OSCAR, AIRSCAPE-OSCAR-A
ION-OSCAR, OSCAR-MC

002-9565

REV 2022

STATE

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CHKD SM

SHOT OVER

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1	2	3	4	5	6	7	8															
CABLING REQUIREMENTS: - IN ORDER TO ENSURE A PROPERLY WORKING OSCAR SYSTEM, THESE CABLING REQUIREMENTS ARE HIGHLY RECOMMENDED AND ANY VARIATIONS WILL BE AT THE SOLE RESPONSIBILITY OF THE INSTALLER. - INSTALL EACH CABLE WITH AN 8 INCH SERVICE LOOP FOR EASY REMOVAL AND REPLACEMENT OF UNIT.																						
75 OHM HD-SDI COAX CABLE: J1-J6 PICWIRE V73263 IS HIGHLY RECOMMENDED FOR 3G-SDI AND HIGHER DATA RATE SIGNALS (6G-SDI, 12G-SDI). THE PROPER CONNECTOR IS PICWIRE 110717																						
COMMS CABLE: J8 22-28AWG WIRE OVERALL SHIELD WHERE POSSIBLE. TERMINATE CABLE SHIELD TO APPROPRIATE J8 SHIELD PIN.																						
POWER CABLE: J7 THE CONNECTION TO 28V INPUT ON THE OSCAR AND 28V GND ARE HIGHLY RECOMMENDED TO BE TWISTED AND SHIELDED.																						
<table><tr><th>OPERATING VOLTAGE</th><th>RECOMMENDED WIRE GAUGE</th><th>CRIMP RANGE</th><th>A1 CONTACT FEMALE</th><th>A2 CONTACT MALE</th></tr><tr><td>28V</td><td>16AWG</td><td>16-20AWG</td><td>132A11019X</td><td>131A11019X</td></tr><tr><td>12V</td><td>12AWG</td><td>12-14AWG</td><td>132A11029X</td><td>131A11029X</td></tr></table>								OPERATING VOLTAGE	RECOMMENDED WIRE GAUGE	CRIMP RANGE	A1 CONTACT FEMALE	A2 CONTACT MALE	28V	16AWG	16-20AWG	132A11019X	131A11019X	12V	12AWG	12-14AWG	132A11029X	131A11029X
OPERATING VOLTAGE	RECOMMENDED WIRE GAUGE	CRIMP RANGE	A1 CONTACT FEMALE	A2 CONTACT MALE																		
28V	16AWG	16-20AWG	132A11019X	131A11019X																		
12V	12AWG	12-14AWG	132A11029X	131A11029X																		
ALL OTHER CABLES - MUST BE SHIELDED ALL OTHER CABLE CAN BE SELECTED BY INSTALLER AND ALL CABLES MUST BE SHIELDED, INCLUDING POWER CABLES.																						
ETHERNET INTERFACES (ETH1, ETH2, ETH3) - CONNECTED ETHERNET DEVICES MUST BE DESIGNED ACCORDING TO IEEE802.3 - WIRE PAIR TERMINATIONS MUST BE AC COUPLED TO CHASSIS																						

THIRD ANGLE PROJECTION

SHEET SIZE: A3

SCALE:1:2

SHEET 4 OF 5

DWG

TITLE

ICD OSCAR 4U
AIRSCAPE-OSCAR, AIRSCAPE-OSCAR-A
ION-OSCAR, OSCAR-MC

002-9565

REV 2^{2D} 2^{3D}

STATE

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SHOT OVER

1		2		3		4		5		6		7		8	
AVAILABLE FROM SHOTOVER SYSTEMS		012-0019 KIT - OSCAR CONNECTORS													
		DESCRIPTION		QTY	MANUFACTURER	MANUFACTURER P/N	SHOTOVER P/N	ALTERNATIVE 							
		J1-J6: INPUT/OUTPUT COAX CONNECTORS													
		CONN, HD-BNC, PLUG, STRAIGHT, 75 OHM		6	PICWIRE	110717	002-63519	ENSURE THE CONNECTOR SUITS THE COAX CABLE BEING USED							
		J7: POWER CONNECTOR													
		CONN, D-SUB PLUG 2POS (2W2C) CRIMP		1	CONEC	302W2CPXX99A10X	002-63346	MOLEX 1727040041 OR EQUIVALENT 2W2C PLUG							
		BACKSHELL, D-SUB, SIZE E		1	CONEC	165X02609X	002-63468	MOLEX 1731110081 OR EQUIVALENT SIZE E BACKSHELL							
		PIN, D-SUB, CRIMP 12-14AWG		1	CONEC	131A11029X	002-63348	MOLEX 1727040143 OR EQUIVALENT HIGH POWER MALE CONTACT							
		SOCKET, D-SUB, CRIMP 12-14 AWG		1	CONEC	132A11029X	002-63349	MOLEX 1727040151 OR EQUIVALENT HIGH POWER FEMALE CONTACT							
		PIN, D-SUB, CRIMP 16-20AWG		1	CONEC	131A11019X	002-63516	MOLEX 1727040142 OR EQUIVALENT HIGH POWER MALE CONTACT							
		SOCKET, D-SUB, CRIMP 16-20AWG		1	CONEC	132A11019X	002-63517	MOLEX 1727040150 OR EQUIVALENT HIGH POWER FEMALE CONTACT							
		J8: COMMS CONNECTOR													
		CONN, D-SUB HD PLUG, 78P, CRIMP		1	CONEC	163X10209X	002-63347	MOLEX 1731130072 OR EQUIVALENT HD78 PLUG							
		BACKSHELL, D-SUB, SIZE D		1	CONEC	165X17349X	002-63469	TE CONNECTIVITY 5745175-4 OR EQUIVALENT SIZE D BACKSHELL							
		PIN, D-SUB, CRIMP 22-28AWG		80	CONEC	161A18009X	002-63350	TE CONNECTIVITY 204370-2 OR EQUIVALENT D-SUB SIZE 22D MALE CONTACT							
TOOL - INSERTION/REMOVAL, CONTACT 22D		1	DMC TOOLS	M81969/1-04	002-63578										
NETWORK ADAPTER															
ADAPTER, NETWORK, WIFI, DUAL BAND, USB 2.0		1	STARTECH	USB433WACDB	002-63490										
012-0007 DSUB 2W2C CONNECTOR TOOLING [FOR CONNECTOR J7]															
DESCRIPTION		QTY	MANUFACTURER		MANUFACTURER P/N		SHOTOVER P/N								
TOOL - CRIMPER, D-SUB, HIGH CURRENT		1	CONEC		360X10409X		002-63355								
TOOL - EXTRACTION, D-SUB, HIGH CURRENT		1	CONEC		360X10219X		002-63353								
TOOL - POSITIONER, D-SUB, HIGH CURRENT		1	CONEC		360X20029X		002-63354								
002-63412 HD-BNC INSERTION TOOL [FOR CONNECTORS J1-J6]															
TOOL - INSERTION/REMOVAL, HD-BNC		1	AMPHENOL RF DIVISION		227-T2000		002-63412								
NOTE: RECOMMENDED FOR CONNECTION AND DISCONNECTION OF HD-BNC PLUGS															
012-0008 KIT - DSUB HD78 CONNECTOR TOOLING [FOR CONNECTOR J8]															
TOOL - CRIMPER, D-SUB		1	CONEC		360X10329X		002-63352								
TOOL - POSITIONER, D-SUB, PINS 3A, 22-28 AWG		1	CONEC		360X10629X		002-63351								
TOOL - INSERTION/REMOVAL, CONTACT 22D		1	DMC TOOLS		M81969/1-04		002-63578								
NOTES:															
		ALTERNATIVES NOT AVAILABLE IN KIT SUPPLIED BY SHOTOVER													
1		2		3		4		5		6		7		8	



THIRD ANGLE
PROJECTION

SHEET
SIZE:

A3

SCALE:1:2

DWG

SHEET 5 OF 5

TITLE

ICD OSCAR 4U
AIRSCAPE-OSCAR, AIRSCAPE-OSCAR-A
ION-OSCAR, OSCAR-MC

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REV

2D

2

3D

2

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