

CABLING REQUIREMENTS

In order to ensure a properly working Churchill Navigation Mission Management System, these cabling requirements are highly recommended and any variations will be at the sole responsibility of the installer.

All connections should use lacing brackets and zipties (provided) unless the connector is locking.

Case must be grounded at case grounding point to aircraft frame

SDI COAX CABLE

Option A

PicWire PIC V73263 is highly recommended. The proper connector is Amphenol Connex 282118-75 (DIN 1.0/2.3). There are (2) of these connectors included in the ARS Connector Kit. Additional connectors are available from <http://www.amphenolconnex.com/282118-75.html>

RG59 is also highly recommended. The proper connector is Amphenol Connex 282135-75 (DIN 1.0/2.3). There are (2) of these connectors included in the ARS Connector Kit. Additional connectors are available from <http://www.amphenolconnex.com/282135-75.html>

Do not use inline DIN 1.0/2.3 to BNC adapters.

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 282103-75 (DIN 1.0/2.3). There are (2) of these connectors included in the ARS Connector Kit. Additional connectors are available from <http://www.amphenolconnex.com/282103-75.html>

CRIMPING TOOL

You will need the amphenol connex crimping tool to properly attach the connectors to the SDI COAX. This can be purchased directly from Digikey. <http://www.digikey.com/product-detail/en/47-10150/ACX1394-ND/1012071>

USB CABLE

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.

DVI CABLE

We highly recommend Carlisle Interconnect Technologies cable. The cable part number is 600-28952-XXX, where XXX is the length in inches. Carlisle will pre-terminate the cables. They can be contacted at (800) 327-9473 or (414) 421-5300.

VGA CABLE

We highly recommend Electronic Cable Specialists (ECS) cable. The cable part number is ECS 453005: <http://www.carlisleit.com/sites/default/files/resources/literature/453005.pdf>. This cable can be purchased directly from Carlisle.

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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	NAME	DATE	CHURCHILL NAVIGATION		
DRAWN	JLH	10/11/19	TITLE: ARS-600* INSTALLATION DIAGRAM <i>*Includes all ARS-600 versions</i>		
CHECKED	NHM	10/11/19			
ENG APPR.					
MFG APPR.					
Q.A.					
COMMENTS:			SIZE A	DWG. NO. ARS-600	REV 13
ALL DIM IN MM [IN] WEIGHT IN LBS [KG]					
DO NOT SCALE DRAWING					SHEET 1 OF 10

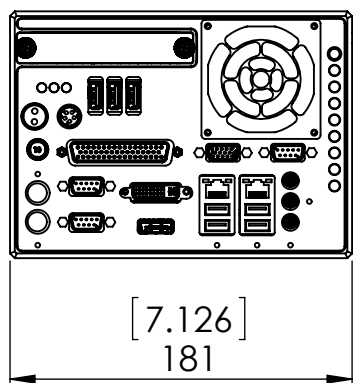
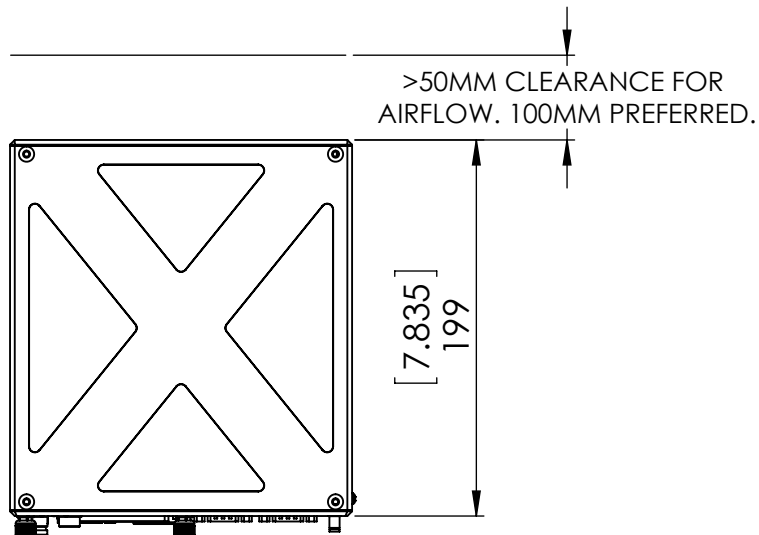
Connector Kit Contents

P/N	DESCRIPTION	ITEM	QTY	TYP
CONN-SCREW	SS BUTTON HEAD SOCKET CAP SCREW, M5 x 20, 0.8 PITCH	1	4	EA
CONN-WASHER	SS FLAT WASHER, M5 SIZE, 10mm OD	2	4	EA
CONN-USB-PLUG	USB CONNECTOR W/ SHELL, LOCKING TE #2013798-1	3	3	EA
CONN-DB9	DB9 CONNECTOR, 9 x FEMALE PINS TE #M24308/2-281, #205090-1	4	3	EA
CONN-DB9-SHELL	DB9 SHELL TE #5748676-1	5	3	EA
CONN-DB50	DB50 CONNECTOR, 50 x MALE PINS TE #1-1757819-0, #205089-1	6	1	EA
CONN-DB50-SHELL	DB50 SHELL TE #5748676-5	7	1	EA
CONN-PR-302	28V LEMO PLUG, 2 x MALE PINS LEMO #FGN.1M.302.XLCY	8	1	EA
CONN-AUX-305	AUX LEMO PLUG, 5 x MALE PINS LEMO #FGN.0M.305.XLCT	9	1	EA
CONN-DIN-1505A	HD-SDI Amphenol Connex 282135-75 (DIN1.0/2.3)	10	2	EA
CONN-DIN-179DT	HD-SDI Amphenol Connex 282103-75 (DIN1.0/2.3)	11	2	EA
CONN-DIN-735A	HD-SDI Amphenol Connex 282118-75 (DIN 1.0/2.3)	12	2	EA
CONN-PS2	Din 6 pin with crimp contacts CUI #MD-60 and CUI #T-0006	13	2	EA
CONN-LOCKIT	LockIt HDMI Lacing Bracket	14	6	EA
CONN-PANDA	Panda 300Mbps Wireless-N USB Adapter 802.11 n, 2.4Ghz	15	1	EA
CONN-SR-LEMO	Lemo Strain Relief Heatshrink Backshell P/N: 202A111-25/86-0	16	1	EA

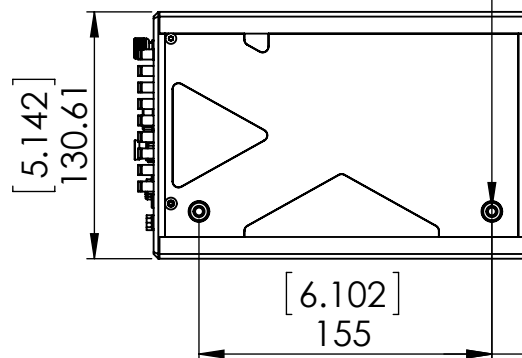


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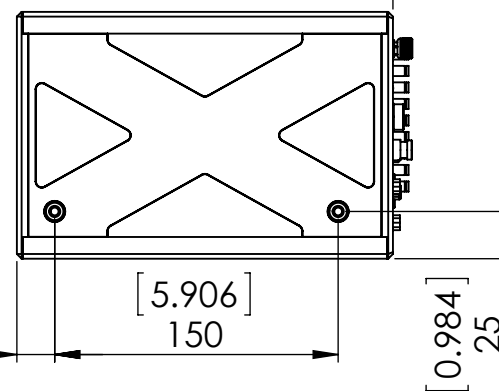
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MFG APPR.					
Q.A.					
COMMENTS:			SIZE	DWG. NO.	REV
ALL DIM IN MM [IN] WEIGHT IN LBS [KG]			A	ARS-600	13
DO NOT SCALE DRAWING					SHEET 2 OF 10



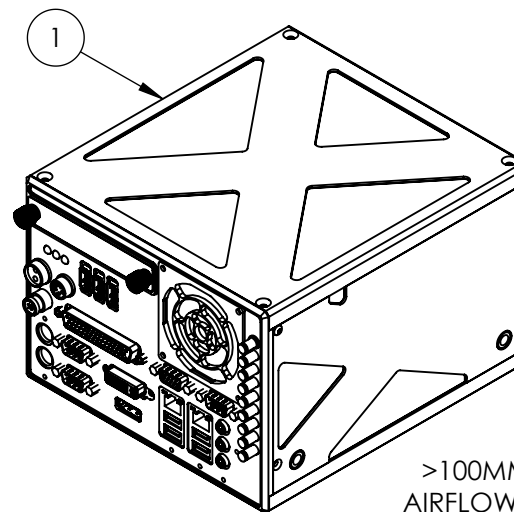
4 x M5-0.8 MOUNTING HOLES



RIGHT SIDE



LEFT SIDE



SYSTEM WEIGHT: 5.91lbs [2.68 kg]
±0.09 lbs [0.04 kg]

ASSEMBLY NOTES:

1. MOUNTING HOLES (M5-0.8) HAVE A MAXIMUM DEPTH OF 17.5MM. DO NOT EXCEED.

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MFG APPR.		
Q.A.		

COMMENTS:

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WEIGHT IN LBS [KG]

DO NOT SCALE DRAWING

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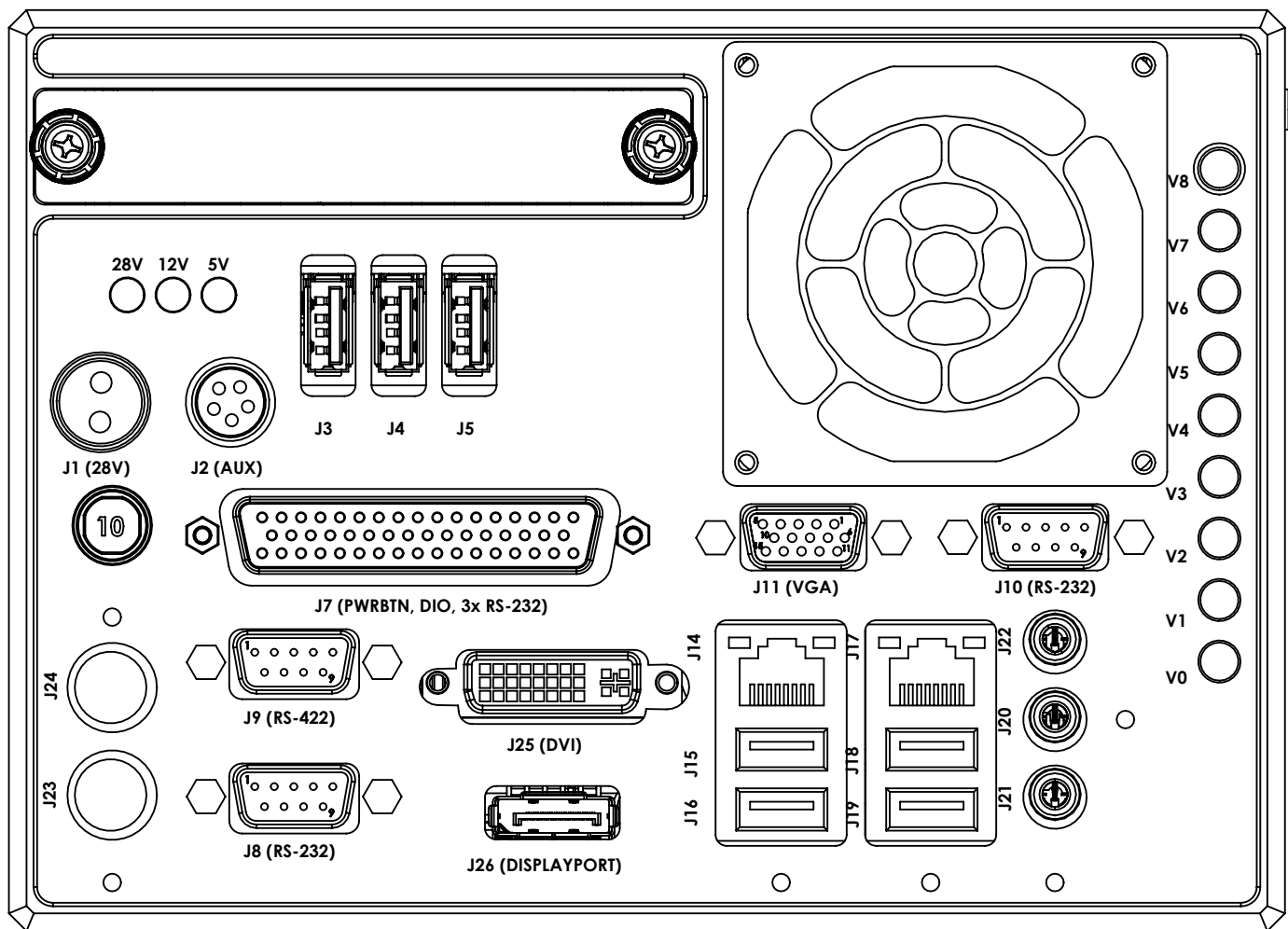
TITLE:

ARS-600* INSTALLATION
DIAGRAM

**Includes all ARS-600 versions*

SIZE	DWG. NO.	REV
A	ARS-600	13

SHEET 3 OF 10



BULKHEAD	CONNECTION
J1	28 INPUT
J2	5V/12V OUTPUT
J3	USB1
J4	USB2
J5	USB3
J7	DB50
J8	RS-232 SERIAL
J9	RS-422 SERIAL
J10	RS-232 SERIAL
J11	VGA VIDEO
J14	ETHERNET
J15	USB 4
J16	USB 5
J17	ETHERNET
J18	USB 6
J19	USB 7
J20	PHONE
J21	MIC
J22	LINE IN
J23	KEYBOARD
J24	MOUSE
J25	DVI VIDEO
J26	DISPLAYPORT
V0-V8	HD-SDI VIDEO

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MFG APPR.		
Q.A.		

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WEIGHT IN LBS [KG]

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CHURCHILL NAVIGATION

TITLE:

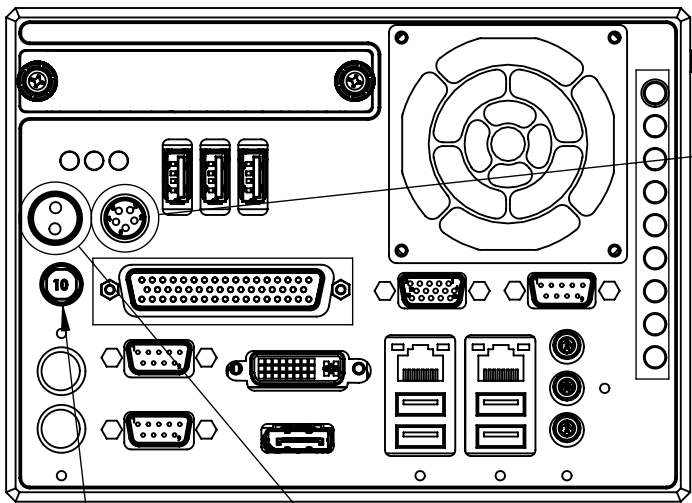
ARS-600* INSTALLATION
DIAGRAM

**Includes all ARS-600 versions*

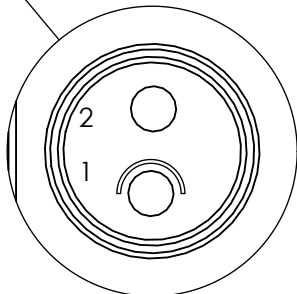
SIZE	DWG. NO.	REV
A	ARS-600	13

SHEET 4 OF 10

ARS-600 FRONT PANEL



10 AMP FUSE:
28V+ LINE



J1: 28V INPUT

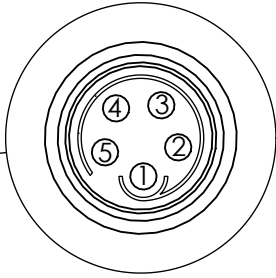
PIN2. V+ (18-36V)
PIN1. GND

ASSEMBLY NOTES:

- 1. ARS-600 IS CASE GROUNDED. ALL CONNECTOR SHIELDS AND ALL GROUND PINS ARE CONTINUOUS.
- 2. 28V INPUT IS REVERSE-POLARITY PROTECTED.
- 3. 28V INPUT IS FUSED FOR 10 AMP MAX CURRENT. AT 28V INPUT, SYSTEM SHOULD NOT EXCEED 7.5A DRAW.
- 4. 10 AMP FUSE: PULL OUT TO DISCONNECT SYSTEM POWER.
- 5. 28V LED (ON) INDICATES THAT 28V LINE IS DETECTED.
- 6. RECOMMENDED WIRE SIZE: 16AWG.
- 7. NOMINAL POWER DRAW ON ARS IS 80 WATTS (2.75A ON 28VDC)



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J2: AUX OUTPUT

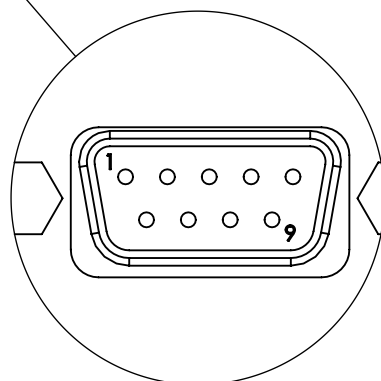
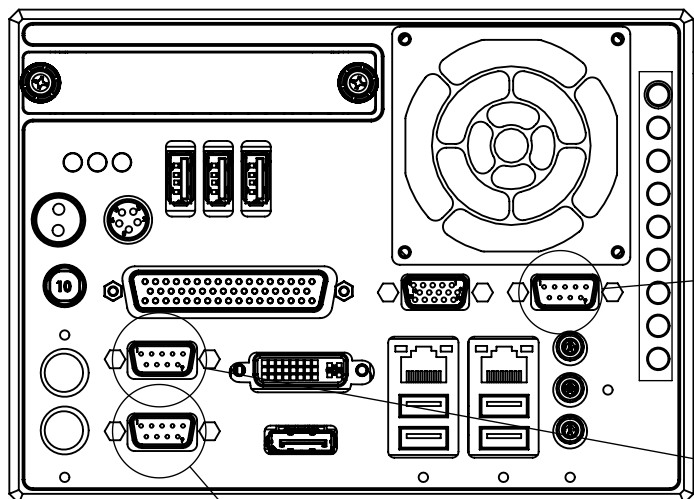
PIN1. n/c
PIN2. GND
PIN3. V+ (5V)
PIN4. V+ (12V)
PIN5. GND

ASSEMBLY NOTES:

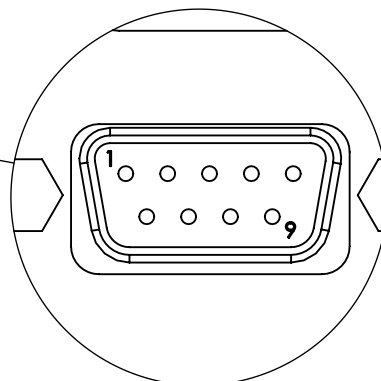
- 1. AUX POWER OUTPUTS ARE INTERNALLY FUSED WITH SELF-RESETTING FUSES.
- 2. 12V OUTPUT IS RATED FOR A MAXIMUM OF 2AMPS.
- 3. 12V OUTPUT RANGE IS 11.5-12.2V.
- 4. 5V OUTPUT IS RATED FOR A MAXIMUM OF 5 AMPS.
- 5. 5V OUTPUT RANGE IS 4.5-5.2V.
- 6. 12V LED AND 5V LED INDICATE VALID OUTPUTS.
- 7. NOTE: SHORT CIRCUIT POWER MAY BE AS HIGH AS 2 WATTS.
- 8. RECOMMENDED WIRE SIZE: 22 AWG.

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MFG APPR.					
Q.A.					
COMMENTS:			SIZE A	DWG. NO. ARS-600	REV 13
ALL DIM IN MM [IN] WEIGHT IN LBS [KG]			DO NOT SCALE DRAWING		
			SHEET 5 OF 10		

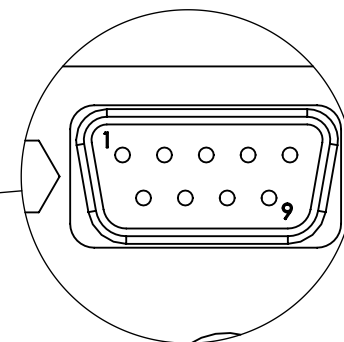
ARS-600 FRONT PANEL



J8: DB9: PORT: RS-232
 PIN1. DCD
 PIN2. RX
 PIN3. TX
 PIN4. DTR
 PIN5. GND
 PIN6. DSR
 PIN7. RTS
 PIN8. CTS
 PIN9. RI
 SHELL = GND



J9: DB9 PORT: RS-422
 PIN1. TX-
 PIN2. TX+
 PIN3. RX+
 PIN4. RX-
 PIN5. GND
 PIN6. DSR
 PIN7. RTS
 PIN8. CTS
 PIN9. RI
 SHELL = GND



J10: DB9 PORT: RS-232

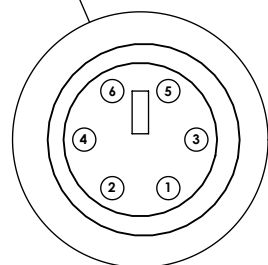
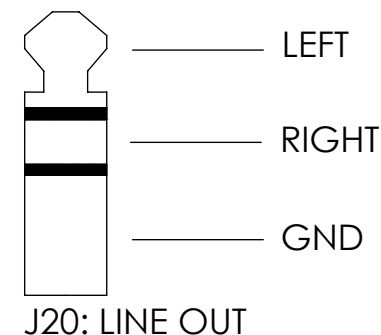
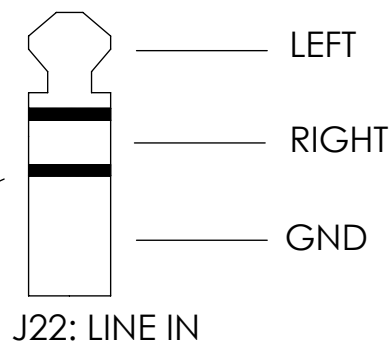
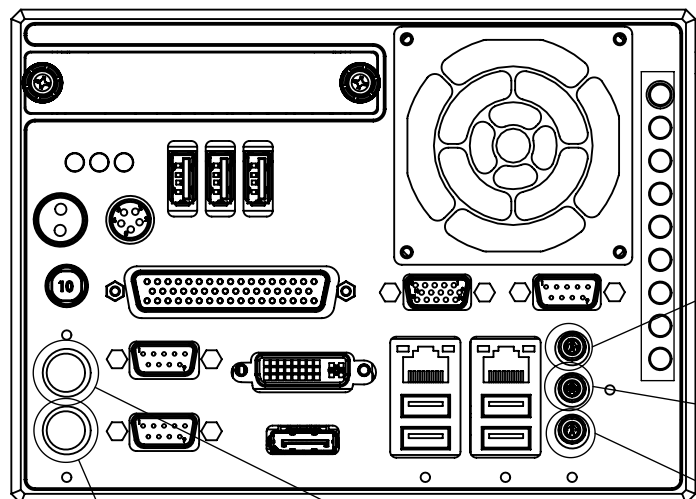
PIN1. n/c
 PIN2. RX
 PIN3. TX
 PIN4. DTR
 PIN5. GND
 PIN6. DSR
 PINS 7-9. n/c

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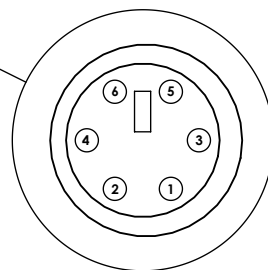
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MFG APPR.					
Q.A.					
COMMENTS:			SIZE	DWG. NO.	REV
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DO NOT SCALE DRAWING			SHEET 6 OF 10		

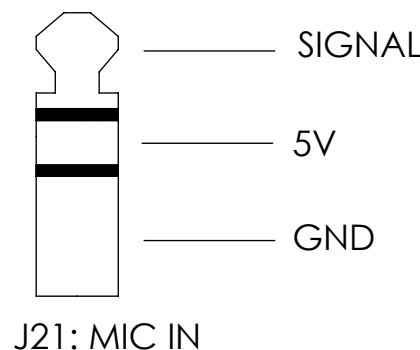
ARS-600 FRONT PANEL



J23: PS/2 KEYBOARD
 PIN1. KEYBOARD DATA
 PIN2. NC
 PIN3. GND
 PIN4. +5V
 PIN5. KEYBOARD CLOCK
 PIN6. NC



J24: PS/2 MOUSE
 PIN1. MOUSE DATA
 PIN2. NC
 PIN3. GND
 PIN4. +5V
 PIN5. MOUSE CLOCK
 PIN6. NC

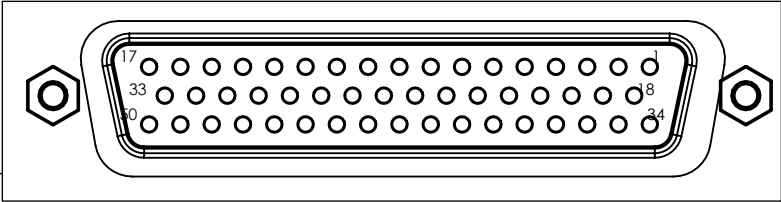
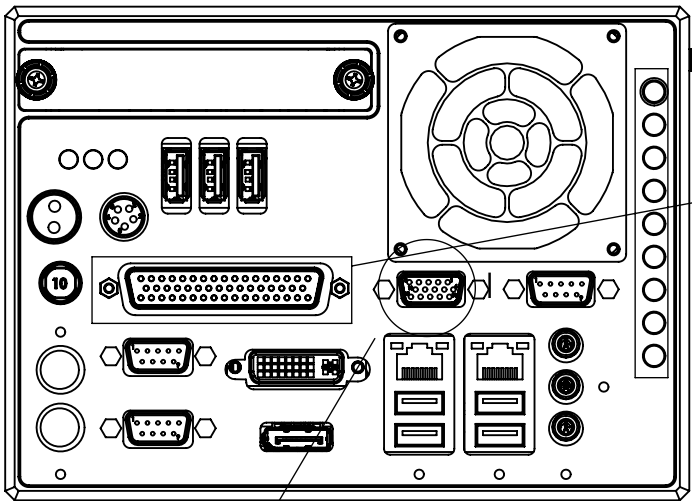


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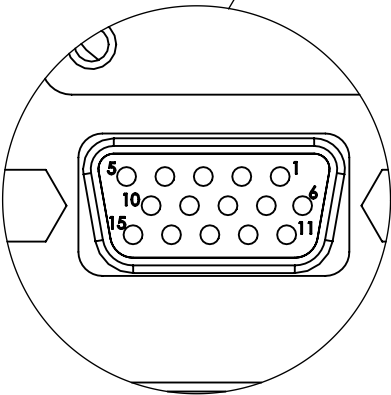
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MFG APPR.					
Q.A.					
COMMENTS:			SIZE	DWG. NO.	REV
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DO NOT SCALE DRAWING			SHEET 7 OF 10		

ARS-600 FRONT PANEL



J7:DB50 PORT: PWRBTN, DIO, 3 x RS-232

PIN1. RS-232a RX	PIN18. RS-232a TX	PIN35. RS-232a GND
PIN2. N/C	PIN19. RS-232a DTR	PIN36. RS-232a DSR
PIN3. RS-232b RX	PIN20. RS-232b TX	PIN37. RS-232b GND
PIN4. N/C	PIN21. RS-232b DTR	PIN38. RS-232b DSR
PIN5. RS-232c RX	PIN22. RS-232c TX	PIN39. RS-232c GND
PIN6. N/C	PIN23. RS-232c DTR	PIN40. RS-232c DSR
PIN7. N/C	PIN24. N/C	PIN41. N/C
PIN8. N/C	PIN25. N/C	PIN42. N/C
PIN9. N/C	PIN26. N/C	PIN43. N/C
PIN10. N/C	PIN27. N/C	PIN44. N/C
PIN11. N/C	PIN28. N/C	PIN45. N/C
PIN12. DIO 12VDC	PIN29. GPIO6	PIN46. GPIO1
PIN13. DIO GND	PIN30. GPIO2	PIN47. GPIO4
PIN14. DIO GPIO7	PIN31. GPIO5	PIN48. GPIO0
PIN15. DIO GPIO3	PIN32. N/C	PIN 49. N/C
PIN16. N/C	PIN33. N/C	
PIN17. PWRBTN+	PIN34. N/C	PIN50. PWRBTN-



J11: HD15 PORT: VGA

- PIN1. RED VIDEO
- PIN2. GREEN VIDEO
- PIN3. BLUE VIDEO
- PIN4. N/C
- PIN5. N/C
- PIN6. RED SHIELD
- PIN7. GREEN SHIELD
- PIN8. BLUE SHIELD
- PIN9. N/C
- PIN10. N/C
- PIN11. N/C
- PIN12. N/C
- PIN13. HORIZ SYNC
- PIN14. VERTICAL SYNC
- PIN15. N/C

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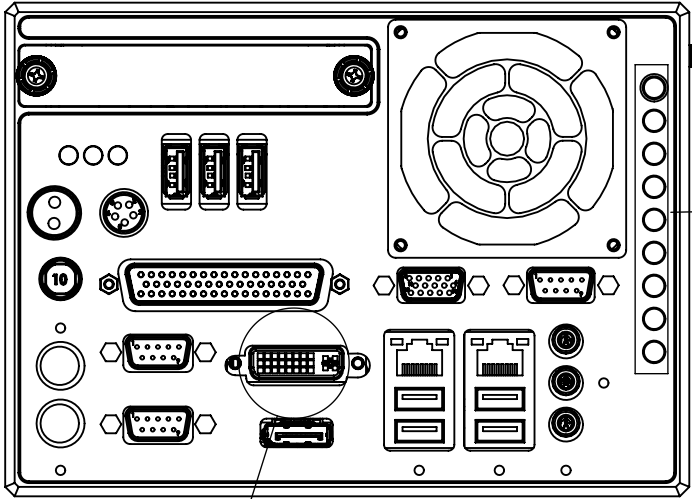
CHURCHILL NAVIGATION

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DIAGRAM

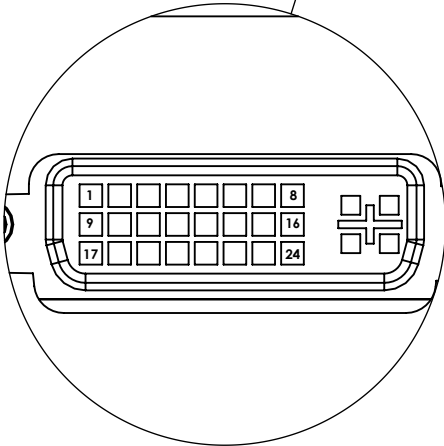
**Includes all ARS-600 versions*

SIZE A	DWG. NO. ARS-600	REV 13
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ARS-600 FRONT PANEL

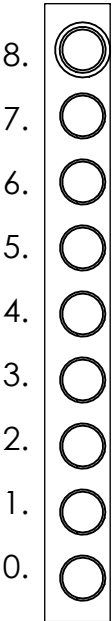


J25: DVI:



- PIN1. TMDS DATA 2-
- PIN2. TMDS DATA 2+
- PIN3. TMDS DATA SHIELD
- *PIN4. TMDS DATA 4-
- *PIN5. TMDS DATA 4+
- PIN6. DDC CLOCK
- PIN7. DDC DATA
- PIN8. N/C
- PIN9. TMDS DATA 1-
- PIN10. TMDS DATA 1+
- PIN11. TMDS DATA SHIELD
- *PIN12. TMDS DATA 3-
- *PIN13. TMDS DATA 3+
- PIN14. +5V
- PIN15. GND
- PIN16. HOT PLUG DETECT
- PIN17. TMDS DATA 0-
- PIN18. TMDS DATA 0+
- PIN19. TMDS DATA SHIELD
- *PIN20. TMDS DATA 5-
- *PIN21. TMDS DATA 5+
- PIN22. TMDS CLOCK SHIELD
- PIN23. TMDS CLOCK+
- PIN24. TMDS CLOCK-

*DUAL LINK NEEDED FOR RESOLUTIONS HIGHER THAN 1920x1200



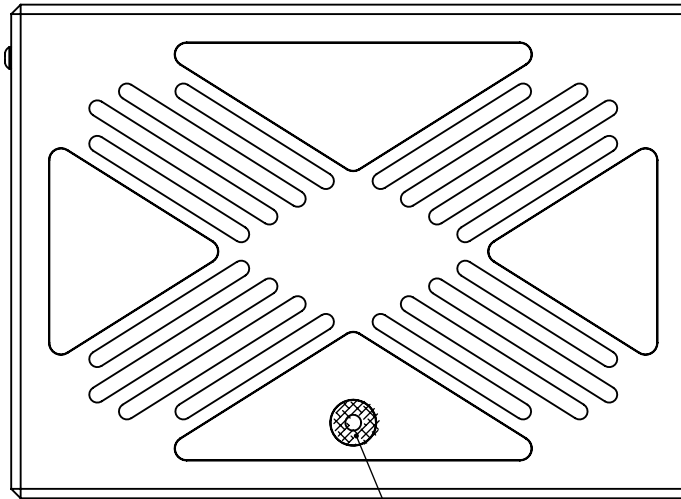
- BNC 1.0/2.3 PORTS (x9)
HD/SD-SDI INPUT/OUTPUT
- 0. REF.
 - 1. VIDEO1 IN
 - 2. VIDEO1 OUT
 - 3. VIDEO2 IN
 - 4. VIDEO2 OUT
 - 5. VIDEO3 IN
 - 6. VIDEO3 OUT
 - 7. VIDEO 4 IN
 - 8. VIDEO 4 OUT

DISPLAYPORT:
DISPLAYPORT CAN BE CONVERTED TO HDMI/DVI/VGA
IF DESIRED, OUTPUT MUST BE SPECIFIED AT TIME OF
ORDER AND A 6" PIGTAIL WILL BE PROVIDED



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			SHEET 9 OF 10		



GROUNDING POINT (GROUND STRAP IS REQUIRED TO BE CONNECTED TO AIRCRAFT FRAME)

ASSEMBLY NOTES

1. HATCHED SURFACE IS CHROMATED. DO NOT CHEMICALLY COAT OR COVER WITH NON-CONDUCTIVE MATERIAL.
2. PRE-INSTALLED GROUNDING HARDWARE:
1 x M5 X 6mm STAINLESS STEEL BOLT
1 x AN960 FLAT WASHER
3. DO NOT MOUNT WITHIN 1M OF ANTENNAS

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	NAME	DATE	CHURCHILL NAVIGATION		
DRAWN	JLH	10/11/19	TITLE: ARS-600* INSTALLATION DIAGRAM <i>*Includes all ARS-600 versions</i>		
CHECKED	NHM	10/11/19			
ENG APPR.					
MFG APPR.					
Q.A.					
COMMENTS:			SIZE A	DWG. NO. ARS-600	REV 13
ALL DIM IN MM [IN] WEIGHT IN LBS [KG]			SHEET 10 OF 10		
DO NOT SCALE DRAWING					