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.amphenolconnexion.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.amphenolconnexion.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.amphenolconnexion.com/282103-75.html

CRIMPING TOOL
You will need the amphenol connexion crimping tool to properly attach the connectors to the SDI COAX. This can be purchased directly from Digikey.

USB CABLE
Option A
Carlisle 28433/02171LX-4. This cable can be purchased directly from Carlisle

Option B

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.
## Connector Kit

### Contents

<table>
<thead>
<tr>
<th>P/N</th>
<th>DESCRIPTION</th>
<th>ITEM</th>
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<td>ARS-600-102</td>
<td>SS BUTTON HEAD SOCKET CAP SCREW, M5 x 20, 0.8 PITCH</td>
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<td>Din 6 pin with crimp contacts CUI #MD-60 and CUI #T-0006</td>
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<td>ARS-600-118</td>
<td>Lemo Strain Relief Heatshrink Backshell P/N: 202A111-25/86-0</td>
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## Diagram

- **Title:** ARS-600* INSTALLATION DIAGRAM
- ***Includes all ARS-600 versions**

**Comments:**

- **Proprietary and Confidential:** The information contained in this drawing is the sole property of Churchill Navigation. Any reproduction in part or as a whole without the written permission of Churchill Navigation is prohibited.

**Churchill Navigation**

** rev 11**

**Sheet 2 of 10**
SYSTEM WEIGHT: 5.91 lbs [2.68 kg] ±0.09 lbs [0.04 kg]

>50MM CLEARANCE FOR AIRFLOW. 100MM PREFERRED.

4 x M5-0.8 Mounting Holes

>100MM CLEARANCE FOR AIRFLOW AND CONNECTORS.

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

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CHURCHILL NAVIGATION
ARS-600 INSTALLATION DIAGRAM

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

*Includes all ARS-600 versions

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CHURCHILL NAVIGATION

NAME | DATE
---|---
DRAWN | J LH
CHECKED | 
ENG APPR. | 
MFG APPR. | 
Q.A. | 

COMMENTS:

ALL DIM IN MM [IN]
WEIGHT IN LBS [KG]

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---|---
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WEIGHT IN LBS [KG]

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ARS-600 FRONT PANEL

J1: 28V INPUT
- PIN1. GND
- PIN2. V+ (18-36V)

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.

ARS-600* INSTALLATION DIAGRAM

*Includes all ARS-600 versions
ARS-600 FRONT PANEL

J22: LINE IN
PIN1. MOUSE DATA
PIN2. NC
PIN3. GND
PIN4. +5V
PIN5. MOUSE CLOCK
PIN6. NC

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

J20: LINE OUT
SIGNAL
5V
GND

J21: MIC IN
LEFT
RIGHT
GND

*Includes all ARS-600 versions
ARS-600 FRONT PANEL

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

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<tr>
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J11: HD15 PORT: VGA

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CHURCHILL NAVIGATION

ARS-600* INSTALLATION DIAGRAM

*Includes all ARS-600 versions

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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-

*Includes all ARS-600 versions

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

CHURCHILL NAVIGATION

**ARS-600 INSTALLATION DIAGRAM**

*Includes all ARS-600 versions

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**ALL DIM IN MM [IN] WEIGHT IN LBS [KG]**

CHURCHILL NAVIGATION
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

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