A. Instrument power requirements

Table 1. 400 Hz, 3φ power requirements

<table>
<thead>
<tr>
<th>Instrument</th>
<th>400 Hz, 3φ power requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Startup (&lt;10 s)</td>
</tr>
<tr>
<td>NMASS</td>
<td>0 φA 0 φB 0 φC</td>
</tr>
<tr>
<td>SP2</td>
<td>0 φA 6* φB 0 φC</td>
</tr>
<tr>
<td>WAS</td>
<td>15 φA 15 φB 15 φC</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15 φA 21 φB 15 φC</td>
</tr>
</tbody>
</table>

*Load may be configured on any of the phases for aircraft-wide load leveling.

Table 2. 28 VDC power requirements

<table>
<thead>
<tr>
<th>Instrument</th>
<th>28 VDC power requirements</th>
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<tbody>
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</tr>
<tr>
<td>NMASS</td>
<td>15</td>
</tr>
<tr>
<td>SP2</td>
<td>10</td>
</tr>
<tr>
<td>WAS</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>32</td>
</tr>
</tbody>
</table>
Figure 1. Schematic of Power Distribution in AMPS ESI Pod Power/Signal Distribution Box

Aircraft power receptacle
MS345022-2P
28VDC

DC RTN
Circuit Breaker
Klixon 2TC2-25

Power distribution modules
M81714/61-OX 4 pl.
M81714/61-OZ 1 pl.

Circuit Breaker
MS14154-20

Instrument power
receptacles
MS3470W16-8S 3 pl.

10 A
A B C

Inst. 3
NMASS

28VDC

DC RTN

400Hz 3φ

Inst. 2
SP2

Aircraft power receptacle
MS3470W14-4P

AC RTN

Aircraft power receptacle

AMPS ESI Pod Power Distribution Wiring Schematic

10 AWG M22759/16

12 AWG M22759/16

16 AWG M22759/16

Version 4  2004/05/02 C. Brock

Circuit Breaker
Klixon 2TC2-xx 3 pl.

15 A

Inst. 1
WAS

28VDC

DC RTN

Aircraft power receptacle

AC RTN

Aircraft power receptacle

10 A
A B C

10 A
A B C

10 A
A B C

10 A
A B C

10 A
A B C

10 A
A B C

10 A
A B C
Components for AMPS ESI Pod Power/Signal Distribution Box

BUD Industries HC-14102 enclosure, Newark P/N 99F1012  $143.53

Ethernet:
Amphenol-PCD RJF21G ethernet receptacle, Mouser P/N 523-RJF21G  $28.98
Adam-6520 5-port ethernet switch, B&B Electronics, $124.95

Power (all from Circular Connectors):
400 Hz 3ϕ aircraft receptacle   MS3470W14-4P     $21.66
400 Hz 3ϕ aircraft plug    MS3476W14-4S   $22.66
28VDC aircraft receptacle    MS345022-2P   $53.85
28VDC aircraft plug     MS345622-2S   $51.30
Instrument power receptacle    MS3470W16-8S   $23.99
Instrument power plug    MS3476W16-8P  $22.73

Signal aircraft receptacle:    MS3470W20-41P  $30.17
Signal aircraft plug:    MS3476W20-41S   $33.11
Signal instrument receptacle:  MS3470W18-32S  $29.86
Signal instrument plug:  MS3476W18-32P  $27.14

Figure 3. AMPS ESI Pod Power/Signal Distribution Box Front Panel
### B. Instrument signal requirements

#### Table 3. Instrument signals and requirements

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Signal Name</th>
<th>V</th>
<th>I (mA)</th>
<th>AWG</th>
<th>Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP2</td>
<td>On</td>
<td>28</td>
<td>100</td>
<td>22</td>
<td>C3X pod ctrl panel</td>
</tr>
<tr>
<td></td>
<td>Fail</td>
<td>28</td>
<td>250</td>
<td>22</td>
<td>&quot;</td>
</tr>
<tr>
<td></td>
<td>On RTN</td>
<td>0</td>
<td>100</td>
<td>22</td>
<td>&quot;</td>
</tr>
<tr>
<td></td>
<td>Fail RTN</td>
<td>0</td>
<td>250</td>
<td>22</td>
<td>&quot;</td>
</tr>
<tr>
<td>NMASS</td>
<td>On</td>
<td>28</td>
<td>100</td>
<td>22</td>
<td>C3X pod ctrl panel</td>
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<tr>
<td></td>
<td>Fail</td>
<td>28</td>
<td>250</td>
<td>22</td>
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</tr>
<tr>
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<td>On RTN</td>
<td>0</td>
<td>100</td>
<td>22</td>
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</tr>
<tr>
<td></td>
<td>Fail RTN</td>
<td>0</td>
<td>250</td>
<td>22</td>
<td>&quot;</td>
</tr>
<tr>
<td>WAS</td>
<td>HS Serial 1A</td>
<td>15</td>
<td>5</td>
<td>26</td>
<td>C3X pod ctrl panel</td>
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<tr>
<td></td>
<td>HS Serial 1B</td>
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<td>5</td>
<td>26</td>
<td>&quot;</td>
</tr>
<tr>
<td></td>
<td>HS Serial 2A</td>
<td>15</td>
<td>5</td>
<td>26</td>
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</tr>
<tr>
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<td>HS Serial 2B</td>
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<td>Spare</td>
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<td>22</td>
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<td>Can # return</td>
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<td>22</td>
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<tr>
<td></td>
<td>Manifold P</td>
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<td>20</td>
<td>22</td>
<td>&quot;</td>
</tr>
<tr>
<td></td>
<td>Manifold P RTN</td>
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<td>20</td>
<td>22</td>
<td>&quot;</td>
</tr>
</tbody>
</table>
Figure 2. Schematic for C3X Pod Control Panel Connections

NOAA WP–3D N43RF: pod control cabling to C3X

All wires 22 AWG
Pinouts for instrument connections to power/signal distribution box.

**Power connector**
Box receptacle: MS3470W16-8S
Cable end: MS3476W16-8P
All contacts are for 16 AWG wire.

All instruments:
A--400 Hz phase A
B--400 Hz phase B
C--400 Hz phase C
D--400 Hz RTN
E--N/C
F--28VDC
G--DC RTN
H--N/C

**Signal connectors:**
Box receptacle: MS3470W16-26S
Cable end: MS3476W16-26P
All contacts are for 22 AWG wire.

*Instrument 1: WAS*
A--HS Serial 1A
B--HS Serial 1B
C--Serial 2A
D--HS Serial 2B
E--SW1
F--SW2
G--SW3
H--SW4
J--SW RTN
K--SerTx
L--SerRx
M--SerRTN
N--LED1
P--LED2
R--LED RTN
S--Spare
T--Motor Current
U--Motor Curr. RTN
V--Can #
W--Can # return
X--Manifold P
Y--Manifold P RTN
**Instrument 2: SP2**
A--SP2 "on" 28VDC signal  
B--SP2 "fail" signal  
C--SP2 "on" RTN  
D--SP2 "fail" RTN

**Instrument 3: NMASS**
A--NMASS "on" 28VDC signal  
B--NMASS "fail" signal  
C--NMASS "on" RTN  
D--NMASS "fail" RTN