2012 Conference Training
303- Non RF Terminations

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Please turn off cell phones. Thank You

For More Information
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Seminar Overview

• RJ45 Connectors
• Barrier Strips & Crimp Connections
• NMEA 2000 Connectors
• Circular Solder Type Connectors
• Connector Protection & Cable Extensions
RJ45 Connectors
RJ 45 Connector Assembly

1) Remove approximately 1" of the cable jacket.
2) Untwist each pair, and straighten wires between fingers.
3) Rearrange wires in order of 568A identified above.
4) Cut wires at a perfect right angle to cable, 1/2" from jacket.
5) Insert wires into connector, pins facing up.
6) Push wires until fully inserted, cable jacket should penetrate connector 3/16".
7) Use a crimp tool to compress pins into wires and capture cable jacket in connector.
# RJ 45 Wiring Colors & Connections

<table>
<thead>
<tr>
<th>Pin</th>
<th>T568A Pair</th>
<th>T568B Pair</th>
<th>1000BASE-T Signal ID</th>
<th>Wire</th>
<th>T568A Color</th>
<th>T568B Color</th>
<th>Pins on plug face (socket is reversed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>2</td>
<td>DA+</td>
<td>tip</td>
<td>white/green stripe</td>
<td>white/orange stripe</td>
<td>1 3 2 8 7 6 5 4 3 2 1</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>2</td>
<td>DA-</td>
<td>ring</td>
<td>green solid</td>
<td>orange solid</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>3</td>
<td>DB+</td>
<td>tip</td>
<td>white/orange stripe</td>
<td>white/green stripe</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1</td>
<td>DC+</td>
<td>ring</td>
<td>blue solid</td>
<td>blue solid</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1</td>
<td>DC-</td>
<td>tip</td>
<td>white/blue stripe</td>
<td>white/blue stripe</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>3</td>
<td>DB-</td>
<td>ring</td>
<td>orange solid</td>
<td>green solid</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>4</td>
<td>4</td>
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<td>tip</td>
<td>white/brown stripe</td>
<td>white/brown stripe</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>4</td>
<td>DD-</td>
<td>ring</td>
<td>brown solid</td>
<td>brown solid</td>
<td></td>
</tr>
</tbody>
</table>

*Pin Position: 8 7 6 5 4 3 2 1*
Barrier Strips & Crimp Connections
Barrier Strips & Crimp Connections

• Screw Terminals
• Always use Ring Terminals or Captive Spades
• European Barrier Strips
• Always Ensure Clamp Type are used
Barrier Strips & Crimp Connections

- Stacking Connections
  - Back to Back Ring Terminals, Max Two (2)
  - Place largest Current Conductor Closest to Terminal
  - Ensure Euro Strips Clamp Both Conductors, Max Two (2)
  - Flatten both conductors across width of terminal opening
  - Do not twist together without strain relief

Yes! No!
NMEA 2000 Connectors:

- Easy Plug and Play Connections
- Hot Swappable
- Use short cables between “T”s to avoid mounting under tension
- Observe NMEA 2000 topology
NMEA 2000
Field Attachable Connectors

- For use when cables need to be cut (snaking etc.)
- Provides a waterproof connection with strain relief
Cables & Connectors: Field Attachable Connectors

body

terminal assembly

19mm (3/4"

5mm (3/16"

compression nut

conductor (5)

metal coupling nut

plastic ring (connects terminal assembly to body)

set screw (5)

NOTE: No. 5 blue terminal set screw faces right

Wire color key
1. silver (bare)
2. red
3. black
4. white
5. blue
Cables & Connectors: Installing Field Connectors

- Need to apply heat shrink to *shield* / *drain* wire
- Hot melt glue can also be added
Cables Specifications: Barrier Strips - Commercial Vessels

NET-H

NET-L

NET-C

NET-S

SHIELD

DROP TO NODE

NETWORK BACKBONE

Connection From Drop to Backbone

NET-H

NET-L

NET-C

NET-S

SHIELD

120 Ohm, ¼ Watt

No Other Connections

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• It’s All in the Prep Work!
• Dress wires to Manufacturers Instructions
• Cut and Fit all conductors first
• Tin Wire and Connector Pin
• Allow Connector to Cool
• Assemble Shell, Ring and Grommet(s)
• Trim Wire, align and solder, ensure good solder flow
• Insert Pins and Assemble Connector
• Do not overheat Connector or Pin

Circular Solder Type Connectors
Example Conxall® Diagram
Connector Protection

- Always use supplied mounting hardware
- Boots and O Rings
- Chemical Protection, Spray preservative
- Follow manufacturers recommendations.
- Physical Protection, chafe guarding
- Hot Melt Glue
- Dielectric Grease
- Tape, Is there a place for tape on boats?
Cable Extensions

• Butt Connectors should not be used for high amperage power connections
• Never place a splice in a hidden location
• Label Splice with Function and Equipment Type within 1 foot of connection
• Always use manufacturers extension cables when possible
• Observe Maximum Wire Lengths
Questions?