Optobox power connectors

Connector board

Optoboards

Powerbox with power board
Cables

• CAN (8 pins / 4 pins for single CAN interface):
  - 4 pairs of AWG 26
  - twice V_can and twice CAN
  - > 2 CAN bus per cable

• Power & Interlock (10+14 = 24 pins)
  - 10 x AWG 18 for 12V and GND (bPOL12V supply)
  - 10 x AWG 26 for 12V sens lines
  - 4 x AWG 26 for interlock
CAN bus cabling schemes

Type 3 cable:
4 pairs → 2 CAN buses
(2x Vcan, 2x CAN)
Optobox space
Not yet placed: Power_Interlock Connector, CAN connector, Filter capacitors

All elements just provisionally placed – update required
CAN Connector

- Lemo EYG.0B.304.CLN
- Glenair Alphalink SL 4
- Glenair Micro-D 9 MWDM-CB 5
- Harwin Gecko G125
- Glenair Micro-D 9 + Cable inside power box
Power & Interlock Connector

- Glenair Alphalink SL 24
- Glenair Micro-D 25
- Harwin Gecko G125
- Glenair Micro-D/High Denisty D-Sub + Cable in side box
**CAN Connector: LEMO EYG.0B.304.CLN**

- **Right angled cable connector**
- **Shield connection to box possible**
- **large footprint**
- **through hole mount**
- **single CAN connection → requires octopus cable (Scheme C)**

<table>
<thead>
<tr>
<th>Reference</th>
<th>Dimensions (mm)</th>
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<tbody>
<tr>
<td>Model</td>
<td>A</td>
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<tr>
<td>EYG</td>
<td>12</td>
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</table>
CAN Connector: Glenair Alphalink SL 4/8

- "Small" footprint
- maybe possible to fit 2
- screw form bottom, difficult to mount
- shield & box connection
- AWG24 wires

Scheme B or C possible
CAN Connector: Glenair Micro-D 9 MWDM-CB 5

+shielded box connection possible
+T-backshell available for Scheme B

EMI conform backshells (quite large h=28mm)

+through-hole mount
+large shell (space for cables?)

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CAN Connector: Harwin Gecko G125-M S1 06/10 05 M1

**Calculation**

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<tbody>
<tr>
<td><strong>A</strong></td>
<td>B + 12.7</td>
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<tr>
<td><strong>B</strong></td>
<td>0.625 x (Total No. of contacts - 2)</td>
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<tr>
<td><strong>C</strong></td>
<td>B + 7.8</td>
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<tr>
<td><strong>D</strong></td>
<td>B + 1.8</td>
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</tbody>
</table>

+ "Small" footprint
+ Shielded (box connection?)

- only AWG24 wire solder cup

Scheme B or C possible
CAN Connector: Cable inside box

• Micro-D 9 Pol

Glenair Micro-D connector with solder cup termination
Cable soldered inside and connected with Harting harflex connector
(or soldered directly to PCB)
Backshells (see #Slide 9)

+Proper shielding contact with box (evtl connector with filter)
+small footprint on PCB
+surface mount possible
+use T-Backshell for scheme B, configure CAN bus selection with cable
-additional connector & cable
-space with backshell

e.g. for ribbon cable
Power & Interlock Connector

- Glenair Alphalink SL 24

- "Small" footprint
- Shielded (box connection?)
- Screw form bottom, difficult to mount
- Only AWG24 wire solder cup
Power Connector: Glenair Micro-D 25

EMI conform backshells (quite large h=28mm)

+shielded box connection possible

- through-hole mount
- large shell
- AWG24 cable max

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Power Connector: Harwin Gecko
G125-M S1 26 05 M1

"Small" footprint
+Shielded (box connection?)
-only AWG24 wire solder cup

<table>
<thead>
<tr>
<th>CALCULATION</th>
<th>Formula</th>
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<tr>
<td>A</td>
<td>B + 12.7</td>
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<td>B</td>
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<tr>
<td>D</td>
<td>B + 1.8</td>
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</table>
Power Connector: cable inside box

• High Density D-Sub 26 p

Connector with solder cup termination
Cable soldered inside and connected with connector to PCB
(or soldered directly to PCB)
AWG 20 contact

+Proper shielding contact with box
+small footprint on PCB

-additional connector & cable
-large connector
-huge backshell (?)

e.g. for ribbon cable
Power Connector: cable inside box

- D-Sub 25 p

Connector with solder cup termination
Cable soldered inside and connected with connector to PCB
(or soldered directly to PCB)
AWG 18 contact

+ Proper shielding contact with box
+ Small footprint on PCB

- Additional connector & cable
- Very large connector (go above components)
- Huge backshell (?)

e.g. for ribbon cable
# Micro D backshells

**9 Pol (CAN)**

**25 Pol (Power)**

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<td>21.59</td>
<td>0.650</td>
<td>16.51</td>
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Micro D backshell

- Smaller casing but no T-version available
- For Power&Interlock
Cable backshells D-Sub

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<thead>
<tr>
<th>Typ</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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HD 26 Pol

25 Pol

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Niklaus Lehmann
Option P - patchpanel

- Patch panel at end of Optoboxes
- Closes shield of entire panel
- Shielded connectors on outside for type 2 cables
- Small connectors inside with no shield
Cable to board connectors

- Harwin G125-M S1 26 05 L3
- Harwin G125-M S1 06 05 L3
Use Harwin Gecko G125 connector 26 pin for power and 10 pin for CAN
Could be used with shielded connector directly on board, or with patch panel option