

Mount the terminal block on spare DIN rail space.  
Use the terminal block to distribute the 24V supply.

This EtherCAT chassis uses copper only.  
Mount the modular adapters to the front panel.  
Using CAT5 patch cables:

- Connect the front panel input to the input of the first coupler (left rail).
- Connect the front panel output to the output of the last coupler (right rail).
- Connect the output of the first coupler to the input of the second one.
- Connect the output of the second coupler to the input of the third one.

### Ports

**IN**

**OUT**

**A**

**B**

PN1  
EtherCAT chassis  
LIGO  
D0902552-v3

PN5  
Ethernet patch cable, 1'

PN8  
Ethernet patch cable, 1'

PN12  
DB9/female  
Digi-Key  
A32510-ND

PN14  
DB15/male  
Digi-Key  
A32503-ND

PN2  
Name Plate  
LIGO  
D1101978-v1

PN6  
Ethernet patch cable, 1'

PN9  
Ethernet patch cable, 1'  
Newark  
21M5658

E11 Jack screw  
E12 Jack screw

E13 Jack screw  
E14 Jack screw

L-Com  
SDG450XS

PN3  
Rear Panel (alt)  
LIGO  
D1101977-v1

**CAT5  
End**

**CAT5  
End**

**Beam  
Diverter**

**Shutter  
Logic**

### TBLOCK

PN19 Terminal Block	PN26 Terminal Block	PN34 Terminal Block	PN40 Terminal Block
PN20 Terminal Block	PN27 Terminal Block	PN35 Terminal Block	PN41 Terminal Block
PN21 Terminal Block	PN28 Terminal Block	PN36 Terminal Block	PN42 Terminal Block
PN22 Terminal Block	PN29 Terminal Block	PN37 Terminal Block	PN43 Terminal Block
PN23 Terminal Block	PN30 Terminal Block	PN38 Terminal Block	PN44 Terminal Block
Digi-Key 277-1483-ND		Digi-Key 277-1483-ND	
	PN31 Jumper, 10pos		PN45 Jumper, 10pos
	PN32 Jumper, 10pos		PN46 Jumper, 10pos
PN24 End Plate Digi-Key 277-1495-ND	Digi-Key 277-1494-ND	PN39 End Plate Digi-Key 277-1495-ND	Digi-Key 277-1494-ND

### Slots

**1**

**2**

**3**

**4**

**5**

**6**

**7**

**8**

**9**

**10**

**11**

**12**

PN4  
Picomotor adapter  
LIGO  
D1100419-v3

PN7  
Picomotor adapter  
LIGO  
D1100419-v3

PN10  
Adapter panel  
LIGO  
D1101979-v1

PN13  
Adapter panel  
LIGO  
D0902557-v1

PN15  
Adapter panel  
LIGO  
D0902557-v1

PN16  
DB37M adapter  
LIGO  
D0902569-v1

PN17  
DB37M adapter  
LIGO  
D0902569-v1

PN18  
DB37M adapter  
LIGO  
D0902569-v1

PN25  
DB37M adapter  
LIGO  
D0902569-v1

PN33  
DB37M adapter  
LIGO  
D0902569-v1

PN47  
DB37M adapter  
LIGO  
D0902569-v1

PN48  
Prometheus Interface  
LIGO  
D1102087-v1

E1 Jack screw

E5 Jack screw

PN11  
DB37M adapter  
LIGO  
D0902569-v1

E6 Jack screw

E7 Jack screw

E15 #6-32 1/4" flat  
E16 #6-32 1/4" flat

E17 #6-32 1/4" flat  
E18 #6-32 1/4" flat

E19 #6-32 1/4" flat  
E20 #6-32 1/4" flat

E21 #6-32 1/4" flat  
E22 #6-32 1/4" flat

E23 #6-32 1/4" flat  
E24 #6-32 1/4" flat

E25 #6-32 1/4" flat  
E26 #6-32 1/4" flat

E27 #6-32 1/4" flat  
E28 #6-32 1/4" flat

L-Com  
SDG450XS

McMaster-Carr  
91099A205

McMaster-Carr  
91099A205

McMaster-Carr  
91099A205

McMaster-Carr  
91099A205

McMaster-Carr  
91099A205

McMaster-Carr  
91099A205

McMaster-Carr  
91099A205

McMaster-Carr  
91099A205

**Picomotor**

**Picomotor**

**Legacy  
PD**

**Blank**

**Blank**

**Auxiliary**

**PZT Mirrors TCS  
Laser Temp.  
PD Mon.**

**RF Amp**

**ASC  
Demod**

**LSC  
Demod**

**Laser  
Diagnostics**

Title <b>EtherCAT End 2</b>		
Size B	Number <b>D1100682</b>	Revision <b>1</b>
Date: 12/19/2011	Sheet 1 of 4	
File: C:\Users\...\EtherCATEndB1.SchDoc	Drawn By: Daniel Sigg	

B1 5V/0.6A isolated DC-DC converter, Omron S82S-7305

B2 EK1101 EtherCAT coupler w/ ID switch

B3 EL3104 4-channel analog input terminals, differential, 16 bits

B4 EL3104 4-channel analog input terminals, differential, 16 bits

B5 EL1124 4-channel digital input terminals, 5V

B6 EL9190 Feed terminal, arbitrary voltage

B7 EL3104 4-channel analog input terminals, differential, 16 bits

B8 EL3104 4-channel analog input terminals, differential, 16 bits

B9 EL1124 4-channel digital input terminals, 5V

B10 EL3104 4-channel analog input terminals, differential, 16 bits

B11 EL3104 4-channel analog input terminals, differential, 16 bits

B12 EL3104 4-channel analog input terminals, differential, 16 bits

B13 EL3104 4-channel analog input terminals, differential, 16 bits

B14 EL9400 Power supply terminals for E-bus

B15 EL3104 4-channel analog input terminals, differential, 16 bits

B16 EL1124 4-channel digital input terminals, 5V

B17 EL9190 Feed terminal, arbitrary voltage

B18 EL3202-0010 2-channel high precision input terminal PT100 (RTD)

B19 EL1124 4-channel digital input terminals, 5V

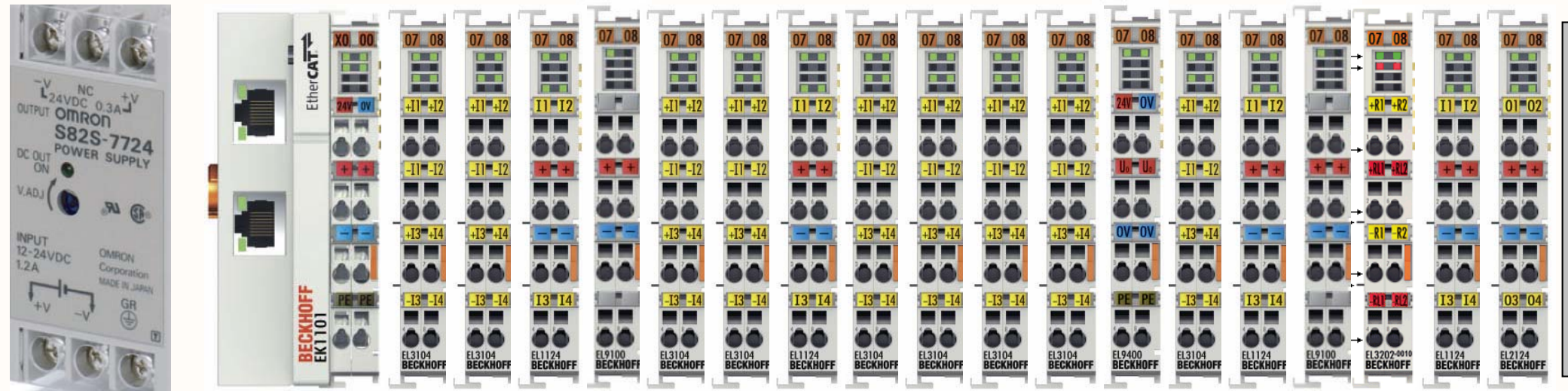
B20 EL2124 4-channel digital output terminals, 5V

B21 EL9011 End cap

B22 5V/0.6A isolated DC-DC converter, Omron S82S-7305

B23 5V/0.6A isolated DC-DC converter, Omron S82S-7305

B24 5V/0.6A isolated DC-DC converter, Omron S82S-7305



Ebus	24V	—	24V	—
Power contacts	5V	5V	5V	5V

DC\_1      Laser      Demod      RF Amp      TCS      DC\_2      DC\_3      DC\_4

Power budget:  
 EL3104: 0.180 A (8x)  
 EL1124: 0.090 A (2X)  
 -----  
 1.620 A

Power budget:  
 EL3104: 0.180 A (1x)  
 EL1124: 0.090 A (2x)  
 EL3202: 0.190 A (1x)  
 EL2124: 0.130 A (1x)  
 -----  
 0.680 A

Title <b>EtherCAT End 2: Left Rail</b>		
Size B	Number <b>D1100682</b>	Revision <b>1</b>
Date: 12/19/2011	Sheet 2 of 4	
File: C:\Users\...\EtherCATEndB2.SchDoc	Drawn By: Daniel Sigg	

B25  
5V/0.6A isolated DC-DC converter, Omron S82S-7305

B26  
EK1100  
Beckhoff EtherCAT coupler

B27  
EL3104  
4-channel analog input terminals, differential, 16 bits

B28  
EL3104  
4-channel analog input terminals, differential, 16 bits

B29  
EL3104  
4-channel analog input terminals, differential, 16 bits

B30  
EL3104  
4-channel analog input terminals, differential, 16 bits

B31  
EL4132  
2-channel analog output terminals, differential, 16 bits

B32  
EL9190  
Feed terminal, arbitrary voltage

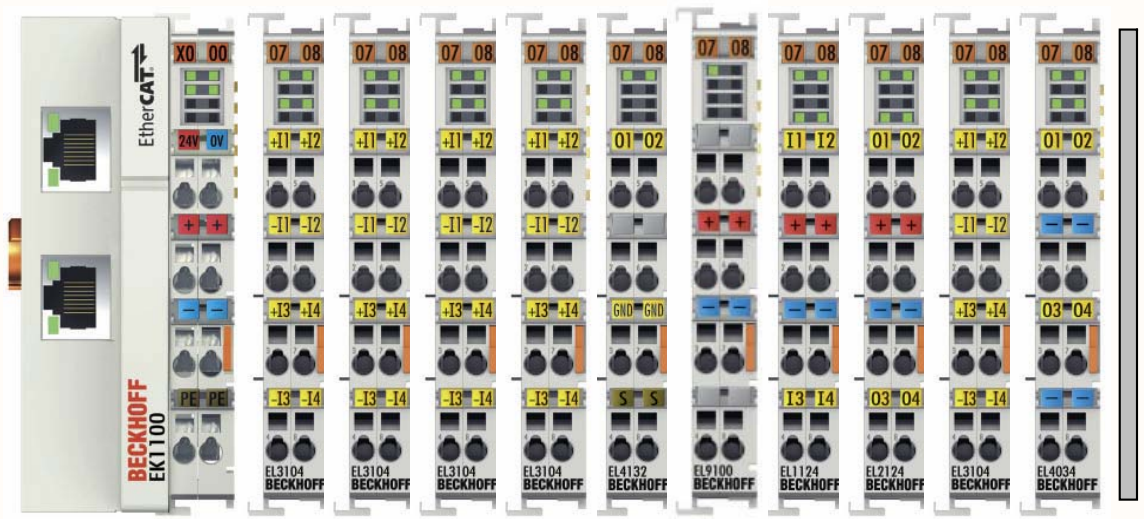
B33  
EL1124  
4-channel digital input terminals, 5V

B34  
EL2124  
4-channel digital output terminals, 5V

B35  
EL3104  
4-channel analog input terminals, differential, 16 bits

B36  
EL4134  
4-channel analog output terminals, differential, 16 bits

B37  
EL9011  
End cap



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Ebus 24V —  
Power contacts — 5V

PZT Mirrors Laser Temp  
Monitor PDs Auxiliary

Power budget:  
 EL1124: 0.090 A  
 EL2124: 0.130 A  
 EL3104: 0.180 A (5x)  
 EL4132: 0.210 A  
 EL4134: 0.265 A  
 -----  
 1.595 A

Title			<b>EtherCAT End 2: Middle Rail</b>
Size	Number	Revision	
B	<b>D1100682</b>	<b>1</b>	
Date:	12/19/2011	Sheet 3 of 4	
File:	C:\Users\...\EtherCATEndB3.SchDoc	Drawn By: Daniel Sigg	

B38  
5V/0.6A isolated DC-DC converter, Omron S82S-7305

B39  
EK1100  
Beckhoff EtherCAT coupler

B40  
EL7332  
2-channel DC motor output stage 24V DC, 1 A

B41  
EL1094  
4-channel digital input terminals, 24V, n-type

B42  
EL3102  
2-channel analog input terminals, differential, 16 bits

B43  
EL1014  
4-channel digital input terminals, 24V

B44  
EL3102  
2-channel analog input terminals, differential, 16 bits

B45  
EL1014  
4-channel digital input terminals, 24V

B46  
EL1872  
16-channel digital input terminals, 24V

B47  
EL2872  
16-channel digital output terminals, 24V

B48  
EL1872  
16-channel digital input terminals, 24V

B49  
EL2872  
16-channel digital output terminals, 24V

B50  
EL9190  
Feed terminal, arbitrary voltage

B51  
EL1124  
4-channel digital input terminals, 5V

B52  
EL2124  
4-channel digital output terminals, 5V

B53  
EL9400  
Power supply terminals for E-bus

B54  
EL3104  
4-channel analog input terminals, differential, 16 bits

B55  
EL3104  
4-channel analog input terminals, differential, 16 bits

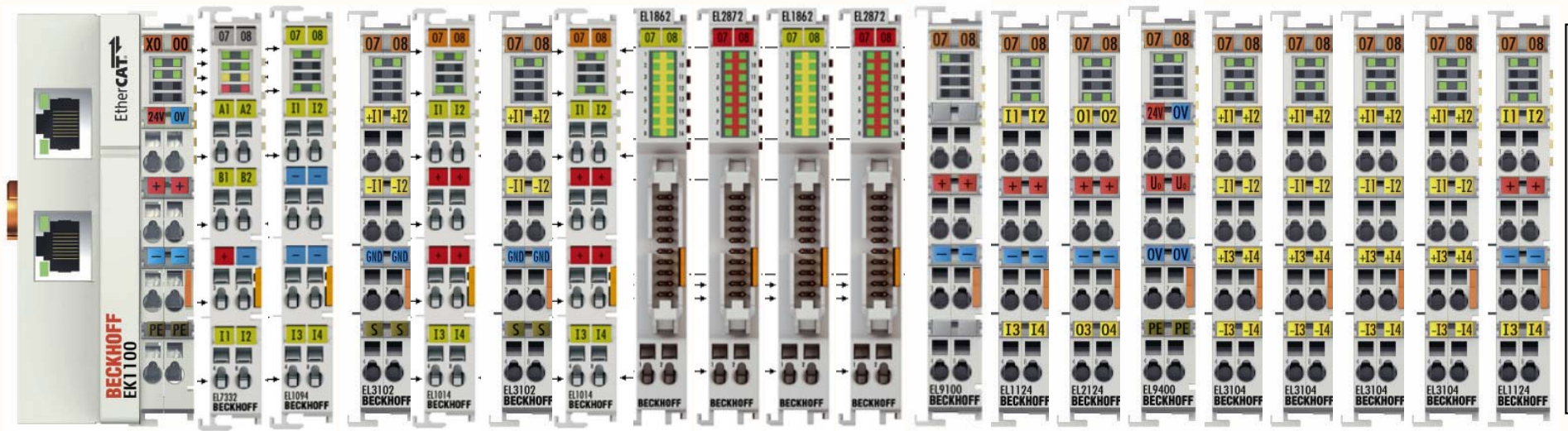
B56  
EL3104  
4-channel analog input terminals, differential, 16 bits

B57  
EL3104  
4-channel analog input terminals, differential, 16 bits

B58  
EL1124  
4-channel digital input terminals, 5V

B59  
EL9011  
End cap

B60  
5V/0.6A isolated DC-DC converter, Omron S82S-7305



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Ebus

24V

—

24V

Power contacts

24V

5V

5V

Beam Diverter

Picomotor

Shutter

Legacy PD

DC\_7

DC\_6

Power budget:  
 EL7332: 0.140 A  
 EL1094: 0.090 A  
 EL3102: 0.180 A (2x)  
 EL1014: 0.090 A (2x)  
 EL1872: 0.130 A (2x)  
 EL2872: 0.130 A (2x)  
 EL1124: 0.090 A (1x)  
 EL2124: 0.130 A (1x)  
 -----  
 1.510 A

PN49  
IDC Cable, 20-pin  
Digi-Key  
H3CCH-2036G-ND

PN50  
IDC socket, 20pin  
Digi-Key  
MKC20A-ND

PN51  
IDC socket, 20pin

Power budget:  
 EL1124: 0.090 A (1x)  
 EL3104: 0.180 A (4x)  
 -----  
 0.810 A

Title <b>EtherCAT End 2: Right Rail</b>		
Size B	Number <b>D1100682</b>	Revision <b>1</b>
Date: 12/19/2011	Sheet 4 of 4	
File: C:\Users\...\EtherCATEndB4.SchDoc	Drawn By: Daniel Sigg	