

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

Ports

IN

- PN2 EtherCAT chassis LIGO D0902552-v3
- PN3 Front Panel LIGO D2100054-v1
- PN4 Rear Panel LIGO D2100055-v1

OUT

- PN6 Ethernet patch cable, 1'
- PN7 Ethernet patch cable, 1'

A/B

- PN9 Ethernet patch cable, 1'
- PN10 Ethernet patch cable, 1' Newark 21M5658

C/D

- PN12 DB15/male
- PN13 DB15/male Digi-Key A32503-ND

- PN15 DB9/female
- PN16 DB9/female Digi-Key A32510-ND

CAT5 Squeezer

CAT5 Squeezer

Shutter Logic

Beam Diverter

TBLOCK

- PN24 Terminal Block
- PN25 Terminal Block
- PN26 Terminal Block
- PN27 Terminal Block
- PN28 Terminal Block Digi-Key 277-1483-ND
- PN29 End Plate Digi-Key 277-1495-ND
- PN30 Terminal Block
- PN31 Terminal Block
- PN32 Terminal Block
- PN33 Terminal Block
- PN34 Terminal Block
- PN35 Jumper, 10pos
- PN36 Jumper, 10pos Digi-Key 277-1494-ND

Alternative terminal block:
- Phoenix 2315272
- Phoenix 2315269

Alternative DC-DC supply:
- Mean Well DDR-15G-5

Slots

1

2

3

4

5

6

7

8

9

10

11

12

13

- PN1 DB25M adapter LIGO D0902567-v1

- PN5 DB25M adapter LIGO D0902567-v1

- PN8 DB25M adapter LIGO D0902567-v1

- PN11 DB25M adapter LIGO D0902567-v1

- PN14 TEC Driver LIGO D1201359-v1

- PN17 TEC Driver LIGO D1201359-v1

- PN18 TEC Driver LIGO D1201359-v1

- PN19 TEC Driver LIGO D1201359-v1

- PN20 M12 socket
- PN21 M12 socket
- PN22 M12 socket
- PN23 M12 socket Newark 08R3678

- PN37 DB37M adapter LIGO D0902569-v1

- PN38 DB37M adapter LIGO D0902569-v1

- PN39 DB25M adapter LIGO D0902567-v1

- PN40 DB25F adapter LIGO D0902568-v1

- E1 #6-32 1/4" flat McMaster-Carr 91099A205
- E2 #6-32 1/4" flat

- E3 #6-32 1/4" flat McMaster-Carr 91099A205
- E4 #6-32 1/4" flat

- E5 #6-32 1/4" flat McMaster-Carr 91099A205
- E6 #6-32 1/4" flat

- E7 #6-32 1/4" flat McMaster-Carr 91099A205
- E8 #6-32 1/4" flat

- E9 #6-32 1/4" flat McMaster-Carr 91099A205
- E10 #6-32 1/4" flat

- E11 #6-32 1/4" flat McMaster-Carr 91099A205
- E12 #6-32 1/4" flat

- E13 #6-32 1/4" flat McMaster-Carr 91099A205
- E14 #6-32 1/4" flat

- E15 #6-32 1/4" flat McMaster-Carr 91099A205
- E16 #6-32 1/4" flat

- E17 #6-32 1/4" flat McMaster-Carr 91099A205
- E18 #6-32 1/4" flat

- E19 #6-32 1/4" flat McMaster-Carr 91099A205
- E20 #6-32 1/4" flat

- E21 #6-32 1/4" flat McMaster-Carr 91099A205
- E22 #6-32 1/4" flat

- E23 #6-32 1/4" flat McMaster-Carr 91099A205
- E24 #6-32 1/4" flat

PLL Integration

FC QPDs

VCXO RLF

VCXO ADF

SF1 Oven

SF2 Oven

OFI Oven

Spare Oven

Temp. Sensors

CM A/1 Filter Cavity

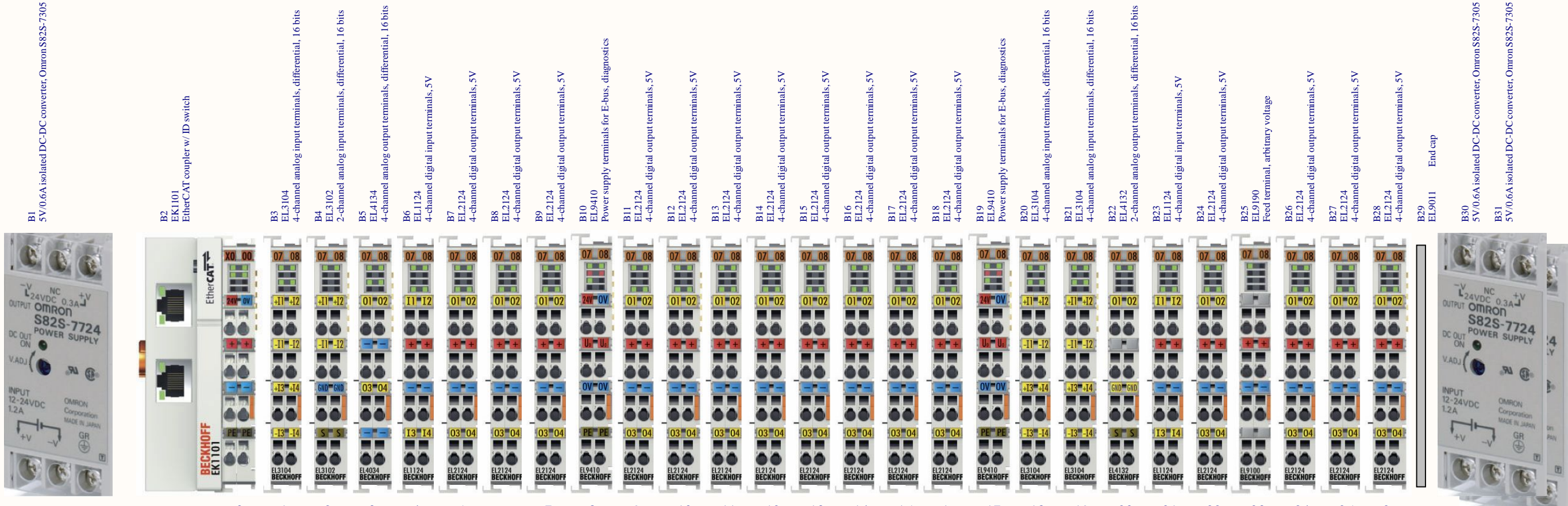
CM A/2

VCO

Delay

- M12 Color PT100
- 1 brown RL+
- 2 white R+
- 3 blue RL-
- 4 black R-

Title EtherCAT Squeezer 4		
Size B	Number D2000504	Revision 2
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Ebus 24V
 Power contacts 5V (DC_1) 24V 5V (DC_1) 24V 5V (DC_2) — 5V (DC_3)

DC_1 Common mode servo VCO Delay Line DC_2 DC_3

Power budget:
 EL3102: 0.170 A (1x)
 EL3104: 0.130 A (1x)
 EL4234: 0.265 A (1x)
 EL1124: 0.090 A (1x)
 EL2124: 0.130 A (3x)

 1.045 A

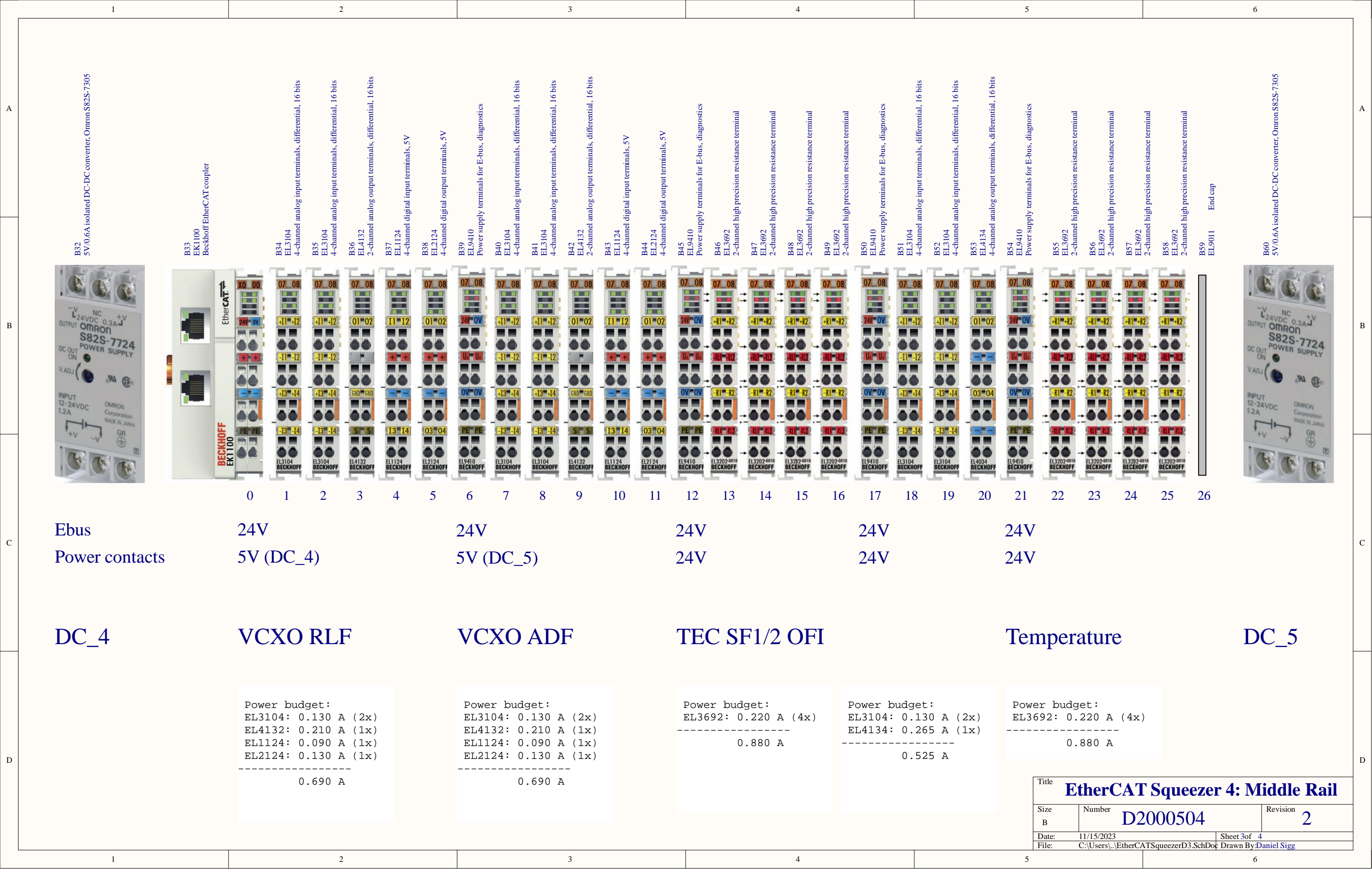
Power budget:
 EL2124: 0.130 A (8x)

 1.040 A

Power budget:
 EL3104: 0.130 A (2x)
 EL4232: 0.210 A (1x)
 EL1124: 0.090 A (1x)
 EL2124: 0.130 A (4x)

 1.080 A

Title EtherCAT Squeezer 4: Left Rail		
Size B	Number D2000504	Revision 2
Date:	11/15/2023	Sheet 2of 4
File:	C:\Users\daniel\Documents\EtherCATSqueezerD2.SchDoc Drawn By: Daniel Sigg	



B32 5V/0.6A isolated DC-DC converter, Omron S82S-7305

B33 EK1100 Beckhoff EtherCAT coupler

B34 EL3104 4-channel analog input terminals, differential, 16 bits

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

B36 EL4132 2-channel analog output terminals, differential, 16 bits

B37 EL1124 4-channel digital input terminals, 5V

B38 EL2124 4-channel digital output terminals, 5V

B39 EL9410 Power supply terminals for E-bus, diagnostics

B40 EL3104 4-channel analog input terminals, differential, 16 bits

B41 EL3104 4-channel analog input terminals, differential, 16 bits

B42 EL4132 2-channel analog output terminals, differential, 16 bits

B43 EL1124 4-channel digital input terminals, 5V

B44 EL2124 4-channel digital output terminals, 5V

B45 EL9410 Power supply terminals for E-bus, diagnostics

B46 EL3692 2-channel high precision resistance terminal

B47 EL3692 2-channel high precision resistance terminal

B48 EL3692 2-channel high precision resistance terminal

B49 EL3692 2-channel high precision resistance terminal

B50 EL9410 Power supply terminals for E-bus, diagnostics

B51 EL3104 4-channel analog input terminals, differential, 16 bits

B52 EL3104 4-channel analog input terminals, differential, 16 bits

B53 EL4134 4-channel analog output terminals, differential, 16 bits

B54 EL9410 Power supply terminals for E-bus, diagnostics

B55 EL3692 2-channel high precision resistance terminal

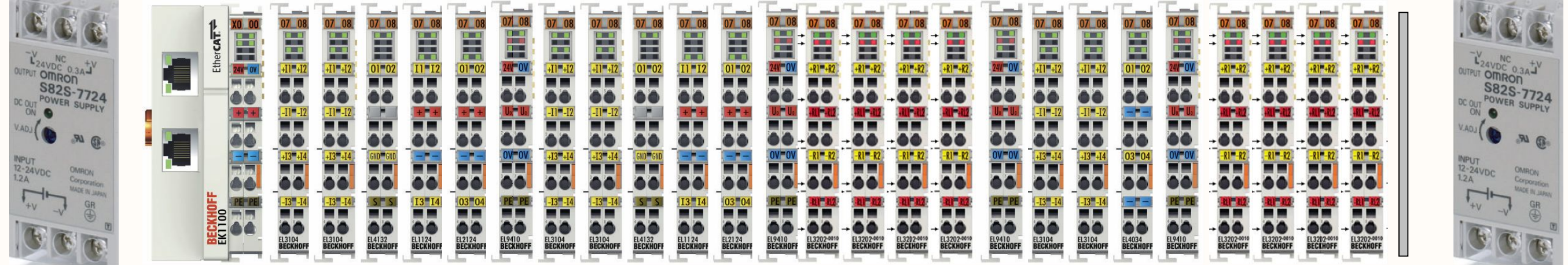
B56 EL3692 2-channel high precision resistance terminal

B57 EL3692 2-channel high precision resistance terminal

B58 EL3692 2-channel high precision resistance terminal

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 23 24 25 26

Ebus 24V

Power contacts 5V (DC_4)

24V

5V (DC_5)

24V

24V

24V

24V

DC_4 VCXO RLF VCXO ADF TEC SF1/2 OFI Temperature DC_5

Power budget:
 EL3104: 0.130 A (2x)
 EL4132: 0.210 A (1x)
 EL1124: 0.090 A (1x)
 EL2124: 0.130 A (1x)

 0.690 A

Power budget:
 EL3104: 0.130 A (2x)
 EL4132: 0.210 A (1x)
 EL1124: 0.090 A (1x)
 EL2124: 0.130 A (1x)

 0.690 A

Power budget:
 EL3692: 0.220 A (4x)

 0.880 A

Power budget:
 EL3104: 0.130 A (2x)
 EL4134: 0.265 A (1x)

 0.525 A

Power budget:
 EL3692: 0.220 A (4x)

 0.880 A

Title EtherCAT Squeezer 4: Middle Rail		
Size B	Number D2000504	Revision 2
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B61
5V/0.6A isolated DC-DC converter, Omron S82S-7305



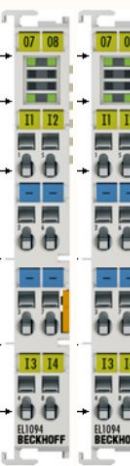
B62
EK1100
Beckhoff EtherCAT coupler



B63
EL7332
2-channel DC motor output stage 24VDC, 1 A



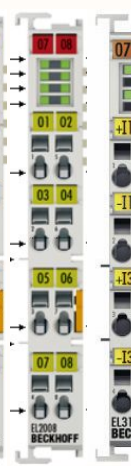
B64
EL1094
4-channel digital input terminals, 24V, n-type



B65
EL1094
4-channel digital input terminals, 24V, n-type



B66
EL2008
8-channel digital output terminals, 24V



B67
EL3104
4-channel analog input terminals, differential, 16 bits



B68
EL4134
4-channel analog output terminals, differential, 16 bits



B69
EL9410
Power supply terminals for E-bus, diagnostics



B70
EL3104
4-channel analog input terminals, differential, 16 bits



B71
EL1124
4-channel digital input terminals, 5V



B72
EL2124
4-channel digital output terminals, 5V



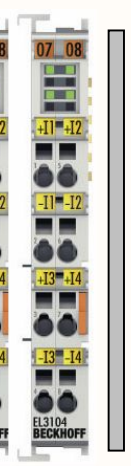
B73
EL9190
Feed terminal, arbitrary voltage



B74
EL3104
4-channel analog input terminals, differential, 16 bits



B75
EL3104
4-channel analog input terminals, differential, 16 bits



B76
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 24V 24V 5V (DC_6) 24V

DC_6 Shutter
Beam Diverter PLL Integration FC QPDs

Power budget:
EL7332: 0.140 A (1x)
EL1094: 0.090 A (2x)
EL2008: 0.110 A (1x)
EL3104: 0.130 A (1x)
EL4134: 0.265 A (1x)

0.825 A

Power budget:
EL3104: 0.130 A (3x)
EL4134: 0.265 A (0x)
EL1124: 0.090 A (1x)
EL2124: 0.130 A (1x)

0.610 A

Title		
EtherCAT Squeezer 4: Right Rail		
Size	Number	Revision
B	D2000504	2
Date:	11/15/2023	Sheet 4 of 4
File:	C:\Users\...\EtherCATSqueezerD4.SchDoc Drawn By: Daniel Sigg	