

*MEMORANDUM*

DATE: September 22, 2020  
TO: Slow controls team  
FROM: Daniel Sigg  
SUBJECT: Modifications to the Beckhoff chassis  
Refer to: LIGO-E2000499-v1

Due to the elimination of the end station computers the remote access chassis in the end stations can be simplified. A set of terminals is removed including the bridge terminal that was used to communicate between computers.

**Change 1: Remote Access End**

Drawing: D1100619-v3  
Wiring diagram: E1100455-v3  
Work: Combined the terminals into a single rail and  
remove terminals that are no longer needed  
Needed: 2x D1100095-v2 per end station (4 total/site)

**Change 2: Remote Access Corner**

Drawing: D1100618-v2  
Work: Verify the position of the EL9400 terminal

The rotation stages are put on a separate rail that can be independently power cycled. As part of the A+ upgrade a picomotor controller for the PSL is added.

**Change 3: PSL/IO/TCS Controls Chassis**

Drawing: D1101114-v6  
Wiring diagram: E1100530-v8  
Work: Separate rotation stage onto separate rails, add relay for power on/off  
Add picomotor interface terminals for A+  
Needed by rotation stage upgrade:  
1x EK1122  
1x EK1101  
1x EL1094  
1x EL2612

Needed by A+ upgrade:

- 1x D2000017-v1
- 2x D1100419-v3
- 1x EL9410
- 1x EL3102
- 1x EL1014
- 1x EL1872
- 1x EL2872

Additional picomotor controller interfaces are added to the corner chassis 2 for A+.

#### **Change 4: EtherCAT Corner 2**

Drawing: D1100680-v3

Wiring diagram: E1101126-v3

Work: Add 3 picomotor controller interfaces

Needed by A+ upgrade:

- 1x D1102268-v2
- 1x EL9410
- 3x EL3102
- 3x EL1014
- 3x EL1872
- 3x EL2872
- 1x D1100419-v3

The EtherCAT chassis near HAM8 may require picomotor controllers as well.

Needed by A+ upgrade:

- 2x D1100419-v3