NullSpace VR, Inc
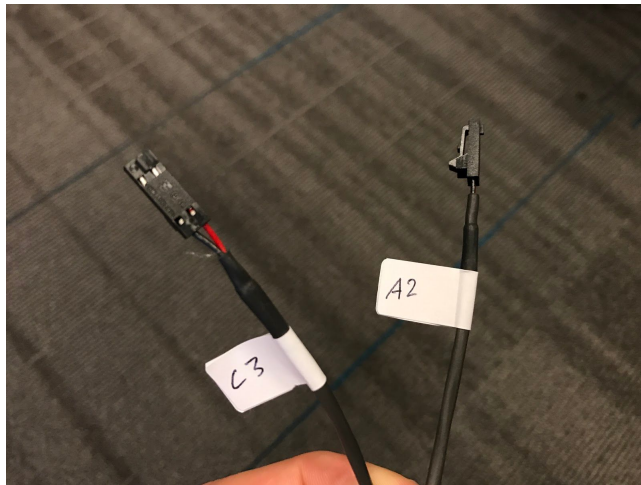Cable Assembly Instructions V1.0
Lucian Copeland
2.13.17

Quantities:

Each Hardlight system (one suit) contains the following cables:
- 1 C2DR Control-to-Driver-Right
- 1 C2DL Control-to-Driver-Left
- 2 D2M Driver-to-Motor
- 1 C2L Control-to-LED
- 2 C2S Control-to-Sensor.

Labelling:

All cables used in the system MUST be labelled using a durable tag attached somewhere on the cable component, as these are referenced during the assembly process. In addition, the large D2M assembly contains 8 separate cables leading to the various pads - these must be labelled individually at the 2 pin connector end to help assemblers guide them to the appropriate location, as shown:

Cable Options:

We can be flexible about the sourcing of the system's cables if it improves cost.

Cable rigidity is important during the assembly process, thus 22AWG should be used across the entire system. In the past, we have created our cables using a combination of 4 core and 2 core shielded wire, as shown:

Cable types:
- Home Depot shielded 22AWG 2 core security cable
- Home Depot shielded 22AWG 4 core security cable

Cable assembly:
- 5 core cable: 1x2core cable (one core clipped), 1x4core cable
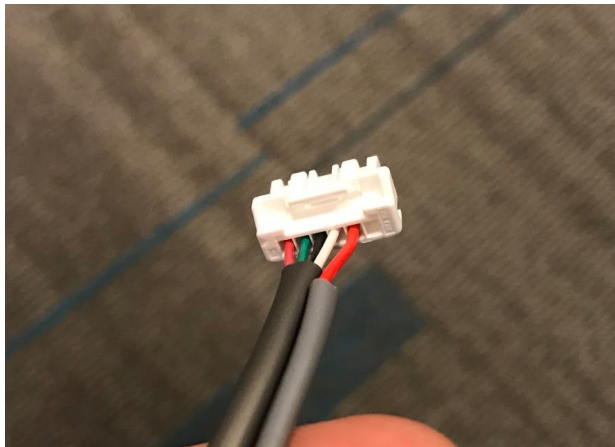- 8 core cable: 2x4core cable

This solution is acceptable in our cable assembly. However, if these can be replaced with affordable 5-6 core or 8 core 22AWG cable for lower cost, that would be preferred. We'd also appreciate cheaper options for the 22AWG 2 core and 4 core cables.

Polarity:

All cables except for the D2M should be non-polar (identical on both ends and able to be plugged in from either direction).

C2D Special Instructions:

The Control-to-Driver cables (Left and Right) contain 5 "important" cores, but we needed to select a 6 pin header for cost and sourcing reasons. Thus, the final slot on the right side of the 6 pin header should be left empty as shown below.
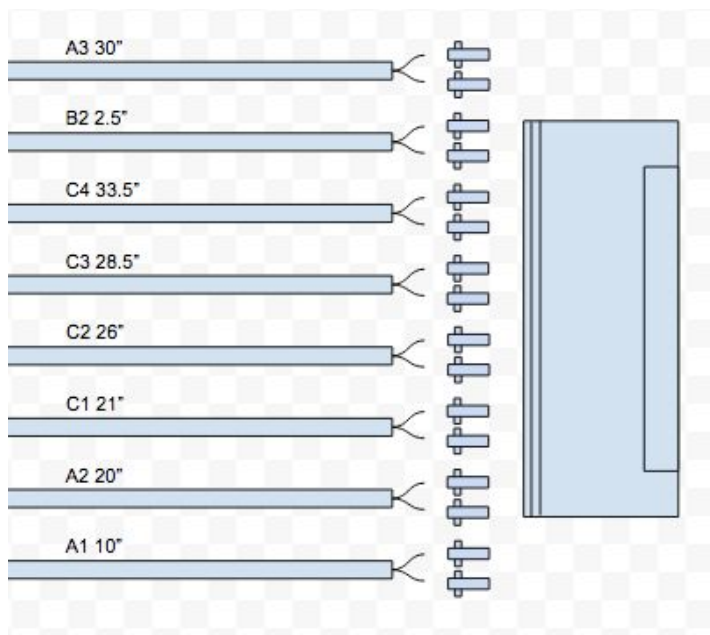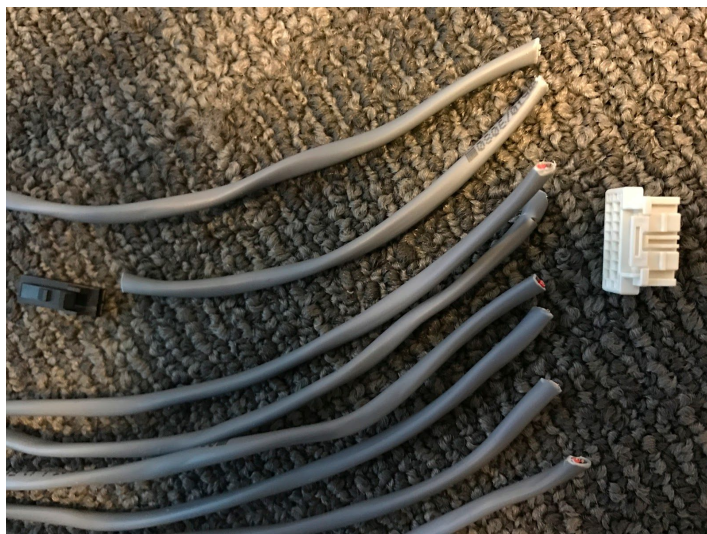

To source the cable itself, use the lowest cost option available. This could be:
- 4 core 22AWG cable + raw 1 core 22AWG cable, twisted.
- 4 core 22AWG cable + 2 core 2AWG cable (1 core clipped).
- 5 core 22AWG cable
- 6 core 22AWG cable (1 core clipped).

D2M Special Instructions:

It is *critical* that the 8 motor cables in the D2M cable assembly are inserted in the exact order shown in their cable assembly diagram. Inserting them randomly will result in total malfunction of the final system. The following image represents the real world assembly of this system, aligned identically to the cable assembly diagram. Do not hesitate to call or email for assistance on this component of the system.

Note that the B2 Cable, second from the left side, is a good reference point for polarity, as it is much shorter than the other cables and is easily identified. This can be as seen below.

Direct any questions to lucian@nullspacevr.com, or call 413-325-4144