

MHWS splitter/mirror stages – Cabinets Electrical Interface

Interface Document: LN-MPIA-FDR-INT-072		Issue: 1.1
Relevant Documents: LN-MPIA-FDR-ELEC-005, LN-MPIA-FDR-INT-062, LN-MPIA-FDR-INT-313		
Brief Description: This document describes the electrical connection of the MHWS splitter/mirror stages to the cabinets.		
Prepared: L. Mohr Date: 14 April 2005	Approved: J. Farinato Date: 04 May 2005	Released: M. Kürster Date: 18 May 2005

Interface Description

This document describes the electrical interface of the MHWS splitter/mirror stages to the cabinets. The patchbox represents the interface between the motor electronics (cabinet) and the motor unit (mounting stage). The splitter/mirror stage has the purpose to bring into position either a mirror (all the light to the MHWS during the scientific acquisition) or a beam-splitter (20% of the light to the Patrol Camera and 80% of the light to the MHWS during the reference star acquisition). To accomplish this, we have selected the PI stage M-521.DG. As usual, two identical systems are present, one for each NIRVANA arm.

Interface Specification

One motor unit (mounting stage) gets two connectors from the patchbox, one connector for motor signals, limits-/ref. switch and incremental encoder and one connector for the power supply. All cables from the patchbox to a motor unit should be shielded. The maximum cable length is three meters, so this is the maximum distance between the patchbox and the splitter/mirror stage.

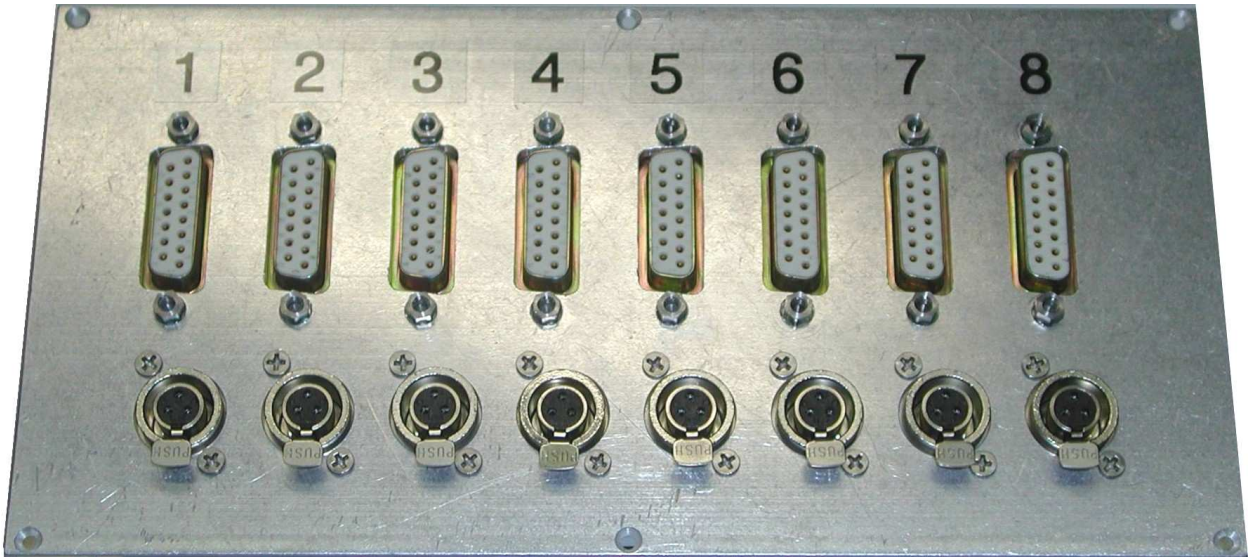
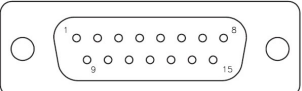
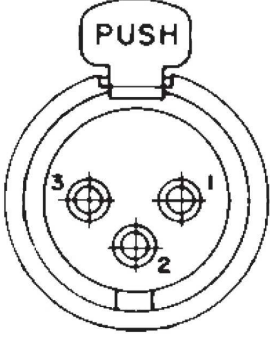


Figure 1: The patchbox; in the bottom part there are the plugs for the power supply cables, while in the top part there are the plugs for the signal cables.

The following table shows the pin configuration of each of the two connectors:

Description	Connector type	Pin configuration
Motor signals, limit switch, reference switch and incremental encoder	 15-pin Sub-D female	1 n.c. 9 ¹⁾ Motor (-) 2 ¹⁾ Motor (+) 10 Power GND 3 ²⁾ MAGN 11 ²⁾ SIGN 4 +5V input 12 NLIMIT 5 PLIMIT 13 REFS 6 GND (Limit) 14 Encoder A+ 7 Encoder A- 15 Encoder B+ 8 Encoder B-
¹⁾ For activeDrive motors, pin 2 and 9 are not connected and the power connector is used. ²⁾ For the servo motor version (M-521.DG), pin 3 and 11 are not connected and the power connector is not used.		

Power	 <p data-bbox="699 591 970 622">Switchcraft Tini Q-G</p>	<ol style="list-style-type: none"><li data-bbox="1018 228 1149 250">1 GND<li data-bbox="1018 268 1340 291">2 Voltage input (24V)<li data-bbox="1018 313 1117 336">3 n.c.
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Special Requirements

The MHWS splitter/mirror linear stages are servo motors. There are two stages, one for each NIRVANA arm. The stages share the patchbox with the servo motors used for the CCD focusing in the two MHWS (Doc. LN-MPIA-FDR-INT-313) and also with the servo motors used to perform the field de-rotation in the two K-mirror systems (Doc. LN-MPIA-FDR-INT-062)