



EUROPEAN
SPALLATION
SOURCE



Motion Control & Automation (MCA)

System Acceptance Review ODIN

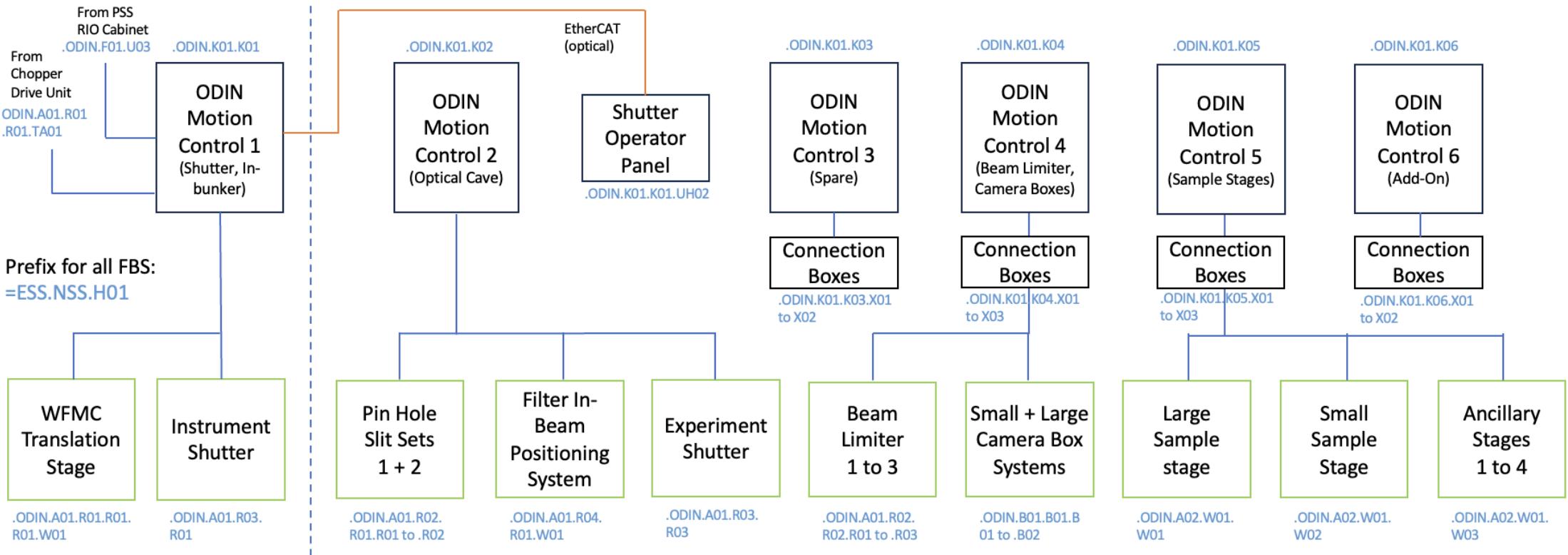
**PRESENTED BY THOMAS GAHL
(ON BEHALF OF THE MOTION CONTROL & AUTOMATION GROUP)**

2025-12-17

Motion Control & Automation

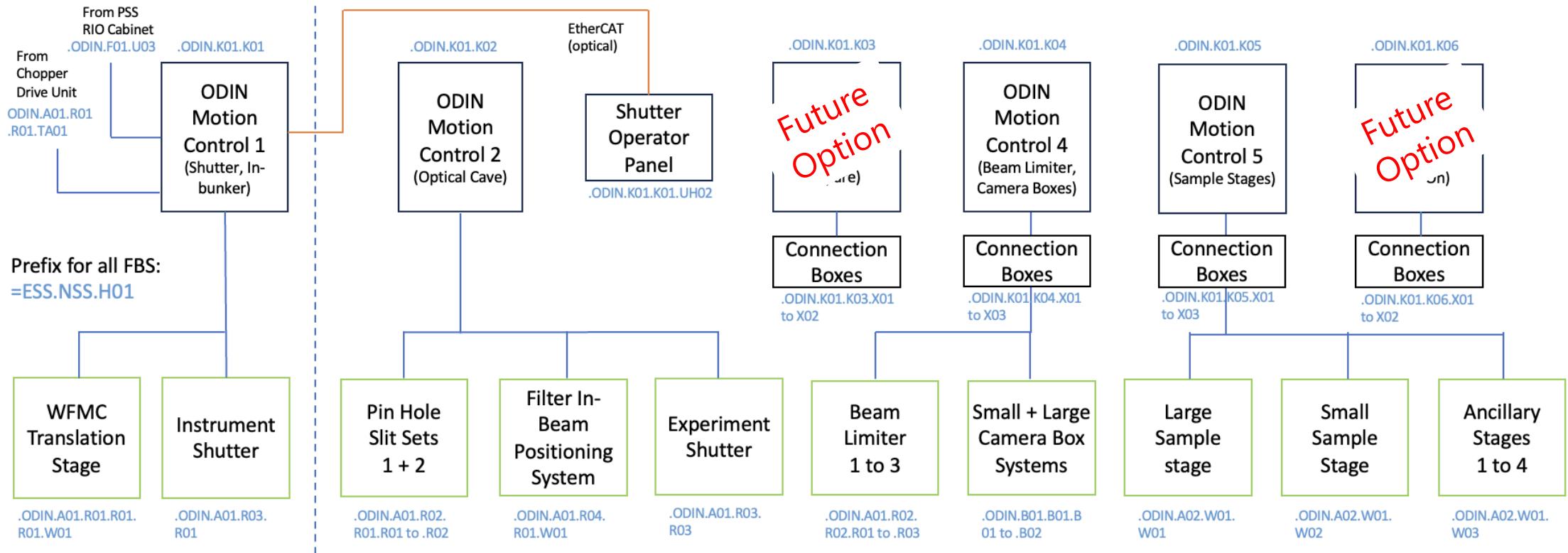


ODIN Local Test (SAT 1)



Motion Control & Automation

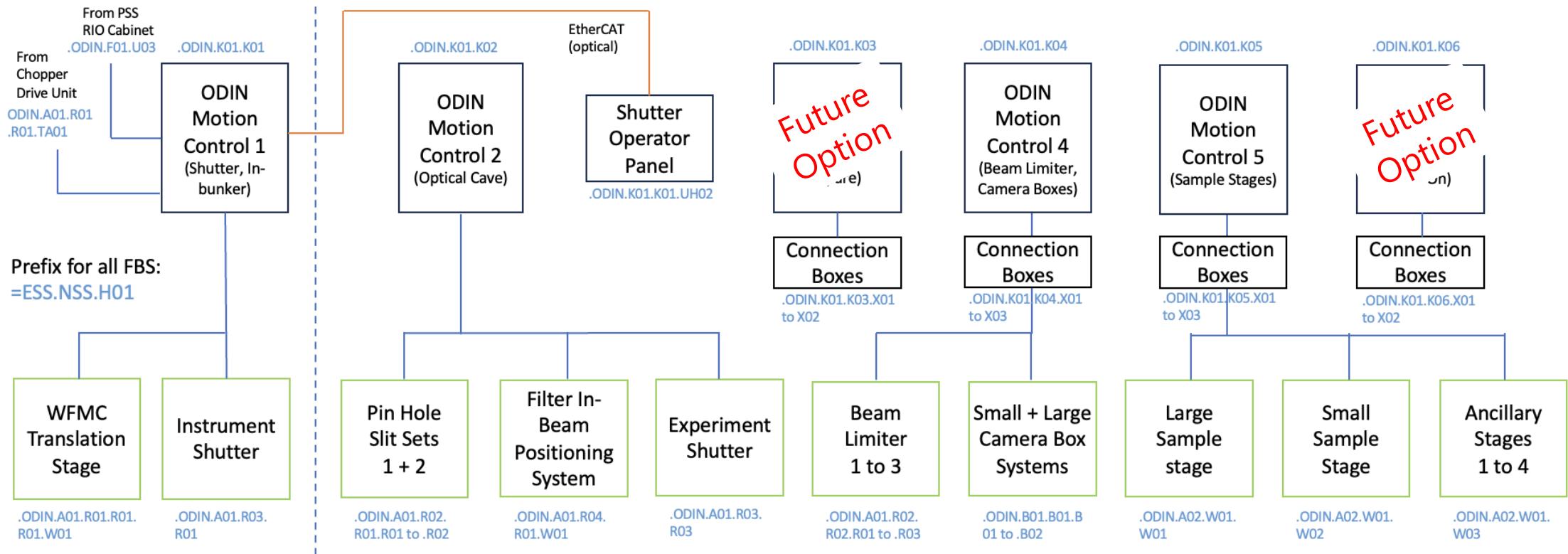
ODIN Local Test (SAT 1)



MCA Control System	Connected Instrument Subsystems	Test Reports	Status
MC3 Spare	None		Energised, under LOTO
MC6 Add-ons	None		Energised, under LOTO

Motion Control & Automation

ODIN Local Test (SAT 1) – Review Scope



MCA Control System	Connected Instrument Subsystems	Test Reports	Status
MC1 Shutter, In-bunker	Instrument Shutter, Chopper Translation Table	ESS-5765134	Passed w. Minor Issues
MC2 Optical Cave	3 Pinhole Slit Sets, 4 Filter in-beam positioner, Experiment shutter	ESS-5768812	Passed w. Minor Issues
MC4 Beam Limiter, Cameras	Beam Limiter Slit Sets, 2 Camera Boxes	ESS-5768833	Passed w. Minor Issues
MC5 Sample Stages	2 Sample Stages, 4 Auxiliary Motion Stages	ESS-5768834	Passed w. Minor Issues

Motion Control & Automation



ODIN Local Test (SAT 1) – MC 1 (Shutter, In-Bunker) Report ESS-5765134

System name	FBS	FAT/DAT Status	SAT1 Status	Issue Tracker	Issues	To be fixed before
WFMC Translation Stage	ODIN.A01.R01.R01.R01.W01	No issues	Minor Issues	NIT-432	Limit switches too close to over travel limits.	Before SAR
MCC1	ODIN.K01.K01	No issues	Minor issues	NIT-433	As-built ePlan drawings	Before ORR

- Test cases for motion control functionality passed.
- Shutter: SAT 2 with PSS and CUP passed (ESS-5688779).
- Shutter Operation via Shutter Operator Panel works.

- Other issues from the Punch List have been resolved during or directly after the local test.

Motion Control & Automation



ODIN Local Test (SAT 1) – MC 2 (Optical Cave) Report ESS-5768812

System name	FBS	FAT/DAT Status	SAT1 Status	Issue Tracker	Issues	To be fixed before
Pin Hole Slit Sets 1 and 2	ODIN.A01.R02.R01.R01 + .R02	No issues	Minor Issues	NIT-585	Slits are missing labels	Before SAR5
MCC2	ODIN.K01.K02	No issues	Minor issues	NIT-433	As-built ePlan drawings	Before ORR

- Test cases for motion control functionality passed.
- Slit axes description not according to the instrument coordinate system >> resolved
- Other issues from the Punch List have been resolved during or directly after the local test.

Motion Control & Automation



ODIN Local Test (SAT 1) – MC 4 (Beam Limiters, Camera Boxes) Report ESS-5768833

System name	FBS	FAT/DAT Status	SAT1 Status	Issue Tracker	Issues	To be fixed before
Beam Limiters 1 to 3	ODIN.A01.R02.R02.R01 to .R03	No issues	Minor Issues	NIT-585	Slits are missing labels	Before SAR5
MCC4	ODIN.K01.K04	No issues	Minor issues	NIT-433	As-built ePlan drawings	Before ORR

- Test cases for motion control functionality passed.
- Slit axes description not according to the instrument coordinate system >> resolved
- Other issues from the Punch List have been resolved during or directly after the local test.

Motion Control & Automation



ODIN Local Test (SAT 1) – MC 5 (Sample Stages) Report ESS-5768834

System name	FBS	FAT/DAT Status	SAT1 Status	Issue Tracker	Issues	To be fixed before
Small Sample Stage	ODIN.A02.W01. W02	No issues	Minor Issues		Small Sample Stages (MCC5, axes 7-12) collision risk with detector	
MCC5	ODIN.K01.K05	No issues	Minor issues	NIT-433	As-built ePlan drawings	Before ORR

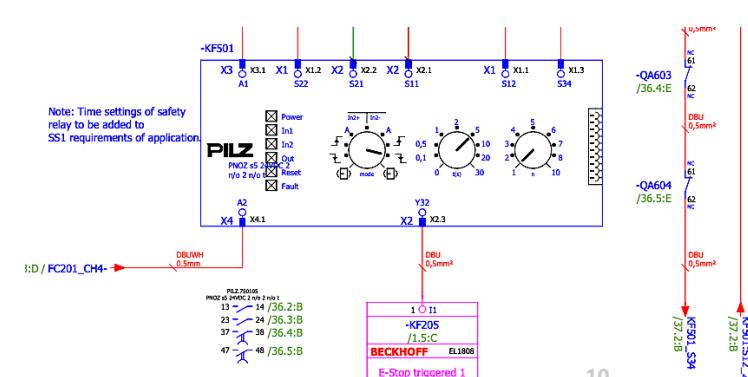
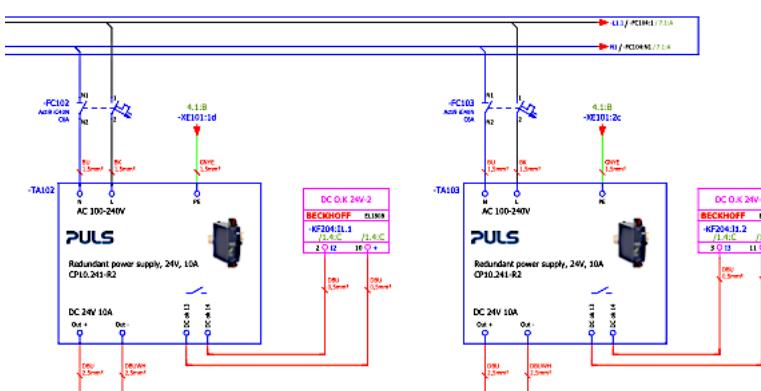
- Test cases for motion control functionality passed.
- There is a high risk of collision between the axes of the small sample stage and the detector, as there is no protection system (no NIT filed yet).
- Other issues from the Punch List have been resolved during or directly after the local test.

Motion Control & Automation

ODIN Local Test (SAT 1) – ePlan documentation (NIT-433)

- For each motion system an electrical documentation package has been issued (ePlan drawing, BOM, fuse chart, cable list etc.)
- Drawings include the control cabinet, external boxes, motion safety circuits and all instrument sub-systems connected.
- Drawings have been iterated after the changes and adaptations during the local and integrated tests and the implementation of the safety circuit. As-built drawings will be available for operation.

- ODIN MC 1 ESS-4970035
- ODIN MC 2 ESS-4970036
- ODIN MC 3 ESS-4970037
- ODIN MC 4 ESS-4970038
- ODIN MC 5 ESS-4970039
- ODIN MC 6 ESS-4970040



Motion Control & Automation



BIFROST Local Test (SAT 1) – Summary

- All test cases for motion control functionality and performance passed.
- Minor issues, mainly on the labeling and cable management.
- Issues do not affect the functionality of the instrument.
- Finalizing as-built drawings is a constant effort until operations.
- Collision risk of small sample stage with detectors needs further evaluation.
- Tickets filed in the NSS Issue Tracker (NIT):
<https://jira.ess.eu/secure/Dashboard.jspa?selectPageId=28900>
 - NIT-432: Limit switches too close to over travel limits Resolved SAR
 - NIT-433: ODIN: As built Eplan drawings In Progress (To Do) ORR
 - NIT-585: ODIN: Slits labeling In Progress SAR5
 - NIT-593: ODIN: MCA Local Testing for ODIN MCC3 In Progress (To Do) ORR
 - MCC6 shall be included in NIT-593

Motion Control & Automation



ODIN Local Test (SAT 1) – Next steps

- After fixing the relevant NIT issues, the motion control systems for ODIN are ready for operation in Hot Commissioning.
- MCA group is planning to support hot commissioning with these activities:
 - Support instrument team with motion related issues.
 - Technician support if requested.
 - Engineering support if requested.
- User and maintenance manuals for the cabinets are available:
 - ESS-5483415 - Service & Maintenance Plan for MCA Cabinets and Boxes
 - ESS-5669197 - Operation Manual - MCU6001: Shutter Motion Control Cabinet
 - ESS-5669198 - Operation Manual - MCU5001: 16Ax. Motion Control Cabinet
 - ESS-5669199 - Operation Manual - MCU5002: Servo Motion Control Cabinet
 - ESS-5669200 - Operation Manual - MCU5003: Piezo Motion Control Cabinet
- No displaced working hours or on-call support planned.



Thank You!

2025-12-17