Status motion control @ ESS

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Contruction vs maintenance

- Contruction of beamlines
  (”neutron instruments”):
  At different In-Kind partners in Europe
- Operation & Maintenance: ESS, Lund
- Education, Training needed:
  TwinCAT/ECMC, motorRecord, (EPICS, Git)
- Best practice
- Wiki pages (confluence)

Situation at ESS

- Focus on EtherCAT based HW (next slide).
- 2 SW platforms:
  - Beckhoff TwinCAT (commercial)
    `https://github.com/EuropeanSpallationSource/MCAG_Base_Project`
  - ECMC (open source)
    `http://accelconf.web.cern.ch/AccelConf/icalepcs2017/talks/mocpl05_talk.pdf`

Ethercat based HW

- Used for IO (e.g. 4 wire temperatur sensors)
  - Digital, Analog IO
- Used for motion:
  - Stepper motors (<50V, < 4.5 A)
  - ”Big drives” (> 5A)
  - Encoder (Inc, SSI, BISS-C, SinCos….)
- `https://confluence.esss.lu.se/display/MCAG/2017.08+Motion+Controller+and+Terminals`

SW platforms

- TwinCAT:
  - 3-4 day course from manufacturer
  - Needs PLC code (using NC block, homing)
    Common code now in tc_mca_std_lib.git
  - Allows PLC code (for what ?)
- ECMC
  2 day training at ESS
  Allows interlock, coupled axes, logic

SW – higher level

- ”MotorRecord”
- Many (34) changes in motor module, mainly for ”asyn-model3” (Separate presentation: If/When ?)
- CSS (java based) fot accelerator
- Nicos2 (python based) as control system for beamlines

Installations in the field

- At different In-Kind partners (Spain, Italy)
  Wirescanners
- At the test beamline HZB-V20, Berlin:
  8 axes: Slit, 4 positioners
- In ICS Lab (long term testing)

Automated tests

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- Travis ?, Jenkins ?
- Python based test framework
  - Tests real hardware
  - Simulator: test record behaviour
- Others ?

The End

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Thank you for listening