Technical Data Sheet

FMB Berlin

Beamline Control Systems

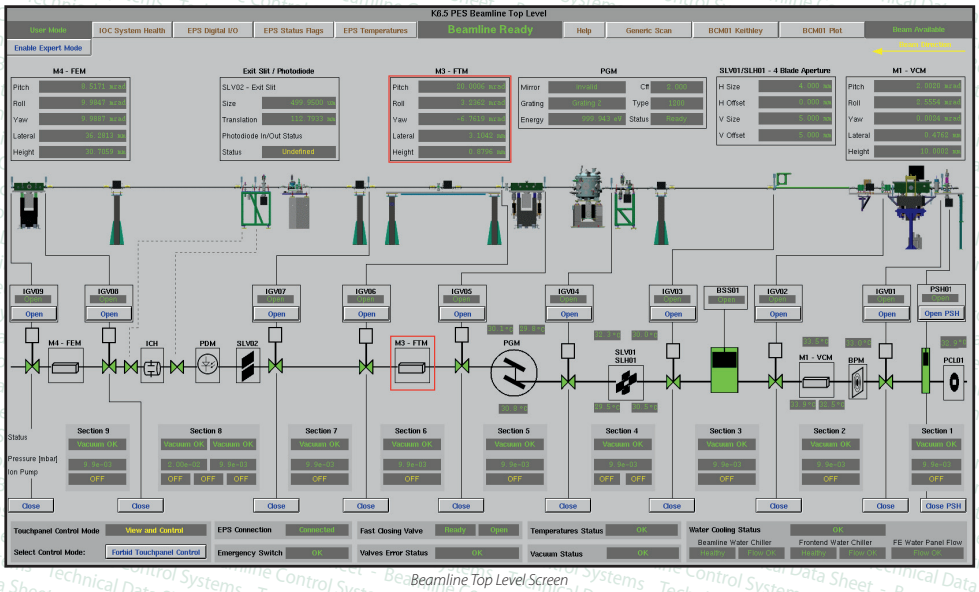
FMB offers design, development and installation of turn-key control system hardware and software for complete beamlines and beamline components. This includes the full range starting from low level interfaces and drivers to hardware components up to high level operation modes and user interfaces. Modules are available for typical beamline components such as:

- Slit Systems
- Monochromators (double crystal, plane grating including VLS optics)
- Mirror Systems and crystal benders
- Endstations
- Beam Position Monitors
- Image Detectors and Low Current Measurement Devices
- Cryocooling Systems

Beamline Control Rack with Touch Panel

Hardware for motion control, vacuum diagnostic, beam position measurement and detector data acquisition can be selected, integrated and installed on site including field cabling. Consulting and support during cold and hot commissioning can be provided on request.

Standalone Control System



Beamline Top Level Screen

The graphical user interfaces (GUI) are designed to provide a quick insight into the system status and to allow intuitive operation.

Hierarchical navigation schemes are structured into different access levels to satisfy the needs of users, beamline scientists and technical staff.

Command line and scripting interfaces can be provided to enable remote control and to integrate EPICS based software into other control system toolkits for example SPEC, LabView or Python.

Beamline Control Systems

Applications are designed to use standard modules as far as applicable. Software for customized applications and drivers for new devices will be developped in-house if necessary.

Hardware and software is designed and implemented with regards to customer requirements such as wiring standards, naming conventions and style guides.

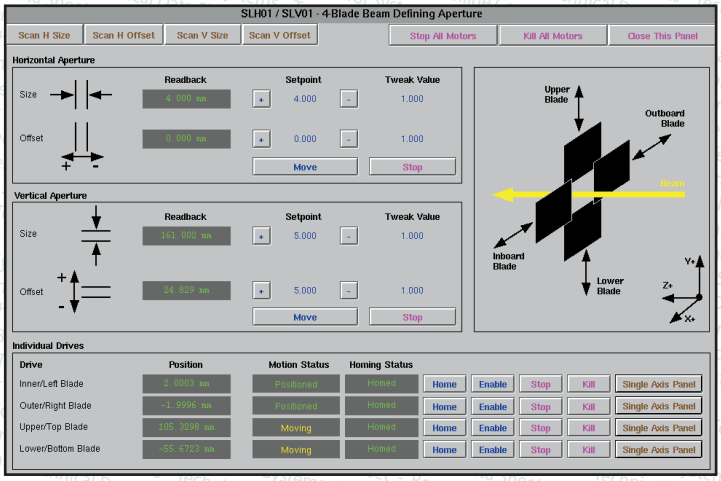
Key aspects of control system implementation made by FMB are:

- usage of open source software
- Ethernet based client/server architecture
- open interfaces and communication protocols
- closed-loop position control on motion controller level
- synchronised coordinate system motions for applications such as on-the-fly scanning of the photon energy or hexapod kinematics
- archiving of equipment status and measured data

The preferred operation system for beamline control applications is Linux. Other operation systems such as Windows, OS X or Android can be used for special purposes.

Integration with experiment software or other applications running for example on SPEC, LabView or Python is easily possible by using one common EPICS interfaces or through command line and scripting control.

Scripting interfaces using Phyton or the command line provide the possibility to run customized procedures.



Four Blade Slit System

Beam Position Monitor

Equipment Protection System (EPS)

The EPS is based on Programmable Logic Controllers (PLC) and monitors critical device temperatues, flow rates, pressures, switches, interlocks and the 'healthy' status of all vital components to ensure safe operation. An interface with the beamline control system provides convenient operation for scientists and beamline operators.

FMB Berlin

ISO 9001:2008 DEKRA Certification — Qualitätsmanagement — Wir sind zertifiziert — DEKRA zertifiziert — Regelmäßige freiwillige Überwachung nach ISO 9001:2008

FMB Feinwerk- und Meßtechnik GmbH

Friedrich-Wöhler-Straße 2 Street
12489 Berlin • Germany City

+49 (0)30 - 677 730 - 0 Phone
+49 (0)30 - 677 730 - 40 Fax

info@fmb-berlin.de E-mail
www.fmb-berlin.de Web

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