

HYCAL transporter procedures

The HYCAL transporter system is composed of two stepper motors that move the detector on the X and Y-axes. Each axis has hardware switches that limit its path of motion. In addition to end limit switches at the edges of axis travel, there are home switches in mid travel that will facilitate easy positioning during the experiment. To determine the exact location of the transporter, digital and analog encoders are used to transmit its position. The transporter is controlled by standard EPICS software interface, and there are hardware interlocks installed to prevent unwanted movement.

The transporter operates in two modes: normal mode and storage mode. The normal mode is used during the experiment when the transporter is positioned within its normal operation limits. The storage mode is used when the transporter must traverse higher in the Y axis than normal. This is used to clear the area for other experiments or work that may need to be done in the hall. During normal operation, the system must stay within set boundaries in the beam-line area. This area will be kept clear during an experiment, minimizing the damage risk to personnel and equipment. During transporter storage, operator alertness is essential. The transporter will traverse the height of the space-frame and an operator must ensure that the path is clear at all times.

Under any operational condition the transporter must be checked for mechanical problems that may arise. Drive-train problems, movement of the transporter outside of preset limits, and unbalanced loading are all examples of events that may cause damage to personnel and equipment. Interlocks have been designed into the system to stop all transporter movement in the event of a problem. With these precautions and operator alertness, the transport will operator efficiently and safely.

In case of emergency or problems push nearest STOP button

Moving between storage and normal mode.

The operation must be performed by qualified personnel only. See list at the end of this document.

1. Setup a barrier around the transporter area and clear the area from personnel and equipment
2. Inspect drive train, hardware interlocks
3. Turn on VME crate and motor driver box
4. Assign observer to watch motion and handle dead-man switch. To move HYCAL outside of normal operation mode the dead man switch must be depressed. The motion stops if the switch is released
5. Use EPICS GUI to control motion

6. Move HYCAL horizontally to Home position
7. Start vertical motion
8. Push nearest Stop Button if something goes wrong

Operation in normal mode

This operation can be performed by trained shift personnel.

1. Setup a barrier around the transporter area and clear the area from personnel and equipment.
2. Check transporter for mechanical problems.
3. Turn on VME crate and motor driver box
4. Use EPICS to move HYCAL to desired position within normal operation boundaries.
5. Monitor motion visually if operation performed locally in the hall or using video camera if operation is controlled remotely from the counting room
6. In case of problems push closest stop button.

List of qualified personnel

Additional personnel can be added to this list by Doug Tilles

Krister Bruhwel
Denny Insley
Calvin Mealer