PrimEx Stepper Motor Applications

Mark Ito

PrimEx Software Workshop

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List of Applications

- Hycal
  - x and y motion
  - same motors as on Hycal-0
- TAC
  - x motion only
- Beam position monitor
  - x motion only
- Target Ladder
  - x and y motion
  - mechanical problems addressed

Software System: EPICS

- Distributed computing
- Easy network access to all internal variables
- Large set of tools
  - GUI-builder: medm
  - Strip chart maker: StripTool
  - Backup and restore: burt
  - Alarm handler: alh
- Compatibility
  - with Hall B
  - with MCC
- Complexity
  - large hardware start-up cost
  - large software start-up time
  - strange OS: VxWorks
  - poor documentation

EPICS Motor Record

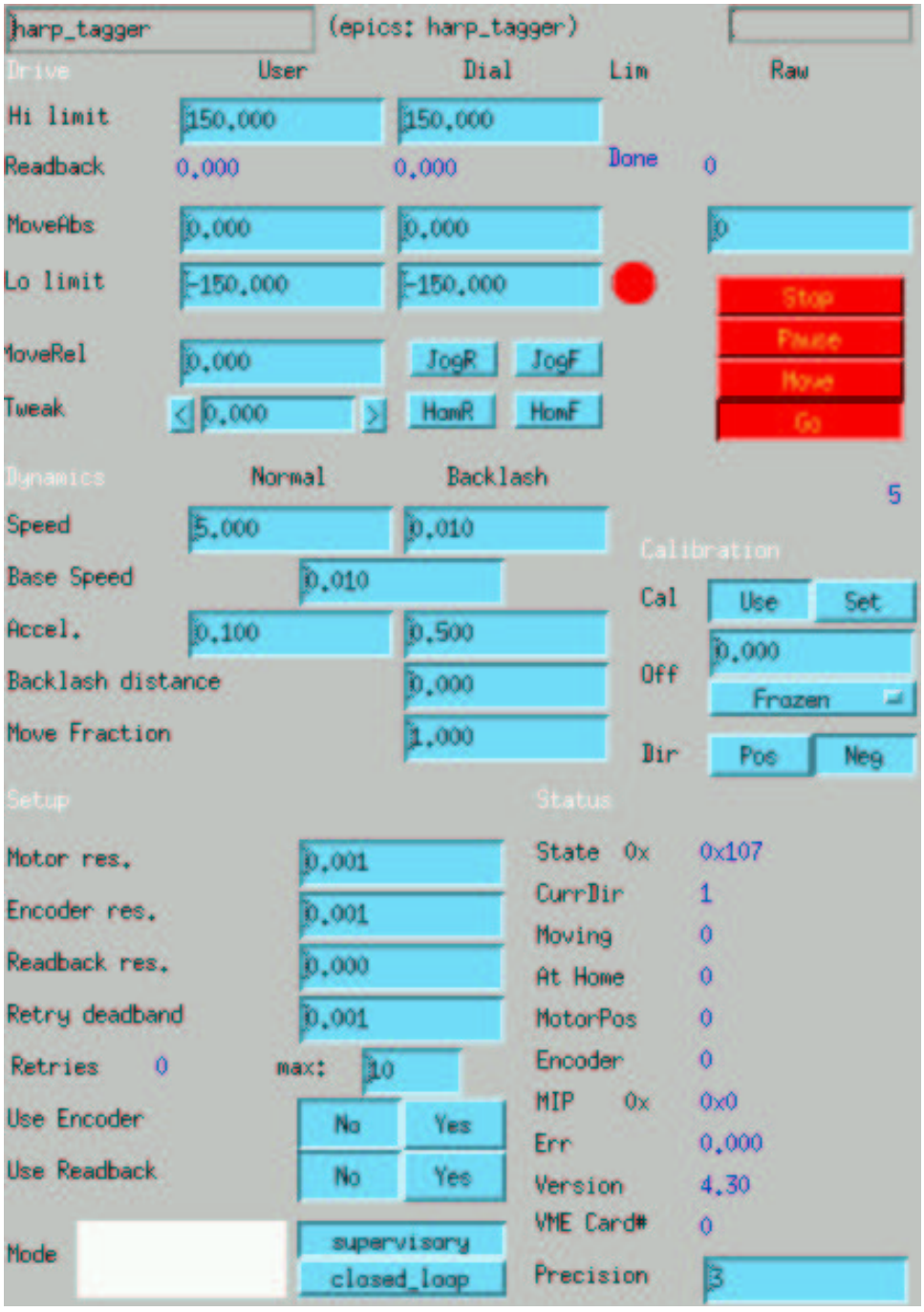
- Software fields within a motor record control motion
- One motor record per motor

field	description
DIR	direction
OFF	offset in EGU
SREV	steps per revolution
UREV	EGU's per revolution
VELO	velocity (EGU/s)
ACCL	time to ramp to VELO (s)
VAL	desired position (EGU)
RLV	relative desired position (EGU)
RBV	current position (EGU)
HLM	high software limit (EGU)
LLM	low software limit (EGU)
MOVN	motor is moving (0 or 1)
DMOV	done moving to value (0 or 1)
STOP	stop

EGU = engineering units, mm for us

GUI's

- All gui's
  - current position
  - desired position
  - motor moving?
  - stop
  - bring up expert gui
- TAC and Beam Pos. Mon.
  - IN button
  - OUT button
- Target Ladder
  - one button per target/hole
  - user entry for offsets for x and y
- Hycal
  - one button per crystal or block
  - user entry for offsets for x and y
  - scans
    - S scan
    - user entry for beginning and end xtal/blk


harp_tagger
(epics: harp_tagger)
Drive
User
Dial
Lim
Raw
Hi limit
150.000
150.000
Readback
0.000
0.000
Done
0
MoveAbs
0.000
0.000
0
Lo limit
-150.000
-150.000
Stop
Pause
Move
Go
MoveRel
0.000
JogR
JogF
Tweak
0.000
HomR
HomF
Dynamics
Normal
Backlash
5
Speed
5.000
0.010
Calibration
Base Speed
0.010
Cal
Use
Set
Accel.
0.100
0.500
Off
0.000
Backlash distance
0.000
Frozen
Move Fraction
1.000
Dir
Pos
Neg
Setup
Status
Motor res.
0.001
State
0x
0x107
Encoder res.
0.001
CurrDir
1
Readback res.
0.000
Moving
0
Retry deadband
0.001
At Home
0
Retries
0
max:
10
MotorPos
0
Encoder
0
Use Encoder
No
Yes
MIP
0x
0x0
Use Readback
No
Yes
Err
0.000
Version
4.30
VME Card#
0
Mode
supervisory
closed_loop
Precision
3