

# Generic Slits Control - Local Control Protocol

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## Technical and User Documentation

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## Document History

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<i>Revision</i>	<i>Date</i>	<i>Author</i>	<i>Section</i>	<i>Modification</i>
1.0	2012-07-25	gjansa	All	Created.
1.1	2013-08-09	gjansa	All	Added zeroMotorPosition command.

## Confidentiality

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This document is classified as a **public document**. As such, it or parts thereof are openly accessible to anyone listed in the Audience section, either in electronic or in any other form.

## Scope

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This document describes the local control protocol.

## Audience

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All Cosylab and GSI members involved in the generic slits control project and users of the system.

## References

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[1] TBD

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## LOCAL CONTROL PROTOCOL

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Protocol:

- All responses end with "\n\r" characters.
- All error response are in form of "ERROR: error description".
- Commands are composed of the form "commandName [param1] [param2] ...[paramn]

<b>Command</b>	<b>Parameters ranges</b>	<b>Command description</b>	<b>Response</b>	<b>Response Description</b>
init	/	Initializes the driver.	OK	/
readInit	/	Reads the status of initialization.	initStatus	1 if initialized. 0 if not initialized.
readSysConfig	/	Reads system configuration.	motor1Name motor2Name ... motor8Name slit1Name,slit1Enabled slit2Name,slit2Enabled ... slit4Name, slit4Enabled	/
readVersion	/	Reads versions.	Sv Dv	Sv - server version Dv- is driver version
heartBeat	/	Heart beat.	OK.	/
setAccessMode mode	mode - new access mode, can be one of these: remote local_control local_configuration	Set new access mode.	OK.	/

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readAccessMode	/	Reads access mode.	accessMode	accessMode - accessMode, can be one of these: remote local_control local_configuration
readMotorStatus motor	motor - motor name	Reads motor status.	Bit set of 32 bits.	0 - inner hw end limit set 1 - outer hw end limit set 2 - inner sw end limit set 3 - outer sw end limit set 4 - moving 5 - break 6 - fatal following error 7 - amplifier fault 8 - overheat 9 - axis interlock 10 - potentiometer reference error 11- middle switch (only used if motor is paired) 12 - position tolerance
readPairStatus pair	pair - pair name	Reads pair status.	Bit set of 32 bits.	Bit 0: Pair amplifier fault Bit 1: Pair moving / in position Bit 2: Following error

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				Bit 3: Minimum spacing error
readPmacStatus	/	Reads PMAC status.	Bit set of 32 bits.	0 - Pmac comm error 1 - encoder comm error 2 - shared memory error
stopAll	/	Stops all motors.	OK	/
movePair pair	pair - Pair name	Moves pair of motors.	OK	/
movePairToLimit pair direction	pair - pair name direction - direction to move, can be one of these: in out	Moves pair to limit.	OK	/
stopPair pair	pair - Pair name	Stops motor pair.	OK	/
setCenter pair center	pair - pair name center - center to be set (counts or mm)	Set center.	OK	/
setGap pair gap	pair - pair name gap - gap to be set (counts or mm)	Set gap.	OK	/
readSetCenter pair	pair - pair name	Reads set center.	center	center - set center (counts or mm)
readSetGap pair	pair - pair name	Reads set gap.	gap	gap - set gap (counts or mm)

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readCenter pair	pair - pair name	Reads actual center.	center	center - actual center (counts or mm)
readGap pair	pair - pair name	Reads actual gap.	gap	gap - actual gap (counts or mm)
setPairEnabled pair pairEnabled	pair - pair name pairEnabled - pair enabled/disabled, can be one of these: 1 - enabled 0 - disabled	Enable/disable pair.	OK	/
readPairEnabled pair	pair - pair name	Reads pair enabled/disabled.	pairEnabled.	pairEnabled - pair enabled/disabled, can be one of these: 1 - enabled 0 - disabled
setPairConfig pair middleSwitch minimumSpacing	pair - pair name middleSwitch - middle switch enabled/disabled, can be one of these: enabled disabled minimumSpacing - minimum spacing for pair if software check enabled (mm)	Set pair configuration.	OK.	/



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readPairConfig pair	pair - pair name	Reads pair configuration.	middleSwitch minimumSpacing	See setPairConfig for values explanation.
moveMotor motor	motor - motor name	Moves motor.	OK	/
moveMotorToLimit motor direction	motor - motor name direction - direction to move, can be one of these: in out	Moves motor to limit.	OK	/
moveMotorRelative motor position	motor - motor name position - position to move relative (counts or mm)	Moves motor relative.	OK	/
stopMotor motor	motor - motor name	Stops motor.	OK	/
setMotorSetPosition motor position	motor - motor name position - position to be set ( counts or mm)	Set position.	OK	/
readMotorSetPosition motor	motor - motor name	Reads set position.	position	position - motor set position (counts or mm)
readMotorPmacActualP osition motor	motor - motor name	Reads PMAC actual position.	position	position - motor PMAC actual position (counts or mm)
readMotorActualPositio n motor	motor - motor name	Reads actual position.	position	position - motor actual position
readMotorPotentiomete r motor	motor - motor name	Reads potentiometer voltage.	voltage	voltage - potentiometer voltage (float)

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readMotorPotentiometerReference motor	motor - motor name	Reads potentiometer voltage reference.	voltage	voltage reference - potentiometer voltage (float)
readMotorSSI	motor - motor name	Read SSI readback.	SSI	SSI - SSI readback (float)
resetMotorPosition motor position	motor - motor name position - position to which reset motor PMAC position (counts or mm)	Resets motor PMAC position to given position.	OK	/
ZeroMotorPosition motor	motor - motor name	Zeroes motor position.	OK	/
setMotorConfiguration motor motorName encoderType mountingOrientation installationOrientation partOfPair stepToEGU offset positionFactor driveDirection pulseWidth pulsePolarity accelerationTime limitSwitchEnabled max min maxOffset minOffset velocity potentiometerLeght ssiResolution ssiPositionsPerMillimeter referenceVoltageTolerance	motor - motor name motorName - motorDisplay name encoderType - type of the encoder use, can be one of these: potentiometer ssi pmac mountingOrientation - mounting orientation , can be one of these: left/down right/up installationOrientation, installation orientation, can	Set motor parameters.	OK	/

<p>positionTolerance</p>	<p>be one of these:</p> <p>horizontal</p> <p>vertical</p> <p>partOfPair, part of pair flag, can be one of this:</p> <p>yes</p> <p>no</p> <p>stepToEGU - number of steps in engineering unit (float)</p> <p>offset - offset (float)</p> <p>positionFactor - position factor (float)</p> <p>driveDirection - direction of drive, can be one of these:</p> <p>clockwise</p> <p>anticlockwise</p> <p>pulseWidth - pulse width (float)</p> <p>pulsePolarity - pulse polarity, can be one of these:</p> <p>positive</p> <p>negative</p> <p>accelerationTime -</p>			
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	<p>acceleration time (sec/float)</p> <p>limitSwitchEnabled - limit switch enabled, can be one of these:</p> <p style="padding-left: 40px;">enabled</p> <p style="padding-left: 40px;">disabled</p> <p>max - max (mm)</p> <p>min - min (mm)</p> <p>maxOffset - max offset (mm)</p> <p>minOffset - min offset (mm)</p> <p>velocity - velocity (mm/sec)</p> <p>potentiometerLeght - length of the potiontiometer (mm)</p> <p>ssiResolution - ssi resolution (values/360deg)</p> <p>ssiPositionsPerMillimeter - ssi resolution in EGU (values/mm)</p> <p>referenceVoltageTolerance - tolerance for reference voltage in mV</p> <p>positionTolerance - position tolerance</p>			
readMotorConfiguration motor	motor - motor name	Reads motor configuration.	motorName encoderType mountingOrientation installationOrientatio	See setMotorConfiguration command for values explanation.

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			n partOfPair stepToEGU offset positionFactor driveDirection pulseWidth pulsePolarity accelerationTime limitSwitchEnabled max min maxOffset minOffset velocity potentiometerLeght  ssiResolution ssiPositionsPerMillim eter  referenceVoltageToler ance  positionTolerance	
loadProperties fileName	FileName - name of the file from where to load properties	Loads properties from file.	OK	/
saveProperties fileName	FileName - name of the file to which to save properties	Saves properties to file.	OK	/
setPositionDisplay unit	unit - display unit for certain positions, can be one of these:  mm  counts	Set position display.	OK	/

readPositionDisplay	/	Reads position display.	unit	unit - display unit for certain positions, can be one of these: mm counts
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**Table 1: Local control commands description**