

Wire Scanner Software

Application Programming Interface (API)

Wire Scanner Operation				
	PV Name	Record Type	Database File Name	Purpose
	Control:			
	WIRE:IN20:BL531:STARTSCAN	bo	wirescan.template	Start scan using given parameters; value 1 means start, set to 0 to cancel
	General User-settable Wire Scanner Parameters (Settable on every scan)			
	WIRE:IN20:BL531:USEUWIRE	bo	wirescan.template	Use U wire on next scan
	WIRE:IN20:BL531:USEXWIRE	bo	wirescan.template	Use X wire on next scan
	WIRE:IN20:BL531:USEYWIRE	bo	wirescan.template	Use Y wire on next scan
	WIRE:IN20:BL531:SCANTOCENTER	bo	wirescan.template	Perform scan from outer to inner position (T or F)
	WIRE:IN20:BL531:SCANPULSES	ao	wirescan.template	Number of beam pulses to intercept on current scan
	Status Display:			
	WIRE:IN20:BL531:SCANPOSSTART	ao	wirescan.template	Calculated Starting position of Current Scan
	WIRE:IN20:BL531:SCANPOSSTOP	ao	wirescan.template	Calculated Stopping position of Current Scan
	WIRE:IN20:BL531:SCANPROGRESS	ao	wirescan.template	Scan percent complete for display to user
	WIRE:IN20:BL531:SCANTEXT	stringout	wirescan.template	Message indicating current state of scan
	WIRE:IN20:BL531:LVDTPROFILE	compress	motor.template	Circular buffer of LVDT positions; reset by state machines
	WIRE:IN20:BL531:MOTPROFILE	compress	motor.template	Circular buffer of motion positions; reset by state machines
	WIRE:IN20:BL531:PLVDTPROFILE	waveform	motor.template	Processed LVDT profile from circular buffer
	WIRE:IN20:BL531:PMOTPROFILE	waveform	motor.template	Processed Motor motion profile from circular buffer
	User Configuration Parameters (Occasionally Set)			
	WIRE:IN20:BL531:UWIREOUTER	longout	wirescan.template	Outer Parked position for U Wire Acquisition
	WIRE:IN20:BL531:UWIREINNER	longout	wirescan.template	Inner Parked position for U Wire Acquisition
	WIRE:IN20:BL531:XWIREOUTER	longout	wirescan.template	Outer Parked position for X Wire Acquisition
	WIRE:IN20:BL531:XWIREINNER	longout	wirescan.template	Inner Parked position for X Wire Acquisition
	WIRE:IN20:BL531:YWIREOUTER	longout	wirescan.template	Outer Parked position for Y Wire Acquisition
	WIRE:IN20:BL531:YWIREINNER	longout	wirescan.template	Inner Parked position for Y Wire Acquisition
	Static Wire Scanner Parameters (Installation)			
	WIRE:IN20:BL531:HASUWIRE	bo	wirescan.template	Is U Wire Present (T or F)
	WIRE:IN20:BL531:HASXWIRE	bo	wirescan.template	Is X Wire Present (T or F)

	WIRE:IN20:BL531:HASYWIRE	bo	wirescan. template	Is Y Wire Present (T or F)
	WIRE:IN20:BL531:INSTALLANGLE	bo	wirescan. template	The angle at which the wire scanner is oriented from beam's point of view
	Calibration			
	Control:			
	WIRE:IN20:BL531:ZEROSSET	bo	calibrate. template	Causes zero calibration point to be set manually
	WIRE:IN20:BL531:FINDZERO	bo	calibrate. template	Start automatic limit find and subsequent zero midpoint search
	WIRE:IN20:BL531:STARTCALPROF	bo	calibrate. template	Start sweep from low to high limit, to measure motor step vs. LVDT
	Options:			
	WIRE:IN20:BL531:CALSTEPSIZE	ao	calibrate. template	Distance in microns to step with each calibration measurement
	WIRE:IN20:BL531:CALMOVESEQ	seq	calibrate. template	DLY1 field is time in seconds to pause before each step
	WIRE:IN20:BL531:CALSOFTLIM	ao	calibrate. template	Distance to move off from Limit switches to place software limits
	WIRE:IN20:BL531:CALTOTTRAV	ao	calibrate. template	Theoretical maximum travel distance, beyond which scanners cannot move
	WIRE:IN20:BL531:CALSLOWVEL	ao	calibrate. template	Velocity for Finding Limit Switches; typically slow
	Status Display:			
	WIRE:IN20:BL531:SUBLPROF	subArray	motor.template	Truncated array of LVDT measurements from current calibration
	WIRE:IN20:BL531:SUBMPROF	subArray	motor.template	Truncated array of motor steps from current calibration
	WIRE:IN20:BL531:CALTEXT	stringout	calibrate. template	Message indicating current state of calibration
	WIRE:IN20:BL531:CALPROGRESS	ao	calibrate. template	Calibration Percent complete for display to user
	Motion Control:			
	General Motion Control:			
	WIRE:IN20:BL531:MOTRVAL	ao	motor.template	Last requested value for motor position.
	WIRE:IN20:BL531:MOTRPOSNOW	longin	motor.template	Proxy value of actual motor position; direct, fast readout
	WIRE:IN20:BL531:MOTRVELCHOICE	mbbo	motor.template	Enumerated record for speed; slow, normal, medium, max
	Low level Motion Control:			
	WIRE:IN20:BL531:MOTR	motor	motor.template	Motion control management
	Internal Records for Management:			
	WIRE:IN20:BL531:SYNCMOTPROFILE	fanout	motor.template	Ties together the motion/LVDT circular buffers for data insertion
	PMT Readout			
	ADC Converted Data:			
	WIRE:IN20:BL531:QDCRAWHI	longin	adc.template	High resolution ADC data
	WIRE:IN20:BL531:QDCRAWLO	longin	adc.template	Low resolution ADC data
	WIRE:IN20:BL531:QDCRAW	ai	adc.template	Best resolution ADC data
	WIRE:IN20:BL531:QDCWAVE	compress	adc.template	circular buffer of best resolution
	ADC Support Data:			
	WIRE:IN20:BL531:QDCSERIALNUM	longin	adc.template	Serial number of ADC module
	WIRE:IN20:BL531:QDCTRIGGERS	longin	adc.template	Number of triggers seen since reset

	WIRE:IN20:BL531:QDCGETBASELN	longin	adc.template	Get baseline value for zero suppression
	WIRE:IN20:BL531:QDCSETBASELN	longout	adc.template	Set baseline value for zero suppression
	WIRE:IN20:BL531:QDCOUTRANGE	longin	adc.template	Status words (out of range, etc)
	WIRE:IN20:BL531:QDCHILOGAIN	longout	adc.template	Gain setting
	WIRE:IN20:BL531:QDCHITHRESH	longout	adc.template	High threshold value for accepted data
	WIRE:IN20:BL531:QDCLOTHRESH	longout	adc.template	Low threshold value for accepted data
	Distance Measurement:			
	ADC Converted Data:			
	WIRE:IN20:BL531:LVPOS	sub	lvd.template	Calculated position of moving stage
	WIRE:IN20:BL531:LVDRAW	ai	lvd.template	Raw 16 bit value readout
	ADC Setup Options:			
	WIRE:IN20:BL531:LVIIGNORE	bo	lvd.template	Ignore this channel's input
	WIRE:IN20:BL531:LVSMAGNIFY	bo	lvd.template	Magnify the scale for this channel
	WIRE:IN20:BL531:LVRATIOMODE	bo	lvd.template	Use Ratiometric mode for readout
	WIRE:IN20:BL531:LVGETCYCLES	mbbi	lvd.template	Get number of cycles used for scan
	ADC Readout of Setup Options:			
	WIRE:IN20:BL531:LVISIGNORED	bi	lvd.template	Is this channel's input being ignored?
	WIRE:IN20:BL531:LVISMAGNIFIED	bi	lvd.template	Is this channel's input being magnified?
	WIRE:IN20:BL531:LVISRATIOMODE	bi	lvd.template	Is this channel in Rationmetric mode?
	WIRE:IN20:BL531:LVSETCYCLES	mbbo	lvd.template	Set number of cycles used for scan
	ADC Support Values for readback:			
	WIRE:IN20:BL531:LVAMPL	longin	lvd.template	Amplitude of output signal
	WIRE:IN20:BL531:LVSCANCOUNT	longin	lvd.template	Number of Scans performed since reset (1/sec)
	Beam Pulse Rate (temporary)			
	TIMING:IN20:BL001:BEAMRATE	ai	removeme.db	Temporary indication of beam rate