			Used B	v			Type or	2011,	
Group	Parameter			cctest	Default Value(s)	Max # of Values	Type or Values	Description	Change since V4
	- Global Parameters PRE_FUNC_DELAY			1	0.1	1	Float	Delay in seconds between consecutive functions (ignored if	
		1			1	1	Fleet	only one function is specified).	
	RUN_DELAY STOP_DELAY	_		1	1	1	Float	Delay in seconds before the start of each function Delay in seconds after end of last function before the	
	ITER_PERIOD_US	√	✓	✓	1000	1	Unsigned	simulation ends Base iteration period in microseconds: The is the	Replaces floating point
								measurement period. Current or field regulation runs at an integer multiple of this period.	ITER_PERIOD.
GLOBAL	ABORT_TIME			✓	0	1	Float	Time in seconds at which the Current or Field reference function should be aborted. The abort sequence switches to a RAMP function that smoothly takes over from the running reference function and ramps down to LIMITS.B_MIN or LIMITS.I_MIN.	
								Set to zero to disable testing the abort behaviour.	
								If ABORT_TIME > 0, REG_MODE must be CURRENT or FIELD and FG_LIMITS must be ENABLED.	
GLOBAL	ACTUATION		✓		VOLTAGE	1	VOLTAGE CURRENT	Specify VOLTAGE to simulate control of a voltage source. In this case, cotest can use libreg to regulate the current or field or it can drive a voltage reference in open-loop.	
								Specify CURRENT to simulate control of a current source. In this case, cotest can use libfg to generate a current reference and the regulation of the current is assumed to be the responsibility of the current source.	
	REVERSE_TIME			✓	DISABLED	1	DISABLED ENABLED	If ENABLED, the function is sampled with decreasing times to test if it can handle time going backwards. To enable this option, REG_MODE must be VOLTAGE, SIM_LOAD must be DISABLED, only one function can be specified and the RAMP function many not be selected.	
GLOBAL	REG_MODE		✓	✓	VOLTAGE	10	VOLTAGE CURRENT FIELD	Select regulation mode. If VOLTAGE, regulation is disabled and the function is directly used as the voltage reference. If CURRENT or FIELD is selected, the function will be used to define the current or field reference and the voltage reference will be calculated using the RST regulation algorithm. In this case, SIM_LOAD must be ENABLED.	
								If ACTUATION is CURRENT, then REG_MODE must also be CURRENT. A different REG_MODE can be defined for every FUNCTION. If fewer REG_MODE parameters are defined than FUNCTION parameters, then the last REG_MODE will	
								continue for all subsequent functions.	
GLOBAL	FUNCTION			1	SINE	10	PLEP RAMP PPPL TABLE STEPS SQUARE SINE COSINE LTRIM CTRIM	Selects which function to generate. Multiple functions can be specified, separated by white space or commas. The functions will run consecutively, with a delay of PRE_FUNC_DELAY between them. See the parameter section for each function below for more details. The units of the function are defined by REG_MODE.	
GLOBAL	REG_ERR_RATE		✓		REGULATION	1	REGULATION MEASUREMENT	If REGULATION, calculate the field regulation error at regulation rate. If MEASUREMENT, calculate regulation error at measurement rate.	Replaces ERR_RATE and BREG and IREG.
GLOBAL	FG_LIMITS			✓	DISABLED	1	DISABLED ENABLED	Controls whether limits are checked by libfg when initialising each reference function. As the same limits are used during the simulation of the voltage source and load, FG_LIMITS must be DISABLED to test the limits with a function that exceeds them.	
GLOBAL	SIM_LOAD			1	DISABLED	1	DISABLED ENABLED	If DISABLED, only function generation is tested. If ENABLED, the voltage source (or current source if ACTUATION is CURRENT) and the load are simulated as well.	
GLOBAL	STOP_ON_ERROR			✓	ENABLED	1	DISABLED ENABLED	If ENALBED, then execution of a script being read from a file will stop if an error is reported.	
							ENABLED	Specify DISABLED if errors are expected and execution must continue.	
GLOBAL	CSV_FORMAT			✓	NONE	1	NONE STANDARD FGCSPY LVDV	cctest can write a CSV file with all the signals from a simulation. The parameter allows different header formats for the data. STANDARD output can be opened in a spreadsheet. FGCSPY adds the suffix D to the signal names for signals that need trailing step interpolation. LVDV adds a metadata header line and cursors for the CERN Labview Dataviewer.	
GLOBAL	FLOT_OUTPUT			✓	ENABLED	1	DISABLED ENABLED	f ENABLED, cctest will generate HTML+Flot (jQuery) output files inJ./results/webplots/ for graphical display in a web browser. A compatible version of the Flot library must be installed in//results/webplots/flot to use this option.	
GLOBAL	DEBUG_OUTPUT			✓	ENABLED	1	DISABLED ENABLED	If ENABLED, generate debugging output for each run. This can be found in cctest/results/debug/	
GLOBAL	GROUP			✓	sandbox	1	String	Output is written//results/{csv,debug,webplots}/	
GLOBAL	PROJECT			✓	FG	1	String	-GROUP/PROJECT/FILE.{csv,ccd,html}	
GLOBAL				✓	cctest	1	String		
	Limit Parameters ng the arming of the reference function	n whon	GLOPA	I FG LIA	MITS = FNAPI ED ~	nd during th	simulation when C	SLOBAL SIM LOAD = ENARLED	
LIMITS	B_POS	n wnen ✓	GLOBA	L.I G_LIN	10 = ENABLED a	na auring the 1	Float	Maximum positive field	
LIMITS	B_MIN	1			0	1	Float	Minimum field that can be regulated by a 1- or 2-quadrant converter. This is usually set to zero for a 4-quadrant converter.	
LIMITS	B_NEG	✓	✓		-10	1	Float	Maximum negative field. Set to zero for a 1- or 2- quadrant	
LIMITS	B_RATE	1	1		5	1	Float	converter. Maximum absolute rate of change of field. If set to zero, then	
	_							the rate check is disabled.	

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LIMITS	B_ACCELERATION	✓	✓	1000000	1	Float	Maximum absolute field acceleration. If set to zero, the acceleration checks are disabled.
LIMITS	B_ERR_WARNING		✓	0	1	Float	Field regulation error warning threshold. If set to zero, the field regulation warning check is disabled. The field regulation error is compared to this threshold and the flag (0 or 1) indicating if the threshold is exceeded is filtered with a first order filter with a time constant of 10 periods. If the filtered flag exceeds 0.3, the warning will be activated and the threshold is halved. This hysteresis of the threshold should reduce the chance that the warning will toggle repeatedly. Once the filtered flag falls below 0.3, the threshold returns to original value defined in B_ERR_WARNING. This check will be done at the regulation rate if BREG ERROR_RATE is set to REGULATION, or the measurement rate if set to MEASUREMENT.
LIMITS	B_ERR_FAULT		✓	0	1	Float	Field regulation error fault threshold. If set to zero, the fault check is disabled.
							The treatment of the fault threshold is the same as the warning threshold described above. If the fault is activated, cctest will simulate the tripping of the power converter.
LIMITS	B_CLOSELOOP		✓	0.5	1	Float	Field regulation closed-loop threshold For a 1- or 2-quadrant New in V5. converter. This is the level at which the regulation switches from open-loop to closed-loop. For a 4-quadrant converter it isn't used.
LIMITS	I_POS	✓	✓	10	1	Float	Maximum positive current
LIMITS	I_MIN	*		0	1	Float	Minimum current that can be regulated by a 1- or 2-quadrant converter. This is usually set to zero for a 4-quadrant converter.
LIMITS	I_NEG	1	✓	-10	1	Float	Maximum negative current. Set to zero for a 1- or 2- quadrant converter.
LIMITS	I_RATE	1	✓	5	1	Float	Maximum absolute rate of change of current. If set to zero, then the rate check is disabled.
LIMITS	I_ACCELERATION	✓	✓	1000000	1	Float	Maximum absolute current acceleration. If set to zero, the acceleration checks are disabled.
LIMITS	I_ERR_WARNING		✓	0	1	Float	Current regulation error warning threshold. If set to zero, the current regulation warning check is disabled.
							The current regulation error is compared to this threshold and the flag (0 or 1) indicating if the threshold is exceeded is filtered with a first order filter with a time constant of 10 periods. If the filtered flag exceeds 0.3, the warning will be activated and the threshold is halved. This hysteresis of the threshold should reduce the chance that the warning will toggle repeatedly. Once the filtered flag falls below 0.3, the threshold returns to original value defined in I_ERR_WARNING. This check will be done at the regulation rate if IREG ERROR_RATE is set to REGULATION, or the measurement rate if set to MEASUREMENT.
LIMITS	I_ERR_FAULT		✓	0	1	Float	Current regulation error fault threshold. If set to zero, the fault check is disabled. The treatment of the fault threshold is the same as the warning threshold described above. If the fault is activated, cctest will simulate the tripping of the power converter.
LIMITS	I_CLOSELOOP		✓	0.5	1	Float	Current regulation closed-loop threshold For a 1- or 2- quadrant converter. This is the level at which the regulation switches from open-loop to closed-loop. For a 4-quadrant converter it isn't used.
LIMITS	I_QUADRANTS41		✓	0	2	Float	Used with V_QUADRANT41 to limit voltage as a function of current. This can protect 2- or 4-quadrant converters which cannot send energy back onto the mains and may overheat if forced to extract energy to quickly from a highly inductive load.
LIMITS	V_POS	1	✓	100	1	Float	Maximum positive voltage from the voltage source.
LIMITS	V_NEG	✓	✓	-100	1	Float	Maximum negative voltage from the voltage source.
LIMITS	V_RATE			1000	1	Float	Maximum absolute rate of change of voltage allowed by the voltage source. If set to zero, the rate of change checks are disabled.
LIMITS	V_ACCELERATION	✓	✓	1000000	1	Float	Maximum absolute voltage acceleration. If set to zero, the acceleration checks are disabled.
LIMITS	V_ERR_WARNING		✓	0	1	Float	Voltage regulation error warning threshold. If set to zero, the voltage regulation warning is disabled. Libreg does not support the voltage regulation, however, if the voltage is measured, the error of the external voltage regulation loop can be calculated and monitored. The algorithm is the same as for the current or field regulation warning threshold.
LIMITS	V_ERR_FAULT		✓	0	1	Float	Voltage regulation error fault threshold. If set to zero, the voltage regulation fault is disabled.
							Libreg does not support the voltage regulation, however, if the voltage is measured, the error of the external voltage regulation loop can be calculated and monitored. The algorithm is the same as for the current or field regulation fault threshold. If the fault is activated, cctest will simulate the trip of the power converter
LIMITS	V_QUADRANTS41		√	0	2	Float	Used with I_QUADRANT41 to limit voltage as a function of current. This can protect 2- or 4-quadrant converters which cannot send energy back onto the mains and may overheat if forced to extract energy to quickly from a highly inductive load.
LIMITS	I_RMS_TC		✓	0	1	Float	Converter RMS current protection: RMS Current filter Time Constant. If zero, the converter protection RMS current will not be calculated and I_RMS_WARNING and I_RMS_FAULT are ignored.

			Parame	ters for co	est v5.00 (October	2014)	
LIMITS	I_RMS_WARNING	✓	0	1	Float	Converter RMS current protection: RMS Current warning	
						limit. If set to zero, the warning check is disabled. The square of the current is filtered with a first order filter with time constant I_RMS_TC. If this filtered value exceeds the square of the I_RMS_WARNING, then the RMS warning flag will be activated and the threshold will be reduced by	
LIMITS	I_RMS_FAULT	✓	0	1	Float	20% to reduce the risk of toggling. Converter RMS current protection: RMS Current fault limit. If set to zero, the fault check is disabled.	
						The square of the current is filtered with a first order filter with time constant I_RMS_TC. If this filtered value exceeds the square of the I_RMS_FAULT, then the RMS trip flag will be activated and cotest will simulate a trip of the power converter.	
LIMITS	I_RMS_LOAD_TC	1	0	1	Float	Load RMS current protection: RMS Current filter Time Constant. If zero, the converter protection RMS current will not be calculated and I_RMS_WARNING and I_RMS_FAULT are ignored.	New in V5.
LIMITS	I_RMS_LOAD_WARNING	✓	0	1	Float	Load RMS current protection: RMS Current warning limit. If set to zero, the warning check is disabled.	New in V5.
						The square of the current is filtered with a first order filter with time constant I_RMS_TC. If this filtered value exceeds the square of the I_RMS_WARNING, then the RMS warning flag will be activated and the threshold will be reduced by 20% to reduce the risk of toggling.	
LIMITS	I_RMS_LOAD_FAULT	✓	0	1	Float	Load RMS current protection: RMS Current fault limit. If set to zero, the fault check is disabled.	New in V5.
						The square of the current is filtered with a first order filter with time constant I_RMS_TC. If this filtered value exceeds the square of the I_RMS_FAULT, then the RMS trip flag will be activated and cotest will simulate a trip of the power converter.	
LIMITS	INVERT	1 1	DISABLED	1	DISABLED ENABLED	If ENABLED, libfg and invert the polarity of the limits before checking. This would be used if a 1-quadrant converter is connected to the load via a polarity switch and the switch is in the inverting position.	
	oad Parameters imulate a load when GLOBAL.SIM_LC	DAD = FNARI FD					
LOAD	OHMS_SER	JAD - ENABLED ✓	0.5	1	Float	Series resistance (R_s) corresponding to the resistance of	
LOAD	OHMS_PAR	✓	100000000	1	Float	the cables from the power converter to the magnet(s). Parallel damping resistance (R_p).	
LOAD	OHMS_MAG	✓	1	1	Float	Magnet resistance (R_m).	
LOAD	HENRYS	✓	1	1	Float	Magnet inductance without saturation effects (L).	
LOAD	HENRYS_SAT	✓	1	1	Float	Magnet inductance when fully saturated (L_sat).	
LOAD	I_SAT_START	✓	0	1	Float	Current at start of magnet saturation (I_{sat_start}).	
LOAD	I_SAT_END	✓	0	1	Float	Current at which the magnet is fully saturated (I_{sat_end}).	
LOAD	CAUSE DED AMD	1	1.2	1	Float	Set to zero if the magnet does not saturate.	
LOAD	GAUSS_PER_AMP	*	0	1	Float	Field to current ratio without saturation effects. Voltage perturbation level. This voltage appears as a	
LOAD	PERTURB_VOLTS	•	Ü	'	rioat	Voltage perturbation level. This voltage appears as a disturbance on the simulated load at the time given by PERTURB_TIME and remains until the end of the run. This is useful to see the rejection of perturbations by the regulation loop.	
LOAD	PERTURB_TIME	✓	0	1	Float	Voltage perturbation time, the time at which PERTURB_VOLTS appears as a perturbation on the simulated load. Set to zero to disabled the perturbation.	
LOAD	SIM_TC_ERROR	√	0	1	Float	Simulated load Time Constant error factor. To evaluate the robustness of the regulation, the simulated load parameters can be distorted, resulting in a shift in the simulated load time constant by a factor related to SIM_TC_ERROR. For example, If SIM_TC_ERROR is 0.1, the time constant of the simulated load will be 10% greater than expected by the RST regulation algorithm, whose coefficients are calculated using the undistorted load parameters.	
LOAD	POL_SWI_AUTO	•	DISABLED	1	DISABLED ENABLED	If ENABLED and GLOBAL FG_LIMITS is ENABLED, then the limits used when checking the reference will be based on the range of the function. This assumes that the range of the function will be used when it is about to be played, to set the polarity switch on a 1-quadrant converter automatically. In this way, the anticipated polarity switch position can be used when arming a reference function, at a time when the polarity switch may not be in the anticipated position.	
MEAS	Measurement Parameters						
MEAS - I	B REG SELECT	✓	EXTRAPOLATED	1	UNFILTERED	Selector for the field measurement to use for field regulation.	
2.13				·	FILTERED	If UNFILTERED, then the raw measurement acquired at the measurement rate will be decimated at the regulation period and used for field regulation. The measurement delay will be B_DELAY_ITERS in measurement periods. This minimises the delay but noise will be aliased into the regulation pass band.	
						If FILTERED, then the filtered field measurement will be decimated at the regulation period and used for field regulation. The filter is implemented in libreg and is configured by B_FIR_LENGTHS. This will reduce the noise allased in the regulation pass band but will increase the latency.	
						If EXTRAPOLATED, then the filtered measurement will be extrapolated using the measured rate of change to compensate for the delay of the measurement and the FIR filter. This will reduce the latency to zero, but will increase the noise.	
MEAS	I_REG_SELECT	*	EXTRAPOLATED	1	UNFILTERED FILTERED EXTRAPOLATED	Selector for the current measurement to use for current regulation. This has the same behaviour as the selector for the field measurement (above).	

					•	· · · · · · · · · · · · · · · · · · ·	
MEAS	B_DELAY_ITERS	✓	1.3	1	Float	Field measurement delay specified as number of iterations (GLOBAL ITER PERIOD)	
MEAS	I_DELAY_ITERS	✓	1.3	1	Float	Current measurement delay specified as number of iterations.	
MEAS	V_DELAY_ITERS	✓	1.3	1	Float	Voltage measurement delay specified as number of iterations.	
MEAS	B_FIR_LENGTHS	√	1, 1	2	Unsigned	Field measurement Finite Impulse Response (FIR) filter lengths specified as number of iterations. Must be non-zero. Two sliding average filters are cascaded. Setting the length to 1 effectively disables that stage. The filter delay in iterations will be (B_TIR_LENGTHS[0] + B_FIR_LENGTHS[1])/2.	
MEAS	I_FIR_LENGTHS	✓	1, 1	2	Unsigned	Current measurement FIR filter lengths. This has the same behaviour as the field measurement filter described above.	
MEAS	B_SIM_NOISE_PP	✓	0	1	Float	Simulated field measurement peak-peak noise level.	
MEAS	I_SIM_NOISE_PP	√	0	1	Float	Simulated current measurement peak-peak noise level.	
MEAS	V_SIM_NOISE_PP	√	0	1	Float	Simulated voltage measurement peak-peak noise level.	
MEAS	TONE_HALF_PERIOD_ITERS	✓	10	1	Unsigned	Simulated measurement tone half-period specified as a number of measurement iterations. This can be used to simulate 50Hz noise and test that the FIR filter is adjusted to cancel this frequency.	
MEAS	B_SIM_TONE_AMP	✓	0	1	Float	Simulated field measurement tone amplitude.	
MEAS	I_SIM_TONE_AMP	✓	0	1	Float	Simulated current measurement tone amplitude.	
MEAS	INVALID_MEAS_PERIOD_ITERS	✓	0	1	Unsigned	Period between bursts of invalid measurements specified as number of iterations. Libreg can replace invalid measurements with an estimate of what the measurement will be, based on the model the regulation error or the rate of change. These cotest parameters allow this feature of libreg to be tested.	
MEAS	INVALID_MEAS_REPEAT_ITERS	✓	1	1	Unsigned	Number of iterations to repeat the invalid measurements. In general, one bad measurement will be fairly transparent. The more bad measurements, the bigger the perturbation is likely to be.	
	Field Regulation Parameters		10	1	Unaicasal	Field regulation period energified as a verbar of iterative	
BREG BREG	PERIOD_ITERS PURE_DELAY_PERIODS	√	0	1	Unsigned	Field regulation period specified as number of iterations. Pure delay in the field regulation loop, specified as number	
BILLO	TORE_DEEAT_T ERRODO	·	Ü	,	i loat	of regulation periods. If set to zero, cctest will estimate it based on the other known parameters.	
						This delay is a primitive way to model the otherwise unmodelled delays and dynamics around the loop (i.e. everything except the load). This includes the delay before the voltage reference is received by the voltage source (VS V_REF_DELAY_ITERS) + the measurement delay + the voltage source response time.	
						The RST coefficients will be calculated using one of five algorithms selected according to the pure delay. It must be in the range from 0 to 2.4 regulation periods.	
BREG	TRACK_DELAY_PERIODS	✓	0	1	Float	Anticipated delay between the setting of the field reference and the moment when the measurement should equal the reference, specified as number of regulation periods. If this is set to zero, it will be calculated by the algorithm.	
						This is used to calculate the error in the response of the field regulation loop.	
BREG	AUXPOLE1_HZ	✓	10	1	Float	Frequency of the first (real) auxiliary pole. The AUXPOLE* parameters are used to calculate coefficients for the RST regulation algorithm. For fast loads, set AUXPOLE1_HZ to 1.0E+5 and AUXPOLE52_Z to 0.8. Normally AUXPOLE1_HZ = AUXPOLE52_HZ and AUXPOLE52_Z = 0.5. Set to zero to use the R, S and T polynomials	
BREG	AUXPOLES2_HZ	✓	10	1	Float	Frequency of (conjugate) auxiliary poles 2 & 3	
BREG	AUXPOLES2_Z	✓	0.5	1	Float	Damping of (conjugate) auxiliary poles 2 & 3	
BREG	AUXPOLE4_HZ	✓	10	1	Float	Frequency of (real) auxiliary pole 4	
BREG	AUXPOLE5_HZ	√	10	1	Float	Frequency of (real) auxiliary pole 5	
BREG	R	✓	0,0,0,0,0,0,0,0,0	10	Double	RST R coefficient – used when AUXPOLE1_HZ = 0	Was present but not documented.
BREG	S	✓	0,0,0,0,0,0,0,0,0,0	10	Double	RST S coefficient – used when AUXPOLE1_HZ = 0	Was present but not documented.
BREG	Т	✓	0,0,0,0,0,0,0,0,0,0	10	Double	RST T coefficient – used when AUXPOLE1_HZ = 0	Was present but not documented.
	urrent Regulation Parameters						
IREG	PERIOD_ITERS	✓	10	1	Unsigned	Current regulation period specified as number of iterations.	
IREG	PURE_DELAY_PERIODS	√	0	1	Float	Pure delay in the current regulation loop, specified as number of regulation periods. If set to zero, cctest will estimate it based on the other known parameters.	
						This delay is a primitive way to model the otherwise unmodelled delays and dynamics around the loop (i.e. everything except the load). This includes the delay before the voltage reference is received by the voltage source (VS V_REF_DELAY_ITERS) + the measurement delay + the voltage source response time. The RST coefficients will be calculated using one of five	
						algorithms selected according to the pure delay. It must be in the range from 0 to 2.4 regulation periods.	
IREG	TRACK_DELAY_PERIODS	✓	0	1	Float	Anticipated delay between the setting of the current reference and the moment when the measurement should equal the reference, specified as number of regulation periods. If this is set to zero, it will be calculated by the algorithm.	
						This is used to calculate the error in the response of the current regulation loop.	

Process								
MADPOLICE_ILLY	IREG	AUXPOLE1_HZ	4	10	1	Float	parameters are used to calculate coefficients for the RST regulation algorithm. For fast loads, set AUXPOLE1_HZ to 1.0E+5 and AUXPOLE52_T to 0.8. Normally AUXPOLE1_HZ = AUXPOLES2_HZ and AUXPOLES2_Z =	
Page AUPPOPLIES 1	IREG	ALIXPOLES2 H7		10	1	Float		
Proc. Proc								
Proc. Proc								
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								\\\\
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## Accordance of International Services and Control Co	IREG	S	✓	0,0,0,0,0,0,0,0,0	10	Double	RST S coefficient – used when AUXPOLE1_HZ = 0	
These occurrence deline the voltage source model of GLOBAL ACTIVATION is VICE Flowers. If GLOBAL ACTIVATION is CARREST, the interference in the source of an indicate of the control of th	IREG	Т	✓	0,0,0,0,0,0,0,0,0	10	Double	RST T coefficient – used when AUXPOLE1_HZ = 0	
V	These pa	parameters define the voltage source mo	odel if GLOBAL ACTUAT	TION is VOLTAGE. Ho	wever, if (GLOBAL ACTUAT	TION is CURRENT, then the model will be used to simulate the	
SIVE_Bits are used to explaintly referred to explaintly referred to explaintly referred to explaintly referred to colorable. Z Transform in Explaintly 1945. 7 AU_ZERO	VS VS	•	√	1	1	Float	is calculated and the time that it enters the simulation of the voltage source, in iterations. This models the delay that might be due to a DAC settling, or a digital link between	
VS TAU_ZERO	VS	BANDWIDTH	✓	200	1	Float	SIM_DEN are used to explicitly define the model.	
Section Floor Floor Floor Floor The Constant for real zono Set to zero to be turn off the zono	VS	Z	✓	0.9	1	Float	Damping factor. Used to calculate Z Transform if	
Used to calculate 2 Transform IT GAND/WIDTH > 0. SIM N.N.M.		TALL 7500				F		
SM_DEM — Personal processor of START function Upder advances for START function Upder advances (LORAL FUNCTION IN START The START function is special because. START Acceleration of first parabolic segment. Must be non-zero. Absolute value is used. The START function is special because. START LINEAR, RATE 4 3 1 Float Maximum linear rate of change, Absolute value is used. The processor of the parabolic segment. Must be non-zero. Absolute value is used. The processor of the parabolic segment. Must be non-zero. Absolute value is used. The processor of the parabolic segment. Must be non-zero. Absolute value is used. The processor of the parabolic segment. Must be non-zero. Absolute value is used. The processor of the parabolic segment. The processor of the parabolic segment. What is non-zero militar and of change. The first reference can also have a non-zero and of change. If the first rate of change is not zero, then this adds a fifth parabolic segment. This can be an associated in a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar of the formation of the forum parabolic, or can have the capociate acceleration. PLEP PRINT LINEAR	VS	TAU_ZERO	✓	0	1	Float		
SM_DEM — Personal processor of START function Upder advances for START function Upder advances (LORAL FUNCTION IN START The START function is special because. START Acceleration of first parabolic segment. Must be non-zero. Absolute value is used. The START function is special because. START LINEAR, RATE 4 3 1 Float Maximum linear rate of change, Absolute value is used. The processor of the parabolic segment. Must be non-zero. Absolute value is used. The processor of the parabolic segment. Must be non-zero. Absolute value is used. The processor of the parabolic segment. Must be non-zero. Absolute value is used. The processor of the parabolic segment. Must be non-zero. Absolute value is used. The processor of the parabolic segment. The processor of the parabolic segment. What is non-zero militar and of change. The first reference can also have a non-zero and of change. If the first rate of change is not zero, then this adds a fifth parabolic segment. This can be an associated in a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar and of change. The first reference can also have a non-zero militar of the formation of the forum parabolic, or can have the capociate acceleration. PLEP PRINT LINEAR	VS	SIM NUM		1000	4	Float	Voltage source transfer function numerator	
START Parameters for START function by the company of the company		=						
Used when GLOBAL PLANCTION is TART. The START function is special because.				1,0,0,0	4	rioat	voltage source transier function denominator.	
START ACCELERATION			ne START function is sne	cial hecause				
Absolute value is used. Framework from VA. Framework for Parabeta-Linear Exponential Parabeta (PLEP) function FLEP - Parameters for Parabeta-Linear Exponential Parabeta (PLEP) function FLEP - Parameters for Parabeta-Linear Exponential Parabeta (PLEP) function FLEP - Parameters for Parabeta-Linear Exponential Parabeta (PLEP) function FLEP - Parameters for Parabeta-Linear Exponential Parabeta (PLEP) function FLEP - Parameters for Parabeta-Linear Exponential Parabeta (PLEP) function FLEP - Parameters for Parabeta-Linear Exponential Parabeta (PLEP) function FLEP - Parameters for Parabeta-Linear Exponential Parabeta (PLEP) function FLEP - Parameters for Parabeta-Linear Exponential Parabeta (PLEP) function FLEP - Parameters for Flant rate of change is not zero. In this adds a fifth parabetic segment. This can be an extension of the fourth parabotic, or if can have the opposite acceleration of the fourth parabotic, and if can have the opposite acceleration of the fourth parabotic, and if can have the opposite acceleration of the fourth parabotic, and if can have the opposite acceleration of the fourth parabotic, and if can have the opposite acceleration of the fourth parabotic, and if can have the opposite acceleration of the fourth parabotic, and if can have the opposite acceleration of the fourth parabotic, and if can have the opposite acceleration of the fourth parabotic, and if can have the opposite acceleration of the fourth parabotic, and in the fourth paraboti					1	Float	Acceleration of first parabolic segment. Must be non-zero.	Reintroduced after being
removed from V4. Post Deceleration of second parabolic segment. Must be non- removed from V4. Public Parameters for Parabola-Linear-Exponential-Parabola (PLEP) function Public Parameters for Parabola-Linear-Exponential-Parabola (PLEP) function is special because it can be initialised with a non-zero initial rate of change. The first initial rate of change. The first initial rate of change is not zero, then this acids with parabolic segment. This can be an extension of the fourth parabolic, or it can have the opposite acceleration. Public Pinkl REF							Absolute value is used.	removed from V4.
Treatmenters for Parabola-Linear-Exponential-Parabola (PLEP) function Jeed when GLOBAL FUNCTION Is PLEP. The PLEF function is special because it can be initialised with a non-zero initial rate of change. If the first arter of change is not zero, then this adds a first parabola cerebration. PLEP INNL, REF		_					· ·	removed from V4.
PLEP - Parameters for Parabola-Linear-Exponential-Parabola (PLEP) function Lipide where (GLGAH FUNCTON) is PLEP FUNCTION is guested because it can be initialised with a non-zero initial rate of change. If the findir rate of change is not zero, then this adds a fifth parabolic segment. This can be an extension of the fourth parabolic, or it can have the opposite acceleration. PLEP INTIAL_REF	START	DECELERATION	✓	10	1	Float		Reintroduced after being
ACCELERATION 1	PLEP	INITIAL_REF	✓	0	1	Float	Initial reference at beginning of function	
PLEP LINEAR_RATE	PLEP	FINAL_REF	✓	1	1	Float	Final reference at end of function	
PLEP EXP_TC	PLEP	ACCELERATION	✓	1	1	Float		
PLEP EXP_TIC	PLEP	LINEAR_RATE	✓	1	1	Float	Maximum linear rate of change. Absolute value is used.	
PLEP EXP_FINAL	PLEP	FINAL_RATE	✓	0	1			
RAMP - Parameters for fast ramp based on Parabola-Parabola function Used when GLOBAL FUNCTION is RAMP Parabolic-Parabolic function with time shift when rate limited. The RAMP function is special because it uses the reference from the previous tereinton to adjust the function time. This allows a smooth parabolic end to the function. even if the function was rate-limited by the ceiling application. RAMP INITIAL_REF	PLEP	EXP_TC	✓	0	4	Float	Normalised final linear rate of change.	
RAMP - Parameters for fast ramp based on Parabola-Parabola function with time shift when rate limited. The RAMP function is special because it uses the reference from the previous tereston to adjust the function time. This allows a smooth parabolic and to the function, even if the function was rate-limited by the calling application. Initial reference at beginning of function	PLEP		1	U	- 1		<u> </u>	
RAMP INITIAL_RATE	Used what teration	·	Y			Float	Exponential time constant.	
RAMP FINAL REF		to adjust the function time. This allows	Parabola-Parabola func	0 extion with time shift when r to the function, even if	1 rate limited	Float Float I. The RAMP func on was rate-limite	Exponential time constant. Final reference for exponential segment (at t = ∞) tion is special because it uses the reference from the previous d by the calling application.	
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Parameters for ccTest v5.00 (October 2014)

TRIM	DURATION	✓	1	1	Float	Duration for transition from initial to final reference. Set to zero to go as fast as possible while respecting the rate of change limits.			
TEST - I	TEST – Parameters for test functions								
Used wh	en GLOBAL.FUNCTION is STEPS, SC	QUARE, SINE or COSINI	E						
TEST	INITIAL_REF	✓	0	1	Float	Initial reference at beginning of function			
TEST	AMPLITUDE_PP	✓	2	1	Float	Reference peak-to-peak amplitude			
TEST	NUM_CYCLES	✓	3	1	Float	Number of cycles/steps. Although specified as a float, the value is rounded to the nearest integer.			
TEST	PERIOD	✓	2	1	Float	Period of the function (=1/frequency). The duration of the function is equal to NUM_CYCLES*PERIOD			
TEST	WINDOW	✓	ENABLED	1	DISABLED ENABLED	Window Control start and end of SINE and COSINE functions			