4000 remote command set Factory use only Updated 4 June 2009

Use with caution, command parser not developed to accept syntax errors.

command	parameters	returns	notes
*RST	no params		reset instrument to known state (see below)
*IDN?	no params	IFR, 4000, serial no, main sw ver/boot sw ver	
APSW:STATE	OFF | SRIGHT | SLEFT		in ils screen - state of autopilot
APSW:STATE?	no params	OFF | SRIGHT | SLEFT	
APSW:DEV	unsigned int (0..30)		max deviation (uA) for autopilot
APSW:DEV?	no params	unsigned int	
BCN:FREQ	121.5 | 243		in 121.5/243 beacon mode, receiving frequency
BCN:FREQ?	no params	121.5 | 243	in 121.5/243 beacon mode
BCN:MODSTART?	no params	unsigned int (in Hz)	in 121.5/243 beacon mode, frequency at the start of modulation sweep
BCN:MODSTOP?	no params	unsigned int (in Hz)	in 121.5/243 beacon mode, frequency at the end of modulation sweep
BCN:MSG?	no params	406 beacon message in hex	in 406 beacon mode
CAL:ABORT	no params		stop current calibration
CAL:AMPL:LOC	no params		init localizer path amplitude cal
CAL:AMPL:MAIN	no params		init main path amplitude cal
CAL:AMPL:MARK	no params		init marker path amplitude cal
CAL:DEV?	no params		used in FM dev cal only – determine the fm dev the ext src should be set to
CAL:FMDEV	no params		init fm dev cal
CAL:FMGEN	no params		init fm generation cal
CAL:MOD:LLOC	no params		init localizer path localizer mod cal
CAL:MOD:MGS	no params		init main path g/s mod cal
CAL:MOD:MLOC	no params		init main path localizer mod cal
CAL:MOD:VOR	no params		init vor mod cal
CAL:PMTR	no params		init power meter cal
CAL:PREV	no params		move back to previous step in calibration. Valid only for ampl loc and ampl main cals, and only for step 2 of those cals
CAL:SAVE	no params		save cal data to store – only valid when cal completed without errors
CAL:STEP?	no params	0 if no error, or a non zero error code	start measurements for current step of cal and return when done. If error, cal aborts automatically
CAL:SWR:DFLT	no params		init default swr cal
CAL:SWR:USER	no params		init user swr cal (only in swr mode)
CAL:TCXO	no params		init tcxo cal
CAL:VALUE	index (1..3 only), value (unsigned int)		set appropriate cal value
CAL:VALUE?	index (1..3 only)	unsigned int	return appropriate cal value
COMM:CSP	8 | 12 | 25		when in freq channel mode, for AM mode only, channels spacing is 8.33kHz or 25kHz for FM mode only, channels spacing is 12.5kHz or 25kHz
COMM:CSP?	no params	8 | 12 | 25	
COMM:MODE	GEN | REC		for comms mode, whether receiving or transmitting (generating) the signal
COMM:MODE?	no params	GEN | REC	
DEV:GSLOPE	int (-800..800)		set glide slope deviation
DEV:GSLOPE?	no params	int (-800..800)	
DEV:LOC	int (-400..400 corresponds to DDM value of 0.400 left .. 0.400 right)		set localizer deviation – in units of ddm
DEV:LOC?	no params	int (-400..400)	
DEV:MODE	FIXED | VAR		select mode of deviation entry
DEV:MODE?	no params	FIXED | VAR	
FCTR:RES	unsigned int (value will be clipped to nearest of 1 | 10 | 100 | 1000)		freq ctr resolution (aux freq counter only)
FCTR:RES?	no params	1 | 10 | 100 | 1000	

FREQ:CW	unsigned int (in Hz) (10000000..410000000)		for current mode, set RF frequency (except any mode having multiple freqs)
FREQ:CW?	no params	unsigned int (in Hz)	
FREQ:GSLOPE	unsigned int (in Hz) (329150000..335000000)		in ILS mode set G/S freq
FREQ:GSLOPE?	no params	unsigned int (in Hz)	
FREQ:LOC	unsigned int (in Hz) (108100000..111950000)		in ILS mode set loc freq
FREQ:LOC?	no params	unsigned int (in Hz)	
FREQ:START	unsigned int (in Hz) (10000000..409000000)		for modes with a start and stop freq, set the start freq
FREQ:START?	no params	unsigned int (in Hz)	
FREQ:STOP	unsigned int (in Hz) (11000000..410000000)		for modes with a start and stop freq, set the stop freq
FREQ:STOP?	no params	unsigned int (in Hz)	
GTST	**store number (1..12), guided test store to upload into the instrument**		**copy a guided test from a controller to the box. Handles all versions of store from software version 2.11 onward.**
GTST?	**store number (1..12)**	**guided test store (block data)**	**read a guided test from the box to a controller. Will always return in current store version format.**
GTSTEP	store number(1..12), step number(0..49), guided test store (single step) to upload into instrument		copy a guided test from a controller to the box (single step)
GTSTEP?	store number(1..12), step number(0..49)	guided test store – single step (block data)	read a guided test from the box to a controller (single step)
MEAS:DEV?	no params	unsigned int (% or kHz)	return deviation measurement
MEAS:FREQ?	no params	unsigned int (Hz)	return freq measurement
MEAS:POW?	no params	int (dBm)	return power measurement
MEAS:SWR?	no params	int (0.1 unitless) if CW or 251 of them if swept	return swr measurement
MMOD:STATE	CAL | USER		set master mod to either it's cal setting or user mode. Setting to user mode will set value to 0% or 0kHz(fm)
MMOD:STATE?	no params	CAL | USER	
MMOD:VALUE	unsigned int (in percent (0..165), or for FM mode in kHz (1..15))		when in user mode set the required composite master mod percent or kHz
MMOD:VALUE?	no params	unsigned int (in percent , or for FM mode, kHz)	
MODE	VOR | MARK | LOC | GSLOPE | ILS | AM | FM | SSB | SWR | SELCAL | FCTR | BCN243 | BCN406		select the measurement the instrument is being asked to perform
MODE?	no params	VOR | MARK | LOC | GSLOPE | ILS | AM | FM | SSB | SWR | SELCAL | FCTR | BCN243 | BCN406	
MOPT?	no params	unsigned int bit 1 (0x01) Micro Opt 1 : New PwrMtr hw bit 2 (0x02) Micro Opt 2 : unused bit 3 (0x04) Micro Opt 3 : unused	Determine hardware options as reported by the micro on the RF board. From s/w version 2.11 onwards
MTONE	OFF | 1020 | 400 | 1300 | 3000 | MORSE		select which tone is generated, none, one of the 3 marker tones, the nav tone, or morse code on the nav tone. Morse code valid for VOR, LOC, ILS only.
MTONE?	no params	OFF | 1020 | 400 | 1300 | 3000 | MORSE	
OPTION:APPLY	no params		download encrypt option file
OPTION:APPLY?	no params	ON | OFF	ELT option setting
POW	int (in units of 0.1dBm) (-1300..130)		set RF level for current mode
POW?	no params	int (in units of 0.1dB)	

SELCAL:MODE	SING | CONT		whether sent tones once or forever (till stopped)
SELCAL:MODE?	no params	SING | CONT	
SELCAL:START	no params		start sending (either single or continuous)
SELCAL:STOP	no params		stop sending (continuous only)
SELCAL:TONE	unsigned int tone (1..4) , value(A..S)		select the 4 tones, one at a time
SELCAL:TONE?	unsigned int tone (1..4)	value(A..S)	
SSB:AUDFREQ?	no params	unsigned int (in Hz)	
SSB:MODE	UPPER | LOWER		upper or lower side band
SSB:MODE?	no params	UPPER | LOWER	
SSB:MTONE	unsigned int (0..120)		in step of 25 Hz, i.e. 0 = 0 Hz, 100 = 2500 Hz, 120 = 3000 Hz, valid range (0,. 3000 Hz) in receiving mode only
SSB:MTONE?	no params	OFF in receive, unsigned int (in Hz) in generate	
SWR:MODE	SWEPT | CW		swept or CW swr
SWR:MODE?	no params	SWEPT | CW	
SYST:APSW:RATE	unsigned int (5..40, in steps of 5)		sweep rate for autopilot (seconds)
SYST:APSW:RATE?	no params	unsigned int	
SYST:AUDIO	ON | OFF		enable/disable the audio output for AM, FM, SSB, and 121.5/243 beacon mode
SYST:AUDIO?	no params	ON | OFF	
SYST:BLGT	unsigned int (0..250)		backlight
SYST:BLGT?	no params	unsigned int	
SYST:CAL	the block data to store into the calibration store		if checksum fails store not written
SYST:CAL?	no params	the cal store data (block data)	
SYST:CLICK	ON | OFF		keyclick on or off
SYST:CLICK?	no params	ON | OFF	
SYST:CONT	unsigned int (0..255)		contrast
SYST:CONT?	no params	unsigned int	
SYST:EATTN	unsigned int (in units of 0.1dB) (0..220)		ext atten in use – set amount of attenuation (in 0.1dB units).
SYST:EATTN?	no params	unsigned int	
SYST:ERR?	no params		read error number (0=no error)
SYST:FREQ:MODE	PRES | CHAN | VAR		set freq mode – alters what frequencies are valid
SYST:FREQ:MODE?	no params	one of PRES | CHAN | VAR	
SYST:MORSE	string – morse code chars (0..4 chars)		select morse code chars for VOR, LOC, or ILS modes
SYST:MORSE?	no params	the morse code string	
SYST:PDOWN	unsigned int (0, 5..20)		power down timeout, 0=never. units=mins
SYST:PDOWN?	no params	unsigned int	
SYST:PORT	DIR | ANT		which RF port to use
SYST:PORT?	no params	DIR | ANT	
SYST:SELFTEST	ON | OFF		enable/disable rs232 printout of selftest data
SYST:SELFTEST?	no params	ON | OFF	
SYST:SER:BAUD	9600 | 19200 | 38400 | 57600 | 115200		rs232 baud rate
SYST:SER:BAUD?	no params	9600 | 19200 | 38400 | 57600 | 115200	
SYST:SER:FCON	NONE | HARD | XON		rs232 handshaking
SYST:SER:FCON?	no params	NONE | HARD | XON	
SYST:TEMP:GEN?	no params	General temperature in centigrade	-50..200, 999=can't read
SYST:TEMP:RF?	no params	RF Block Temperature in centigrade	-50..200, 999=can't read
SYST:TST?	no params	16 values, comma seperated	
SYST:VOR:MODE	FIXED | VAR		for vor mode, selects whether a small fixed no of bearings are valid, or any number can be entered
SYST:VOR:MODE?	no params	FIXED | VAR	

TONE:DEL	NONE | 90 | 150 | BOTH		which tone is deleted
TONE:DEL?	no params	NONE | 90 | 150 | BOTH	
TONE:PHASE:STATE	unsigned int (0=off, 1=user)		for loc, g/s, ils screens set whether 90/150Hz signals can be phase offset or not
TONE:PHASE:STATE?	no params	0=off, 1=user	
TONE:PHASE:VALUE	unsigned int (0..120 in steps of 5)		phase offset value in degrees. Must be a multiple of 5 degrees
TONE:PHASE:VALUE?	no params	unsigned int	
VOR:BEAR:DIR	TO | FROM		select if bearing is to or from in vor mode
VOR:BEAR:DIR?	no params	TO | FROM	
VOR:BEAR:VALUE	unsigned int (in units of 0.1 degrees) (0..3600)		select bearing for vor mode
VOR:BEAR:VALUE?	no params	unsigned int (in units of 0.1 degrees)	
VOR:M30	unsigned int (0..55)		select mod depth for the 30Hz signal, from 0% upto the current master mod depth
VOR:M30?	no params	unsigned int	
VOR:M9960	unsigned int (0..55)		select mod depth for the 9960Hz signal, from 0% upto the current master mod depth
VOR:M9960?	no params	unsigned int	
VOR:TONE:DEL	NONE | REF | VAR | BOTH		which tone is deleted. It is not possible to delete the 9960Hz tone.
VOR:TONE:DEL?	no params	NONE | REF | VAR | BOTH	
ZERO?	no params	1 when completed	Perform a power meter zero (must be in comms screen and port set to RF I/O and receiving)

We will not be providing the facility to set/read RF power level in volts (it will be dBm only)
We will not be providing the facility to set/read ils deviation units in uA (it will be DDM only)

Will not support guided test record or play from remote.
For simplicity this is **not** 488.2 or SCPI compliant.

`GTST` and `GTST?` are the only two commands that will be published in the operating manual. All other commands are for in-house use only.