

TCSng Commands

This is the most comprehensive list to date of the TCSng requests and commands.

Requests

ALL Bulk information

Args: N/A

Returns: [MOT] [RA] [DEC] [HA] [UT] [ALT] [AZ] [SECZ] [Epoch]

MOT = (see MOTION)

RA(Right Assention) = HH:MM:SS.ss

DEC(Declination) = +DD:MM:SS.ss

HA(Hour Angle) = HH:MM:SS

UT(Universal Time) = HH:MM:SS

ALT(Elevation) = XXX.xx

AZ(Azmouth) = XXX.xx

SECZ(airmass) = XX.xx

EPOCH = EEEE.e

AZ Azimuth

Args: N/A

Returns: [ddd.dd]

BEAM Chop/Nod info for chopping secondary

Args: N/A

Returns: ???

CORRECTIONS String describing what corrections and rates are enabled/disabled

Args: N/A

Returns: MPNARFp+tob

M=Proper Motion

P=Precession

N=Nutation

A=Aberration

R=Refraction

F=Flexure

p=Parallax

+ =pointing model used... can change to a,b,c,d?

t=Sidereal

o=Object

b=Bias

If disabled, character will be replaced by "_"

DATE date based on UT

Args: N/A

Returns: [MM/DD/YYYY]

DEC Declination
Args: N/A
Returns [ddmmss.ss]

DISABLE Output state
Args: N/A
Returns: 1 for disabled, 0 for enabled

DISEPOCH Current Epoch
Args: N/A
Returns: XXXX.x

EL Elevation
Args: N/A
Returns: [ddd.dd]

EQ Equinox
Args: N/A
Returns: XXXXX.x

HA Hour Angle
Args: N/A
Returns: [dd:mm:ss]

JD Julian Date
Args: N/A
Returns: [JJJJJJJ.j]

FLEXFILE Retrieve contents of current flex file (Pointing Correction)
being used Added by Scott 12/2012
Args: N/A
Returns: [KEY1 Val1\n] [KEY2 VAL2\n] [KEY3 VAL3\n] ...

LIMITPROF Horizon limit profile as a function of azimuth Added by
Scott 12/2012
The first (and last) value given is the horizon limit
at 0 degrees azimuth
each subsequent value is a horizon limit at increments
of 15 degrees of azimuth
so the 2nd value is the limit at 15 degrees azimuth,
the third is the horizon limit
at 30 degrees azimuth etc.
Args: N/A
Returns [hh] [hh] [hh] [hh] ... (25 in all)

LIMIT limit status bits (ACCORDING TO JAVA GUI)
Args: N/A
Returns: this returns an 8 bit integer whose bits represent the
following

```

bit0(LSB) = RA low limit
bit1      = RA upper limit
bit2      = DEC low limit
bit3      = DEC upper limit
bit4-6    = unknown ???????
bit7      = limit warning?
bit8      = limit warning?
a 1 indicates limit active, 0 indicates limit not active

```

LIMIT limit status bits (ACCORDING TO ERIC CHRISTIENSEN)

Args: N/A

Returns: this returns an 8 bit integer whose bits represent the following

```

bit0(LSB) = RA/HA limit
bit1      = DEC limit
bit2      = derot.
bit3      = hor. hard limit
bit4      = hor. soft limit
bit5      = focus lo limit?
bit6      = focus hi limit?
a 1 indicates limit active, 0 indicates limit not active

```

MOTION Motion status bits

Args: N/A

Returns: this returns an 8 bit integer whose bits represent the following

```

bit0(LSB) = RA/AZ
bit1      = DEC/EL
bit2      = FOC
bit3      = DOME
bit4-8    = undefined
a 1 indicates axis in motion, 0 indicates no motion

```

PAD String describing hardware paddle button states

Args: N/A

Returns: any combination of the following characters

```

N = North
S = South
E = East
W = West
D = Drift (if not present, assume Guide)

```

A character is present if switch active, otherwise switch inactive

PADDRIFT Hardware paddle drift rate arcsec/sec

Args: N/A

Returns: -XXXXXXXXX.xxx

PADGUIDE Hardware paddle guide rate arcsec/sec

Args: N/A

Returns: -XXXXXXXXX.xxx

RA Right Assention
Args: N/A
Returns: [ddmmss.ss]

SECZ Air Mass
Args: N/A
Returns: [XXXXX.XX]

ST Sidereal Time
Args: N/A
Returns: [hh:mm:ss]

TIME Universal Time
Args: N/A
Returns: [HH:MM:SS]

VERIFY Verify that an RA/DEC position is within telescope limits
Args: [RA] [DEC] [Epoch]
RA=HH:MM:SS.ss
DEC=DD:MM:SS.ss
Epoch=EEEE.eeee
Returns: 1 if coordinate is within limits

XALL "Extended ALL"
Args: N/A
Returns: [FOC] [DOME] [IIS] [PA] [UTD] [JD]
FOC(focus pos) = +XXXXXX
DOME(Dome Position) = -180 (always this value...)
IIS(???) = -224.4 (always this value...)
PA(Paralactic Angle) = -145.7 (always this value...)
UTD(UT Date) = MM/DD/YYYY
JD(Julian Date) = XXXXXXXX.x

XDEC "Extended DEC"
Args: N/A
Returns: [COM] [NEXT] [REF] [OFF] [WOB] [DIFF] [BIAS] [GUIDE] [DRIFT]
COM(Commanded Position) = +HH:MM:SS.ss
NEXT(Next Position) = +HH:MM:SS.ss
REF(Reference Position) = +HH:MM:SS.ss
OFF(Offset Position) = +HH:MM:SS.ss
WOB(Wobble) = +HH:MM:SS.ss
DIFF(Difference) = +XXXXXXXXXX.xxx
BIAS(Bias Rate) = +XXXXXXXXXX.xxx
GUIDE(Guide Rate) = +XXXXXXXXXX.xxx
DRIFT(Drift Rate) = +XXXXXXXXXX.xxx

XRA "Extended RA"
Args: N/A
Returns: [COM] [NEXT] [REF] [OFF] [WOB] [DIFF] [BIAS] [GUIDE] [DRIFT]

```

COM(Commanded Position) = HH:MM:SS.ss
NEXT(Next Position) = HH:MM:SS.ss
REF(Reference Position) = HH:MM:SS.ss
OFF(Offset Position) = +HH:MM:SS.ss
WOB(Wobble) = +HH:MM:SS.ss
DIFF(Difference) = +XXXXXXXXXX.xxx
BIAS(Bias Rate) = +XXXXXXXXXX.xxx
GUIDE(Guide Rate) = +XXXXXXXXXX.xxx
DRIFT(Drift Rate) = +XXXXXXXXXX.xxx

```

undefined Request

```

TEST1  ??? >> probably useless but is currently in the command set
  Args: ???
  Returns: ???

```

```

INDEX  ???
  Args: ???
  Returns: ???

```

```

PP  ???
  Args: ???
  Returns: ???

```

```

SRVFRQ  ???
  Args: ???
  Returns: ???

```

Dome Request

```

DOME  Dome control information
  Args: "PARAM" returns dome setup parameters, all other strings return
control info
  Returns:
    Parameters: [CPD] [SD] [W] [SDW] [NU] [RHO] [PHI] [LOOK] [HOLD]
      CPD(Counts Per Degree) = XXX.xxxxxxx
      SD(Stow Degrees)= XXX.xxxxxxx
      W(Dome Width) = XXX.xxxxxxx
      SDW(Stow Dome Width)= XXX.xxxxxxx
      NU = XXX.xxxxxxx
      RHO = XXX.xxxxxxx
      PHI = XXX.xxxxxxx
      LOOK(Lookahead) = XX
      HOLD(Hold Dome) = XX
    Control Info: [DEL] [MOD] [INIT] [TELAZ] [AZ] [HOME]
      DEL(Delta Position) = +XXX.XXXXXXX
      MOD(Mode) = XX
      INIT(Initialized) = XX

```

```
TELAZ(Telescope Azmouth) = +XXX.XXXXXXX  
AZ(Dome Azmouth) = +XXX.XXXXXXX  
HOME(Home Position) = +XXX.XXXXXXX
```

Focus Request

FOCSPEED Focus Speed

Args: N/A

Returns: ["FAST" or "SLOW"]

FOCUS Focus position

Args: N/A

Returns: +XXXXX

Commands

ABERRATE Aberration corrections enable/disable

Args: "ON" = enable, any other string will disable

Returns: "OK" or "FAILED"

BIAS Bias enable/disable

Args: "ON" = enable, any other string will disable

Returns: "OK" or "FAILED"

BIASDEC DEC bias rate in arcseconds/second

Args: [XXXXX.XX]

Returns: "OK" or "FAILED"

BIASRA RA biasrate in arcsseconds/second

Args: [XXXXX.XX]

Returns: "OK" or "FAILED"

CANCEL Cancel current move

Args: N/A

Returns: "OK" or "FAILED"

CLEARDIFF Clear RA and DEC difference value

Args: N/A

Returns: N/A

DISABLE disable motion output

Args: N/A

Returns: "OK" or "FAILED"

DISEPOCH Set Epoch

Args: XXXX.x

Returns: "OK" or "FAILED"

DECLARE Initialize current position

Args: "INITNEXT" to initialize "NEXT" position as current position

"INITCOM" to initialize "COMMANDED" position as current position

Returns: "OK" or "FAILED"

ELAZ Move to position in Elevation and Azimuth

Args: [EE.EE] [AAA.AA]

Returns: "OK" or "FAILED"

ENABLE enable motion output

Args: N/A

Returns: "OK" or "FAILED"

FLEX Flexure corrections enable/disable

Args: "ON" = enable, any other string will disable

Returns: "OK" or "FAILED"

LIMIT Limit override >> USE WITH EXTREME CAUTION!!!!

Args: "INHIBIT" will override limits, all other strings will enable limits

Returns: "OK" or "FAILED"

MOVNEXT Move to NEXT position

Args: N/A

Returns: "OK" or "FAILED"

MOVOFF move to OFFSET position

Args: N/A

Returns: "OK" or "FAILED"

MOVRADEC Move to RA-DEC position

Args: RA DEC EPOCH RAPM DECPM

RA = HH:MM:SS.ss

DEC = +DD:MM:SS.ss

EPOCH = EEEE.eeee

RAPM(RA Proper Motion) = XXXXX.xxx

DECPM(DEC Proper Motion) = XXXXX.xxx

Returns: "OK" or "FAILED"

MOVSTOW Move to stow position

Args: N/A

Returns: "OK" or "FAILED"

MOVWOB MOVWOB beam

Args: ???

Returns: ???

NEXTPOS Set NEXT position

Args: RA DEC EPOCH RAPM DECPM
RA = HH:MM:SS.ss
DEC = +DD:MM:SS.ss
EPOCH = EEEE.eeee
RAPM(RA Proper Motion) = XXXXX.xxx
DECPM(DEC Proper Motion) = XXXXX.xxx
Returns: "OK" or "FAILED"

NUTAT Nutation corrections enable/disable
Args: "ON" = enable, any other string will disable
Returns: "OK" or "FAILED"

PAD Software paddle command [Direction] [rate] or PAD XX for termination
This function is not recommended for use near the
horizon limits!
Args: [Direction] [rate]
DIRECTION = NORTH, SOUTH, EAST, WEST, NE, NW, SE, SW
RATE = XXXXXX.xx (arcsecs/sec)
any string not described in DIRECTION will terminate paddle
this terminate string must be sent at the end of each
movement
when the button is released.
Returns: "OK" or "FAILED"

PADDLE Paddle enable/disable
Args: "ON" = enable, any other string will disable
Returns: "OK" or "FAILED"

PADDRIFT Paddle Drift rate in arcseconds/second
Args: [XXXXX.XX]
Returns: "OK" or "FAILED"

PADGUIDE Paddle Guide rate in arcseconds/second
Args: [XXXXX.XX]
Returns: "OK" or "FAILED"

PARALLAX Parallax corrections enable/disable
Args: "ON" = enable, any other string will disable
Returns: "OK" or "FAILED"

PARAM ???
Args: ???
Returns: ???

PRECES Precession corrections enable/disable
Args: "ON" = enable, any other string will disable
Returns: "OK" or "FAILED"

PROPMO Proper motion corrections enable/disable

Args: "ON" = enable, any other string will disable
Returns: "OK" or "FAILED"

REFPOS REFerence POSition (tod)

Args: ???
Returns: ???

REFRAC Refraction corrections enable/disable

Args: "ON" = enable, any other string will disable
Returns: "OK" or "FAILED"

STEPDEC Move Declination XXXXX.XX arcseconds

Args: [XXXXX.XX]
Returns: "OK" or "FAILED"

STEPRA Move Right Assention XXXXX.XX arcseconds

Args: [XXXXX.XX]
Returns: "OK" or "FAILED"

TRACK Enable/Disable sidereal tracking

Args: "ON" = enable, any other string will disable
Returns: "OK" or "FAILED"

WOBBLE WOBBLE -HH:MM:SS.ss -DD:MM:SS.ss

Args: ???
Returns: ???

Catalogs Command

ABELL ABELL Catalog object XXXXXXXX

Args: XXXXXXXX
Returns: "OK" or "FAILED"

FK5 FK5 Catalog object XXXXXXXX

Args: XXXXXXXX
Returns: "OK" or "FAILED"

IC IC Catalog object XXXXXXXX

Args: XXXXXXXX
Returns: "OK" or "FAILED"

NGC NGC Catalog object XXXXXXXX

Args: XXXXXXXX
Returns: "OK" or "FAILED"

OKESTONE Okestone Catalog object XXXXXXXX

Args: XXXXXXXX
Returns: "OK" or "FAILED"

PPM PPM Catalog object XXXXXXXX
Args: XXXXXXXX
Returns: "OK" or "FAILED"

SAO SAO Catalog Object XXXXXXXX
Args: XXXXXXXX
Returns: "OK" or "FAILED"

YBCS YBCS Catalog Object XXXXXXXX
Args: XXXXXXXX
Returns: "OK" or "FAILED"

ZWICKY ZWICKY Catalog object XXXXXXXX
Args: XXXXXXXX
Returns: "OK" or "FAILED"

Planets Command

MERCURY Track Mercury
Args: N/A
Returns: "OK" or "FAILED"

VENUS Track Venus
Args: N/A
Returns: "OK" or "FAILED"

MARS Track Mars
Args: N/A
Returns: "OK" or "FAILED"

JUPITER Track Jupiter
Args: N/A
Returns: "OK" or "FAILED"

SATURN Track Saturn
Args: N/A
Returns: "OK" or "FAILED"

URANUS Track Uranus
Args: N/A
Returns: "OK" or "FAILED"

NEPTUNE Track Neptune
Args: N/A
Returns: "OK" or "FAILED"

PLUTO Track Pluto
Args: N/A

Returns: "OK" or "FAILED"

MOON Track Moon

Args: N/A

Returns: "OK" or "FAILED"

SUN Track Sun

Args: N/A

Returns: "OK" or "FAILED"

DOME Command dome control

Args: This command takes one argument at a time from the following

AUTO Autodome enable

Args: ON = autodome on, any other = autodome off

Returns: "OK" or "FAILED"

INIT Initialize dome

Args: N/A

Returns: "OK" or "FAILED"

STOW Stow dome

Args: N/A

Returns: "OK" or "FAILED"

LOOKAHEAD Lookahead enable

Args: positive nonzero number=enable, any other = disable

Returns: "OK" or "FAILED"

PARAM Set Dome Parameters

Args: [CPD] [SD] [W] [SDW] [NU] [RHO] [PHI] [LOOK] [HOLD]

CPD(Counts Per Degree) = XXX.xxxxxxx

SD(Stow Degrees)= XXX.xxxxxxx

W(Dome Width) = XXX.xxxxxxx

SDW(Stow Dome Width)= XXX.xxxxxxx

NU = XXX.xxxxxxx

RHO = XXX.xxxxxxx

PHI = XXX.xxxxxxx

LOOK(Lookahead) = XX

HOLD(Hold Dome) = XX

Returns: "OK" or "FAILED"

PADDLE Control Paddle buttons

Args: RIGHT = move right, LEFT = move left, any other= stop

Returns: "OK" or "FAILED"

FOCUS move to absolute focus value XXXXXXXX

Args: XXXXXXXX

Returns: "OK" or "FAILED"

RELFOCUS relative move focus value XXXXXXXX

Args: XXXXXXXX
Returns: "OK" or "FAILED"

FOCZERO Zero current focus position

Args: N/A
Returns: "OK" or "FAILED"

FOCSTOP focus paddle stop

Args: N/A
Returns: "OK" or "FAILED"

FOCUP focus paddle up

Args: N/A
Returns: "OK" or "FAILED"

FOCDN focus paddle down

Args: N/A
Returns: "OK" or "FAILED"

FOCSPEED Set focus speed

Args: "FAST" sets to fast, all other strings set speed slow
Returns: "OK" or "FAILED"

PEC Request

PECSTAT Current PEC operation status

Args: N/A
Returns: [PEC_Condition] [PEC_Count] [PEC_Index] [PEC_Mode]

PECPRG Current PEC programming status

Args: N/A
Returns: [Percent_Done] [PEC_Correction]

Command

PECFILE Attempt to create a PEC file.

Args: ???
Returns: ???

PEC Turn on PEC

Args: "ON" = enable, any other string will disable
Returns: "OK" or "FAILED"

Servo Request

CON ??? >> SERVO STUFF... NOT FOR NORMAL USE

Args: ???
Returns: ???

```
SAMDATA ??? >> SERVO STUFF... NOT FOR NORMAL USE  
  Args: ???  
  Returns: ???
```

```
SAMDONE ??? >> SERVO STUFF... NOT FOR NORMAL USE  
  Args: ???  
  Returns: ???
```

```
SERVO  ??? >> SERVO STUFF... NOT FOR NORMAL USE  
  Args: ???  
  Returns: ???
```

Command

```
WCON  axis, gd gp gi dmax vmax groot >> SERVO CONST... DO NOT MODIFY  
  Args: ???  
  Returns: ???
```

```
SERVO  ??? >> AXIS SERVO SAMPLING... DO NOT MODIFY  
  Args: ???  
  Returns: ???
```

```
GD  axis, value >> SERVO CONST... DO NOT MODIFY  
  Args: ???  
  Returns: ???
```

```
GP  axis, value >> SERVO CONST... DO NOT MODIFY  
  Args: ???  
  Returns: ???
```

```
GPI axis, value >> SERVO CONST... DO NOT MODIFY  
  Args: ???  
  Returns: ???
```

```
DMAX  axis, value >> SERVO CONST... DO NOT MODIFY  
  Args: ???  
  Returns: ???
```

```
VMAX  axis, value >> SERVO CONST... DO NOT MODIFY  
  Args: ???  
  Returns: ???
```

```
PERMAX axis, value >> SERVO CONST... DO NOT MODIFY  
  Args: ???  
  Returns: ???
```

```
SAMPLE axis, interval, total samples >> AXIS SERVO SAMPLING... DO NOT  
MODIFY  
  Args: ???
```

Returns: ???

DUMPSAM axis >> AXIS SERVO SAMPLING... DO NOT MODIFY
Args: ???
Returns: ???

SAMSTART ??? >> AXIS SERVO SAMPLING... DO NOT MODIFY
Args: ???
Returns: ???

SAMABORT ??? >> AXIS SERVO SAMPLING... DO NOT MODIFY
Args: ???
Returns: ???

SYSSAVE ???
Args: ???
Returns: ???

SYSKILL Kills TCS process after disabling stopping all telescope motion.
Args: N/A
Returns: OK or Failure
SYSRESET Restarts TCS process after disbling the telescope Added
by Scott 12/2012
Telescope should be stowed before doing this.
Args: N/A
Returns OK or Failure

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