TCS Commands Reference Manual

SOAR TCS

Revision 1.1.9, July 2022

Change Record

Version	*Date*	*Description*	*Owner Name*
1.0.0	June 07, 2005	Created	O.Estay
1.1.0	October 27, 2014	Add TARGET command description.	R.Cantarutti
1.1.1	October 03, 2016	Add INFOG, SINFO and ROTSPOS command description.	O. Estay
1.1.2	October 05, 2016	Add WHITESPOT command description.	O. Estay
1.1.3	February 19, 2019	Add TARGET MOUNT command description.	O. Estay
1.1.4	February 20, 2019	Add IPA command description.	O. Estay
1.1.5	March 4, 2019	Add LAMP command description.	O. Estay
1.1.6	June 26, 2019	Add special command INFOA	O. Estay
1.1.7	March 11, 2021	Add TCS_PARALLACTICANGLE key to INFOA	O. Estay
1.1.8	December 06, 2021	Add ADC and INSTRUMENT commands.	O. Estay
1.1.9	July 26, 2022	Add ADC TRACK ENABLE|DISABLE	O. Estay

1. Command Protocol

The SOAR TCS accepts commands from other applications through a TCP/IP port. The commands are ASCII strings that request data or an action to be performed on behalf of the requester. The general structure of a command consists of a keyword, followed by an optional action word and parameters.

The TCS response to a command is also an ASCII string, whose first token is one of DONE, ACTIVE or ERROR. Following this first token is a list of optional data depending on the command that was invoked.

2. Command Reference

WAY

(Who are you?) This command returns an identification string.

For example:

```
WAY
DONE SOAR 4.2M
```

OFFSET (MOVE | STATUS)

This command send an offset motion request to the TCS. The offset is given in units of arcseconds, and must be preceded by one of the direction characters N, S, E and W.

For example:

```
OFFSET MOVE E 34.3 N 56.7
ACTIVE 54.797746 56.700000
OFFSET STATUS
ACTIVE 10.345630 12.543600
OFFSET STATUS
DONE
```

FOCUS (MOVEABS | MOVEREL | STATUS)

This command requests actions to the focus mechanism associated with the secondary mirror (M2).

MOVEABS value
Moves the focus to an absolute position given by the value in microns.
MOVEREL +/- value
Moves the focus a certain value in microns from the present position.
STATUS

Return the status of the motion (if any) and the present focus position.

For example:

FOCUS STATUS
DONE 5300
FOCUS MOVEABS 5500
ACTIVE 5300
FOCUS STATUS
ACTIVE 5450
FOCUS STATUS
DONE 5500

CLM (IN | OUT | STATUS)

This command requests actions to the comparison lamps mirror mechanism.

CLM IN
Moves the mirror to work position.
CLM OUT
Moves the mirror to out of work position.
STATUS
Return the status of the comparison lamps mirrors.

For example:

CLM STATUS
DONE OUT
CLM IN
ACTIVE
CLM STATUS
ACTIVE
CLM STATUS
DONE IN

GUIDER (DISABLE | ENABLE | STATUS)

This command enable or disable the guider device.

For example:

GUIDER ENABLE
DONE ENABLE
GUIDER STATUS
DONE ENABLE

WHITESPOT (ON | OFF | STATUS)

This command requests actions to the lamps associated with the white spot.

OFF
Turn off the lamps.
ON value
Turn on the lamps, where the value is given in percentage.
STATUS
Return the status of the lamps.

For example:

```
WHITESPOT ON 50
DONE
WHITESPOT STATUS
DONE 50
WHITESPOT OFF
DONE
WHITESPOT STATUS
DONE 0
```

LAMP LN (ON|OFF | STATUS)

This command turns on or off the calibration lamps. Where “LN” is the location of the lamp (1 to 12).

For example:

```
LAMP L2 ON
ACTIVE
LAMP L2 STATUS
DONE L2 ON (Cu)
```

There are two position that have dimmers, position L9 and L12, therefore, a percentage must be added.
For example:

```
LAMP L9 ON 50.0
ACTIVE
LAMP L9 STATUS
DONE L9 ON (Quartz) 50.0
```

ADC (MOVE | IN | PARK | STATUS | TRACK)

To work with the ADC, you must first place it in the IN position, after that, you can command it between [0, 100] %.
If you use ADC TRACK, you must add ENABLE | DISABLE.

For example:

```
ADC IN
ACTIVE
```

ADC STATUS
ACTIVE
ADC STATUS
DONE
.
.
ADC MOVE 50
ADC STATUS
ACTIVE
ADC STATUS
DONE

INFO

This command returns a long list of parameters, as follows:

date
time
right ascension
declination
hour angle
azimuth
elevation
rotator angle
dome azimuth
dome elevation
airmass
dome ready
dome init
shutter init

For example:

INFO
DONE 2002-04-15 17:06:52 05:52:53.81 -52:14:46.54 -03:54:13.05 136.34 42.31 274.64 136.34 42.31 1.484 1 1 1

INFOX

This command returns a long list of parameters, as follows:

mjd
sideral time
position adc
telescope focus
outside temperature
humidity
pressure

wind direction
wind speed
actual target telescope (Ra/Dec)
weather date
zenith distance
ra pangl
dec pangl
rotator offset
inside temperature
dimm seeing

For example:

INFOX
DONE 53490 01:34:30.2 IN_DONE_51.60 -1420.00 8.5 34.1 738.0 357.1 13.2 11:23:59.374 -12:17:48.001 2005-04-30T03:07:01 27.76 -90.0 0.0 0.0 9.0 0.8

TARGET (MOVE | MOUNT | STATUS | STOP)

This command send a new position request to the TCS. The target is given in units of RA (HH:MM:SS.SS), DEC (DD:MM:SS.SS) and EPOCH (year).
This command involves the movement of mount, dome, rotator, adc and optics. If it is required to know only the state of the mount, use option "MOUNT"

For example:

TARGET MOVE RA=07:43:48.40 DEC=-28:57:18.00 EPOCH=2000.0
ACTIVE
TARGET STATUS
ACTIVE RA=07:43:01.45 DEC=-28:50:12.23
TARGET STATUS
DONE RA=07:43:48.40 DEC=-28:57:18.00

IPA (MOVE | STATUS)

This command set a new instrument position angle to the TCS. The IPA is given in units of degrees.

For example:

IPA MOVE 90.0
ACTIVE
IPA STATUS
ACTIVE
IPA STATUS
DONE IPA=90.0

3. Special Commands

INSTRUMENT (MOVE | STATUS) (valid only for AEON)

This command select the new instrument in use.

For example:

INSTRUMENT MOVE GOODMAN

ACTIVE

INSTRUMENT STATUS

ACTIVE

.

.

INSTRUMENT STATUS

DONE GOODMAN

GINFO

This command returns a long list of parameters, as follows:

telescope elevation
telescope azimuth
telescope focus
wind speed
seeing
rotator position
ipa
iaa
ipa
iaa
m3 position
guider x position
guider y position
guider focus
guider star id

For example:

GINFO
DONE 70.56 180.30 -1420.00 13.2 0.9 250.4 90.0 0.0 90.0 0.0 5 0.0 0.0 3.2 2516

SINFO

This command returns a long list of parameters, as follows:

right ascension
declination
epoch
telescope elevation
telescope azimuth
telescope focus
outside temperature
humidity
pressure
wind direction
wind speed
seeing
rotator position
ipa
ipa
m3 position

For example:

SINFO
DONE 05:52:53.81 -52:14:46.54 2000.0 136.34 42.31 -1420.00 7.6 55.5 738.4 306.0 16.92 0.9 274.64 90.0 90.0 5

ROTSPOS

This command returns a long list of parameters, as follows:

rotator position
ipa
iaa
ipa
iaa
m3 position

For example:

ROTSPOS
DONE 274.64 90.0 0.0 90.0 0.0 5

INFOA

This command returns a long list of parameters, as follows:

date
universal time
right ascension

declination
hour angle
telescope azimuth
telescope elevation
sidereal time
parallactic angle
mjd
telescope focus
airmass
ipa
rotator position
irot
m3 position
outside temperature
humidity
pressure
wind direction
wind speed
inside temperature
ecs time stamp
dimm seeing
dome azimuth
shutter elevation
guider star id
guider x position
guider y position
comparison lamp mirror
lamp 1 state
lamp 1 tag
lamp 2 state
lamp 2 tag
lamp 3 state
lamp 3 tag
lamp 4 state
lamp 4 tag
lamp 5 state
lamp 5 tag
lamp 6 state
lamp 6 tag
lamp 7 state
lamp 7 tag
lamp 8 state
lamp 8 tag
lamp 9 state
lamp 9 tag
lamp 10 state
lamp 10 tag

lamp 11 state
lamp 11 tag

For example:

INFOA
DONE TCS_DATE=2019-06-26 TCS_UT=19:07:23.558
MOUNT_RA=08:40:58.775 MOUNT_DEC=22:29:05.070
MOUNT_HA=00:01:57.062 MOUNT_AZ=359.983700 MOUNT_EL=37.004100
TCS_ST=08:42:55.837 TCS_PARALLACTICANGLE=90.0 TCS_MJD=58660
TCS_FOCUS=-1570.31 TCS_AIRMASS=1.66 TCS_IPA=0.000
NIR_POS=359.9 IROT_TRIPLESPEC=40.7 M3_POS=5 ECS_TEM-
POUT=5.800000 ECS_HUMIDITY=39.200000 ECS_PRESSURE=733.600000
ECS_WINDDIR=319.000000 ECS_WINDSPD=33.840000
ECS_TEMPIN=4.783000 ECS_TIMESTAMP=2019-06-26T19:07:17 ECS_SEE-
ING=-1 DOME_AZ=89.983956 SHUTTER_EL=0.000324 GUIDER_STARID=
ISBIR_GUIDERX=-0.107 ISBIR_GUIDERY=2.841 ISBIR_CLM=OUT
LAMP_1=OFF TAG_1=Hg(Ar) LAMP_2=OFF TAG_2=Neon LAMP_3=OFF
TAG_3=Argon LAMP_4=OFF TAG_4=Hollow LAMP_5=OFF TAG_5=None
LAMP_6=OFF TAG_6=None LAMP_7=OFF TAG_7=None LAMP_8=OFF
TAG_8=None LAMP_9=OFF TAG_9=Quartz LAMP_10=OFF TAG_10=None
LAMP_11=OFF TAG_11=None LAMP_12=OFF TAG_12=None