

RACELOGIC Support Centre

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01 - Remote Control Introduction

LabSat 3 is equipped with an Ethernet interface to allow remote control over a Local Area Network (LAN). Remote control is accomplished using simple text based commands through the Telnet protocol. For users wishing to control LabSat 3 using the C# programming language, an API is available which will further simplify connection and control. For details of the API and an example application using the API, please see separate API documentation.



02 - Remote Control Terminal Software

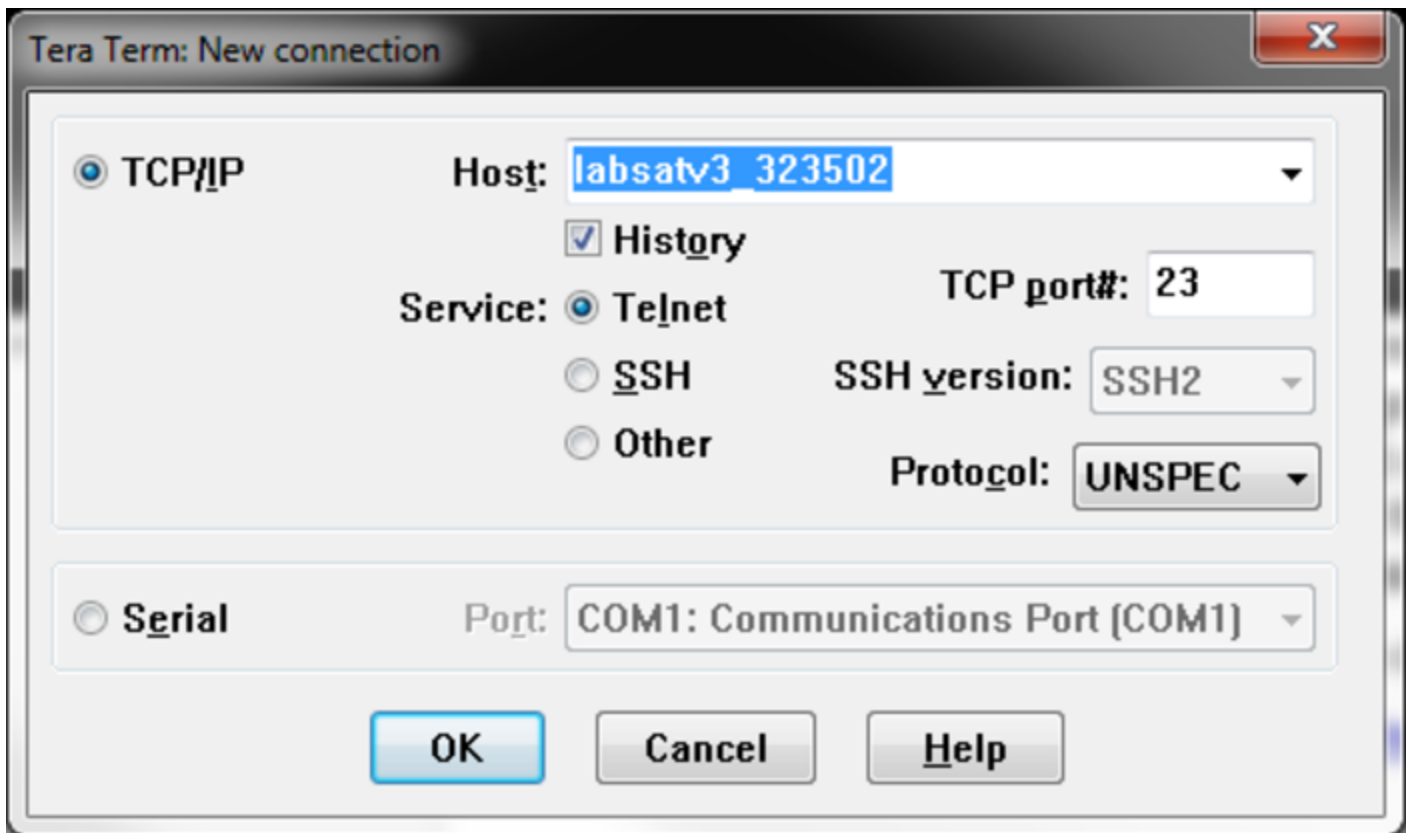
LabSat 3 can be remote accessed and controlled using most terminal software that supports a PORT 23 Telnet connection. Tera Term Pro is one example. Once connected, commands can be manually entered into a terminal program to remotely control LabSat 3. Commands are linked with the ':' character and are executed on reception of the carriage return character.

Tera term Pro V4.80 can be downloaded here:

<http://en.sourceforge.jp/frs/redirect.php?m=jaist&f=%2Fftssh2%2F59957%2Fteraterm-4.80.exe>

To open a connection to LabSat 3 in Tera Term, select '**new connection**' and then enter '**labsatv3_[serial number]**' into the Host box. Make sure that the Telnet radio button is checked. See the connection example below.





Click 'OK' to connect and if successful, a 'LABSATV3 >' prompt should be shown. Type 'help' and press [ENTER] to show available commands along with the firmware version.



```
LABSATV3 >help
Product Name      : RLL03-3
Product Version   : 01.04 Build 0956
```

```
Current commands are :
```

```
help
?
ATTN
CONF
FIND
MEDIA
MON
MUTE
NOISE
PLAY
REC
TYPE
```

```
LABSATV3 >|
```



03 - Remote Control Connecting to LabSat 3

LabSat 3 is connected to the network using a standard Ethernet cable plugged into the RJ45 'Ethernet' connector on the rear panel. LabSat 3 can operate with a fixed IP address or using the DHCP protocol where an IP address is automatically obtained from a network server. Contact your network administrator for advice on which is best for your application.

Network configuration options are accessed via the menu under SETUP.

Setup

- **LAN**
 - **DHCP** – Tick to select/deselect (When deselected manual options below are available)
 - **IP Address** – Allows IP Address to be set manually
 - **SUBNET MASK** – Allows SUBNET MASK to be set manually
 - **DEFAULT GATEWAY**- Allows DEFAULT GATEWAY to be set manually

After changing any network settings, it is necessary to power-cycle the LabSat 3 to re-connect to the network.

To check connection to LabSat 3 over your network, use the 'ping' command from windows command prompt along with labsatv3_xxyyzz where xxyyzz is the serial number including any leading zeroes.

An example is shown below including the successful response from the LabSat 3.



```
Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

M:\>ping labsatv3_323502

Pinging labsatv3_323502 [192.168.1.126] with 32 bytes of data:
Reply from 192.168.1.126: bytes=32 time<1ms TTL=255
Reply from 192.168.1.126: bytes=32 time<1ms TTL=255
Reply from 192.168.1.126: bytes=32 time<1ms TTL=255
Reply from 192.168.1.126: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.126:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

M:\>
```

If you have a fixed IP address or know the DHCP assigned IP address, it is also possible to ping the IP address directly, for example - PING 192.168.1.126



04 - Remote Control Commands

Top Level Command Overview

See subsections for detailed explanation of each command.

| Command | Function |
|-----------------------------|---|
| PLAY | Play or query file. User can add FROM and FOR options to define start position as number of seconds into the file and also duration of replay in seconds. |
| REC (Record) | Record or query file. User can add FOR option to define duration of record in seconds. |
| ATTN (Attenuation) | Set output attenuation. Attenuation level in dB. |
| MUTE | Mute all channels. |
| CONF (Configuration) | Used to configure menu options and read current user configurations. |
| TYPE | Return All text from 'About' menu e.g. SN, and unit type. |
| MEDIA | Media storage functions. Used to swap between SD card and USB drive. List files on media and change directories. |
| NOISE | Set output additional noise level where opt channel. Level is in % 0 to 100 |
| HELP | Display List of commands for current Level. E.g.; Just HELP:<CR> will list all top level commands. HELP:PLAY:<CR> will list the PLAY commands. |



| Command | Function |
|--|---|
| MON (Monitor) | Monitor functions such as request levels, switch, raw NMEA output. |
| FIND | Beep and flash display. E.g. to identify single unit among multiple units. Backlight should Flash 500 on then 500 ms off and beep 500 ms on /500 ms off for total of 5 seconds. |
| <p>Note: For all commands except LIST, inserting a '?' character in place of a setting value will cause the unit to respond with the data. EG; PLAY:? <CR> will return <filename><CR> of current file if playing else ERR<CR>.</p> | |

Tip

<CR> means carriage return which is the ASCII character 0x0D or char(13) but not the individual characters '<' 'C' 'R' '>'

If manually typing commands in a Telnet terminal, <CR> simply means pressing the ENTER key



PLAY Commands

| Specification | Command |
|---|---|
| Replay file from start to end | PLAY:FILE: <u>name</u> |
| Replay file from start point for defined duration | PLAY:FILE: <u>name</u> :FOR: <u>duration</u> |
| Replay file from a selected time to the end | PLAY:FILE: <u>name</u> :FROM: <u>time</u> |
| Replay file from a selected time for a defined duration | PLAY:FILE: <u>name</u> :FROM: <u>time</u> :FOR: <u>duration</u> |
| Stop replaying | PLAY:STOP |
| Query the replay status (name & current duration) | PLAY:? |

Please note: Time and Duration in the commands above should be entered in seconds format.



REC Commands

| Specification | Command |
|---|---|
| Record with a default file name | REC |
| Record with a user defined file name | REC:FILE: <u>name</u> |
| Record with a default file name for a set duration | REC:FOR: <u>duration</u> |
| Record with a user defined file name for a set duration | REC:FILE: <u>name</u> :FOR: <u>duration</u> |
| Stop recording | REC:STOP |
| Query the record status (name & current duration) | REC:? |

Please note: Duration in the commands above should be entered in seconds format.

ATTN Command

| Specification | Command |
|--|--------------------|
| Add attenuation on replay (all signals being replayed) | ATTN: <u>value</u> |
| Query the attenuation setting | ATTN:? |

MUTE Commands

| Specification | Command |
|---|---|
| Mute all satellite constellations | MUTE:Y |
| Unmute all satellite constellations | MUTE:N |
| Mute a specific satellite channel (or two for triple) | MUTE:Y, <u>constellation</u> , <u>constellation</u> |
| Unmute a specific satellite channel (or two for triple) | MUTE:N, <u>constellation</u> , <u>constellation</u> |



MON Commands

| Specification | Command |
|----------------------------------|--------------|
| Enable live NMEA stream | MON:NMEA:ON |
| Disable live NMEA stream | MON:NMEA:OFF |
| Request CNO | MON:SAT |
| Request time, height, lat & long | MON:LOC |

NOISE Command

| Specification | Command |
|---|---------------------|
| Set additional output noise level on all constellations | NOISE: <u>value</u> |
| Query the noise setting | NOISE:? |

CONF Commands

| Specification | Command |
|---|--|
| Enable scenarios to be replayed continuously | CONF:PLAY:LOOP:Y |
| Disable continuous replay | CONF:PLAY:LOOP:N |
| Create a pause between each replay | CONF:PLAY:PAUSE: <u>duration</u> |
| Time all replays will begin from (seconds) | CONF:PLAY:FROM: <u>time</u> |
| Length of time all replays will play for (seconds) | CONF:PLAY:FOR: <u>duration</u> |
| Length of time all recordings will record for (seconds) | CONF:RECORD:FOR: <u>duration</u> |
| Setting single constellation | CONF:CONS: <u>constellation</u> |
| Setting dual constellation | CONF:CONS: <u>constellation1, constellation2</u> |
| Setting triple constellation | CONF:CONS: <u>constellation1, constellation2, constellation3</u> |



| Specification | Command |
|---|---|
| Setting a constellation to 2bit | CONF:CONS: <u>constellation</u> : <u>2bit</u> |
| Changing the display contrast | CONF:SETUP:DISP:CONT: <u>value</u> |
| Changing the display brightness | CONF:SETUP:DISP:BRIG: <u>value</u> |
| Enabling power save mode | CONF:SETUP:PSAV:Y |
| Disabling power save mode | CONF:SETUP:PSAV:N |
| Enable external reference clock | CONF:SETUP:EXT:Y |
| Disable external reference clock | CONF:SETUP:EXT:N |
| Enable the OCXO * | CONF:SETUP:EXT:OCXO |
| Enabling UTC time | CONF:SETUP:TIME:UTC:Y |
| Disabling UTC time | CONF:SETUP:TIME:UTC:N |
| Manually setting time (UTC time must be disabled prior to issuing) | CONF:SETUP:TIME:MAN: <u>yy:mm:dd:hh:mm:ss</u> |
| Enabling digital channel 1 | CONF:SETUP:DIGI:CH1: <u>function</u> |
| Enabling digital channel 2 | CONF:SETUP:DIGI:CH2: <u>function</u> |
| Disabling digital channel 1 | CONF:SETUP:DIGI:CH1:OFF |
| Disabling digital channel 2 | CONF:SETUP:DIGI:CH2:OFF |
| Enabling digitized CAN recording | CONF:SETUP:CAN:DIGI |
| Enabling arbitrated CAN recording | CONF:SETUP:CAN:FILE |
| Setting the baud rate on channel 1 | CONF:SETUP:CAN:CH1:BAUD: <u>value</u> |
| Setting the baud rate on channel 2 | CONF:SETUP:CAN:CH2:BAUD: <u>value</u> |
| Enabling/disabling silent record on channel 1 | CONF:SETUP:CAN:CH1:SILENT: <u>Y/N</u> |



| Specification | Command |
|---|---------------------------------------|
| Enabling/disabling silent record on channel 2 | CONF:SETUP:CAN:CH2:SILENT: <u>Y/N</u> |
| Returns the units configuration | CONF:? |

*The LabSat 3 in use must be fitted with the OCXO feature for this function to be enabled

MEDIA Commands

| Specification | Command |
|--|-------------------------------|
| Show all files on the media | MEDIA:LIST |
| Switch which media is being used | MEDIA:SELECT: <i>media</i> |
| Open a directory (cannot skip folders) | MEDIA:CHDIR: <i>directory</i> |
| Go back one directory | MEDIA:CHDIR:.. |
| Go back to root of the media | MEDIA:CHDIR:\ |
| Query which media is in use | MEDIA:? |
| Delete a file | MEDIA:DELETE: <i>file</i> |

HELP Command

The help keyword is used to display the currently available commands for each level of the tree.

For example, HELP<CR> will return:-

Product Name : RLL03-2

Product Version : 01.05 Build 1033

Current commands are:

help

?



ATTN
CONF
FIND
MEDIA
MON
MUTE
NOISE
PLAY
REC
TYPE

To find out what subcommands are available under the configuration (CONF), send HELP:CONF<CR> which will show:-

CONS
PLAY
SETUP
?

Then to list SETUP options, send HELP:CONF:SETUP<CR> which would give:-

DISP
PSAV
EXT
TIME
DIGI
CAN

