

## LabSat GNSS Simulators LabSat 3 Remote Control (Telnet) User Guide

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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

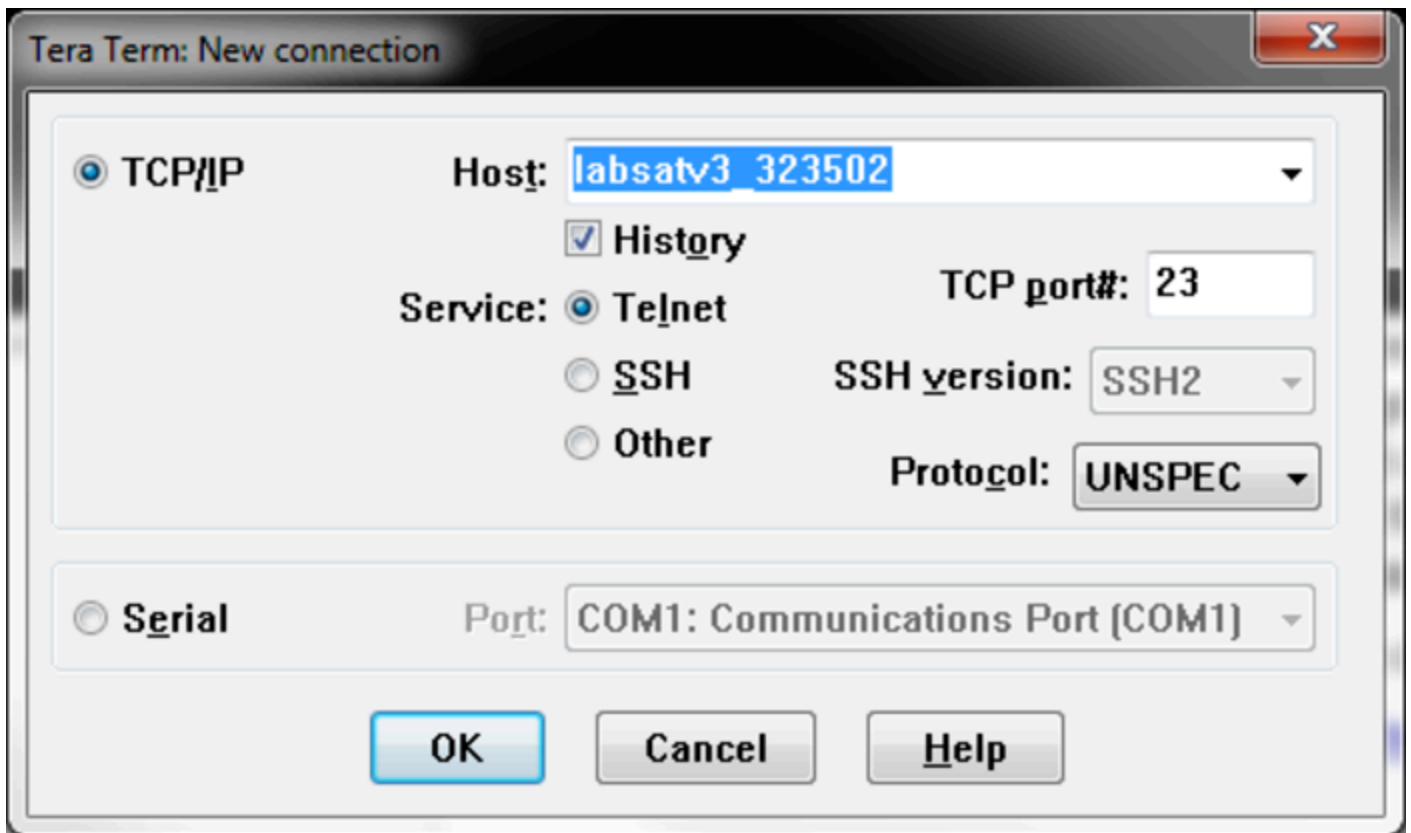
LabSat 3 can be remote accessed and controlled using most terminal software that supports a PORT 23 Telnet connection. Tera Term Pro is one example. Once connected, commands can be manually entered into a terminal program to remotely control LabSat 3. Commands are linked with the ':' character and are 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=%2Ftssh2%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
<b>PLAY</b>	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.
<b>REC (Record)</b>	Record or query file. User can add FOR option to define duration of record in seconds.
<b>ATTN (Attenuation)</b>	Set output attenuation. Attenuation level in dB.
<b>MUTE</b>	Mute all channels.
<b>CONF (Configuration)</b>	Used to configure menu options and read current user configurations.
<b>TYPE</b>	Return All text from 'About' menu e.g. SN, and unit type.
<b>MEDIA</b>	Media storage functions. Used to swap between SD card and USB drive. List files on media and change directories.
<b>NOISE</b>	Set output additional noise level where opt channel.  Level is in % 0 to 100
<b>HELP</b>	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.
<b>MON (Monitor)</b>	Monitor functions such as request levels, switch, raw





Command	Function
	NMEA output.
<b>FIND</b>	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:? &lt;CR&gt; will return &lt;filename&gt;&lt;CR&gt; of current file if playing else ERR&lt;CR&gt;.</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.



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## 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.

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## ATTN Command

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

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## 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>



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## 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

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## 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,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

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## 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>

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## 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

?



[https://en.racelogic.support/Product\\_Info/LabSat\\_3/LabSat\\_3\\_-\\_Remote\\_Control\\_\(Telnet\)/04\\_-\\_Remote\\_Control\\_Commands](https://en.racelogic.support/Product_Info/LabSat_3/LabSat_3_-_Remote_Control_(Telnet)/04_-_Remote_Control_Commands)

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

