

GPS Hiper Ga with FC-2000 Network RTK (NTRIP) SURVEY PROCEDURE GUIDE

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Introduction:

Real Time Kinematic surveying used for topographic survey and stakeout, and is the most precise method of Real Time surveying. The concept of GPS Network Reference Stations allows us to eliminate/reduce systematic errors in reference station data, to provide high-accuracy, real-time kinematic (RTK) GNSS positioning for wider areas. A VRS network improves productivity while at the same time reduces costs, by eliminating the need to set up a base station.

The purpose of this guide is to provide a step-by-step procedure for completing RTK topographic surveys using the Topcon hardware and software. This guide consists of following sections:

Initial Setup Topography Surveying Importing Job Exporting Job Localization

Hardware Required:

Topcon Hiper Ga Dual-frequency receiver Topcon Controller FC-2000 with Bluetooth Card (Data Collector) Mobile with SIM Card

Software Required:

TopSurv running in Windows CE operating system (on FC-2000) Top Link software for PC (Download)

Our Related Guides:

TopSurv User Manual TopSurv Reference Manual GR3 Operator's Manual Top Link Reference Manual

Additional information such as Bluetooth operation, radio frequency, etc. is not included in this guide. Contact our Technical support Engineers for assistance.

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Device Discovery	Device Discovery
The Wizard is ready to search for Blueooth devices. Choose the type of devices you want to find:	Searching for Bluetooth devices
Any Bluetooth device Data-capable phone LAN access point Another PDA or computer	∞
Enter how long you want the Device Discovery process to last in the edit box below:	Time remaining:
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Tab Finish	Select Required Mobile – Go to Device – Select Bond

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Copen Job	OK 🔀 Training 💦 🗄 📀 🔀
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Config: Modem Connect Finish Cancel Modem Connect Controller Receiver Controller Controller <<< Back Next >>	Config: Rover Radio Finish Cancel Network Type Dialup Network Connectic Image: Connected to Modem Port Bluetoot Baud 38400 Port Bluetoot Baud 38400 Parity None Stop 1 Data B Defaults

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Config: Stake Parms Finish Cancel	Config: Advanced Finish Cancel
Store Staked Point As Point Design Pt Suffix stk Note Design Point st	 ✓ Multipath Reduction ✓ Co-Op Tracking Satellite System GPS+GLONASS ✓ RTK Position Extrapolation
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Training	Image: Training Image: Training





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I Bluetooth COM	144 💌	Choose the desired device and tap Select.
		If the desired device is not shown, tap Find to search for one that may be in range.
		Tap Cancel to abandon this operation.
Select Bluetooth and Click (OK.	Find base receiver serial number and
		Then Select
Job Edit Survey Stake Cogo	1 📀 💌	Network Connection OK Cancel
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+		Mount
20 m		Disconnect
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connection comes to dark green	colour. The	en automatically searching mount point & PPP
Connection . Finally a message	will appear	"commands sent successfully".
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If the desired device is not shown, tap Find to s	search for	
one that may be in range.		Commands sent Successfully.
Tap Cancel to abandon this operation.		Disconnect Connect
Select Mobile Bluetooth	1	Tab Here

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Internet Connect	OK Cancel	Internet
Provider Dialup Num User ID Password PIN APN GR-3 Digital UHF	T-Mobile GPRS *99***1# test 4321 0000 etisalat.ae • sconnect	Internet Receiver Settings Setup Successful <u>C</u> lose
Press	Connect	Close Here
Type Modem Connected to Radio Port Base Address Mount Pts FKP01;F PPF ADCC;A PPF PRS01;F PRS02;F PRS03;F PRS03;F Swhn;Le	OK Cancel Internal GPRS Rover Rover ✓ (C ✓ 83.111.117.93/2101 ✓ RTCM correct Stream Info BU DHABI CCLB 200 RTCM correction: RTCM correction: RTCM raw data;F Connect	Select "Update" and then all the mount points' shows will be in the Mount point List. Select Required Mount Point from the list and connect it.
Status Position System Scatte Position Type Common Sats , Initialized Sats ''' Radio Link Rtk-Age(sec) Receiver Memory Receiver Power Controller Memory Controller Memory	Settings Close erPlots SVs Fixed 13 13 100 % 124152.4 KB 100 % 54062240.0 100 % 100	The position should become "Fixed" and the common and initialized satellites fields will populate with the number of satellites being tracked, as on the screen.

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Click here for changing the parameters. Set the Auto Topo method and interval (either by horizontal distance, slope distance, or time).

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Add Point	OK Cancel	Edit Point 0	K Cancel
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	Store)

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Import File

•5000 m







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Go to Job – Export – To File – Select Required Data - Select required Format -Click Next- Select Location and give file name - Select required File style – Select Projection-Finish

Localization:

Localization is used for transforming coordinates between local system and a WGS84 system. The more points used, the more precise the localization. Localization is performed on a site where you wish to work with the existing local coordinate system. To ensure an accurate localization you need at least 4 known points.

Select a position for your base that will give the best radio range for your project. This may be a known point or you may wish to create a new station a more suitable location. This point does not need to be part of your current survey network. Setup the base over the point, connect with controller and start base and after that connect rover. Localization file should be keep separately.

Training Job Edit Survey Stake Coge Open New Delete Config Config Import Export Imfo Obs Mode Exit 5000 m	Training Edit Survey Stake Points Code Point Lists Layer X-Sect Templates Road Design Background Images Linework Area Raw Data 5000 m	
Create New Job	Add Local coo	rdinates

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🗲 Traini	ing 🛛 🚱 🛛	1 📀 🔀	🛹 Localiz	ation		Settings	Close
<u>J</u> ob <u>E</u> dit	<u>S</u> urvey Sta <u>k</u> e <u>C</u> ogo		Name	H Resid	V Resid	H Control	V Contro
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Continue to each local point and survey as above saving as you go. The localization screen displays the Horizontal and vertical residuals for each point you can see which points may not be good.

Note: Localization file should be keep separately. If you want to export a Localization file, go to export, select data is Localization and format is Topcon 3D (.gc3). As you create a new job and import localization file (gc3) and continue survey.

Known point Initialization:

It means, Initializes the receiver using known coordinates for the rover station. Setup the base with required coordinate system and after that connect rover and

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make the fixed solution. Add your control point and its coordinate and then go to survey, select Known point initialization. After open this window, Select required control point from the list and initialize the point and continue the survey.



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