

Installation and Quick Setup Guide



RTP-300 Installation and Quick Setup Guide

Part Number 7010-0995 Rev A

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Introduction

This manual describes the installation and setup of the RTP-300 (Real Time Profiler) high speed profiling system with GPS. The RTP-300 system collects surface profile data safely at highway speeds (up to 60 mph), or as low as 5 mph. Designed for installation onto customer owned vehicles, the system consists of collection components (lasers and accelerometers), a distance measurement system, a proprietary data collection computer, Topcon GPS antenna, Topcon receiver and controller for GPS positioning. An in-cab touchscreen computer provides on-screen viewing of data collection and immediate test results. The system allows for easy transfer of electronic format data for downloading in the field or viewing on desktop computer.

System Components

- RTP-300[™] Assembly and Hitch Mounting Bracket
- Topcon PG-A1 GPS Antenna and Mounting Pole
- MC-R3 Controller/Receiver
- PelicanTM Case with Panasonic® ToughbookTM Computer
- Wheel Encoder and Bracket
- RTP-300 Software



Figure 1-1. RTP-300 System

Recommended Accessories

Topcon recommends purchasing the following items (not Topcon supplied) when using the RTP-300 system for safety and ease of use, contact your local Topcon dealer for details.

Description	Image
12V socket power outlet adapter with two (2) or more sockets Installation of cables within the cab of the vehicle requires at least two available 12V cigarette lighter sockets to power the Toughbook computer and the MC-R3.	ALCO COO
Rear license plate magnet mounts When installed, the RTP-300 unit covers the rear license plate of most vehicles. In order to comply with states' laws, the license plate must be visible at all times. Topcon recommends using magnet mounts, or a similar user supplied method, to relocate the license plate to a visible location when using the RTP-300 system.	•

Description	Image
Roof mounted hazard light	

Table 1-1.

Installation

Required Tools

- (1) 9/16 wrench
- (2) 15/16 wrenches or (1) 15/16 wrench and a large crescent wrench

Components

The following section describes the installation of the RTP-300 system components.

Wheel Encoder and Bracket

1. Using the supplied wheel encoder bracket as a template, drill two holes on the top of the rear left tire's fender (Figure 2-2).



Figure 2-1. Wheel Encoder Bracket Location on Left Rear Fender

2. Install the wheel encoder bracket onto the vehicle using the two (2) bolts as shown in Figure 2-2. Secure the bracket from the inside of the fender using the two (2) nuts and washers.



Figure 2-2. Wheel Encoder Pole Holder Installed

3. To install the three (3) lug nut mounts onto the rear, left wheel of the vehicle (Figure 2-3), pull back on the lug nut mount's hex head and slide the flared end over the vehicle's lug nuts, spacing the mounts so that they line up with the slots in the wheel encoder (Figure 2-4 and Figure 2-5). This spacing is vehicle dependent.



Figure 2-3. Lug Nut Mounts and Vehicle Lug Nuts - Before



Figure 2-4. Lug Nut Mount Spacing



Figure 2-5. Wheel Encoder Slots

4. Slide the wheel encoder pole into hole in the bracket.



Figure 2-6. Wheel Encoder Pole in Pole Holder

Install the wheel encoder onto the lug nut mounts using the three (3) bolts and washers provided in the kit.



Figure 2-7. Wheel Encoder Bolts

6. Check the tire pressure on all tires on the system vehicle, paying particular attention to the tire associated with the distance measurement system. The tires should be inflated to tire manufacturer's recommended pounds per square inch (PSI) settings.



Lower tire pressure may be used to further reduce the PSI impact of the RTP-300 system vehicle on the pavement surface.

MC-R3 Controller

Choose a convenient location for the MC-R3 Controller on the vehicle. Suggested locations are within the cab of the vehicle or in the vehicle's bed.



Figure 2-8. MC-R3 Location and Orientation

GPS Antenna and Mounting Pole

- 1. Using the bolts provided, install the mounting plate onto the vehicle (i.e. the rear, left, top corner of the vehicle's bed).
- 2. Install the antenna mounting pole onto the threaded insert.
- 3. Install the GPS antenna onto the top of the pole.



The antenna can be mounted anywhere on the vehicle, as long as the offset values are entered correctly in the RTP-300 software.

RTP-300 Assembly

1. Insert the RTP-300 assembly's hitch mount into the vehicle's hitch (Figure 2-9).



Figure 2-9. Install RTP-300 Assembly

2. Insert the hitch pin into the right side of the hitch (Figure 2-10).



Figure 2-10. Install Hitch Pin

3. Install the hitch pin clip (Figure 2-11).



Figure 2-11. Hitch Pin Clip Installed

4. Align the right side hitch mount bracket so that the shorter edge rests above the lip of the hitch (Figure 2-12), and insert the hitch mount bracket bolt.



Figure 2-12. Hitch Mount Bracket Bolt

5. While holding the bracket and bolt in place, slide the left side bracket over the bolt (Figure 2-13).



Figure 2-13. Hitch Mount Bracket Alignment

6. Making sure the brackets lie flush with the hitch and the RTP-300 hitch mount, install the nut and washer onto the bracket bolt (Figure 2-14), and tighten with a wrench and socket.



Figure 2-14. Install Hitch Mount Bracket Nut and Washer

Pelican Case with Panasonic Toughbook Computer

Place the Pelican case containing the Panasonic Toughbook computer in the cab of the vehicle within view of the operator when the vehicle is in motion (Figure 2-15).



Do not place the computer in a location that blocks the operator's view.



Figure 2-15. Panasonic Toughbook Computer in the Cab

Cables

The following section describes the cable connections and routings for the RTP-300 system.

1. Using the car end of a 7 Way Auto, Light Truck, RV Trailer plug with standard wiring, wire the hitch power outlet by attaching the ground wire to the frame of the truck, and connecting the 12V wire fused with a 25 amp inline fuse. A picture of the receptacle is shown in Figure 2-16 along with an image of the wiring schematic.

7 Way Auto, Light Truck, RV Trailer Wiring Diagram (Round 2" Diameter Connector Allows Center Pin for Auxiliary Power)





Figure 2-16. Hitch Power Outlet Wiring Diagram

2. Connect the RTP-300 power cable to the hitch's power outlet (Figure 2-17).



Figure 2-17. RTP-300 Power Cable to Hitch

3. Connect the RTP-300 power cable to the top, left connector on the RTP-300 assembly (Figure 2-18).



Figure 2-18. Connect RTP-300 Power Cable to RTP-300 Assembly

4. Connect the four socket wheel encoder assembly connector to the lower, left connector on the RTP-300 assembly (Figure 2-19).



Figure 2-19. Wheel Encoder Cable to RTP-300 Assembly

5. Connect the six socket RTP-300 communication connector to the lower, right connector on the RTP-300 assembly (Figure 2-20), and then route the cable to the inside of the vehicle's cab (i.e. through the rear window).



Figure 2-20. Communication Cable to RTP-300 Assembly

6. Connect the MC-R3 Deutsch connector to Connector A on the MC-R3 controller (Figure 2-21).



Figure 2-21. Deutsch Connector to MC-R3 Controller

7. Connect the MC-R3 main antenna connector on the Deutsch connector to the RTP-300 assembly (Figure 2-22).



Figure 2-22. MC-R3 Main Antenna Serial Cable to RTP-300 Assembly

8. Route the MC-R3 power cable on the Deutsch connector to the vehicle's cigarette lighter receptacle (Figure 2-23).



Figure 2-23. MC-R3 Power Cable to Cigarette Lighter Receptacle

9. Connect the GPS antenna cable to the Main GPS Antenna connector on the MC-R3 controller (Figure 2-24).



Figure 2-24. GPS Antenna Cable to MC-R3 Controller



10. Connect the GPS antenna cable to the GPS antenna (Figure 2-25).

Figure 2-25. GPS Antenna Cable to GPS Antenna

11. Connect the Toughbook computer power cable to the left connector on the Pelican case (Figure 2-26).



Figure 2-26. Toughbook Computer Power Cable to Pelican Case

12. Connect the Toughbook computer power cable to the cigarette lighter socket or a multi-socket adapter (Figure 2-27).



Installation of cables within the cab of the vehicle requires at least two available 12V cigarette lighter sockets to power the Toughbook computer and the MC-R3.



Figure 2-27. Toughbook Computer Power Cable to Cigarette Lighter

13. Connect the RTP-300 assembly communication cable to the right connector on the Pelican case (Figure 2-28).



Figure 2-28. RTP-300 Communication Cable to Pelican Case

14. Power on the vehicle and the Toughbook computer. Double-click on the RTP-300 software icon on the computer's desktop to start the program (Figure 2-29).



Figure 2-29. Power On the System

Software Setup

The following sections describe how to setup a base station with PC-CDU, configure a radio modem using Modem TPS, how to setup the MC-R3 for RTP communication, and how to export and work with data using, RTP-300 software, PC-CU and SiteMaster.

Base Station Setup in PC-CDU

- 1. Connect the receiver (MC-R3 Controller) to a PC computer running PC-CDU software, through a serial cable.
- 2. Power on the receiver and start PC-CDU.
- 3. Set the *Port* to COM1 (default) and the *Baud rate* to 115200 (default), and click Connect.

file Configuration Tools	Connection Parameters X Connection mode © Direct C Internet Client C Internet Server	
# EL AZ CA P1 F	Port settings Port _COM1 _ Baud rate: 115200 _ Infrared port RTS/CTS handshaking Program settings Program settings Passive mode _ Manual mode only Timeout [ms]; 500	
Disconnected	Internet (Client - Server) settings Hostneme: localhost TCP port: 8000 Password: Display data on server C Log server events DNS lookap	

Figure 3-1. Set Port and Baud Rate

4. Select the *Configuration* tab.

CDU t	o HIP	'ER IC):8Q	DNK	HXR	6RK															
File	Cont	figurat	ion	Tool	s P	lots	Help														
	GPS Satellites (8)				Geo	XYZ	Target			GLC	NAS	S Sa	tellit	es (8)						
#	EL	AZ	CA	P1	P2	TC	SS		Lat: 3	7* 42' 50.2	2255" N	Sn	Fn	EL	AZ	CA	P1	P2	TC	SS	
11	43-	270	43	29	29	2	00+		Lon: I	21 ' 42' 18 40 0024 p	.2851" W	01	01	37+	322	43	38	42	2	00+	
14	32-	52	42	24	24	2	00+		Vel: 0	10.5524 fi 1075 m/s	3	07	05	22-	100	38	37	34	2	00+	
20	30+	306	38	22	22	2	00+		BMS	Pos: 2.78	97 m	08	06	58-	46	41	44	43	2	00+	
22	12-	110	38	18	18	2	00+		RMS	/el: 0.02	79 m/s	09	-2	16-	28	31	27	??	2	00+	
23	14+	254	30	12	11	2	00+		PDOF	: 1.1771		10	-7	60-	68	48	38	39	2	00+	
30	10+	62	30	??	??	2	00+			(standal	lone)	11	00	44+	170	44	39	36	2	00+	
31	66+	104	44	35	35	2	00+					23	03	7-	232	33	33	35	2	00+	
32	55+	320	41	31	31	2	00+					24	02	18-	280	41	36	39	2	00+	
									Receiv Receiv Clock (Osc. of Tracki	vertime: 1 verdate:6 offset: -0 ffset: -0. ng time:0	6:04:48 5/18/2010 1.6547 ppm 6547 ppm 0:02:39										
COMI	1152	00																0	0.00.0	۵	

Figure 3-2. Configuration Tab

5. Select the *Base* tab.

Receiver Configuration		×
General MINTER Positioning Base Rover Ports	Events Advanced	
Elevation mask (degrees) Terminal Elevation Mask :	Power management Power Mode : Auto	Voltages (volts)
Antenna Antenna Status (read only) C Internal Current Input : int	Current Mode : a Charger Mode : Auto	On Board : 7.8 Battery A : 7.76
Constants of the second s	Speed : Current Mode : off Current (Amp) :	Battery B: 8.00 Charger: On Ports: 11.99
	Power output modes Ports: On Slots: On	Turn on/off Slots 2 (C) : On 3 (B) : On 4 (D) : On
	F	tefresh Apply
OK Exit Save Set all parameters to defau	lts	

Figure 3-3. Base Tab

6. If the base position is not known, click **Get from receiver** to set the Lat., Lon. and Ht. position of the base. If the base position is known, enter the known Lat., Lon. and Ht.

🚮 Receiver Configuration	×
General MINTER Positioning Base Rover Ports	Events Advanced
Base Station Coordinates Phase Center L1 Antenna Reference Point Antenna Type : Unknown	Lat 00 ° 00 ° 00.000000 " N 💌 Getfrom receiver Lon: 000 ° 00 ° 00.000000 " E 💌 Alt +0.0000
RTCM Settings	CMR Settings
StationID: Health: Good Series Health: Good Series Max.number of Satellites: System Used System Used System Used System Used GRS Series Measurements Sent Sent Sent Pseudo-range Statellites: Plus Measurements Sent CALL PLI PLI	Station ID: 0 Motion : Unknown Short ID : COGO : Long ID : GLONASS message : 3 Measurements Sent © CA/L1 © P/L1 ♥ P/L2
Configuration	n of Receiver Ports
	Advanced Base Settings Refresh Apply
OK Exit Save Set all parameters to defa	aults

Figure 3-4. Set Base Position

7. Select the *Ports* tab.

🚮 Receiver C	Configure	ition				×
General MINT	ER Posi	ioning Base Rover	Ports	Events Advanced		
Serial Para	llel Mod	em USB Ethernet	TCP	-		
Serial A	Input : Output :	Command None	¥	Period (s) :	Baud rate : 115200	
Serial B	Input : Output :	Command None	•	Period (s) :	Baud rate : 115200	
Serial C	Input : Output :	Command None	v	Period (s) :	Baud rate : 115200	
Serial D	Input : Output :	Command None	v	Period (s) :	Baud rate : 115200 💌	
					Refresh Apply	
OK E:	xit S	ave Set all paramete	rs to defau	ilts		

Figure 3-5. Ports Tab

8. Set the *Serial C output* port to the desired correction format (format must match rover). Set the baud rate to **38400** (baud rate must match rover), and check the RTS/CTS box (must match rover). Click **Apply**.

Receiver (General MINT	Configura 'ER Posit	ition ioning Base Rover Por	ts	Events Advanced	
Serial Para	allel Mode	em USB Ethernet TCP	1		
Serial A	Input : Output :	Command None	- -	Period (s) :	Baud rate : 115200
Serial B	Input : Output :	Command None	•	Period (s) :	Baud rate : 115200
Serial C	Input : Output :	Command RTK CMR+ {10,0,9}	•	Period (s) : 1.00	Baud rate : 38400
Serial D	Input : Output :	Command None	•	Period (s) :	Baud rate : 115200
					Refresh Apply
OK E	xit S	ave Set all parameters to o	defau	ults	

Figure 3-6. Set Output and Baud Rate

9. Click OK.

erial Para	Itel Mode	em USB Ethemet TOP	·		
Serial A	Input:	Command	3	Baud rate :	115200 💌
	Output:	Nono	Period (s) :		
Serial B Input	Input:	Command	<u>.</u>	Baud rate	115200 💌
	Output:	None	Period (s):	1	RTS/CTS
	Input:	Command	2	Baud rate :	115200 -
Senal C	Output :	RTK CMR+ {10,0,9}	Period (s): 1.00	1	RTS/CTS
Serial D	Input:	Command	•	Baud rate :	115200 -
🗖 Introred	Output:	None	Period (s):	1	RTS/CTS
				Refresh	

Figure 3-7. Click OK

10. Confirm the receiver is set up as a base. Select **File** --> **Disconnect**.

📶 t	o HIP	ER ID	D:8Q	DNK	HXR	6RK	(base)														. 🗆 🗙
File	Cont	igurat		Tool	ls P	lots	Help														
GPS Satellites (8)							G	eo	XYZ	Target			GLC	DNAS	S Sa	tellit	es (7)			
#	EL	AZ	CA	P1	P2	TC	SS	La	it: 37°	42' 50.2	235" N	Sn	Fn	EL	AZ	CA	P1	P2	TC	SS	
11	42-	260	42	27	27	17	00+	LO	in: 121 F 150	142118 18591 m	.3832" W	01	01	42+	330	42	38	43	17	00+	
14	27-	56	38	18	18	17	00+	Ve	el: 0.20	047 m/s		07	05	18-	108	40	39	34	16	00+	
20	36+	308	40	27	27	17	00+	R	VIS Po	is: 2.513	37 m	80	06	5/-	62	51	43	44	17	00+	
22	8-	114	32	14	14	17	00+	R	vIS Ve	1: 0.025	51 m/s	10	-7	56-	54	42	38	40	7	00+	
23	18+	258	38	18	18	16	00+	P	DOP: 1	1.1999		11	00	53+	168	44	41	38	17	00+	
30	11	56	34	11	11	16	00+		(standal	one)	17	04	10+	324	35	33	39		00+	
31	66-	86	48	36	36	17	00+					24	02	14-	274	42	38	38	17	00+	
32	61+	326	45	31	31	17	00+					-	-								
<u> </u>										c 4	0 1 0 1 1	-	-								
<u> </u>								He	ceivei	rtime: i	6:19:11		-								
-			-					Re	ceivei	r date:b	/18/2010		-								
-								Clo	ock off	set: -0	.6682 ppm		-								
<u> </u>								Os	c. offs	et: -0.	eees hhu		-								
								Tra	acking	time:00	0:17:02		-								
COM	COM1, 115200 00:1428																				

Figure 3-8. Confirm Setup

Radio Modem Setup in Modem TPS

1. Start Modem TPS, and click **Cancel** on the *Port's settings* box to set the correct radio modem connection parameters.



Figure 3-9. Cancel to Set Radio Connection Parameters.

2. Click **Tools** --> **Options** to display the *Options* screen, and click the *Modem* tab.

3. Set *Connect modem* to **Internal**, check all of radio type boxes to set all radio types to On, and set the modem *Baud rate* to **38400**.

🔂 Modem-TPS		
<u>F</u> ile <u>T</u> ools <u>H</u> elp	Coptions	
	Connect modem	
	Modem Receiver	
	FH 915 🔽 FH 915Plus 🔽	
	UHF460	
	HP-Bulb	
	HPT	
	L-Band&Beacon 🔽 Digital UHF	
	Baud Rate 38400 💌	
Disconnected	OK Cancel	

Figure 3-10. Modem Tab - Set Radio Types and Baud Rate

- 4. Click the *Receiver* tab.
- Set the receiver *Baud rate* to 115200. Set the *Daisy Chain* port to Port C. Click OK.



When connecting to an MC-R3 radio the D*aisy Chain* port needs to be set to **Port B**.

	(man	
<u>File T</u> ools <u>H</u> elp	Coptions	×
	Connect modem	
	Modem Receiver	
	Baud Rate 115200 💌	
	Daisy Chain Port C 💌	
Disconnected	OK Cancel	



6. Click **File** --> **Connect**.

7. Click **Connect** again on the *Connection* dialogue box. A progress bar appears while attempting to make connection.



- 8. On the *Radio Link* tab, select the radio channel to match the rover from the *Ch* (channel) drop down menu. Select the appropriate *Mode* (Receiver or Transmitter).
- 9. Click Apply.
- 10. Click **File --> Disconnect**.

👮 Digital UHF Modem - Dealer	_ 🗆 ×
<u>F</u> ile <u>T</u> ools <u>H</u> elp	
Radio Link GSM/CDMA Serial Interface Identification	
Protocol: PDL w/EOT V Ch: 461.100000	Apply
Modulation: GMSK Forward Error Correction:	
Mode: Receiver Link ID: 1	
Link Rate: 9600 💌 Output power: 1 W 💌 Dealer Config	
	Exit
COM1, 115200	0:00:22

Figure 3-12. Radio Modem Settings

Setting Up the MC-R3 Controller for Profiler Communication

1. Connect to PC-CDU on COM 1 at 38400 baud rate.



MC-R3 baud rate must be set to 38400 for RTP communication.

Cale)	Connection Parameters			1	ded vi
File Configuration Tools F	Connection mode © Direct C Internet Client C Internet Server	tellite	s		
# EL AZ CA P1	Port settings Port COM1 Baud rate: 38400 Infrared port RTS/CTS handshaking Program settings Program settings Passive mode Manual mode only Timeout [ms]: 500 Infrared port	<u>, P1</u>	P2	2C T	SS
	Internet (Client - Server) settings Host name: localhost TOP port: 8000 Password: Display data on server Log server events DNS lookup.				
Disconnected	Connect Cancel				1.

Figure 3-13. Connect - Receiver

2. Once connected at 38400 baud rate, select the *Configuration* tab and select **Receiver**.

	Re	ceiver	-N	Ctrl+	V.				Geo XYZ Target			GLOP	ASS	Sate	ellite	s (O)			
# 02 05	Site Tai Ra	e rget po dio	sition	Ctrl+ Ctrl+	- -T ►	2C	TC 11 11	SS 00+ 00+	Lat: 37* 42' 50.3198'' N Lon: 121* 42' 18.4777'' W Alt: 147.9823 m	Sn	Fn	EL	AZ	CA	P1	P2	2C	TC	SS
10	28	52	44	31	31	1	11	00+	Vel: 0.0152 m/s BMS Pos: 3.6167 m								1		
12	52	166	51	41	41		11	00+	RMS Vel: 0.0326 m/s										
21	20+	240	44	24	25		11	00+	PDOP: 2.0039	_									
25	71+	264	52	43	43	10 1	11	00+	(standalone)										
29	48+	310	49	39	40	ř (11	00+	LQ:100%,COM2,CMR										
30	16+	318	42	24	24		11	00+	(999,0000,0000)										
31	13+	306	44	25	26	ļ	11	00+											
									Receiver time: 18:55:01										
									Receiver date: 12/13/2010										
									Clock offset: -0.1484 ppm										
									Osc. offset : -0.6208 ppm										
									Tracking time: 00:12:05										

Figure 3-14. Configuration - Receiver

3. Click the *Positioning* tab. Under *Positioning Mode*, select **RTK Fixed**, and click **Apply**.

🚮 Receiver Configuration		×
General MINTER Positioning B	ase Rover Ports	Events Advanced
Positioning Mode Standalone DGPS (Code Differential) RTK Float RTK Fixed	Enable Solutions Standalone DGPS RTK Float RTK Fixed	Satellite management Satellites tracked Satellites used in pos. Satellites used in pos.
Positioning Masks Elevation mask	Positioning System	Frequency Channel Number Slot Number fon lock use fon lock use
PDOP mask : 30.00	GLONASS	
PAIM Enabled	Measurements Used	
Alarm limit (m)	O P/L2 O Iono-Free	-3 V V 3 V V 9 V V
Current Datum : W84	Iono-Correction	All to lock None to lock All to use None to use
	Adv	vanced Positioning Settings Refresh Apply
OK Exit Save S	et all parameters to defau	Its

Figure 3-15. Select RTK Fixed

 Click the *Rover* tab, confirm that the *Positioning Mode* is set to RTK Fixed. Under *RTK Parameters - RTK mode*, select Extrapolation.

Receiver Configuration	×
General MINTER Positioning Base Rover Port	s Events Advanced
Positioning Mode Standalone DGPS (Code Differential) RTK Fixed	Enable Solutions Standalone PTK Float DGPS PTK Float
DGPS Parameters Multi-base Corrections usage Nearest Mix Corrections Mix Corrections Mix Corrections Mix Corrections Best Source: Any	RTK Parameters Ambiguity fixing level Extrapolation Static Delay Kinematic Measurements Used Base Corrections CA/L1 P/L1 Use old ref. coordinates Source : Any CMR Settings GLONASS message Reset RTK Engine
Configurat	ion of Receiver Ports
	Advanced Rover Settings Refresh Apply
OK Exit Save Set all parameters to o	lefaults

Figure 3-16. RTK Mode Set to Extrapolation

 Click the *Ports* tab. Select the *Serial B Input* (i.e. CMR) that matches the base output. Select 38400 as the *Baud rate*, and check the *RTS/CTS* box. Click Save, and then click Exit.

Receiver (Configure	ation				×
General MINT	'ER Posit	tioning Base Rov	/er Ports	Events Advanced		
Serial Para	allel Mode	em USB Etherne	et TCP			
Serial A	Input : Output :	Command None	* *	Period (s) :	Baud rate : 38400	
Serial B	Input : Output :	CMR None		Period (s) :	Baud rate : 38400	
Serial C	Input : Output :	Command None	•	Period (s) :	Baud rate : 115200	
Serial D	Input : Output :	Command None	•	Period (s) :	Baud rate : 115200 💌	
					Refresh Apply	
ОК Е	xit S	ave Set all paran	neters to defau	ults		

Figure 3-17. Set Serial B Input and Baud Rate



When outputting CMR+ corrections from the base, select **CMR** as your input on the MC-R3.

File	Cont	ʻigurat	ion	Tool	s Pl	ots	Help	1												
	onnec			Ctr	+C					Geo XYZ Target			GLC	NAS	S Sa	tellit	es (4	1)		
D	isconr	iect		Ctr	+D		TC	SS	_	Lat: 37* 42' 50.2213" N	Sn	Fn	EL	AZ	CA	P1	P2	2C	TC	ī
F P	ile Mar .eal-Tir Ianual	nager me Log Mode	gging	Ctr Ctr Ctr	+F +R +M		9 6 1 2	06- 16- 00+ 16-		Lon: 121* 42' 18.7272" W Alt: 153.3768 m Vel: 0.0264 m/s RMS Pos: 3.9751 m RMS Vel: 0.0385 m/s	07 08 09 10	05 06 -2 -7	77+ 26+ 69- 39+	294 328 344 246	49 44 49 49	50 43 46 47	43 42 ?? 30		9 9 9 :08	
E 16 20	xit 46- 53-	72 180	43 48	Ctr 33 36	+× 33 36		:13 6 :47 3	00+ 00+ 00+ 00+		PDOP: 2.0458 (standalone)										
32	69+ 36-	158	49	36	36		7	00+		Receiver time: 18:26:23 Receiver date:7/1/2010 Clock offset: -2.3921 ppm Osc. offset: -2.3921 ppm Tracking time:00:09:38										

6. Click File --> Manual Mode.



7. Enter the command: %%em,/dev/ser/a,nmea/GGA: .10

🐔 Manual Mode	•				<u> ×</u>
%%em,/dev/se	er/a,nmea/GGA:	. 10			•
					<u>*</u>
T					×
Send command	Stop all messages	Clear window	Exit	Disconnect	Start logging
Load script	Path: C:\Documents	and Settings\eivers\[Desktop		Edit script

Figure 3-19. Enter Command in Manual Mode

8. Click **Send command**. The **RE002%...** message indicates that the command was accepted and the GGA message is sending.

🐔 Manual Mode	- 🗆 🗵
%%em,/dev/ser/a,nmea/GGA:.10	•
RE002%%	*
\$GPGGA, 191347.00, 3742.8363136,N, 12142.3100488,W, 1,06,1.95,162.7 \$GPGGA, 191348.00, 3742.8361635,N, 12142.3100896,W, 1,06,1.95,162.0 \$GPGGA, 191349.00, 3742.8360292,N, 12142.3101220,W, 1,06,1.95,161.2 \$GPGGA, 191350.00, 3742.8358931,N, 12142.3101598,W, 1,06,1.95,159.7 \$GPGGA, 191351.00, 3742.835714,N, 12142.3102646,W, 1,06,1.95,159.7 \$GPGGA, 191352.00, 3742.8356114,N, 12142.3102646,W, 1,06,1.95,158.5 \$GPGGA, 191353.00, 3742.8356114,N, 12142.3103224,W, 1,06,1.95,158.5 \$GPGGA, 191353.00, 3742.8354600,N, 12142.3103203,W, 1,06,1.95,158.5 \$GPGGA, 191355.00, 3742.8354600,N, 12142.3103803,W, 1,06,1.95,157.1 \$GPGGA, 191355.00, 3742.835155,N, 12142.3103803,W, 1,06,1.95,157.1 \$GPGGA, 191355.00, 3742.8349240,N, 12142.3105644,W, 1,06,1.95,154.2 \$GPGGA, 191358.00, 3742.8349240,N, 12142.3105644,W, 1,06,1.95,153.2 \$GPGGA, 191358.00, 3742.8349240,N, 12142.3105644,W, 1,06,1.95,153.2 \$GPGGA, 191359.00, 3742.8344019,N, 12142.3106479,W, 1,06,1.95,152.4 \$GPGGA, 191359.00, 3742.8342241,N, 12142.3106479,W, 1,06,1.95,152.4 \$GPGGA, 191400.00, 3742.834019,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191400.00, 3742.8340240,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191400.00, 3742.8342241,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191400.00, 3742.834019,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191400.00, 3742.8340240,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191400.00, 3742.8340241,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191400.00, 3742.8340241,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191400.00, 3742.8340241,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191400,00, 3742.8340241,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191400,00, 3742.8340241,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191400,00, 3742.8340241,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191400,00, 3742.8340241,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191401,00,3742.8340241,N, 12142.3107448,W, 1,06,1.95,152.4 \$GPGGA, 191401,00,3742.8340241,N, 12142.3107448,W, 1,06,1.95,151.4 \$GPGGA, 191401,00,3742.8340380,W,12442.3107448,W, 1	7762, N, -24. 1778, M, -24. 1536, M, -24. 1533, M, -24. 1549, M, -24. 1549, M, -24. 1348, M, -24. 1348, M, -24. 1313, M, -24. 1332, M, -24. 1332, M, -24. 1536, M, -24. 1649, M, -24. 1649, M, -24. 1649, M, -24. 1638, M, -24. 1649,
\$GPGGA,191401.00,3742.8340380,N,12142.3108024,W,1,06,1.95,150.4 \$GPGGA.191402.00.3742.8338494.N.12142.3108655.W.1.06.1.95.149.5	1838,M,-24. 5269.M24.
•	v
Send command Stop all messages Clear window Exit Disconnect	Start logging
Load script Path: C:\Documents and Settings\eivers\Desktop	Edit script

Figure 3-20. Command Sending



If the RE002%% message is not displayed and the GGA messages do not send, check that the command is entered properly.

9. **DO NOT** select any other options, simply disconnect the cable from the unit. The GGA message continues to send every time the unit is powered on, until a receiver reset or clear NVRAM is performed. If a reset or clear NVRAM is performed, connect to PC-CDU and re-send the command as stated above.

SiteMaster v9.1 Data Import

1. From SiteMaster's *Main Menu*, click File -> Import.



Figure 3-21. Import a File

2. Change the file type to **ASCII** (***pts**, ***asc**,* **csv**, ***txt**), and then navigate to the GPS corrected files from the Profiler software (see Profiler export above), and click **Open**.



Figure 3-22. Change File Type

3. From the *ASCII File Format* screen (Figure 3-23), confirm that the *Field Order* is correct for the data in the corrected file being imported (P-Point Number, N-Northing, E-Easting, Z-Elevation, C-Code).

T IOIG				0.577
P	- Point Number	C - Code	D - Descri	ption
E	- Easting	S - String	La - Latitu	de
N	- Northing	Ns - Notes	Lo - Longi	tude
Z	- Elevation		H - Geoid	Height
PNEZC			•	
168572.10091 168570.80667	45877320000,60 36753100000,60 73671760000,60	03571.495039 03572.578916 03571.972517	4190382000,9; 3473566000,9; 7442888000,9;	2.06450797355485 2.12085126615694 2.13210089440062
168571.26889 ata above is in	13611100000,00	Pr	niect Settings-	2.10210000440002
ata above is in Linear	- Angular	Pr	oject Settings-	- Angular
ata above is in Linear	Angular		oject Settings- _inear	Angular © Deg Min Sec
ata above is in Linear O Meters	Angular C Deg Min S	ec	oject Settings- inear © Meters © Feet	Angular © Deg Min Sec © Degrees
ata above is in Linear C Meters C Feet C US Feet	Angular C Deg Min S C Degrees C Gon	ec	oject Settings Linear Meters C Feet C US Feet	Angular © Deg Min Sec © Degrees © Gon
Tees / 1.26889 ata above is in Linear C Feet C US Feet OUS Feet C ONVert Aat Convert From roject Projectic	Angular C Deg Min S C Degrees C Gon m a UTMNorth-	Pr Bec Zone_10	oject Settings - _inear Meters Feet US Feet	Angular C Deg Min Sec C Gon



4. Select the appropriate units in the corrected file (Figure 3-23).

NOTICE

SiteMaster will automatically convert the corrected file units to match the units being used in the SiteMaster project.



The project units will be generated by the units defined in the SiteMaster project.

Select the appropriate *Coordinate System* for the corrected data file being imported (Figure 3-23).
 If converting to a coordinate system other than UTM, select the Convert data check box, and select the appropriate coordinate system of the corrected data (UTM, north or south and the appropriate zone).

All corrected RTP data is in UTM format.



The project projection will be generated form the coordinate system defined in the SiteMaster project.

6. If a geoid is being applied to the data in the SiteMaster project, select the **Apply geoid** check box (Figure 3-23).



The elevations in the corrected RTP data files do NOT have a geoid applied.

7. Click OK.

8. From the *Point Code and Attributes* screen, set the *Point code* to **Field codes**, and click **OK**.

Point Code and Attributes	×
Point Code Field Code Library Description Include String Numbers Include Comments Include Commands	
Transfer Attributes Images Notes Description	
Attributes Create Text from Attributes Single Multiple Text Style Style	
Cancel	

Figure 3-24. Field Code

If working with State Plane Coordinates or localization on your job site, please refer to the SiteMaster manual (7010-0946) Chapter 12 Translating/Rotating data.	NOTICE	Please refer to the SiteMaster Reference Manual (7010-0946) for further instructions on how to utilize SiteMaster for creating a DTM.	_
	NOTICE	If working with State Plane Coordinates or localization on your job site, please refer to the SiteMaster manual (7010-0946) Chapter 12 Translating/Rotating data.	



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