

Veripos LD2 Equipment

PPS/ZDA Setup Information using PC-CDU

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Procedure Title:

LD2 PPS/ZDA Function Setup

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1. INTRODUCTION

The purpose of this document is to guide the user through setting up the PPS/ZDA function within the LD2 unit fitted with a Topcon 112 GPS card.

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Typically this function is already setup within the LD2 unit but if not this document will guide the user through the steps necessary to get the PPS function enabled and working on the LD2. The following steps are detailed within this guide:

- Connecting to the LD2 GPS card using the PC-CDU software;
- Checking the status of the PPS signal on your LD2;
- Upgrading the GPS card within the LD2 should the PPS option not be available;
- How to setup the PPS/ZDA output;
- Show the pinout for the ZDA/PPS cable to be used with the LD2.

Users are advised to be familiar with the operation and menu structure of the LD2 before using this setup guide. All information is contained within the LD2 manual which is available via the Veripos Online Support System (<u>http://help.veripos.com</u>). If any problems are encountered please contact the Veripos Helpdesk.

Veripos 24 Hour Helpdesk contact details:

Tel:	+44 1224 877993
Fax:	+44 1224 896731
E-mail:	veripos.helpdesk@subsea7.com

2. CONNECTING TO LD2 GPS RECEIVER USING PCCDU

A straight through serial cable is required and should be connected between COM1 of a PC to P5 connector on the back of the LD2.

Via the LD2 menu select **Configuration > Serial Ports > P5** and check that the GPS I/O is set to Remote. Remember to set the GPS I/O back to off once the process is completed then as good practice, power cycle the LD2 unit to ensure all internal computations re-start.

PC-CDU software is supplied on the Veripos CD shipped with the equipment. Alternatively the software is available via the VERIPOS downloads site:

http://downloads.veripos.com/downloads/PC-CDU/PCCDU_MS_7_12.zip

Alternatively, the software can be downloaded from the Topcon website (N.B. you will need to register as a user):

http://www.topconpositioning.com

Download PC-CDU lite and follow the installation instructions. Once the software has been installed, run the software ensuring that COM1 is selected and then the software will automatically scan baud rates until it can communicate with the GPS card.

Provide a suitable antenna is connected to the GPS connector on the back of the LD2, information on the satellites being tracked by the GPS card will be displayed as shown in Figure 1.

🐔 P	C-CDI	J to H	GGD	TID	: 8RB	UVZF	PU32	3									×
File	Config	juration	n To	ols	Plots	Help											
		GPS	Sate	ellite	s (12)	1		Geo XYZ Target			GLO	NASS	Sat	ellite	s (O)		
#	EL	AZ	CA	P1	P2	TC	SS	Lat: 57° 07' 43.0924'' N	Sn	Fn	EL	AZ	CA	P1	P2	TC	SS
02	- 7	32	38	19	19	3	00+	Lon: 2" U4" 45.U436" W									
05	15	116	42	25	24	3	00+	Vel: 0.0065 m/s									
06	70	94	47	38	38	3	00+	BMS Post 3 3099 m									
07	78	120	48	40	40	3	00+	BMS Vel: 0.0331 m/s									
10	11+	64	38	23	23	3	00+	PDOP: 1.5995									
13	10+	348	35	17	16	3	00+	(standalone)									
16	34+	284	45	30	30	3	00+										
21	30+	158	42	27	27	3	00+	Beceiver time: 11:33:40	1								
23	19	314	42	25	25	3	00+	Beceiver date: 11/24/2007									
24	46+	116	48	37	37	3	00+	Clock offset: +0.7292 ppm									
30	32	116	44	-31	31	3	00+	Clock onset: +0.7333 ppm									
31	54	218	45	36	36	3	00+	Use, onset : +0.7333 ppm Taxabia = Visca (00.02) 57									
								Tracking time: 00:03:57									
cow	1150	00	1						1	1			1	1		00.04	.10
COM	1, 1152	00														00:04	16

Figure 1 - PC-CDU Main Communication Window

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3. CHECKING PPS OPTION ENABLED

The user should check to see whether the PPS option is enabled on the GPS card. This information can be viewed in PC-CDU by using going to **TOOLS** then **RECEIVER OPTIONS** in the menus as indicated in Figure 2.

📆 P	C-CDL	J to H	GGD	T ID	: 8RB	UVZI	PU32	8										X
File	Config	juration	n To	ols	Plots	Help												
		GPS	S	Initia	lize fil	e syst	em	I	Geo XYZ Target			GLO	NASS	Sat	ellite	s (O)		
# EL AZ Clear NVRAM 02 6 30 Reset receiver								ļ	Lat: 57° 07' 43.1309'' N Lon: 2° 04' 44.9788'' W	Sn	Fn	EL	AZ	CA	P1	P2	TC	SS
02	14	116		Rece	iver o	ptions		i	Alt: 73.1221 m Vel: 0.0049 m/s									
06 07 10 13* 16* 21* 23* 24* 30* 31*	63 77 12+ 11+ 35+ 31+ 19 47+ 31 53	92 114 64 346 284 158 312 114 116 216	49 41 36 45 42 41 45 42 49	40 25 3 31 27 24 36 31 39	40 25 3 31 27 24 35 31 39	7 6 7 7 7 7 6 7	00+ 00+ 00+ 00+ 00+ 00+ 00+ 00+ 00+ 00+		RMS Pos: 3.2832 m RMS Vel: 0.0328 m/s PDOP: 1.5845 (standalone) Receiver time: 11:36:56 Receiver date: 11/24/2007 Clock offset: +0.7395 ppm Osc. offset: +0.7395 ppm Tracking time: 00:07:13									
СОМ.	1, 1152	00															00:07	:33

Figure 2 - Selecting Receiver Options in PC-CDU

This will then display the option manager dialogue (Figure 3). By looking down the option manager it can be seen that the PPS option is not installed as indicated by the option 0.

📶 Option Manager					×
Option name	Current	Purchased	Leased	Exp. date	~
GPS	yes	yes	no		
GLONASS	no	no	no		
L1	yes	yes	no		
L2	yes	yes	no		
Cinderella	yes	yes	no		
Position update rate (Hz)	1	1	0		
Raw data update rate (Hz)	1	1	0		
Code differential Base	yes	no	no		
Code differential Rover	yes	no	no		
RTK Base	yes	yes	no		_
RTK Rover (Hz)	1	1	0		
Memory (MB)	0	0	0		
Co-Op Tracking	seu	ves	no		
1-PPS Timing Signal	0	0	0		
Event Markers	U	U	U		_
In-Band Int. Rejection	0	0	0		
Multipath Reduction	no	no	no		
Frequency Input	no	no	no		
Freq. Lock and Output	no	no	no		
Serial Port A (Kbps)	460	460	0		
Serial Port B (Kbps)	460	460	0		
Serial Port C (Kbps)	460	460	0		
Serial Port D (Kbps)	460	460	0		
Infrared Port		no	no		
Parallel Port		no	no		
Sh Sh Fred Hon		no	no		×
Refresh	Load	Stop		Exit	

Figure 3 - Option Manager Dialogue (PPS not enabled)

Figure 4 shows the option manager dialogue indicating that the PPS option is enabled on the GPS card (indicated by the value 2).

🚮 Option Manager					×
Option name	Current	Purchased	Leased	Exp. date	^
GPS	yes	yes	yes	3/18/2006	
GLONASS	yes	no	yes	3/18/2006	
L1	yes	yes	yes	3/18/2006	
L2	yes	yes	yes	3/18/2006	
Cinderella	yes	yes	yes	3/18/2006	
Position update rate (Hz)	20	1	20	3/18/2006	
Raw data update rate (Hz)	20	1	20	3/18/2006	
Code differential Base	yes	no	yes	3/18/2006	
Code differential Rover	yes	no	yes	3/18/2006	
RTK Base	yes	yes	yes	3/18/2006	-
RTK Rover (Hz)	20	1	20	3/18/2006	
Memory (MB)	1024	0	1024	3/18/2006	
Co-Op Tracking	ues	yes	ues	3/18/2006	
1-PPS Timing Signal	2	0	2	3/18/2006	
Event Markers	2	0	2	3/18/2006	_
In-Band Int. Rejection	1	0	1	3/18/2006	
Multipath Reduction	yes	no	yes	3/18/2006	
Frequency Input	yes	no	yes	3/18/2006	
Freq. Lock and Output	yes	no	yes	3/18/2006	
Serial Port A (Kbps)	460	460	460	3/18/2006	
Serial Port B (Kbps)	460	460	460	3/18/2006	
Serial Port C (Kbps)	460	460	460	3/18/2006	
Serial Port D (Kbps)	460	460	460	3/18/2006	
Infrared Port		no	yes	3/18/2006	
Parallel Port		no	yes	3/18/2006	~
I So So Fred Hop		no	1140	3/19/2006	
Refresh	Load	Stop		Exit	

Figure 4 - Option Manager Dialogue (PPS enabled)

4. UPGRADING PPS OPTION ON GPS CARD IN LD2

If the GPS card within the LD2 does not have the PPS option enabled then the following steps should be followed to enable the PPS option.

In PC-CDU select Help and About to access information about the GPS card.



Figure 5 - PC-CDU Help Menu

Once the about menu in the software has been selected the dialogue in Figure 6 should be displayed which will display details about the GPA card installed in the LD2. The GPS card details are required in order to organise the PPS upgraded and should be saved to file by clicking on the **Report** button in Figure 6.

🚟 About PC-CDU		
PC-CDU for Window Version 2.1.14 Lite Status : Copyright © Topcon Po <u>http://www</u>	s 95/98/ME/NT/2000/XP (Build: October 14, 2004) Never expired sitioning Systems, 2000 - 2004 <u>w.topcongps.com</u>	PC-CDU
Receiver model: Receiver ID: Firmware version: RTK support: Mainboard version: RAM size: Power supply (V): Antenna input: Ext. Ant. DC status:	HGGDT 8QNN22XBD34 3.0 Jun,16,2006 yes HGGDT_5 4096KB 5.0 ext off	
Digital part 3.3∨ (∨):	3.3	~
Save to file Re	eport Refresh	ОК

Figure 6 - PC-CDU About Dialogue showing Receiver Details



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After clicking the report button, the dialogue in Figure 7 is displayed allowing the user to save the details to a text file. Name the .txt file the same as the receiver ID which is shown in the About dialogue of PC-CDU (second line) or at the top of the main receiver communication window (Figure 5).

This file should then be sent to the Veripos Helpdesk (see Section 1 for contact details) where an upgrade file for the GPS card will be organised. Please note that it take between 48-72hours to organise the upgrade file.

It is important that the receiver ID is used as the filename because this is required in order to generate the authorisation upgrade for the GPS card which will enable the PPS option. If the wrong receiver ID is used this can delay generation of the upgrade file.

GGDT ID	🐔 About PC-CDU		
Tools Satellite: CA P1	PC-CDU for Windo Version 2.1.14 Lit Status Copyright © Topcon P <u>http://ww</u>	ws 95/98/ME/NT/2000/XP e (Build: October 14, 2004) :: Never expired ositioning Systems , 2000 - 2004 ww.topcongps.com	PC-CDU
	Receiver model: Receiver ID: Firmware version:	HGGDT 8QNN22XBD34 3.0.Jun 16.2006	
Save Re	ceiver Information	to file	? 🔀
Save in:	: 📋 My Documents	1	• 🗐 🍅
Camt data Gary My e My II My M	tasia Studio Temp Books MS Projects Iusic	🔐 My Pictures Com My PSP8 Files Com My Videos Com New Folder Com Roxio Com TT Installer Logs	 L1forGk report.t top test Topcon: Topcon, Topcon,
<			>
File name	e: 8QNN22XBD34.6	-4	Save
Save as	type: Text files	_	Cancel

Figure 7 - Saving GPS Details to File

Once the user have received the upgrade file from Veripos, save the file to a location on the PC and then run the PC-CDU software connecting to the LD2 unit as detailed in Section 2. Once the software has successfully connected to the GPS card in the LD2 and then select **Tools** and **Receiver Options** from the PC-CDU menu (Figure 8).



Procedure Title:	
Procedure No:	

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📶 P	C-CDL	J to H	GGD	T ID	: 8RB	UVZF	PU328	}												X
File	Config	uration	То	ols	Plots	Help														
		GPS	S	Initia	lize fil	e syst	em	G	ео	XYZ	Target			GLO	NASS	Sat	ellite	s (O)		
#								La	it: 57°	° 07' 43.1	1309'' N	Sn	Fn	EL	AZ	CA	P1	P2	TC	SS
02 05	6 14	30 116		Rese Rece	t rece iver o	iver ptions		E Lo Alt Ve	n: 2° (t: 73. sl: 0.0	04' 44.9i 1221 m 1049 m/s	788'' W									
05	69 77	92 114	49	40	40	7	00+	R	VIS Po VIS Ve	os: 3.283 M 0.033	32 m 28 m/s									
10 13*	12+ 11+	64 346	41 36	25 3	25 3	7 6	00+ 00+	PD	00P:	1.5845 (standalo	nel									
16× 21×	35+	284	45 42	31	31	7	00+													
23×	19	312	41	24	24	7	00+	- Re - Be	ceive ceive	r time: 11 r date: 11	1:36:56 172472007									
24* 30*	47+	114 116	45 42	36 31	35 31	7	00+ 00+	Clo	ck of	fset: +0	.7395 ppm									
31×	53	216	49	39	39	7	00+	Us Tra	c. offs acking	et : +0 ; time: 00):07:13									
COM.	1, 1152	00																	00:07:	:33

Figure 8 - Selecting Receiver Options in PC-CDU

This will then display the PC-CDU option manager dialogue (Figure 9) and the user should click on the Load button which will allow the upgrade file to be loaded to the receiver.

🚮 Option Manager					×
Option name	Current	Purchased	Leased	Exp. date	^
GPS	yes	yes	no		
GLONASS	no	no	no		
L1	yes	yes	no		
L2	yes	yes	no		
Cinderella	yes	yes	no		
Position update rate (Hz)	1	1	0		
Raw data update rate (Hz)	1	1	0		
Code differential Base	yes	no	no		
Code differential Rover	yes	no	no		
RTK Base	yes	yes	no		_
RTK Rover (Hz)	1	1	0		
Memory (MB)	0	0	0		
Co-Op Tracking	yes	yes	no		_
1-PPS Timing Signal	0	0	0		_
Event Markers	0	0	0		_
In-Band Int. Rejection	0	0	0		_
Multipath Reduction	no	no	no		_
Frequency Input	no	no	no		_
Freq. Lock and Output	no	no	no		_
Serial Port A (Kbps)	460	460	0		_
Serial Port B (Kbps)	460	460	0		_
Serial Port C (Kbps)	460	460	0		_
Serial Port D (Kbps)	460	460	0		_
Infrared Port		no	no		_
Parallel Port		no	no		~
I Sh Sh Fred Hon		no	no		
Refresh	Load] Stop		Exit	
					//

Figure 9 - PC-CDU Option Manager Dialogue

Browse to the directory where the upgrade file provided was saved. The PC-CDU software will automatically list files with the correct extension. Check for the filename that matches

Procedure Title:	
Procedure No:	

the receiver ID, select the .tpo file and click Open which will start loading the options to the GPS card.

Select options file		?	×
Look in: 🗀 Topcon		▼ ← 🗈 💣 🎟•	
8P93PLHHM95.tpo 8PCG6H2ZSAO.tpo 8PDS0XEE4G0.tpo 8PFCD966J28.tpo 8PFCD966J28.tpo 8PGH7773EO0.tpo 8PJ8W8EZ7R4.tpo	8PJUZDVDBSW.tpo 8PK5TZHRUGW.tpo 8PK5TZHRUGW.tpo 8PKEZK5HC5G.tpo 8POWU2F3DVK.tpo 8PQV3LPFAIO.tpo 68PSZ66XTVY8.tpo	8PSZNY7UDQ8.tpo 8 8PT74AF5UDC.tpo 8 8PTICOPDK3K.tpo 8 8PX9GCG0000.tpo 8 8PXVJKEAGHS.tpo 8 8Q1JSJH6IGW.tpo 8	8C 8C 8C 8C 8C 8C
File name: 8PG8262 Files of type: Options fi	ATXC.tpo les (*.tpo; *.jpo)	 Cancel	

Figure 10 - Selecting the Upgrade File

The PC-CDU software will load the upgrade file to the GPS card and the unit will restart once loading is complete.

🚮 Option Manager					×
Option name	Current	Purchased	Leased	Exp. date	^
GPS	yes	yes	yes	3/18/2006	
GLONASS	yes	no	yes	3/18/2006	
L1	yes	yes	yes	3/18/2006	
L2	yes	yes	yes	3/18/2006	
Cinderella	yes	yes	yes	3/18/2006	
Position update rate (Hz)	20	1	20	3/18/2006	
Raw data update rate (Hz)	20	1	20	3/18/2006	
Code differential Base	yes	no	yes	3/18/2006	
Code differential Rover	yes	no	yes	3/18/2006	
RTK Base	yes	yes	yes	3/18/2006	-
RTK Rover (Hz)	20	1	20	3/18/2006	
Memory (MB)	1024	0	1024	3/18/2006	
Co-Op Tracking	ues	yes	ues	3/18/2006	_
1-PPS Timing Signal	2	0	2	3/18/2006	
Event Markers	2	0	2	3/18/2006	
In-Band Int. Rejection	1	0	1	3/18/2006	
Multipath Reduction	yes	no	yes	3/18/2006	
Frequency Input	yes	no	yes	3/18/2006	
Freq. Lock and Output	yes	no	yes	3/18/2006	
Serial Port A (Kbps)	460	460	460	3/18/2006	
Serial Port B (Kbps)	460	460	460	3/18/2006	
Serial Port C (Kbps)	460	460	460	3/18/2006	
Serial Port D (Kbps)	460	460	460	3/18/2006	
Infrared Port		no	yes	3/18/2006	
Parallel Port		no	yes	3/18/2006	~
I So So Fred Hop		no	1140	3/19/2006	
Refresh	Load	Stop		Exit	

Figure 11 - Option Manager Dialogue showing that PPS Option Enabled



Once completed, ensure that the PC-CDU software is communicating with the GPS card (see Section 1 on how to connect) to check that the options file has been successfully loaded and the PPS option is enabled. From the PC-CDU menu go to **Tools** and **Receiver Options** which will bring up the option manager dialogue where the PPS option should be enabled (see Figure 11).

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5. SETTING UP THE PPS AND ZDA OUTPUT FROM THE LD2

After establishing that the PPS option is enabled on the GPS card within the LD2, the next step is to check the settings of the PPS signal. This also gives the user the option of editing the PPS settings to meet their requirements.

Connect the PC-CDU software to the GPS card using the process outlined in Section 2 and select Configuration and Receiver from the PC-CDU menu (see Figure 12).

🚮 P	C-CDL	J to H	GGD	T ID	: 8RB	UVZF	PU328												
File	Config	juration	То	ols	Plots	Help													
	Red	ceiver		Ctrl-	ŧ۷			Geo	XYZ	Target			GLC	NASS	i Sat	ellite	s (O)		
# 02 05	Site Tar Ra(e iget pos dio	sition	Ctrl- Ctrl-	+I +T ►	TC 9 9	SS 00+ 00+	Lat: 57° Lon: 2° (Alt: 72.	07' 43.1 04' 44.97 7125 m	1467'' N 721'' W	Sn	Fn	EL	AZ	CA	P1	P2	TC	SS
06	68	90	49	39	39	9	00+	RMS Po	rso m/s s: 3.251	0 m									
10	13+	110 62	49 41	41 24	40 24	9	00+ 00+	RMS Ve PDOP:	sl: 0.032 1.5684	25 m/s									
13* 16*	11+ 36+	346 286	38 46	15 33	16 33	9	00+ 00+		standalo	one)	-								
21×	32+	158	44	31	31	9	00+	Receive	r time: 11	1:39:28									
23 24*	47+	112	46	35	35	9	00+	Receiver Clock off	rdate:11 set: +0.	/24/2007 7387 dom									
30^ 31*	30 52	216	42 48	39	29 39	9	00+	Osc. offs Tracking	:et : +0. time: 00	.7387 ppm :09:45									
COM.	1, 1152	00																00:10):05

Figure 12 - Configuring the GPS Receiver in PC-CDU

This will bring up the dialogue window as shown in Figure 13. Select the Events tab which allow configuration of the PPS options. Ensure that **PPS A Enabled** checkbox is ticked which will enable the PPS output on the GPS card.

🐻 Receiv	🖬 Receiver Configuration 🛛 🛛 🔀									
General I	General MINTER Positioning Base Rover Ports Events Advanced									
Period: Offset: Offset: Period of	A Enabled 1000 0 0 marked' pulses	(ms) (ms) (ns) s:	Edge Rise Ref. Time GPS GLO	C Fall C Tous C UTCsu	Perio Offse Offse Perio	PSI d: t: d of	B Enabled 1000 0 0 'marked' pulses	(ms) (ms) (ns) s :	Edge Ref. Time C GPS C GLO	C Fall C UTCus C UTCsu
	0	(ms)	Tied with	n Ref. Time			0	(ms)	Tied with	n Ref. Time
-	t A Enabled	ion ion	Edge C Rise Ref. Time C GPS C GLO	C Fall C UTCus C UTCsu h Ref.Time		ven Cloc tus : epe	it B Enabled — ck Synchronizat : at Synchronizat	tion	Edge C Rise Ref. Time C GPS C GLO	C Fall C UTCus C UTCsu Ref.Time
									Refresh	Apply
ОК.	Exit Sa	ave	Set all para	meters to defai	ults					1

Figure 13 - GPS Receiver Configuration Dialogue

The PPS output is available using a suitable serial cable connected to P1 of the LD2 and ensuring that in the LD2, P1 is set to **GPS Rx**. This can be viewed by going thought the LD2 menu **Configuration > Serial Ports > P1**.

To enable the ZDA output, first run up the PC-CDU software and from the menu select File and Manual Mode (see Figure 14).

File Configuration Tools Plots Help Connect Ctrl+C Disconnect Ctrl+D TC SS SS SI Fn EL AZ CA P1 P2 TC SS File Manual Mode Ctrl+F 13 00+ 14 72 04' 44.9839'' W AI: 72.7523 m Sn Fn EL AZ CA P1 P2 TC SS Manual Mode Ctrl+M 13 00+ 13 00+ RMS Pos: 3.2904 m Receiver time: 11:43:36 Receiver time: 10:13:53<	🚮 PC-CDU to HGGDT ID:8R	RBUVZPU328									
Connect Ctrl+C Ctrl+D Geo XYZ Target Geo XYZ Target File Manager Ctrl+F 13 00+ 13 00+ 13 00+ 14 27.7523 m Sn Fn EL AZ CA P1 P2 TC SS Manual Mode Ctrl+R 13 00+ RMS Poi: 3.2904 m RMS Poi: Sn Fn EL AZ CA P1 P2 TC SS 21* 34+ 156 43 29 28 13 00+ RMS Poi: 0.0329 m/s N	File Configuration Tools Plot	File Configuration Tools Plots Help									
23* 19	Connect Ctrl+C Disconnect Ctrl+D File Manager Ctrl+F Real-Time Logging Ctrl+R Manual Mode Ctrl+M Exit Ctrl+X 21* 34+ 156 43 29 26	Geo XYZ Target GLONASS Satellites (0) TC SS Lat: 57" 07' 43.1192" N Sn Fn EL AZ CA P1 P2 TC 13 00+ Alt: 72.7523 m Sn Fn EL AZ CA P1 P2 TC 13 00+ Alt: 72.7523 m Sn Fn EL AZ CA P1 P2 TC 13 00+ Vel: 0.0099 m/s RMS Pos: 3.2904 m Sn Fn EL AZ CA P1 P2 TC 13 00+ RMS Vel: 0.0329 m/s Sn Fn EL AZ Fn EL AZ Fn EL AZ Fn EL Fn Fn Fn EL AZ Fn EL Fn Fn	SS								
001110	23* 15- 310 41 24 24 24* 48+ 110 48 38 36 30* 28- 118 43 31 30 31* 50- 214 46 37 37	4 13 00+ Receiver time: 11:43:36 8 13 00+ Receiver date: 11/24/2007 0 13 00+ Clock offset: +0.7386 ppm 7 13 00+ Osc. offset: +0.7386 ppm 0 Tracking time: 00:13:53 00+									

Figure 14 - Entering Manual Mode in PC-CDU

To actually enable the ZDA output the following command needs to be typed (case sensitive):

em,/dev/ser/b,nmea/ZDA

Then press the Send Command button (see Figure 15).

🚟 Manual Mode	
em,/dev/ser/b,nmea/ZDA	-
	~
	>
Send command Stop all messages Clear window Exit Disconnect Start logging	
Load script Path: C:\HTML Files\topcon Edit script	

Figure 15 - Configuring ZDA Output in PC-CDU Manual Mode

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If other telegrams such as GGA are being output from the GPS card they can be disabled if required by typing the following command (for GGA):

dm,/dev/ser/b,nmea/GGA

This process can be repeated for any other telegrams that are being output by substituting the telegram ID in place of the GGA in the example above.

Please note that if using the Veripos Verify-QC software it is possible to enable the ZDA output without using the PC-CDU software. This involves using the same command as above and going to **Action**, **Receiver** and **Send Command** which will bring up a dialogue box. Enter the command and then send to the receiver.

To verify that the ZDA is being output from P1 of the LD2 unit, the user can use a terminal program such as HyperTerminal to check for a valid ZDA output as shown in Figure 16.

🍣 dfgfd - HyperTerminal	
File Edit View Call Transfer Help	
D 🖻 🛞 🔉 🗈 🎦 😭	
\$GPZDA,115414.00,24,11,2007,00,00*61 \$GPZDA,115415.00,24,11,2007,00,00*60 \$GPZDA,115416.00,24,11,2007,00,00*63 \$GPZDA,115417.00,24,11,2007,00,00*62 \$GPZDA,115418.00,24,11,2007,00,00*60 \$GPZDA,115419.00,24,11,2007,00,00*66 \$GPZDA,115420.00,24,11,2007,00,00*66 \$GPZDA,115421.00,24,11,2007,00,00*67 \$GPZDA,115422.00,24,11,2007,00,00*67 \$GPZDA,115423.00,24,11,2007,00,00*65	
	>
Connected 0:04:25 Auto detect 9600 8-N-1 SCROLL CA	APS NUM 🛒

Figure 16 - ZDA Output Displayed in HyperTerminal

If no output is observed in HyperTerminal, check the cabling and then the baud rate settings of the GPS card using the PC-CDU software. Using the menu in PC-CDU, go to **Configuration** and **Receiver** and **Ports** then check that Serial B is set 9600 (see Figure 18 or 18).

Baud Rates for receivers with an LD2S IMU or an LD2 IMU with controller version of 7.16 or later:

🔚 Receiver C	onfiguration	×
General MINT	ER Positioning Base Rover Ports Events Advanced	
Serial Paral	lel Modem USB Ethernet TCP	
Serial A	Input : Command Coutput : None Period (s) :	Baud rate : 38400
Serial B	Input : Command Coutput : User Defined Period (s) :	Baud rate : 9600 💌 RTS/CTS
Serial C	Input : Command Coutput : None Period (s) :	Baud rate : 38400 💌 RTS/CTS
Serial D	Input : Command Coutput : None Period (s) :	Baud rate : 115200
		Refresh Apply
OK Ex	it Save Set all parameters to defaults	

Figure 17 - PC-CDU Receiver Configuration (Ports)

Baud Rates for receivers with an LD2 with controller version of 6.33 or earlier

🚮 Receiver (Configuration	×						
General MINT	ER Positioning Base Rover Ports Events Advanced							
Serial Para	llel Modem USB Ethernet TCP	.1						
Serial A	Input : Command Coutput : None Period (s) :	Baud rate : 115200						
Serial B	Input : Command Output : User Defined Period (s) :	Baud rate : 9600 💌						
Serial C	Input : Command Output : None Period (s) :	Baud rate : 115200 💌						
Serial D	Input : Command Output : None Period (s) :	Baud rate : 115200						
Refresh Apply								
OK E	it Save Set all parameters to defaults							

Figure 18 - PC-CDU Receiver Configuration (Ports)



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6. LD2 P1 CABLE FOR PPS/ZDA OUTPUT

This section will provide the details required to make up a PPS/ZDA cable that can be connected to P1 of the LD2.



Figure 19 - LD2 PPS/ZDA Cable

The wiring diagram is shown in Figure 19 and images of a typical cable are shown in Figure 20 and Figure 21.



LD2 PPS/ZDA Function Setup AB-V-MD-00600



Figure 20 - Y-Cable for LD2



Figure 21 - Image Showing Connector for P1 on LD2