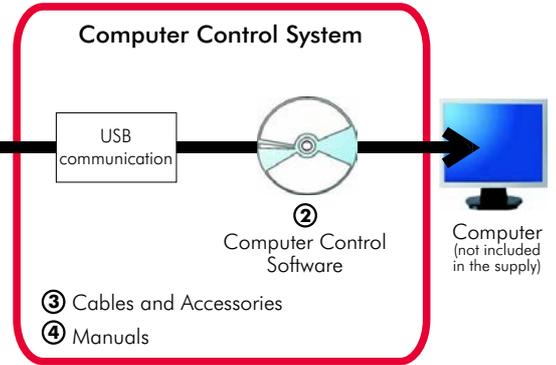




① Unit: EGPS. GPS Trainer



* Minimum supply always includes: 1 + 2 + 3 + 4
(Computer not included in the supply)

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- Products
- Products range
- Units
- 3.-Communications

UNIT ELEMENTS ALLOCATION



DESCRIPTION

The EGPS unit is the GPS trainer designed by EDIBON to study the basic concepts about global positioning. This unit allows to acquire solid formation about the operation mode of a GPS receiver without any previous knowledge.

The EGPS unit allows the student to learn, in a simple and practical way, the basic terms and concepts used in global positioning systems such as trilateration, GPS starting modes, geographic Azimuth, etc.

SPECIFICATIONS

① EGPS. Trainer:

The unit mainly consists of two elements: the unit-interface, which includes the GPS receiver element with a series of status indicators and the antenna in charge of the satellites signals reception.

Metallic box with handles.

The communication between the unit and the PC is through a USB communication connector.

The EGPS has a set of LEDs to indicate the unit status:

- Switch and indicator of the unit status:

The ON switch serves to activate the unit. The LED indicates if the unit is operating. The "reset" button resets the receiver.

- Tracking and positioning status indicators:

The EGPS has a group of LEDs to indicate the tracking and fixing status.

Active antenna with amplifier incorporated and magnetic base to be fixed to metallic elements.

Technical data:

Receptor 20 channels L1 Band (1575,42MHz).

RF sensibility reception:

- Adquisition (cold start): 144 dBm.
- Adquisition (hot start): 155 dBm.
- Navigation: 157 dBm.
- Tracking: 159 dBm.

Acquisition times:

- Hot < 1 sec.
- Warm < 36 sec.
- Cold < 38 sec.
- Reacquisition < 1 sec.

Precision:

- Horizontal CEP < 2.5 m.
- Horizontal (2dRMS) < 5.5 m.
- Vertical VEP < 2m.
- Speed < 0.01 m/s.

Antenna RF with magnetic base.

USB communication connector.



EGPS

② EGPS/CCSOF. Computer Control Software:

Compatible with the current Windows operative systems.

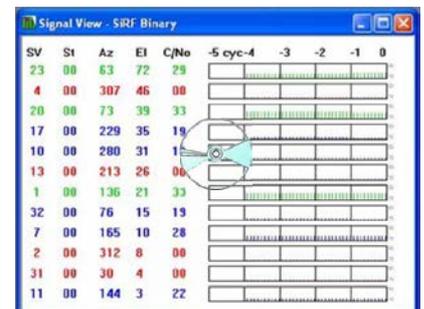
Intuitive and friendly environment.

Easy to use software to control and monitor the EGPS receiver. It uses the serial protocol of the National Marine Electronics Association (NMEA) version 1.83 to communicate with the unit.

③ Cables and Accessories, for normal operation.

④ Manuals:

This unit is supplied with the following manuals: Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance & Practices Manuals.



EGPS/CCSOF

* References 1 to 4: EGPS + EGPS/CCSOF + Cables and Accessories + Manuals are included in the minimum supply for enabling a normal and full operation.

Some typical screens

```

Setup View Action Navigation Poll Window
$GPGSV,3,2,11,23,46,171,30,17,44,299,32,13,15,190,27,31,10,072,29*7C
$GPRMC,111603.000,A,4020.9628,N,00348.0109,W,0.13,301.48,180211,,A*7B
$GPGGA,111604.000,4020.9628,N,00348.0109,W,1.10,1.0,703.6,M,51.7,M,0000*48
$GPGSA,A,3,20,11,32,17,19,24,13,31,23,28,,1.5,1.0,1.1*37
$GPRMC,111604.000,A,4020.9628,N,00348.0109,W,0.24,58.74,180211,,A*48
$GPGGA,111605.000,4020.9627,N,00348.0108,W,1.10,1.0,703.6,M,51.7,M,0000*47
$GPGLL,4020.9627,N,00348.0108,W,111605.000,A,A*43
$GPGSA,A,3,20,11,32,17,19,24,13,31,23,28,,1.5,1.0,1.1*37
$GPRMC,111605.000,A,4020.9627,N,00348.0108,W,0.09,356.88,180211,,A*76
$GPGGA,111606.000,4020.9627,N,00348.0108,W,1.10,1.0,703.8,M,51.7,M,0000*4A
$GPGSA,A,3,20,11,32,17,19,24,13,31,23,28,,1.5,1.0,1.1*37
$GPRMC,111606.000,A,4020.9627,N,00348.0108,W,0.29,62.63,180211,,A*46
$GPGGA,111607.000,4020.9626,N,00348.0107,W,1.10,1.0,704.1,M,51.7,M,0000*4B
$GPGLL,4020.9626,N,00348.0107,W,111607.000,A,A*4F
$GPGSA,A,3,20,11,32,17,19,24,13,31,23,28,,1.5,1.0,1.1*37
$GPGSV,3,1,11,20,77,327,35,24,59,088,33,32,57,044,29,11,57,121,34*7C
$GPGSV,3,2,11,23,46,171,31,17,44,299,31,13,15,190,27,31,10,072,29*7E
    
```

NMEA commands window.

Activation and deactivation of the NMEA individual commands output.
The user can choose between the different available commands.

NMEA Setup

Update rate (1/n-sec: 0 to 255) Send

GGA: 1 Cancel

GLL: 0 Set Defaults

GSA: 1

GSV: 5

RMC: 1

VTG: 0

MSS: 0

User 8: 0

User 9: 0

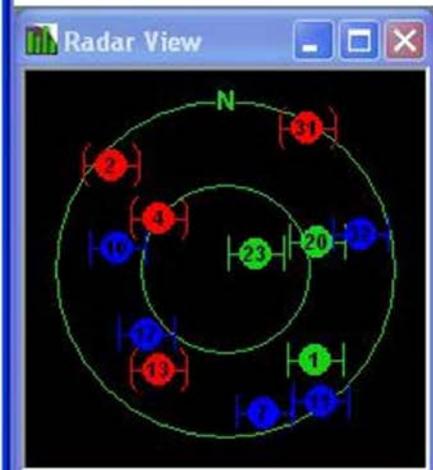
User 10: 0

Baud rate: 9600

Note:
The User message rate settings will only apply if the User has created new NMEA Output messages using the SDK. User 9 outputs \$GPZDA by default.

Use checksums

SV	St	Az	EI	C/No	-5	cyc-4	-3	-2	-1	0
23	00	63	72	29	[Graph]					
4	00	307	46	00	[Graph]					
20	00	73	39	33	[Graph]					
17	00	229	35	19	[Graph]					
10	00	280	31	18	[Graph]					
13	00	213	26	00	[Graph]					
1	00	136	21	33	[Graph]					
32	00	76	15	19	[Graph]					
7	00	165	10	28	[Graph]					
2	00	312	8	00	[Graph]					
31	00	30	4	00	[Graph]					
11	00	144	3	22	[Graph]					



Geographic Azimuth for the positioning of the satellites on the geographic plane together with its identifier, the Azimuth value and the altitude.

Navigation View

	X	Y	Z
Position (m):	4857588	-322637	4108117
Velocity (m/s):	0.000	0.125	0.125
Lat: 40.34918	Lon: -3.79996	Alt: 782	
Heading: 51°			
Mode: 3d	GPS Week: 643		
DOP: 1.600	Fix: Validated	Time: 233090.00	
7 SV's used in fix: 7 20 23 13 1 4 32			
Time To First Fix:			
Nav Availability: 100.0% (41 positions with valid nav/41 positions)			
TOW of last NoNav Position: 0			

Navigation view, showing the altitude, longitude, latitude, time current parameters and the clock drift.

Map View

Clear

Current as Oorigin

GPS Time	233939.00	Week:	643
Lat:	40.34927	Hdg:	350°
Lon:	-3.80016	Vel:	0.149
Alt:	747		

Mode: 3d
HDOP: 2.4 Fix: Validated
5 SVs Used in Fix: 7 20 23 13 4

Plane showing the position track known as survey. This window shows graphically the latitude, longitude and altitude.

Geodetic Nav View

Nav Validity: Valid	
Nav Mode: 3d	
GPS Wk: 1667; TOW: 233090.000 (sec)	
UTC: 2011.12.20 16:44:35.000	
07 SVs in Fix: 1 4 7 13 20 23 32	
Lat: 40.3491849 (deg)	
Lon: -3.7999618 (deg)	
Alt(ellip): 781.97 (m)	
Alt(msl): 730.29 (m)	
Map Datum: 21	HDOP: 1.6
SOG: 0.14 (m/sec)	
Hdg: 41.04 (deg)	Hdg Error: 0.00 (deg)
Mag Var: 0.00 (deg)	
Climb Rte: 0.03 (m/sec)	
Hdg Rte: 0.00 (deg/sec)	
EHPE: 2.82 (m)	EVPE: 3.90 (m)
ETE: 0.00 (m)	EHVE: 0.00 (m/sec)
Clk Bias: 2911955.79 (m)	Error: 0.00 (m)
Clk Drift: 18428.61 (m/sec)	Error: 0.00 (m)
Traveled: 0 (m)	Error: 0 (m)
DR Direction: N/A	
Map Matching Feedback Input: N/A	
Map Matching Feedback Rcvd: N/A	
Map Matching Feedback Used in Solution: N/A	

Position statistics table

EXERCISES AND PRACTICAL POSSIBILITIES

Some Practical Possibilities of the Unit:

- 1.- Study the operation principle of a GPS receiver.
- 2.- Determination of the GPS state.
- 3.- Configuration of the communication parameters.
- 4.- Study of the signal-to-noise ratio (SNR).
- 5.- Study of NMEA sentences.
- 6.- Study of geographic Azimuth.
- 7.- Basic concepts about navigation.
- 8.- Measurement of longitude, latitude and altitude.
- 9.- Study of the time.
- 10.- Study of the DOP effect.
- 11.- Advanced concepts about the GPS receiver.

REQUIRED SERVICES

- Electrical supply: single-phase, 220V./50Hz or 110V./60Hz.
- Computer (PC).

DIMENSIONS & WEIGHT

- Dimensions: 310 mm x 220 mm x 180 mm. approx.
- Weight: 3 Kg. approx.

* Specifications subject to change without previous notice, due to the convenience of improvements of the product.



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