

EXTERNAL GPS ANTENNA

UX0GPC00xx 5Vdc (10 mt. cable)

UX0GPC01xx 5Vdc (6 mt. cable)

UX0GPD00xx 10-35V (10 mt. cable)

1. INTRODUCTION

This GPS receiver module is based on a ultimate 12 channel GPS engine. The GPS engine, interface electronics, and a passive GPS antenna are enclosed inside the weather-proof plastic housing. This provides sophisticated state of the art GPS performance in an easy to use package.

1.1) FEATURES AND SPECIFICATIONS

Receiver Architecture

- 12 parallel channels "All in view" tracking
- L1 frequency 1575.42 MHz, C/A code

Tracking Capability

- Platform velocity up to 515 m/s (1854 Km/h)
- Platform acceleration up to 4 g

Position Accuracy

- 30 m, 2D without SA imposed (95%)
- 100 m, 2D RMS with SA imposed (95%)
- DGPS Position Accuracy <5 m (50%)
- Timing Accuracy 1 pulse/sec, aligned with GPS time +/- 1 μ s

Acquisition/Reacquisition Performance (typical)

- 8 sec. Time To First Fix (with almanac, ephemeris, time and position)
- 40 sec. TTFF (with almanac, time and position)
- 60 sec. TTFF (cold start)
- 0.1 sec. reacquisition (up to 30 sec. blockage)

Map Datum

- default WGS-84

NMEA-0183 Data Port

- NMEA-0183 Version 2.01 (selected formats)
- Default output message GGA, GLL, GSA, GSV, RMC, VTG
- Input/Output signals RS232 (TTL level)
- Default data format 4800 baud, no parity, 8 data bits, 1 stop bit (4800 N81)

DGPS Data Port

- RTCM-SC104 Differential GPS corrections, message type 1, 2, 9
- Input signals RS232(TTL level)
- Default data format 4600 baud, no parity, 8 data bits, 1 stop bit (4800 N81)

Power Requirements

- 1watt @ 10 Vdc

Operating Temperature

- 0 degrees C to 60 degrees C

Safe Storage Temperature

- -20 degrees C to 85 degrees C

1.2) UX0GPD00xx GPS RECEIVER CABLE P. # CBC0PFS0704

Conxall Pin n.	Connector Signal Name	Wire Colour	Description	Signal Specification
1	GPS RX +	green	NMEA-0183 signal received from plotter	RS232 (TTL level) 4800 N81
2	GPS TX +	brown	NMEA-0183 signal transmitted to plotter	RS232 (TTL level) (0 to 5V) 4800 N81
4	GPS RX -	gray	signal ground	
3	GPS TX -	yellow	signal ground	
6	GND	black	signal ground	
		shield	shield	
5	DIFF IN	white	RTCM-SC104 signal received from DGPS Beacon Receiver	RS232 (TTL level) 4800 N81
7	GPS PWIR +	red	10 to 35 volts DC supply input	

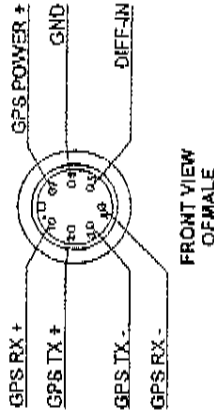


Figure 1.2 - Connector Pin Out

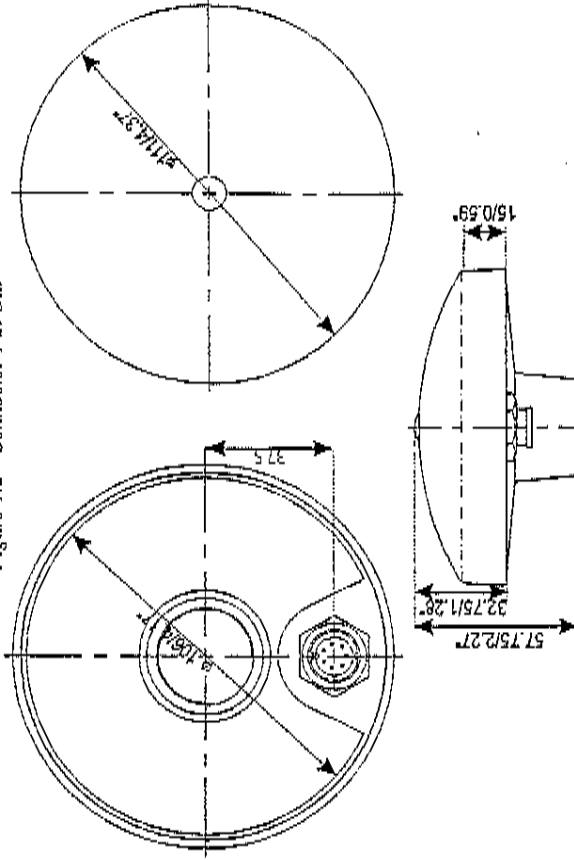
1.3) UX0GPC00xx/UX0GPC01xx

GPS RECEIVER CABLE P. # CBCCF0S0602 (6 mt.) or CBCCF0S0603 (10 mt.)

Conxall Pin n.	Connector Signal Name	Description	Signal Specification
1	GPS PWR +	5 volts DC supply input	
2	GPS RX +	NMEA-0183 signal received from plotter	RS232 (TTL level) 4800 N81
3	GPS TX +	NMEA-0183 signal transmitted to plotter	RS232 (TTL level) (0 to 5V) 4800 N81
4	DIFF IN	RTCM-SC104 signal received from DGPS Beacon Receiver	RS232 (TTL level) 4800 N81
6	GPS RX - GPS TX - GND	ground/shield	



Figure 1.2 - Connector Pin Out



1.4) UNPACKING AND INSPECTION

Carefully remove the system parts from the packing container. Ensure that the following system parts are enclosed:

- GPS Receiver/Antenna
- Interface Cable (10 metres)

Inspect the packaging and system parts for any signs of damage in transit. If any damage is found notify the carrier and supplier immediately.

1.5) INSTALLATION

WARNING

Take care in fitting the GPS as incorrect fitting can cause irreparable damage and would not be covered by warranty. See Installation Instructions in the relevant Manual.

A 10 metre cable plugs in to the Antenna (an optional 15 m cable is available, Part Number 510 541). The mounting position must be selected carefully. The satellite positions are continuously changing relative to the vessel and in addition, the vessel's heading. As reception is strictly "line of sight", between each satellite and the receiving Antenna, it is essential that the Antenna has a clear view of the hemisphere of sky from the horizon upwards. Minor shadows caused by rigging wires will not upset either reception or the resultant position fixing. Two effects may be caused by the proximity of metallic objects:

- a) Shadowing, the "line of sight" being obscured and reception from one or more satellites lost. Metal masts, radar scanners, radar reflectors or superstructures are typical causes of such shadowing.
- b) Distortion of the Antenna polar diagram which may decrease the effective level of the received signal.

The antenna SHOULD BE MOUNTED:

- more than 1 metre from wire rigging
 - more than 2 metres from metal objects greater than 200 mm in any direction and above the Antenna base
 - more than 3 metres from other satellite services Antennas such as Geostat, Locstar, Inmarsat
 - outside the possible beam width of an Inmarsat standard A Antenna or a Radar
 - with nothing on top of the unit
- As the Antenna is receiving its signals from satellites above the horizon it is not necessary to mount the Antenna at the mast top on sailing yachts or at the highest

point on commercial or other powered vessels. In fact there are disadvantages in that the accuracy of GPS will tend to show the Antenna's athwartships velocity component, dependent on the height of the Antenna above sea level and the rolling period of the vessel.

The smaller vessel may roll quickly and an Antenna mounted from the mast will may result in the display of a cyclic variation in Speed Over the Ground as well as small unnecessary position changes.

On larger power driven vessels and commercial ships, the rolling velocity is likely to be lower and an Antenna mounted high up will not suffer the athwartships velocities or accelerations of small vessels and the result will be satisfactory.

Summarising therefore, the Antenna must be mounted so as to have a clear view of the sky from the horizon upwards, must be clear of wire rigging and other large metal objects as referred to above and, not subjected to excessive rolling velocities. You will need to supply a suitable standard VHF antenna mount.

Fill the connector with silicone grease to prevent corrosion of the plug connector.

CABLE ROUTING

When installing the GPS it is important that the cable is not fitted in close proximity to antennae cables or cables carrying high currents. If the cable has to follow a similar route to cables of this type, ensure the distance between the cables is >100 mm.

SCREEN CONNECTION

Where a Screen/Chassis connection is available, (NOT SS -ve or Battery -ve), connect the Screen of the GPS cable to this point.