

GPS 1000

GPS Time Receiver

User Manual

Version 1.2



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The GPS1000 GPS Time Receiver is guaranteed against failure due to faulty parts or workmanship for a period of five (5) years from date of purchase.

In the event of product failure due to faulty parts or workmanship within the warranty period, World Time Solutions Limited, at its own discretion, will either (a) repair the product, (b) supply a replacement product, (c) supply a functionally equivalent replacement product, or (d) refund the purchase price of the product.

The limited warranty will not apply if (a) the product has not been installed or operated as per our instructions, (b) the product has been modified in anyway.

In the event of failure, the GPS1000 should be returned to the manufacturer for inspection and repair. Please visit our support pages for further details:

www.worldtimesolutions.com/support.html

TECHNICAL SUPPORT

To obtain help with the installation or operation of the GPS1000, please visit our web site at:

www.worldtimesolutions.com/support.html

1 - Introduction

The World Time Solutions GPS1000 is a highly accurate GPS time receiver. The unit is designed to synchronise to the GPS navigation network and provide time and date information to an MC Series master clock via a cable connection.

The GPS1000 incorporates a high sensitivity GPS engine with excellent interference rejection and low noise operation, enabling the system to acquire a GPS lock in low signal areas. Please refer to section 2 for installation recommendations and section 3 for details of confirming system operation.

1.1 - Package contents

The GPS1000 is supplied with the following component parts:

- GPS1000 GPS Time Receiver
- Cable for connection to a World Time Solutions MC Series master clock (*Please note: The length of cable supplied is dependent on the model ordered. See appendix A for details*)
- 5 way socket block connector for connection to an MC Series master clock
- A4 user manual

1.2 - GPS1000 front view

The drawing below shows the front view of the GPS1000.

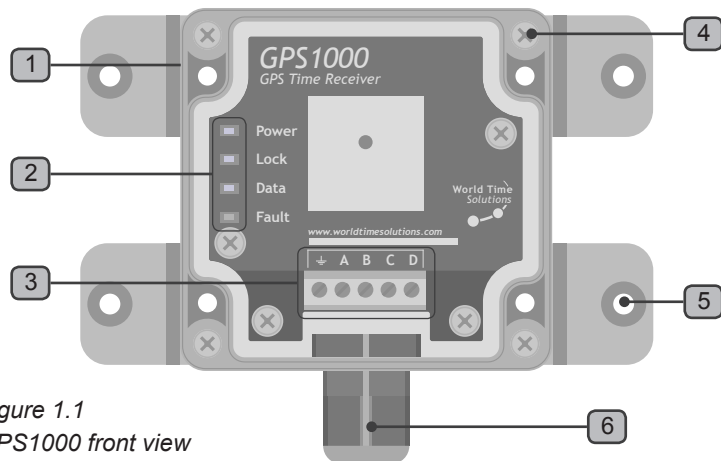


Figure 1.1
GPS1000 front view

No.	Function	No.	Function
1	IP66 (NMEA 4X) polycarbonate enclosure with clear cover	4	Cover fixings (x4)
2	Status LEDs	5	Case fixing points (x4)
3	Cable connection point	6	Cable entry grommet

Table 1.1 - GPS1000 functions

2 - Installing the GPS1000

The GPS1000 should be installed in a suitable location following the recommendations in section 2.1 below. The system should be securely fixed in place and then connected to the MC Series master clock using the supplied cable. If required, the cable may be extended by following the recommendations in section 2.3.

2.1 - Recommended installation locations

To achieve the most reliable operation the GPS1000 should be installed in the following optimum location:

- On the roof of a building, laying flat facing the sky. *(The unit should have a clear unobstructed view of the sky).*

If installation on the roof of the building is not practical, one of the following acceptable alternative installation locations may be used:

- Flat to the side of a building facing the horizon with a partial view of the sky. *(The unit should be installed on the side of the building facing towards the equator).*
- Mounted internally looking out of a non-obstructed window. *(The window should be on the side of the building facing towards the equator. Ensure the window is not coated with a metallised film as this may disrupt the GPS signals).*

2.2 - Physical installation

The GPS1000 should be secured in position using the four 4.5mm (0.178") case fixing points *(see figure 1.1)*. Care should be taken to ensure the fixings used (not supplied) are suitable for the application.

2.3 - Connecting the GPS1000 to the master clock

The GPS1000 is supplied with a length of four core cable for connection to an MC Series master clock. The cable should connect the GPS1000 cable fixing point to a Remote Synchronisation Input on the master clock. Please refer to figure 2.1 below and table 2.1 for details of cable connections.

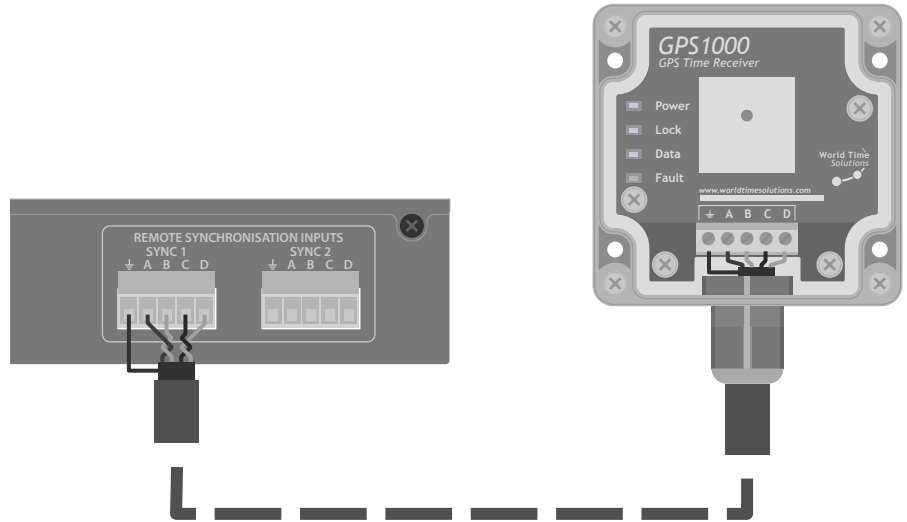


Figure 2.1 - GPS1000 master clock connection

Terminal ID	Cable colour code
GND	Cable screen drain wire
A	Black / Red
B	Red
C	Black / White
D	White

Table 2.1 - Cable connection detail

If required, the cable may be extended using Belden 9502 type cable up to a maximum total length of 150m (500ft). For low smoke/plenum applications, the supplied cable should be substituted for a Belden 82502 (or equivalent) type cable.

3 - System operation

Following correct installation (*see section 2*), and upon powering the MC Series master clock, the GPS1000 will automatically search for GPS signals. The GPS1000 also begins to send setup information to the master clock.

For a typical installation, system lock from a cold start should take under 10 minutes. Once the GPS1000 has synchronised to the GPS satellites, time and date information is automatically sent to the master clock.

3.1 - GPS1000 status information

The operational status of the GPS1000 may be visually confirmed via the status LEDs (*see figure 1.1*). The table below lists the function of the different LEDs.

LED	Status
Power	Green LED illuminates continuously when power is applied to the GPS1000 and the system is running
Lock	Green LED illuminates continuously when the GPS1000 is synchronised to the GPS satellites
Data	Green LED flashes to indicate communication between the GPS engine and the main processor
Fault	Red LED illuminates upon detection of a fault condition

Table 3.1 - Status LEDs

The synchronisation status may also be confirmed via the MC Series master clock. Please refer to the user manual supplied with the master clock for further details.

A - Specifications

Typical Performance Specifications:	
PPS accuracy:	100 nsec

GPS Module Specifications:	
GPS engine:	12 parallel channel C/A L 1 (1575.42 MHz)
RF Reception Sensitivity:	-189dBW tracking, -185dBW acquisition (hot or assisted, Ephemeris available), -174dBW unassisted acquisition (Ephemeris decoded)

I/O Connections:	
I/O connection:	Single 1000 Series communication port for connection to a MC Series master clock

Mechanical & Electrical Specifications:	
Dimensions:	125 x 80 x 55 mm (4.92" x 3.15" x 2.17") (including removable wall brackets, excluding cable grommet)
Weight:	0.5 kg (excluding cable)
Enclosure:	IP66 / NEMA 4X rated, UV stabilised polycarbonate enclosure. Light grey body and clear cover.
Cable:	Two pair plus drain 7x32 (24 AWG) stranded cable with 100% foil shield and semi-rigid, sunlight resistant, Polyvinyl Chloride (PVC) jacket.
Cable length supplied:	GPS1000-05: 5m (15ft) GPS1000-15: 15m (50ft) GPS1000-50: 50m (150ft)

Environmental Specifications:	
Operating temperature:	-30 to +50 °C
Relative humidity:	0% - 95%, noncondensing

Standards Compliance:	
Electrical Safety:	BS EN 60950-1:2006
Radio Disturbance:	BS EN 55022:2006
Immunity Characteristics:	BS EN 55024:2003

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