



- Obtain precise time in industrial environments
- 1 pulse per second output accurate to 5µs
- NMEA 0183 date and time ASCII serial output
- RS232 and RS485 interface for flexibility
- IP66 rating for easy outdoor mounting
- No specialised installation or setup required
- 9-30Vdc powered
- RoHS Compliant



Features

- Accurate Time Synchronisation from GPS and GLONASS
- Operates as a Time Sync Module out of the box
- Use with PLC's and computer standard serial ports
- Can also be configured to obtain accurate location

Overview

The **Model C2306B Maxiflex Time Synchronisation Module** is a weatherproof unit used for accurate time synchronisation of industrial equipment in rugged environments using the global navigation satellite networks.

The TSM module can be used to synchronise industrial PLC or computer equipment to better than 5 microseconds time accuracy.

Rugged Enclosure

The Maxiflex TSM module is dust and watertight to a rating of IP66 making it suitable to mount outdoors in the harshest environments for best visibility of the global navigation satellite system signals.

The convenient wall mounted enclosure with internal antenna makes this module very easy to install.

Connections are made via screw terminals within the enclosure to standard twisted pair cable entering through sealed cable glands in the bottom of the enclosure.

Time Synchronisation Output

The Maxiflex TSM module provides two outputs signals:

1. A time synchronisation pulse output (set as default to one pulse per second).
2. A serial port that supports the NMEA 0183 ASCII protocol that is configured in the factory to stream the date and time in a simple ASCII format out the serial port.

These two outputs are available on both RS232 and RS485 interface ports. RS232 is used when the TSM can be mounted

within 15m of the equipment to be synchronised and an RS232 port is available.

The RS485 interface is used when Maxiflex TSM module is located up to 800m away from the equipment to be synchronised and an RS485 serial port is available.

Note: Cable length introduces propagation delay in the pulse output that should be taken into account when accuracy better than 10µs is required. Propagation delays of 1µs per 150m of cable is typical.

This provides a simple means of time synchronisation by reading the absolute date and time via the serial data stream and then synchronising to the internal clock of the equipment to within 5 microseconds using the time pulse output.

9-30Vdc Power Supply

The Maxiflex TSM Module can be powered from a 9-30Vdc power source.

Maxiflex Compatibility

This module is compatible with the Maxiflex P3 and A3 CPU's used in 1 millisecond Sequence of Event Recording systems.

No additional configuration is required. Just connect the TSM module to the Maxiflex serial port, select the "Time Synchronisation protocol" for the serial port on the CPU, and the Maxiflex CPU's clock will be synchronised to better than 1 millisecond.

Location Information

Although the TSM module can be used out of the box for time synchronisation, this product is built upon the exceptional performance of the uBlox M8 GNSS module and is capable of providing full location information by reconfiguring the module for location based applications using the USB port.

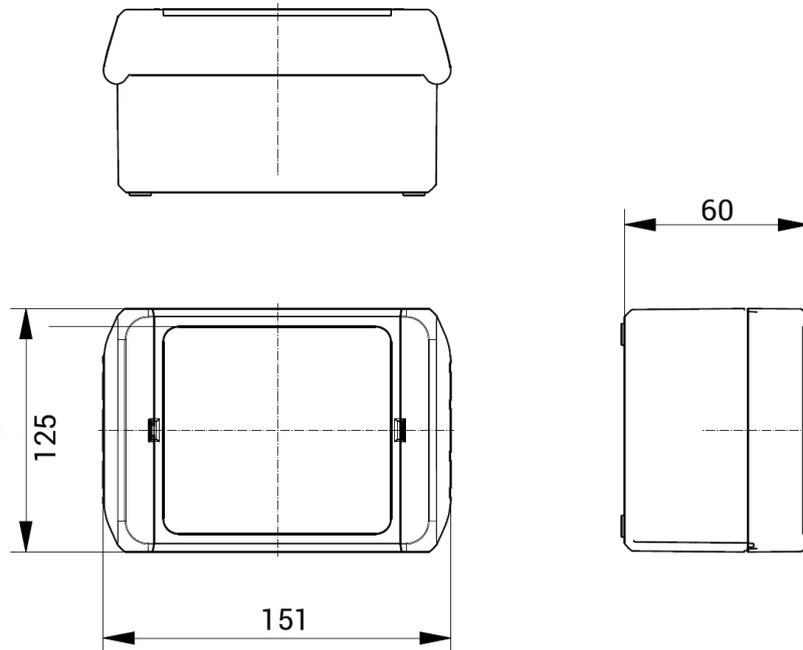




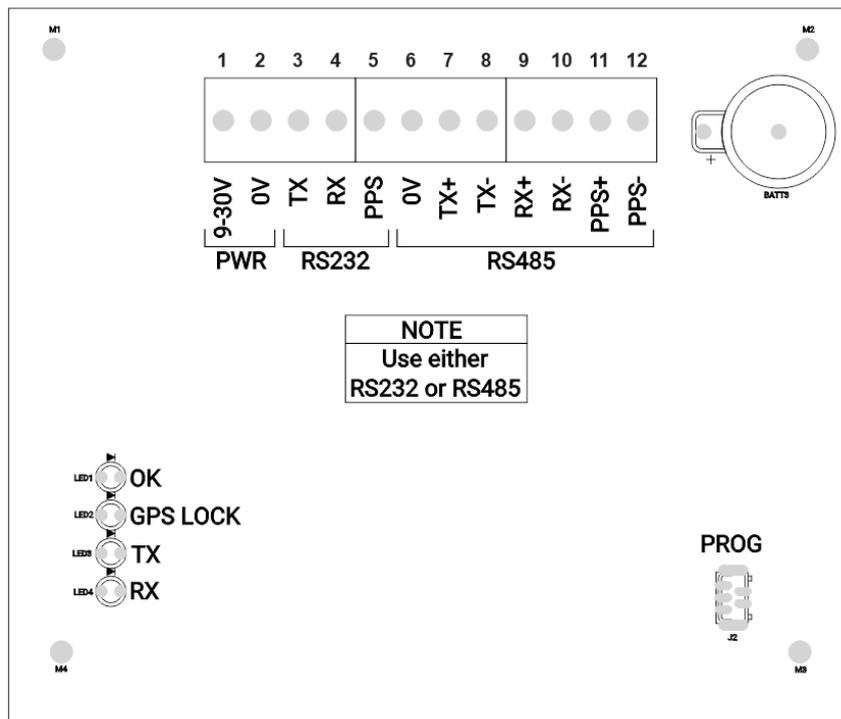
Maxiflex TSM Module

Model C2306B Maxiflex GPS Time Synchronisation Module

Mechanical Details



Connection Diagram





Specifications

GNSS Specifications

GNSS Systems supported	GPS ¹ + GLONASS/BeiDou/QZSS
Antenna Type	Internal Active Antenna
Time to First Fix ²	Cold < 30s Hot < 1s
Time Pulse Accuracy	<5µs
Horizontal Position Accuracy	2.5m (typical)

Power Supply

Supply Voltage	9-30Vdc
Supply Current	<50mA at 24Vdc <100mA at 12Vdc

Battery Backup

Battery Type	CR1220
Use	Real Time Clock backup for warm/hot start after power failure

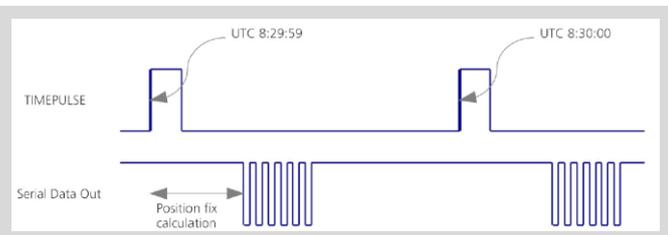
Interfaces and Protocol

UART Interface

Electrical Interface	Rx and Tx RS232 or RS485
Default Parameters ¹	38400 Baud, 8 bits, no parity, 1 stop bit
Baud Rate Range	4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800
Flow Control	None (hardware or software)
Serial Protocol options	NMEA 0183, version 4 (V2.3 or V4.1 configurable)

Factory default Serial Protocol ¹	NMEA-0183 Message: ZDA Example String: \$GPZDA,172809.456,12,07,1996,00,00*45 ZDA Message Fields: 0: Message ID \$GPZDA 1: UTC 2: Day (01 to 31) 3: Month (01 to 12) 4: Year (4 digits) 5: Local time zone offset from GMT (00 through ± 13 hours) 6: Local time zone offset from GMT (00 through 59 minutes) 7: Checksum data (begins with *)
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Time Pulse Output Interface



Electrical Interface	RS232 and RS485 Output
Default Pulse Rate ¹	1 Hz
Default Pulse Width ¹	10ms
Pulse Rate Range	0.25Hz to 10MHz
Pulse Length Range	1µs to 4s

USB Interface (Programming Interface)

USB Version	USB 2.0 Full Speed
USB Physical Interface	Internal Mini USB Connector

Environment

Operating Temperature	-30 to 60°C (+14°F – 158°F)
Storage Temperature	-40°C to 85 °C (+14°F – 158°F)
Humidity	0 to 99%

Mechanical Housing

Mounting	Unit must be wall/pole mounted with top of housing facing upwards
Housing Protection	IP66
Outdoor Suitability	UL 746C f1 (UV protected)
Material	Polycarbonate UL 94 V0
Width	151mm
Height	125mm
Depth	60mm

Weight

Unpacked	420gm approx.
Packed	520gm approx.

Compliance to Standards

Safety	IEC950; EN60950:1995
Emissions	EN 55011 and EN50081-2:1994 Grp I, Cls A
Immunity	IEC61326-1
Insulation Resistance	100Mohm at 500Vdc outputs to ground.

Ordering Information

ORDER CODE	DESCRIPTION
C2306B	Maxiflex GPS Time Sync Module

Notes

1. Default setting as shipped from the factory
2. All satellites at -130 dBm

