**Mars680-mini** is a GPS Mouse receiver build-in well-known Ulbox 8 GPS chipset. **Mars680-mini** provides customer high position, velocity and time accuracy performances as well as high sensitivity and tracking capabilities. Customers benefit from the strength of both companies.
Thanks to the low power consumption technology, the GPS-Mouse receiver is ideal for many portable applications such as PDA, Tablet PC, smart phone, automotive etc.

## Features

- 72 channel Ublox M8 positioning engine.
- Ultra high sensitivity to -167 dBm.
- GPS L1C/A, SBAS L1C/A, QZSS L1C/A and Galileo E1B/support.
- Supports GLONASS and is ready for Galileo.
- Support BeiDou B1
- Supports UART, USB and RS232 interface.
- Up to 10 Hz update rate.
- LED indicate location fix.
- Ultra low power consumption.<10mW required for TricklePower™ mode
- Ultra miniature 29 x 29 mm dimension
- Operating temperature range: -40 to 85°C
- RoHS compliant (lead-free)
- Water proof (IPX6)

## Applications

- ◆ Automotive
- ◆ Personal/Portable Navigation (PDA)
- ◆ Geographic Surveying
- ◆ Sports and Recreation
- ◆ Marine Navigation
- ◆ Fleet ManagementAVL and Location-Based Services


20F-8, No.107, Sec. 1, Jhongshan Rd.,
Sinjhuang City, Taipei County 242, Taiwan
TEL: +886-2-8522-7628 FAX: +886-2-8522-7784

# Specifications

| General | | Accuracy | |
|---|---|---|---|
| GPS Chip | Ublox M8 | Position | |
| Frequency | L1, 1575.42MHz | 2.5 meters Autonomous<br>2 meters SBAS | |
| C/A Code | 1.023MHz chip rate | | |
| Channels | 72 CH | Time | 1ms synchronized to GPS time |
| | | **Datum** | |
| **Sensitivity** | | WGS-84 | |
| To – 167Bm Tracking, Superior Urban Canyon Performance | | **Dynamic Conditions** | |
| | | Altitude | <50,000 m |
| **Acquisition Rate** | | Velocity | <500 m/sec (1,000 knots) |
| Cold Start | 26 sec, average | Acceleration | <4g |
| Cold start ( CGEE* ) | 25 sec, average | | |
| Hot Start | 1 sec, average | **GPS Protocol** | |
| Aided Start | 2sec, average | Default: NMEA-0183 2.3 compatible with 3.0<br>Band rate 9600 bps(default), 4800 | |
| **Power** | | | |
| Operation Power | 3.3V-5.0 VDC | | |
| Current Consumption | 40mA (Tracking) | **Device Size** | |
| | 37mA (Navigation) | 41.0x36.0x15.0 mm | |
| **Environmental** | | | |
| Operating Temperature | - 40 ℃ to + 85 ℃ | **Water Proof** | |
| Relative Humidity | 5% to 95% non-condensing | IPX6 | |


20F-8, No.107, Sec. 1, Jhongshan Rd.,
Sinjhuang City, Taipei County 242, Taiwan
TEL: +886-2-8522-7628 FAX: +886-2-8522-7784

# Hardware Interface

The Mars680-mini includes an antenna in a unique style waterproof gadget. We can manufacture variable connector cable to suit your demands. Like USB, PHR(JST), GHR(JST), Molex, PS2, RJ11, D-Sub 9..etc. You provide me specification, we manufacture the cable and connector.


## Mars680-mini Standard PIN OUT

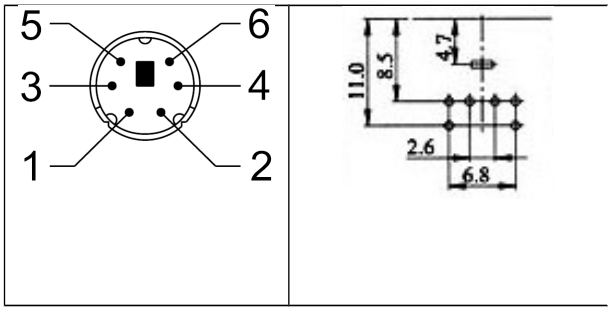
- Pin Assignment of standard PS2 male Din Jack

Mars680-mini-T

| Pin | Signal |
|---|---|
| 1 | GND |
| 2 | VCC 5.0V |
| 3 | N.C. |
| 4 | TTL_RX |
| 5 | N.C. |
| 6 | TTL_TX |

Mars680-mini-R

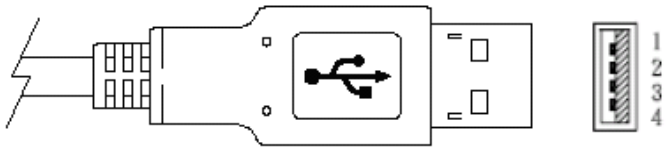
| Pin | Signal |
|---|---|
| 1 | GND |
| 2 | VCC 5.0V |
| 3 | RS-232_Rx |
| 4 | N.C. |
| 5 | RS-232_Tx |
| 6 | N.C. |




- Pin Assignment of A Type USB connector

Mars680-mini-U

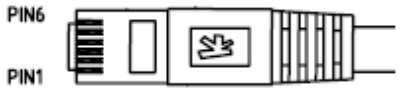
| Pin | Signal |
|---|---|
| 1 | +5.0 VDC |
| 2 | D− |
| 3 | D+ |
| 4 | GND |



- Pin Assignment of RJ11 connector

Mars680-mini-J

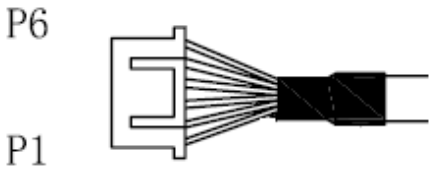
| Pin | Signal |
|---|---|
| PIN1 | VCC 5.0V |
| PIN2 | RX (RS232) |
| PIN3 | TX (RS232) |
| PIN4 | GND |
| PIN5 | N.C. |
| PIN6 | N.C. |




- Pin Assignment of PHR 6 PIN connector(JST PH Connector pitch 2.0mm )

Mars680-mini-H

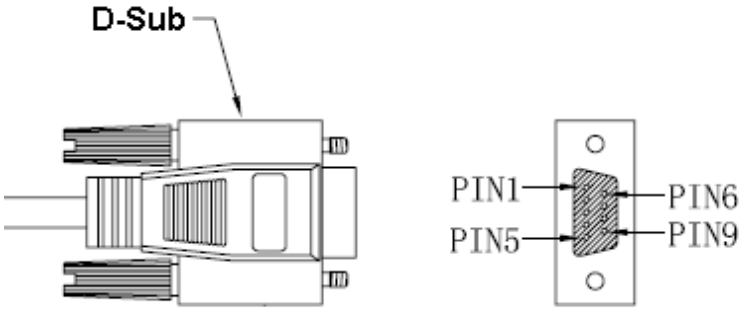
| Pin | Signal |
|---|---|
| PIN1 | VCC 5.0V |
| PIN2 | RX (RS232) |
| PIN3 | TX (RS232) |
| PIN4 | GND |
| PIN5 | N.C. |
| PIN6 | N.C. |




- Pin Assignment of D-SUB 9 PIN Female connector

Mars680-mini-D

| Pin | Signal |
|---|---|
| PIN1 | N.C. |
| PIN2 | TTL-TX |
| PIN3 | TTL-RX |
| PIN4 | N.C. |
| PIN5 | GND |
| PIN6 | VCC 5.0V |
| PIN7 | N.C. |
| PIN8 | N.C. |
| PIN9 | N.C. |



# NMEA output message

NMEA-0183 V3.0 Output Messages

| NMEA Sentence | Description |
|---|---|
| GGA **(default)** | Global Positioning System Fixed Data |
| GLL | Geographic Position - Latitude/Longitude |
| GSA **(default)** | GNSS DOP and Active Satellites |
| GSV **(default)** | GNSS Satellites in View |
| RMC **(default)** | Recommended Minimum Specific GNSS data |
| VTG | Course Over Ground and Ground Speed |
| ZDA | Time and Date |

## Ordering code

Mars680-mini- X X X

a b c

Defautl ordering code: Mars680-mini-T2

a. cable type:

**T**: PS2 TTL ; **R**: PS2 RS232 ; **U**: USB ;
**J**: RJ11 ; **H**: PHR6 ; **D**: DB9

b. Baud Rate setting:

**1** : 4800 bps; **2** : 9600 bps; **3** : 19200 bps;
**4** : 38400 bps; **5** : 57600 bps; **6** : 115200 bps

c. Type

**G: GPS + Glonass**

**B: GPS + BeiDou**


20F-8, No.107, Sec. 1, Jhongshan Rd.,
Sinjhuang City, Taipei County 242, Taiwan
TEL: +886-2-8522-7628 FAX: +886-2-8522-7784