OVARRO
CONNECTING TECHNOLOGIES

TBOX MS-GPS

Version 3.05

TBOX
AN OVARRO TECHNOLOGY

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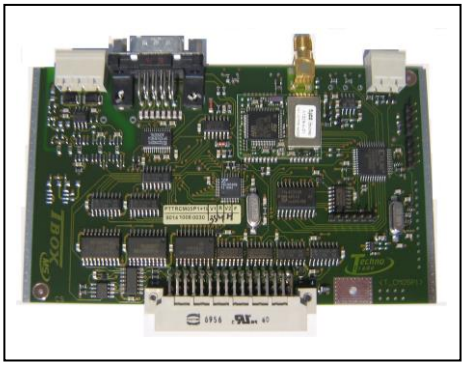
TBOX MS-GPS

- GPS receiver
- Clock
- Provides a **clock** with absolute value (UTC) with high precision (<1ms), without drift of time.
  Allows **synchronizing** in datalogging.
- Positioning
- Allows vertical and horizontal **positioning** of a mobile equipment.
- 1 port RS232/RS485 non isolated



Technical Specifications

General

Consumption	**140 mA**
Replacement	**Hot insertable/removable.** There is no risk to damage hardware, but a reset is required
Test	Automatic test of the access of the card by the CPU (See LED 'CS' below)

LED

Cs	**Card Selection:** card corresponding to card declared in TWinSoft.
ER	**Error:** card type not corresponding to the one declared in TWinSoft.

GPS Receiver

General		L1 (1575 MHz), C/A code, 12 channels, continuous tracking receiver
Precision:	position clock	3 m CEP (SA off) 500 ns (SA On)
Acquisition:	Cold start Warm start	< 60 sec < 3 sec
Antenna connector		Active antenna: SMA compatible Voltage delivered by the card: 3 to 3.6 VDC
LEDs	Tik Sec Lock Ant. Status	1 Hz validity of the GPS signal received. Minimum 4 satellites active antenna connected
System Variables		Analog - "GpsLat": indicates the current latitude (Precision=15 meters) Analog -"GpsLong": indicates the current longitude (Precision=15 meters) Analog -"GpsAlt": indicated the current altitude (Poor Precision) Analog -"GpsSats": indicates the number of satellites detected Analog -"GpsSpeed": indicates the current speed in km/h Analog -"GpsRoute": indicates the current direction in degree (0 ... 359,9) Digital - "GpsVF": indicates a valid signal and the time has been synchronized. Write "0" to re-synchronize time.

Synchronization

Internal	Generates an internal clock signal every 1 ms (precision 200 µs)
Tick to CPU-16	Synchronization from the Bus using Tick Second of MS-GPS Tick of the CPU-16: 10 ms (used for time stamping) Global precision: 25 ms
Tick to CPU-32	Synchronization from the Bus using Tick Second of MS-GPS Each Tik Second, resynchronization of Millisecond Tick of the CPU-32: 1 ms (used for time stamping) Global precision: 1 ms
Time synchronization	When "GPSVF" = 1, time of MS-CPU32 is synchronized to MS-GPS time (UTC). Writing "0" to "GpsVF" allows resynchronizing time manually.

Digital Output

Use	Tik Sec output (1 Hz). Precision: 200 µs
Type	Current sinking (Open Collector)
Voltage	max. 50V
Current	max. 45mA
Impedance	max. 60 ohms
	NO PROTECTION

RS232 – RS485

Mode	RS232 **or** RS485 (no simultaneous use of both modes)
Isolation	**No isolation**. Gnd is linked to earth by internal connection
RS232	Signals: RxD, TxD, CTS, RTS, DTR, DSR, DCD, RI Connector: 9 pin Sub-D (male)
RS485	Cabling: 2 wires (A+ and B-) for multi-points connection Termination: no need for termination resistor (failsafe bias resistors included: pullup and pulldown resistors which assures a logical level TRUE when A and B are opened or in short circuit) Number of slaves: 256 (if RS485 technology of slaves allows it too) Connector: screw connector (3 x 5.08 mm)
LEDs (common to 2 ports)	
RxD	Indicates reception of data
TxD	Indicates transmission of data

Temperature

Storage	-40° to 85 °C
Working (ambient)	**Industrial Temperature:** -40°C to 70 °C
Humidity	15 to 95 % without condensation

Dimensions

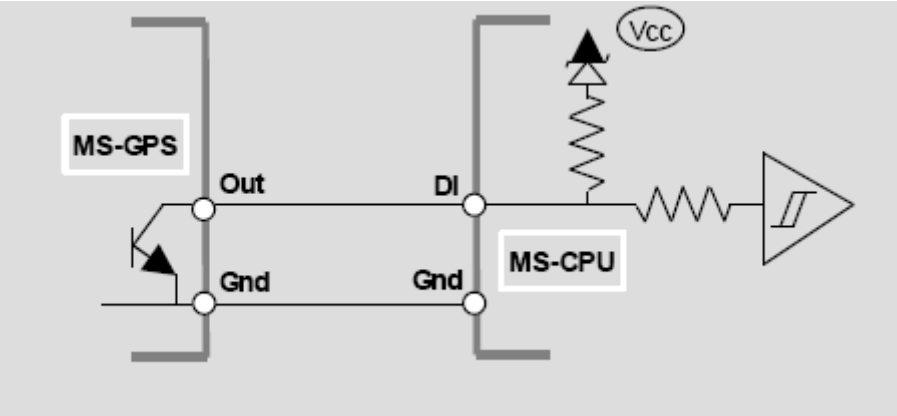
Without connector	Height x Depth x Width: **150** x **83** x **29 mm**
Weight	300 g

Approvals

CE, UL, CSA, C-Tick

Cabling Synch Output to DI of another CPU

DI input voltage: 0 … 5.5V.
DI absolute maximum: 30 V.
DI Low state guaranteed: < 0.8 V.
DI High state guaranteed: > 2 V.
RC filter: 1 Khz
Max. frequency (software): 50 Hz



Antennas

MS-GPS-ANT	MS-GPS-ANTINDUS
 With 4 meters long cable	 Requires cable: MS-GPS-EXT15