



Antx Messenger

Alarm, Monitor and Control

The highly-configurable and robust integrated telemetry and alarm notification system



Tracking Overview

Each monitored unit has a separate Messenger. The Messenger automatically transmits to the Antx Tracking system on a periodic basis and whenever a condition exceeds the desired limits. Along with each transmission is the GPS location of each unit so that they can be easily viewed on an interactive map.

For example, notify designated personnel whenever the service hours reach 160 hours or fuel level drops 25%, or when an engine has a CANbus diagnostic message.

The Messenger is an integrated telemetry and alarm notification system designed to work seamlessly with electronic engine controllers, ECUs, and other devices that support the J1939 protocol over CANbus.

When housed in the Deutsch weatherproof enclosure, the Messenger connects to the ECU through a single Deutsch 12-conductor wiring harness. The GSM and GPS antenna connections are on either side of the 12-conductor plug.

Antenna connections are 1 SMA connection for the GPS and 1 SMA-RP (reverse polarity) connection for the GSM/GPRS.

A board-level version of the Messenger has a 16-position screw terminal removable plug instead of the 12-conductor Deutsch connector.

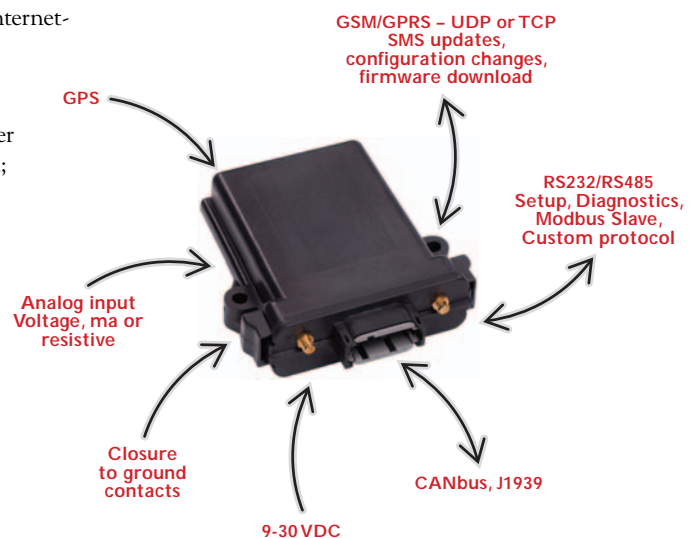
The Messenger monitors up to 32 PGNs at speeds up to 1.25Mbits/second.

The Messenger monitors many conditions and transmits them via GSM cellular transmission to the internet-based Antx Tracking System, for historical reporting and alarm notifications. Interfacing to back-end applications other than Antx Tracking is possible via either UDP or TCP connections.

OEM Capabilities

The Messenger is designed to provide a highly configurable, robust platform for OEM applications. The powerful 32-bit processor, FLASH and SRAM on the Messenger allow for:

- Virtual real-time transfer of monitored conditions;
- Local computations from monitored conditions;
- User-specified PGNs to be monitored;
- Event and data logging;
- Exception reporting to Internet-based applications;
- Tunneling into the Messenger or equipment attached to the Messenger via a wireless connection;
- SMS messaging sent on monitored conditions;
- Parameter setting via SMS messaging.





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Interface Connections

Deutsch 12 Pin Connector

Pin#	Function
1	9-30VDC
2	CAN High (+)
3	Ground
4	Port 1 RS485- or RS232 RV (switch selectable)
5	Port 2 RS485- or RS232 RV (switch selectable)
6	External WAKE or RESET or digital input (selectable)
7	Analog input
8	Port 2 RS485+ or RS232TX (switch selectable)
9	Port 1 RS485+ or RS232 TX (switch selectable)
10	Ground
11	CAN Low (-)
12	Ground

Antenna	Function
SMA	GPS antenna connection (1575 MHz)
SMA-RP	GSM/GPRS antenna connection (1900MHz – reverse polarity)

Pluggable 3.81mm Connector

Pin#	Function
1	User input 3 (contact closure to ground)
2	User input 4 (contact closure to ground)
3	Analog input
4	External WAKE or RESET or digital input (selectable)
5	Ground
6	Port 2 RS485+ or RS232 TX (switch selectable)
7	Port 2 RS485- or RS232 RV (switch selectable)
8	Ground
9	Port 1 RS485+ or RS232 TX (switch selectable)
10	Port 1 RS485- or RS232 RV (switch selectable)
11	Ground
12	CAN High (+)
13	CAN Low (-)
14	Ground
15	9-30VDC
16	Ground

Antenna	Function
SMA	GPS antenna connection (1575 MHz)
SMA-RP	GSM/GPRS antenna connection (1900MHz – reverse polarity)

Physical Characteristics

Electrical

Sleep Mode: 12VDC @ 20mA
 Monitoring Mode: 12VDC @ 120mA
 GPRS Transmit mode: 12VDC @ 800ma peak

Temperature

Industrial temperature range: -40 to +70C

NEMA 4X enclosure

5.5"H x 5"W x 1.3"D, with mounting holes

Messenger Board Specifications

- 3.25" x 3.95"
 - GSM/GPS board piggy-backs on top of Messenger board
 - 4 mounting holes
- CAN controller
 - Supports protocol version 2.0 part A and B/Active
 - Bit rates up to 1.25M bit/second
 - 32 independent PGN message objects
- Port 1 – RS232 or RS485 – Modbus RTU Slave
- Port 2 – RS232 or RS485 – Modbus RTU Master or Special
- Battery Backed up Real-Time Clock, event log, data log, and more – 10-year life
- GSM-GPRS with SIM card holder embedded on Messenger
- Certified with FCC, PTCRB and ATT for GSM/GPRS end-user applications
- Extreme low power mode when engine is not running or other user-specified mechanism
- 32-bit processor

- FLASH memory for application – downloadable via serial port or via GSM connection – 512K
- Low-low power SRAM – 512K – battery backed up
- DIP switches to select:
 - Serial port function
 - ♦ Modbus Slave, Debug, None
 - Serial port interface
 - ♦ RS232 or RS485 per port
 - Modbus Slave ID
 - ♦ 126-133
 - Port 2 baud rate
 - ♦ 4800-38400
- Event logger accessible via serial port or via GSM connection
- 8 LEDs on-board indicate:
 - GSM status
 - GPS status
 - CAN status
 - Serial port status
 - Power
 - 2 available for user-specified conditions
- General purpose inputs
 - 1 digital/1analog on 12-pin Deutsch connector
 - 3 digital/1analog on 16-pin pluggable connector
 - Digital inputs are contact closures to ground
 - Analog input is 10-bit, 0-3VDC or 0-20ma or resistive input for fuel sender
- Receive SMS messages for reconfiguration or on-demand reporting

Some Conditions Monitored

Electronic Controller:

- GPS Coordinates (location)
- 1 – General purpose on/off input
- 1 – Analog input
- Standard values read via CANbus
 - Engine hours
 - RPM
 - Battery Voltage
 - Oil Pressure
 - Fuel Level
 - Oil Level
 - Oil Temperature
 - Coolant Level
 - Coolant Temperature
- All fault conditions reported by PGN 65226 (DM1 - Diagnostic Message)
- All fault conditions reported by PGN 60416 (TPCM used to report multiple diagnostic messages in a single CAN message)
- Optional values read via CANbus
 - Up to 8 User-specified PGN/FMI analog values
 - Up to 32 User-specified PGN/FMI on/off values

