TDR880i TETRA data radio
Dedicated to data

EADS
DEFENCE
& SECURITY

TDR880i TETRA data radio

- **A complete, ready-to-use TETRA data radio for easy set-up**
- **Data communications and positioning functionality in a single device**
- **Versatile interfaces for connecting a wide variety of applications**
- **Power management for battery-powered applications**
- **Integrated GPS receiver with diverse triggers and managed track retrieval**

The TDR880i is an advanced TETRA radio dedicated to data communication. The TDR880i uses the solid and robust technology of the EADS i-range TETRA radios. It is a ready-to-use product that comes complete with housing and connectors for easy set-up in diverse mobile and fixed applications that benefit from a solid data communication channel.

Examples include positioning, field reporting, database queries as well as remote control and monitoring of remote assets and devices such as containers, meters, gates or traffic display panels.

In position for data applications

With unique GPS tracking capabilities, advanced I/O line functionality and PEI-based AT command interface, the TDR880i is the right choice for a wide variety of applications. Examples vary from simple messaging, monitoring and controlling applications to modern IP-based solutions and data transmission over TETRA networks.

The integrated GPS receiver supporting LIP protocol also includes a position storage and transfer facility, which makes the TDR880i an ideal solution for TETRA applications such as tracking vehicles, vessels or containers. The radio's intelligent track saving system allows position data to be collected, even if the radio is beyond the reach of the TETRA network. Once the radio returns to the coverage area, the location data can be sent for further processing, such as picturing its route on a map.
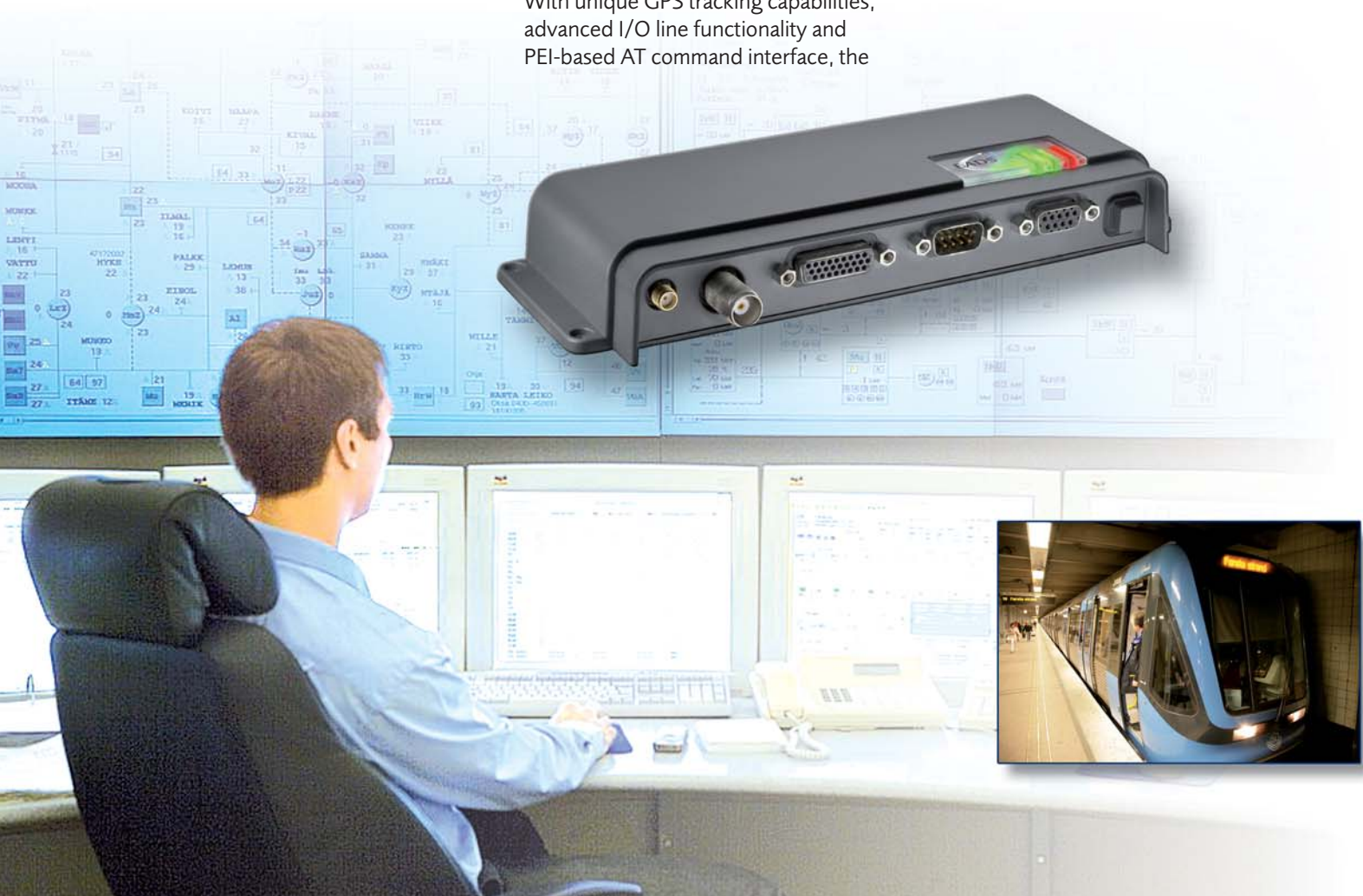
Fully capable and robust

The radio unit provides a set of digital I/O lines that can be configured as inputs or outputs. This enables easy integration with simple switches and sensors without need for processor-based-devices. The outputs can be controlled by short data messages, while the inputs can be used to trigger status message or send location information to predefined destinations. The radio can use intelligent message transfer options for managing the traffic load, such as control channel associated with an ongoing group call.

The mechanical design of the radio features a robust housing with a mounting flange and LED panel for power on, TETRA network service and GPS fix indicators. The radio has a power on/off button and connectors for GPS and TETRA antennas, I/O lines and PEI interface and power supply.

TDR880i accepts a wide range of input voltages (10,5 - 32 VDC) from external power supply, allowing the radio to be directly fitted in ordinary vehicles as well as heavy duty machines and trucks. The TDR880i has a unique sleep-mode feature that makes it possible to reduce power consumption in battery-powered applications. It is also possible to switch the power on and off with an external device over the I/O lines.

Accessories for TDR880i

- External AC Power Supply ACR-2E
- DC Power Cable, CA-113
- Combined TETRA & GPS Antenna AN-6
- TETRA Antenna AN-7
- TETRA Antenna AN-9
- GPS Antenna AN-5
- Data Cable CA-109
- Parametering kit including adapter CA-115 and DAU-9S cable

TDR880i TETRA data radio

EADS TETRA Terminals fulfill the following specifications for TETRA radio equipment in the temperature range of -20 °C to +55 °C:
- EN 300 392 V + D Air Interface
- EN 300 394 V + D Conformance testing

Size
- Weight: 230 g
- Dimensions: 205 x 87 x 32 mm

Frequency Bands
- TMO:
  - Tx 380-390 MHz
  - Rx 390-400 MHz

Power Class
- Compliant with EN300392-2 power class 4
- Receiver class A
- RF power control, 4 steps of 5 dB

Power Supply
- Input Voltage Range: 10.6 – 32 VDC
- Consumption:
  - TX On (i.e. IP connection active and transmitting): 3.6 W maximum transmitter power
  - GPS[1]: 540 mW
  - Idle: 840 mW

Power Management for Battery Operated Applications
- Sleep mode with periodical wake-ups
- Power on/off controllable by external application

Durability
- IP44 classification
- Shocks and vibrations tested based on:
  - ETSI EN 300 019-2-5 V3.0.0 (5M3)
  - ETSI EN 300 019-2-6 V2.1.2 (6M3)

User Interface
- LED indications for:
  - GPS Fix
  - In Service
  - Power on
- Power on/off button

Security
- Authentication
- Mutual authentication
- Air Interface Encryption (AIE) with dynamic and static ciphering keys (DCK/CCK) supporting TETRA encryption algorithms TEA-1, TEA-2, TEA-3
- Temporary disable/enable (stun)
- Permanent disable (kill)

Wireless Data
- TETRA IP packet data, single slot via data cable
- AT-command interface for applications
- Group address SDS send and receive
- SDS sending on FACCH in an on-going group call

Positioning
- Inbuilt GPS receiver
- GPS activity indicator
- Sensitivity -152 dBm
- Cold start accuracy (open sky)[2]
  - 5 meters (50 % confidence level)
  - 10 meters (95 % confidence level)
- Cold start TTFF, time to first fix (open sky)[3]
  - 40 seconds (average)
  - 60 seconds (95 % confidence level)
- NMEA output can be activated using AT command interface
- Support for ETSI location information protocol for TETRA (LIP)
  - Time & distance based triggers
  - Position sending upon request
  - Saved track retrieval

Advanced I/O Line Functionality
- I/O Line state change by SDS
- I/O Line triggered SDS sending
- I/O Line triggered location report sending
- Power On indication
- In Service indication
- GPS Fix indication
- Over temperature indication
- Location sending triggered by I/O line state change
- Buffered I/O line triggered alerts
  - Acknowledged and unacknowledged

Interfaces
- Data Connector for IP and AT commands, 9-pin D-Sub, RS232 voltage levels
- I/O Connector
  - 12 configurable I/O pins
  - Indications: Power On, In Service, GPS Fix, Over temperature
  - Power on/off control
  - +5 VDC output
  - Supply voltage output
- GPS antenna connector, SMA female, 50 ohm
  - Includes + 5 VDC feed for an active antenna
- TETRA antenna connector, TNC female, 50 ohm
- Power supply connector

(1) Power consumption increase caused by GPS receiver. To calculate total consumption for particular case, add this figure. E.g. Idle power consumption with GPS active: 840 mW (idle) + 540 mW (GPS) = 1380 mW

(2) Measured at -130 dBm

(3) Measured at -130 dBm

Defence & Security, a Division of EADS