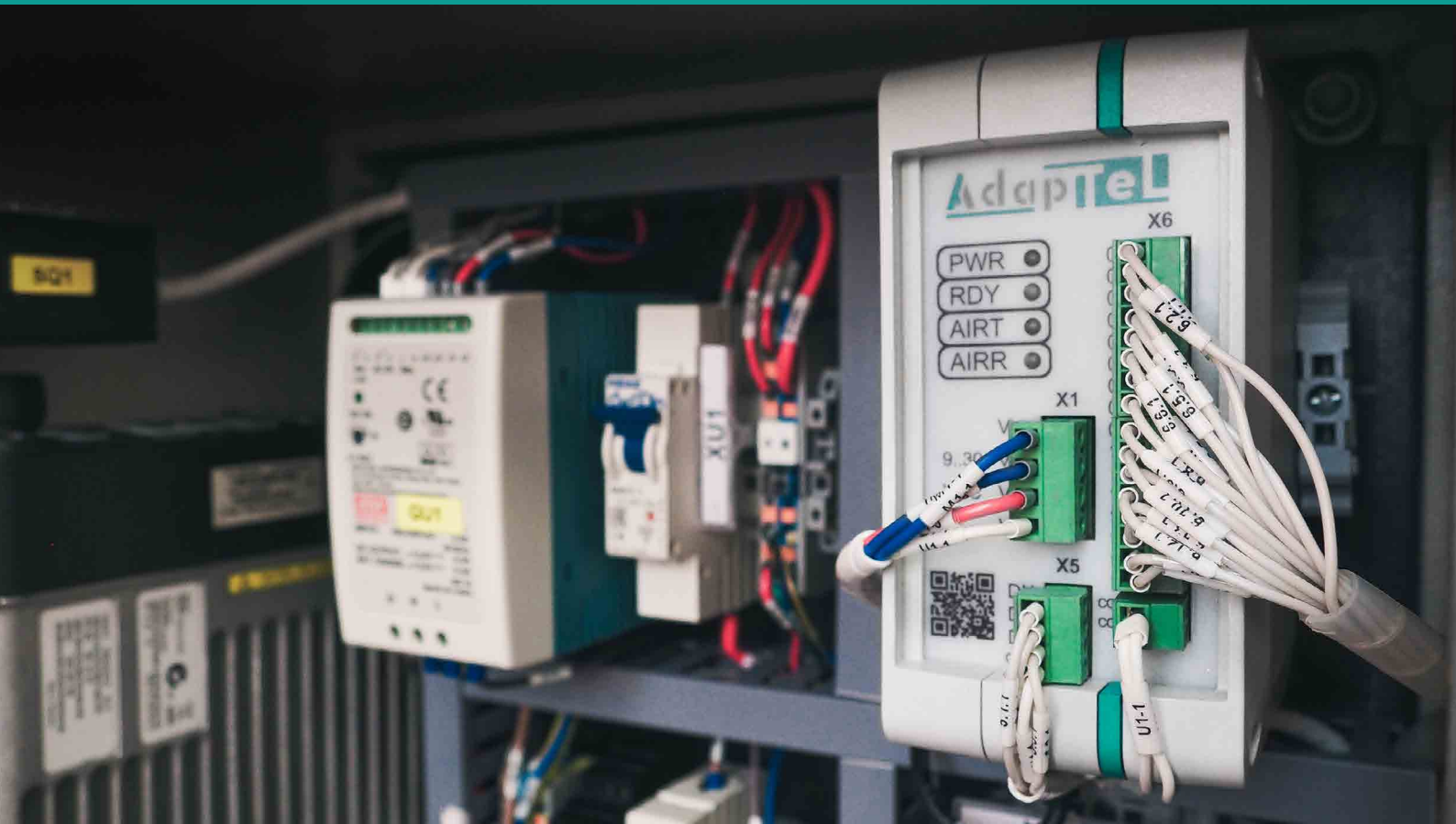


TELEMETRY DATA TRANSMISSION OVER DMR RADIO SYSTEMS



Benefits

- **Reliability:** Use of the private fail-secure communication channel, independent of third-party operators
- **Network load optimization:** Customized methods of data collection and transmission
- **Cost-efficiency:** Data transmission via voice communication infrastructure, no extra frequencies required
- **Flexibility:** Independence from MOTOTRBO dispatch software and compatibility with any SCADA software

Verticals

EMERGENCY SERVICE
PUBLIC SAFETY

AGRICULTURE

ELECTRICAL DISTRIBUTION FACILITIES
ENERGY

MANUFACTURING

MINING

COALMINING

WATER SYSTEM

PRODUCTION & EXPLORATION
OIL & GAS

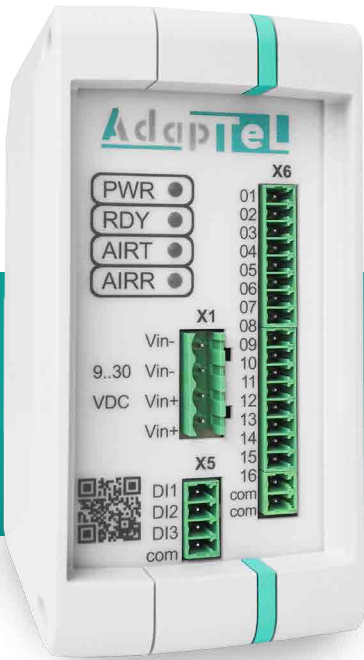
AIRPORTS

TRANSPORT

GAS DISTRIBUTION

TRANSPORT COMPANIES

UTILITIES



AdapTel

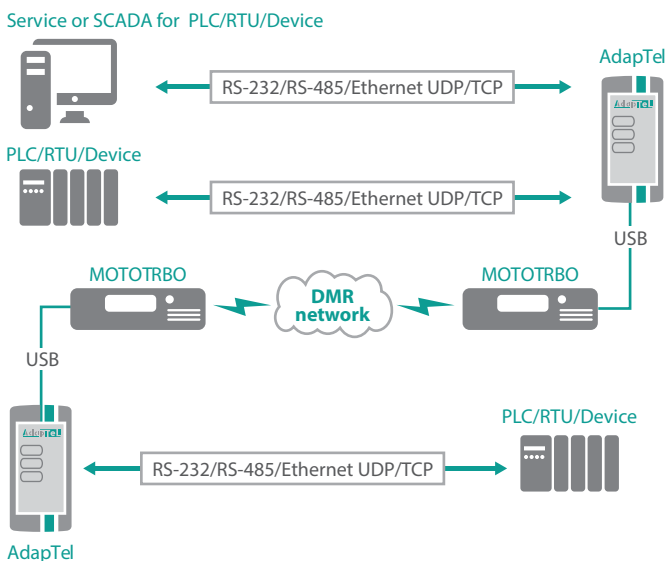
AdapTel is an interface adapter for receiving and transmitting telemetry data from distributed industrial objects to the dispatch level of customer's SCADA systems in DMR networks

Functionality and characteristics

- **Equipment status monitoring:** Uninterrupted data acquisition, even in an emergency
- **Easy configuration:** User-friendly web interface to make settings
- **Data visualization:** Intuitive software for real-time equipment monitoring and control
- **Robustness:** Wide range of operating temperatures, protection against reverse polarity
- **Point-to-multipoint communication:** Opportunity to control a large amount of distributed facilities

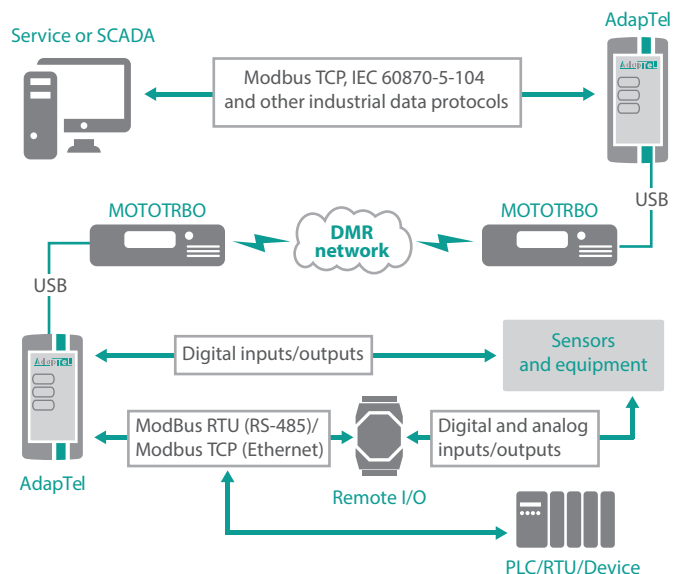
Two operation modes

Transparent mode



AdapTel provides transparent channel for communication between third-party devices (PLC/RTU/Meters/Sensors/etc) and SCADA software in DMR network.

RTU mode



AdapTel collects technological signals and controls technological equipment through built-in digital input (DI) and digital output (DO) channels, as well as through third-party input/output expansion modules using Modbus data protocol.

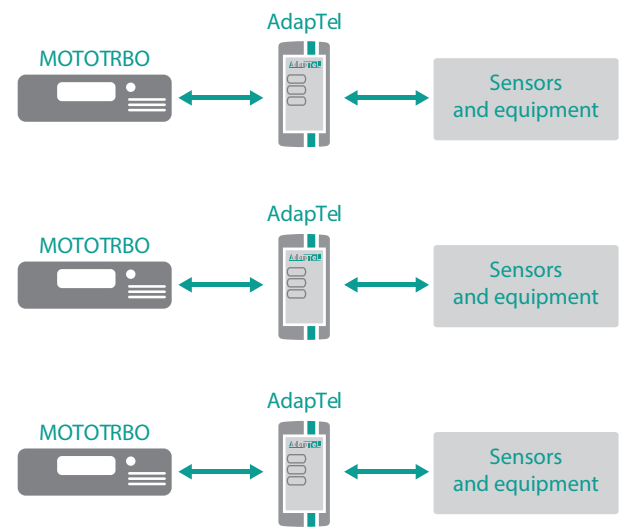
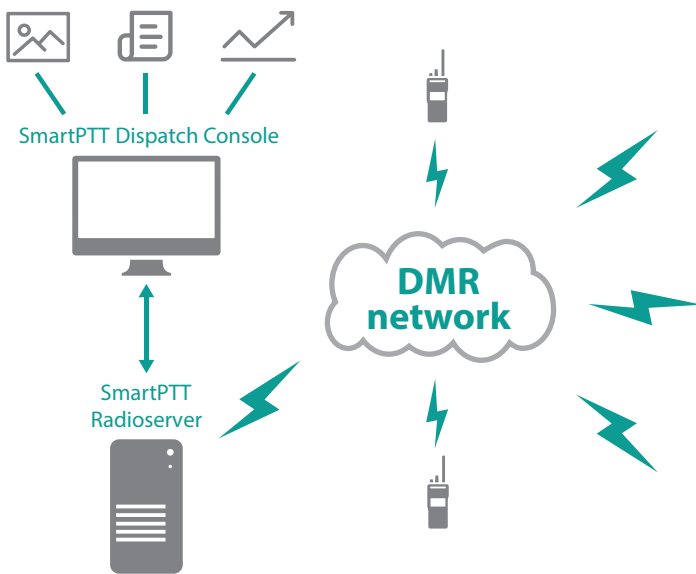
All-in-one solution for business process optimization based on AdapTel and SmartPTT dispatch software

AdapTel can be used in SmartPTT radio dispatch systems. Advantages of SmartPTT software coupled with AdapTel receiving and transmitting telemetry data provide the following opportunities:

- Advanced capabilities of equipment control
- Data visualization
- Notifications about accidents and emergencies to the relevant employees
- Event logging
- Analytics
- Reporting

➔ Single hardware and software platform from one vendor

➔ Efficient business processes management with remote equipment monitoring and corresponding staff coordination



CONTROL OF ELECTRICAL SUBSTATION EQUIPMENT FOR SUSTAINABLE POWER SUPPLY

Continuous operation of electrical substation is critical for uninterrupted power supply. Isolated location of substations requires remote monitoring and control of the equipment that can be organized by transmitting telemetry data in DMR networks.

Benefits

- Constant monitoring and remote control reduce operational costs: there is no need to send employees to check equipment, make switching and change settings.
- Instant notifications from security and fire alarm systems improve response time in case of emergency or unauthorized access.
- Metered values are automatically transmitted to dispatch console eliminating a human error and making financial accounting easier.
- Ongoing equipment monitoring enables to prevent emergency power cutoff and do planned maintenance.



Equipment controlled

High-voltage switches, circuit breakers, bus section breakers, feeders, protective earthing and lighting systems, power meters, energy accounting meters, automatic standby activation, security alarm system, fire-alarm system

HIGHER SAFETY OF OIL & GAS TRANSPORTATION FACILITIES

Oil and gas transportation facilities are considered to be highly hazardous, and require constant monitoring of technological equipment and such parameters as pressure, temperature, flow rate and leak detection.

Benefits

- The dispatcher automatically receives information about equipment status and metered values, which eliminates the necessity to send employees for inspection and diagnostics. Work force optimization among with refusal from mobile operators services in favour of using own communications infrastructure for data transmission reduce operational costs.
- The dispatcher immediately receives a notification upon any controlled parameters deviation and can react to it informing corresponding employees, sending a maintenance team or isolating the emergency site.
- Prevention of emergencies and accident localizing reduce potential damage.
- Instant notifications from security and fire alarm systems improve response time in case of an emergency or unauthorized access.
- Constant equipment monitoring provides proper information to schedule maintenance works.



Equipment controlled

Valves, gas detectors, security alarm system, flow meters, sensors

Parameters controlled

Pressure, temperature, position of the valves, flow rate, quantity of oil & gas

WATER WELLS CONTROL FOR STEADY WATER SUPPLY

Insufficient control of water wells state may cause water supply shortage, so organizations have to spend resources on equipment monitoring, especially when water wells are geographically distributed and distant from a dispatch center.

Benefits

- Remote control and automatic data acquisition can lower the number of on-site visits for equipment check and settings change, which reduces operating costs of the system
- Permanent monitoring of water wells operation provides information about its efficiency and helps find ways to increase its productivity
- Constant monitoring of pump state and other equipment status helps prevent unexpected breakdowns and emergencies
- Optimization of water well operation and equal load distribution allow avoiding early well decline
- Control of water level, pressure, and flow rate, as well as electric energy consumption makes financial accounting easier and more exact



Equipment controlled

Water pumps, energy accounting meters, security alarm system, fire-alarm system, flow meters, sensors

Parameters controlled

Pump state, pump operating time, pressure, water level, flow rate