SAE m5

BASE SOLUTION FOR THE SMALLEST APPLICATIONS

LOW-COST AND COMPACT

The requirements made of system intelligence are becoming ever stricter in almost all fields of supply. Increasingly smaller stations need to be equipped with monitoring and control technology, which dramatically increases the number of units required. It is at this point that needs such as functionality and practicability have to be reconciled with the constantly growing challenges in regard to IT security as well as economic and physical restrictions. In short: Digitalization of the energy revolution requires product innovations that are tailored to these challenges in the future - like the m5. This miniature station with all the necessary basic telecontrol functions offers solutions for numerous application areas, and its particularly compact size and low price are impressive features.

TYPICAL APPLICATIONS

- Feed-in management for small producers (e.g. alternative to radio ripple control)
- Direct marketing and interconnection of virtual power plants
- Monitoring and control unit for infrastructure applications, pipe-bound media, and for provision of contracting services
- Charging management for battery storage and e-mobility

IMPORTANT PROPERTIES

SAE-m5 Hardware

The m5 features all basic telecontrol functions necessary in a compact format. The quantity structure is the logic consequence of years of practical experience

- 6 indication inputs
- 5 command outputs
- 2 measurand inputs
- 1 set point output
- 2 Ethernet LAN connectors (separated)
- RS-485 field interface
- RS-232/V.24 interface
- Configuration via LAN and USB
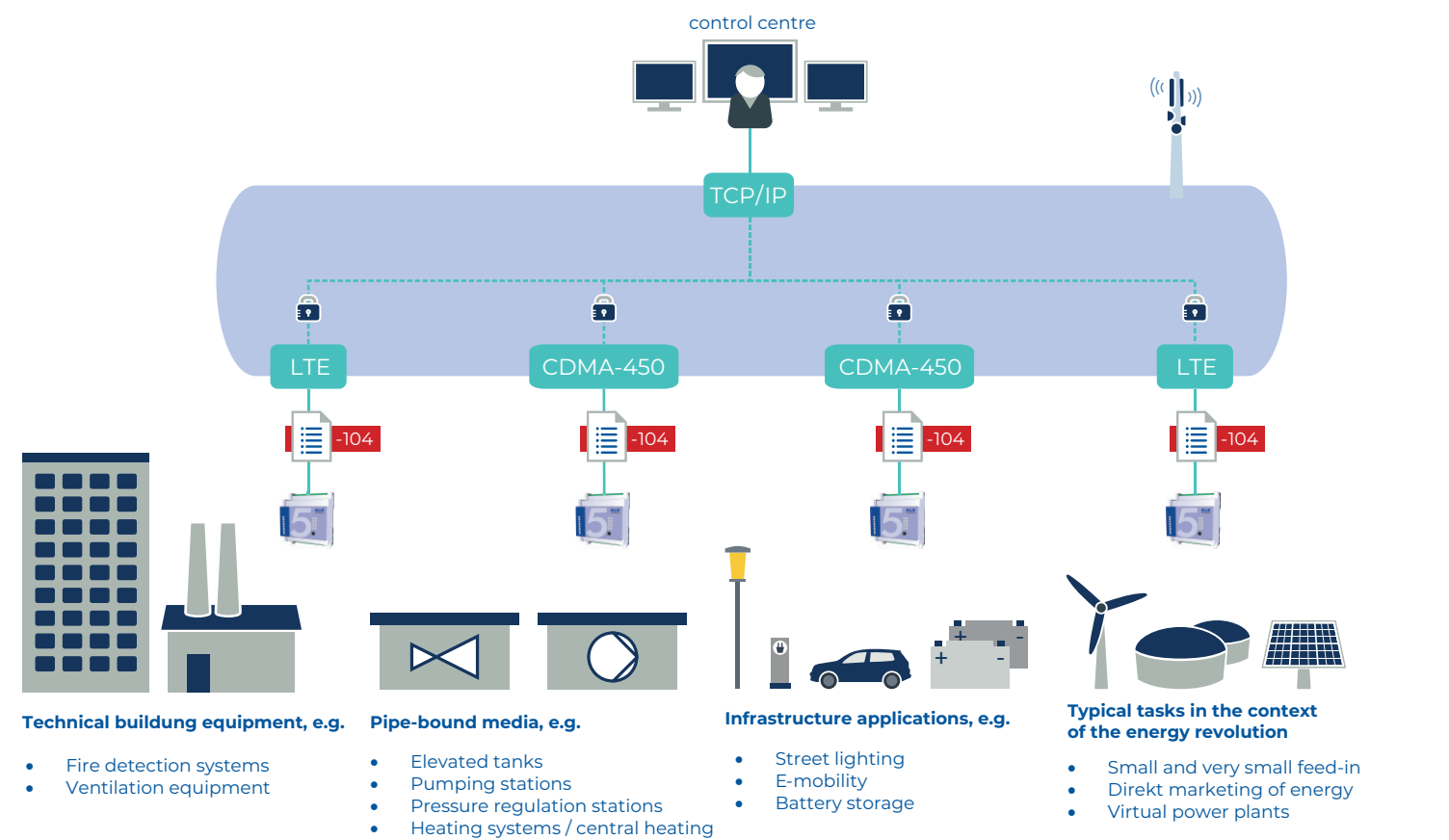- Removable screw terminals

SAE-m5 Software

In combination with the innovative setIT configuration software, the m5 offers very fast start-up and compatibilitey.

- Intuitive user interface
- Almost complete prevention of input errors
- Fault analysis with link to error source
- Practicle copy/paste functions
- Context-sensitive online help
- Calculation values and logic functions
- Extensive diagnostics functions
- Integrated project documentation
- The very latest security funtions
- Integrated soft-PLC

APPLICATIONS

Its specially tailored capacity structure means that the m5 can be deployed in numerous applications.

control centre

TCP/IP

| LTE | CDMA-450 | CDMA-450 | LTE |

-104 · -104 · -104 · -104

Technical buildung equipment, e.g.

- Fire detection systems
- Ventilation equipment

Pipe-bound media, e.g.

- Elevated tanks
- Pumping stations
- Pressure regulation stations
- Heating systems / central heating

Infrastructure applications, e.g.

- Street lighting
- E-mobility
- Battery storage

Typical tasks in the context of the energy revolution

- Small and very small feed-in
- Direkt marketing of energy
- Virtual power plants

REDISPATCH 2.0 BOX

For plants that have not yet been equipped with sufficiently performant technology in the course of the EEG or CHP, concepts for reliable communication and implementation of redispatch measures must be defined. In this context, the Federal Network Agency stipulates a time interval of ≤ 60 seconds for updating and transmitting real-time data to the connection network operator (ANB).

With our telecontrol systems, all relevant connection concepts can be realized. connection concepts can be realized. For the smallest applications, the box contains the m5 as standard. With its customized quantity structure, it offers all the basic functions required for telecontrol. Extremely compact and cost-effective solutions can be found, especially in combination with the associated m5-4G LTE modem.

SECURE COMMUNICATION ACCORDING TO THE BDEW WHITEPAPER

Like the series5e telecontrol technology devices, the m5 also features a high level of IT security, and is more than capable of facing up to the complex security and practical requirements of the present and the future.

- Secure encryption and hash algorithms, e.g. for encrypting project files with AES-256
- User profile with individual role based access control (RBAC)
- VPN tunnel from the station (end-to-end encryption with IPsec IKEv1/IKEv2 or OpenVPN protocol)
- Secure file transfer with FTPS (File Transfer Protocol over SSL), e.g. for station updating
- Secure web communication with HTTPS (HyperText Transfer Protocol Secure)
- Accesses and services such as USB port, USB Ethernet and web server can be disabled
- Integrated firewall (whitelist concept)
- Syslog for central logging of operational messages and processes

SAE
IT-SYSTEMS

TECHNICAL DATA

Main functions	Details
Structure	Compact miniature station in the electronic housing according to DIN EN 43880
Communication	2 Ethernet LAN TCP/IP, 10/100BaseTx 1 EIA/RS-485 interface, 2 wire, potential isolation 1 EIA/RS-232/V.24 interface, interface with RTS
Digital input/output	6 digital inputs 24 V DC, potential isolation 5 digital outputs 60 V DC, relay, 2 changeover contacts, 3 NOs, max. 1 A
Analog input/output	2 analog inputs ± 22 mA, 12-bit, potential isolation 1 analog output 0 to 20 mA, 12-bit, potential isolation
Protocols	IEC 60870-5-101 · telecontrol technology, station control technology IEC 60870-5-104 · TCP/IP link to control center DNP3 · serial/IP IEC 62056-21 Modbus RTU/TCP · master/slave, SNMPv 3 · network management · MQTT publisher, NTP-/SNTP-/DCF- clock synchronization VPN-Tunnel · IPsec (IKEv1/IKEv2), OpenVPN · TLS Syslog-ng LDAP
Temperature sensor	-25° to +100° C, resolution ±2° C
Isolation	1.5 kV, supply for measured values, process I/O, LAN and RS485
CPU	Ultra low power ARM Cortex-A7-Core, 528 MHz
Memory	512 MB memory (256 MB SDRAM, 256 MB SLC NAND Flash, 1 MB NOR) internal memory expansion 1.8 GB pSLC
Expansions	4G and CDMA-450, NB IoT, LTE-450, LTE-M communication modules
Real-time clock	Max. error ±10 ppm over entire temperature range; maintenance-free buffer 7 days
Status indicators	LEDs on the front for system, communication, alarms and commands
Operation controls	Button on the front for diagnostics/configuration/service functions
Configuration and diagnostics	Ethernet LAN 10/100BaseTx USB 2.0 OTG interface
Error signal output	Configurable to relay
Supply voltage	24 V DC 0.12 A without expansion -15% +20%, typ. 3 W 0.12 A without expansion Outage bridging 20 ms
Standards	EMC EN 61000-6-3:2011-09 Device Class B, EN 61000-6-4:2011-02, RoHS IEC 63000:2019-05
Housing	Distribution box housing according to DIN EN 43880 Polycarbonate V0, IP20 Dimensions: 70 × 90 × 60 mm
Installation	DIN top-hat rail, DIN-EN 60715 TH35
Terminals	Removable terminals, MC 1.5 mm²
Ambient conditions	−20° to +70°C, ø 24h max. 50°C, relative humidity <95%, no condensation

Product variants/accessories	
LTE modem	Dual antenna with MIMO transmission, compact format
450 MHz-CDMA modem	CDMA modem, compact format, in preparation
450 MHz-LTE modem	LTE-450, LTE-M, NB-IoT modem, compact format, in preparation
Power supply unit	for voltage supply of 18 to 75 V DC (wide-range) in compact format (17 mm width)

Web-based system visualization

The optional visIT visualisation tool enables, by importing process variables from setIT, tailored user interfaces to be created easily. visIT runs as a web visualization on the telecontrol station and has access to its process data and archive values. This means all information relevant for service and operation can be shown (such as online values, operation logs and alarm lists). This enables service staff on site to detect and rectify faults speedily and reliably. The software can be displayed on almost all HTML5-enabled terminals, smartphones and tablets.

PLC automation software

Starting with the software version setIT V7, the flexible automation software straton can be optionally integrated. The soft PLC covers all areas of industrial automation control. The integrated IEC 61131-3 editor provides an intuitive development environment that allows you to develop your applications easily and efficiently.

CONNECTED TECHNOLOGIES FOR SMARTER WATER & ENERGY

PRODUCT VARIANTS & ACCESSORIES

m5-4G LTE modem
Dual antenna with MISO transmission (Multiple in - Single out), compact format

m5-450 450MHz modem
CDMA modem, compact format

Power supply unit
for voltage supply of 230V AC in compact format (35 mm width)

Power supply unit
for voltage supply of 18 to 75 V DV (wide-range) in compact format (17 mm width)

SAE IT-SYSTEMS

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