DATA SHEET

T 7421 EN

Data logging (pressure and operating states)
Type 7421 SAM Energy Save

Application

Smart system solution for data logging (pressure and operating states) in domestic substations and district heating or cooling networks

SAM Energy Save is a smart system solution for on-site data logging (pressure and operating states) in domestic substations and district heating networks with integrated communication with SAM DISTRICT ENERGY web portal.

Special features

- Data logging (pressure and operating states) in domestic substations/district heating networks
- Communication with SAM DISTRICT ENERGY web portal
- Data communication using mobile phone network (2G), cyclic data exchange at selectable intervals (1 min, 15 min and/or 24 h)
- Transparent cover for visible diagnosis/status reading of SAM MOBILE Gateway and Modbus I/O module
- Data input of up to three utility meters (heat, water) according to EN 1434-3 or adapted using ZBD files
- Rugged, lightweight polystyrene enclosure with degree of protection IP 54
- Protection against dust and splashing water

Polystyrene enclosure ready fitted with:

– 1x SAM MOBILE Gateway including 10-year use of mobile communication services
– 1x Modbus I/O module
– 1x 24 V power supply unit (supply and auxiliary voltage)
– 1x circuit breaker
– 2x 35 mm rail
– Terminal strip to directly connect sensor lines
– 6x M20 cable glands
– 2x M20 cable glands (splittable)
– Flexible wiring duct

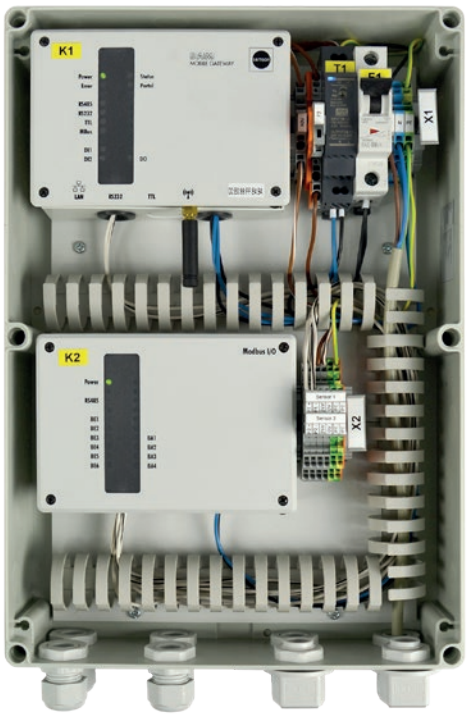

Fig. 1: *Type 7421 SAM Energy Save*

SAMSON AKTIENGESELLSCHAFT · Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507 · samson@samsongroup.com · www.samsongroup.com
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Design and principle of operation

SAM Energy Save has 15 physical channels in total to log and issue pressure and status signals:

– 2x digital inputs (floating)
– 5x digital outputs
– 1x analog input (0 to 10 V or Pt 1000)
– 1x analog output (0 to 10 V or PWM)

Six additional configurable inputs and outputs can be configured as follows:

- 2x analog outputs (0 to 10 V)
- 4x analog inputs (0 to 10 V)
- 2x temperature measurements with Pt 1000 (−40 to +160 °C)
- 2x resistance measurements (0 to 1000 Ω)
- 4x counter inputs (each with 32-bit counter values)
- 6x binary inputs

DIL switches on the Modbus I/O module can be used to change bus parameters (e.g. Baud rate, bus bias voltage and terminating resistor for the RS-485 interface).

Mounting

SAM Energy Save is designed for mounting on walls. The set of fixing clamps is included in the scope of delivery.

Electrical connection

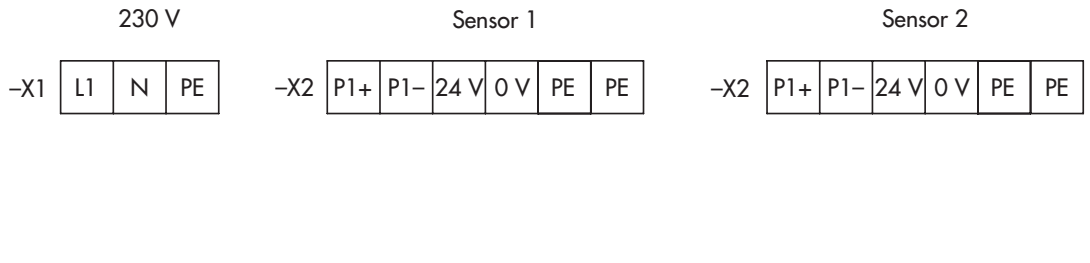

Fig. 2: *Electrical connection of Type 7421 SAM Energy Save*

Refer to the mounting and operating instructions (see "Associated documentation" on page 6) for all further electrical connections.

Interfaces

Table 1: *Interfaces*

Device	Physical interface	Application/comment
SAM MOBILE Gateway	Ethernet (RJ-45)	Configuration interface
	RS-232 (RJ-45)	Modbus RTU, connection to TROVIS 5576 and 5579
	TTL (RJ-45)	Modbus RTU, connection to TROVIS 5573 and 5578
	RS-485 (two-wire)	Modbus RTU, communication port
	M-Bus	3x meter bus (M-Bus according to EN 1434-3)
	SMA	Antenna connection
Modbus I/O module	RS-485 (two-wire)	Two-wire bus connection to SAM MOBILE Gateway

Table 2: *Technical data · Type 7421*

Type 7421 Gateway Housing	
Supply voltage	85 to 250 V AC
Power consumption (without any field devices)	Approx. 10 VA
Permissible temperature range (operation)	0 to 40 °C
Relative humidity	Max. 95 %, non-condensing
Degree of protection	IP 54 according to EN 60529 (higher degree of protection on request)
Class of protection	II according to EN 61140:2003
Enclosure material	Polystyrene
Weight	Approx. 3 kg
Inputs and outputs	
Analog input	0 to 10 V (max. 2.5 mA)
Analog output	0 to 10 V or PWM
Temperature measurement	–40 to +160 °C (Pt 1000)
Resistance measurement	0 to 1000 Ω
Digital input	Max. 250 V AC or 100 V DV/2 A
Digital output	Max. 250 V AC or 100 V DV/2 A

Table 3: *LED status indication*

	SAM MOBILE Gateway	Modbus I/O module
Power	x	x
Mobile network status	x	–
Connection to web portal	x	–
Digital inputs	x	x
Digital outputs	x	x
Communication	RS-232, RS-485, M-Bus	RS-485

Scope of delivery:

- Switching cabinet · Type 7421 SAM Energy Save
- Antenna with magnetic base (SMA) including 10 m connecting cable
- Network cable (1 m)

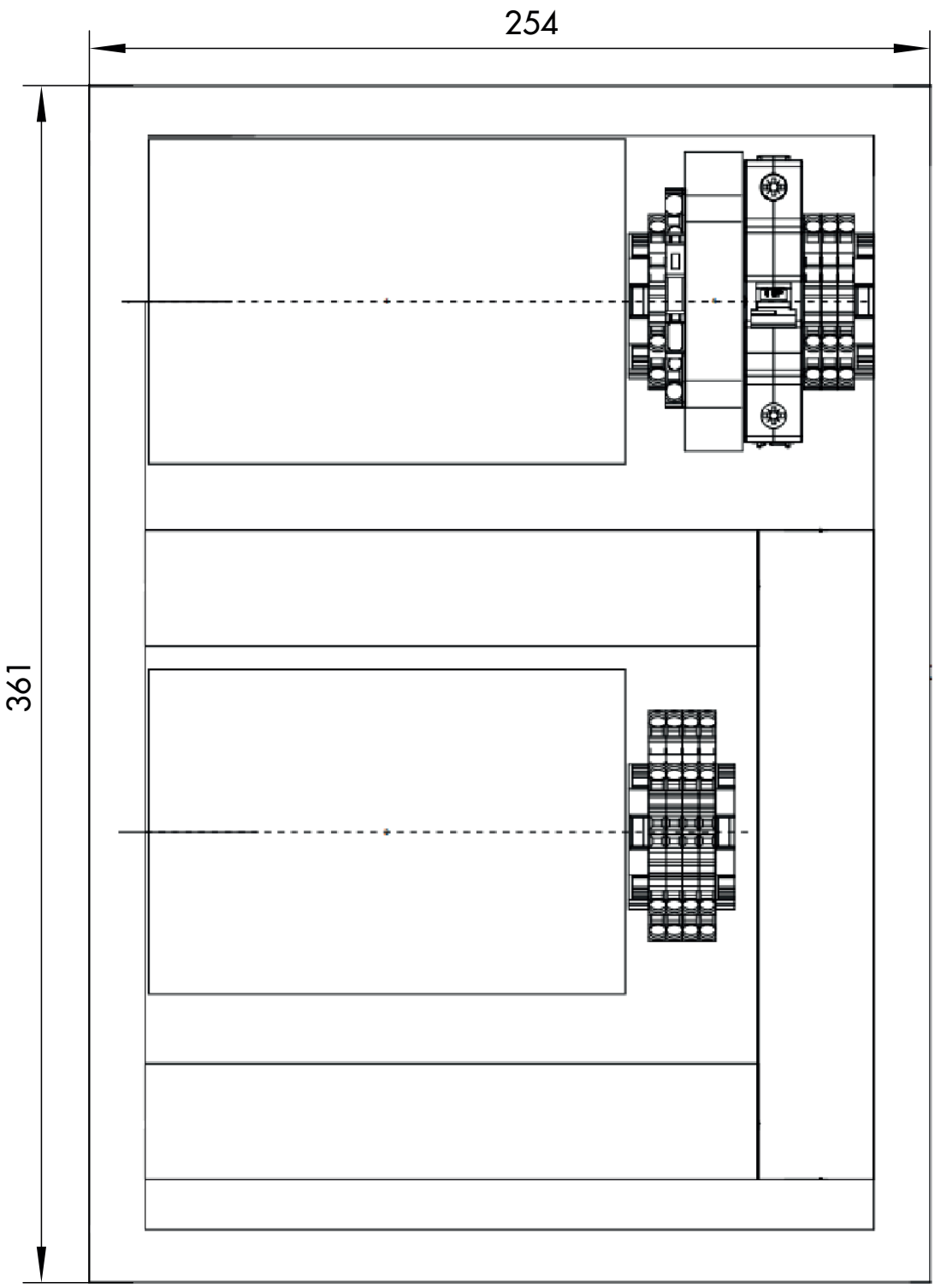

Fig. 3: *Dimensions in mm · Front view of Type 7421*

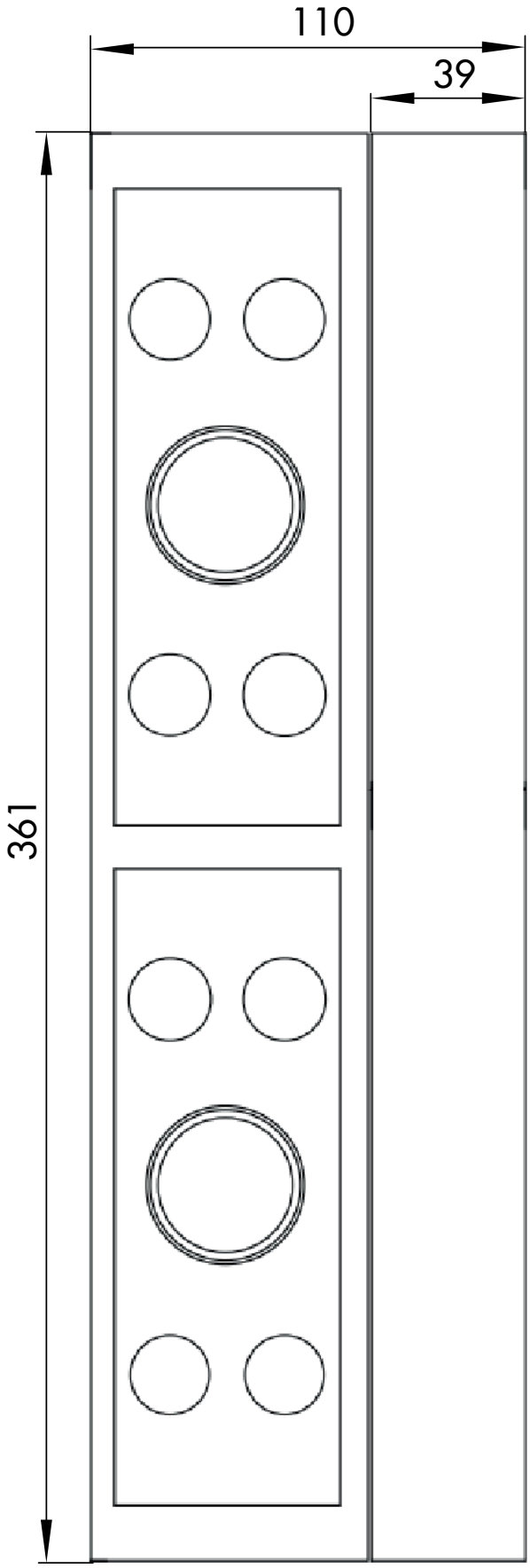

Fig. 4: *Dimensions in mm · Side view of Type 7421*

Ordering text

Type 7421 SAM Energy Save for data logging (pressure and operating states)

Associated documentation

- Mounting and operating instructions for SAM MOBILE Gateway ▶ **EB 5655**
- Data Sheet for Type 7420 Gateway Housing ▶ **T 7420**
- Mounting and operating instructions for Modbus I/O module ▶ **EB Modbus I/O**