.SUTO

MEASUREMENT TECHNOLOGY YOU CAN RELY ON

German Precision and Quality

Flow 14550.0 Nm³/min
Velocity: 5.7 m/s
Pressure: 8.32 bar

Displays, Data Loggers, and Software

SUTO TECHNOLOGY AND SERVICES

AIR AND POWER CONSUMPTION
For system optimization

PURITY MONITORING
To ensure Product quality

DISPLAY & LOGGER TECHNOLOGY
Smart graphical, statistical analysis

MACHINE & SYSTEM MONITORING
No straight pipe section required

LEAKAGE MANAGEMENT
Cost saving in systems

SUPPORT SERVICES AND CALIBRATION
For optimal performance

REDUCE COSTS BY IMPROVING PERFORMANCE

Quantitative measuring helps you to discover exactly where money can be saved. Some companies make the mistake of only measuring the energy consumption of the compressor while a smarter method is to measure the air consumption.

For example, a modern compressor converts ~90% of the electrical power into heat and only 10% into compressed air. This makes compressed air ten times more expensive than electricity. To assure the efficiency and effectiveness of a compressed air system, the measurement of flow is crucial.

Cost distribution in compressed air systems

Maintenance

Equipment

Electricity

WORLD-WIDE INDUSTRIAL SUPPORT SERVICES

SUTO is committed to the success of your business.

We offer world-wide service with our test and calibration labs in Germany, Hong Kong and China.

We are dedicated to technical expertise and precision in all of our products and services.

DISPLAY AND DATA LOGGER
S330 / S331

.SUTO

Your system values —
All displayed and stored in one place

S330 / S331 FEATURES

IIoT

IIoT SUPPORT
Connection to S4M software

TOUCH SCREEN
5" large color LCD

VERSATILE CONNECTION
Up to 16 sensors inputs

TIGHT PROTECTION
IP65

WEB SERVER
Access from world wide

**DATA LOGGER**
100 million values

S330 / S331 BENEFITS

- High resolution 5" colour touch screen interface
- All SUTO sensors and compatible third party sensors are connectable
- 16 x Modbus inputs (58 standard or optional 108 Channels)
  2 x SDI inputs (20 channels)
  2 x Analog and pulse input (4 channels)
  Plus 10 virtual channels for calculations like kW/m³/min or Differential pressure
- 2 wall casings available: 4 cable glands or 7 cable glands
- USB interface for data transfer to data stick or PC
- RS-485 (Modbus/RTU) and Ethernet (Modbus TCP) interface to factory automation system
- 10 W sensor power supply (24 VDC)
- Data logger (S331 only): 100 million values
- Alarm monitoring with 2 relay outputs
- Integrated web server for remote monitoring
- Quick set up
- Various options for system extension
- Monitor compressor run time

S330 / S331 OPERATION PRINCIPLE

The universal display and data logger can measure, display and record all relevant parameters (Flow, consumption, dew point, pressure, temperature, power consumption, compressor status etc.) in a compressed air system.

The SUTO S330 / S331 is a powerful yet cost effective local display, sensor interface and data logging (S331 only) solution for virtually any application. Up to 16 sensors can be connected to a single device allowing local nodes to be setup throughout the factory. With it's easy to use, high resolution 5" touch screen, information from all the connected sensors can be accessed locally making readings easy to access for those on the ground.

Modbus/RTU or Modbus TCP output data can be transmitted into the site's ethernet network allowing information to be viewed in real time via an existing SCADA system or with the simple and easy to use SUTO S4M software. S330 / S331 also provide IoT settings to connect with SUTO S4M software IoT version. Alternately locally logged data can be downloaded onto a USB memory card or directly to a computer through the USB port.

The S330 / S331 can display virtually any parameter from the connected sensors and with its virtual channels can make calculations to help you measure and monitor efficiency or productivity, simplifying often complex tasks. Alarms can be set on each signal to your preselected parameters helping keep an eye on performance and indicating when there is a problem.

S330 / S331 SYSTEM OVERVIEW

2 digital inputs:
- SDI Sensors (up to 2 SDI sensors)
- Modbus Sensors (up to 16 Modbus sensors)

2 analog inputs (option):
- 0 ... 20 mA, 4 ... 20 mA
- 0 ... 10 V
- Pulse

2 Alarm relay outputs

Ethernet, RS-485, USB port
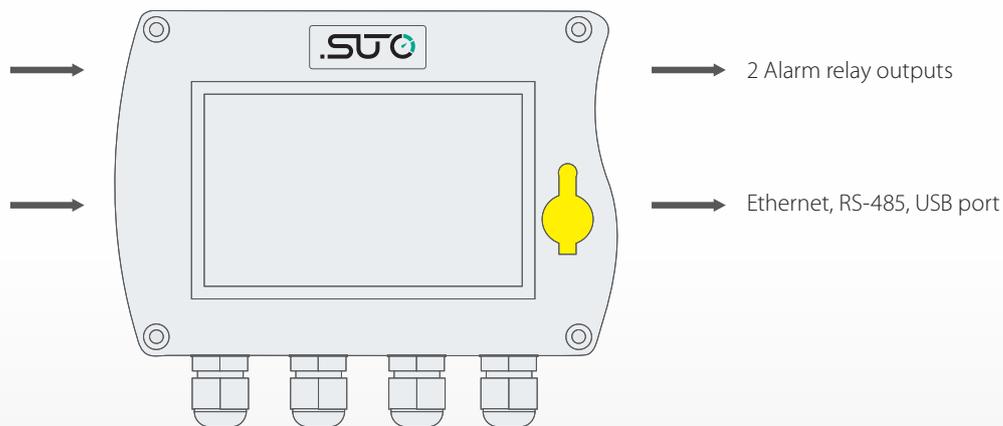
SUTO sensors are equipped with SDI and / or Modbus interface

S330 / S331 AVAILABLE VARIATIONS

Panel installation   2 different size wall mountable casings   Hat rail option

S330 / S331 TOUCH SCREEN OPERATION

The S330 / S331 comes with a high resolution 5" colour touch screen interface making the operation as simple as possible.
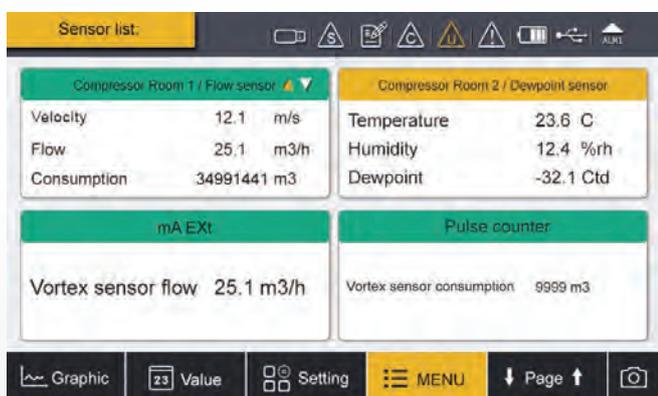
Up to 4 sensors can be viewed on one page and through page scrolling further sensors can be displayed.
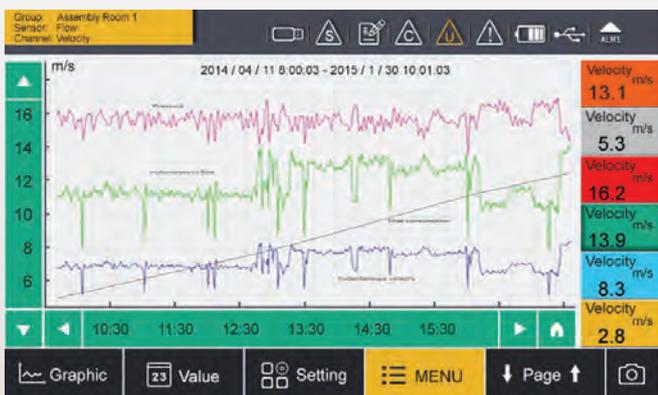
Select which channels you want to view or analyze and the built in graphic analyzer will help you identify problems immediately.

For detailed analysis we recommend using SUTO S4M software.

S330 / S331 TECHNICAL DATA

General Specification	
Casing size	Size: 120 x 173 x 67 mm
Power supply	A: 100 ... 240 VAC, 20 VA B: 18 ... 30 VDC, 20 W
Interface	USB RS-485 Ethernet
Alarm output	2 relay, 230 VAC, 3 A, NC
Sensor inputs	2 x SDI inputs or 1 x SDI and 1 x Modbus input (Modbus input for up to 16 sensors) 2 x analog (option)
Data logger	100 million values (option)
Accuracy	SDI, Modbus: see sensor specs Analog: 　0 ... 20 mA: 0.01 mA 　0 ... 10 V: 0.01 V 　Pulse: ±1 digit
Display	size: 5" Resolution: 800 x 480 px
Operating temperature	0 ... +50 °C
Storage temperature	-20 ... +70 °C
Protection	IP65

Back view with connection terminals

SENSORS CONNECTABLE TO S330 / S331

The S330 / S331 has 2 digital inputs, 2 analogue inputs and can connect up to 16 Modbus sensors.

Flow / Consumption sensors

S330 / S331 can power maximum one S450 / S452.

If more than one S450 / S452 is connected a separate power supply has to be added.

(see accessories for S330 / S331)

| S401 | S421 | S450 | S452 | S430 | S415 / S418 |

Dew point sensors

Please refer to the detailed sensor data sheet for further information and options.

| S220 | S201 | S212 / S215 / S217 | S230 |

Inputs for analog sensors (2 channels)

SUTO analog sensors

Pressure sensor

Temperature sensor with 4 ... 20 mA

Current clamp sensor
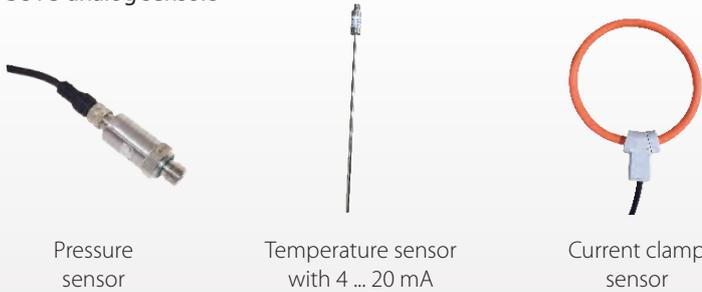
Third party sensors

Following third party sensors are connectable to S330 / S331:

- 0 ... 20 mA, 4 ... 20 mA , 0 ... 1 V, 0 ... 10 V signals
- Pulse
- Modbus/RTU

Modbus-Master input for Modbus/RTU sensors

The S330 / S331 includes digital inputs for SUTO sensors or Modbus/RTU sensors. In order to connect the Modbus/RTU sensors properly on a RS-485 bus system it's recommended to daisy-chain the sensors to one of the inputs. For this purpose we offer a RS-485 splitter to simplify the connection. Through this method you can add up to 16 sensors to the master input. (In this case additional power supply is required.)

S330
Modbus master input

| 1 RS-485 splitter | 2 RS-485 splitter | 16 RS-485 splitter |

Modbus/RTU sensor | Modbus/RTU sensor | Modbus/RTU sensor
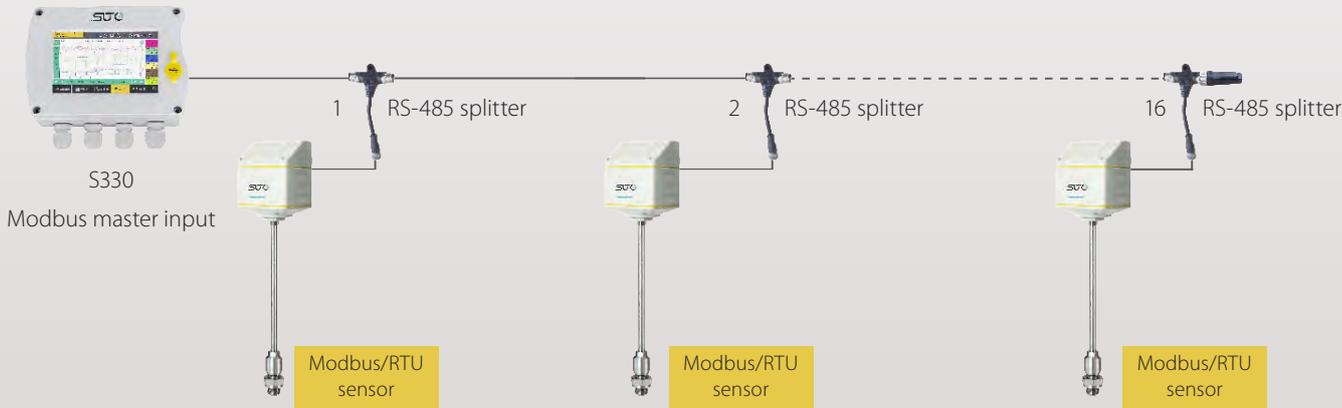
S330 / S331 ORDERING

Please use the following tables to assist in placing your
order with our sales staff.

Order No.	Option	Power supply	Casing		Description
D500 0333					S330, panel version, 2 digital inputs, Ethernet, RS-485, USB
D500 0331					S331, panel version, 2 digital inputs, Ethernet, RS-485, USB, data logger, S4A software
	A				None
A1662	B				2 analogue inputs 0 ... 20 mA + 2 pulse inputs
A1663		A			Power supply 100 ... 240 VAC, 20 VA, 2 relay outputs for alarm
A1664		B			Power supply 18 ... 30 VDC, 20 W, 2 relay outputs for alarm
			A		None
A1665			B		Wall mountable casing with 4 cable glands
A1666			C		Wall mountable casing with 7 cable glands
A1667			D		Wall mountable casing with 3 cable glands + Ethernet
A1668			E		Wall mountable casing with 6 cable glands + Ethernet
				A	None
A1669				B	Hat rail holder (only in connection with wall mountable casing)

Further accessories	
Order No.	Description
Cables	
C219 0055	M12 connector with RS-485 termination resistor, 120 Ω , for Modbus daisy chain termination
A554 3310	M12 RS-485 (Modbus) splitter
A553 0130	USB cable for S330 / S331
A553 0104	Sensor cable 5 m, with M12 connector, open wires, AWG24 (0.2 mm^2)
A553 0105	Sensor cable 10 m, with M12 connector, open wires, AWG24 (0.2 mm^2)
A553 0106	Power cable with mains plug, 1.8 m
A553 0120	Ethernet cable 5 m, RJ45 plug at both ends
A553 0123	RS-485 cable, 3 pole, AWG 24 (per meter)
Converters and gateways **(Please contact our customer service for further converter/gateway options)**	
A554 0010	RS-485 / Ethernet gateway
A554 0012	RS-485 / Profibus gateway
A554 0013	Modbus/RTU / Modbus TCP gateway
A554 0011	RS-485 repeater
A554 0331	RS-485 / USB converter
Software	
M599 2031	S4M, data acquisition and analyzes software
A1102	Add-on Energy Manager for S4M
Others	
D554 0130	Power meter S110, hat rail mountable, Modbus/RTU
D554 0031	8-channel current input module, 0 ... 20 mA, Modbus/RTU
D554 0032	Pulse meter, 7 channels, Modbus/RTU
A554 0007	Power supply wall mountable
A554 0009	Power supply for hat rail
A554 3311	Line filter for EMC protection
A554 3313	Connection board for looping 4 ... 20 mA and pulse signals to PLC, mountable in wall casing A1666 or A1668

DISPLAY
S320

Convenient data reading from difficult-to-access sensors

S320 FEATURES

EASY TO USE
User-friendly design

POWER SUPPLY
Flexible power supply

USB INTERFACE
For configuration with S4C software

EASY INSTALLATION
Wall or panel mountable casing

ALARM
Optional alarm settings

SIGNAL INPUTS
Digital and analog input

S320 OPERATION PRINCIPLE

The S320 local display provides a simple, cost effective solution for applications where information from a single difficult-to-access sensor is required.

S320 TECHNICAL DATA

General Specifications	
Casing	Size: 118 x115 x 93 mm Panel size: 92 x 92 Protection class: IP65
Power supply	100 ... 240 VAC, 50-60 Hz, 15 VA
Interface	USB
Alarm output	2 relay, 230 VAC, 3 A
Ambient conditions	0 ... +50 °C
Sensor input 1	1 sensor: S401, S421, S430, S450, S452, S220, S201, S212, S215
Sensor input 2	1 analog sensor: pressure sensors, temperature sensor, 0 ... 20 mA, 0 ... 10 V
Accuracy 1)	Dew point: See sensor specs. Flow: See sensor specs. 0-20 mA: 0.01 mA 0-10 V: 0.01 V
Operation temperature	0 ... +50 °C
Storage temperature	-20 ... +70 °C
Protection	IP65

1) Accuracy of sensor not included

S320 SENSOR INPUTS

1 input for SUTO flow/ dew point sensors

1 input for analog sensor (0 ... 20 mA, 0 ... 10V)

Communication Interfaces
USB port

Other Signals / Features
2 Alarm relay outputs

S320 ORDERING

Please use the following tables to assist in placing your order with our sales staff.

S320 Display			
Order No.	Power supply	Casing	Description
D500 0320			S320 base unit, panel version, 1 input for SUTO sensor, 1 analog input
A1640	A		Power supply 100 ... 240 VAC, 15 VA, 2 relay outputs
A1641	B		Power supply 18 ... 30 VDC, 15 VA, 2 relay outputs
		A	None
A1645		B	Wall mountable casing with 4 cable glands
Accessories			
A553 0104			Sensor cable 5 m, with M12 connector, open wires, AWG24 (0.2 mm^2)
A553 0105			Sensor cable 10 m, with M12 connector, open wires, AWG24 (0.2 mm^2)
A553 0106			Power cable with mains plug, 1.8 m

SMART MONITORING SYSTEM
S4M

Your complete system —
monitored and logged in a single software
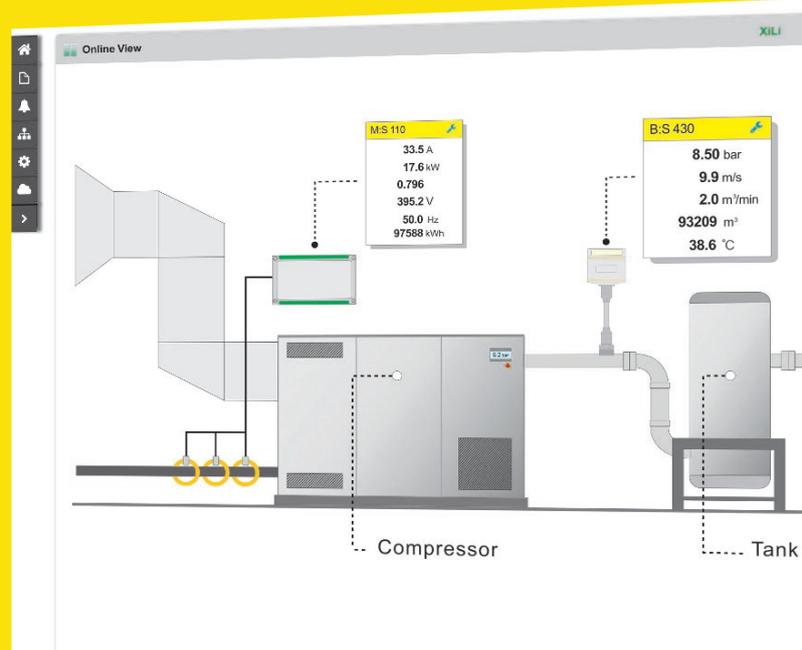
S4M FEATURES

REMOTE ACCESS
Client needs only a web browser

REPORT FUNCTION
Easy report generation

EASY INSTALLATION
Wizard guided installation

UNDER CONTROL
Alarm definition at a click

DATA BASE
Data logging on server

**AUTO DETECT**
System integration within seconds

S4M is the complete monitoring solution for your energy management. It delivers real-time analytics of installations and can identify potential issues before they happen. S4M intelligently gathers, compares and analyses data to help compressed air users increase maintenance and service efficiency, make energy savings easy, quick and rewarding.

By server installation, and using the latest web technology, S4M is designed to provide cloud based service or local server installation, which allows user to monitor and collect granular, real-time energy consumption data of individual compressed air system anywhere at any time.

S4M BENEFITS

- Easy to use monitoring solution
- Simple installation with installation wizard
- Browser / Server Architecture. Client is independent from any operation system.
- Alarm monitoring and indications on screen, relay, e-mail and SMS
- Graphical data analysis
- Multiple languages
- Third-party support
- Scalable to fit your application

S4M used for low power wide-area network solution
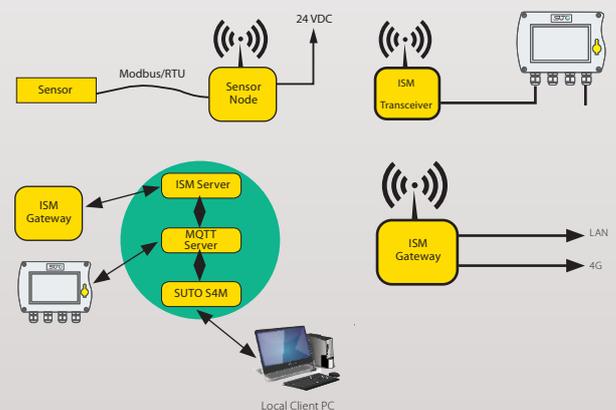
S4M-your plant under control
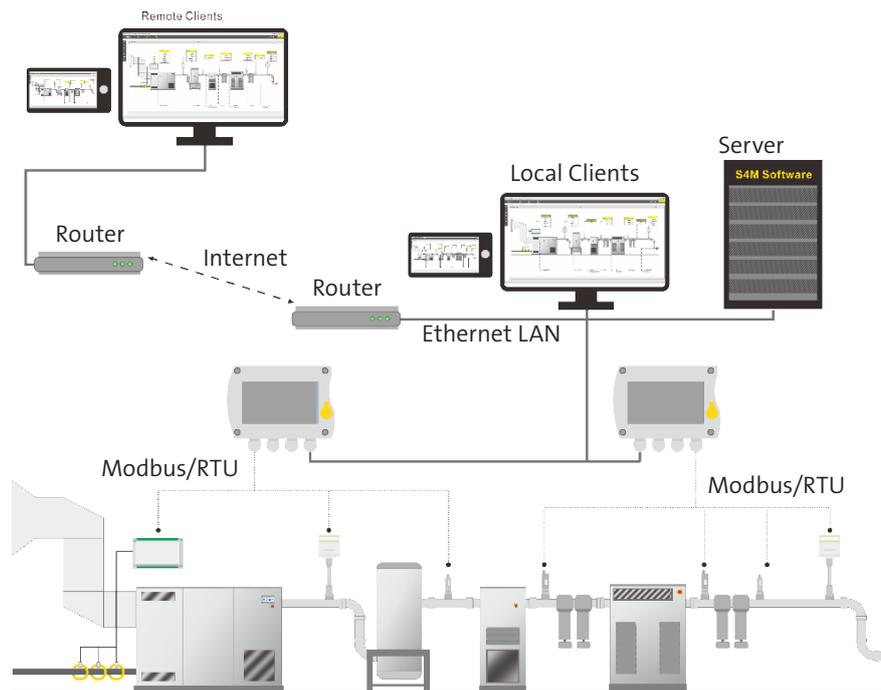
S4M Cloud Installation
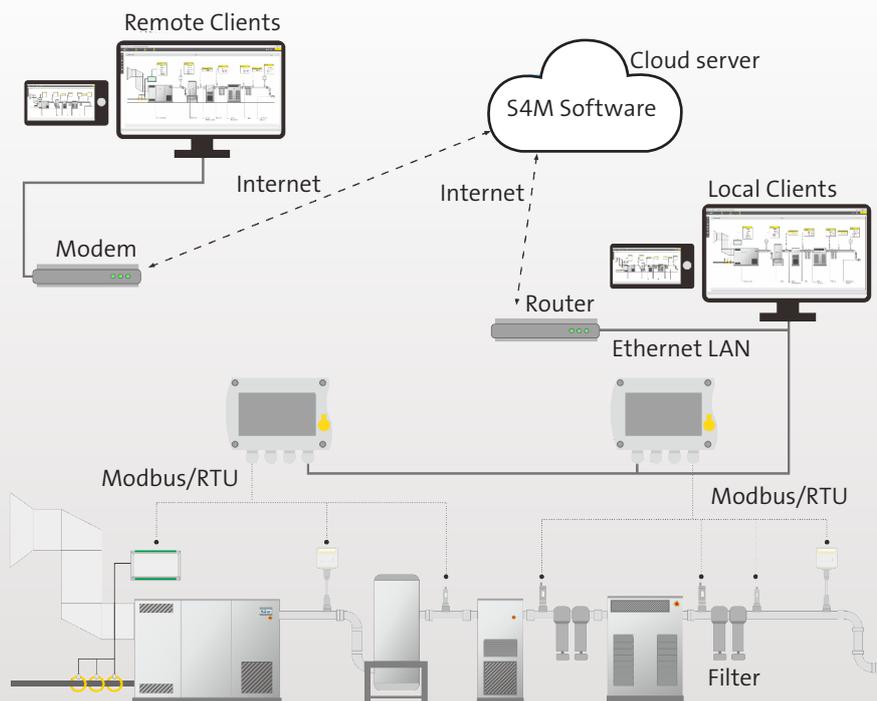
S4M helps you to keep your plant under your control. Gathering the date of all installed sensors and measurement system. Combining them into a single software solution which enables you to take back the control of your system.

You want to try S4M?

Simply scan the code or visit **https://s4m.suto-itec.asia**
to experience S4M.

username: **sutovisitor**   password: **sutovisitor**

S4M SYSTEM REQUIREMENTS

Category	Minimum	Recommended
Processor	Intel Core I5 processor 3.0GHz	Intel Core I7 processor 3.0GHz
RAM (main memory)	2G	>8G
Free disk space for installation	1.5G	>2G
Free disk space for measurement data in database	10G	>100G
Network card	Yes	YES

S4M ORDERING

Please use the following table to assist in placing your order with our sales staff.

Visit our website or e-mail us:
www.suto-itec.com
sales@suto-itec.com

S4M SMART MONITORING SYSTEM							
Order No.	**Description**	**Details**					
		Operating System		**Supported Protocol(s)**			
		Windows	**Linux**	**SUTO**	**Modbus RTU**	**Modbus TCP**	**IIoT**
M599 2031	S4M, local installation, data acquisition and analysis software, 50 measuring channels	●		●	●	●	●
M599 2032	S4M, local installation, data acquisition and analysis software, 100 measuring channels	●		●	●	●	●
M599 2033	S4M, local installation, data acquisition and analysis software,unlimited measuring channels	●		●	●	●	●
M599 2034	S4M, cloud installation, data acquisition and analysis software, 50measuring channels		●				●
M599 2035	S4M, cloud installation, data acquisition and analysis software,100 measuring channels		●				●
M599 2036	S4M, cloud installation, data acquisition and analysis software,unlimited measuring channels		●				●
Optional products or service							
A1102	Add-on Energy Manager to S4M						
M599 9000	Software setup, configuration and training						
A554 0027	GSM modem for SMS notifications, connectable to Windows server						

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