ENVIRONMENTAL MONITORING & CONTROL

simex

ProSens

Measure,
Control and Log Data

ProSens

■ TRANSMITTER
■ DISPLAY
■ METER
■ CONTROLLER

in one

ProSens is a new line of modern industrial devices, which integrates transmitters, displays, meters and controllers functionalities. Using the latest miniaturisation technologies these compact devices are able to be equipped with two independent universal inputs, two binary or two analogue outputs, as well as communication port RS-485 with Modbus protocol.

Within the ProSens range, models 200 and 400 have integrated temperature and relative humidity sensor. As well as an exceptionally wide working temperature range (-30 ÷ +120°C) they are also equipped with mathematical functions, which make it possible to transform measured values into others, e.g. to calculate dewpoint, sum or difference of two measured values.

A large built-in display and output signals mean that the ProSens units find applications in control systems. There are many industrial applications, where ProSens can act as stand-alone controller. It can also cooperate with master devices via Modbus protocol, being part of big network, which makes it perfect device for distributed monitoring system.

Applications

■ food processing industry
■ building HVAC automation
■ warehouses, cold rooms
■ glasshouses, breeding
■ factories and manufacturing
■ museums, archives, galleries
■ server rooms, air-conditioned rooms
■ weather stations

www.prosens24.eu
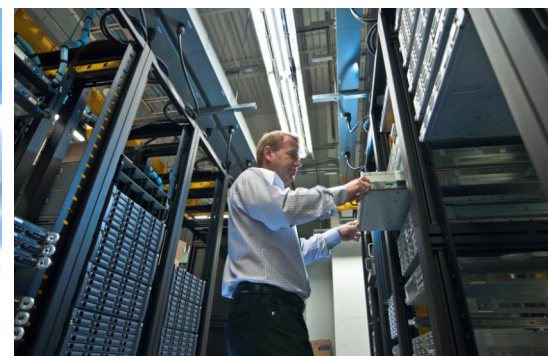
Measurement

The primary functionality of ProSens is taking measurements. Depending on needs and requirements, this compact device is equipped with top quality, precise and stable temperature, humidity or air flow sensors, and/or with universal inputs that are standard for industrial automation. Thanks to its equipment the device guarantees a very high level of measurement reliability. Both version of probes - integrated and cable ones - are made of stainless steel. The sensors are protected with a replaceable PTFE or stainless steel mesh filter. The filter type is adjusted to a particular version of the probe.
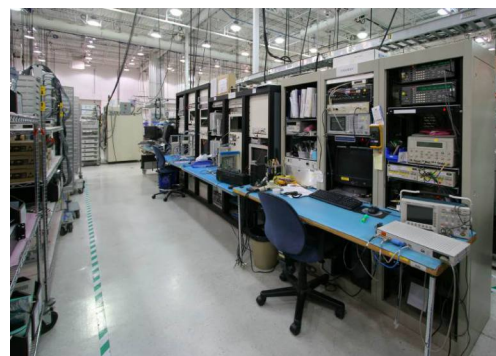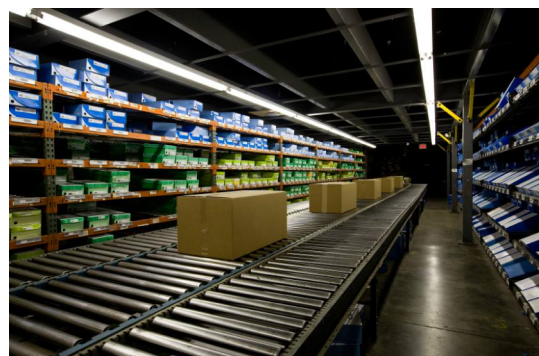
Control

A proper reaction of a controller is triggered by measured values interpretation, which impacts the state of output signals. Users can choose between binary outputs and analogue outputs (current and voltage ones) to adjust their model to the requirements of a specific application. Due to that the device is characterised by a wide range of various outputs and the possibility of applying them in one unit. As a consequence, the ProSens meters can be used for digital or proportional controlling, and for combining both functions in one device as well.

Communication

What is required in case of more advanced measuring and controlling networks is communication between devices. For such applications we offer the RS-485 interface which is standard equipment supporting the Modbus RTU protocol. The free S-Config software is used for communication functionalities that facilitate the device's remote configuration without the need to use a local keyboard. Measured values and output states are shared in the Slave mode. It concerns more advanced applications with existing or required central steering and visualisation systems for the devices in the ProSens line.

Main features

- 1 or 2 binary / analogue outputs
- Outputs state indication
- LCD 2.9" display
- Infrared receiver
- Durable IP 67 case
- 1 or 2 universal inputs

- RS-485 Modbus RTU communication
- Acoustic and visual alarm indication
- Personalised graphic units
- Local keypad or PC software for set-up
- Stainless steel 316L probes
- Temperature and humidity measurements up to 120°C and 100% RH (QM series)
- Air flow up to 30 m/s (QF-622)

OUT1: 8.9mA   OUT2:   ON
CH1   27.7 °C
HUM   79.4 %

ProSens

- 1 or 2 measuring channels available, with or without a probe
- Integrated, separable or cable probes made of 316L steel, used for temperature or temperature and humidity measurements
- Replaceable filter made of PTFE or 316L mesh, 25 μm
- Universal inputs of a very wide spectrum of analogue signal types (I, U, RTD, TC)
- Binary and analogue outputs for indicating and controlling (1 or 2 E REL, I, U)
- Very clear 2.9" LCD display
- Indication of 1, 2, or 4 parameters on one screen
- Individual descriptions of measuring channels
- Optional elaboration of personalised graphic units, displayed at measurements (e.g.: m^3, l/h, kPa, °F, etc.)
- Standard equipment: RS-485 Modbus RTU interface for integration with superordinate visualisation or control systems
- Device configuration performed by means of local buttons, optional remote controller or free S-Config 2 software
- Operating temperature: -30°C ÷ +80°C
- IP rate protection: IP 67 (version without display), IP 65 (version with display)

Typical measurements

for integrated probes:

temperature   humidity   dew point   air flow

for universal inputs, e.g.:
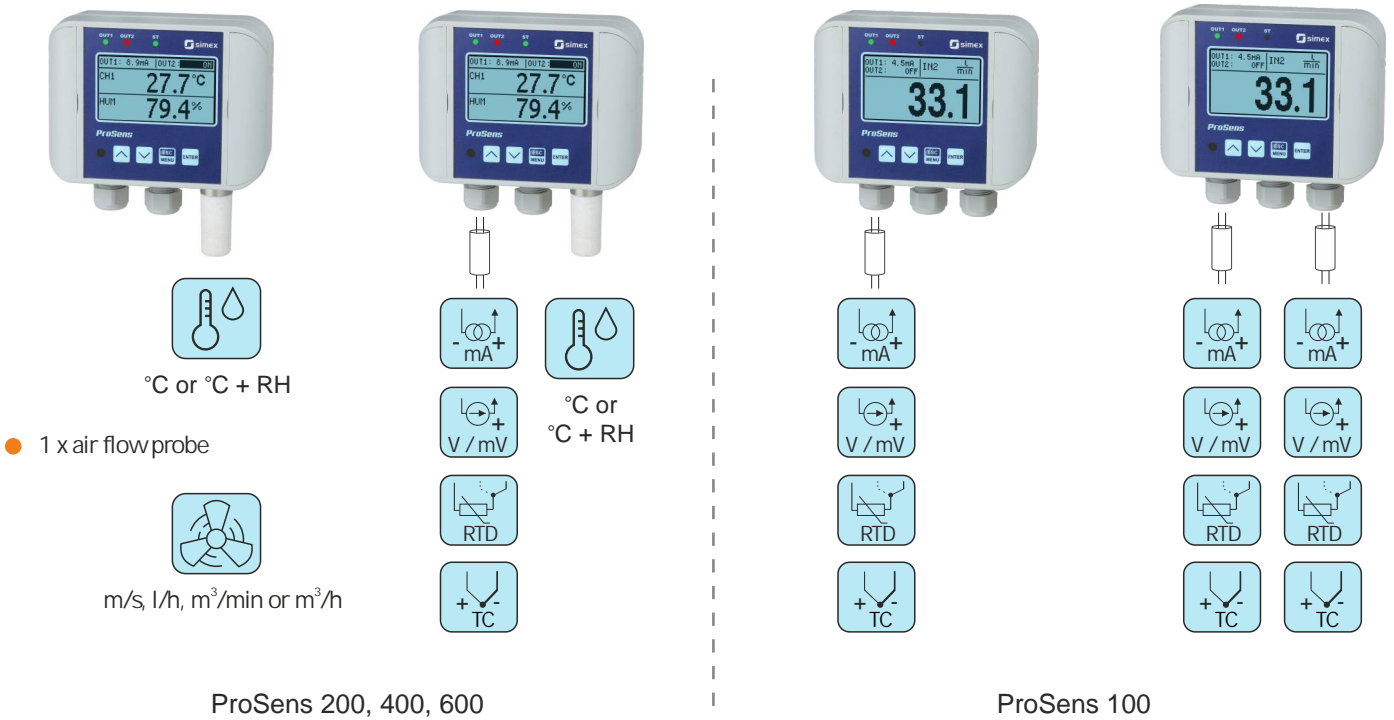
CO_2 barometric pressure   flow   pH   ORP   … and many more   redox
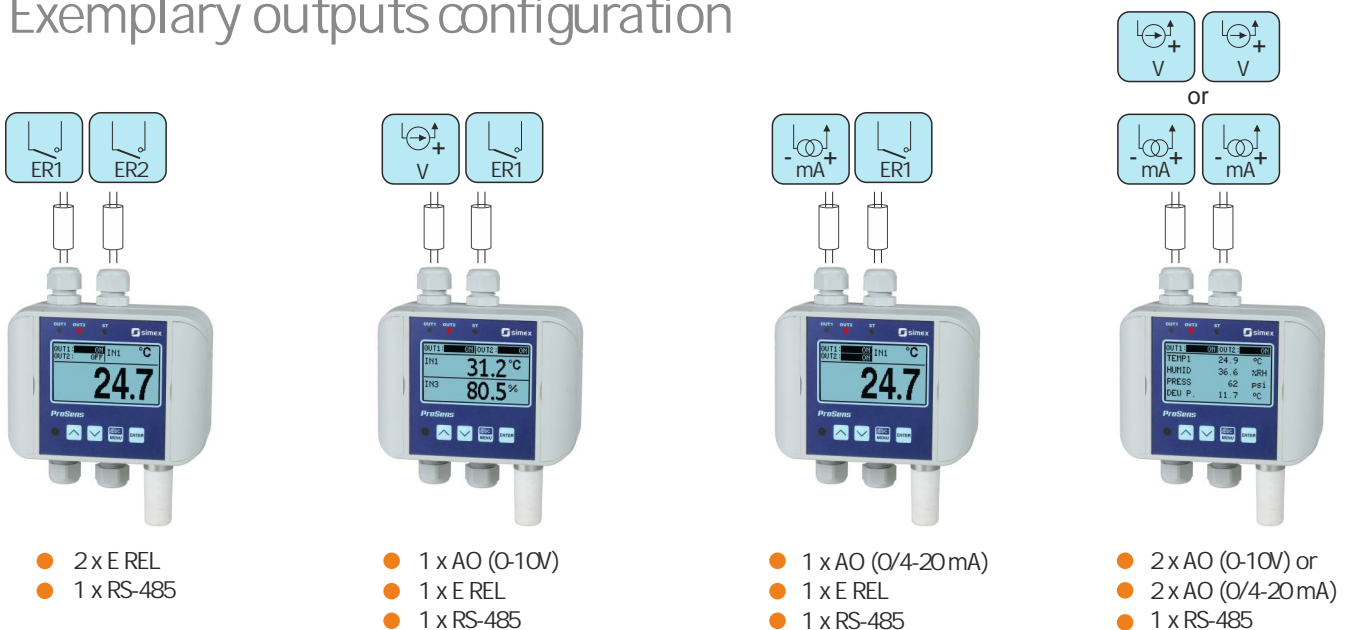
A wide range of possibilities

Thanks to the universal device construction it is possible to apply 1 or 2 independent measuring channels. The most common type equipped with a probe (integrated or cable one) measures temperature, temperature and humidity or air flow in the sensor area. Regardless of the above, in case of a two-channel device a user can connect an external sensor by means of another, universal measuring input. If there is no need to apply constructions equipped with probes, both measuring inputs in the device can be used to connect external sensors installed directly on external industrial installations.

Inputs configuration

- 1 x temp. or temp. + RH probe

- 1 x temp. or temp. + RH probe
- 1 x universal (U, I, RTD, TC)

- 1 x universal (U, I, RTD, TC)

- 2 x universal (U, I, RTD, TC)

°C or °C + RH

°C or °C + RH

- 1 x air flow probe

m/s, l/h, m³/min or m³/h

ProSens 200, 400, 600

ProSens 100

Exemplary outputs configuration

- 2 x E REL
- 1 x RS-485

- 1 x AO (0-10V)
- 1 x E REL
- 1 x RS-485

- 1 x AO (0/4-20 mA)
- 1 x E REL
- 1 x RS-485

- 2 x AO (0-10V) or
- 2 x AO (0/4-20 mA)
- 1 x RS-485

Wiring within available glands is customised depending on fitter's requirements.

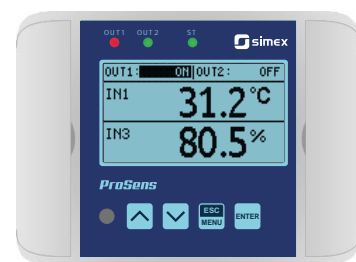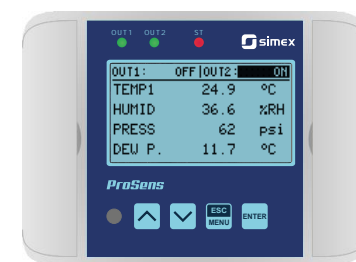| Line	ProSens 100	ProSens 200			ProSens 400	ProSens 600	
Model	QM-100	QM-211	QM-212	QM-213	QM-421 / QM-422	QM-612	QM-621 / QM-622
Power supply	24V DC (11 ÷ 36V DC), power consumption: 2.5 W max.						
Display	none or graphic LCD, 128 x 64 points, with backlight						
Type of probe	none	radial integrated, length 40 mm, Ø 18 mm, stainless steel 316L, PTFE filter cap	radial integrated, length 90 mm, Ø 18 mm, stainless steel 316L, PTFE filter cap	radial integrated, length 145 mm, Ø 18 mm, stainless steel 316L, PTFE filter cap	axial integrated, L=200 or 300 mm, Ø 12 mm, stainless steel 316L probe and filter cap	cable probe L=90 mm, Ø 18 mm, stainless steel 316L, PTFE filter cap	cable probe L=200 or 300 mm, Ø 12 mm, stainless steel 316L probe and filter cap
Probe parameters	none	temp.: measuring range -30 ÷ 80°C, typ.err. ±0.5°C @ -10 ÷ 80°C; temp. & humidity: measuring range -30 ÷ 80°C, typ.err. ±0.2°C @ 10 ÷ 60°C (±0.4°C @ -30°C, ±0.7°C @ 120°C); 0 ÷ 100% RH; typ.err. ±1.8% RH (20 ÷ 80% @ 25°C)	temp.: measuring range -30 ÷ 105°C; typ.err. ±0.5°C @ -10 ÷ 85°C; temp. & humidity: measuring range -30 ÷ 105°C; typ.err. ±0.2°C @ 10 ÷ 60°C (±0.4°C @ -30°C, ±0.7°C @ 120°C); 0 ÷ 100% RH; typ.err. ±1.8% RH (20 ÷ 80% @ 25°C)	temp.: measuring range -50 ÷ 120°C; typ.err. ±0.5°C @ -10 ÷ 85°C; temp. & humidity: measuring range -40 ÷ 120°C; typ.err. ±0.2°C @ 10 ÷ 60°C (±0.4°C @ -30°C, ±0.7°C @ 120°C); 0 ÷ 100% RH; typ.err. ±1.8% RH (20 ÷ 80% @ 25°C)	temp.: measuring range -50 ÷ 120°C; typ.err. ±0.5°C @ -10 ÷ 80°C		
					temp. & humidity: temp. measuring range -40 ÷ 120°C; typ.err. ±0.2°C @ 10 ÷ 60°C (±0.4°C @ -30°C, ±0.7°C @ 120°C); humidity measuring range 0 ÷ 100% RH; typ.err. ±1.8% RH (20 ÷ 80% @ 25°C)		
Connector & cable type	none					gland or 4 pin M12 connector, cable, PUR or TPU covered (operating temp. -30 ÷ +80°C) or TPE covered (operating temp. -30 ÷ +120°C)	gland, cable 3m max., PUR covered, operating temp. -30 ÷ +80°C or TPE covered, operating temp. -30 ÷ +120°C
Number of inputs	1 or 2 universal	0 or 1 universal					
Type of universal inputs	current: 0/4-20 mA; voltage: 0/1-5 V, 0/2-10V, 0-60 mV, 0-75 mV, 0-100 mV, 0-150 mV; RTD: Pt100, Pt500, Pt1000, measuring range: -100°C ÷ 600°C; thermocouple: type K, S, J, T, N, R, B, E; measuring ranges: -200°C ÷ +1370°C (K); -50°C ÷ +1768°C (S); -210°C ÷ +1200°C (J); -200°C ÷ +400°C (T); -200°C ÷ +1300°C (N); -50°C ÷ +1768°C (R); +250°C ÷ +1820°C (B); -200°C ÷ +1000°C (E) accuracy: 0.1% @ 25°C ± one digit (inputs: current, voltage, milivoltage, thermoresistance, thermocouple K, J, E); 0.2% @ 25°C (thermocouple N), 0.5% @ 25°C (thermocouple S, T, R, B)						
Binary outputs	0, 1 or 2 electronic NO relays, 24V AC/35V DC, max. 200 mA						
Analogue outputs	0, 1 or 2: active current: operating range 0/4-20 mA (0-24 mA max.); passive current: isolated, operating range 4-20 mA (2.8-24 mA max.); active voltage: operating range 0/1-5V, 0/2-10V (0-11V max.)						
Communication interface	RS-485, 8N1 and 8N2, 1200 bit/s ÷ 115200 bit/s, Modbus RTU, not galvanically isolated						
Operating temperature	-30°C ÷ +80°C, case with electronics (out of range -20 ÷ +70°C LCD and IR receiver turn off)						
Protection class	IP 67 (version without display); IP 65 (version with display)						
Case	wall mounted, 120 x 90 x 50 mm, material: ASA LURAN + polycarbonate						

Data presentation

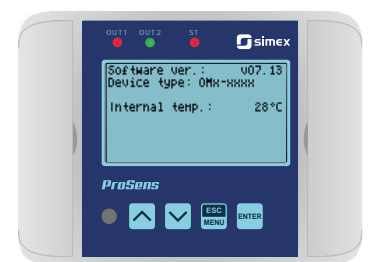No display version, LED signalling

One measurement display mode

Two measurements display mode

Four measurements display mode

Menu display mode

Device status information

Visualisation & utility software

ProSens

SimCorder Soft

SimCorder Soft communicates with external devices using the RS-485 interface with the Modbus RTU protocol and reads measurement data from the above devices. A computer may be connected directly to the network of devices or via the internet. In case of the latter, an RS-485 Ethernet converter is necessary. This software enables sound and visual alerts (e.g. in case the temperature is too high in the cooler, excessive humidity, insufficient flow etc.). The system can be configured so that each alert evokes a particular response of selected signalling modules. Any changes in the device settings as well as reading of measurements is completed remotely at one station.

Monitoring from anywhere

A computer with SimCorder Soft installed in the Network SERVER version may share recorded data and system information such as emergency states via the internet. The data can be viewed as tables or diagrams or exported to various file formats on a computer with the Network TERMINAL version installed. The Network TERMINAL version also allows to print reports based on the above data. An insight into the entire system is possible from anywhere and at any time.

Immediate notification

After detecting emergency states, SimCorder Soft in the Alarm or Network versions generates text messages (an external GSM modem is required) and e-mails about the same and sends them to applicable telephone numbers (max. 5 numbers) and e-mail addresses. This enables to immediately respond in case of such situations as system failure or exceeding the permissible measuring parameters.

S-Config 2

S-Config 2 is free software used for configuring the ProSens line devices.

The software is used for a simultaneous detection of devices in multiple Modbus RTU networks and provides users with a possibility of changing the configuration of most of the devices. There is a list of registers presented for each detected device. The registers can be modified by users. The lists also include additional information concerning device parameters, such as: type, address, baud rate, etc.

The ProSens line devices can provide detailed information concerning their properties. In particular, the information includes:

- device type,
- serial number,
- firmware version,
- inputs type,
- outputs type and number.

Probes

PPQ-612-00-X-X
Cable probe Ø18, L=90 mm, w/o cable, housing SS 316L, filter FPQ-P350

PPQ-612-XX-X-X
Cable probe Ø18, L=90 mm, housing SS 316L, filter FPQ-P350

PPQ-621-XX-X-X
Cable probe Ø12, L=200 mm, housing SS 316L, filter from SS mesh 25 µm

PPQ-622-XX-X-X
Cable probe Ø12, L=300 mm, housing SS 316L, filter from SS mesh 25 µm

Ordering:
PPQ-612-00-X-X

measurement of:
2 : temperature
3 : temperature & humidity

connector type:
2 : connector, operating temp. -30 ÷ +80°C

Ordering:
PPQ-612-XX-X-X
PPQ-621-XX-X-X
PPQ-622-XX-X-X

measurement of:
2 : temperature
3 : temperature & humidity

connector & cable type:
1 : gland, PUR covered,
operating temp. -30 ÷ +80°C
3 : gland, TPE covered,
operating temp. -30 ÷ +120°C

cable length:
05 (0,5m), 10 (1m), 15 (1,5m),
20 (2m), 25 (2,5m), 30 (3m)

Filters

FPQ-P350
Teflon filter (PTFE) with increased resistance against splashing water,
non-absorbent surface, does not rust, operating temperature -30 ÷ +120°C

Mounting accessories

HPQ-FB12
Flat circular flange for Ø12 probes, brass nickel plated

HPQ-CGS12
Thread bracket for Ø12 probes, brass nickel plated, M20x1,5

HPQ-W1218
Wall mounting bracket for Ø12 and Ø18 probes, SS 316L

HPQ-CGS18
Thread bracket for Ø18 probes, brass nickel plated, M25x1,5

Accessories

Connection accessories

CPQ-00

M12 connector, 4-pin, w/o cable
for PPQ-612 probes,
operating temp. -30 ÷ +80°C

CPX-30

M12 connector, 4-pin,
cable 3 m, for PPQ-612 probes

<u>Ordering:</u>

CPX-30
        <u>operating temp.:</u>
        Q : standard: -30 ÷ +80°C, cable TPU covered
        T : expanded: -30 ÷ +120°C, cable TPE covered

Additional accessories

SIR-15

The infraRed remote control may be used as external programming keyboard for all SIMEX devices equipped with IR receivers and remote programming functions. Pressing of any local IR controller key, causes transmission of it's code to the device. The remote control features a five-button keyboard, including the F/ /RESET function button dedicated to the operation of the devices in the following group: counters, flow meters, and tachometers. Functions of particular keys depend on devices features.
<u>Power supply voltage</u>: 3V DC, lithium battery CR2032 type
<u>Operation range</u>: from 0,5 to 5 m (depend on programmed device)

SRS-U4

Converter is designed to connect a USB host to slave devices equipped with RS-485 interface. The PC with special software can be used as a host. The SRS-U4 unit guarantees full galvanic isolation between USB and RS-485 circuits. The converter can work with any devices equipped with RS-485 interface and contains integrated circuit which supports USB 1.1 and USB 2.0 standards. The main purpose is connection of PC host computer with industrial data acquisition and visualisation systems based on RS-485 interface.

The SRS-U4 can be also manufactured with DIN mounting adaptor.

SCL-QM
Case lock - access is safeguarded by means of insert lock

LSQkit
Lid supports (2 pcs)

Ordering

ProSens

QM series

QM-<u>XXX-XX</u>-X-X-X-XX-X-10-3-X

<u>probe version:</u>
100-00-0 : without probe
211-00-0 : radial, Ø 18 mm, L=40 mm
212-00-0 : radial, Ø 18 mm, L=90 mm
213-00-0 : radial, Ø 18 mm, L=145 mm
421-00-0 : axial, Ø 12 mm, L=200 mm
422-00-0 : axial, Ø 12 mm, L=300 mm
612-00-2 : radial connector, no cable, Ø 18 mm, L=90 mm
612-<u>XX-X</u> : cable, Ø 18 mm, L=90 mm
621-<u>XX-X</u> : cable, Ø 12 mm, L=200 mm
622-<u>XX-X</u> : cable, Ø 12 mm, L=300 mm

<u>connector & cable type:</u>
1 : gland, PUR covered, operating temp. -30 ÷ +80°C
2 : connector for Ø 18 mm probe, TPU covered, operating temp. -30 ÷ +80°C
3 : gland, TPE covered, operating temp. -30 ÷ +120°C
4 : connector for Ø 18 mm probe, TPE covered, operating temp. -30 ÷ +120°C

<u>cable length:</u>
05 : L=0,5 m
10 : L=1 m
15 : L=1,5 m
20 : L=2 m
25 : L=2,5 m
30 : L=3 m

<u>number of available glands:</u>
2 : 2 pcs
3 : 3 pcs
4 : 4 pcs
5 : 5 pcs (does not apply to radial & cable probes)

<u>display:</u>
0 : none
1 : LCD, 128 x 64 pixels

<u>outputs:</u>
00 : none
11 : 2 x E REL
21 : 1 x AO *(0/4-20 mA, active, non-isolated)* + 1 x E REL
31 : 1 x AO *(4-20 mA, passive, isolated)* + 1 x E REL
41 : 1 x AO *(0-10V, active, non-isolated)* + 1 x E REL
22 : 2 x AO *(0/4-20 mA, active, non-isolated)*
33 : 2 x AO *(4-20 mA, passive, isolated)*
44 : 2 x AO *(0-10V, active, non-isolated)*

<u>measurement 2:</u>
0 : none
1 : universal input *(I, U, RTD, TC)*

<u>measurement 1:</u>
1 : universal input *(I, U, RTD, TC)* - without probe
2 : temperature probe
3 : temperature & humidity probe

Probe version

ProSens 400
axial probe

ProSens 200
radial probe

ProSens 600
cable probe

ProSens 600
radial connector probe
no cable

Easy to assemble ...
Easy to replace ...

separable probe

Glands configuration

- for ProSens 100 and 400

 2 pcs

 3 pcs

 4 pcs

 5 pcs

- for ProSens 200 and 600

 2 pcs

 3 pcs

 4 pcs

SIMEX

SIMEX Company exists on the market of industrial automation since 1986 as a manufacturer and distributor of test and measurement instruments. The scope of our manufacture includes equipment used to measure, control and record the temperature, humidity, pressure, level and flow. The test and measurement instruments offered are applicable in many industrial branches such as energy industry, heat engineering, mining, chemical, food and machine branch, and waste water handling.

Our commercial offer can be operationally adapted to the expectations of our Customers, by reacting quickly to trends and market needs. In addition to standard solutions, we produce the equipment as prepared jointly or customized. We arrange also information and training meetings in our company, and direct presentations of our equipment at Customer's sites.

Design of industrial control and manufacturing equipment

Manufacture of industrial digital meters, data loggers and counters

Distribution of industrial control and manufacturing equipment

Providing services in scope of the integration of automatic control systems

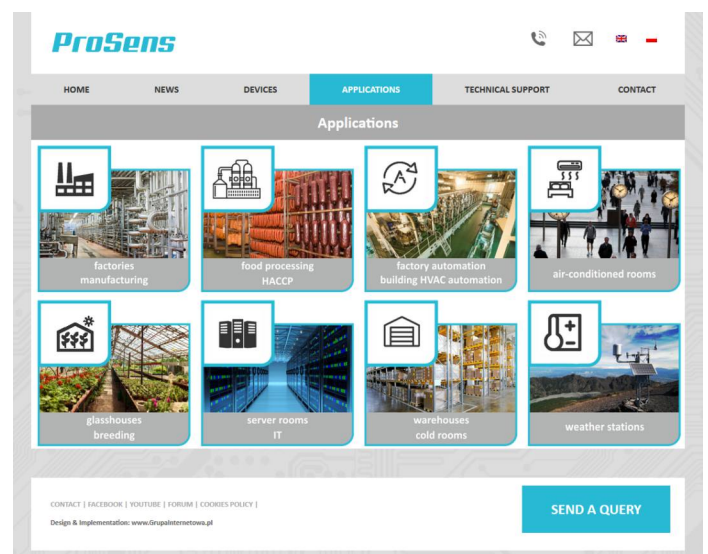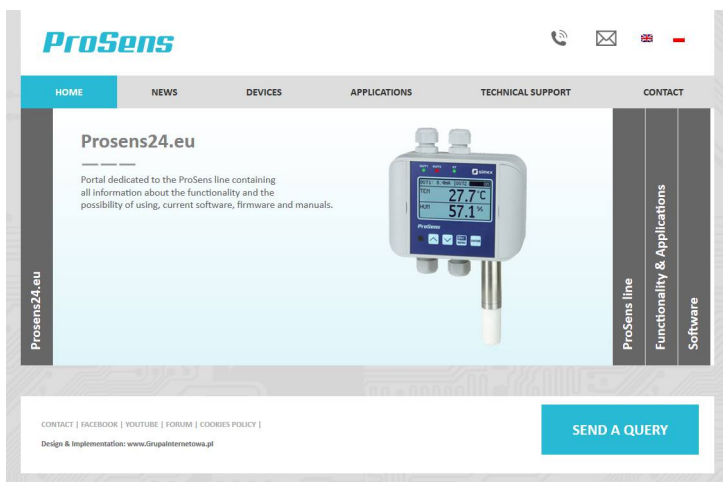Warranty and after warranty maintenance (teleservice)

Services
We are specialized in designing the systems for weighing, among others, the storage and process tanks for food, and chemical and pharmaceutical industry.

www.ProSens24.eu

We are presenting our new website www.prosens24.eu dedicated to the line of modern industrial instruments - ProSens.

The new website provides:
- exhaustive description of each ProSens line instrument: photos, technical data, list of accessories, functionality, documentation,
- the latest information concerning software and new industrial solutions using modern meters,
- answers to frequently asked questions,
- forum where Simex specialists help solving all potential problems with the new series of products.