sgm lektra

water treatment

level | flow | analytical control

OUR HISTORY

SGM-Lektra, over 40 years in the sector of industrial and process instrumentation

Established in 1977, SGM LEKTRA produces instruments for measurement and control in industrial processes, in the integrated water cycle, and in the monitoring of temperatures for the agrifood and milling sectors.

Each instrument is designed in accordance with the normative reference principles and produced in a quality control regime. Particular attention is dedicated to the applications for the remote control and programming of our instruments.

OUR COMMITMENT

The ongoing development and research of new technologies intended to improve and expand our line of products is an integral part of our activity

The internal R&D laboratory, already listed among the laboratories recognised by the MIUR (Italian Ministry of Instruction, Universities and Research), works constantly, so that we can apply the most innovative technologies to our products. Our technicians, supported by adequate resources and collaborations with the specialised University Departments, are committed to adapting the products to the increased needs of integration and communication with the field and with the operators in the framework of industry 4.0.

GLOBAL PRESENCE

An established domestic sales network with a growing international orientation

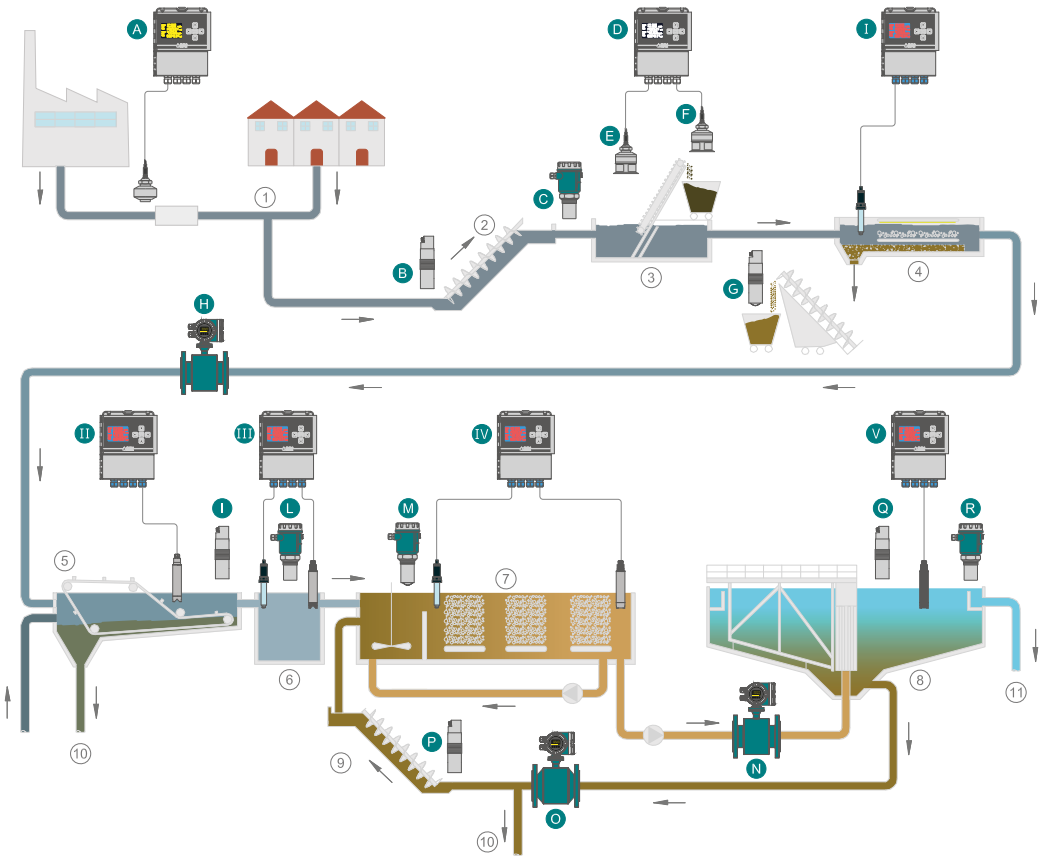
In addition to the reinforcement of the production facility, SGM LEKTRA has reorganised the commercial network and improved, with an accurate selection, the network of critical subcontracting. The commercial sales strategies, as well as those of production and subcontracting, have been reviewed according to an increasingly greater international presence, in markets with a different kind of development, obtaining reassuring results and, particularly, a significant growth in exports. To develop this strategy, we have constituted, with a local partner, a unit located in Shanghai under the name SGM-SHA and in addition, commercial collaboration relationships have been activated in important markets in developing countries.

The future of SGM LEKTRA, of its technologies and of its products, is delineated and summarised in three words: integration, innovation and interaction.

Integrated Water Cycle

The protection of the environment and the enhancement of the “good” water are important today and will represent perhaps the most important challenge for the future.
SGM-lektra supplies units for the control of water treatment processes (WWTP) and monitoring and control in water management and distribution.
The complete water cycle therefore includes WWTP treatment and management & distribution systems.
SGM-Lektra offers instrumentation and the measurement and control of Levels | Flow | Pressure | Analyses.

Waste Water Treatment Plant



1. Sewage duct
2. Water elevation station
3. Screening treatment
4. Sand separation / grease separation
5. Primary sedimentation reservoir
6. Equalisation reservoir
7. Biological clarification, aerobic process
8. Secondary sedimentation reservoir
9. Slurry recycling
10. Slurry treatment
11. Spillage to natural receptor

Related Products

- **A** **CA400** system for flow measuring in partially full piping
- **B** **KTU** level measuring and control in elevation reservoirs
- **C** **FLOWMETER** measuring of treatment input flow
- **D E F** **VLW90M** double level measuring on grille
- **G** **RPL81** level measuring on hopper
- **H** **RPMAG** flow measuring on primary settling vessel
- **I** **KTU** level measuring on primary settling vessel
- **L** **METER** level measuring on equalisation reservoir
- **M** **RPL75** level measuring on biological clarification reservoir
- **N** **RPMAG** flow measuring on secondary settling vessel
- **O** **RKMAG** flow measuring on slurry recirculation
- **P** **KTU** measuring on secondary settling vessel
- **Q** **KTU** level measuring on slurry elevation reservoir
- **R** **FLOWMETER** flow measuring on plant outlet
- **I** **MCA800 104C** PH measuring on plant inlet
- **II** **MCA800 164C** measuring of solids in suspension
- **III** **MCA800 104C 164CH** PH and turbidity measuring in equalisation reservoir
- **IV** **MCA800 604C 324C** measuring of Redox and dissolved oxygen in biological reservoir
- **V** **MCA800 164CL** turbidity measuring in the plant outlet

Ultrasonic

Ultrasonic is a contact-less technology for level measurement applications. The sensor emits short ultrasonic pulses which are reflected from the product surface and captured by the same sensor.
The distance to the product surface is obtained with the exact measurement of the time between pulse emission and echo reception, and consequently the level measurement. An internal digital temperature sensor corrects the measurement as a function of air temperature.
Our ultrasonic level transmitters are suitable for measurements of liquids and granules, for distance up to 10 m.
Concentrated acids, toxic waste, vapors, agitators presence, by-pass pipes are not obstacles to their application thanks to an evolved signal processing system and a sophisticated Analytical of the received echo.

The available products are:
- IP67|68 transmitters, series PTU up to 12 m
- IP67 compact units with removable display series METER up to 10 m
- IP67|68 compact units KTU series up to 10 m with remote display
- Associated units VLW90M - VLW60T

Depending on the technology (2 or 4 wire) it is possible to use HART, Modbus RTU communication system or Bluetooth.
Softwares or Android App for units communication and calibration are available on request.

	METER	KTU	PTU50 / 51 / 56		
Application	liquids / solids	liquids / solids	liquids	liquids / solids	liquids / solids
Technology	4/2 wire	4 wire	4 wire		
Blocking distance	25 / 40 cm	25 / 40 cm	5 cm	30 cm	50 cm
Working temperature	-30 +70° C	-30 +70° C	-25 +75° C		
Max pressure	+ 1 bar	+ 1 bar	+ 0,5 bar		
Measurement range	6/10 m (liquids)	6/10 m (liquids)	1,5 m (liquids)	6 m (liquids)	12 m (liquids)
Sensor material	PP / PVDF	PP	PP		
Process connection	G2" / flange DN80	G2" / flange DN80	G1" / flange DN100;125		
Accuracy	0,2% (the measured distance)	0,2% (the measured distance)	0,2% (the measured distance)		
Protection	IP67	IP67|68	IP67|68		
Power supply	24 Vdc	24 Vdc 24/115/230 Vac	24 Vdc		
Comm. port	MODBUS / HART / BLUETOOTH	MODBUS	MODBUS	MODBUS / BLUETOOTH	
Atex	yes	no	no		

METER
Ultrasonic level transmitter

Range 0,25 ÷ 6 m / 0,4 ÷ 10 m
IP67
Suitable for liquids and solids
MODBUS
Power supply 24 Vdc; 12 Vdc
Output 4 ÷ 20 mA (2 wire version);
4 ÷ 20 mA + 2 relays set (4 wire version)
ATEX
Remote control via Smartphone

The METER ultrasonic level transmitters have 3 modes for configuration and calibration:
1) by means of the configuration module VL601 which can be switched on and off on the METER (VL601 module is equipped with large LCD matrix display).
2) via MODBUS RTU by PC interface with USB/RS485 and communication software 010F105A
3) via smartphone Android App (only 4 wires version).
The non-contact technology makes it ideal for installations where it is necessary to minimize the maintenance costs. The removable display module allows its use as a fixed display or calibration module. Are available versions with 2-wire or 4-wire, 2-wire with communication HART and ATEX certification, 4-wire with communication MODBUS and 2 relays.

Technical Features

Housing/sensor material
PC or Al / PP wetted part (only PVDF for ATEX certified vers.)
Mechanical installation
2” GAS M (PP flange DN80 opt.)
Protection degree
IP67/IP68 (Sensor)
Electrical connection
Internal push connectors
Working temperature
-30 ÷ +70°C; +80°C non-continuous
Pressure
from 0,5 to 1,5 bar (absolute)
Power supply
12Vdc / 20÷30Vdc (2-wires versions) - 24Vdc (4-wires versions)
Power consumption
0,6W (2-wires) - 1,5W (4-wires)
Analog output
4...20mA, max 750ohm

Relays output
(4-wire only) n°2 3A 230Vac (n.o.)
Digital communication
MODBUS RTU for 4-wire vers. ; (opt.) HART for 2-wire vers.
Max measure range
max 0.25 ÷ 6m
max 0.40 ÷10m
In case of non perfectly reflecting surfaces, the maximum distance value will be reduced
Blind distance
0,25m (6m versions) / 0,40m (10m versions)
Temperature compensation
digital from -30 to 80°C

Accuracy
±0,2% (of the measured distance) not better than ±3mm.
Resolution
1mm.
Calibration
4 buttons or via HART / MODBUS RTU / BLUETOOTH
Warm-up
5 minutes typical
LCD Display
Plug-in display/keyboard 4 buttons matrix LCD
Ex-proof
ATEX II 1/2G Ex ia/db IIC T4 Ga/Gb ; II 1D Ex ta IIIC T135°C Da Tamb: -20 +60°C

KTU5
Ultrasonic level transmitter

Range 0,25-6 / 0,4-10m
IP67|68 protection
Suitable for liquids and granules
MODBUS RTU comm. protocol
Power supply Vdc (12,24) ; Vac (24, 115, 230)
Output: 4 ÷ 20 mA + 2 adjustable relays

Compact ultrasonic instrument for general applications in liquids and bulk solids. Range from 0,25 to 5 m or 0,4 to 8 m.
KTU5 has 3 modes of calibration:
by means of on-board buttons;
by means of VL620|621 module, “REMOTE DISPLAY”;
by means of PC with s/w 010F105A MODBUS RTU.
This instrument is ideal for applications which require a compact transmitter without local display. There is a wide choice of supply voltage, 24 Vdc, 24 Vac, 115 Vac or 230 Vac. Two configurable relays allow alarm thresholds and pumps control. A complete self-diagnosis makes it suitable for remote unattended measurements. Another important feature is the body, because it’s full manufactured in PP which makes suitable for applications with acids.

Technical Features

Housing/sensor material
PP
Mechanical installation
2” GAS M (PP flange DN80 opt.)
Protection degree
IP67|68
Electrical connection
Internal push connectors
Working temperature
-30 ÷ +70°C; +80°C non-continuous
Pressure
from 0,5 to 1,5 bar (absolute)
Power supply
12; 24Vdc - 24; 115; 230 Vac
Power consumption
2W

Analog output
4...20mA, max 750ohm
Relays output
n°2 3A 230Vac (n.o.)
Digital communication
MODBUS RTU
Max measure range
max 0.25 ÷ 6m
max 0.40 ÷10m
In case of non perfectly reflecting surfaces, the maximum distance value will be reduced
Blind distance
0,25m (6m versions) / 0,40m (10m versions)

Temperature compensation
digital from -30 to 70°C
Accuracy
±0,5% (of the measured distance) not better than ±3mm.
Resolution
1mm.
Calibration
2 buttons or via MODBUS RTU
Warm-up
5 minutes typical
Display
VL620|621 programming module (opt.) with 4 keys and matrix LCD

PTU50|51|56
Ultrasonic level transmitter

Measurement range:
PTU50 0.05 ÷ 1.5 meters
PTU51 0.3 ÷ 6 meters
PTU56 0.5 ÷ 12 meters
IP67 sensor protection | 68
Sensor body in PP
Suitable for liquids
MODBUS RTU communication protocol
Bluetooth PTU51 | 56
Analogue output 4 ÷ 20 mA

The application of non-intrusive measurement systems is still the preferred one today. For this reason SGM-LEKTRA has developed the PTU series level / distance transmitters which offer, together with their compactness, a singular simplicity of commissioning. The calibration and configuration of the PTU transmitters is possible, even remotely, thanks to a MODBUS RTU connection together with the relative PC software, or through the display and power supply units VLW90M / VLW60T. The IP68 degree of protection allows for application in wells under the walking surface. The 51 | 56 versions allow remote control via Bluetooth via the appropriate SGM-BT App.

Technical Features

Housing material
PP
Mechanical installation
1”GAS M - PP fl ange DN100 opt.
Protection degree
IP67|68
Electrical connection
IP67 male connector with 5/10/15/20m linking cable
Working temperature
-25 ÷ +75°C
Pressure
From 0,5 to 1,5 bar (absolute)

Power supply
24Vdc
Power consumption
1.5W
Analog output
4÷20mA max 750ohm
Digital communication
MODBUS RTU; Bluetooth PTU51|56
Range
PTU50 0.05 ÷ 1.5 meters
PTU51 0.3 ÷ 6 meters
PTU56 0.5 ÷ 12 meters
Temperature compensation
digital in the working temperature

Accuracy
±0,2% (of the measured distance) not better than ±3mm
Resolution
1mm
Warm-up
30 minutes
Display and calibration
display on VLW90M | 60T | 601 units
Bluetooth PTU51 | 56

Radar

The instrument antenna sends tight electromagnetics pulses on base band 26 GHz (C-band).
These pulses are irradiated and then reflected, from the product surface to be measured and received back by the same antenna. A method of time elongation, allows the assessment of the time of flight which, by its nature, is particularly short, to be able to calculate with accurancy the distance and hence the level of the product to be measured.
Dust, vapors, high temperatures and pressures are well tolerated and allow the use of units in critical conditions.
An advanced computerized system by “envelope curve” and the possibility to map the false echo curve allow to improve the measurement in critical conditions. Thanks to the two-wire technology (2-wire) and HART communication makes the installation, the commissioning and the use of the units is very simple and intuitive.
The antenna of the instrument sends electromagnetics chirp pulses on W-band base.
These waves are irradiated by the antenna and then reflected, at least in part, from the surface of the product to be measured and received back by the same antenna.
A FMCW method, combined to Fourier transformation (FFT), is able to calculate with accurancy the distance and hence the level of the product to be measured. The W-band, with a sweep frequency of electromagnetic waves around 80 GHz, allows the detection of the products surface whose dielectric constant is low.

	RPL75	RPL81
Application	liquids / solids	liquids / solids
Working frequency	80 GHz	80 GHz
Working temperature	-20 ÷ +60°C; +80°C	-20 ÷ +60°C; +80°C
Process pressure	0,5 ÷ 1,5 bar	0,5 ÷ 1,5 bar
Range of measurement	liquids 20m | solids 10m	liquids 20m | solids 10m
Antenna material	PP	PP
Process connection	2”G; flanged	2”G
Process connection material	PP	PP
Accuracy	± 5 mm	± 5 mm
Power supply	24 Vdc	24 Vdc
Protection	IP67	IP67|IP68 (Sensor) - IP68 opz.
Output signal	2 relè; 4 ÷ 20 mA; Modbus; Bluetooth	2 relè; 4 ÷ 20 mA; Modbus; Bluetooth
Atex	no	no

RPL75
Radar level transmitter

Level measurement without contact for liquids

Range 20m

Radar pulses 80Ghz

Visualization and configuration on a removable display module

Output 4 ÷ 20mA; 2 configurable relays

Remote control via Smartphone

Compact unit with removable programming display, a module for level measurement of liquids. Available in 4-wire version, with 2 programmable relays on different intervention thresholds and Modbus RTU serial communication. Connection to the 2 “G threaded process made of PP (moplen) for compatibility with chemically aggressive environments. The measuring range is between 0.5 and 20 meters and is guaranteed only in the case of conductive liquids. The polycarbonate housing is equipped with a transparent cover for an immediate reading of the values.

Technical Feature

Frequency range
80Ghz
Housing / sensor material
PC / PP
Mechanical installation
Threaded 2 “G; flange in PP optional
IP rating
IP67
Electrical connection
Terminals
Working temperature
-20 ° ÷ + 60 ° C
Process pressure
max 3 bar

Supply
24Vdc; 12Vdc
Consumption
max 2W (4 wires)
Outputs
4 to 20mA
2 relays 3A 230Vac n.a. resistive
Digital communication
MODBUS RTU
Maximum measuring range
20 meters (on conductive liquids)
Blind distance
min 0,05m (suggested 0,1m)

Accuracy
measurement deviation ± 5mm
(if distance <250mm ± 10mm)
Resolution of digital measurement
2mm.
Calibration
through VL601 module; Modbus
Thermal stabilization
1 minute typical
Visualization
VL601 extractable programming module (opt.) With 4 keys and matrix LCD

RPL81
Radar level transmitter

Level measurement without contact for liquids
Range 20m
Radar pulses 80GHz
IP67/IP68 (Sensor) - IP68 opt.
4÷20mA output
2 configurable relays
Remote control via Smartphone

Compact unit for level measurement of liquids and solids RPL81 is unaffected by temperature fluctuations, high pressure and condensation.
Thanks to his precise signal focusing it provides a reliable and accurate measurement.RPL81 can be easily configured by: on-board push buttons (IP67 version only); VL620/621, “display/programming module”; MODBUS RTU s/w; BLUETOOTH + SGM Level APP.
4-20mA and MODBUS outputs enable the continuous transmission of the measurement to analogical and digital acquisition systems. Two configurable relays can be used as local alarm threshold and pumps drive/control. One relay can be programmed as operating alarm, making RPL81 suitable for unattended applications. Constructed entirely in PP, RPL81 is particularly indicated in presence of corrosive media (acid vapors) and therefore in storage tanks. Typical applications include water lifting and treatment plants as well as sea and rivers level monitoring.

Technical Feature

Housing / sensor material
PP
Mechanical installation
Threaded 2 “G; flange in PP optional
IP rating
IP67 - IP68 opt.
Electrical connection
Terminal blocks or waterproof connector IP68 (opt.)
Working temperature
-20° ÷ +60°C
Pressure
max 3bar
Power supply
24Vdc; 12Vdc

Power consumption
5W max; 2,5W average
Analog output
4...20mA, max 750ohm
Relays output
n°2 3A 230Vac (n.a.) resistive
Digital communication
MODBUS RTU
Max measure range
0.05 ÷ 20mt
In case of non perfectly reflecting surfaces, the maximum distance value will be reduced

Blind distance
min 0,05m (suggested 0,1m)
Accuracy
measurement deviation ± 5mm
(if distance <250mm ± 10mm)
Resolution of digital measurement
2mm.
Calibration
vers. IP67 display opt. - 2 buttons - modbus / Bluetooth
vers. IP68 display - modbus
Display
VL620/1 module (opt.) with 4 keys and LCD

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VLW90M
Level control, flow rates

6 independent level measurements
2 open channel flow measurements
2 volume measurements
1 differential level measurement
pumps control (raising) up to 5 immersed pumps
2 analog output 4÷20mA
1 modbus slave output
5 fully confi gurable relay
2 open collector digital output
2 analog input 4÷20mA
2 digital input (max. 24Vdc 10mA)
Datalogger via Pen Drive USB

VLW90M, a single unit suitable for different applications.Level measurements, difference between levels, open channel fl ow (hydraulic jump)and pumps control.Different measurement functions directly settable via the keyboard. VLW90M can be connected to ultrasonic sensors and/or to 4÷20mA level transmitters. VLW90M has been developed for the connection to 1 or 2 MODBUS sensors, but it can support up to 8 PTU, METER,RPL81 or KTU units if externally powered. A remarkable note is the data logger on removable pen-drive, which enables the total traceability of the measurements. It is particularly suitable for the Analytical of the flow rate timing in open channel applications.

Technical Feature

Housing material
ABS
Mechanical installation
Wall, pipe or DIN rail mountin
Protection degree
IP66
Keyboard
5 push buttons
Display
320x240 matrix color backlit LCD

Electrical connection
Internal connectors
Working temperature
-20 ÷ +60°C
Power supply
85÷230Vac; 24Vdc; 24Vac
Power consumption
Max. 10W
Analog output
n.2 configurable isolated 4÷20mA
Relays output
n.5 fully configurable relay (5A 250Vac)

Digital output
n.2 open collector (max. 24Vdc 50mA)
Analog input
n.2 4÷20mA
Digital input
n.2 (max. 24Vdc 10mA)
Digital communication
MODBUS RTU
Datalogger
on Pen Drive USB; max.32GB (FAT32)
Power supply for analog transmitters
24Vdc; 200mA max

VLW60T
Display and configuration unit

Display and configuration for modbus level transmitters

4.3 “touch screen display

Up to 3 simultaneous level measurements

Graphical display of the levels

Display indication of the relay status on board METER, KTU, RPL81 transmitter

VLW90M, a single unit suitable for different applications.Level measurements, difference between levels, open channel fl ow (hydraulic jump)and pumps control.Different measurement functions directly settable via the keyboard. VLW90M can be connected to ultrasonic sensors and/or to 4÷20mA level transmitters. VLW90M has been developed for the connection to 1 or 2 MODBUS sensors, but it can support up to 8 PTU, METER,RPL81 or KTU units if externally powered. A remarkable note is the data logger on removable pen-drive, which enables the total traceability of the measurements. It is particularly suitable for the Analytical of the flow rate timing in open channel applications.

Technical Feature

Display
4.3 “TFT LCD color resistive touch, resolution 480 x 272, LED backlighting (Life Time> 30000h)
Supply
“A” version 24Vdc ± 20%
“B” version 85-230Vac (50 / 60Hz) / 24Vdc / ac
Consumption
“A” version Max 500mA , 12W @ 24Vdc
“B” version Max 15W

Dimensions l x h x p (mm)
“A” version 128x102x32
“B” version 183.5x250x126
Mounting dimensions (mm)
119x93
Mounting
Panel “A” version
Wall-mounted “B” version, on a pole or on a DIN rail, with ABS case and transparent cover

IP rating
“A” version IP65 / NEMA4
“B” IP66 version
Storage temperature
-20 ° ÷ 60 ° C
Working temperature
0 ÷ 50 ° C
Relative humidity
10 to 90% (without condensation)

VLW602
Display and configuration unit

Suitable for PTU ultrasonic level transmitters
Keyboard with LCD display
IP66
Power supply of 24Vdc transmitters

Suitable for applications where the level transmitter is installed in unconfortable location. VLW602 is a good solution for the matched compact level transmitters remote viewing and configuration:
VLW602 module allows you to power and configure all the compatible transmitters without the use of other devices. VLW602 can be installed outdoors near the transmitter installation area, this is made possible by the VLW601 small size and the IP66 mechanical protection. The VLW602 unit ensures the galvanic separatio between the power line and the 4÷20mA signal, in the AC power supply case (24/115/230Vac)

Technical Feature

Housing material
Aluminium
Mechanical installation
wall mounting
Protection degree
IP66
Keyboard
4 buttons

Display
LCD display
Electrical connection
terminals
Working temperature
-25 ÷ +70°C
VLW602 power supply
85÷230Vac; 24Vdc; 24Vac

Transmitters power supply
24Vdc
Consumption
2W
Communication with sensor
Modbus

SGM BT

SGM BT
Multisensor Application

Useful for calibration and disaplay of SGM-Lektra sensors *

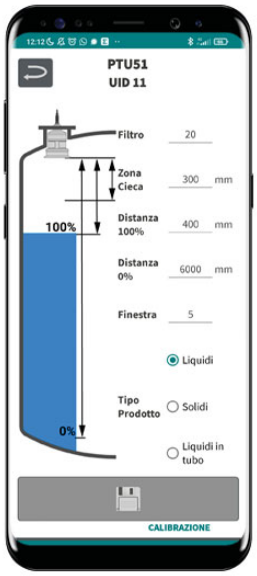
For PTU51 / 56, RPL75 / 81, Meter6 / 10m level transmitters and RPmag flow meter

Compatible with Android 5 or higher devices

Connection via Bluetooth

SGM BT App lets you configure/calibrate your properly equipped SGM meter/transmitter right from your Android compatible smartphone/tablet, allowing a remote real-time reading of the levels/flows (max 10m in open-air). It has an intuitive, easy-to-use design and can be downloaded for free from Play Store.

*The SGM LEKTRA instruments which are available with BLUETOOTH option are:
METER/PTU51/PTU56 ultrasonic level transmitters
RPL75/RPL81 80GHz radar level transmitters
RPMAG/RSMAG/RKMAG electromagnetic flow meters
FLOWMETER and FLOW51 ultrasonic flow meter



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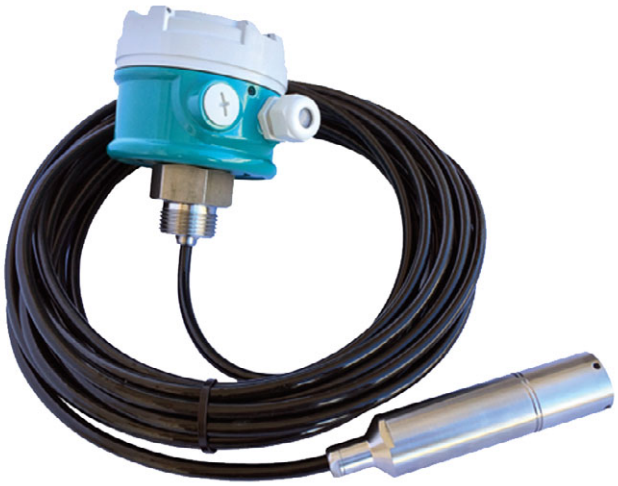

KPL
Hydrostatic head level transmitter

Suitable for use in clear water
Accuracy ±0.5%
Range 1 ÷ 200 m H2O
IP rating (wetted part): IP68
Power supply 12÷30Vdc (2-wires)

Suitable for continuous liquids level measurement. Typical application are waste water and deep wells.The KPL level transmitter configuration options make it suitable for most industrial sectors (oil, chemical, power, metallurgy, pharmaceutical and food) and in different operating conditions. These characteristics make it the ideal instrument in process automation for the hydrostatic head levels measurement.

Technical Feature

Power supply
10÷36Vdc (2-wire)
Maeasure range
from 0÷1mH2O to 0÷200mH2O
Immersed probe material
SS304
Shielded cable material
PU Ø7.5mm
Housing material (opt)
aluminum

Process connection
G 1"; G1"1/2; suspension cable; self-supporting fastening hook (opt.)
Analog output
4÷20mA
Stability
±0.1% fs /12 months
Accuracy
±0.5%

Working temperature
-20° ÷ +70°C
Storage temperature
-40° ÷ +80°C
Wetted part protection
IP68
Housing protection vers. KPLC, KPLG, KPLR
IP67

KWL
Hydrostatic head level transmitter

Suitable for use in waste water
Accuracy ±0.5%
Range 1 ÷ 200 m H2O
IP rating (wetted part): IP68
Power supply 12÷30Vdc (2-wires)

KWL is a great reliability level measurement for liquids. Typical application are waste water even with sludge presence. The hydrostatic level measurement uses the direct relationship between the heigth of the column of liquid and the pressure on the sensor diaphragm. The variation of level/pressure measured is transmitted by 4 ÷ 20 mA signal.

Technical Feature

Power supply
12÷30Vdc (2-wire)
Maeasure range
from 0÷0.4mH2O to 0÷20mH2O
Immersed probe material
PVC
Shielded cable material
PU Ø7.5mm
Housing material (opt)
aluminum

Process connection
2”GAS M; suspension cable; self-supporting fastening hook (opt.)
Analog output
4÷20mA
Stability
±0.1% fs /12 months
Accuracy
±0.5%

Working temperature
-10° ÷ +50°C
Storage temperature
-20° ÷ +70°C
Wetted part protection
IP68
Housing protection vers. KWLC
IP67

RSL100
Diapason level switch

Contact level control for liquids
Material: PVDF / SS316
Connections: G 1”; G 3/4”; G 1/2” DIN 2999
IP66
Output: NPN/PNP, relay SPST NO

Suitable for control of liquids such as oils, water, paints and transparent inks, sauces, milk, liquids containing carbon dioxide, oil foaming. RSL100 is designed as a shortcut to 2 / 3 wires and for universal use in tanks and pipes.

Technical Feature

Applications
Oils, Water, Paints and clear inks, Sauces, Milk, Liquids containing carbon dioxide, Foaming oils.
Housing materials
PVDF / SS316
Process connection material
AISI316
Process connections
G 1”; G 3/4”; G 1/2” DIN 2999
IP rating
IP66
Pressure
operative: 40 bar -20°C ÷ +70°C

Max temperature
Fluid: 100°C (150°C version B)
Power supply
10 ÷ 30 Vdc
Load capacity
0.5 A max (5A for 40 ms)
Minimum switching current
7.5 mA
OFF status
leakage current: <2 mA constant

Voltage drop
4.5V at 500 mA; 10V at 7.5 mA
Delay
1 sec
Viscosity
5000 cst max at 25°C
Hysteresis
4 mm vertical, 1 mm horizontal
Repeatability
± 1 mm

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Electromagnetics

For many years SGM LEKTRA has been active in the field of flow measurement. Electromagnetic flow meters can measure liquids with a minimum electrical conductivity. Electromagnetic flow meters may be employed in all industrial sectors for liquids flow measurement from DN10 to DN2000.

Depending on the type of application SGM LEKTRA has realized 3 types of product lines:

RPmag; RKmag; RPmagM; RLmag: industrial processes
RSmag: food and pharmaceutical
RBmag; RBKmag: battery operated version

All units offer characteristics such as:
Fully bi-directional measure - Extreme reliability - High precision - No moving parts - No pressure losses - Extended measuring range, 100:1 - Measure independent of pressure, temperature, density and viscosity of the liquid.
With this measurement technique it is possible to reach a standard precision of 0.5% accuracy referred to the measured value with the possibility of a 0.2% accuracy.

The calibration of the unit is carried out individually by an internationally certified rig according to the European directives.

The certificate of calibration is an integral part of the instrument supply and has international validity.
The wet calibration rig has an accuracy better than 99.97%.
The calibration rig accuracy is certified and monitored by NIM (National lnstitute of Metrology) metric institute.
The NIM institute is third party, internationally recognized by BIPM (Bureau International des Poids et Mesures).
The calibration rig complies with the requirements NTC ISO IEC 17025 and the calibration procedures are carried out according to the European EN-45001 Code.

	RPmag	**RKmag**
Pipe diameter range:	DN10 ÷ DN2000	DN40 ÷ DN800
Measurement field:	0,1 ÷ 110000 m^3/h	1,5 ÷ 9048 m^3/h
Sensor material:	SS321	SS321
Lining material:	PTFE DN10 ÷ DN500 neoprene DN65÷DN2000	neoprene
Process connection:	Flange DIN (UNI 1092-1); Flange ANSI	Flange DIN (UNI 1092-1)
Housing material:	aluminum	aluminum
Electrodes material:	SS316L; Hastelloy C; titanium; tantalum; platinum	SS316L; Hastelloy C
Process temperature, remote version:	RUBBER -40 ÷ +80°C; PTFE -40 ÷ +150°C	-20 ÷ +120°C
Process temperature, compact version:	RUBBER -40 ÷ +80°C; PTFE -40 ÷ +100°C	-20 ÷ +75°C
Accuracy:	±0,5% / ±0,2%	±0,5% / ±0,2%
Analog output:	4÷20 mA; max. load 750 Ohm	4÷20 mA; max. load 750 Ohm
Analog input:	n° 2 , 4÷20 mA configurable	n° 2 , 4÷20 mA configurable
Communication protocol:	HART / MODBUS / BLUETOOTH	MODBUS / BLUETOOTH
Pulse output:	open collector 24Vdc pull-up or galvanically isolated	open collector 24Vdc pull-up or galvanically isolated
Alarm output:	n° 2, relays, 3A 230Vac N.O.	n° 2, relays, 3A 230Vac N.O.
Datalogger	USB Pen Drive	USB Pen Drive
Display:	extractable module VL701 with O-LED display	extractable module VL701 with O-LED display
Power supply:	85÷265 Vac; 12 Vdc; 24 Vdc; 24Vac	85÷265 Vac; 12 Vdc; 24 Vdc; 24Vac

RPMAG
Electromagnetic flowmeter

Flow measurement for conductive and chemically aggressive liquids
Dn from 10 to 2000 mm
Measurement accuracy: ± 0.2%; ± 0.5%
Neoprene / PTFE coatings
Power supply 85 ÷ 265 Vac; 12Vdc;
24 Vdc / Vac
Datalogger on USB pendrive
Removable O-LED display module
Remote control via Smartphone

RPmag flowmeter is suitable for all of applications into “industrial process”. Various materials for lining are available as well as electrodes made of tantalum, hastelloy c, titanium. Most common communication systems such as Modbus, Hart and by means of an app for Android smartphone via Bluetooth. RPMAG has an integrated data logger for the recording of the measurements over time. It consist in an USB pen drive which is inserted behind the removable O-LED display VL701. The recorded data are stored into a TXT file which is compatible with Excel or other equivalent analisys software packages.

Technical Feature

Flow rate range
Bidirectional on fluids with speeds up to 10m / s
Range dimension / lining material
PTFE DN10 ÷ DN500 / RUBBER DN65 ÷ DN2000
Sensor pipe material
SS321
Housing material
epoxy painted aluminium
Electrodes material
SS316L - Hastelloy C - Titanium - Tantalum - Platinum
Measure range
<0,1m3/h ÷ >110000m3/h
Accuracy
±0,5% standard; ±0,2% optional
Repeatability
±0,1%
Fluid conductivity
>5µS/cm.

Power supply
85÷265Vac, 24Vac/dc, 12Vdc.
Consumption
6W, max. 8W.
Communication protocol
Modbus; Bluetooth App Android (opt.); Hart (opt.)
Operating temperature Limits
Remote version
RUBBER -10 ÷ +80°C; PTFE -40 ÷ +150°C
Compact version
RUBBER -10 ÷ +80°C; PTFE -40 ÷ +100°C
Storage temperature: -40÷85°C
Data Logger
Internal data logger to USB pen drive
Output
4 ÷ 20mA; Frequency; Impulsive; 2 relays
Input signals
2 active analog inputs
1 digital input.

Reverse Flow
Allows measure and totalization of reverse flow.
Low Flow Cutoff
Adjustable. Below selected value, instantaneous flow and outputs are driven to the zero flow rate signal level.
Humidity Limits
0-100% RH to 150 °F (65 °C), not condensing.
Damping
Adjustable between 1 and 99 seconds.
Compact version IP rating
IP67
Remote version IP rating
sensor IP67 / IP68 (by request) - converter IP67
Anti-condensation filter
Anti-condensation filter installed on converter

RKMAG
Electromagnetic flowmeter

Specific for installations with “0 diameters” near curves, fittings etc ...

Dn 40 ÷ 800 mm

Acuracy: ± 0.5%

Power supply 85 ÷ 265 Vac o 12; 24 Vac/Vdc

Remote control via Smartphone

SGM LEKTRA presents a new type of electromagnetic flowmeter with plastic sensors: RKmag. Because of its particular inner shape the mounting of the unit requires no straight pipe lengths before and after the meter. The converter is equipped with a large, bright, removable O-LED display and can mount a pen-drive USB data logger. The configurable outputs can be analogic, pulse and MODBUS RTU and alarm messages are managed by 2 configurable relays.RKmag is suitable for the use with a wide range of conductive liquids, even chemically aggressive: the electrodes material can be selected according to the chemical properties of the fluid.

Technical Feature

Flow rate range
Bidirectional on fluids with speeds up to 10m / s
Range dimension / lining material
neoprene DN50 ÷ DN800
Sensor pipe material
SS321
Housing material
epoxy painted aluminium
Electrodes material
SS316L - Hastelloy C
Measure range
<1m^3/h ÷ >9048m^3/h
Accuracy
±0,5% standard; ±0,2% optional
Repeatability
±0,1%
Fluid conductivity
>5µS/cm.

Power supply
85÷265Vac, 24Vac/dc, 12Vdc.
Consumption
6W, max. 8W.
Communication protocol
Modbus; Bluetooth App Android (opt.)
Operating temperature Limits
Remote version
RUBBER -10 ÷ +80°C
Compact version
RUBBER -10 ÷ +80°C
Storage temperature: -40÷85°C
Data Logger
Internal data logger to USB pen drive
Output
4 ÷ 20mA; Frequency; Impulsive; 2 relays
Input signals
2 active analog inputs
1 digital input.

Reverse Flow
Allows measure and totalization of reverse flow.
Low Flow Cutoff
Adjustable. Below selected value, instantaneous flow and outputs are driven to the zero flow rate signal level.
Humidity Limits
0-100% RH to 150 °F (65 °C), not condensing.
Damping
Adjustable between 1 and 99 seconds.
Compact version IP rating
IP67
Remote version IP rating
sensor IP67 / IP68 (by request) - converter IP67
Anti-condensation filter
Anti-condensation filter installed on converter

Ultrasonic | Transit Time

SGM-101F/H and 200H meters work according to the time difference principle of ultrasound pulses. The big advantage is in the installation, since it is not necessary to cut the pipe.
The sensors are simply wrapped around the outer surface of the tube, which is the reason why pressure and aggressiveness of the liquid being measured are not a problem for the meter.
The system measures bi-directionally and is suitable for clean or moderately dirty liquids.

	SGM-101F
Pipe diameter range	DN20 ÷ DN4000
Piping material	carbon steel / stainless steel / fiberglass / cast iron / copper / PE / PVC / aluminum
Liquid conductivity	irrelevant
Sensor material	Nylon; Polysulfone
Housing material	aluminium
Process temperature	-40 ÷ 90° C / -40 ÷ 160° C
Accuracy	±1%
Repeatability	±0,2%
Analog output	4÷20 mA; max load 750 ohm
Communication port	modbus
Pulse output	passive open collector / relay
Power supply	24-115-230Vac / 10 ÷ 30 Vdc
Data logger:	SD card
Heat meter	yes

SGM-101F
Transit time ultrasonic flowmeter

For conductive and non-conductive liquids
Measure range <0,2m3/h ÷ >400000 m3/h
Accuracy ± 1%
Clamp on IP68 sensors also for high temperatures
Pipe dimension range:
DN20 ÷ DN4000
Datalogger via SD card or via MODBUS
Heat meter

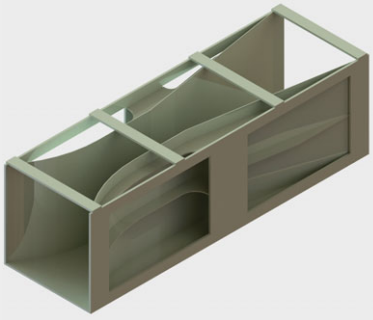
The SGM-101F flowmeters operate on the ultrasonic pulses transit time difference principle. The great advantage is the mechanical installation, because it is not necessary to cut the pipe. The sensors are simply clamped on the outer pipe surface, for this reason the pressure and the liquid aggressiveness to be measured are not a problem for the fl owmeter. The system measures in a bidirectional way and is suitable for clean or slightly dirty liquids.

Technical Feature

Pipe dimension range
DN20 ÷ DN4000
Transmitter protection class
IP66
Transducer protection class
IP68
Display
backlighted 2x20 alphanumeric digit
Keypad
4 keys
Housing material
aluminium
Displayed data
instantaneous flowrate; flow totalizer
Installation
wall mounting
Analog Output
Sel. 4÷20mA o 0÷20mA
Accuracy
±1%
Repeatability
±0,2%
Linearity
±0,5%
Basic measurement period
500ms
Serial port
RS485
Communication protocol
MODBUS RTU or ASCII+ (opz.)
Data logger
on SD card (opt.) or via MODBUS
Programmable frequency output
0÷5000Hz
Output
n.1 relay; n.1 digital output
Medium speed range
±12m/s
Unit working temperature
-20÷60°C
Instrument humidity
non condensing 85% RH (40°C)
Transducer working temperature
TS-2 / TM-1 / TL-1 -30 ÷ +90°C; TS2H / TM1H -30 ÷ +160°C; TC-1/ TLC2 -40 ÷ +160°C
PT100 sensors working temperature
-40°C +160°C
Transducer cable std. length
5mt
PT100 sensor cable std. length
15mt
Power Supply
230Vac o 10÷30Vdc (depending on model)
Dimensions
200x120x77mm
Weight without sensors
1Kg

Open Channel | Hydraulic Jump

The flow measurement in open channels with the hydraulic relief method is carried out with the use, inside the channel or partially filled pipe, of a hydraulic modeller, a probe for measuring the level (in this case ultrasound, without contact with the liquid itself) and an associated control unit for the conversion of the level in the corresponding instantaneous flow.
Thanks to the ever-increasing integration of the systems, a compact ultrasonic probe has been created that incorporates both the measurement of the hydraulic level and the conversion into its instantaneous flow rate.



	PB - Palmer Bowlus	BS - Venturi Flumes
Material:	Fiberglass	PP
Pepe/Channel dimension:	DN100 ÷ 800	150 ÷ 1200 mm
Flow min/max	0,4 ÷ 1800 m^3/h	1 ÷ > 7700 m^3/h

	FLOWMETER	FLOW51	CA400
Calibration and configuration	4 buttons; MODBUS RTU; Bluetooth	MODBUS RTU; Bluetooth	5 buttons
Use:	For any weir / channel STD or custom	For any weir / channel STD or custom	For any weir / channel STD or custom
Mechanical protection	IP67	IP67|68	IP66 VLW90M IP67|68PTU50 / 51
Block distance	25 cm	30 cm	PTU50 5 cm / PTU51 30 cm
Data logger:	No	No	USB pen drive
Housing material	PC/AL	-	ABS
Sensor material	PP	PP	PP
Process connectios	G2”	G1”	G1”
Operating temperature	-20 ÷ +60 °C	-25 ÷ +75 °C	-25 ÷ +75 °C
Accuracy:	0,2% of the measured distance, not better than +/- 3mm	0,2% of the measured distance, not better than +/- 3mm	0,2% of the measured distance, not better than +/- 3mm (PTU50 ± 1 mm)
Display:	LCD	-	Backlit LCD 3.5 TFT 256K color
Analog output	4÷20 mA; max. load 750 Ohm	4÷20mA max 750ohm	2x 4÷20 mA; max. load 750 Ohm
Communication port	MODBUS RTU; Bluetooth	MODBUS RTU; Bluetooth	MODBUS RTU
Pulse output	relé	-	open collector / relays
Power supply	12; 24 Vdc	24Vdc	85÷265 Vac o 24 Vdc/Vac
Consumption:	1,5 W	1,5W	<6 W

CA400
Complete system for measuring flow rates in open channels and non-pressurized pipes

2 independent flow measurements
Measuring range of sensors 1.5; 6 meters
IP68 sensor protection
2 analogue outputs 4 ÷ 20mA
5 totally configurable relays
2 open collector digital outputs
2 analogue inputs 4 ÷ 20mA
2 digital inputs (max 24Vdc 10mA)
Datalogger on USB Pen Drive

The flow measurement in open channels with the hydraulic projection method is carried out with the use, inside the channel or partially filled pipe, of a hydraulic modeller (BS - venturi / PB channels - palmer bowlus), a probe for the Level measurement (in this case ultrasound (PTU50; PTU51, without contact with the liquid itself) and an associated control unit (VLW90M) VLW90M is suitable for a direct connection of 1 or 2 MODBUS ultrasound sensors. Thanks to this feature, the CA400 system is able to simultaneously perform two independent flow measurements with ultrasonic sensors and different hydraulic modellers for each type of channel. Logger “based on removable PenDrive, allows the total traceability of flow measurements in open channels for which it is very easy to analyze the time profile of the instantaneous flow rates..

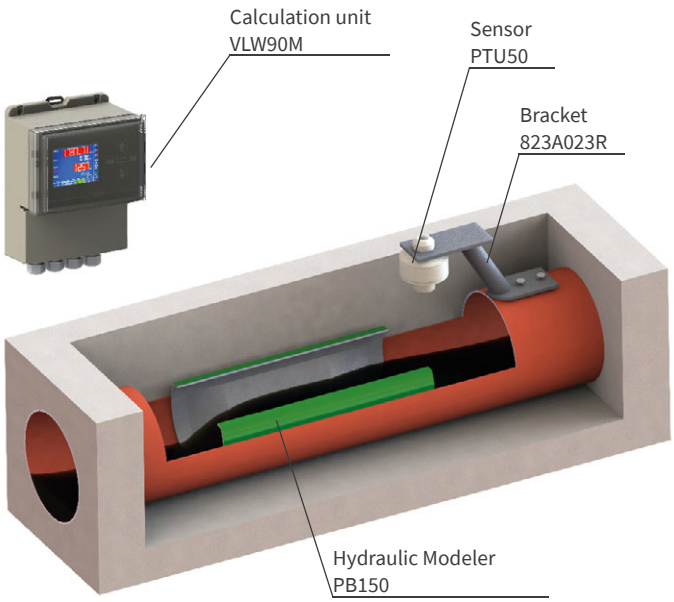
Technical Feature

V LW90M housing material
ABS
PTU sensor material
Polypropylene (PP)
Degree of protection VLW90M
IP66
Sensor protection degree
IP68
VLW90M electrical connection
Terminal Blocks
Electrical connection sensors
IP68 connector with 5/10/15 / 20m connection cable
Working temperature
-25 ÷ + 75 ° C

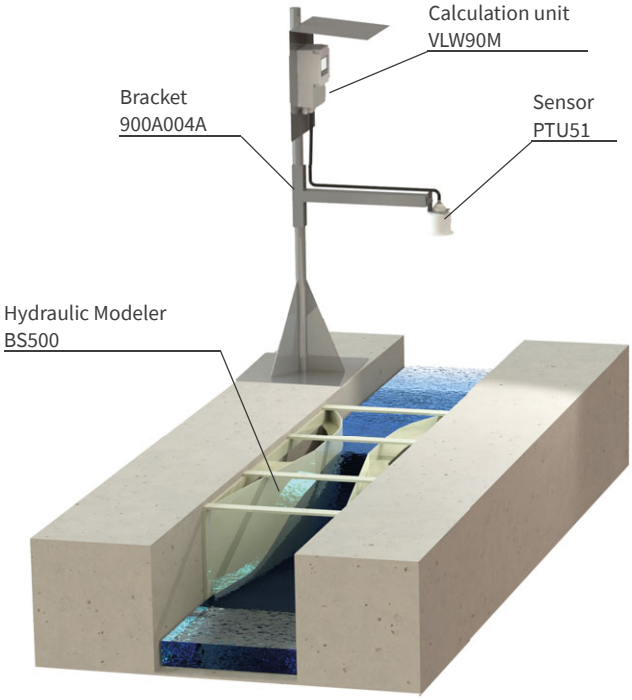
VLW90M power supply
85 ÷ 230VAC; 24 Vdc / Vac
Absorbed power
Max. 10W
Keyboard
5 buttons
Display
320x240 color LCD backlit matrix
Analog output
n.2 4 ÷ 20mA configurable; isolated
Output relay
5 relays (5A 250Vac) configurable

Digital outputs
2 open collectors (max 24Vdc 50mA)
Analog inputs
n.2 4 ÷ 20mA
Digital inputs
n.2 (max 24Vdc 10mA)
Digital communication
MODBUS RTU
Datalogger
on USB Pen Drive; max.32GB (FAT32)

EXAMPLES OF INSTALLATION

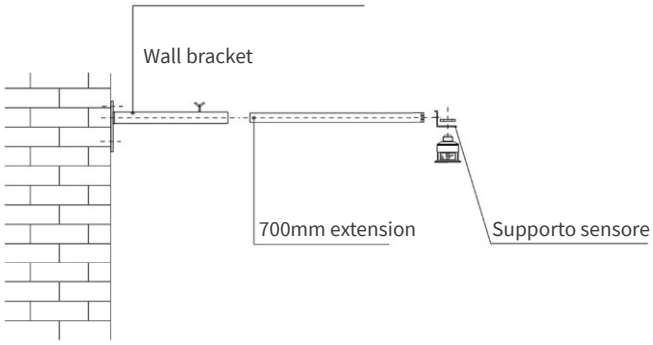


CA400 in non-pressurized pipe DN150

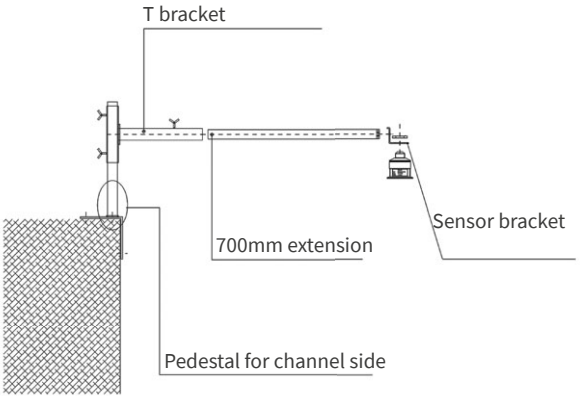


CA400 in a rectangular section channel

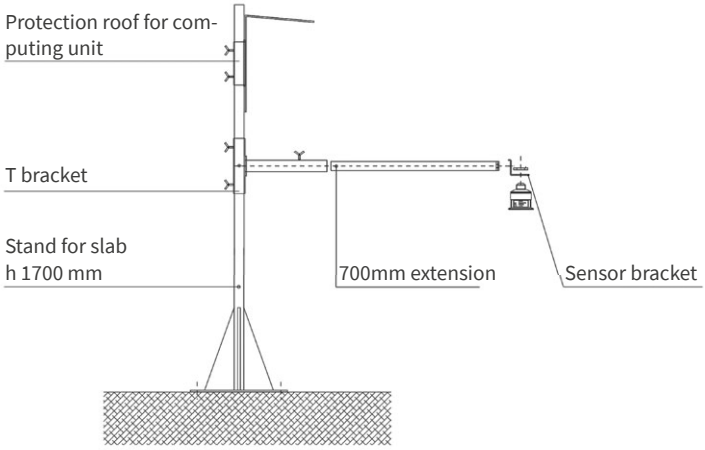
ACCESSORIES, MOUNTING SYSTEMS



Wall mounting kit for BS Venturi / weir (900A001A)



Basin edge mounitng kit for BS Venturi / weir (900A002A)



Pedestal mounting kit for BS Venturi / weir (900A004A)

FLOWMETER
Compact flowmeter

Compact system suitable to be installed upstream of hydraulic modelers (weirs, venturi, palmer bowlus)
Solution with excellent price performance ratio
Instantaneous and totalized flow measurement
No. 2 freely programmable relays
MODBUS; Bluetooth communication protocol
Remote control via Smartphone

Flowmeter is an ultrasonic flow transmitter, temperature-compensated and suitable for connection with MODBUS RTU acquisition systems. FLOWMETER in addition to an analog output includes two freely addressable relay for flow threshold or for totalizer pulse output..

Technical Feature

Housing/sensor material
PC or Al / PP wetted part
Mechanical installation
2” GAS M (PP flange DN80 opt.)
Protection degree
IP67/IP68 (Sensor)
Electrical connection
Internal push connectors
Working temperature
-20 ÷ +60°C
Pressure
from 0,5 to 1,5 bar (absolute)
Power supply
12Vdc / 24Vdc
Power consumption
1,5W

Analog output
4...20mA, max 750ohm (4-wires versions)
Relays output
n°2 3A 230Vac (n.o.)
Digital communication
MODBUS
Max measure range
max 0.25 ÷ 5 m
In case of non perfectly reflecting surfaces, the maximum distance value will be reduced
Blind distance
0,25m

Temperature compensation
digital from -30 to 80°C
Accuracy
±0,2% (of the measured distance) not better than ±3mm.
Resolution
1mm.
Calibration
4 buttons or via MODBUS
Warm-up
5 minutes typical
LCD Display
Plug-in display/keyboard 4 buttons matrix LCD

FLOW51
Compact flowmeter

Compact system suitable to be installed upstream from hydraulic modelers (weirs, venturi, palmer bowlus)

Excellent price-performance ratio

Istantaneous and totalized flow measurement

Measure range 0.3÷6m

MODBUS; Bluetooth communication protocol

Remote control via Smartphone

IP67|68

FLOW51 is a compact IP68 ultrasonic flow transmitter, suitable for the installation in flood-prone wells. The measurement is based on the principle of the raising of the water level before restriction, which is used to calculate the value of instantaneous flow in relation of the type of the existing flume. FLOW51 can be calibrated via MODBUS RTU; Bluetooth or VLW60T if used with SGM LEKTRA Venturi flumes, Palmer Bowlus, Parshall flumes, Khafagi Venturi flumes and all the main types of weirs. In case of non-standard flumes the unit can be calibrated by following the linearization table present on the manual or by using a customized flow formula..

Technical Feature

Housing material
PP
Mechanical installation
1”GAS M - PP fl ange DN100/125 opt.
Protection degree
IP67|68
Electrical connection
IP67|68 male connector with 5/10/15/20m linking cable
Working temperature
-25 ÷ +75°C
Pressure
From 0,5 to 1,5 bar (absolute)
Power supply
24Vdc
Power consumption
1.5W

Analog output
4÷20mA max 750ohm
Digital communication
MODBUS RTU
Range
0.3÷6m
In case of non perfectly refl ecting surfaces, the maximum distance value will be reduced
Temperature compensation
digital in the working temperature

Accuracy
±0,2% (of the measured distance) not better than ±3mm
Resolution
1mm
Calibration
Via App; MODBUS
Warm-up
30 minutes
Display
LCD display on VLW60T module (opt.)

PB PALMER BOWLUS
Hydraulic modeler

For flow measurement in outflow pipe or no pressurized pipes

Direct installation in the pipe or manhole

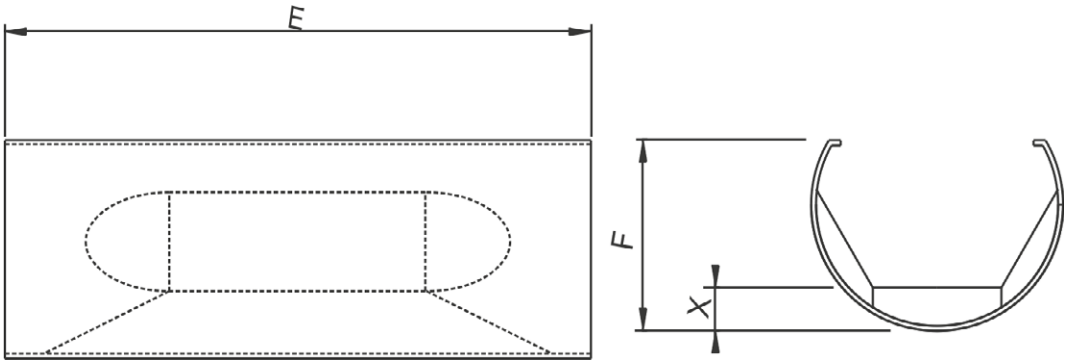
Flow rates from 0,45 m3/h to 1800m3/h

Matching Sets with all SGM-LEKTRA open channels flow measurement systems

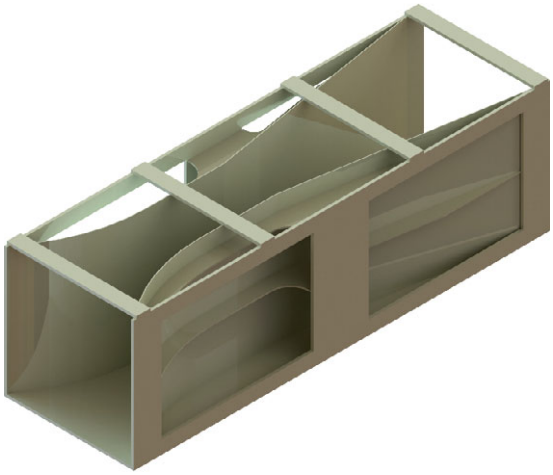
Low cost system

Ideal to circular duct flowrate measure

Essentially a hydraulic modeler designed to increase, upstream of the restriction, the fluid head during its outflow. The Palmer-Bowlus upstream fluid head, increases or decreases in function of the fluid quantity flowing over it. The head measured by a level transmitter is then used to calculate the instantaneous flow rate value. The Palmer-Bowlus is mainly used in pipes or ducts accessible through the manholes. The easy installation, and the contained installation cost, are the reason for the applications number increasing of this system to measure the flow rate.



DN (mm)	E (mm)	F (mm)	X (mm)
100	250	75	17
150	400	132	29
200	400	125	29
250	600	208	46
300	600	200	46
350	800	262,5	58,5
400	950	340	75
450	950	335	75
500	950	325	75
600	1450	530	117
700	1450	525	117
800	1450	500	117



BS VENTURI CHANNEL
Hydraulic modeler

Installation in rectangular channels
Flow rates 1 ÷ >7700 m3/h
Low load losses
Matching to all SGM-LEKTRA systems for flow measurement in open channels

SGM-LEKTRA has developed its own flumes family called BS... in co-operation with the Pavia University Hydraulic Division. BS flume is a special Venturi with flat bottom and ready to be lodged in a pre-existing rectangoular channel. BS VENTURI are suitable for use in irrigation systems, industrial waste water treatment, sewage, and in general for turbid waters; the flat bottom without protrusions has a self-cleaning effect, does not favor the debris deposit and can be easily inserted in rectangular ducts existing. The submerged flow (ratio from downstream head and upperstream head) can be well tollerated. The practical limit of submergence for all sizes is about 90%.

Fig. 1

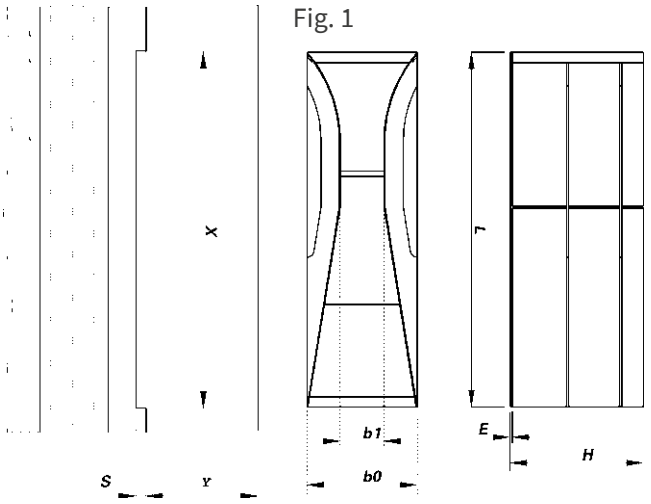
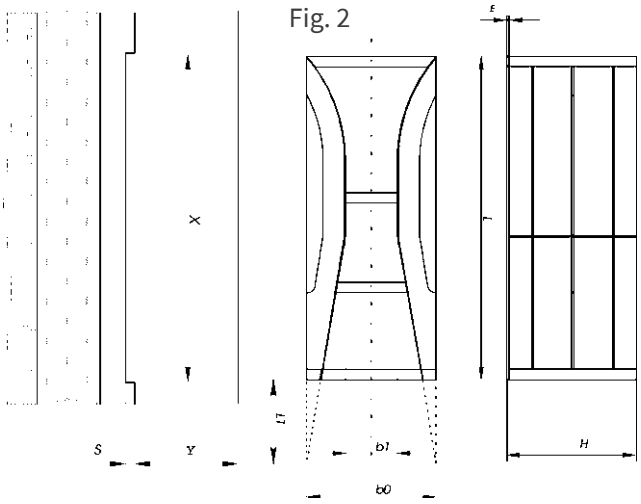


Fig. 2



Misure d'ingombro (in mm) e di installazione Canali Venturi
(vedi fig.1 per i modelli BS150+500 e fig.2 per i modelli BS600+1000)

Quote / Modello	L	L1	H	E	b0	b1	X	Y	S
BS150	479		270	5	150	60	483	280	7
BS200	639		240	5	200	80	645	250	7
BS300	958		360	6	300	120	968	370	8
BS400	1277		480	8	400	160	1281	490	10
BS500	1597		600	8	500	200	1617	610	10
BS600	1500	416	720	10	600	240	1520	740	14
BS800	2000	555	900	10	800	320	2030	920	14
BS1000	2500	694	1000	15	1000	400	2550	1020	19

Open Channel | Area Velocity

Flowmeter for open-air ducts and open channels with the possibility of satisfying the most varied channel geometries. The system is able to receive the average speed by ultrasonic doppler method and to read the level of the hydraulic head by means of a hydrostatic detector. The system is also applicable in situations of heavy submergence or regurgitation (Q = average V for wet area). SGM-600 is installed without the need for hydraulic modelers such as venturi or weir.

	SGM-600F
Pipes diameter range:	Ø 30 ÷ 6000
Channel width range:	>200 mm
Sensor material:	PVC / SS
Electronic housing material:	glass fiber
Process temperature:	0 ÷ +60° C
Speed sensor accuracy:	±1%
Level sensor accuracy:	±1%
Analog output:	4÷20 mA
Communication port:	MODBUS
Impulse output:	yes
Supply:	85 ÷ 265 Vac ; 12 ÷ 38 Vdc
Data logger:	SD card

SGM-600F
Area velocity flowmeter

Flow measurements in open channels
No need for a hydraulic primary
4 ÷ 20mA analogue output
MODBUS RTU communication port
16GB SD card datalogger
Up to 20 points for the configuration of the irregular profile of a channel

The SGM-600F is suitable for flow measurement in partially filled pipes, drainage channels, man-made channels, waterways, drainage ducts, etc. The instrument is composed of a flow calculator, a speed transducer (with a doppler effect) and level. SGM-600F can display speed, level, flow rate and totalizer. It can record flow and total flow data on an SD card up to 16 GB. SGM-600F can calculate the cross-sectional area of partially filled pipes, open channel or river, and up to 20 coordinate points can be entered to describe cross-section of the river or channel with irregular shape. The velocity and level transducer integrates in it the instruments for measuring water speed, depth and temperature. SGM-600F is an indispensable instrument for flow measurement in all those applications where there is no hydraulic projection in the channel or in the pipe.

Technical Feature

Housing material
Glass fiber
IP rating housing | sensor
IP66 | IP68
Keyboard
6 buttons
Display
4.5 ”color LCD
Electrical connection
Removable terminal blocks
Working temperature
0 ÷ + 60 ° C
Supply
85 ÷ 265Vac or 12 ÷ 28Vdc
Analog output (opt.)
n.1 4 ÷ 20mA, with min. load 250ohm and max. 500ohm

Digital communication (opt.)
MODBUS RTU
Datalogger (opt.)
on 16GB SD card
Housing dimensions
244mm x 196mm x 114mm (LxWxH)
Tubes | channels size range
Ø150÷6000mm | > 200mm
Speed range
0,02÷12 m/s bidirectional
Speed resolution
1mm / s
Speed accuracy
± 1%

Speed sensor signal path
30 ° above the horizontal
Level range
0 ÷ 10 meters
Level accuracy
± 1%
Level resolution
1mm
Temperature range
0 ° ÷ 60 ° C
Temperature resolution
0.1 ° C
Cable
15m std. (max 100m opz)
Transducer body material
PVC / AISI (fixing plate)

Analytical

The new SGM Analytical line consists of an MCA800 control unit that can be connected to the entire range of digital sensors for the measurement of Ph, Redox, Turbidity, Suspended solids, conductivity and dissolved oxygen.
The instrumentation is suitable for applications in aquaculture, groundwater monitoring, environmental monitoring and water treatment.
A much appreciated feature is the Datalogger Std. Function on MCA800 control unit via USB Pen Drive

	104C pH	114C conductivity	114CH high conductivity	164CH high turbidity
Materials	Electrode body in Glass and PPS PPS probe holder Viton® O-Rings Teflon® electrode diaphragm	Probe body in PVC Graphite electrodes	Electrode body in Epoxy and PPS PPS probe holder O-Rings in Viton®	Probe body in PVC Special glass optic with oleo-phobic treatment OR in Silicone and NBR
Measurement method	Electrolyte gel	conductive with two electrodes	Conduttiva a 4 elettrodi in grafite	90 ° scattering of light
Thread	3/4 ”NPT on both sides	1” GAS BSP	3/4” NPT	1” GAS
Measuring range	0÷14pH	0,00÷20000 µS	1 µS/cm ÷ 200mS/cm (K=0.55 nominal)	0÷1000NTU
Accuracy	±0,05pH	± 0.5 µS f.s 20 µS ± 5 µS f.s 200 µS ± 50 µS f.s 2000 µS ± 500 µS f.s. 20000 µS	± 1 µS/cm	±2% range 0÷10 NTU (± 0,2 NTU) ±5% range 0÷100 NTU (± 5 NTU) ±10% range 0÷1000NTU(± 100NTU)
Temperature probe	NTC 30K	With internal NTC sensor	With internal NTC sensor	-
Operating temperature	0÷ +100°C	0÷50 °C	-5÷100 °C	0÷50 °C
Mechanical protection	IP68	IP68	IP68	IP68
Protocol	MODBUS RTU	MODBUS RTU	MODBUS RTU	MODBUS RTU
Std. cable length	10m	10m	10m	10m
Power supply	24Vdc	12÷24Vdc	12÷24Vdc	12÷24Vdc

	MCA800
Max. sensors	2
Housing material	ABS
Mechanical installation	Wall, pipe or DIN rail mounting
Protection degree	IP66
Keyboard	5 push buttons
Display	320x240 matrix color LCD with backlight
Working temperature	-20 + +60°C
Power supply	85+230Vac; 24Vdc; 24Vac
Analog output	n.2 configurable isolated 4+20mA
Relays output	N.5 FULLY CONFIGURABLE RELAY (5A 250VAC)
Digital output	n.2 open collector (max. 24Vdc 50mA)
Digital communication	MODBUS RTU
Datalogger	On Pen Drive USB; max.32GB (FAT32)

	164CL low turbidity	164CU suspended solids	324C dissolved oxygen	604C Redox
Materiali	"Probe body in PVC Special glass optic with oleo-phobic treatment OR in Viton and Silicone	Body in SS316 (optional in PVC) Windows in epoxy resin OR in Viton	Probe body in SS316 (PVC body opt) Special optical glasses NBR and Silicone O-Rings	Electrode body in Glass and PPS PPS probe holder Viton® O-Rings Teflon® electrode diaphragm
Metodo di misura	90 ° scattering of light	Absorption of light	Luminescence optic	Electrolyte gel
Attacco al processo	1" GAS	1" GAS	3/4" BSP	3/4 "NPT on both sides
Campo di misura	"0÷10NTU 0÷100NTU "	0-30 gr/l	0,00÷20,00 mg/L	-1500mV ÷ +1500mV
Accuratezza	±1% range 0÷10NTU ±2% range 0÷50NTU ±5% range 0÷100NTU	± 0.3 gr/l	± 0,2 mg/L when < 5mg/L ± 0,3 mg/L when > 5mg/L	± 5mV
Sonda di Temperatura	-	-	With internal NTC sensor	NTC 30K
Temperatura d'esercizio	0÷50 °C	0÷50 °C	0÷50 °C	0÷ +100°C
Protezione meccanica	IP68	IP68	IP68	IP68
Protocollo	MODBUS RTU	MODBUS RTU	MODBUS RTU	MODBUS RTU
Lunghezza cavo std.	10m	10m	10m	10m
Alimentazione	12÷24Vdc	12÷24Vdc	12÷24Vdc	24Vdc

MCA800

Unit for the measurement of pH, Redox, turbidity, suspended solids, conductivity, dissolved oxygen

2 independent Analytical measurements
2 analog output 4+20mA
5 fully configurable relay
2 open collector digital output
Datalogger via Pen Drive USB

MCA800 unit suitable for Analytical in wastewater plants. MCA800 can be connected to SGM-LEKTRA digital Analytical sensors for the measurement of pH, Redox, turbidity, suspended solids, conductivity, dissolved oxygen. MCA800 is suitable for direct connection of up to 2 digital Analytical sensors via MODBUS RTU.

Technical Feature

Housing material
ABS
Mechanical installation
Wall, pipe or DIN rail mounting
Protection degree
IP66
Keyboard
5 push buttons
Display
320x240 matrix color LCD with backlight
Electrical connection
Internal connectors
Working temperature
-20 + +60°C

Power supply
85+230Vac; 24Vdc; 24Vac
Power consumption
Max. 10W
Analog output
n.2 configurable isolated 4+20mA
Relays output
n.5 fully configurable relay (5A 250Vac)
Digital output
n.2 open collector (max. 24Vdc 50mA)
Digital communication
MODBUS RTU
Datalogger
on Pen Drive USB; max.32GB (FAT32)

Matching sensors
104C - PH
114C - Conductivity
114CH - High Conductivity
164CH - High Turbidity
164CL - Low Turbidity
164CU - Suspended Solids
324C - Dissolved Oxygen
604C - Redox

104C
PH sensor

Measurement accuracy: ± 0.5%
Digital measurement method
Measurement range 0÷14pH
Integrated temperature sensor
Max operating temperature 100°C
Max pressure 11bar
Measurement transmission via RS485
Porous Teflon® septum
MODBUS RTU digital communication
Combine with MCA800 control unit

Sensor for measuring pH and temperature in pure water, wastewater treatment plants, processes with suspended solids, processes with pollutants, galvanic processes. The 104C sensor, connected to the MCA800, is suitable for pH measurements in various applications. The porous Teflon® septum resists encrustations and chemical attack. The new capillary temperature sensor design places the NTC sensor behind the pH sensitive membrane for very accurate temperature measurement and compensation.

Technical Feature

Materials
Electrode body in Glass and PPS
PPS probe holder
Viton® O-Rings
Teflon® electrode diaphragm
Electrolyte
Electrolyte gel
Threads
¾ ”NPT probe holder
PG13.5 electrode only
Dimensions (LxHxP)
27x213x27mm
Measuring range
0÷14pH
Method of measurement
Digital

Resolution
0,01 pH
Accuracy
±0,05pH
Repeatability
± 0.05 pH
Response time
pH 4..7<30s
Temperature probe
NTC 30K
Temperature Resolution
0.1°C
Temperature Accuracy
± 0.5°C

Operating temperature
0÷ +100°C
Maximum operating pressure
11bar
Minimum operating conductivity
50µS/cm
Protocol
MODBUS RTU
Cable length
10m integral with the sensor (others on request)
Electric absorption
<1W
Power supply
24Vdc

114C
Digital conductivity sensor

Measurement accuracy ± 0.5µS to ± 500µS
Two-electrode measurement method with temperature compensation.
Measurement range from 20µS to 20000µS
Max operating temperature 50 ° C
Max pressure 10 bar
Measurement transmission via RS485
MODBUS RTU digital communication
Combine with MCA800 control unit

The 114C sensor, connected to the MCA800, is used for conductivity measurement in pure and process water.
Reliable two-electrode conductive measurement method thanks to the use of graphite electrodes with temperature compensation.

Technical Feature

Materials
Probe body in PVC
Graphite electrodes
Threads
¾ GAS BSP
Measurement intervals
0.0 µS to 20,000 µS
Method of measurement
conductive with two electrodes
Calibration method
on 1 point with certified standard conductive solutions
Accuracy
± 0.5 µS f.s 20 µS
± 5 µS f.s 200 µS
± 50 µS f.s 2000 µS
± 500 µS f.s. 20000 µS

Resolution
0.01 µS f.s 20 µS
0.1 µS f.s 200 µS
1 µS f.s 2000 µS
10 µS f.s. 20000 µS /L
Repeatability
± 0.1 µS f.s 20 µS,
± 0.5 µS f.s 200 µS,
± 5 µS f.s 2000 µS,
± 50 µS f.s. 20000 µS mg/L
Response time
T90<60s
Maximum refresh time
<1 second
Operating temperature
0÷50 °C
Maximum operating pressure
10 bar

Electric absorption
2W
Mechanical protection
IP68 Sensor + cable
Cable length
10m integral with the sensor (others on request)
Power supply
12÷24Vdc
Protocol
MODBUS RTU
Temperature Compensation
With internal NTC sensor
Diameter of the luminophore
10mm
Dimensions (LxHxP)
33x220x33mm

114CH
Digital high conductivity sensor

Measurement accuracy ≤4% on the reading point
Four-electrode measurement method with temperature compensation
Measurement range from 1µS / cm to 200mS / cm
Max. operating temperature 100 ° C
Maximum pressure 5 bar
Measurements transmission via RS485
MODBUS RTU digital communication
Combine with MCA800 control unit

The 114CH sensor, connected to the MCA800 unit, is used for conductivity measurement in waste, industrial and recirculating water.Reliable 4-electrode conductive measurement method thanks to the use of graphite electrodes with compensation of temperature.

Technical Feature

Materials
Electrode body in Epoxy and PPS
PPS probe holder
Viton® O-ring
Graphite electrodes
Threads
¾ ”NPT probe holder
PG13.5 electrode only
Measurement intervals
1µS / cm to 200mS / cm (K = 0.55 nominal)
Measurement method
conductive with 4 electrodes
Calibration method
on 1 point or 2 points with certified standard conductive solutions
Accuracy
≤4% on the reading point
Resolution
1µS / cm
Repeatability
≤0.2% on the measuring point
Response time
5s
Maximum refresh time
1 second
Operating temperature
-5 ÷ 100 ° C in non-frozen water
Maximum operating pressure
5 bar
Temperature sensor
PT100
Electric absorption
<250mW
Mechanical protection
IP68 Sensor + cable
Cable length
10m integral with the sensor (others on request)
Powe supply
24Vdc
Protocol
MODBUS RTU
Dimensions (LxHxP)
27x213x27mm

164CH
High turbidity sensor

Sensor for the measurement of turbidity in pure and process water up to 1000 NTU.
Measurement accuracy ± 2% to ± 10%
90 ° light scattering measurement method
Measurement range from 10NTU to 1000NTU
Max operating temperature 50°C
Max pressure 4 bar
Measurement transmission via RS485
MODBUS RTU digital communication
Combine with MCA800 control unit

The 164CH sensor, connected to the MCA800, is used for the measurement of turbidity in pure and drinking water, in primary water, industrial and recirculating water. The measurement is performed using 90 ° light scattering, as per ISO 7027 / EN 27027.

Technical Feature

Materials
Probe body in PVC
Special glass optic with oleo-phobic treatment
OR in Silicone and NBR
Threads
1” GAS
Measuring ranges
0÷1000NTU
Method of measurement
90 ° scattering of light
Calibration method
by points
Accuracy
±2% at the measuring point range 0-10 NTU (± 0,2 NTU)
±5% at the measuring point range 0-100 NTU (± 5 NTU)
±10%at the measuring point range 0-1000NTU(±100 NTU)

Resolution
0,001 NTU range 0-10 NTU
0,01 NTU range 0-100 NTU
0,1 NTU range 0-1000 NTU
Repeatability
±0.05 NTU range 10NTU
±0.5 NTU range 100NTU
±5 NTU range 1000NTU
Operating temperature
0÷50 °C
Maximum operating pressure
4 bar

Electric absorption
3W
Mechanical protection
IP68 Sensor + cable
Cable length
10m integral with the sensor
Power supply
12÷24Vdc
Protocol
MODBUS RTU
Dimensions (LxHxP)
42x231x42mm

164CL
Low turbidity sensor

Sensor for the measurement of turbidity in pure and process water up to 100 NTU.
Measurement accuracy ± 1% to ± 5%
90 ° light scattering measurement method
Measurement range from 10NTU to 100NTU
Max operating temperature 50 ° C
Max pressure 4 bar
Measurement transmission via RS485
MODBUS RTU digital communication
Combine with MCA800 control unit

The 164CL sensor, connected to the MCA800, is used for the measurement of turbidity in pure and drinking water, in primary water, industrial and recirculating water.
The measurement is performed using 90 ° light scattering, as per ISO 7027 / EN 27027.

Technical Feature

Materials
Probe body in PVC
Special glass optic with oleo-phobic treatment
OR in Viton and Silicone
Threads
1” GAS
Measuring ranges
0÷10NTU
0÷100NTU
Method of measurement
90 ° scattering of light
Calibration method
1 point and / or 2 points per scale
Accuracy
±1% at the measuring point range_0-10 NTU
±2% at the measuring point range_0-50 NTU
±5% at the measuring point range_0-100 NTU

Resolution
0,01 NTU range_0-10NTU(0.001NTU up to9,999NTU)
0,1 NTU range_0-100NTU
Repeatability
±0.05 NTU f.s 10NTU
±0.5 NTU f.s 100NTU
Response time
T90<60s
Operating temperature
0÷50 °C
Maximum operating pressure
4 bar

Electric absorption
3W
Mechanical protection
IP68 Sensor + cable
Cable length
10m integral with the sensor
Power supply
12÷24Vdc
Protocol
MODBUS RTU
Dimensions (LxHxP)
42x231x42mm

164CU
Suspended solids turbidity sensor

Sensor for optical measurement of suspended solids in industrial and process waters up to 30 g/l.
Measurement accuracy ± 0.3gr/l
Light absorbing measurement method
Measurement range 0 ÷ 30 gr/l
Max operating temperature 50 ° C
Max pressure 4 bar
Measurement transmission via RS485
MODBUS RTU digital communication
Combine with MCA800 control unit

The 164CU sensor, connected to the MCA800, is used for the optical measurement of suspended solids in industrial and process water up to 30 g / l.
The probe uses the light absorbing measurement method.

Technical Feature

Materials
Body in AISI 316 (optional in PVC)
Windows in epoxy resin
OR in Viton
Threads
1” GAS
Measuring ranges
0-30 gr/l
Method of measurement
Absorption of light
Dimensions (LxHxP)
42x231x42mm

Calibration method
by points
Accuracy
± 0.3 gr/l
Resolution
0.1 gr/l
Repeatability
± 0.5 gr/l
Response time
T90<60s
Operating temperature
0÷50 °C

Maximum operating pressure
4 bar
Electric absorption
3W
Mechanical protection
IP68 Sensor + cable
Cable length
10m integral with the sensor
Power supply
12÷24Vdc
Protocol
MODBUS RTU

324C
Dissolved oxygen sensor

Sensor for optical measurement of dissolved Oxygen in wastewater, primary, industrial and recirculation water treatment plants.

Measurement accuracy: ± 0,2/0,3 mg/l

Optical luminescence measurement method

Measurement range from 0.00 mg / L to 20.00 mg / L

Max operating temperature 50°C

Max pressure 5 bar

Measurement transmission via RS485

MODBUS RTU digital communication

Combine with MCA800 control unit

The 324C sensor, connected to the MCA800, is used for the optical measurement of oxygen in pure and process water. The measuring principle is based on the dynamic reduction of luminescence by molecular oxygen..

Technical Feature

Materials
Probe body in AISI 316 (PVC body optional)
Special optical glasses
NBR and Silicone O-Rings
Thread
3/4" BSP
Measurement intervals
From 0.00 mg / L to 20.00 mg / L
Method of measurement
Luminescence optic
Calibration method
Calibration in the air:
1-point calibration, 100% oxygen saturated water
Calibration with sample: comparison with a std instrument.
Calibration on 0% O2 solution:
1 point calibration, specific solution at 0% oxygen

Accuracy
± 0.2 mg / L when <5mg / L
± 0.3 mg / L when> 5mg / L
Resolution
0,01 mg/L
Repeatability
± 0,1 mg/L
Response time
T90<60s
Maximum refresh time
< 1 second
Operating temperature
0÷50 °C
Maximum operating pressure
5 bar
Electric absorption
2W

Mechanical protection
IP68 Sensor + cable
Cable length
10m integral with the sensor (others on request)
Power supply
12÷24Vdc
Protocol
MODBUS RTU
Movement of water
Unnecessary
Temperature Compensation
With internal NTC sensor
Diameter of the luminophore
10mm
Dimensions (LxHxP)
33,4x196,3x33,4mm

604C
Redox sensor

Sensor for ORP and temperature measurement in pure water, wastewater treatment plants, processes with suspended solids, processes with pollutants, galvanic processes.

Measurement accuracy: ± 5mV

Digital measurement method

Measue range -1500mV ÷ +1500mV

Integrated temperature sensor

Max operating temperature 100°C

Max pressure 11bar

Measurement transmission via RS485

Porous Teflon® septum

MODBUS RTU digital communication

Combine with MCA800 control unit

The 604C sensor, connected to the MCA800, is suitable for Redox measurements in various applications. The porous Teflon® septum resists encrustations and chemical attack. The new capillary temperature sensor design places the NTC sensor behind the ORP sensitive membrane for very precise temperature measurement and compensation.

Technical Feature

Materials
Electrode body in Glass and PPS
PPS probe holder
Viton® O-Rings
Teflon® electrode diaphragm
Electrolyte
Electrolyte gel
Threads
¾ ”NPT probe holder
PG13.5 electrode only
Measuring range
-1500mV ÷ +1500mV
Method of measurement
Digital
Resolution
1mV
Dimensions (LxHxP)
27x213x27mm

Accuracy
± 5mV
Repeatability
± 1mV
Response time
<30s
Temperature sensor
NTC 30K
Temperature Resolution
0.1°C
Temperature Accuracy
± 0.5°C
Operating temperature
0÷ +100°C

Maximum operating pressure
11bar
Minimum operating conductivity
50µS/cm
Protocol
MODBUS RTU
Cable length
10m integral with the sensor (others on request)
Electric absorption
<1W
Power supply
24Vdc

sgm lektra

sgm-lektra.com

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