



SATRON®

LUMINA™ VEF Optical Effluent Transmitter

www.satron.com

#LookCloser

The VE family of sensors measures process parameters by transmitting strobes of light into the wastewater and measuring the absorption characteristics. These measurement values are calibrated by sampling and laboratory analysis of process.

SATRON VEF is an optical total solids (TS) sensor that is suitable for all wastewater in range of 0...1 000ppm in applications located in wide range of wastewater treatment applications. The Satron VEF provides an accurate and reliable TS measurement without need for regular maintenance and is equipped with a retraction mechanism that allows probe change during the process run. Flexible installation options can be provided. Please consult Satron for sensor specification for your application.



TECHNICAL SPECIFICATIONS

Measuring range and span

See Selection Chart.

Pressure class

PN25

Current

4 mA

Leakage current

1 mA

Measurement accuracy

Measurement accuracy is determined by the accuracy of the laboratory analysis results.

Calibration

Precalibrated at the factory for 0...10 000 mg/L range. Final calibration against laboratory measurements with actual sample after installation is required.

Current output1

Range 3.5...23 mA
Maximum load 600 Ω
Factory setting 4...20 mA

Zero and Span adjustment

Available, can be made by using keyboard (display option)

Electrical connections

Remote electronics housing with display code L:
PG9 gland for cable;
Conductor cross section: max 2.5 mm²
Cable OD: 4...8 mm.

Current output2

Internal power supply
Maximum load 400 Ω
Range 3.5...23 mA
Factory setting 4...20 mA
External power supply
Current output 2 is galvanically isolated
Max supply voltage 35 VDC
Range 3.5...23 mA
Factory setting 4...20 mA
Max isolation voltage 100 VDC

Damping

Time const is continuously adjustable 0.01 to 60s. Factory setting 0,5s.

Repeatability

0.01% Cs.

Device enclosures (with display), code K:

- PG13,5 inlet, 3 pcs
- M12 plug connector for the sensor signal.

Temperature limits

Ambient: -30 to +80 °C
Process: 0 to +80 °C
Shipping and storage: -40 to +80 °C.

I/O-connections

bout1-3
Relay, grounding contact
Maximum voltage 35 V
Maximum current 50 mA
Max leakage current 10 μA

Process connections

B1: With G1" connecting thread
H1: fixed mounting tube

Output

1st mA loop:
2/3-wire (2W/3W), 4-20 mA
2nd mA loop:
2-wire, 4-20 mA

Protection class

See Selection chart.

Supply voltage and permissible load

Sensor: 24VDC
Device enclosures option K:
115/230VAC

bin1-3

NC (no connection) OFF
0...2 V ON

Weight

Housing with M12
Remote Housing (L): 2.9 kg
Remote sensor (R): 2.9 kg
Device enclosure (K): 6,2 kg

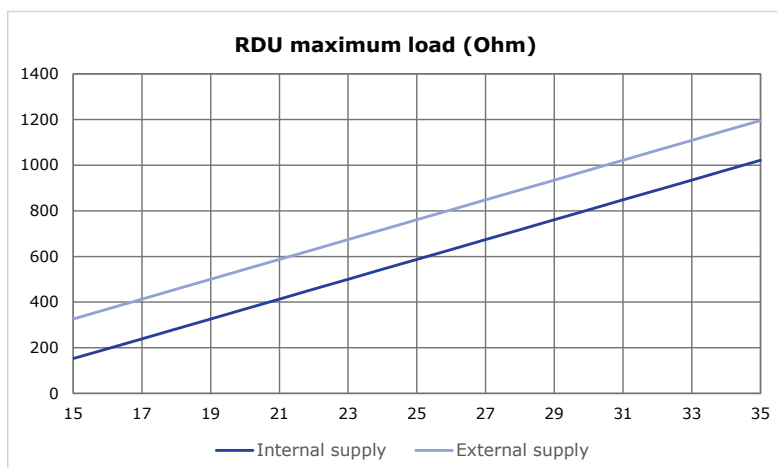
Humidity limits

0-100 % RH

CONSTRUCTION

Materials:

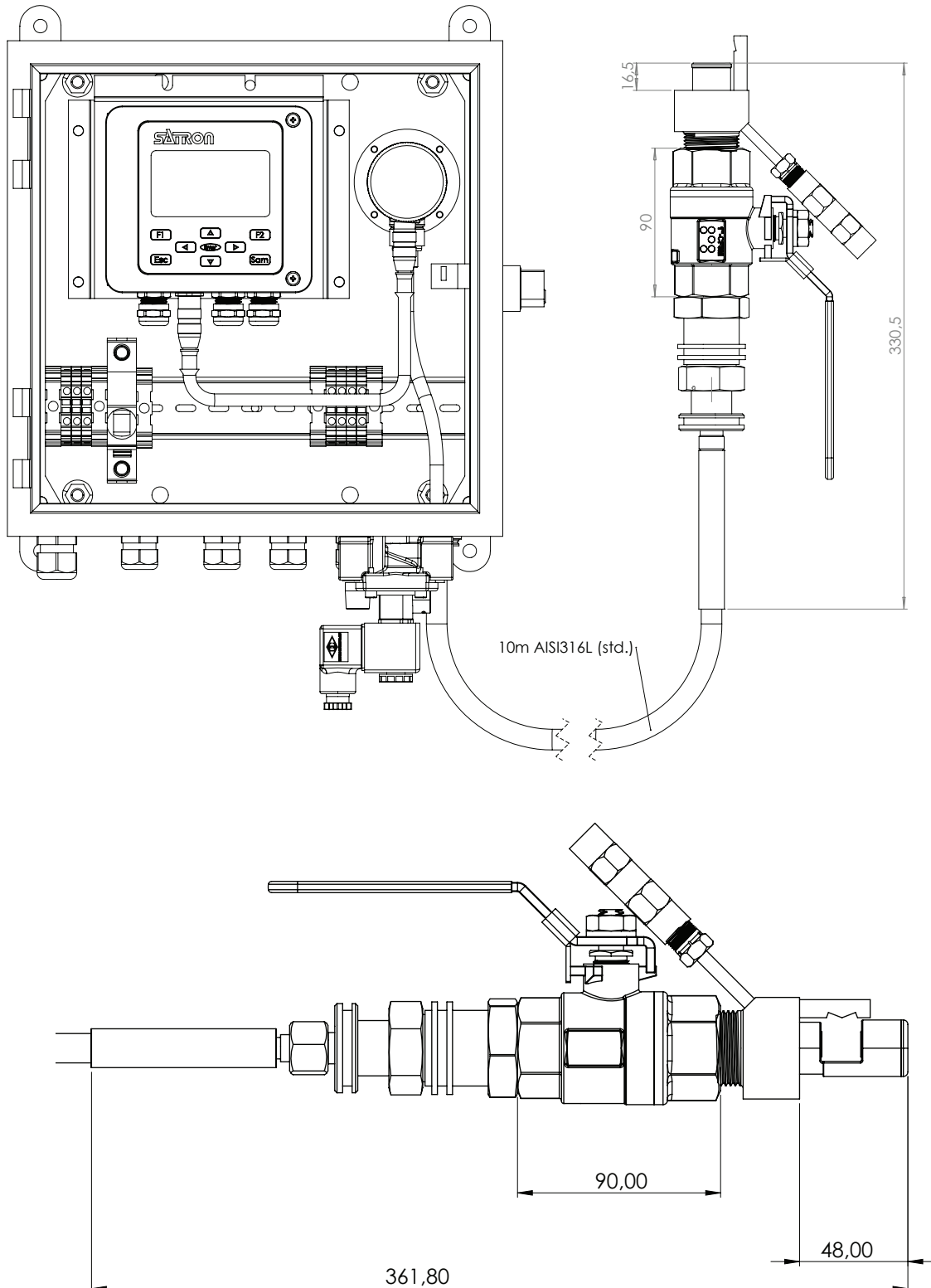
Sensing element: AISI316L (EN 1.4404) or Titanium Gr2.
Sapphire lens.
RDU, Cable gland: AISI304 (EN 1.4301)
Signal/data cable: PVC
Remote measuring probe cable: PVC
Coupling: AISI316L (EN 1.4404), Duplex (EN 1.4462), Hast.C276 (EN 2.4819) or Titanium Gr2.
Device enclosure, code K, KF: AISI304 (EN 1.4301)



Connection Box (KF)

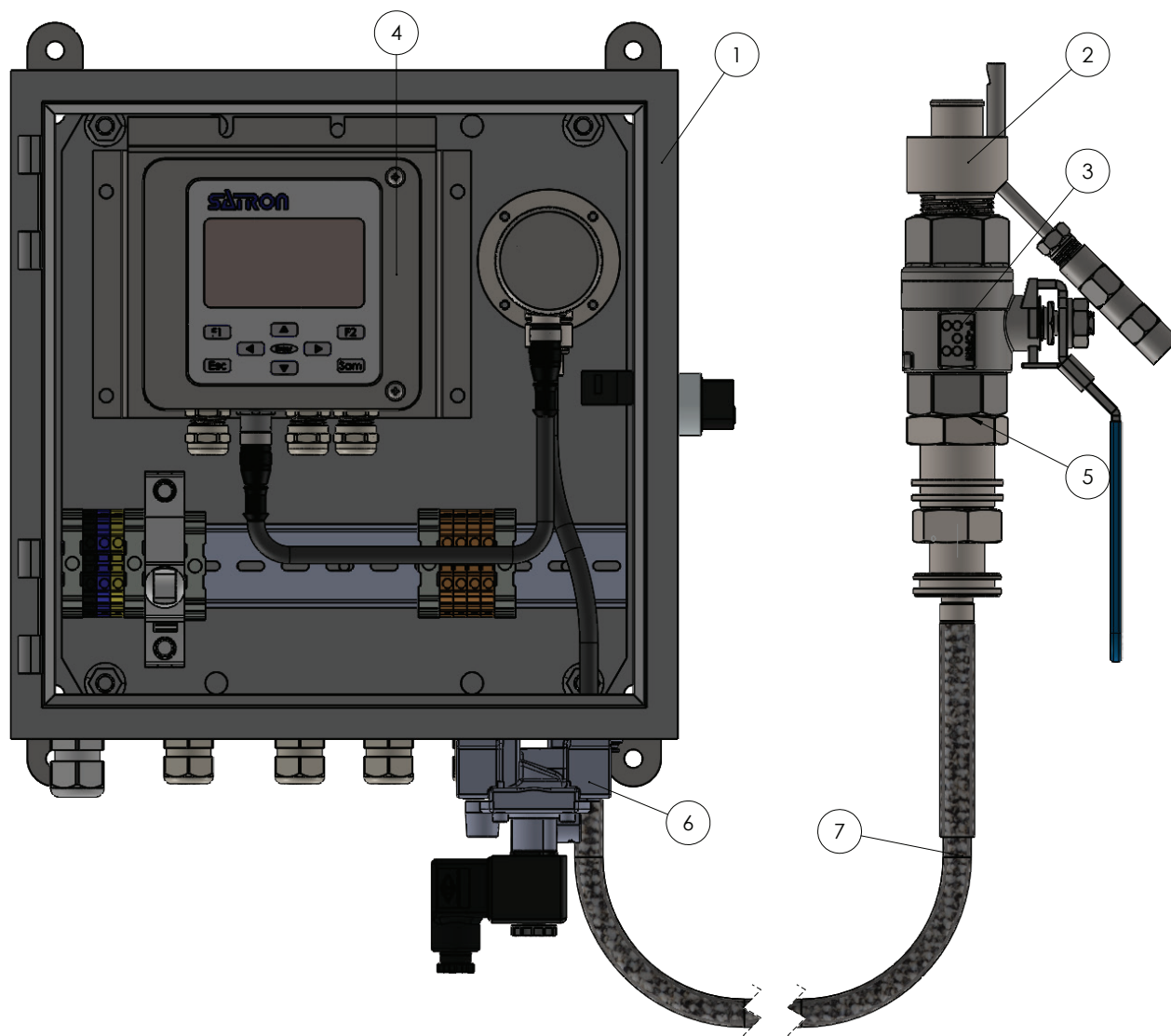
Remote electronic in the device enclosure with flushing valve. Flushing valve installed under the cabinet. External sample switch mounted on the right face of the cabinet. Power supply 115/230 V 50/60 Hz, code K.

The Remote Display provides a local display of the measured values and serves also as a simple menu-driven calibration and troubleshooting interface. It includes two analog 4–20 mA outputs, 3 dry contact binary inputs and 3 contact outputs.



Standard VEF sensor. Dimensions at the picture are in millimeters.

SPARE-PARTS



No	Part name
1.	Enclosure without sensor
2.	Flushing coupling for B1
3.	Ball Valve
4.	Sensor with display
5.	ORING- EPDM
6.	Solenoid Valve
7.	VEF transmitter sensor probe

Order code
M1050194-RT
M1050102
82500003
EVEFNS224NRT227B1
80033426
75000020
For sensor only change order code E to U, example: EVEFNS224NRT227B1 -> UVEFNS224NRT227B1

SELECTION CHART

Adjustability VEF	Span, min 0...10 ppm	Measurement Range 0...1 000 ppm	
Process temperature limits N Normal version 0...+80 °C			
Output S 4-20 mA DC			
Material of wetted parts	Body 2 AISI316L (EN 1.4404) 2 AISI316L (EN 1.4404)	Lens 2 Sapphire 2 Sapphire	Seals 4 PTFE+EPDM 3 PTFE+FFPM
Housing type N Housing with display			
Probe type R Remote measuring probe, IP68			
Connection type T M12, IP67			
Cable material 2 AISI316 braided PTFE hose			
Cable length 1 5 meter 2 10 meter (std.) 3 15 meter			
Lightsource 7 IR			
Process Connections B1 G1A ball valve insertion. Probe diameter Ø 24mm H1 Submersible Ø 24mm measuringhead			
Device enclosure KF Remote electronics in the device enclosure with flushing valve. Power supply 115/230V, IP66.			

Example code

VEF N S 224 N R T 2 2 7 B1 KF

Optional items – order separately

Documentation

Material certificates

- MC1** Raw material certificate without appendices, in accordance with SFS-EN 10204-2.1 (DIN 50049-2.1) standard
- MC2** Raw material certificate for wetted parts, in accordance with SFS-EN 10204-2.2 (DIN 50049-2.2) standard
- MC3** Raw material certificate for wetted parts, in accordance with SFS-EN 10204-3.1 B (DIN 50049-3.1 B) standard

European Directive Information:
Electromagnetic Compatibility EMC directive (2014/30/EU) including latest amendments with the application of the harmonized standards: EN 61326-1:2021
Low Voltage Directive (2014/35/EU) including latest amendments with the application of harmonized standards: EN 61010-1:2011



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