

The SATRON VCB is a multichannel optical Brightness transmitter, suitable for Brightness measurement in majority of the chemical and mechanical pulp, recycled and paper machine applications.

TECHNICAL SPECIFICATIONS

Measuring range and span

See Selection Chart.

Zero and Span adjustment

Zero elevation: Calibrated span is freely selectable on the specified range depending from the desired option. This can be made by using keyboard (display option) or HART®275/375 communicator.

Damping

- Time constant is continuously adjustable 0.01 to 60 s.

Temperature limits

Ambient: -30 to +80 °C
Process: 0 to + 140 °C
Shipping and storage: -40 to +80 °C.

Output

2 current outputs for Cs:
3-wire (3W), 4-20 mA

Supply voltage and permissible load

- 24 VDC, -10 %, + 15 %, 100 mA
- 115/230 VAC, -15% ... +10% (device enclosure)

Humidity limits 0-100 % RH

EMC directive 2004/108/EC

- EN 61326-1:2005

CONSTRUCTION

Materials:

Sensing element ¹⁾: AISI316L (EN 1.4404), Duplex (EN. 1.4462), Hast. C276 (EN 2.4819), or Titanium Gr2. Safir glass

Coupling ¹⁾: AISI316L (EN 1.4404), Duplex (EN 1.4462), Hast.C276 (EN 2.4819) or Titanium Gr2

Pressure class:

- PN25

Housing with display,

codes **NOS & NOT**:

Housing: AISI303/316, Seals: Nitrile-rubber and Viton®, Nameplates: Polyester

Housing with M12 connector, code

H0T: Housing: AISI303/316, Seals: Viton® and NBR.

Connection hose between sensing element and housing

Codes **L** and **R** :

PUR signal cable or hose protected with PTFE/AISI316 braiding

Device enclosure, code **K**:

EN 1.4301 (AISI304)

Calibration

For customer-specified range with minimum damping. (If range is not specified, transmitter is calibrated for maximum range.)

Electrical connections

Housing with PLUG connector, code

H0S:

Connector type DIN 43650 model AF; Pg9 gland for cable; wire cross-section 0.5 to 1.5 mm².

Housing with M12 connector, code **H0T**:

M12 plug connector

Housing with display, code **N0S**:

Connector type DIN 43650 model AF; Pg9 gland for cable; wire cross-section 0.5 to 1.5 mm².

Housing with display, code **N0T**:

M12 plug connector

Device enclosures (with display), code

K:

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

I/O-connections

bout1-3

Relay, grounding contact

Maximum voltage 35 V

Maximum current 50 mA

Maximum leakage current 10 µA

bin1-3

NC (no connection) OFF

0...2 V ON

Minimum values for switch in use

Voltage 16 V

Current 4 mA

Leakage current 1 mA

Current output1

Range 3.5...23 mA

Maximum load 600 Ω

Factory setting 4...20 mA

Current output2

Internal power supply

Current output 2 has same ground as

binary IO

Maximum load 400 Ω

Range 3.5...23 mA

Factory setting 4...20 mA

External power supply

Current output 2 is galvanically isolated

Maximum supply voltage 35 VDC

Range 3.5...23 mA

Factory setting 4...20 mA

Maximum load, See picture below

Maximum isolation voltage 100 VDC



Process connections

- With G1 connecting thread

Protection class: See Selection chart.

Weight

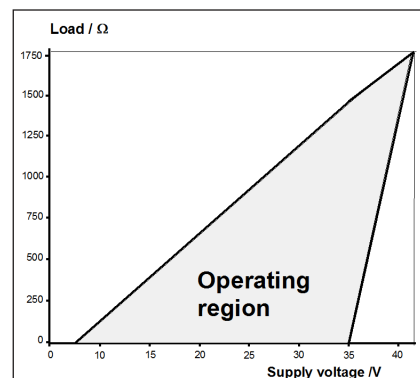
Housing with M12 connector (**H0T**): 1.3 kg

Housing with display (**N0S & N0T**): 1.7 kg

Remote Housing (**L**): 2.9 kg

Remote sensor (**R**): 2.9 kg

Device enclosure (**K**): 6,2 kg



Min. load using HART®-communication 250 W

$R_{max} = \frac{\text{Supply voltage} - 5 V}{I_{max}}$

$I_{max} = 20,5 \text{ mA}$

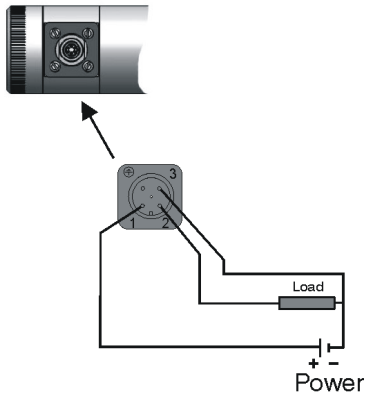
$I_{max} = 22,5 \text{ mA}$

(when the alarm current 22,5 mA is on)

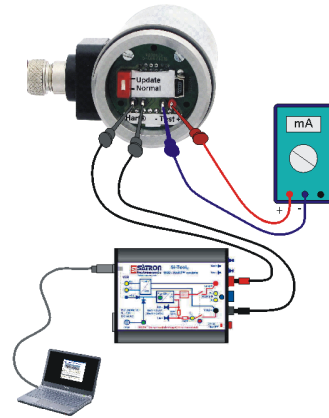
Current output 2

External power supply

¹⁾ Parts in contact with process medium



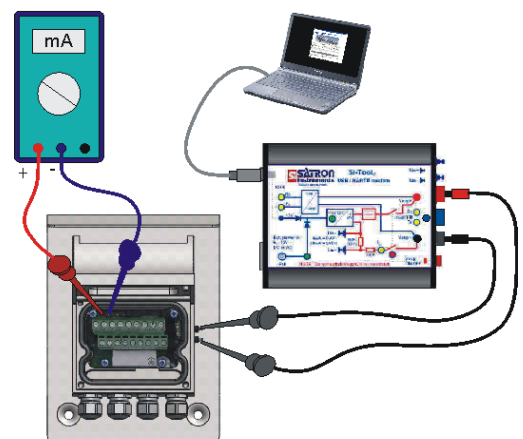
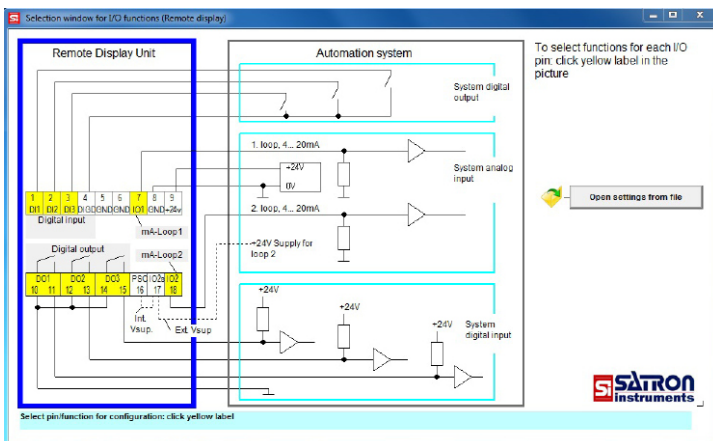
Wiring
Housing with M12-connector, code HT



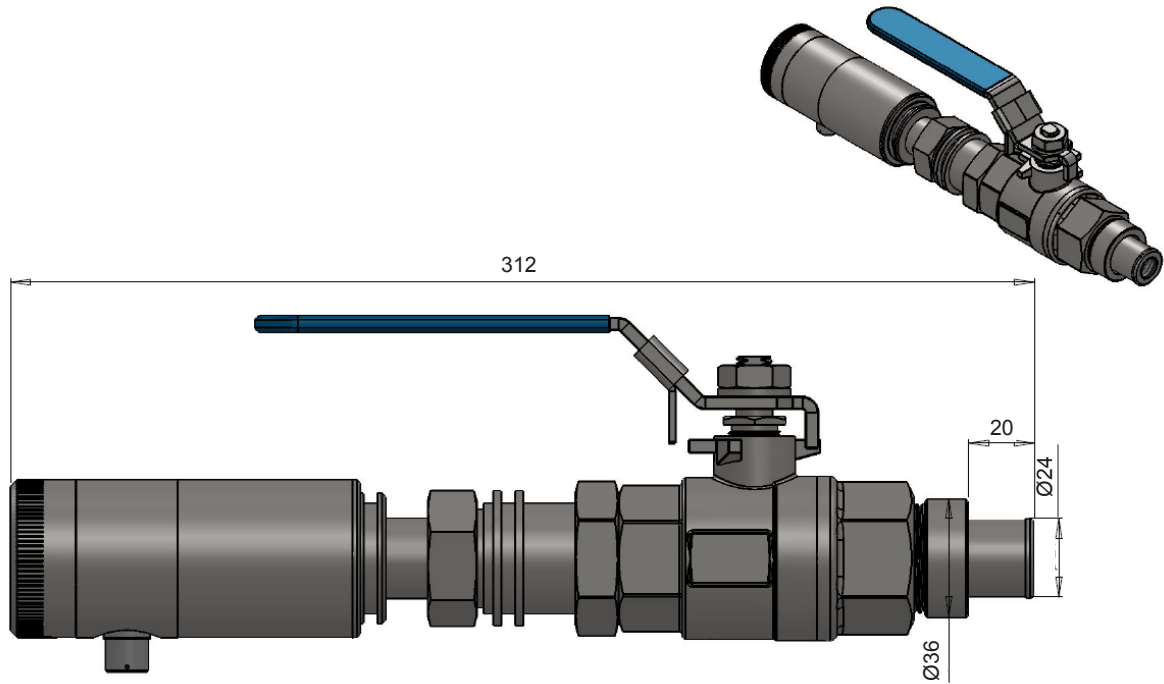
Wiring
Housing with M12-connector, test connector box, code HT



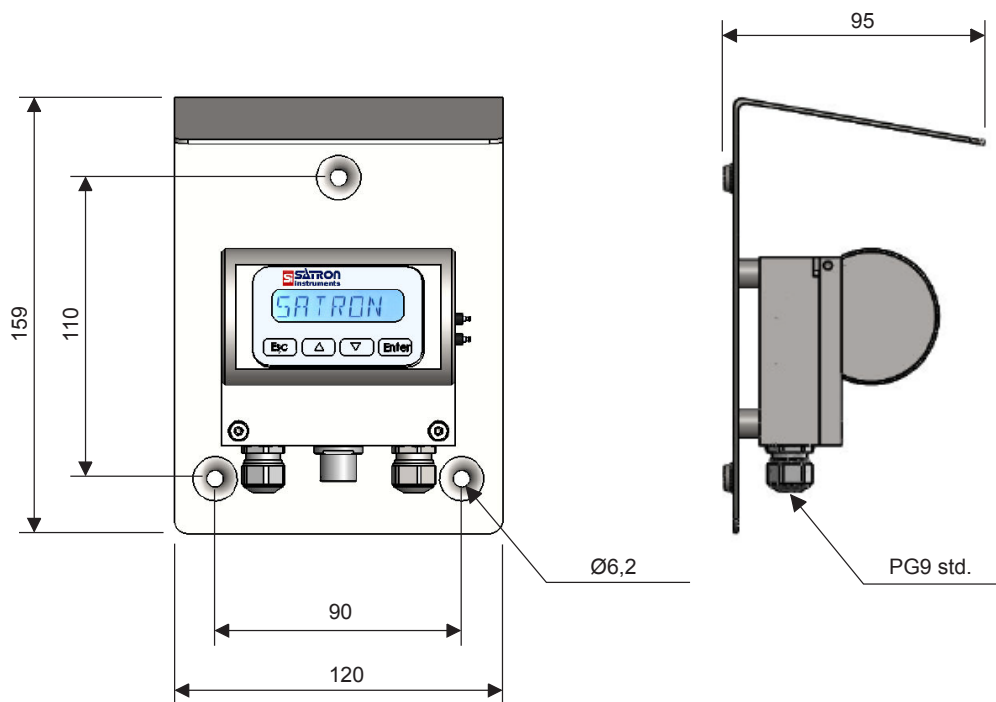
Wiring
Remote electronic in the device enclosure. Power supply 115/230 V 50/60 Hz, code K.
Only housing type L and probe type R with display.



Wiring
Remote electronics housing with display, code L



Dimensions Satron VCB



Satron VCB with L-housing

Selection Chart

Adjustability	Measuring Range	Span, min	
Brightness	20 - 95° SCAN		
Consistency	0...12% Cs	1% Cs	
Process temperature limits		N	Normal version 0 ...+140 °C
Output		S	4-20mA DC/HART®
Material of wetted parts	Body	Lens	Lens seal
	2 AISI316L (EN 1.4404)	2 Sapphire glass	1 EPDM
	3 Hast. C 276 (EN 2.4819)		2 FPM (Viton®)
	6 Titanium Gr2 (EN 3.7035)		3 FFPM (Kalrez®)
	8 Duplex (EN 1.4462)		4 PTFE
Housing type		N	Housing with display and pushbuttons (only with remote probe "R")
		H	Housing with, no display, (only one mA output)
		L	Remote electronics housing with display
Probe type		0	No remote probe
		R	Remote measuring probe, IP68
Connection type		T	M12, IP67
		U	M12 & USB (only with N housing), IP67
		V	PG9 (always with L housing), IP66
Cable Material		0	No, L or R selected
		1	PUR cable.
		2	AISI316L braided PTFE hose.
		3	Steel reinforced PUR hose.
		4	PVC cable
Cable length		0	No L or R option selected
		2	15 meter
Light source		4	880nm / 640 nm / 530 nm
		7	880nm / 640 nm / 465 nm
Process connections		B1	G1A ball valve insertion. Extension diameter ø 24mm
Device enclosure		K	Remote electronic in the device enclosure. Power supply 115/230 V, IP66. Only housing type L and probe type R with display.
Documentation			
Calibration certificate	AE	English	
Installation and operating instructions	IE	English	IF Finnish FR French
Material certificates			
0	No material certificate		
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		

We reserve the right for technical modifications without prior notice.



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