

SATRON VC Optical Consistency Transmitter

BCs220
rev. 3
15.01.2014

SATRON VC is an optical consistency transmitter. It is suitable for all pulps consisting of a single grade, in consistency range of 0...7%Cs located mainly within the mechanical pulp processes (SWG, TMP, PWG and CTMP). Typical applications are measurements to screens, outlet from latency removal chest, screen rejects and many others. The **Satron VC** can provide an accurate and reliable consistency measurement without need for regular maintenance.

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.

Repeatability

- 0.01% Cs.

Temperature limits

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

Output 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

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

Housing with PLUG DIN 43650 connector, code

HOS:
Housing: AISI303/316, Seals: Viton® and NBR.
PLUG connector: PA6-GF30 jacket,

Silicone rubber seal, AISI316 retaining screw.

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

Housing with M12 connector, code **HOT**:
M12 plug connector

Housing with display, code **NOS**:
Connector type DIN 43650 model AF; Pg9 gland for cable; wire cross-section 0.5 to 1.5 mm².

Housing with display, code **NOT**:
M12 plug connector

Device enclosure (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

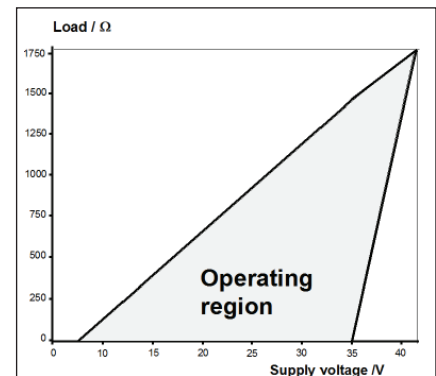
Process connections

- With G1 connecting thread

Protection class: See Selection chart.

Weight

Housing with PLUG DIN43650 connector (**HOT**): 1.3 kg
Housing with M12 connector (**HOS**): 1.3 kg
Housing with display (**NOS & NOT**): 1.7 kg
Remote Housing (**L**): 2.9 kg
Remote sensor (**R**): 2.9 kg
Device enclosure (**K**): 6,2 kg



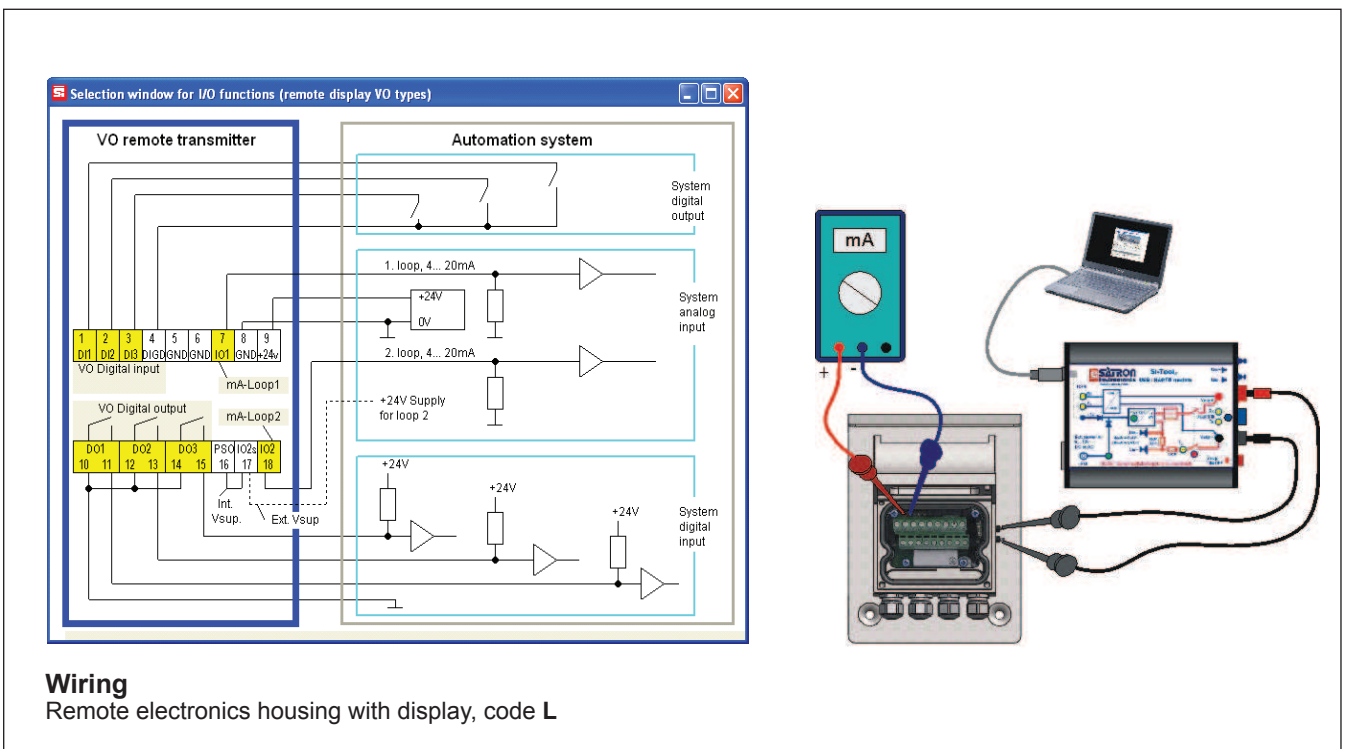
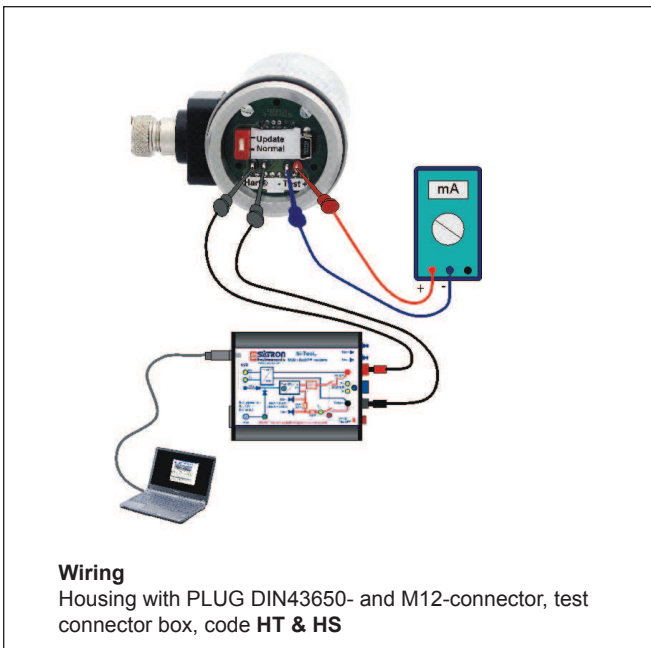
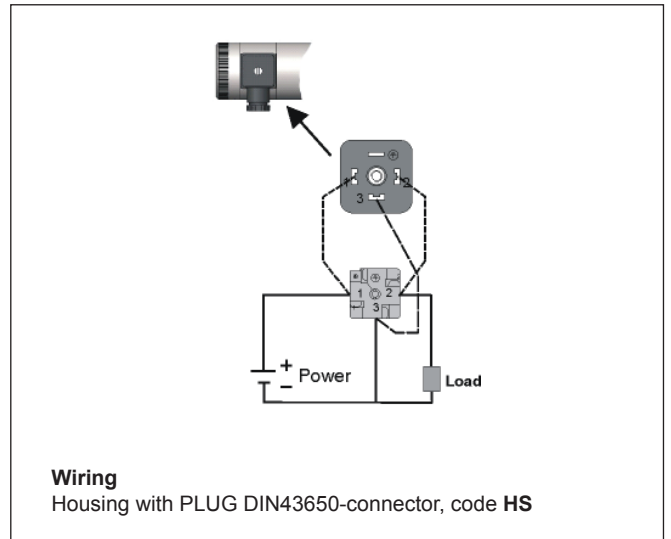
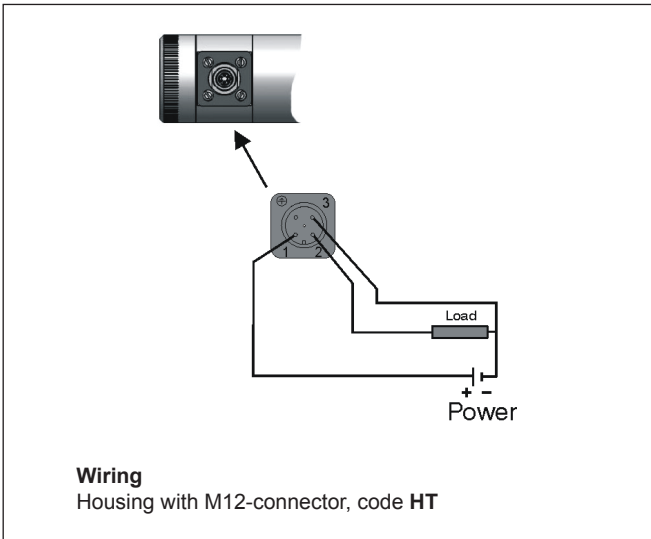
Min. load using HART®-communication 250 W

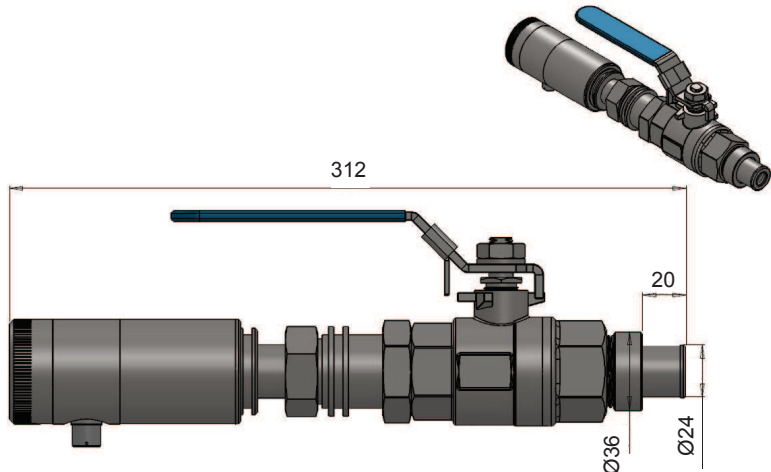
$R_{max} = \frac{\text{Supply voltage} - 5 V}{I_{max}}$

$I_{max} = 20,5 \text{ mA}$
 $I_{max} = 22,5 \text{ mA}$
(when the alarm current 22,5 mA is on)

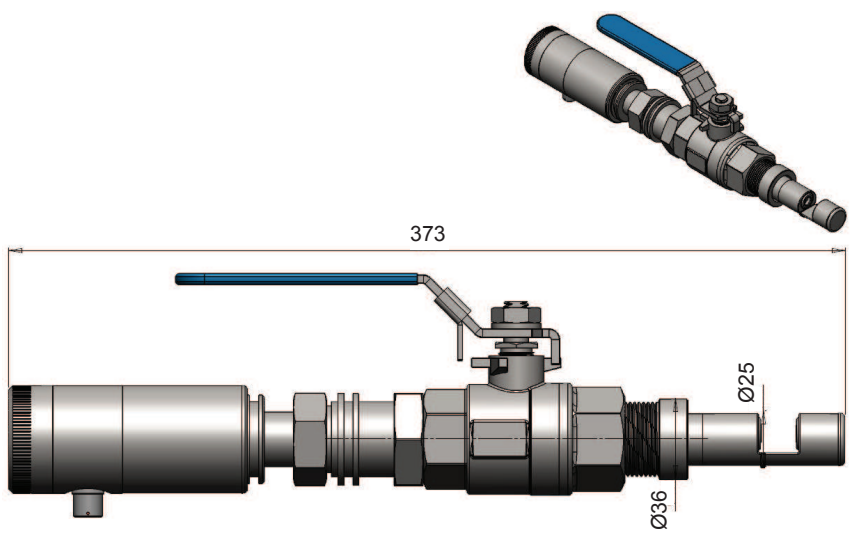
Current output 2
External power supply

¹⁾ Parts in contact with process medium

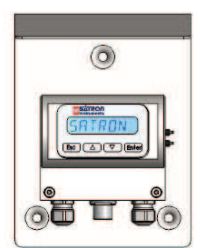
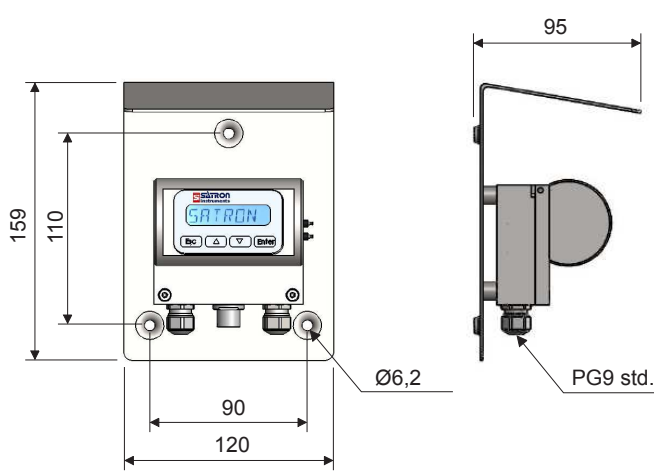
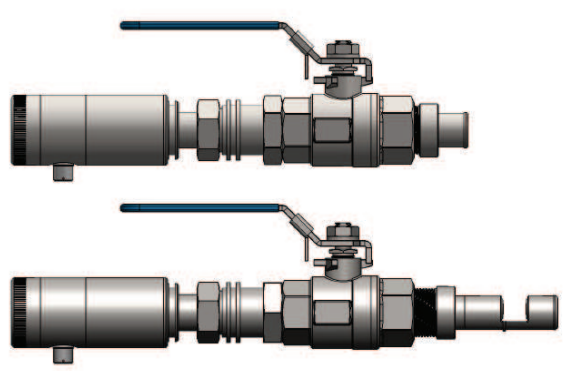




Dimensions Satron VCT



Dimensions Satron VCF



Satron VC with L-housing

Selection Chart

Adjustability	Span, min	Consistency Range	
VCT	1% Cs	0...7% Cs	
VCF	0,5% Cs	0...0,5 Cs	
Process temperature limits		N	Normal version -30...+140 °C
Output		S	4-20mA DC/HART®
Material of wetted parts	Body	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)			
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 (not available with L housing), IP68
Connection type		S	DIN43650 with PG9, IP66
		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
		1	5 meter
		2	10 meter
Light source		7	880nm
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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