SATRON VC Optical Consistency Transmitter

SATRON INSTRUMENTS 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 + 100 °C / + 200 °C
Shipping and storage: -40 to +80 °C.

Output 3-wire (3W), 4-20 mA

Supply voltage and permissible load
24 VDC, -10 %, + 15 %

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 **N0S & N0T:**
Housing: AISI303/316, Seals: Nitrile-rubber and Viton®,
Nameplates: Polyester

Housing with M12 connector, code **H0T:** Housing: AISI303/316, Seals: Viton® and NBR.
Housing with PLUG DIN 43650 connector, code **H0S:**
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

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 mm^2.

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 mm^2.

Housing with display, code **N0T**:
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

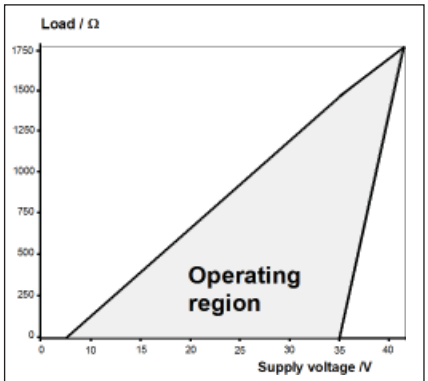
Maximum supply voltage	35 VDC
Range	3.5...23 mA
Factory setting	4...20 mA
Maximum load,	See picture below
Maximum isolation voltage	100 VDC

Process connections
- With G1 connecting thread

Protection class: See Selection chart.

Weight

Housing with PLUG DIN43650 connector **(H0T)**:	0.9 kg
Housing with M12 connector **(H0S)**:	0.9 kg
Housing with display **(N0S** & **N0T)**:	1.3 kg
Remote Housing **(L):**	2.5 kg
Remote sensor **(R):**	2.5 kg



Min. load using HART®-communication 250 W

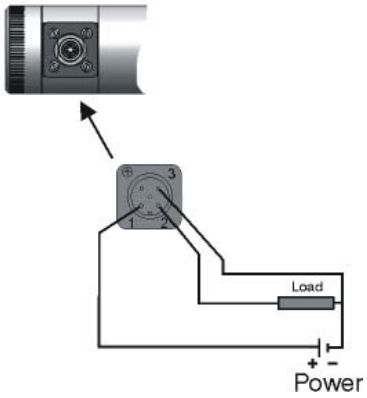
R max = $\frac{\text{Supply voltage -5 V}}{\text{I max}}$

I max = 20,5 mA
I max = 22,5 mA
(when the alarm current 22,5 mA is on)

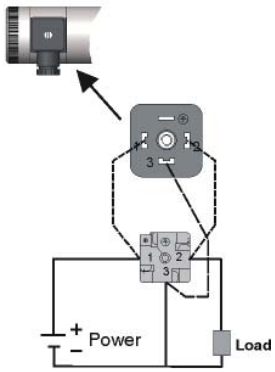
Current output 2
External power supply

[1] Parts in contact with process medium

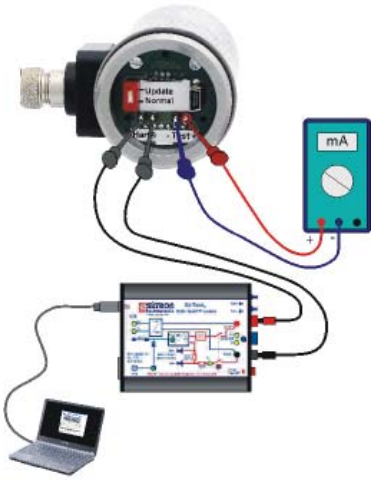
Satron Instruments Inc., P.O.Box 22, FI-33901 Tampere, Finland
Tel. +358 207 464 800, Telefax +358 207 464 801, www.satron.com



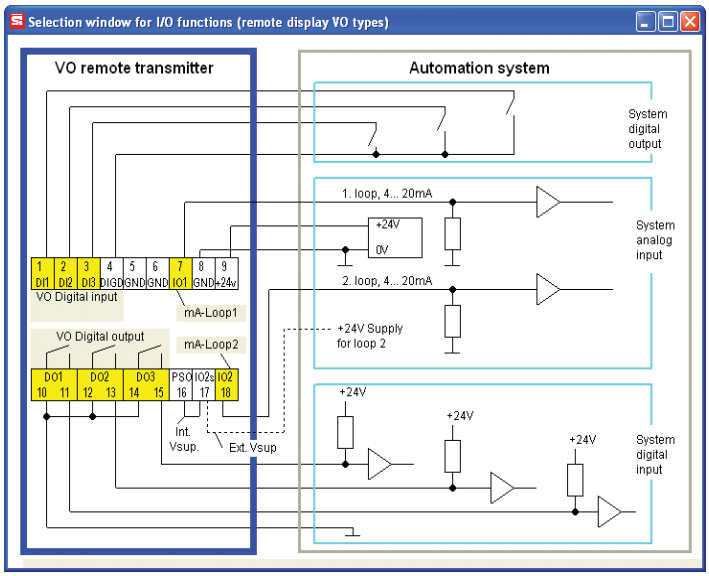
Wiring
Housing with M12-connector, code **HT**

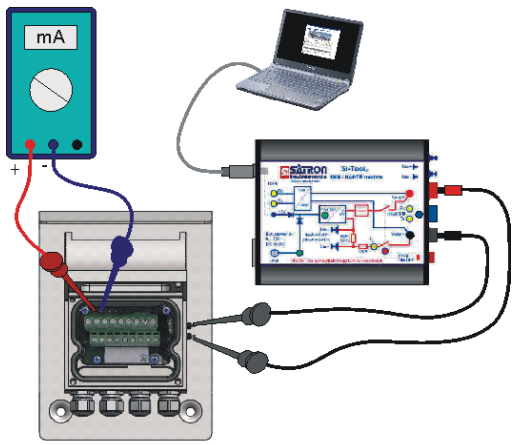


Wiring
Housing with PLUG DIN43650-connector, code **HS**

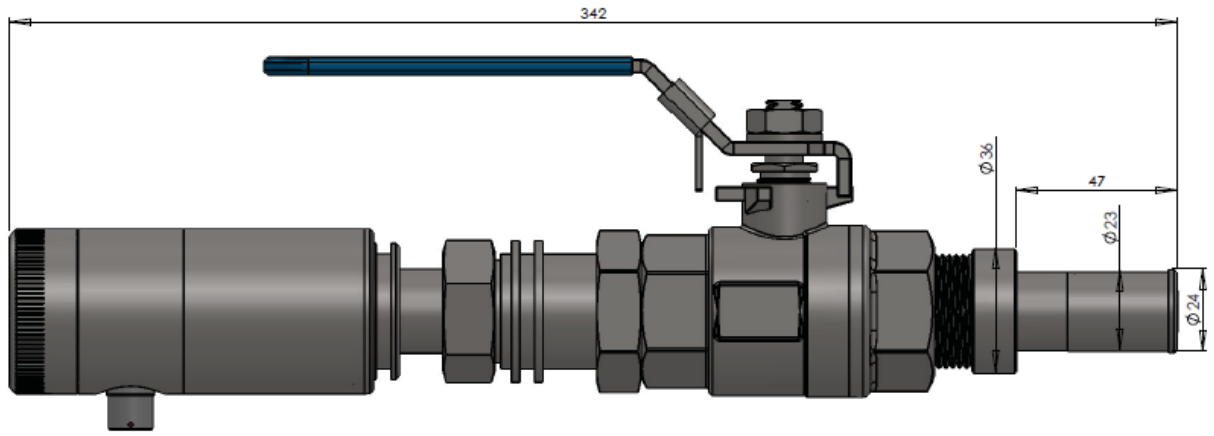


Wiring
Housing with PLUG DIN43650- and M12-connector, test connector box, code **HT & HS**

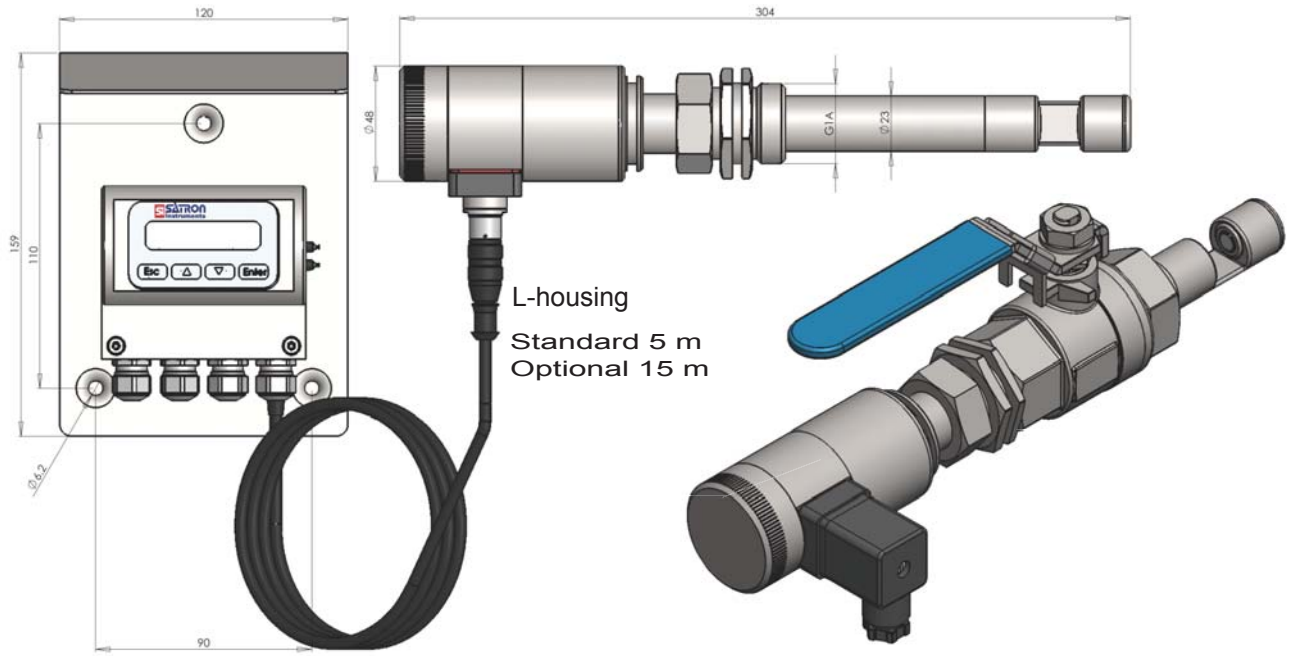




Wiring
Remote electronics housing with display, code **L**



Dimensions Satron VCT



Dimensions Satron VCF

Selection Chart

Adjustability	Span, min	Consistency Range
VCT	1% Cs	0...7% Cs
VCF	0,5% Cs	0...0,5 Cs / 0,5...3% Cs

Process temperature limits
- **N** Normal version -30...+100 °C
- **H** High temperature -30...+200 °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

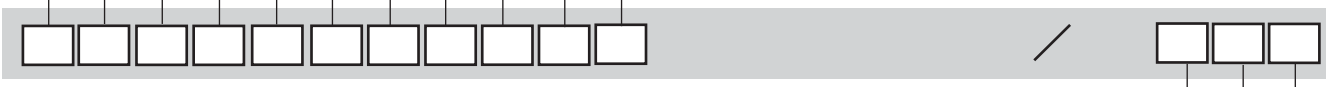
Connection type
- **S** DIN43650 with PG9, IP66
- **T** M12, IP67
- **U** M12 & USB (only with N housing), IP67
- **V** PG9 (always with L housing), IP66

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** 15 meter

Light source **7** 880nm

Process connections
- **B1** G1A ball valve insertion. Extension diameter ø 24mm



Documentation

Calibration certificate **AE** English

Installation and operating insructions **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.

CE