VesselCheck ST2

Non-Invasive Tank Level Measurement System

Reference used by ST2 only

24 Vdc / 110/230Vac

RS 485/ 1..5V / 4..20 mA
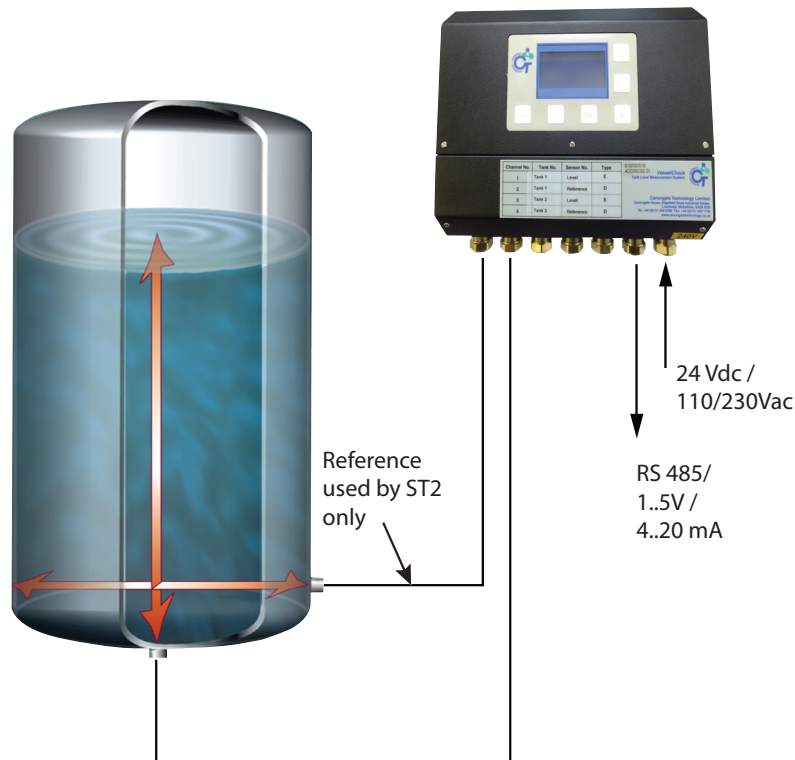
Principle of Operation

The ST2 uses two small ultrasonic sensors bonded or clamped to the outside walls of the vessel - one on the bottom of the vessel and the other on the side, to compensate for variations in sonic velocity and temperature. Signals from the transducers are fed into the processor and displayed locally and/or output to the plant control system. The system calculates the height and volume of the liquid in the tank from the time taken for the signal to be received from the liquid surface.

Features:

- Truly non-invasive sensing technique
- Sensors bonded to outside of tank base and side wall
- 20 point calibration table
- Optional local display & keypad
- 4..20mA / 1..5V analogue outputs
- RS485 / 232 Modbus serial communications
- ATEX / IECEx approved sensors for hazardous areas available

Benefits:

- Fast, reliable and accurate tank contents measurement
- Easy installation - no tank break-in, easy retrofit to existing tanks
- No down-time during installation
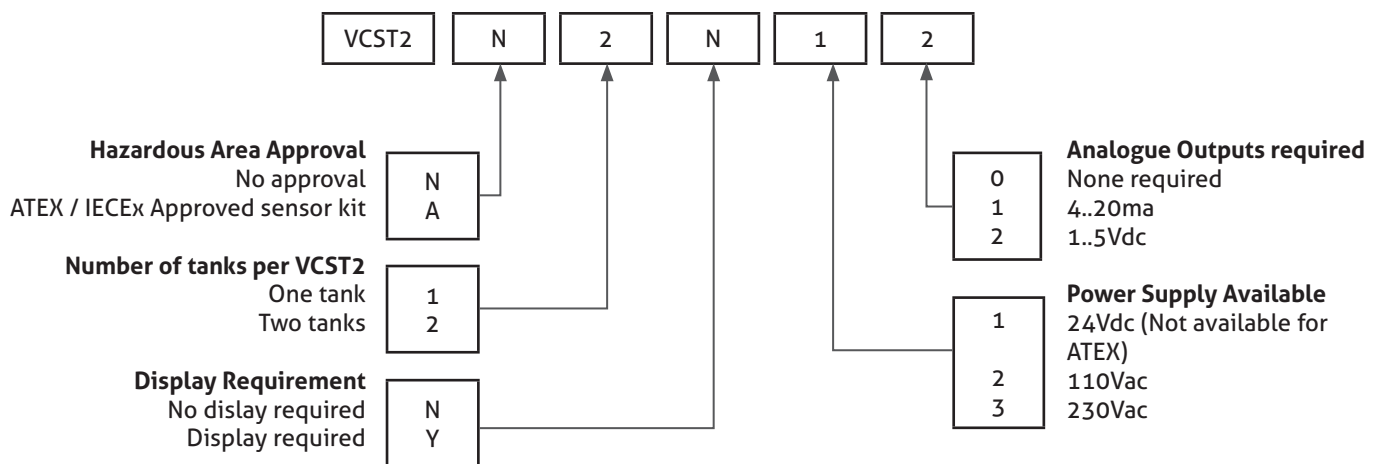- No moving parts – little or no maintenance required
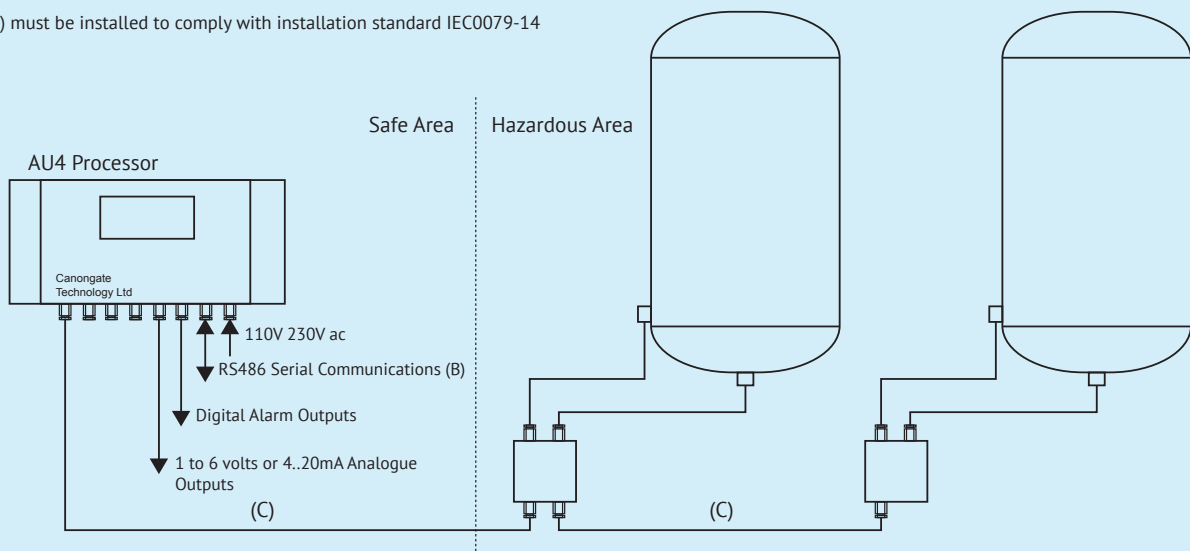
ATEX Sensor shown

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Vessel Check ST2 - Technical Specification

Accuracy	+/- 2mm or better
Repeatability	+/-0.5mm
Measuring Range	75mm to 25 metres / 3" to 80 feet (application dependent)
Temperature Range (sensors)	-20ºC to +125ºC / - 4ºF to 257ºF
Hazardous Area Approval (sensors)	Ex mb IIC T5 Gb (-20ºC ≤ Ta ≤ 60ºC) Cert No. IECEx BAS 11.00.0039X
Analogue Outputs (optional)	4..20mA (active) / 1..5Vdc
Digital Alarm Outputs (optional)	4 x Solid state active outputs (>17Vdc)
Max distance (processor to sensor)	100m
Serial Outputs	RS232, RS485, Modbus RTU / ASCII
Power Supply	24Vdc (N/A for haz area applications) or 110 / 230 Vac, 50/60Hz.
Protection Rating (processor)	IP65
Protection Rating (sensor)	IP66
Sensor Material	Tufnol / Ertacetal
Processor Enclosure Material	High Impact Polystyrene
Display Size (optional)	70x43mm / 2.75x1.7"
Dimensions (processor / display unit)	270x215x85mm / 10.5x8.5x3.5"
Weight (processor)	1.4Kg, 3lbs

Product Identification Code (PIC)

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VCST2    N    2    N    1    2
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Hazardous Area Approval
No approval — N
ATEX / IECEx Approved sensor kit — A

Number of tanks per VCST2
One tank — 1
Two tanks — 2

Display Requirement
No dislay required — N
Display required — Y

Analogue Outputs required
None required — 0
4..20ma — 1
1..5Vdc — 2

Power Supply Available
24Vdc (Not available for ATEX) — 1
110Vac — 2
230Vac — 3

NOTE
Cable (C) must be installed to comply with installation standard IEC0079-14

Safe Area | Hazardous Area

AU4 Processor

Canongate Technology Ltd

110V 230V ac

RS486 Serial Communications (B)

Digital Alarm Outputs

1 to 6 volts or 4..20mA Analogue Outputs

(C)

(C)

VesselCheck Range Overview

Typical Application	Maximum Height	Number of Tanks	Hazardous Area Approval	Display	Varient
High accuracy: beer, spritis, acids, solvents, water, LPG spheres, wine	20 metres	2	Optional	Optional	ST2
Less accurate: LPG spheres, wine	20 metres	4	Optional	Optional	ST4
Fuel, water, light oils, acids	3 metres	1	No	Optional	ST1
LPG, small spirit tanks	3 metres	1	Sensor Only	Optional	ST1(A)
LPG, solvents, acids, fuels, Sulphur Dioxide, Chlorine	3 metres	1	Sensor & Processor	Yes	ST1AD
Refrigerent Gas	2 metres	1	No	Optional	ST1(R)
Graphic colour operator interface terminal & evaluation unit for use with VesselCheck systems	N/A	Up to 32	No	Yes	VCHMI

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