

# SONOFLOW CO.55

Non-invasive Clamp-on Flow Sensors

SONOTEC

**SONOFLOW clamp-on flow sensors** are designed for upstream and downstream monitoring in the bioprocess industry. These innovative sensors offer integrated electronics which allow them to function without an external board or transmitter, giving you a complete flow meter in the size of a small transducer. The systems are suitable for applications from process development through manufacturing to fill and finish operations.

- High accuracy measurements to improve process performance
- Minimize equipment footprint with a compact flow meter
- Reduce risk of contamination with non-product contact flow sensors
- No moving parts to induce shear stress on cells
- Sustainable and reusable to reduce process costs and waste
- User friendly software for onsite calibration
- Seamless process integration with multiple output options



## KEY FEATURES

- Reliable flow measurement from **10 ml to 200 L / min**
- Accuracy of up to **1 %** when adjusted for customer specific tubing / fluid
- Ideally suited for silicone, TPE, and most standard bioprocess tubing
- Real-time instantaneous flow measurement
- Volume totalizing
- Volume dosing output switch for precise volume delivery
- Built-in electronics, no external electronic board required
- Software for easy parameterization and testing



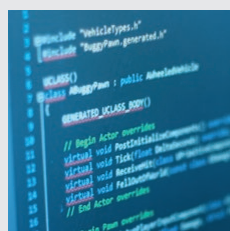
## INTUITIVE AND EASY HANDLING



1

Sensor Selection

Select the flow sensor that fits best your bioprocessing application



2

Parameter Setting

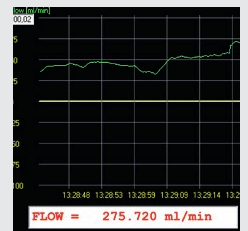
Set all relevant sensor parameters for your upstream or downstream processes



3

System Integration

Connect the clamp-on flow sensor to your PLC or pump system



4

Flow Measurement

Start the flow measurement and evaluate the recorded data

# TECHNICAL DATA

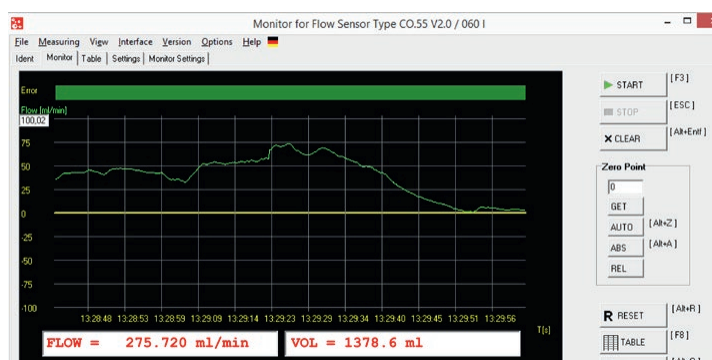
MEASURING METHOD	Ultrasound
MEASURING CYCLE	20 ms
CHANNEL WIDTH	3.5 to 34 mm
OUTER DIAMETER – TUBING	4 to 35 mm
MOUNTING	Fixed installation
INTERFACES	4-20 mA, 0-20 kHz, PNP / NPN, RS485 / MODBus, digital input

OPERATING VOLTAGE	12 to 30 VDC
CURRENT CONSUMPTION	30 mA max
ELECTRICAL CONNECTION	8-pin M12 connector
AMBIENT / MEDIA TEMPERATURE	0 to +60 °C
STORAGE TEMPERATURE	-20 to +70 °C
PROTECTION CLASS	IP65

✓ The use of the optional **SONOFLOW Monitor Software** allows for customer specific parameterization, testing and calibration.

## SONOFLOW MONITOR SOFTWARE

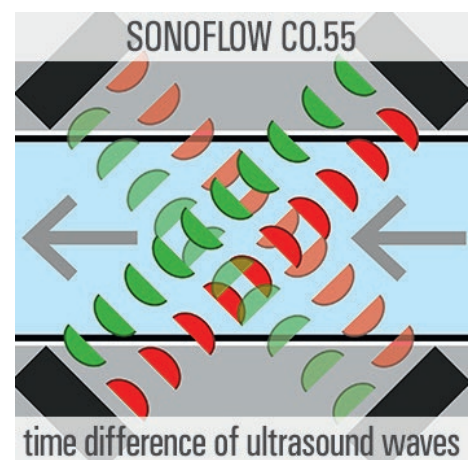
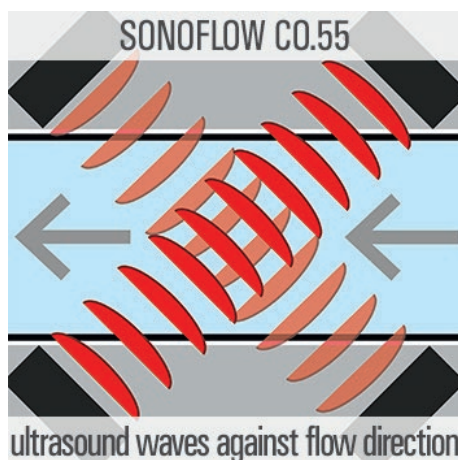
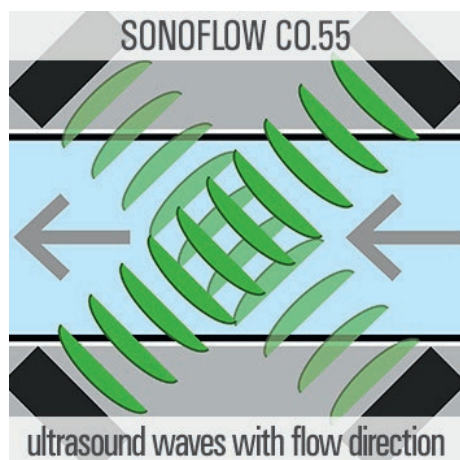
- Adjust sensor for optimized accuracy of up to 1 %
- Multiple options for integration including
  - RS485 / MODBus
  - 4-20 mA
  - Adjustable frequency output 0 to 20 kHz max
  - PNP / NPN / Push-Pull switching output
- Data logging with export feature to Excel or text
- Bus capable for operation up to 12 flow meters
- Easy interface to a tablet, laptop, data logger, SCADA
- Ability to re-calibrate at customer site
- Direct communication to most manufactures pumps



## MEASUREMENT PRINCIPLE

**SONOFLOW flow meters** use the transit time ultrasound method to accurately determine the flow rate. The sensor measures the time of flight of the ultrasonic wave with and against the streaming liquid (grey arrows). The time difference between

both signals is a measure of the velocity of the streaming liquid. Measurements are taken in **picoseconds** and averaged to readings of 10 ms cycle. The fluid velocity and known area of the measurement channel are related to the specific volume flow.



SONOTEC preserves the right to change technical specifications without further notice. (Rev. 1 / 2019-08-19)

### SALES & SUPPORT

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**SONOTEC**

Certified according to ISO 9001 & EN ISO 13485