



User Manual

VF563 Series Flowmeter



J-TEC Associates, Inc.

An Employee Owned Company

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Printed July 2023

Introduction

J-TEC flowmeters operate on the principle of vortex shedding. A small strut inside the flow tube creates a Karman vortex street and the vortex formation is sensed by means of an ultrasonic beam directed across the tube. The flowmeter electronics uses the vortex frequency to determine the flow rate. J-TEC flow meters have a 12-month warranty period.

*Not approved for measuring explosive gas mixtures except crankcase vapors.

Mechanical Installation

The flowmeter has been shipped completely assembled and tested. It is ready to install and operate. The labeling of the flow direction on the flowmeter must be aligned with the flow in the pipe.

The flowmeter should be installed with a minimum of 20 pipe diameters of straight pipe upstream and 10 pipe diameters downstream from the flowmeter. For example, a one-inch tube or hose should have 20 inches of straight length immediately before the flowmeter inlet tube. This condition provides a more symmetrical flow profile, which is necessary to obtain accurate and repeatable results.

A typical connection to the flowmeter is made by placing a customer supplied flexible hose onto the outside of the inlet tube and outlet tube. If liquids are present in the gas flow stream, the flowmeter should be installed so that liquids will not collect on the ultrasonic transducers housed beneath the flow direction indicators. Installing the flowmeter vertical with flow into the top and out the bottom will encourage liquids to drain out of the flowmeter.

An optional filter canister or buffer chamber placed in the pipe, between the crankcase and the flowmeter, will minimize the effect of pulsating flows, and collect oil and water droplets to keep the flowmeter cleaner. The buffer should be sized for minimal pressure loss. Contact J-TEC for ordering information.

Electrical Installation

A filtered power supply must provide at least 35 mA at +12 to +24 Volts Direct Current (VDC). Analog output signal is 0 to 5 volts DC, proportional to the flow range. (Output impedance is 100 ohms).

Optional output of 0 to 10 volts or 1 to 10 volts available.

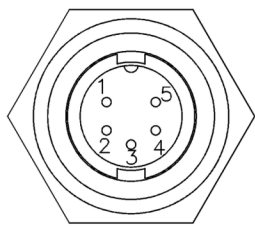
Optional output of frequency/pulse is also available. Pulse output is 0-10V peak, open drain FET.

Cable length is limited to 50 feet.

A customer supplied four-conductor cable made of 26-22 AWG wire is required to make connections to the flowmeter.

The contact pins, of the flowmeter connector, are identified in Figure A. The supplied mating connector which connects to the flowmeter, requires customer assembly. The mating connector is CONXALL part number 6282-5SG-519 (J-TEC part number DRJ0735).

FIGURE A
Flowmeter Connector Pin-Outs

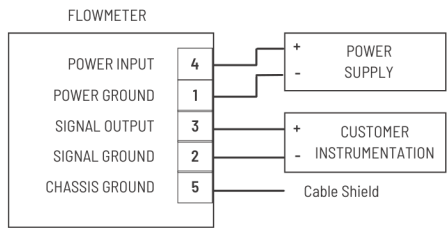


VIEWED FROM OUTSIDE
OF ENCLOSURE

Pin	Description
1	Power Ground
2	Signal Ground
3	Output (0-5 VDC or Frequency)
4	Power Input (+12 to +24 VDC)
5	Chassis Ground

RECOMMENDED ELECTRICAL CONNECTIONS

(separate grounds for lowest measurement error)



CAUTION: Do not exceed $\pm 40V$ between Power or Signal Ground, and Chassis Ground. Exceeding this limit may cause damage to the instrument.

CIRCUIT BOARD OUTPUT JUMPERS

DAA0XXX-0003	ANALOG (0-5V)	P3-2 to P3-3
DAA0XXX-0002	FREQUENCY	P3-2 to P3-1

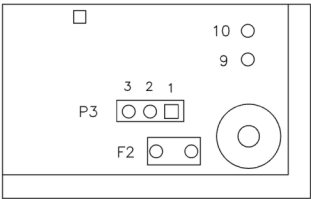
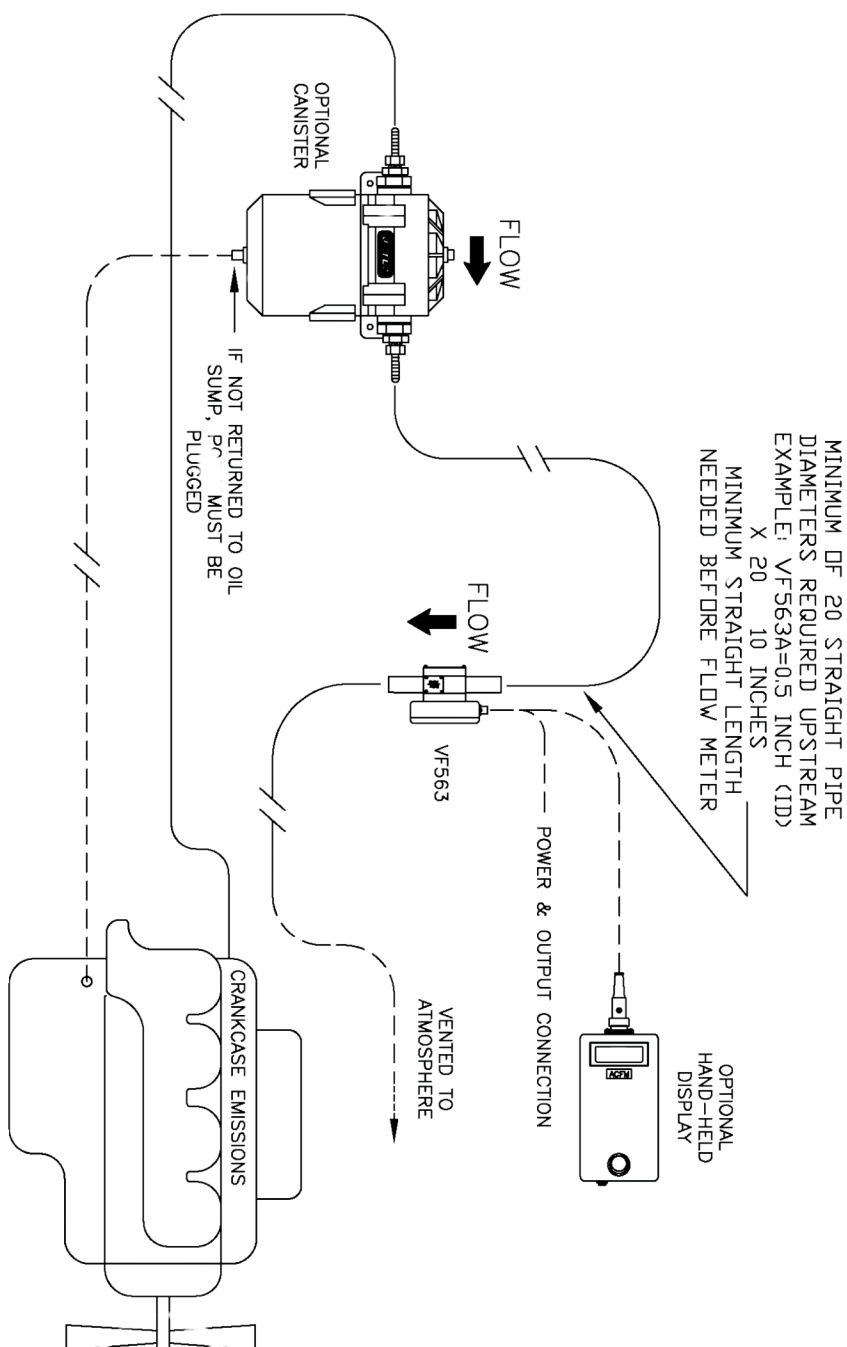


FIGURE B
Engine Blow-By Measurement System



Cleaning and Maintenance

The inside of the flow tube and strut must be kept clean. If the meter produces erratic readings a cleaning schedule should be implemented. To clean the flow tube and strut, gently brush the inside of the tube with a soft brush or cotton swab. A mild detergent and water solution may be used to loosen deposits. Ensure the flowmeter is completely dry before use.

DO NOT use wire brushes or high-pressure liquids. These may cause damage to the transducers.

J-TEC's Cleaning and Calibration Services

Did you know dirt is the enemy of any precision instrument?

J-TEC's VF563 Series Flow Meters are designed for long term accuracy, reliability and predictable readings. However, to ensure accurate readings and longevity of your meter, we do recommend cleaning and calibration on an annual basis.



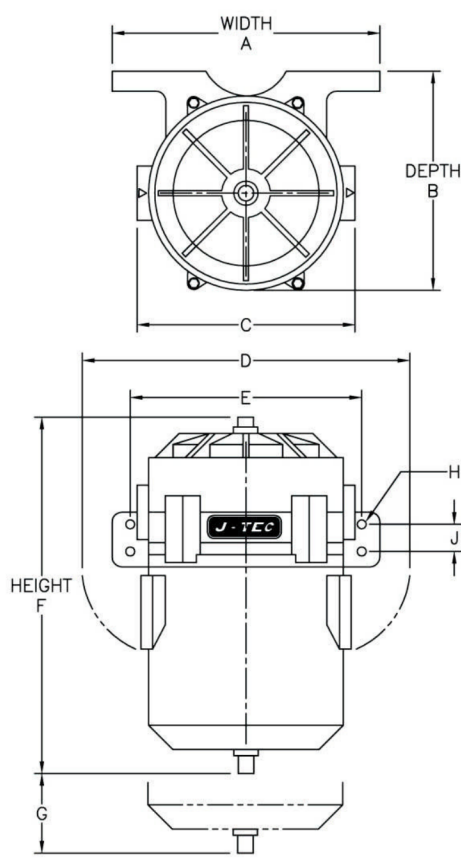
Schedule your cleaning and calibration anytime in J-TEC's ISO 17025 accredited calibration lab and we guarantee to get your meter back to you in a timely and reliable manner. Our trusted calibration technicians will ensure your Flow Meter is operating at peak efficiency.

Want to send in your meter for cleaning and calibration? Follow the QR code below or visit <https://j-tecassociates.com/cleaning-and-calibration-service/> to sign up for our service schedule.



Accessories

The VF563 Blow-By Canister, used in combination with a standard blow-by flow meter, provides a buffer that minimizes the effect of engine pulsations and collects oil or mist, while still giving continuous flow readings. The canister comes in two sizes to properly match up with the flow meter line size.



CCV™ DIMENSIONS				
DIM	CCV6000		CCV8000	
	IN	MM	IN	MM
A	8.59	218.2	10.61	269.5
B	7.30	185.4	9.30	236.2
C	7.06	179.3	9.06	230.1
D	11.25	285.8	13.25	336.6
E	7.50	190.5	9.50	241.3
F	12.00	304.8	13.88	352.6
G	4.00	101.6	5.00	127.0
H	0.37	9.4	0.43	10.9
J	0.93	23.6	1.06	26.9

Dimension "G" is the minimum element removal clearance. Allow more room if possible for ease of service.

CCV™ WEIGHTS			
CCV6000		CCV8000	
LBS.	KG	LBS.	KG
5.01	2.28	8.72	3.96

Weights are dry, with element and fittings installed.

Contact J-TEC for specific pressure drop charts per model size.	
CCV6000 - 20 cfm flow through capacity Inlet/Outlet Port = 1-5/8" - 12 SAE	
CCV8000 - 40 cfm flow through capacity Inlet/Outlet Port = 1-7/8" - 12 SAE	
J-TEC Models	Recommended CCV Canisters
VF563AA	CCV6000
VF563A	CCV6000
VF563B	CCV8000
VF563C	CCV8000
VF563J	CCV8000
VF563K	CCV8000

EU Declaration of Conformity



Product Number: VF563

Product Name: Vortex-shedding Flowmeter

Date: 11-22-2021

This declaration of conformity is issued under the sole responsibility of the manufacturer.

The manufacturer is:

J-TEC Associates, Inc.

5005 Blairs Forest Ln NE STE L

Cedar Rapids, IA 52402

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sales@j-tecassociate.com

The unit covered by this declaration is a scientific flow measurement sensor, which is designed to be used for research, maintenance, and development in a laboratory environment. It is not intended to be a finished appliance, nor is it intended for incorporation into finished appliances that are made commercially available as single functional units to end users. The unit is not furnished with a power supply for AC mains operation, but is DC-powered.

The unit covered by this declaration is in conformity with EU Electromagnetic compatibility (EMC) Directive (2014/30/EU), EN 61326-1: 2013 Industrial Level.

The unit covered by this declaration is in conformity with directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011, as Amended by 2018/736/EU on 27 February 2018, with exemptions 2(j), 4.4(e), 5.1(a), on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Signed for and on behalf of J-TEC Associates, Inc. at Cedar Rapids, Iowa (USA).

A handwritten signature in black ink, reading "Brent Bormann".

Brent Bormann - General Manager



Don't forget to register your meter!

When you register your meter, you will gain access to:

- Warranty Information
- Service Reminders
- Latest news and developments

Complete your registration now via our online form!

Use our QR code or visit <https://j-tecassociates.com/product-registration/>.



About J-TEC

J-TEC has been providing vortex flow meters and sensors for automotive, military, industrial, and mining applications since 1968. J-TEC produces flow meters for internal combustion engine air-intake and crankcase blow-by flow measurement, along with a very specialized flow sensor used on military ground vehicles for accuracy of the large weapon systems. J-TEC flow meters are 100% assembled in the USA.

J-TEC Associates is proud to be a 100% employee-owned company based in Cedar Rapids, IA, and part of the Rayser Holdings portfolio. Visit j-tecassociates.com to learn more.