Be smart. **Measure it.**

S418-V

Compact Thermal Mass Flow Meter for Vacuum Applications

Pro-Inline

SMARTPHONE ANDROID APP
For remote configuration

POINT-OF-USE MEASUREMENT
Monitoring of vacuum pumps

COMPACT DESIGN
Can be installed anywhere

TOTAL FLOW
No bypass measurement

EASY PROCESS MONITORING
Effective and inexpensive recording

ACCURATE RESULTS
Integrated flow conditioner

Benefits

- Highly economical point-of-use flow and consumption measurements at the low pressure side of vacuum pumps
- Integrated data logger for measurement recordings as standard feature
- Various process connection sizes available: DN8, DN15, DN20 and DN25 (G-inner-thread)
- Absolute pressure sensor integrated for actual vacuum flow measurements
- Integrated flow conditioner eliminates the need of straight inlet sections
- Optional integrated pressure sensor

Optimize Your Vacuum System Efficiency

The S418-V Compact Thermal Mass Flow Meter offers a simple but effective monitoring solution for vacuum applications at the point-of use.

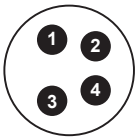
It comes standard with wireless communication interface to help the user quickly and easily check the flow meter readings or adjust the settings via the SUTO flow meter app.

Improve your vacuum system efficiency, while helping to reduce operating costs by monitoring:

- Flow and Consumption
- Pressure
- Temperature

Various Output Signals

Output	Connector	Pin 1	Pin 2	Pin 3	Pin 4
Modbus/ RTU	A	D-	-VB	+VB	D+
	B	D-	GND	NA	D+
Analog and Pulse	A	I-	-VB	+VB	I+
	B	I-	P	P	I+
M-Bus	A	M-bus	-VB	+VB	M-bus
	B	M-bus	NA	NA	M-bus
Wire colour		brown	white	blue	black

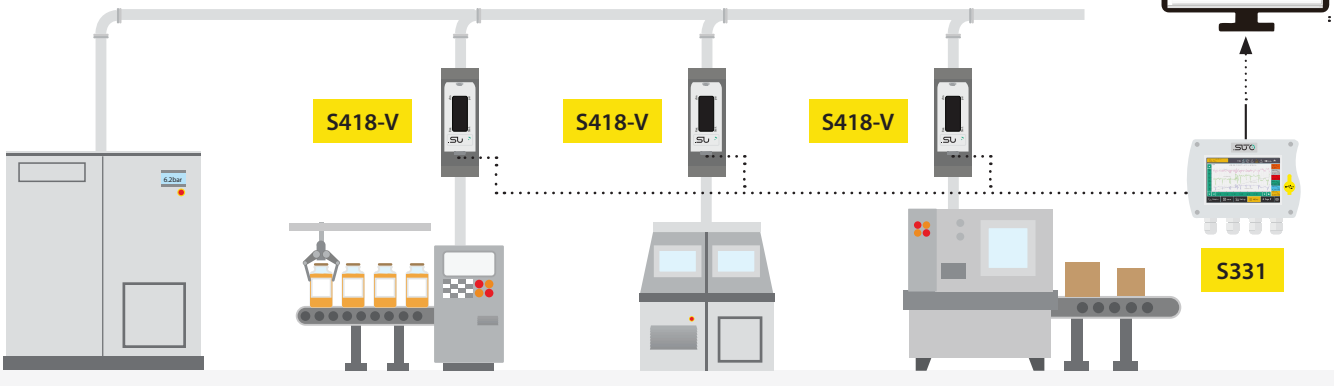


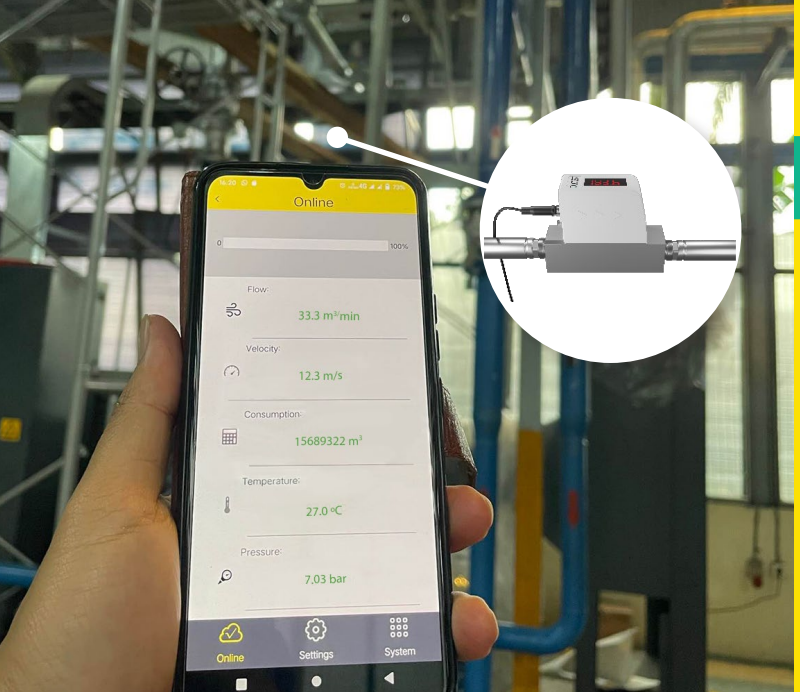
Pin assignment connector plug M8

- Every sensor includes 5m M8 cables with open ends
- Sensor with Modbus/RTU or M-Bus include 1 cable
- Sensors with Analog output include 2 cables

Vacuum Applications

S418-V is used for performance monitoring of vacuum pumps. Equipped with an absolute pressure sensor, it does not only show the vacuum pressure, but also shows the actual vacuum flow. These parameters are most the critical values in vacuum applications and help operators to ensure their process reliability.





Wireless Connection

The free S4C-FS App offers a unique wireless connection to every SUTO flow meter for online readings and configuration.

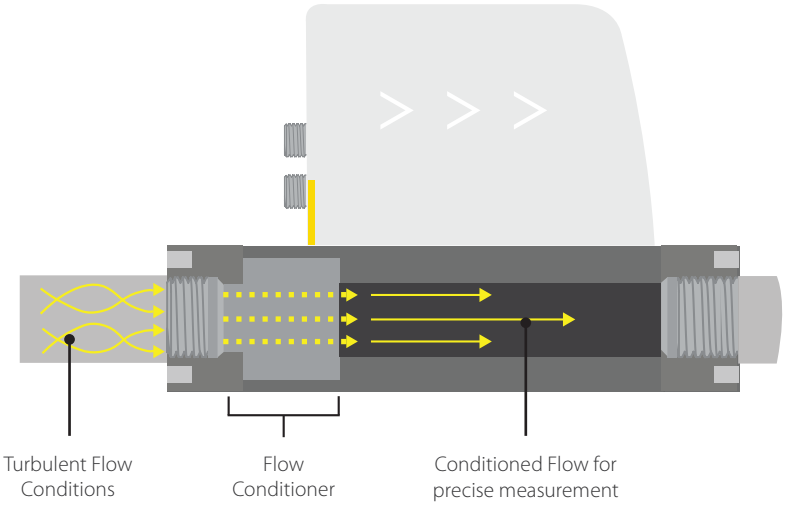
Especially during installation and setup all settings can be performed using a smartphone, there is no need to carry a PC and an interface on site. This saves a lot of time and is the easy way to get reliable sensor readings.

Every sensor is protected by default. To perform changes on the flow meter, first a QR code must be scanned.

Flow Conditioner

Asymmetric velocity profiles, swirl, and other factors caused by bends in pipes can lead quickly to inaccurate readings. But sometimes there is not enough space to have straight inlet conditions for accurate readings.

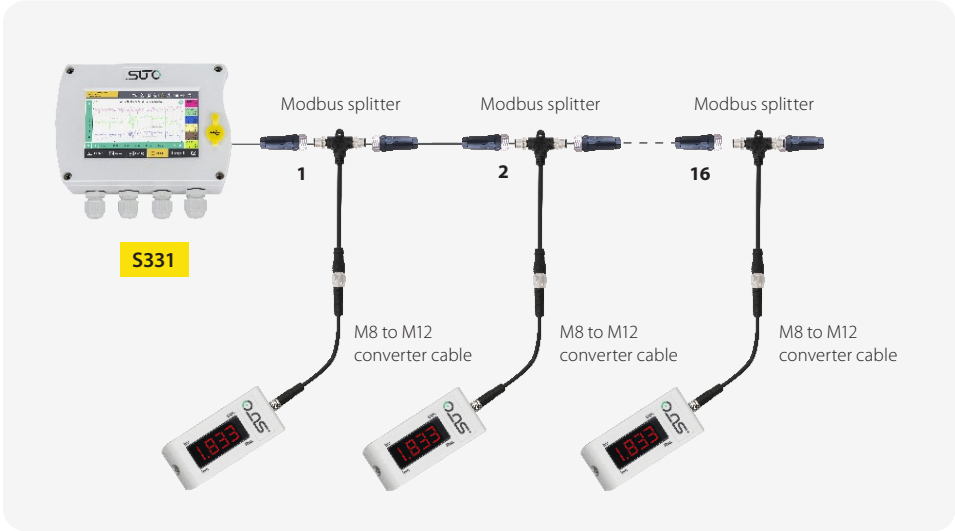
The highly engineered flow conditioner solves this problem. Unlike a standard flow conditions disk, the 3D design of the flow conditioner allows measurements with no additional straight inlet piping at all. Thanks to the innovative mechanical design, the pressure loss is negligible small (<30 hPa), offering high accurate measurements in difficult pipe conditions.



Connect several S418-V to Modbus Master

The S418-V with Modbus/ RTU interface can be easily daisy-chained to a Modbus Master device such as S331 by using RS-485 splitter (A554 3310) and the M8 to M12 converter cable (A553 0161). Through this method you can add up to 16 flow meters to the master

Remark: The S331 can maximum provide 10 W power to the connected devices. If more power is required a separate power supply is needed..



Display Direction

Standard direction	Reverse direction	Standard direction
SI units	SI units	Imperial units

Measuring Range in Air (l/min)

Range	Standard Configuration				
Process connection	**DN8**	**DN15**	**DN20**	**DN25**	**Absolute Pressure (mbar)**
Vacuum flow in l/min	56	222	444	778	900
	63	250	500	875	800
	71	286	571	1000	700
	83	333	667	1167	600
	100	400	800	1400	500
	125	500	1000	1750	400
	167	557	1333	2333	300
	250	1000	2000	3500	200
	500	2000	4000	7000	100

Stated measuring ranges for S418-V under following conditions:

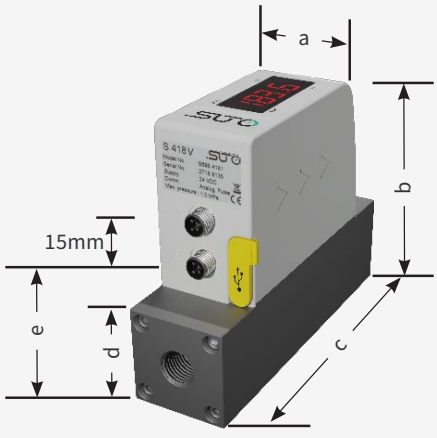
- Standard flow in air in l/min
- Reference pressure: 1000 mbar
- Reference Temperature: +20 °C

DN8,DN15

DN20,DN25

Dimensions

Dimensions in mm	a	b	c	d	e
DN8/DN15	35.0	93.0	120.4	35.0	48.0
DN20/DN25	48.0	106.0	178.0	48.0	61.0



Technical Data

Measurement

Flow	
Accuracy	1.5 % of reading ± 0.3 % FS
Selectable units	m^3/h, l/min, cfm, kg/h
Measuring range	see table on the previous page
Repeatability	0.5 % of reading
Sensor	Thermal mass flow sensor
Sampling rate	10 samples / sec
Turndown ratio	1:100
Response time (t90)	0.5 sec
Consumption	
Selectable units	m^3, ft^3, l, kg
Pressure	
Accuracy	0.5 % FS
Selectable units	bar, psi
Measuring range	0.01 ... 1.6 bar(a)
Sensor	Piezo resistive sensor
Reference conditions	
Selectable conditions	20 °C 1000 mbar (ISO1217)

Signal / Interface & Supply

Analog output	
Signal	4 ... 20 mA (4-wire), isolated
Scaling	0 ... max flow, freely adjustable
Load	max. 250 Ohm
Update rate	3/sec
Pulse output	
Signal	Switch output, normally open, max. 30 VDC, 200 mA
Scaling	1 pulse per consumption unit
Fieldbus	
Protocol	Modbus/RTU
Supply	
Voltage supply	15 ... 30 VDC
Current consumption	120 mA @ 24 VDC
Data interface	
Connection	USB micro

General data

Configuration	
Wireless	S4C-FS App for mobile phones
PC Software	S4A PC software for data analyzes
Display	
Integrated	4 digit LED
Data Logger	
Storage	8 Mio. values
Material	
Process connection	Aluminum alloy
Housing	PC + ABS
Sensor	Ceramic, glass coated
Metal parts	Aluminum alloy
Miscellaneous	
Electrical connection	2 x M8 (4 pole)
Protection class	IP54
Approvals	CE, RoHS, FCC
Process connection	G-thread
Weight	0.45 ... 1.1 kg (depends on model)

Operating conditions

Medium	Air, N_2, O_2, CO_2 and other gases
Medium quality	ISO 8573: 4.4.3 or better
Medium temperature	0 ... 50 °C
Medium humidity	< 90 % rH, no condensation
Operating pressure	Max. 10 bar(g)
Ambient temperature	0 ... 50 °C
Ambient humidity	< 95 % rH
Storage temperature	-30 ... 70 °C
Transport temperature	-30 ... 70 °C
Pipe sizes	DN8, DN15, DN20, DN25

Vacuum Scales

bar(a)	inch Hg(g)	kPa(g)	bar(g)	mbar(a)
1.00	0.00	0	0.00	1000
0.90	-2.95	-10	-0.10	900
0.80	-5.91	-20	-0.20	800
0.70	-8.86	-30	-0.30	700
0.60	-11.81	-40	-0.40	600
0.50	-14.77	-50	-0.50	500
0.40	-17.72	-60	-0.60	400
0.30	-20.67	-70	-0.70	300
0.20	-23.63	-80	-0.80	200
0.10	-26.58	-90	-0.90	100
0.01	-29.24	-99	-0.99	10

Ordering

Please use the following tables to assist in placing your order with our sales staff.

S418-V Compact Thermal Mass Flow Meter for Vacuum Applications (Inline)

Order No.	Description
S695 419	S418-V, Vacuum Flow Meter with integrated absolute pressure sensor, G inner thread, 24 VDC, 5 m cable with M8 connector and open ends included
Size	
S695 4190	DN8
S695 4191	DN15
S695 4192	DN20
S695 4193	DN25
Output	
A1455	S418: Analog 4 ... 20 mA, Pulse output
A1456	S418: Modbus/RTU output
A1457	S418: M-Bus output
Units	
A1459	With imperial units
Display direction	
A1460	Reverse display direction

Example: S418-V DN25, Modbus/RTU
Order Code: S695 4193.A1456

S418-V Accessories

Order No.	Description
A554 0109	Mains power supply 100-240 VAC / 24 VDC, 0.5 A, 2 m cable with M8 connector
A553 0137	Connection cable to S551, 5 m
M599 7020	S4A data analysis software, for data logger S418-V
A554 3310	RS-485 / Modbus splitter
A553 0161	M8 to M12 converter cable for Modbus splitter
A553 0171	Cable to connect power bank, 1.8 m, USB-C connector for power bank, M8 connector

Mobile Power

S418-V powered by power bank with connection cable A553 0171

Note: power bank must be sourced locally due to shipping restrictions [USB-C, 20 V, min. 100 mA]

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At www.nordicfiltration.com you will find a wide selection of filtration products ready for you to order.

Nordic Filtration offers a wide selection of filtration products for water treatment. We have stock in Denmark from where we distribute all of our products to Scandinavia and the the rest of the world.

You can buy our products on local websites or by contacting us by phone or e-mail. Information about our products as well as brochures and manuals can be found on our website (www.nordicfiltration.com).

We can adapt all of our filtration products to your needs, and we offer visits from our consultants in order to find the right solution for you.

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