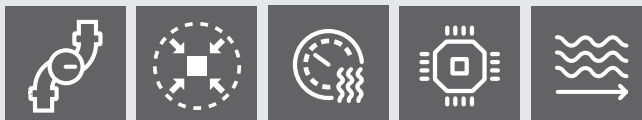


THERMAL MASS FLOW METER S415 / S418 VACUUM FLOW METER S418-V



SMARTPHONE ANDROID APP
For remote configuration



Monitor consumption at machine level — optimize compressed air and vacuum system efficiency



S415 / S418 / S418-V FEATURES



SMARTPHONE ANDROID APP
For remote configuration



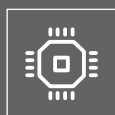
POINT-OF-USE INSTALLATION
No straight pipe section required



COMPACT DESIGN
Can be installed anywhere



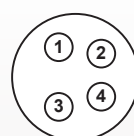
TOTAL FLOW
No bypass measurement



EASY PROCESS MONITORING
Effective and inexpensive recording



ACCURATE RESULTS
Integrated flow conditioner



Every sensor includes the 5m cable M8 with open ends
Sensor with Modbus/MBUS include 1 cable
Sensor with Analog output includes 2 cables

Pin assignment connector plug M8					
Output Version	Connector	Pin 1	Pin 2	Pin 3	Pin 4
Modbus	A	D-	-VB	+VB	D+
	B	D-	GND	NA	D+
Pulse and analog	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

S415 / S418 / S418-V BENEFITS

- Convenient installation, great flexibility, can be installed anywhere
- Available as DN8, DN15, DN20, DN25 and DN32 G (female thread)
- Eco version S415: Accuracy of 3 % o.RDG, measuring volume 50: 1
- Pro version S418 / S418-V: Accuracy of 1.5 % o.RDG, measuring volume 100: 1
- Pro version S418 / S418-V: Integrated data logger and pressure gauge option

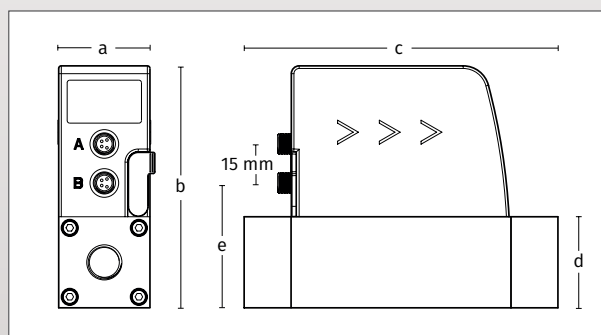
The more accurate you can monitor gas flow, the more likely you will discover weak points in the process flow, thus ensuring continuity and profitability.

Asymmetric velocity profiles, swirl, and other factors caused by bends in pipes can lead quickly to inaccurate readings. And it is often not possible to place flow meters at hard-to-reach places.

The solution is our new generation of compact, easy-to-install, reliable and cost-effective flow and consumption meters: the S415 and the S418.

S418-V is used for performance monitoring of vacuum pumps. This inline flow meter measures the actual flow and absolute pressure on the low pressure side of vacuum pumps.

S415 / S418 / S418-V 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
DN32	60.0	118.0	222.0	60.0	73.0

S415 / S418 / S418-V TECHNICAL DATA

Measurement	S415 (Eco)	S418 (Pro)	S418-V
Flow			
Accuracy	3 % o.RDG ±0.3 % FS	1.5 % o.RDG ±0.3 % FS	1.5 % o.RDG ±0.3 % FS
Selectable units	l/min, cfm, kg/h, m3/h	l/min, cfm, kg/h, m3/h	l/min, cfm, kg/h, m3/h
Measuring range	see table below	see table below	see table below
Repeatability	1 % o.RDG	0.5 % o.RDG	0.5 % o.RDG
Sensor	Thermal mass flow sensor	Thermal mass flow sensor	Thermal mass flow sensor
Sampling rate	3/sec	10/sec	10/sec
Turndown ratio	50:1	100:1	100:1
Response time (t90)	2 sec	0.5 sec	0.5 sec
Consumption			
Selectable units	m ³ , ft3, l, kg	m ³ , ft3, l, kg	m ³ , ft3, l, kg
Pressure			
Accuracy	N/A	Optional	Standard
Selectable units	N/A	bar, psi	bar, psi
Measuring range	N/A	0 ... 10 bar(g)	0.01...1.60 bar(a)
Sensor	N/A	Piezzo resistive sensor	Piezzo resistive sensor
Reference conditions			
Selectable conditions	20 °C 1000 mbar (ISO1217) 0 °C 1013 mbar (DIN1343) freely adjustable	20 °C 1000 mbar (ISO1217) 0 °C 1013 mbar (DIN1343) freely adjustable	20 °C 1000 mbar (ISO1217) not adjustable
Signal / Interface & Supply			
Analog output			
Signal	4 ... 20 mA, isolated	4 ... 20 mA, isolated	4 ... 20 mA, isolated
Scaling	0 ... max flow	0 ... max flow	0 ... max flow
Load	250R	250R	250R
Update rate	3/sec	3/sec	3/sec
Pulse output			
Signal	Max 30 V, 200 mA	Max 30 V, 200 mA	Max 30 V, 200 mA
Scaling	1 pulse per consumption unit	1 pulse per consumption unit	1 pulse per consumption unit
Fieldbus			
Protocol	Modbus/RTU	Modbus/RTU	Modbus/RTU
Supply			
Voltage supply	15 ... 30 VDC	15 ... 30 VDC	15 ... 30 VDC
Current consumption	120 mA @ 24 VDC	120 mA @ 24 VDC	120 mA @ 24 VDC
Data interface			
Connection	N/A	USB micro	USB micro
General data			
Configuration			
Wireless	S4C-FS App for mobile phones	S4C-FS App for mobile phones	S4C-FS App for mobile phones
PC Software	N/A	S4A PC software for download and data analyzes	S4A PC software for download and data analyzes
Display			
Integrated	4 digit LED	4 digit LED	4 digit LED
Data Logger			
Storage	N/A	8 Mio. values	8 Mio. values

S415 / S418 / S418-V TECHNICAL DATA

General data	S415 (Eco)	S418 (Pro)	S418-V
Material			
Process connection	Aluminum alloy	Aluminum alloy	Aluminum alloy
Housing	PC + ABS	PC + ABS	PC + ABS
Sensor	Glass coated resistive sensor	Glass coated resistive sensor	Glass coated resistive sensor
Metal parts	Aluminum alloy	Aluminum alloy	Aluminum alloy
Miscellaneous			
Electrical connection	2 x M8 (4 pole)	2 x M8 (4 pole)	2 x M8 (4 pole)
Protection class	IP54	IP54	IP54
Approvals	CE, RoHS, FCC	CE, RoHS, FCC	CE, RoHS, FCC
Process connection	G-thread	G-thread	G-thread
Weight	0.45 ... 1.3 kg (depends on model)	0.45 ... 1.3 kg (depends on model)	0.45 ... 0.97 kg (depends on model)
Operating conditions			
Medium	Air, N ₂	Air, N ₂ , O ₂ , CO ₂ and other gases	Air
Medium quality	ISO 8573: 4.4.3 or better	ISO 8573: 4.4.3 or better	ISO 8573: 4.4.3 or better
Medium temperature	0 ... 50 °C	0 ... 50 °C	0 ... 50 °C
Medium humidity	< 90 % rH, no condensation	< 90 % rH, no condensation	< 90 % rH, no condensation
Operating pressure	0 ... 10 bar(g)	0 ... 10 bar(g)	0 ... 1.6 bar(a)
Ambient temperature	0 ... 50 °C	0 ... 50 °C	0 ... 50 °C
Ambient humidity	< 95 % rH	< 95 % rH	< 95 % rH
Storage temperature	-30 ... 70 °C	-30 ... 70 °C	-30 ... 70 °C
Transport temperature	-30 ... 70 °C	-30 ... 70 °C	-30 ... 70 °C
Pipe sizes	DN8, DN15, DN20, DN25, DN32	DN8, DN15, DN20, DN25, DN32	DN8, DN15, DN20, DN25

S415 / S418 Measuring Range	Standard Configuration				
Process connection	DN8	DN15	DN20	DN25	DN32
Standard range (S)	250	1000	2000	3500	6000
Low range (L)	50	200	400	700	1200
Vacuum flow S418-V	50	200	400	700	N/A

Stated measuring ranges for S415/S418 under following conditions:

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

S418-V Measuring 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	

S415 / S418 / S418-V DISPLAY DIRECTION



S415 / S418 /S418-V ORDERING

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



Visit our website or e-mail us:
www.suto-itec.com
sales@suto-itec.com

S415 Thermal Mass Flow Meter (Eco Version)		
Order No.	Code	Description
S695 415	S415	S415 mass flow meter G inner thread, 3 % o. RDG, 24 VDC 5 m cable with M8 connector and open ends included
Size		
S695 415	0	DN8
S695 415	1	DN15
S695 415	2	DN20
S695 415	3	DN25
S695 415	4	DN32
Range		
	S	Standard range version
A1453	L	Low range version
Output		
A1450	A	Analog 4 ... 20 mA, Pulse Output
A1451	B	Modbus/RTU output
A1452	C	M-Bus output
Gas type		
A1007	A	Air
A1010	D	N ₂
Units		
	A	With SI units Standard
A1458	B	With imperial units
Display direction		
	A	Standard display direction
A1460	B	Reverse display direction

Example: S4150SBAB
 DN8, Standard range, Modbus/RTU, Air, imperial units

S418-V Thermal Mass Flow Meter		
Order No.	Code	Description
S695 419	S418-V	S418-V, vacuum flow meter, G inner thread, 1.5 % o. RDG, with integrated absolute pressure sensor, 24 VDC supply voltage, Air, 5 m cable with M8 connector and open ends included
Size		
S695 419	0	DN8
S695 419	1	DN15
S695 419	2	DN20
S695 419	3	DN25
Output		
A1450	A	Analog 4 ... 20 mA, Pulse Output
A1451	B	Modbus/RTU output
A1452	C	M-Bus output
Units		
	A	With SI units
A1459	B	With imperial units instead of SI units
Display direction		
	A	Standard display direction
A1460	B	Reverse display direction

Example: S418-V1BB
 DN15, Modbus/RTU, imperial units

S418 Thermal Mass Flow Meter (Pro Version)		
Order No.	Code	Description
S695 418	S418	S418 mass flow meter with integrated data logger G inner thread, 1.5 % o. RDG, 24 VDC 5 m cable with M8 connector and open ends included
Size + Pressure sensor option		
S695 418	0	DN8
S695 418	1	DN15
S695 418	2	DN20
S695 418	3	DN25
S695 418	4	DN32
S695 418	5	DN8 Pressure sensor 10 bar(g), 1 % FS
S695 418	6	DN15 Pressure sensor 10 bar(g), 1 % FS
S695 418	7	DN20 Pressure sensor 10 bar(g), 1 % FS
S695 418	8	DN25 Pressure sensor 10 bar(g), 1 % FS
S695 418	9	DN32 Pressure sensor 10 bar(g), 1 % FS
Range		
	S	Standard range version
A1453	L	Low range version
Output		
A1455	A	Analog 4 ... 20 mA, Pulse Output
A1456	B	Modbus/RTU output
A1457	C	M-Bus output
Gas type 1		
A1007	A	Air
A1008	B	CO ₂
A1009	C	O ₂ (Oil- & grease-free cleaned)
A1010	D	N ₂
A1011	E	N ₂ O
A1012	F	Argon
A1013	G	Natural Gas
A1014	H	H ₂ (Real gas calibration)
A1015	I	Other Gas (Please specify)
A1016	J	He (Real gas calibration)
A1017	K	C ₃ H ₈
	Z	No Second Gas
Gas type 2 (same selections as above)		
Units		
	A	With SI units Standard
A1459	B	With imperial units
Display direction		
	A	Standard display direction
A1460	B	Reverse display direction

Example: S4187LBAZA
 DN20 with Pressure sensor, Low range, Modbus/RTU,
 Air, No Second Gas, SI units

S415/S418/S418-V Accessories	
Order No.	Description
A554 3315	T-BOX for S415 / S418 Modbus/M-Bus systems, including 2 m cable with M8 connector
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/S418-V

