S415

Compact Thermal Mass Flow Meter

Eco-Inline

	COMPACT DESIGN			**SMARTPHONE ANDROID APP**			**POINT-OF-USE MEASUREMENT**
	Can be installed anywhere			For remote configuration			Monitor machines and air consumers

	TOTAL FLOW			**ACCURATE RESULTS**			**INTEGRATED DISPLAY**
	No bypass measurement			Integrated flow conditioner			For on site values

Benefits

- ✓ Compact flow meter for installation directly at the point-of use
- ✓ Various process connection sizes available: DN8, DN15, DN20, DN25 and DN32 (G-inner-thread)
- ✓ Economic flow and consumption metering at low investments
- ✓ Machine operation costs and consumption monitoring
- ✓ Integrated flow conditioner eliminates the need of straight inlet sections

Cost-efficient Eco Version – Flexible Installation

The S415 Thermal Mass Flow Meters offers compressed air flow and consumption measurement directly at the point of use with seamless integration.

These highly economical units will help you improve compressed air system efficiency, while helping reduce compressed air usage and operating costs.

The S415 come 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.
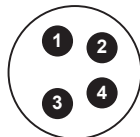
Point of Use Applications

The S415 is best suited to general process work where low cost and broad monitoring of the compressed air flow is required.

Easily monitor the compressed air flow and consumption of individual machines and processes to improve efficiency and reliability.
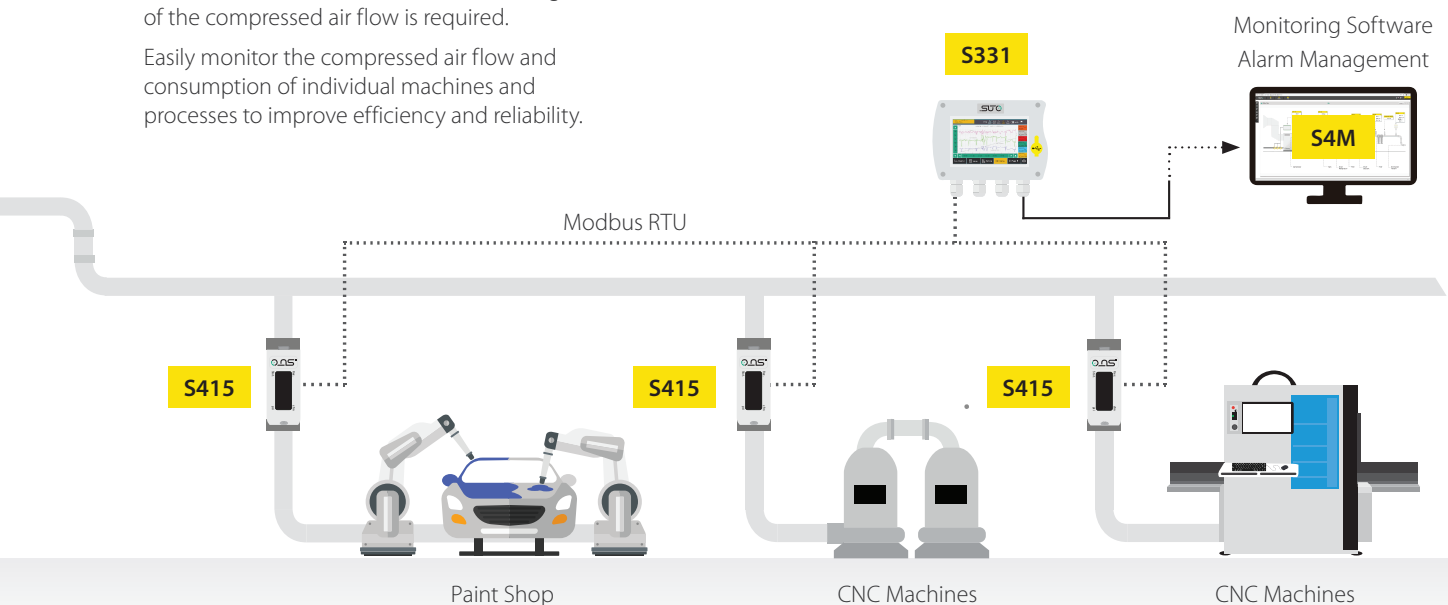
Various Output Signals

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

Modbus RTU

S331

Monitoring Software
Alarm Management

S4M

S415   S415   S415

Paint Shop   CNC Machines   CNC Machines

Wireless Connection

The free S4C-FS App offers a unique wireless connection to every SUTO flow meter for online readings and configuration.
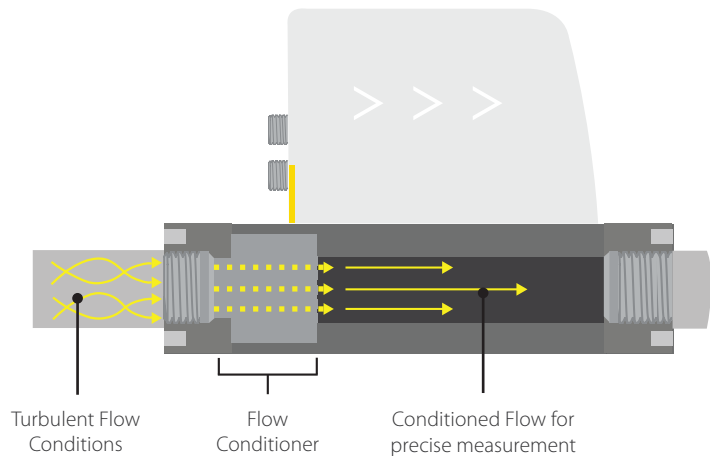
Especially during installation and setup all settings can be performed using a smartphone, there is no need to carry a PC and an interface on site. This saves a lot of time and is the easy way to get reliable sensor readings.

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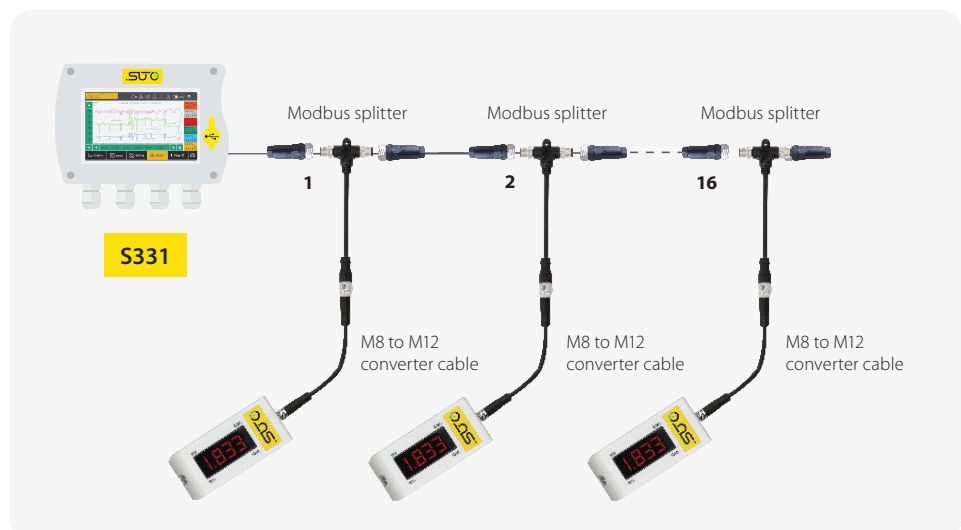
The highly engineered flow conditioner solves this problem. Unlike a standard flow conditions disk, the 3D design of the flow conditioner allows measurements with no additional straight inlet piping at all. Thanks to the innovative mechanical design, the pressure loss is negligible small (<30 hPa), offering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

Turbulent Flow Conditions   Flow Conditioner   Conditioned Flow for precise measurement

Connect several S415 to Modbus Master

The S415 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 device

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**	**DN32**
Standard range (S)	250	1000	2000	3500	6000
Low range (L)	50	200	400	700	1200

Stated measuring ranges for S415 under following conditions:

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

Measuring ranges in Nitrogen are different. Please contact us for details at sales@suto-itec.com

DN8,DN15

DN20,DN25,DN32

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

15mm

S415 Compact Thermal Mass Flow Meter (Eco-Inline)

Technical Data

Measurement

Flow

Accuracy	3 % o.RDG ±0.3 % FS
Selectable units	l/min, cfm, kg/h, m³/h
Measuring range	See table on the previous page
Repeatability	1 % o.RDG
Sensor	Thermal mass flow sensor
Sampling rate	3/sec
Turn-down ratio	50:1
Response time (t90)	2 sec

Consumption

Selectable units	m³, ft3, l, kg

Reference conditions

Selectable conditions	20 °C 1000 mbar (ISO1217) 0 °C 1013 mbar (DIN1343) Freely adjustable

Signal / Interface & Supply

Analog output

Signal	4 ... 20 mA, isolated
Scaling	0 ... max flow
Load	250R
Update rate	3/sec

Pulse output

Signal	Max 30 V, 200 mA
Scaling	1 pulse per consumption unit

Fieldbus

Interface/Protocol	RS-485/Modbus/RTU M-Bus

Supply

Voltage supply	15 ... 30 VDC
Current consumption	120 mA @ 24 VDC

General data

Configuration

Wireless	S4C-FS App for mobile phones

Display

Integrated	4 digit LED

Material

Process connection	Aluminum alloy
Housing	PC + ABS
Sensor	Glass coated resistive sensor
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 ... 1.3 kg (depends on model)

Operating conditions

Medium	Air, N2
Medium quality	ISO 8573: 4.4.3 or better
Medium temperature	0 ... 50 °C
Medium humidity	< 90 % rH, no condensation
Operating pressure	0 ... 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, DN32

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

S415 Compact Thermal Mass Flow Meter (Inline)

Order No.	Description
S695 415	S415 Compact Thermal Mass Flow Meter, G inner thread, 24 VDC, 5 m cable with M8 connector and open ends included
Size	
S695 4150	DN8
S695 4151	DN15
S695 4152	DN20
S695 4153	DN25
S695 4154	DN32
Range	
A1464	Standard range version
A1453	Low range version
Output	
A1450	Analog 4 ... 20 mA, Pulse Output
A1451	Modbus/RTU output
A1452	M-Bus output
Gas type	
A1007	Air
A1010	N_2
Units	
A1466	With SI units
A1458	With imperial units
Display direction	
A1462	Standard display direction (left to right)
A1460	Reverse display direction

Ordering Example

Example	S415 DN15, Standard Range, Modbus/RTU, Air, SI units, Standard Display direction
Order Code	S695 4151.A1464.A1451.A1007.A1466.A1462

S415 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
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
A554 3310	RS-485 / Modbus splitter

Mobile Power

S415 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]