Product innovation

Programmable air flow sensor
Series LDS 1000 LDS 1000 GAPL EE10417

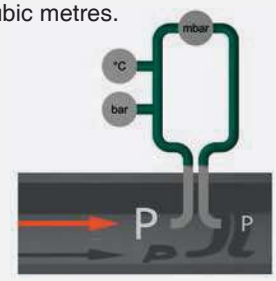
Use IO-Link
Universal · Smart · Easy

Robust sensor technology - Variable use

- Mass flow measurement of air
- Consumption measurement in compressed air networks
- Pressure- and temperature measurement
- Pipe diameter configurable
- Manipulation detection

Application

The LDS 1000 GAPL detects air flow, pressure and temperature in compressed air networks. It displays the current air consumption in an easy-to-read display and responds quickly to any changes in flow speed. At the same time, the sensor can be used to measure air consumed in standard litres or standard cubic metres.



Function principle

At the upstream pressure sensing element the air-flow causes an overpressure (P) towards a second element (p) on the downsteam side. The differential pressure thus obtained is an amount for the flow velocity. The influence of temperature and absolute pressure on the flow rate is considered by integrated measuring elements.

Functions (Selection)

- Displayed measurand and unit of measurement selectable
- Reference values for standard pressure and standard temperature adjustable
- IO-Link Device V1.1

Type

LDS 1000 GAPL P11388 • from DN 40

IO-Link

IO-Link is a point-to-point communication interface include enabling parametrization of sensors and actuators using a PC / Notebook and an interconnected master module.

Installation

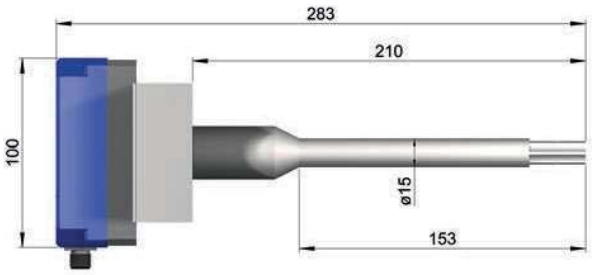
The adapter is screwed into a welding-sleeve or directly welded to a pipe. The sensor is secured in this adapter using a union nut. Distances required for inlet and outlet are derived from the piping and the existing fittings in front of the sensor.

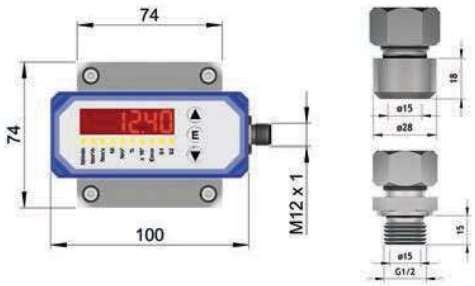
Operation and display

The sensor is parametrized using the front buttons or the IO-Link interface. The 3-digit display shows the measurement values which can be sent as process data to an PLC via the IO-Link connection.

Accessories

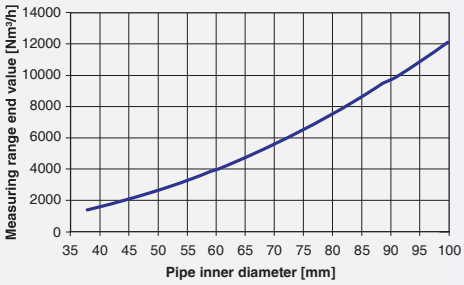
IOL-Master-Set V1.1 Z01216 • Master • Cable
Screw-in union
Weld-on union

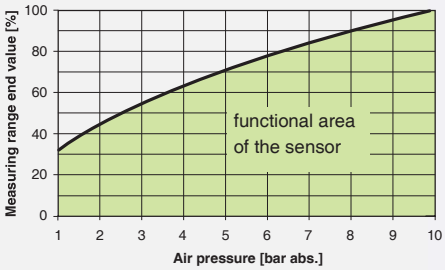




Technical data

Detection range air flow	**[Nm³/h]**	**see diagrams [1]**
Temperature	[°C]	0.0...60.0
Pressure	[bar abs.]	0.0...14.0
ID-No.		P11388
Type		**LDS 1000 GAPL**
Flow deviations [2]		
from measurement value	[±%]	10
from measurement range end value	[±%]	1
Precision	[±%]	2
Temperature deviation	[±°C]	2
Pressure deviation	[± bar]	0.1
Output S1		PNP-NO/NC, NPN-NO/NC, IO-Link, pulse PNP-NO
Output S2		PNP-NO/NC, NPN-NO/NC, Analog 4...20 mA, reset input for dosage
Supply voltage	[V]	18...30 DC
Current consumption max.	[mA]	≤100
Switching current	[mA]	≤150
Ambient temperature	[°C]	–10...+60
Medium temperature	[°C]	0...+60
Start-up time	[s]	10
Reaction time	[s]	<0.3
Compressive strength	[bar]	11
Burst pressure	[bar]	16
Sensor material		Stainless steel AISI 303, aluminium, epoxy, ceramic
Housing material		Aluminium, PBT, polyester, stainless steel AISI 303
Display flow		6-digits, 7-segment red
Protection	[EN 60529]	IP 54
Connection		M12 connector
Programmable functions		Operating modes: Hysteresis function, window function, fault monitoring, pulse output, analog output, dosage function Extended functions: Min/ Max/ average value memory, customized ID, display configuration, selectable units of measurement and standard values, access restrictions
Accessories		Screw-in union, weld-on union, IOL-Master-Set V1.1





[1] The end value of the measuring range depends on the inner pipe diameter. In order to measure with the specified accuracy the air pressure has to take into account. In case of operating outside the functional area, the sensor generates an error message.

[2] under reference conditions

Product innovation

Programmable air flow sensors
Series LDV 1000 LDV 1000 GAPL EE10417

Use IO-Link
Universal · Smart · Easy

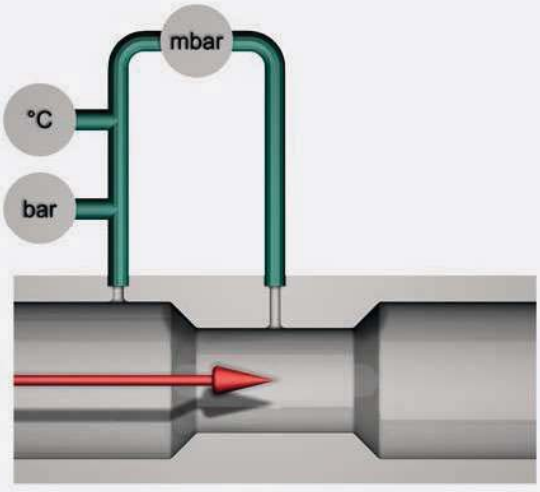
Easy installation - Robust sensor technology

- Mass flow measurement of air
- Consumption measurement in compressed air networks
- Pressure and temperature measurement
- User levels configurable
- Manipulation detection

Application

The LDV 1025 / 1040 GAPL detect air flow, pressure and temperature in compressed air networks. They display the current air consumption in an easy-to-read display and respond quickly to any changes in flow speed. At the same time, the sensor can be used to measure air consumed in standard litres or standard cubic metres.

Functional principle



In the constricted area of the sensor the air flow causes a pressure reduction towards the input pressure. This differential pressure is an amount for the flow speed. The influence of temperature and absolute pressure on the flow rate is considered by integrated measuring elements.

Functions

- Displayed measurand and unit of measurement selectable
- Configurable outputs
- Reference values for standard pressure and standard temperature adjustable
- TAG ID programmable and readable on device
- IO-Link Device V1.1

IO-Link

IO-Link is a point-to-point communication interface include enabling parametrization of sensors and actuators using a PC / Notebook and an interconnected master module.

Installation

The sensors are inserted inline into the pipe line. Any run-in and run-out distances required result from pipe routes and any existing controls and instruments upstream of the sensor.

Operation and display

The sensors are parametrized using the front buttons or the IO-Link interface. Their 6-digit display shows the measurement values which can be sent as process data to an PLC via the IO-Link connection.

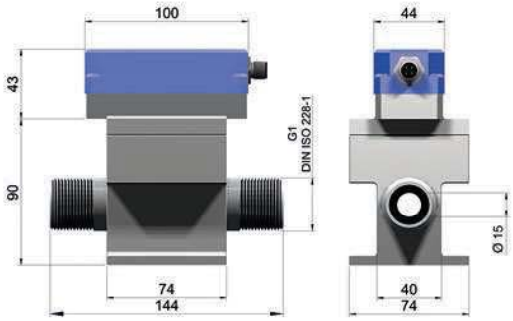
Types

LDV 1025 GAPL	P11382 • G1	• 420 Nm^3/h
LDV 1040 GAPL	P11383 • G1½	• 750 Nm^3/h

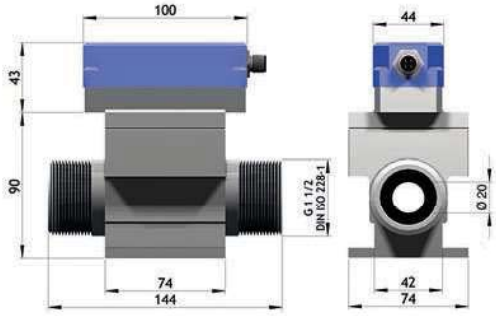
Accessories

IOL-Master-Set V1.1 Z01216 • Master • cable

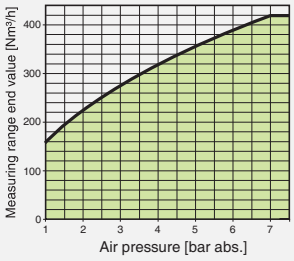
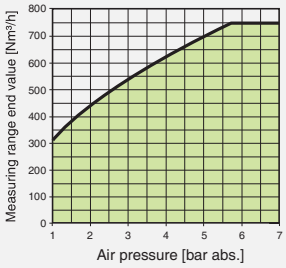
LDV 1025 GAPL



LDV 1040 GAPL



Technical data

Detection ranges			
Air flow	**[Nm³/h]**	**3...420.0**	**5...750.0**
	[Nl/min]	50...7000	80...12500
	[Nm/s]	1.7...237.6	1.4...216.5
Temperature	[°C]	0.0...60.0	0.0...60.0
Pressure	[bar abs.]	0.0...14	0.0...14
ID-No.		P11382	P11383
Type		**LDV 1025 GAPL**	**LDV 1040 GAPL**
Functional area	[ ]		

Flow deviations [1]		
from measurement value	[±%]	5
from measurement range end value	[±%]	0.5
Precision	[±%]	2
Temperature deviation	[± °C]	2
Pressure deviation	[± bar]	0.1
Output S1		PNP-NO/NC, NPN-NO/NC, IO-Link, pulse PNP-NO
Output S2		PNP-NO/NC, NPN-NO/NC, Analog 4...20 mA, reset input for dosage
Supply voltage	[V]	18...30 DC
Current consumption max.	[mA]	≤ 100
Switching current	[mA]	≤ 150
Ambient temperature	[°C]	– 10...+60
Medium temperature	[°C]	0...+60
Start-up time	[s]	10
Reaction time	[s]	< 0.3
Compressive strength	[bar]	11
Burst pressure	[bar]	16
Sensor material		aluminium, epoxy, ceramic
Housing material		aluminium, PBT, polyester, stainless steel AISI 303
Display		6-digits, 7-segment red
Protection	[EN 60529]	IP 54
Connection		M12 connector
Programmable functions		Operating modes: Hysteresis function, window function, fault monitoring, pulse output, analog output, dosage function Extended functions: Min/ Max/ average value memory, customized ID, display configuration, selectable units of measurement and standard values, access restrictions

[1] under reference conditions, from 10% of measuring range, operation of sensor within the specified functional area in the diagram