

PRODUCT INFORMATION LAMINAR FLOW GAUGE

Highly accurate and highly responsive sensor instantly measure flow rate. DF-240BA-N is equipped with flow gauge, laminar flow tube, differential pressure sensor and other useful functions and ideal for flow or leak test in production line



DF-240BA-N LAMINAR FLOW GAUGE

■ Features

- High accuracy: $\pm 2\%$ of F.S.
- Highly responsive laminar flow tube equipped
- Various flow ranges are available to meet customer requirements
- Provide high stability and durability by using highly accurate and great proof pressure DPS
- Temperature sensor for automatic temperature compensation
- Multifunctional display designed to meet various measurement requirements

■ Application Samples

- High speed flow measurement
- Pass/Fail judgment by flow rate
- Leak test by flow rate
- Flow data collection, PC data recording

■ Specification

Laminar Flow Tube Flow Range	10, 20, 50, 100, 200, 500 mL/min 1, 2, 5, 10, 20, 30, 50, 100, 200, 500 L/min
Pressure Media	Air
Accuracy	$\pm 2\%$ of F.S. ± 1 digit
Converted Temperature + Barometric Pressure	20°C (or 0°C), Flow rate is based on 1 barometric pressure
Operating Temperature	5 to 35°C
Test Pressure	Depending on selected range
Temperature Sensor	Built-in or attached to Laminar Flow Tube
Measured Differential Pressure	Approx. 0.6kPa at F.S. flow rate
Pressure Loss	150% of Measured Differential Pressure
Connection Port Diameter	Differential Pressure Connection: Rc1/8 Flor Sensor Connection: Refer to next page
Proof Pressure	1MPa (PT-110FC-A), 10kPa (PT-103B-A)
Power Supply	AC100V $\pm 10\%$ 50/60Hz

■ Multifunctional Displays

Channel No#	10 Channels
Upper/Lower Limit Setting	4 Settings HH, HI, LO, LL
Zero Adjustment	One push Zero Method
Auto Zero	Auto Zero Button
Display Hold	Hold Button
Display Response	Digital Filter Large, Medium, Small
RS-232C	Selection from 1200, 9600, 19200 bps
BCD Output	Open Collector
Display Digits	3.5 digits (1999) / 4.5 digits (19999)
Sample Rate	250 ms or 50 ms
User Span	0.001 to 9.999 (1.000 at Delivery Time)
External Dimension	Display W140 x H66 x D172 mm
Panel Cut	Cutting Size W133 x H61 mm

■ Model Classifications

DF-240BA-N-((1), (2))-((3))(4)-(5)

(1) Flow Range		(2) Test Pressure		(3) Converted Temperature		(4) Power/Voltage		(5) Option	
Code	Unit	Code	Unit	Code	Description	Code	Description	Code	Description
<input type="checkbox"/> <input type="checkbox"/> ML	<input type="checkbox"/> <input type="checkbox"/> mL/min	<input type="checkbox"/> <input type="checkbox"/> KP	<input type="checkbox"/> <input type="checkbox"/> kPa	S	20°C	VA	AC100V	B	Low Pressure Sensor *1
<input type="checkbox"/> <input type="checkbox"/> L	<input type="checkbox"/> <input type="checkbox"/> L/min	<input type="checkbox"/> <input type="checkbox"/> MP	<input type="checkbox"/> <input type="checkbox"/> MPa	N	0°C	VC	AC110V	F1	Analog output 5V
						VE	AC220V	F2	Analog output 10V
								F3	Analog output depending on display

*1: Low pressure sensor (PT-103B-A) is used under 10kPa

Laminar Flow Tube Range

Model	Flow Range (Barometric Pressure)	Max Pressure	Connection Port Diameter	Temp. Sensor
LF-104 N - 10C	0 to 10 mL/min	990kPa	R1/4	Built-in
LF-104 N - 20C	0 to 20 mL/min			
LF-104 N - 50C	0 to 50 mL/min			
LF-104 N -100C	0 to 100 mL/min			
LF-104 N -200C	0 to 200 mL/min			
LF-104 N -500C	0 to 500 mL/min			
LF-104 N - 1L	0 to 1 L/min	700kPa	R1/2	
LF-104 N - 2L	0 to 2 L/min			
LF-104 N - 5L	0 to 5 L/min			
LF-104 N - 10L	0 to 10 L/min	500kPa	R1/2	
LF-104 N - 20L	0 to 20 L/min			
LF-104 N - 30L	0 to 30 L/min			
LF-105B N - 50L	0 to 50 L/min	350kPa	R1/2	
LF-105B N -100L	0 to 100 L/min			
LF2-200L	0 to 200 L/min	50kPa	R3/4	Attached
LF2-500L	0 to 500 L/min			

This is the flow range under barometric pressure. If used under test pressure, please select the flow range by using the following formula.

Laminar Flow Range : X (mL/min)
 Test Pressure : P (kPa)
 Max. Flow Rate (Barometric Pressure) : Q(atm mL/min)

$$X = \frac{101.3}{101.3 + P} \times Q$$

The chart shown below is the Laminar Flow Tube list under specific flow rate and test pressure. Flow range is assigned by the order of 1, 2, 5

(Ex)
 Test pressure: 300kPa
 Max. Flow rate: 500mL/min
 In the meeting points of 300kPa and 500mL/min, you will find 200C.
 That means LF-104N-200C is the most appropriate choice

Selection List

The appropriate Laminar Flow Tube will be found in the meeting point of Test Pressure and Flow Range.

Code	T.P (kPa) Flow Range↓	-61 to -70	-51 to -60	-41 to -50	-35 to -40	-1 to -34	0 to 50	51 to 67	68 to 100	101 to 150	151 to 200	201 to 235	236 to 300	301 to 350	351 to 400	401 to 500	501 to 700	701 to 910	911 to 990
10 ML	10mL/min	50 C	50 C	20 C	20 C	20 C	10 C	10 C	10 C	10 C	10 C	10 C	10 C	10 C	10 C	10 C	10 C	10 C	10 C
20 ML	20mL/min	100 C	50 C	50 C	50 C	50 C	20 C	20 C	20 C	10 C	10 C	10 C	10 C	10 C	10 C	10 C	10 C	10 C	10 C
50 ML	50mL/min	200 C	200 C	100 C	100 C	100 C	50 C	50 C	50 C	50 C	20 C	20 C	20 C	20 C	20 C	10 C	10 C	10 C	10 C
100 ML	100mL/min	500 C	500 C	200 C	200 C	200 C	100 C	100 C	100 C	50 C	50 C	50 C	50 C	50 C	50 C	20 C	20 C	20 C	10 C
200 ML	200mL/min	1 L	500 C	500 C	500 C	500 C	200 C	200 C	200 C	100 C	100 C	100 C	100 C	50 C	50 C	50 C	50 C	50 C	20 C
500 ML	500mL/min	2 L	2 L	1 L	1 L	1 L	500 C	500 C	500 C	500 C	200 C	200 C	200 C	200 C	200 C	100 C	100 C	100 C	50 C
1 L	1L/min	5 L	5 L	2 L	2 L	2 L	1 L	1 L	1 L	500 C	500 C	500 C	500 C	500 C	500 C	200 C	200 C	200 C	100 C
2 L	2L/min	10 L	5 L	5 L	5 L	5 L	2 L	2 L	2 L	1 L	1 L	1 L	1 L	500 C	500 C	500 C	500 C	500 C	200 C
5 L	5L/min	20 L	20 L	10 L	10 L	10 L	5 L	5 L	5 L	5 L	2 L	2 L	2 L	2 L	2 L	1 L	1 L	N/A	500 C
10 L	10L/min	50 L	50 L	20 L	20 L	20 L	10 L	10 L	10 L	5 L	5 L	5 L	5 L	5 L	5 L	2 L	2 L	N/A	N/A
20 L	20L/min	100 L	50 L	50 L	50 L	30 L	20 L	20 L	20 L	10 L	10 L	10 L	10 L	5 L	5 L	5 L	5 L	N/A	N/A
30 L	30L/min	100 L	100 L	100 L	50 L	50 L	30 L	20 L	20 L	20 L	20 L	10 L	10 L	10 L	10 L	10 L	N/A	N/A	N/A
50 L	50L/min	N/A	N/A	100 L	100 L	100 L	50 L	50 L	50 L	30 L	30 L	20 L	20 L	20 L	20 L	10 L	N/A	N/A	N/A
100 L	100L/min	N/A	N/A	N/A	N/A	N/A	100 L	100 L	100 L	50 L	50 L	50 L	30 L	30 L	30 L	20 L	N/A	N/A	N/A
200 L	200L/min	N/A	N/A	N/A	N/A	N/A	200 L	N/A	N/A	100 L	100 L	100 L	100 L	50 L	N/A	N/A	N/A	N/A	N/A
500 L	500L/min	N/A	N/A	N/A	N/A	N/A	500 L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

External Appearance of Laminar Flow Tube & Differential Pressure Sensor



LF-104N Ø50 x 230 mm



LF-105BN Ø64 x 300 mm



LF2-200L Ø59.5 x 334 mm

LF2-500L Ø89.5 x 448.5 mm



Differential Pressure Sensor PT-110FC-A

W70 x H108 x D66 mm

The information in this Product Information is as of March 2015. The specifications are subject to change without prior notice.

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