

**NEW**



**Various applications from in-line test to lab use.**  
**Large LCD screen displays a lot of info besides flow.**  
**Accuracy  $\pm 1\%$  of reading supported.**

\* Flow range: 1 L/min or more

### ■ Features



Easy-to-navigate configuration with icons Each menu opens by simply touching an icon.



Test pressure and flow can be monitored in charts.



Language selectable (English, Japanese, Chinese)



Various Hold functions  
Provides desired data.



Easy data collection via USB port.



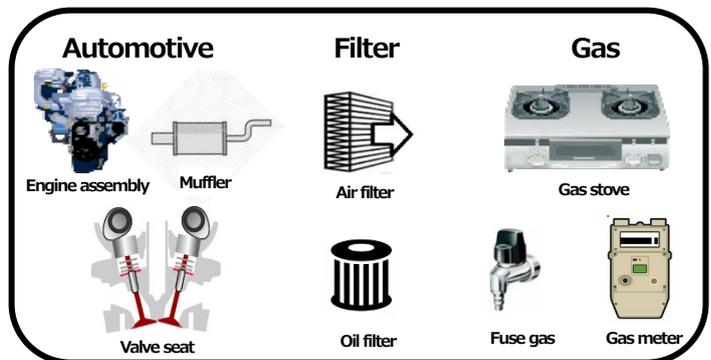
Full 4-digit display



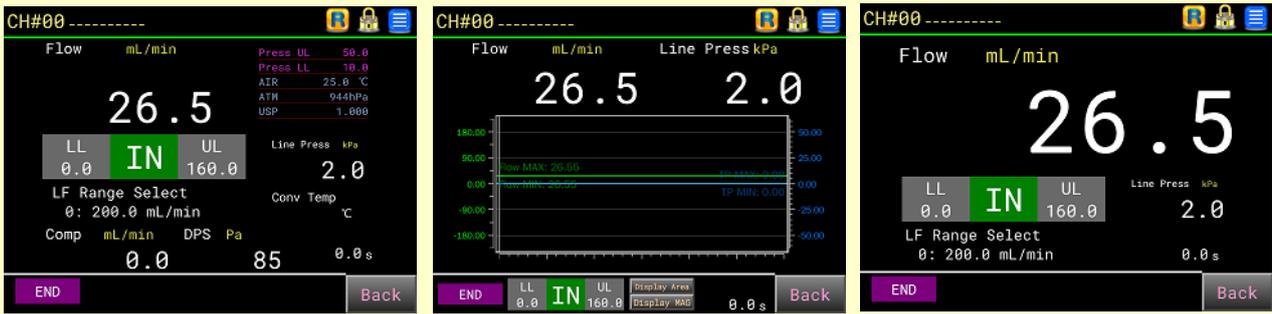
FTP available for Ethernet. (When the Memory is selected)

### ■ Application Examples

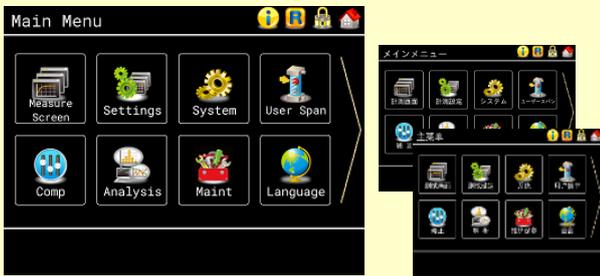
- High-accuracy flowmeter for labs
- Flow and leak tests for auto parts
- Flow test for gas equipment
- Flow test for valves
- Flow test for medical devices
- Flow test for pumps and pipes
- Others



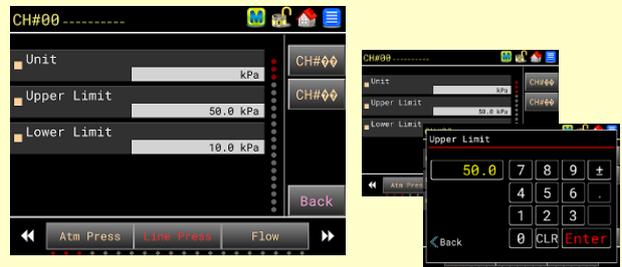
- Measurement screen can be selected from "Advanced", "Waveform", and "Simple"



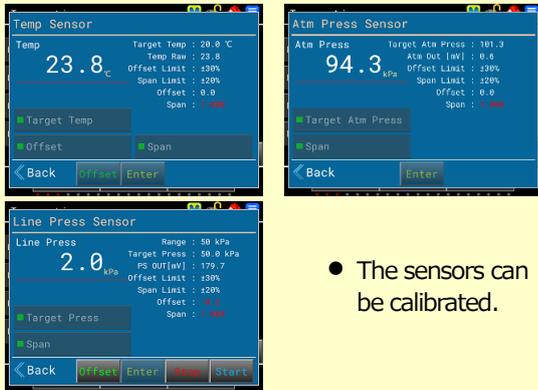
- English, Japanese, and Chinese



- Large numeric keyboard pops up for easy test parameter settings.

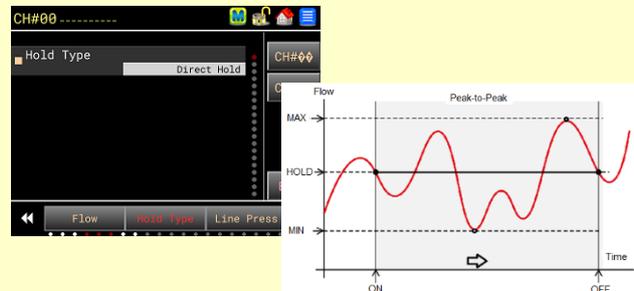


- Temperature, Line Pressure and Atmospheric Pressure Sensors provided. Compensation features realize higher accuracy.



- The sensors can be calibrated.

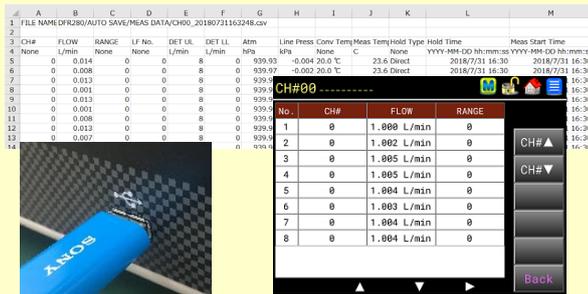
- Various Hold functions



- "Direct Hold", "Max Value Hold", "Min Value Hold", and "Peak-to-Peak"

- Test parameters and results can be output to the USB memory.

Test results can be directly output in CSV format.



Quality data stored

- FTP Function



Share the quality data via Ethernet.



Parameters

- IP Address
- Subnet Mask
- User Name
- Password
- FTP Directory

FTP parameters

## ■ Features

Color LCD Touch-Screen	From the Main Menu, sub menus "Measure Screen"/"Settings", "System", "Comp", "Analysis", etc. are accessible.	Language	English, Japanese, Chinese
Measure Screen	Can be selected from "Advanced", "Waveform", and "Simple".	Flow Range	10 mL/min to 500 L/min
Settings	Tap the items on the touch screen.	Sensor	Temperature Sensor, Line Pressure Sensor and Atmospheric Pressure Sensor provided as standard.
Flow Limits	Two sets of leak limits: Upper limits (UL2/UL), Lower limits ( LL2/LL)	Conversion Temperature	0 °C, 15 °C, 20°C, 25 °C, (70 °F)
Flow Display	Converted flow rate (Value converted to volume at 1 atm at conversion temperature)	Digital Filter	The filter constant (1 to 50) averages the display values which gives stabler measurement.
USB Port	Provided as standard (1 port)	User Span	Adjusts to desired flow rates.
RS-232C	2 ports as standard Compatible with DF-2820	Internal memory	16 G for Ethernet (Option)

## ■ Specifications

Flow Sensor	Laminar Flow Sensor (Laminar Flow Tube)	
Pressure Media	Air	
Flow Range	Up to 16 ranges for 8 Laminar Flow Tubes	
Atmospheric Pressure Sensor	Range: 700 to 1200 hPa Accuracy: ± 0.5% of F.S. + 1digit	
Line Pressure Sensor	Proof Pressure 50 kPa or less: F.S. Range x 10 100 kPa or more : F.S. Range x 2 Accuracy: ± 0.2% of F.S. + 1digit	
Number of Channels	100 channels (0 to 99)	
Flow Unit	mL/min, L/min, mL/s, L/s, L/h, m <sup>3</sup> /h, (CFH, CFM) The units in ( ) are not available for SI unit models.	
Pressure Unit	kPa, MPa, (PSI, kg/cm <sup>2</sup> , Bar, mbar, mmHg, cmHg, inHg, mmH <sub>2</sub> O) The units in ( ) are not available for SI unit models.	
Power Source	100 to 240 VAC ±10%, 50/60 Hz, 100 VA max Select 125 V or 250 V	
Option	Analog Output	Flow rate + Line pressure
	Internal memory	16 G (For FTP)

Line Pressure Compensation	Automatic compensation with pressure sensor	
Atm Pressure Compensation	Automatic compensation with atmospheric pressure sensor	
Operating Temperature	5 to 45 °C	
Humidity	80 % RH or less / No dew condensation	
Differential Pressure Port Size	Rc1/8	
Weight	Approx. 8.2 kg	
Dimensions (mm)	(W) 283 x (H) 189 x (D) 382	
RS-232C	Two-way communication	Data calling and writing
	Fixed length output	DF Format (Various data)
		28 Format Same format as for DF-2800
Baud rate (bps)	1200, 9600, 19200, 38400, 57600, 115200	
USB	Data storage, writing, backup, etc.	
LAN	FTP installed	
Interface	Phoenix Contact (DFMC 1,5/20-ST-3,5-LR)	
Standard Accessories	Quick Mounting Brackets, Connectors, Inspection record, Traceability documents, Operation manual, Power cord, Fitting/Piping for connecting differential pressure	

## ■ Model **DF-R280-A.BB'CD-E-F** (Conversion temperature, Flow range·Unit, Accuracy, Line Pressure Sensor)



See the "Flow Ranges" below for flow ranges.

### For 1 L/min or above ranges:

2-range calibrations (L Range and U Range) are available.

(The price for the calibration of L Range will be charged separately.)

### Ranges of Line Pressure Sensor

10 kPa, 50 kPa, 100 kPa, 500 kPa, -100 kPa

\* Please contact us for other ranges.

UX3 in preparation \*1

	Classification	Code	Function
<b>A</b>	Number of Laminar Flow Tubes	<b>1 to 8</b>	Number of Laminar Flow Tubes
<b>BB'</b>	Laminar Flow Tube Range	<b>10ML to 500L</b>	Enter all the ranges.
<b>C</b>	Line Pressure Sensor	<b>L01</b>	1 to 10 kPa
		<b>L05</b>	10 to 50 kPa
		<b>L</b>	10 to 100 kPa (Standard)
		<b>M</b>	30 to 500 kPa
		<b>V</b>	-10 to -70 kPa
<b>D</b>	Option	<b>A</b>	Analog output (Flow, Line pressure)
		<b>D</b>	Memory 16 G (For FTP)
<b>E</b>	Unit (Mandatory)	<b>UX1</b>	SI units (Mandatory for Japan)
		<b>UX2</b>	All units (Only for overseas)
		<b>UX3</b>	All units (Only for UL) *1
<b>F</b>	Power Cord	<b>VA</b>	125 V (3 m)
		<b>VE</b>	250 V (2 m)
		<b>VK</b>	250 V (2 m) (Only for Chinese customers)

## Laminar Flow Sensor (Laminar Flow Tube)



- ▶ Select from many ranges. F.S. 10 mL/min to 500 L/min
- ▶ Can measure pulsating flow such as pump discharge flow.
- ▶ Same performance as the flow sensors used in the conventional DF-2820/2810.
- ▶ Robust and durable with no moving parts.

### ■ Flow Ranges (Laminar Flow Tube are sold separately)

Code	Model	Ranges and number of display digits			Line pressure (Max.)	Accuracy
10ML	LF-104N-10C	0.00 to 10.00 mL/min			990 kPa	At atmospheric pressure: ±1.0 % of F.S.±1 digit At Line pressure: ±1.5% of F.S.±1 digit
20ML	LF-104N-20C	0.00 to 20.00 mL/min				
50ML	LF-104N-50C	0.00 to 50.00 mL/min				
100ML	LF-104N-100C	0.0 to 100.0 mL/min				
200ML	LF-104N-200C	0.0 to 200.0 mL/min				
500ML	LF-104N-500C	0.0 to 500.0 mL/min				
Code	Model	1-range (F.S) accuracy range & Display digits	L Range & D isplay digits	Accuracy range (R.D.) U Range & D isplay digits	Line pressure (Max.)	Accuracy
1L	LF-104N-1L	0.000 to 1.000 L/min	0.000 to 0.300 L/min	0.300 to 1.000 L/min	700 kPa	■ 1 range (R.D) / U Range At atmospheric pressure: ±1.0 % of rdg. ±1 digit At Line pressure: ±1.5 % of rdg. ±1 digit
2L	LF-104N-2L	0.000 to 2.000 L/min	0.000 to 0.600 L/min	0.600 to 2.000 L/min		
5L	LF-104N-5L	0.000 to 5.000 L/min	0.000 to 1.500 L/min	1.500 to 5.000 L/min	500 kPa	■ 1 range (F.S.) / L Range At atmospheric pressure: ±1.0 % of F.S.±1 digit At Line pressure: ±1.5 % of F.S.±1 digit
10L	LF-104N-10L	0.00 to 10.00 L/min	0.000 to 3.000 L/min	3.00 to 10.00 L/min		
20L	LF-104N-20L	0.00 to 20.00 L/min	0.000 to 6.000 L/min	6.00 to 20.00 L/min	350 kPa	
30L	LF-104N-30L	0.00 to 30.00 L/min	0.000 to 9.000 L/min	9.00 to 30.00 L/min		
50L	LF-105BN-50L	0.00 to 50.00 L/min	0.00 to 15.00 L/min	15.00 to 50.00 L/min	200 kPa	
100L	LF-105BN-100L	0.0 to 100.0 L/min	0.00 to 30.00 L/min	30.0 to 100.0 L/min		
200L	LF2-200L	0.0 to 200.0 L/min	0.00 to 60.00 L/min	60.0 to 200.0 L/min	50 kPa	
500L	LF2-500L	0.0 to 500.0 L/min	0.0 to 150.0 L/min	150.0 to 500.0 L/min		

**Note 1:** The above ranges are the flow ranges at atmospheric pressure.

**Note 2:** For the Laminar Flow Tubes whose model name has "N" in it, new temperature sensor connectors are being used from April 2011.

**Note 3:** For single range (1 range) Laminar Flow Tubes of 1 L/min or above, the accuracy of "0 to full range (F.S.)" or "30% to full range (R.D)" can be selected.

**Note 4:** For Vacuum and High Line Pressure (101KPa or more) models, the range of Laminar Flow Tube will be different.

**Note 5:** When the range is 10C, the value of small flow fluctuates due to the relational equation with the pressure.

Use a smaller number of display digits in that case.

### ■ Option

#### Analog Output



Analog values of flow and Line pressure  
Can amplify up to 10 V

#### DF-2820 compatible cable

CX-R150

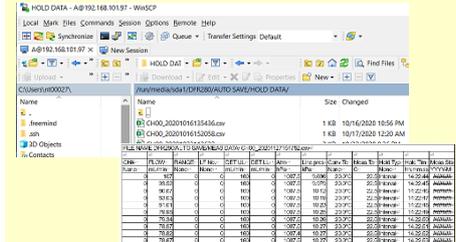
CX-R241



DF-R280 => DF-2820

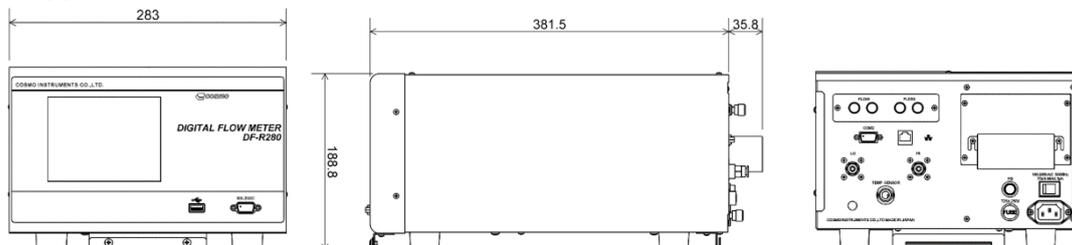
DF-2820 => DF-R280

#### Internal memory 16 G (for FTP)



Can be viewed

### ■ External Appearance



\* The contents in this Product Information are as of January 2022. The specifications are subject to change without prior notice.

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