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DFL Sensors

Type CDFL1A..., CDFL3A...

Fuel Flow Meters

DFL sensors are especially designed for fuel consumption measurement in mobile vehicle testing.

- Very simple installation
- High measurement resolution
- Suitable for all current fuel supply systems
- Suited for gasoline, diesel, bio-diesel and alcohol fuel
- Leakage-protected quick couplings, fuel-resistant hoses and sealings
- Signal outputs: Analog, Digital, CAN-Bus, USB and RS-232C

DFL1x-5bar

DFL3x-5bar

Description

DFL sensors are developed for quick and easy fuel consumption measurement. Small dimensions and little weight enable the devices to be installed in almost any vehicle for mobile testing. The sensors are also designed for test bench applications, like the use on power analyzers or engine dynamometers. Today's DFL devices suit all kinds of consumption measurement with gasoline, diesel, alcohol based and bio fuels due to easy handling, robust and durable construction and also due to unique quality. An external signal processor that is included in the scope of delivery reads the measured data from the sensor and provides different outputs for the user's data acquisition.

Application

The field of applications covers fuel consumption testing with engines of passenger cars, trucks, heavy duty and specialized vehicles and motorbikes. The devices can be used mobile in vehicles as also stationary at the test bench. The DFL systems fit to almost all fuel systems.
DFL1x-5bar sensors suit installation in vehicles with only one feed line to the engine with no return line to the tank.
DFL3x-5bar sensors with integrated heat exchanger suit installation in vehicles with feed line to the engine and return line to the tank.

Technical Data

Performance Specifications		DFL1x-5bar	DFL1x-3bar
Measuring range (sensor)	l/h	0,5 ... 250	
Flow rate max. (pump)			
at 1 bar	l/h		190
at 5 bar	l/h		120
Measurement accuracy (range 1 ... 50 l/h)	%	±0,5	

		DFL1x-5bar	DFL1x-3bar
Reproducibility	%	±0,2	
Operating pressure max.[1]	bar	5	
Pressure drop	bar	0 ... 0,5	
Resolution	cm^3	0,33	

Signal Outputs[2]			
Digital 1 (act. consumption)	pulses/cm^3	50 ... 10 000	
Digital 2 (fuel flow)	Hz/l/h	1 ... 10 000	
Digital 5 for connection to a stand-alone display		proportional to Dig 1	
Digital 2 (fuel flow)	V	0 ... 10	
Analog 2 (temp. input)[3]	V	0 ... 10	
Analog 3 (temp. output)[3]	V	0 ... 10	
Analog 4 (pressure)[4]	V	no	0 ... 10

Interfaces			
CAN (Motorola/Intel)[5]		2.0B	
USB (Full Speed)		2.0	
RS-232C		yes	

System Specifications			
Power supply	VDC	10 ... 28	10 ... 15
Power consumption max.	A	0,2	8
Temperature range	°C	–20 ... 70	
Relative humidity	%	80	
Degree of protection		IP34	
Dimensions (LxWxH)	mm	183x106x94	344x193x125
Weight (approx.)	kg	2	9

[1] built-in pressure regulator with DFL3x-5bar
[2] of the external signal processor
[3] only available with option "PT100"
[4] only available with option "Pressure Sensor, Internal connection"
[5] actual consumption in: l/100 km; km/l; temp. input; temp. output; pressure; flow rate; total consumption

CDFLA_000-814d-02.14

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Included Accessories for DFL1x sensors	Type/Art. No.
• DFL processor	55064869
• Power cable, l = 2 m	18012367
• Signal cable, l = 5 m	18012610
• Connection cable CAN, l = 2 m	18012482
• Connection cable RS-232C, l = 2 m	18012469
• Connection cable USB, l = 2 m	18012483
• Distribution cable, l = 1 m	18012592
• Distribution cable, l = 1 m	18012593
• Diesel connecting set DFL	22000345
• Multimedia-CD incl. software & manuals	55082182
• DFL sensor calibration	44000619
• Transport case, complete	55066893

Included Accessories for DFL3x-5bar sensors	Type/Art. No.
• DFL Processor	55064869
• Power cable, l = 2 m	18012367
• Signal cable, l = 5 m	18012610
• Connection cable CAN, l = 2 m	18012482
• Connection cable RS-232C, l = 2 m	18012469
• Connection cable USB, l = 2 m	18012483
• Distribution cable, l = 1 m	18012592
• Distribution cable, l = 1 m	18012593
• Power cable, l = 5 m	18012366
• Diesel connecting set DFL	22000345
• Manometer with quick coupling, ±1 bar	22000366
• Manometer with quick coupling, max. 5 bar	22000351
• Hose with inline filter, l = 1 m	22000382
• Connecting hose, ø11,5 mm	22000376
• Multimedia-CD incl. software & manuals	55082182
• DFL sensor calibration	44000619
• Transport case, complete	55066893

Included Accessories for DFL-WTx-5bar	Type/Art. No.
• Power cable, l = 5 m	18012366
• Manometer with quick coupling, ±1 bar	22000366
• Manometer with quick coupling, max. 5 bar	22000351
• Pressure regulator	22000354

Optional Accessories	Type/Art. No.
• Pressure sensors	on request
• Temperature sensor PT100	on request
• Hose set (required, ø see ordering key)	on request
• Connecting set (required, ø see ordering key)	on request
• Filter	on request
• Pressure regulator, optional for DFL1x-5bar	22000354

Ordering Key

Type CDFL1A □ □ □ □ □

Sensor	
Without sensor[1)]	0
With sensor	1

Heat Exchanger (HE)	
Without HE	0
With external HE	1
With external HE + pressure sensor	2

Hose Diameter	
11,5*	1
7,3	2
9,3	3
14	4

Hose Length	
2,5*	1

Temperature Sensor	
No*	0
1 channel PT100	1
2 channel PT100	2

[1)] = only with heat exchanger WTx-5bar

Type CDFL3A □ □ □ □

Hose Diameter	
Without	0
11,5*	1
7,3	2
9,3	3
14	4

Hose Length	
2,5*	1

Temperature Sensors	
No*	0
1 channel PT100	1
2 channel PT100	2

Pressure	
No*	0
Internal connection	1

Ordering Example*

Type CDFL3A1100

DFL3x-5bar sensor, hoses 11,5 mm diameter, 2,5 m long, no temperature sensor, no pressure sensor

* Standard configuration

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