Dwyer®

SERIES DFM | DIGITAL FLOW METER

BENEFITS/FEATURES

• **Quick (<20 ms) response time**
• **Multi-parameter functionality**
• **Multi-gas functionality**
• **Capable of storing up to 90 gases and 20 custom gas mixes**
• **Simple field configuration**
• **Modifiable outputs**
• **High, low or in-range alarms with preset action delay for mass flow, temperature and pressure**

APPLICATIONS

• Gas flow measurement
• Operating pumps and valves
• Process equipment
• Scientific and analytical
• Bioreactors and surface depositions
• Gas sampling
• General manufacturing

DESCRIPTION

The **Series DFM Digital Flow Meter** is the industry leader in the measurement of mass and volumetric flow rates of process gases. Using the OLED/joystick interface, the flowmeter can measure up to 30 different gases. Simultaneous displays of mass flow, volumetric flow, pressure and temperature parameters promote applications in a variety of industries.

SPECIFICATIONS

Service	Clean, non-corrosive gases compatible with wetted parts.
Wetted Materials	316 SS, 416 SS, high temperature polyamide, alumina ceramic, epoxy, silicone, glass, gold. FKM O-rings.
Accuracy	±(0.5% of reading + 0.2% FS).
Repeatability	±0.15% FS.
Response Time	10 ms.
Output	0-5 VDC, 0-10 VDC and 4-20 mA.
Relay Rating	Programmable solid state relay.
Max. Particulate Size	20 microns.
Temperature Limits	14 to 140°F (-10 to 60°C).
Power Supply	9-26 VDC.
Process Connections	1/8″ compression fitting for flow rates ≤ 10 L/min; 1/4″ for ≤ 50 L/min; 3/8″ for ≤ 100 L/min.
Display	2 x 16 character OLED (model selectable).
Pressure Limits	120 psig (8.27 bar).
Leak Integrity	1×10^{-9} sccs of helium.
Weight	DFM-01/50: 0.85 lb (0.4 kg); DFM-51/56: 1.15 lb (0.52 kg).
Agency Approvals	CE.

DIMENSIONS
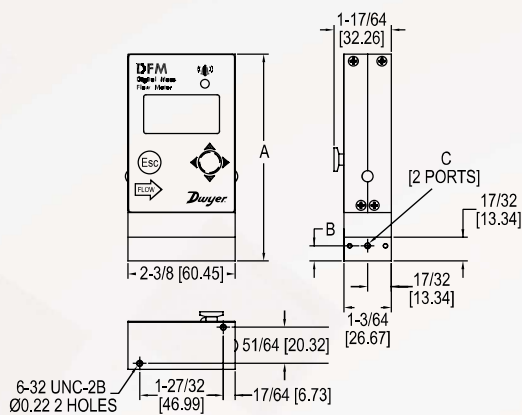
Ranges 0.5 mL/min-20L/min (DFM-01/50)
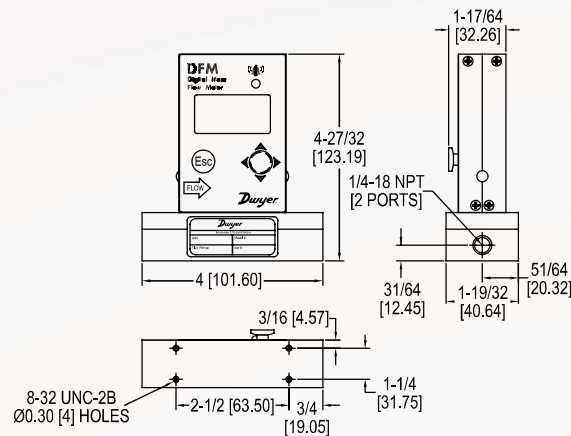
Ranges 21 L/min-100 L/min (DFM-51/56)

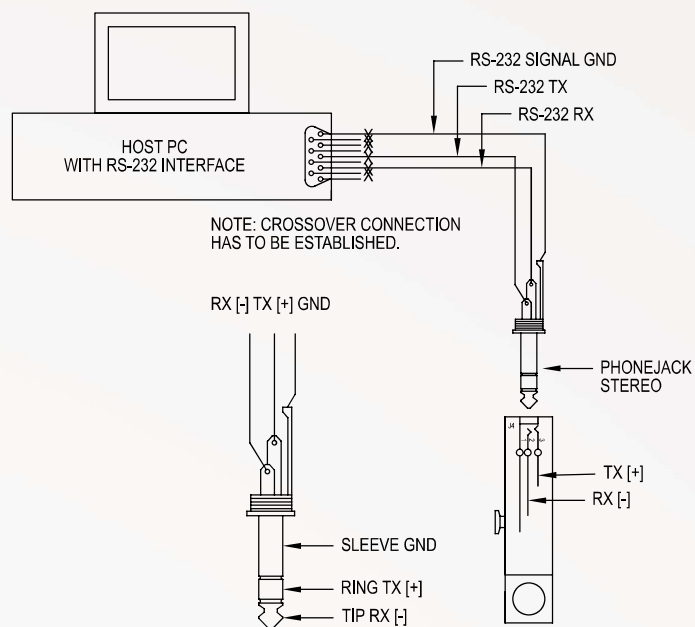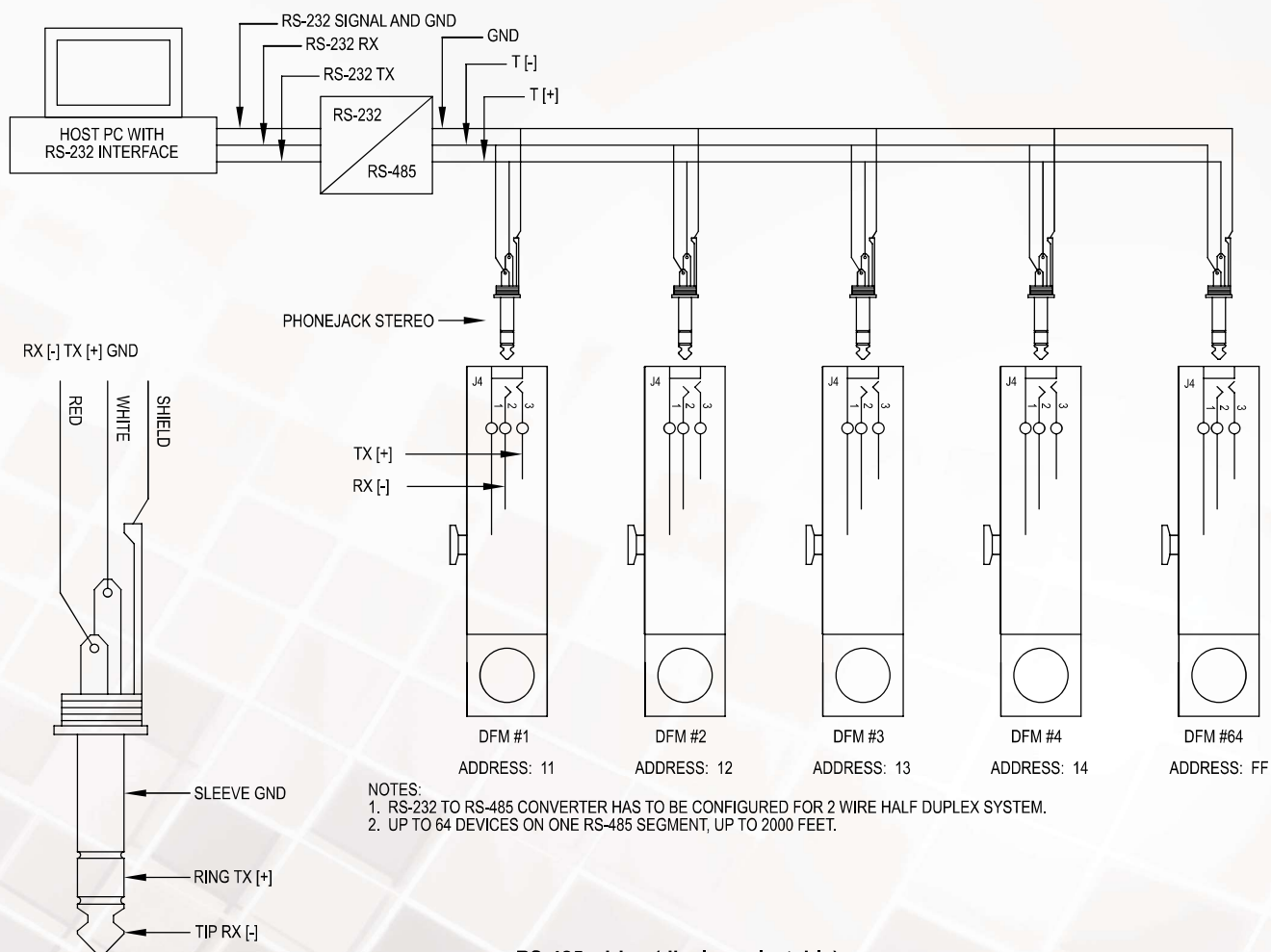| Range	A	B	C
0.5 mL/min-50 mL/min	4-13/32 [111.76]	4-37/64 [116.33]	10-32 UNF-2B
51 mL/min-20 L/min	4-37/64 [116.33]	4-13/32 [111.76]	1/8-27 NPT

WIRING DIAGRAM
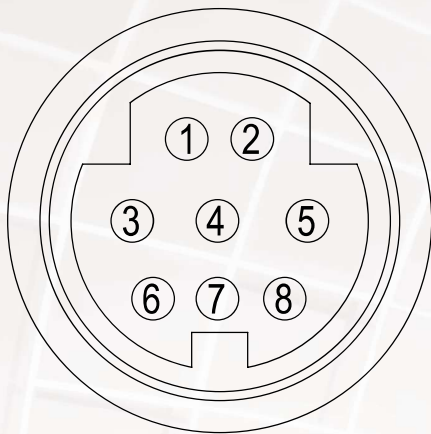
DIN connector wiring

PIN	Function	Note
1	Solid state SPST relay NO (normally open) contact #1	Do not exceed SSR maximum voltage 48 AC peak/DC and maximum load current 400 mA.
2	Solid state SPST relay NO (normally open) contact #2	
3	RS-232 RX/RS-485 (-) communication interface input	Also accessible via audio jack connector (see figures 2 and 25 in IOM).
4	Analog (0-5 VDC, 0-10 VDC, 4-20 mA) input/output reference (-)	Common (return) for pin 6 (0-5 VDC or 0-10 VDC or 4-20 mA).
5	RS-232 TX / RS-485(+) communication interface input	Also accessible via audio jack connector (see figures 2 and 25 in IOM).
6	Analog (0-5 VDC, 0-10 VDC or 4-20 mA) output (+)	Output. Do not apply external voltage or any current source. Be sure to observe recommended load impedance.
7	Power supply, positive (+)	Power input 9-26 VDC.
8	Power supply, common (-) RS-232 signal ground	Power input and RS-232 communication common.

WIRING DIAGRAM

RS-232 SIGNAL GND
RS-232 TX
RS-232 RX

HOST PC
WITH RS-232 INTERFACE

NOTE: CROSSOVER CONNECTION
HAS TO BE ESTABLISHED.

PHONEJACK
STEREO

RX [-] TX [+] GND

TX [+]
RX [-]

SLEEVE GND

RING TX [+]

TIP RX [-]

RS-232 wiring (default)

RS-232 SIGNAL AND GND
RS-232 RX
RS-232 TX

GND
T [-]
T [+]

HOST PC WITH
RS-232 INTERFACE

RS-232
/
RS-485

PHONEJACK STEREO

RX [-] TX [+] GND

RED
WHITE
SHIELD

TX [+]
RX [-]

SLEEVE GND

RING TX [+]

TIP RX [-]

DFM #1	DFM #2	DFM #3	DFM #4	DFM #64
ADDRESS: 11	ADDRESS: 12	ADDRESS: 13	ADDRESS: 14	ADDRESS: FF

NOTES:
1. RS-232 TO RS-485 CONVERTER HAS TO BE CONFIGURED FOR 2 WIRE HALF DUPLEX SYSTEM.
2. UP TO 64 DEVICES ON ONE RS-485 SEGMENT, UP TO 2000 FEET.
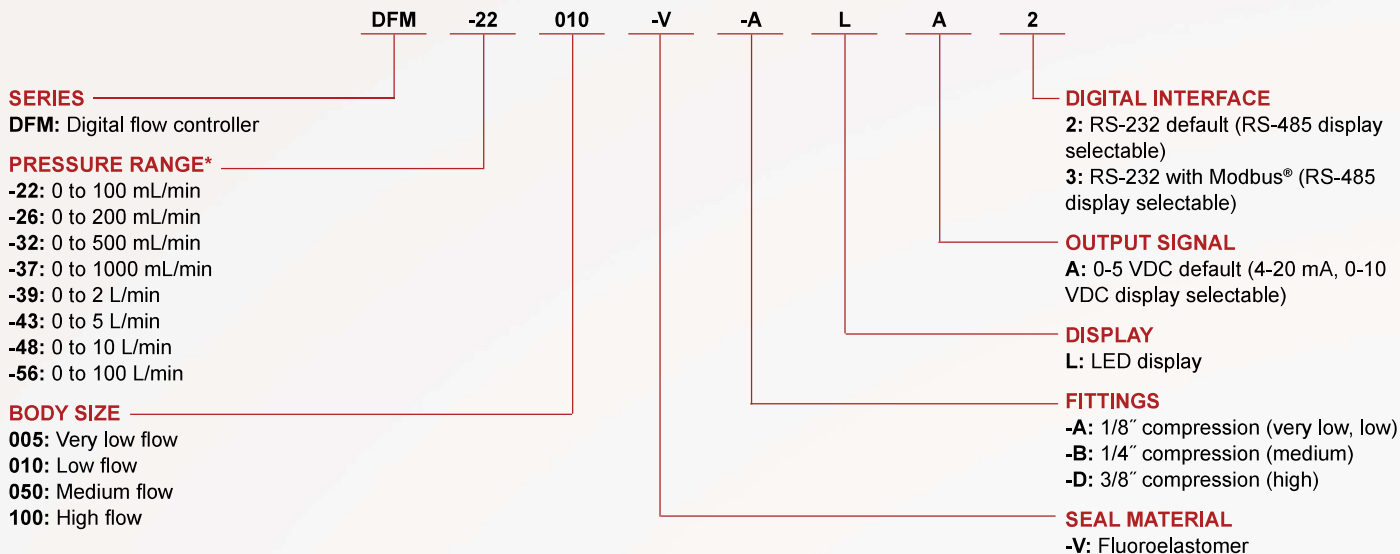
RS-485 wiring (display selectable)

HOW TO ORDER

Use the **bold** characters from the chart below to construct a product code.

DFM   -22   010   -V   -A   L   A   2

SERIES
DFM: Digital flow controller

PRESSURE RANGE*
-22: 0 to 100 mL/min
-26: 0 to 200 mL/min
-32: 0 to 500 mL/min
-37: 0 to 1000 mL/min
-39: 0 to 2 L/min
-43: 0 to 5 L/min
-48: 0 to 10 L/min
-56: 0 to 100 L/min

BODY SIZE
005: Very low flow
010: Low flow
050: Medium flow
100: High flow

DIGITAL INTERFACE
2: RS-232 default (RS-485 display selectable)
3: RS-232 with Modbus® (RS-485 display selectable)

OUTPUT SIGNAL
A: 0-5 VDC default (4-20 mA, 0-10 VDC display selectable)

DISPLAY
L: LED display

FITTINGS
-A: 1/8″ compression (very low, low)
-B: 1/4″ compression (medium)
-D: 3/8″ compression (high)

SEAL MATERIAL
-V: Fluoroelastomer

*Consult factory for ranges up from 0-0.5 mL/min to 0-100 L/min.

ACCESSORIES

Model	Description
GFM-110P	110 V power supply
GFM-220PE	220 V power supply
Note: 1.5 ft RS-232 interface 3-wire 9-pin D connector included. For RS-485 contact factory for A-DFM-CBL-A485DP 3 ft RS-485 3.5 mm stereo-audio connection with stripped ends available for purchase.	

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