

DPC04, DPC08, DPC14, DPC18, DPC37 and DPC47







Design Features

- Available with corrosion-resistant wetted materials (DPC/08/18/38/48/58/68/78 Series) and low pressure drop (BREEZE™ DPC04/14).
- Simultaneously displays Mass Flow, Volumetric Flow, Pressure and Temperature.
- Multi-Gas functionality: support for 90 different gases and gas mixes.
- "User Defined Mixture" functionality allows to create and store up 20 custom gas mixes with up to 5 different gases each.
- Quick (100-150 ms) response time.¹
- Standard accuracy ± (0.5% RD + 0.2% FS).
- 200 to 1 turn-down ratio.
- Two programmable mass flow rate totalizers.
- High, Low or In Range Alarms with preset action delay for Mass Flow, Temperature and Pressure.
- User programmable mass flow rate Pulse Output (via SSR).
- Extensive Self Diagnostics with status LED or OLED indication.
- All 3 user selectable analog input and output interfaces are standard: 0-5Vdc, 0-10Vdc, 4-20mA.
- Two user selectable digital communication interfaces (RS-232 and RS-485) are standard.
- Optional Modbus RTU network interface with isolated RS485 transceiver.
- User programmable solid state relay with latch option.
- Universal 12-26 Vdc power supply input (for DPC07/17/37/47). For DPC57/67/77 24-26Vdc.
- Local high contrast OLED (optional) graphic display with joystick control.
- Free, easy-to-use configuration and calibration software (RS-232/RS-485).
- Programmable set point table with ramping up/down capability up to 16 steps.



PRECISION DIGITAL MASS FLOW CONTROLLER WITH MULTI-GAS FUNCTIONALITY

General Description

Aalborg Instruments' DPC series precision digital mass flow controller provides accurate and stable control of mass flow rates, of process gases. With simultaneous displays of Mass Flow, Volumetric Flow, Pressure and Temperature parameters it can be used in a variety of industries: scientific and analytical applications, bioreactors and surface depositions, gas sampling, manufacturing and metrology activities.

DPC flow controllers support various functions including: user selectable local, analog, digital or program set point control, two programmable flow totalizers, low, high or range flow, temperature and pressure alarms, automatic zero adjustment (activated via local or communication interface), programmable SSR relay, programmable 0-5 Vdc, 0-10 Vdc or 4-20 mA analog inputs and outputs, user-programmable pulse output (via SSR), and extensive self-diagnostics functionalities.

DPC differential pressure mass flow controllers feature totalizers with batch processing mode (0.5% RD + 0.2%FS) standard accuracy, 200:1 turn-down ratio and less than 150 ms response time.

Significant savings are apparent, comparing to the cost of a single DPC embodying these features, with that of acquiring and installing mulitple, appliation-specific devices.

Principles of Operation

Operation of DPC flow controllers is based on the measurement of the differential pressure across specially designed restrictor flow elements. The restrictor flow element is designed to establish laminar flow across the entire range of the instrument's operation from 0 to 133% of full scale range.

A high accuracy and high resolution **differential** pressure sensor is utilized to measure pressure drop across a laminar flow channel, which is linearly proportional to volumetric flow rate. To convert volumetric flow into mass flow, high accuracy and high resolution **absolute** pressure and temperature sensors are utilized. Based on data from the sensors and gas properties from the built-in data base of the instrument, the micro-controller calculates volumetric and mass flow, which along with pressure and temperature parameters are available on the instrument display or via digital interfaces. In addition, the mass flow reading is accessible via the instrument analog interface which can be set by user to 0-5, 0-10 Vdc or 4-20mA mode.

- 1. For DPC with full scale 20 sml/min and lower the response time may be slightly longer.
- 2. Digital Signal provide access to Mass Flow, Volumetric Flow, Pressure, Temperature, Totalizers, Alarms.

TABLE 27 - DPC FLOW RANGES			
MODEL NO.	FULL SCALE MASS FLOW RATE	PRESSURE DROP AT FULL SCALE FLOW (PSID)	PROCESS CONNECTION
DPC04 (Low DP, BREEZE)	0.5 sml/min to 20 smL/min	0.08	10-32 Female Thread
DPC07 DPC08 (Corrosive-resistant)	0.5 to 50 sml/min	1.0	10-32 Female Thread
DPC14 (Low DP, BREEZE)	21 smL/min to 2 sL/min	0.19	1/8" NPT Female
DPC17 DPC18 (Corrosive-resistant)	51 sml/min to 20 sL/min	1.0 - 20.0	1/8" NPT Female
DPC37	21 sL/min to 50 sL/min	5.0 - 8.5	1/4" NPT Female
DPC47	51 sL/min to 100 sL/min	10.0 - 20.0	1/4" NPT Female
DPC57	250 sL/min	2.5	1/2" NPT Female
DPC67	500 sL/min	6.9	3/4" NPT Female
DPC77	1000 sL/min	15.0	3/4" NPT Female

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TABLE 28 - DPC ACCESSORY'S				
	FITTINGS			
MODEL NO.	FITTING CODE	DESCRIPTION		
DPC04 / 07 / 08	F1C5	10-32 Thread, 1/8" Tubing, Compression, 316 ss.		
DPC04 / 07	F2C5	10-32 Thread, 1/8" Tubing, Compression, Nickel Plated Brass.		
DPC14/ 17 / 18	F2C2	1/8" NPT Thread, 1/8" tubing, Compression, 316 ss.		
DPC14/ 17 / 18	F2C4	1/8" NPT Thread, 1/4" tubing, Compression, 316 ss.		
DPC37	F4C4	1/4" NPT Thread, 1/4" tubing, Compression, 316 ss.		
DPC47	F4C6	1/4" NPT Thread, 3/8" tubing, Compression, 316 ss.		
DPC57	F8C6	1/2" NPT Thread, 3/8" tubing, Compression, 300 series ss.		
DPC57	F8C8	1/2" NPT Thread, 1/2" tubing, Compression, 300 series ss.		
DPC67 / 77	1210-1-12-316	3/4" NPT Thread, 3/4" tubing, Compression, 300 series ss.		
POWER SUPPLIES				
PS-GFM-110NA-2	Power Supply, 110 V / 12 Vdc / North America.			
PS-GFM-110NA-4	Power Supply, 110 V / 24 Vdc / North America.			
PS-GFM-230EU-2	Power Supply, 220 V / 12 Vdc / Europe.			
PS-GFM-230EU-4	Power Supply, 220 V / 24Vdc / Europe.			
PS-GFM-240UK-2	Power Supply, 240 V / 12 Vdc / United Kingdom.			
	CABLES			
CBL-A232	Communication Cable for DPC with RS-232 Interface 1.5 FT 3.5 mm stereo audio con. with 3-wire to 9 pins female D-connector (included with each DPC).			
CBL-A485DP	Communication Cable for DPC with RS-485 Interface 3 FT 3.5mm stereo audio con. with 3-wire to stripped ends.			
CBL-8MINIDIN-3	Shielded cable 8 pins MinDin with stripped ends 3 feet long.			
CBL-8MINIDIN-12	Shielded cable 8 pins MinDin with stripped ends 12 feet long.			
	COMMUNICATION	PORT ACCESSORIES		
USB-RS232	USB to RS232 converter.			
USB-RS485	USB to RS485 converter.			
	MODBUS INTERFACE ACCESSORIES			
ECS803-1	RJ45 shielded Y-adapter (Passive TAP).			
TDG1026-8C	RJ45 Modular Coupler.			
MOD27T	RJ45 Line Terminator (100 Ohm 0.25 W).			
JMOD4S-1	RJ45 Splitter fully shielded (5xRJ45, 1 input 4 outputs).			
TRD815BL-2	Category 5E Patch Twisted Pair Cable, RJ45 / RJ45, Blue 2.0 feet.			
TRD815BL-10	Category 5E Patch Twisted Pair Cable, RJ45 / RJ45, Blue 10.0 feet.			
TRD815BL-25	Category 5E Patch Twisted Pair Cable, RJ45 / RJ45, Blue 25.0 feet.			



PRECISION DIGITAL MASS FLOW CONTROLLER WITH MULTI-GAS FUNCTIONALITY

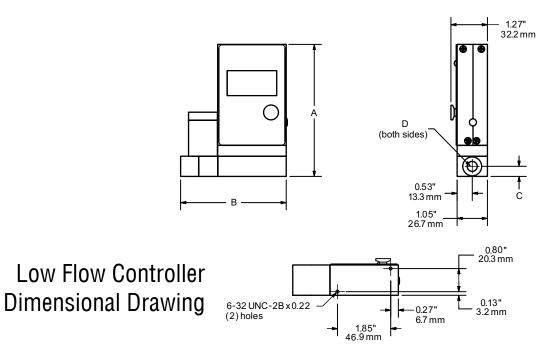
Please note that DPCA40714173747876777 mass flow controllers are designed to work only with clean, non-corroive gases listed in the instrument's operating mans flow controllers are also compatible with corrosking gases listed in the instrument's operating mans flow controllers are also compatible with corrosking gases listed in the instrument's operating mans flow controllers are also compatible with corrosking gases listed in the instrument's operating mans flow controllers are also compatible with corrosking gases listed in the instrument's operating mans flow controllers are also compatible with corrosking gases. The PCOW ACCURAC (MCLUDING UIRCARTY): REPORTABLE FLOW RESEAURE (DEFICIENT: FLOW PRESSURE COFFRICIENT: FLOW PRESSURE COFFRICIENT: DO1% of full scale/so (6.895 kPa) or better. POYPICAL FLOW RESPONSE TIME: DO418 TIME TO 1838 FLUI Scale. LO1% of full scale/so (6.895 kPa) or better. DFOUT AMPLIANCE FLOW RANGE: DO548 TIME Scale (2.001). MASS REFERENCE CONDITIONS STP): MAXIMUM INTERNAL GAS PRESSURE (STATIC): DFOOR/17/37/4775/67777: 12 PSIG DFOOR/17/37/4775/67777: 12 PSIG DFOOR/17/37/4775/67777: 12 PSIG DFOOR/18/38/48/58/68/78 15 DPSIG DFOOR/18/38/48/58/68/78 10 PSIG D	TABLE 29 - DPC SPECIFICATIONS			
Installation Level II; Pollution Degree II.	FLOW MEDIUM:	clean, non-corrosive gases corrosive gases listed in the	The DPC08/18/38/48/58/68/78 mass flow controllers are also compatible with einstrument's operating manual.	
FLOW ACCURACY (INCLUDING LINEARITY): FLOW TEMPERATURE COEFFICIENT: FLOW PRESSURE COEFFICIENT: FLOW RESPONSE TIME: O05% of full scale/ "C or better. PLOW RESPONSE TIME: O05% of full scale/ "C or better. O05% of full scale/ "C or better. O05% of full scale/ "C or better. PLOW RESPONSE TIME: O05% of full scale/ "C or better. O05% of full scale / "C or better. O05% of full scale/ "C or better. O05% of full scale / "C or better. O05% of 10 Scale/ "C or better. O05% of 1	CALIBRATIONS:	Performed at standard conditions [14.7 psia (101.4 kPa) and 70 °F (21.1 °C)] unless otherwise requested or stated.		
REPEATABILITY: =0.2% of full scale. FLOW TEMPERATURE COEFFICIENT: 0.0% of full scale? *C or better. FLOW PRESSURE COEFFICIENT: 0.01% of full scale/spis (6.895 kPa) or better. TYPICAL FLOW RESPONSE TIME: 0.64 unit 150 ms (adjustable). INSTRUMENT WARM-UP TIME:	ENVIRONMENTAL (PER IEC 664):	Installation Level II; Pollution	on Degree II.	
FLOW TEMPERATURE COEFFICIENT:	FLOW ACCURACY (INCLUDING LINEARITY):	±(0.5% RD + 0.2% FS) at c	alibration temperature and pressure conditions after tare.	
FLOW PRESSURE COEFFICIENT: O11 scale/psi (6.895 kPa) or better. TYPICAL FLOW RESPONSE TIME: Default 150 ms (adjustable). O5 seconds. MAXIMUM CONTROLLABLE FLOW RANGE: 133% Full Scale. O5 seconds. MAXIMUM INTERNAL GAS PRESSURE (STATIC): MAXIMUM INTERNAL GAS PRESSURE (STATIC): MAXIMUM INSTANTANEOUS DFCOFATING 1787/47/57/67/77: 120 PSIG DFCOV/17/37/47/57/67/77: 120 PSIG DFCOV/17/37/57/67/77: Normally Closed. DFCOV/17/37/57/67/77: 120 PSIG DFCOV/17/37/47/57/67/77: 120 PSIG DFCOV/17/37/47/57/67/77/7* NORCHARMARIABLE DFCOV/17/37/47/57/67/77: NORCHARMARIABLE DFCOV/17/37/47	REPEATABILITY:	±0.2% of full scale.		
TYPICAL FLOW RESPONSE TIME: Seconds.	FLOW TEMPERATURE COEFFICIENT:	0.05% of full scale/ °C or b	etter.	
INSTRUMENT WARM-UP TIME:	FLOW PRESSURE COEFFICIENT:	0.01% of full scale/psi (6.8	95 kPa) or better.	
MAXIMUM CONTROLLABLE FLOW RANGE: 133% Full Scale 200:1.	TYPICAL FLOW RESPONSE TIME:	Default 150 ms (adjustable)	.1	
OPERATING RANGE / TURNDOWN RATIO: 0.5% to 100% Full Scale / 2001. MASS REFERENCE CONDITIONS STP): 70 °F & 14.696 PSIA (other available on request). MAXIMUM INTERNAL GAS PRESSURE (STATIC): DPC07/17/37/47/57/67/77: 120 PSIG DPC08/18/38/49/58/68/78 50 PSIG MAXIMUM INSTANTANEOUS DPC07/17/37/47/57/67/77: 120 PSID DIFFERENTIAL PRESSURE ACROSS DPC04/14: 9.75 PSID DIFFERENTIAL SENSOR: DPC04/17/37/47/57/67/77: 145 PSIG DPC04/14: 50 PSIG DPC04/14: 50 PSIG DPC04/14: 50 PSIG DPC04/17/37/47/57/67/77: 145 PSIG VALVE MAXIMUM OPERATING PRESSURE (WITH UPSTREAM CONFIGURATION) PC04/07/08/14/18: (<2 st./min) - 150 PSIG OPE17/18: (2 - 5 st./min) - 100 PSIG DPC17/18: (5 - 20 st./min) - 50 PSIG DPC17/18: (7 - 50 PSIG DPC3/58/67/68/77/8: 50 PSIG DPC3/78/84/7/48: 50 PSIG DPC3/58/67/68/77/78: 50 PSIG DPC3/78/86/7/78/78: 50 PSIG DPC3/78/68/77/78: 50 PSIG DPC4/07/14/11/13/747: 57/68/7/78/78: 50 PSIG DPC3/67/68/77/78: 50 PSIG DPC3/78/86/7/78/78: 50 PSIG DPC3/67/68/77/78: 50 PSIG DPC3/78/86/7/78/78: 50 PSIG DPC3/67/68/77/78: 50 PSIG DPC3/78/86/7/88/77/78: 50 PSIG DPC3/67/68/77/78: 50 PSIG	INSTRUMENT WARM-UP TIME:	< 5 seconds.		
MASS REFERENCE CONDITIONS STP): 70 °F & 14.696 PSIA (other available on request). MAXIMUM INTERNAL GAS PRESSURE (STATIC): 90 PSIG 190041/41: 750 PSIG 190041/41: 150 PSIG 190041/41/41: 150 PSIG 190041/41/41/41: 150 PSIG 190041/41/41/41/41: 150 PSIG 190041/41/41/41/41/41: 150 PSIG 190041/41/41/41/41/41/41/41/41/41: 150 PSIG 190041/41/41/41/41/41/41/41/41/41/41/41/41/4	MAXIMUM CONTROLLABLE FLOW RANGE:	133% Full Scale.		
MAXIMUM INTERNAL GAS PRESSURE (STATIC): DPC01/11/3/74/75/76/777: 12 PSIG DPC04/14: 50 PSIG DPC04/14: 9.75 PSID DPC04/14: 9.75 PSID DPC04/14: 9.75 PSID DPC04/14: 9.75 PSID DPC04/14: 9.75 PSIG DPC04/17/08/14/18: (22 sL/min) - 150 PSIG DPC04/17/08/14/18: (22 sL/min) - 150 PSIG DPC1/718: (2 s SL/min) - 50 PSIG DPC1/718: (5 s 20 sL/min) - 50 PSIG DPC3/78/8/77/78: 50 PSIG DPC3/78/8/78/77/78: 50 PSIG DPC3/78/8/77/78: 50 PSIG DPC3/78/77/78: 50 PSIG DPC3/78/78/77/78/8/77/78/8/77/78/8/77/78/8/77/78/78	OPERATING RANGE / TURNDOWN RATIO:	0.5% to 100% Full Scale / 2	200:1.	
DPC04/14: 50 PSIG	MASS REFERENCE CONDITIONS STP):	70 °F & 14.696 PSIA (other	available on request).	
DIFFERENTIAL PRESSURE ACROSS DIFFERENTIAL SENSOR: PROOF PRESSURE: PCO04/14: 50 PSIG DPC04/14: 50 PSIG DPC04/18: (2 ± 5 ± /min) - 150 PSIG DPC1/18: (2 ± 5 ± /min) - 100 PSIG DPC1/18: 50 PSIG DPC1/18: 50 PSIG DPC1/18: 50 PSIG DPC1/18: 50 PSIG DPC1/18: DPC04/07/14/17/37/47: None. None. None. None after differential pressure sensor Tare procedure. RELATIVE GAS HUMIDITY RANGE: 10 to 100% (Non -Condensing). INGRESS PROTECTION: LEAK INTEGRITY: 1 x 10 ⁴ sccs He max to the outside environment. Linear 0-5 Vdc (3000 ohms min. load impedance); Linear 0-10 Vdc (5000 ohms min. load impedance); Linear 4-20 mA (550 ohms maximum loop resistance) with power supply >= 14Vdc. Maximum noise 10mV peak to peak (tor 0-5/0-10 Vdc output). ANALOG SET POINT INPUT SIGNALS Linear 0-5 Vdc, 0-10Vdc (100K input impedance). Linear 4-20mA (250 Ohm input impedance). Linear 4-20mA (250 Ohm input impedance). 12 to 26 Vdc, 150 mV maximum peak to peak output noise. Power consumption: 250 mA maximum for PDC04/07/14/17, 30mA maximum for DPC97/47/2, 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum) circuit board have built-in polarity reversal protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection. Standard RS-232 or RS-485 (user selectable). Optional Modbus over isolated RS-485 transceiver. **MATERIALS FLUID CONTACT: 316 stainless steel, 416 stainless steel, high temperature polyamide, alumina ceramic, poxy, silicone, glass, gold. FKM O-rings.		DPC04/14:	50 PSIG	
PROOF PRESSURE: DPC04/14: 50 PSIG DPC08/18/38/48/58/68/78 175 PSIG VALVE TYPE: VALVE MAXIMUM OPERATING PRESSURE (WITH UPSTREAM CONFIGURATION) DPC17/18: (2 + 5 sL/min) - 150 PSIG DPC17/18: (5 + 20 sL/min) - 50 PSIG DPC37/38/47/48: None. DPC04/07/14/17/37/47: None. DPC04/07/14/17/37/47: None. PPC04/07/14/17/37/47: None after differential pressure sensor Tare procedure. None after differential pressure sensor Tare procedure. RELATIVE GAS HUMIDITY RANGE: 0 to 100% (Non -Condensing). IRGRESS PROTECTION: 1P40. LEAK INTEGRITY: 1 x 10° sccs He max to the outside environment. Linear 0-5 Vdc (3000 ohms min. load impedance); Linear 4-20 mA (550 ohms maximum loop resistance) with power supply >= 14Vdc. Maximum noise 10mV peak to peak (for 0-5/0-10 Vdc output). ANALOG SET POINT INPUT SIGNALS: Linear 4-20 mA (250 Ohm input impedance). Linear 4-20 mA (250 Ohm input impedance). Linear 4-20 mA (250 Ohm input impedance). Linear 4-20 mA (250 Ohm anaximum loop resistance) with power consumption: 250 mA maximum for DPC04/07/14/17, 300mA maximum peak to peak output noise. Power consumption: 250 mA maximum for DPC04/07/14/17, 300mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: esttable fuse provide power input protection. DIGITAL OUTPUT SIGNALS 2: Standard RS-232 or RS-485 (user selectable). Optional Modbus over isolated RS-485 transceiver. **MATERIALS FLUID CONTACT: 316 stainless steel, 416 stainless steel, high temperature polyamide, alumina ceramic, poxy, silicone, glass, gold. FKM 0-rings.	DIFFERENTIAL PRESSURE ACROSS	DPC04/14:	9.75 PSID	
VALVE MAXIMUM OPERATING PRESSURE (WITH UPSTREAM CONFIGURATION) DPC04/07/08/14/18: (2 ÷ 5 sL/min) - 100 PSIG DPC17/18: (5 ÷ 20 sL/min) - 50 PSIG DPC17/18: (5 ÷ 20 sL/min) - 50 PSIG DPC37/38/47/48: 50 PSIG DPC57/58/67/68/77/78: 50 PSIG DPC57/58/67/68/77/78: 50 PSIG DPC04/07/14/17/37/47: None. MOUNTING ATTITUDE SENSITIVITY: 57/58/67/68/77/78: Mount with valve cylinder vertical and upright position. 08/18/38/48: None after differential pressure sensor Tare procedure. RELATIVE GAS HUMIDITY RANGE: 0 to 100% (Non -Condensing). INGRESS PROTECTION: IP40. LEAK INTEGRITY: 1 x 10° sccs He max to the outside environment. Linear 0-5 Vdc (3000 ohms min. load impedance); Linear 0-10 Vdc (5000 ohms min. load impedance); Linear 0-10 Vdc (5000 ohms min. load impedance); Linear 0-10 Vdc (5000 ohms min. load impedance). Linear 0-5 Vdc, 0-10Vdc (100K input impedance). Linear 0-5 Vdc, 0-10Vdc (100K input impedance). Linear 0-5 Vdc, 0-10Vdc (100K input impedance). Linear 4-20mA (250 Ohm input impedance). 12 to 26 Vdc, 150 mV maximum peak to peak output noise. Power consumption: 250 mA maximum for DPC04/07/14/17, 300mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC04/07/14/17, 300mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum pounce) and maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum) circuit board have built-in polarity reversal protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection. DIGITAL OUTPUT SIGNALS 2: Standard RS-232 or RS-485 (user selectable). Optional Modbus over isolated RS-485 transceiver. **MATERIALS FLUID CONTACT: 316 stainless steel, 416 stainless steel, high temperature polyamide, alumina ceramic, poxy, silicone, glass, gold. FKM 0-rings.	PROOF PRESSURE:	DPC04/14:	50 PSIG	
VALVE MAXIMUM OPERATING PRESSURE (WITH UPSTREAM CONFIGURATION) DPC37/38/47/48: 50 PSIG DPC37/38/47/48: 50 PSIG DPC57/58/67/68/77/78: 50 PSIG DPC57/58/67/68/77/78: 50 PSIG DPC57/58/67/68/77/78: Mount with valve cylinder vertical and upright position. MOUNTING ATTITUDE SENSITIVITY: 57/58/67/68/77/78: Mount with valve cylinder vertical and upright position. MOUNTING ATTITUDE SENSITIVITY: 57/58/67/68/77/78: Mount with valve cylinder vertical and upright position. MOUNTING ATTITUDE SENSITIVITY: 57/58/67/68/77/78: Mount with valve cylinder vertical and upright position. MOUNTING ATTITUDE SENSITIVITY: 57/58/67/68/77/78: Mount with valve cylinder vertical and upright position. MOUNTING ATTITUDE SENSITIVITY: 57/58/67/68/77/78: Mount with valve cylinder vertical and upright position. Mone after differential pressure sensor Tare procedure. 1P40. LEAK INTEGRITY: 1 x 10° sccs He max to the outside environment. Linear 0-5 Vdc (3000 ohms min. load impedance); Linear 0-10 Vdc (5000 ohms min. load impedance); Linear 0-10 Vdc (5000 ohms maximum loop resistance) with power supply >= 14Vdc. Maximum noise 10mV peak to peak (for 0-5/0-10 Vdc output). ANALOG SET POINT INPUT SIGNALS 12 to 26 Vdc, 150 mV maximum peak to peak output noise. Power consumption: 250 mA maximum for DPC04/07/14/17, 300mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum) circuit board have built-in polarity reversal protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection, 300mA (750mA for DPC57/67/77) resettable fuse provide p	VALVE TYPE:	Normally Closed.		
MOUNTING ATTITUDE SENSITIVITY: DPC04/07/14/17/37/47: None. Mount with valve cylinder vertical and upright position. None after differential pressure sensor Tare procedure. Ot o 100% (Non -Condensing). IP40. LEAK INTEGRITY: 1 x 10 ⁻⁹ sccs He max to the outside environment. Linear 0-5 Vdc (3000 ohms min. load impedance); Linear 0-10 Vdc (5000 ohms min. load impedance); Linear 4-20 mA (550 ohms maximum loop resistance) with power supply >= 14Vdc. Maximum noise 10mV peak to peak (for 0-5/0-10 Vdc output). ANALOG SET POINT INPUT SIGNALS: Linear 4-20mA (250 Ohm input impedance). Sinear 4-20mA (250 Ohm input impedance). TRANSDUCER INPUT POWER: 12 to 26 Vdc, 150 mV maximum peak to peak output noise. Power consumption: 250 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum) circuit board have built-in polarity reversal protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection. DIGITAL OUTPUT SIGNALS 2: **MATERIALS FLUID CONTACT: Standard RS-232 or RS-485 (user selectable). Optional Modbus over isolated RS-485 transceiver. 316 stainless steel, 416 stainless steel, high temperature polyamide, alumina ceramic, poxy, silicone, glass, gold. FKM 0-rings.		DPC17/18: DPC17/18: DPC37/38/47/48:	(2 ÷ 5 sL/min) - 100 PSIG (5 ÷ 20 sL/min) - 50 PSIG 50 PSIG	
MOUNTING ATTITUDE SENSITIVITY: 57/58/67/68/77/78: Mount with valve cylinder vertical and upright position. 08/18/38/48: None after differential pressure sensor Tare procedure. 1 to 100% (Non - Condensing). 1 p40. 1 x 10-9 sccs He max to the outside environment. 1 x 10-9 sccs He max to the o	OPERATING TEMPERATURE:	-10 to +60 °C (14 to 140 °F)		
IP40. LEAK INTEGRITY: 1 x 10-9 sccs He max to the outside environment. Linear 0-5 Vdc (3000 ohms min. load impedance); Linear 0-10 Vdc (5000 ohms min. load impedance); Linear 4-20 mA (550 ohms maximum loop resistance) with power supply >= 14Vdc. Maximum noise 10mV peak to peak (for 0-5/0-10 Vdc output). ANALOG SET POINT INPUT SIGNALS Linear 4-20 mA (550 ohms maximum loop resistance) with power supply >= 14Vdc. Maximum noise 10mV peak to peak (for 0-5/0-10 Vdc output). Linear 0-5 Vdc, 0-10Vdc (100K input impedance). Linear 4-20mA (250 Ohm input impedance). 12 to 26 Vdc, 150 mV maximum peak to peak output noise. Power consumption: 250 mA maximum for DPC04/07/14/17, 300mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum) circuit board have built-in polarity reversal protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection. DIGITAL OUTPUT SIGNALS 2: **MATERIALS FLUID CONTACT: Standard RS-232 or RS-485 (user selectable). Optional Modbus over isolated RS-485 transceiver. 316 stainless steel, 416 stainless steel, high temperature polyamide, alumina ceramic, poxy, silicone, glass, gold. FKM 0-rings.	MOUNTING ATTITUDE SENSITIVITY:	57/58/67/68/77/78:	Mount with valve cylinder vertical and upright position.	
Linear 0-5 Vdc (3000 ohms min. load impedance); Linear 0-10 Vdc (5000 ohms min. load impedance); Linear 0-10 Vdc (5000 ohms min. load impedance); Linear 4-20 mA (550 ohms maximum loop resistance) with power supply >= 14Vdc. Maximum noise 10mV peak to peak (for 0-5/0-10 Vdc output). ANALOG SET POINT INPUT SIGNALS Linear 0-5 Vdc, 0-10Vdc (100K input impedance). Linear 4-20mA (250 Ohm input impedance). 12 to 26 Vdc, 150 mV maximum peak to peak output noise. Power consumption: 250 mA maximum for DPC04/07/14/17, 300mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum) circuit board have built-in polarity reversal protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection. DIGITAL OUTPUT SIGNALS 2: **MATERIALS FLUID CONTACT: 1 x 10 9 sccs He max to the outside environment. Linear 0-5 Vdc (3000 ohms min. load impedance); Linear 4-20 mA (5500 ohms maximum loop resistance) with power supply >= 14Vdc. Maximum noise 10mV peak to peak output noise. Power consumption: 250 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum) circuit board have built-in polarity reversal protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection. DIGITAL OUTPUT SIGNALS 2: **MATERIALS FLUID CONTACT: 316 stainless steel, 416 stainless steel, high temperature polyamide, alumina ceramic, poxy, silicone, glass, gold. FKM 0-rings.	RELATIVE GAS HUMIDITY RANGE:	0 to 100% (Non -Condensi	ng).	
Linear 0-5 Vdc (3000 ohms min. load impedance); Linear 0-10 Vdc (5000 ohms min. load impedance); Linear 4-20 mA (550 ohms maximum loop resistance) with power supply >= 14Vdc. Maximum noise 10mV peak to peak (for 0-5/0-10 Vdc output). Linear 4-20 mA (250 ohm input impedance). Linear 4-20mA (250 ohm input impedance). Linear 4-20mA (250 ohm input impedance). 12 to 26 Vdc, 150 mV maximum peak to peak output noise. Power consumption: 250 mA maximum for DPC04/07/14/17, 300mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum) circuit board have built-in polarity reversal protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection. DIGITAL OUTPUT SIGNALS 2: **MATERIALS FLUID CONTACT: Standard RS-232 or RS-485 (user selectable). Optional Modbus over isolated RS-485 transceiver. 316 stainless steel, 416 stainless steel, high temperature polyamide, alumina ceramic, poxy, silicone, glass, gold. FKM 0-rings.	INGRESS PROTECTION:			
Linear 0-10 Vdc (5000 ohms min. load impedance); Linear 4-20 mA (550 ohms maximum loop resistance) with power supply >= 14Vdc. Maximum noise 10mV peak to peak (for 0-5/0-10 Vdc output). Linear 0-5 Vdc, 0-10Vdc (100K input impedance). Linear 4-20mA (250 Ohm input impedance). Linear 4-20mA (250 Ohm input impedance). 12 to 26 Vdc, 150 mV maximum peak to peak output noise. Power consumption: 250 mA maximum for DPC04/07/14/17, 300mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum) circuit board have built-in polarity reversal protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection. DIGITAL OUTPUT SIGNALS 2: **MATERIALS FLUID CONTACT: Standard RS-232 or RS-485 (user selectable). Optional Modbus over isolated RS-485 transceiver. 316 stainless steel, 416 stainless steel, high temperature polyamide, alumina ceramic, poxy, silicone, glass, gold. FKM 0-rings.	LEAK INTEGRITY:	1 x 10 ⁻⁹ sccs He max to the	outside environment.	
ANALOG OUTPUT SIGNALS: Linear 4-20 mA (550 ohms maximum loop resistance) with power supply >= 14Vdc. Maximum noise 10mV peak to peak (for 0-5/0-10 Vdc output). Linear 0-5 Vdc, 0-10Vdc (100K input impedance). Linear 4-20mA (250 0hm input impedance). 12 to 26 Vdc, 150 mV maximum peak to peak output noise. Power consumption: 250 mA maximum for DPC04/07/14/17, 300mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum) circuit board have built-in polarity reversal protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection. DIGITAL OUTPUT SIGNALS 2: **MATERIALS FLUID CONTACT: Standard RS-232 or RS-485 (user selectable). Optional Modbus over isolated RS-485 transceiver. 316 stainless steel, 416 stainless steel, high temperature polyamide, alumina ceramic, poxy, silicone, glass, gold. FKM 0-rings.				
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TRANSDUCER INPUT POWER: 12 to 26 Vdc, 150 mV maximum peak to peak output noise. Power consumption: 250 mA maximum for DPC04/07/14/17, 300mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum) circuit board have built-in polarity reversal protection, 300mA (750mA for DPC57/67/77) resettable fuse provide power input protection. DIGITAL OUTPUT SIGNALS 2: **MATERIALS FLUID CONTACT: 12 to 26 Vdc, 150 mV maximum peak to peak output noise. Power consumption: 250 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power cons	ANALUG SLI FUNT INFUT SIGNALS			
**MATERIALS FLUID CONTACT: 316 stainless steel, 416 stainless steel, high temperature polyamide, alumina ceramic, poxy, silicone, glass, gold. FKM 0-rings.	TRANSDUCER INPUT POWER:	12 to 26 Vdc, 150 mV maximum peak to peak output noise. Power consumption: 250 mA maximum for DPC04/07/14/17, 300mA maximum for DPC37/47. 24 to 26 Vdc for DPC57/67/77 (Power consumption: 650 mA maximum) circuit board have built-in polarity reversal protection, 300mA (750mA for DPC57/67/77)		
glass, gold. FKM O-rings.	DIGITAL OUTPUT SIGNALS 2:			
CORROSION-RESISTANT: 316 stainless steel, FKM or FFKM O-rings.	**MATERIALS FLUID CONTACT:			
	CORROSION-RESISTANT:	316 stainless steel, FKM or	FFKM O-rings.	

^{1.} For DPC with full scale 20 sml/min and lower the response time may be slightly longer.

^{2.} Digital Signal provide access to Mass Flow, Volumetric Flow, Pressure, Temperature, Totalizers, Alarms.

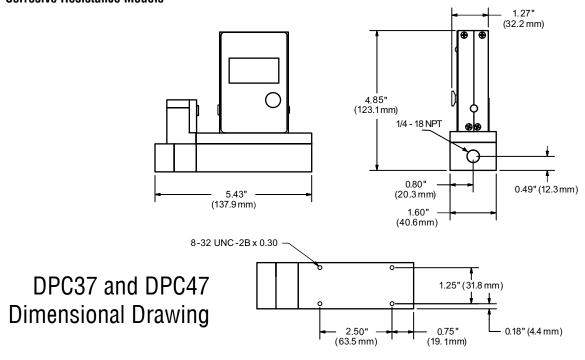
^{**}The selection of materials of construction, is the responsibility of the customer. The company accepts no liability.





	A (non- corrosive)	A (corrosive resistant)	В	С	D
DPC04*/ DPC07/ DPC08**	3.68" (93.4 mm)	4.98 (126.5 mm)	4.58" (116.2 mm)	0.34" (8.5 mm)	10-32 UNF
DPC14*	3.85" (97.7 mm)		4.84" (122.8 mm)	0.42" (10.7 mm)	1/4 NPT
DPC17/DPC18**	3.66" (92.9 mm)	5.13 (130.4 mm)	4.40" (111.8 mm)	0.35" (8.9 mm)	1/8 NPT

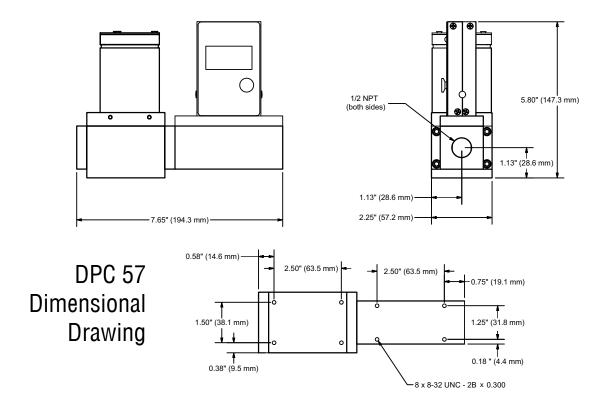
- **Breeze Models**
- ** Corrosive Resistance Models

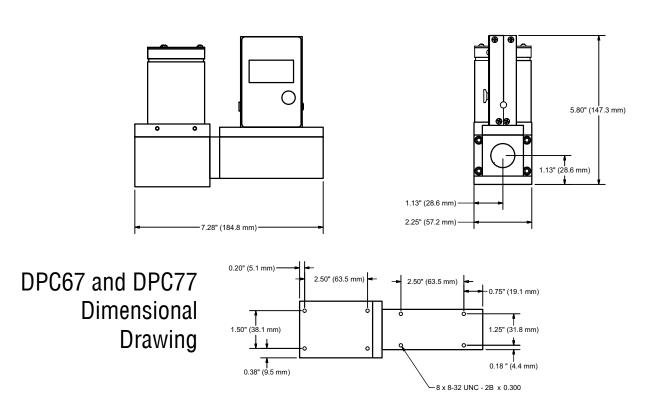


NOTE: Aalborg® reserves the right to change designs and dimensions at its sole discretion at any time without notice. For certified dimensions please contact Aalborg®.









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ORDERING INFORMATION PRECISION DIGITAL MASS FLOW CONTROLLER WITH MULTI-GAS FUNCTIONALITY



Configure and Order Online: DPC Mass Flow Controller

DPC	MODEL				
	MAX FLOW (Air)				
	IVIAA	07	0.5 smL/min to 50 smL/min		
	l e l	17	51 smL/min to 20 sL/min		
	SS9.	37	21 sL/min to 50 sL/min		
	불합	47	51 sL/min to 100 sL/min		
	ga	57	250 sL/min		
	Standard Pressure Drop	67	500 sL/min		
		77	1000 sL/min		
	stant	08	0.5 smL/min to 50 smL/min		
	Corrosion- Resistant	18	51 smL/min to 20 sL/min		
		04	0.5 smL/min to 20 smL/min		
	Breeze [™] Low Pressure Drop	14	21 smL/min to 2 sL/min		
			SEALS V FKM T FFKM		
DPC	— [17	S — V 0 L 6 — A A 3		

EXAMPLE: DPC17S-V0L6-AA3

SPECIFY: Flow Range, Gas and Pressure *n.a. = not applicable.

DPC17, 316 stainless steel, FKM seals, with OLED readout 12-26 Vdc, 0-5 Vdc input signal ,0-5 Vdc output signal,RS 232 with Modbus