

PRODUCT MANUAL & DATASHEET



PX SERIES PRECISION PRESSURE CONTROLLER

V3 / NOVEMBER 2020

GENERAL DESCRIPTION

The FLUIGENT PX pressure controller is a single, miniaturized electronic pressure controller with integrated and intelligent feedback loop for highest performance. Its patented, field proven Fastab™ technology allows both fast settling times and outstanding stability. It provides a dual interface USB and RS232 for high versatility in the integration. The delivered software package is suitable for Windows and Linux platforms.

WARNINGS

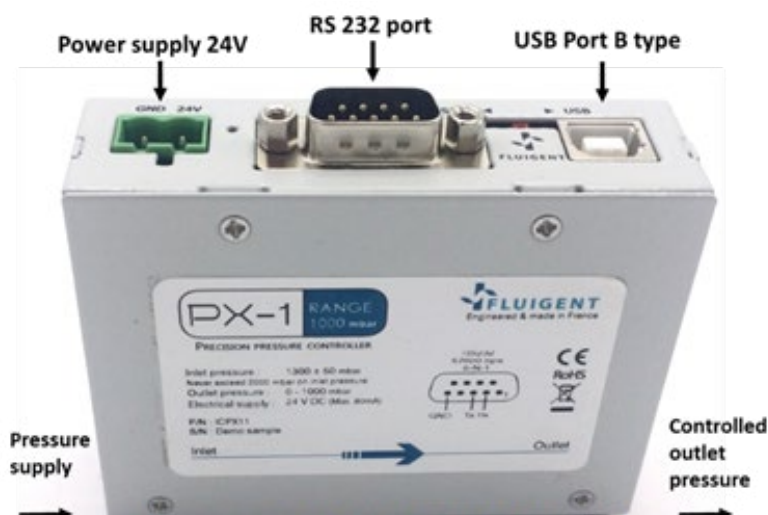
DO NOT CONNECT THE PX TO A PRESSURE OR VACUUM SOURCE ABOVE RECOMMENDED MAXIMUM
DO NOT CONNECT THE PX POWER INLET TO THE INCORRECT VOLTAGE
DO NOT SUBMERGE OR DIRECTLY EXPOSE PX TO LIQUIDS OR EXTREME TEMPERATURES



APPLICATIONS

The PX controllers could be used for replacing manual regulators, vent orifices, needles valves or gravity for fluid flows. Typical applications: 1. flow control for microfluidics (e.g. droplet generation), 2. carrier gas flow control 3. Liquid handling (aspirate/dispense).

SCHEMATIC ILLUSTRATION



TECHNICAL DATA

	PX-1 (P/N: ICPX11)	PX-2 (P/N: ICPX21)	PX-345 (P/N: ICPX3451)	PX-V1 (P/N: ICPXV1)	PX-V2 (P/N: ICPXV2)
MECHANICAL PROPERTIES					
Manifold	Aluminum				
Valve	FKM/FKM, Stainless Steel				
Interior tubing	Silicone platinum				
Pressure Sensor	High temperature polyamide, Epoxy, Silicone gel				
Exhaust restrictor	NBR (o ring), Brass, PVA, polyethylene				
Media	Clean and dry non-corrosive gases				
Operating Environment	4°C to 37°C				
Storage Temperature	0°C to 50°C				
Dimensions	82,4 x 25,7 x 67,9 mm				
Weight	192 g				
Pneumatic Connection	M5 thread				
Maximum Pressure Rating	2000 mbar (29 psi)	3000 mbar (43,5 psi)	2000 mbar (29 psi)	Vacuum only	Vacuum only
ELECTRICAL					
Main voltage	24 VDC				
Power supply connector type	Phoenix contact MSTBA 2.5				
Max. Electrical power consumption	2 W				
Max. Current requirement	80 mA				
RS232 Connection	Sub DB9				
USB Connection	USB B connector				
SPECIFICATIONS					
Outlet Pressure ranges	0-1000 mbar (0-14,5 psi)	0-2000 mbar (0-29 psi)	0-345 mbar (0-5 psi)	0-minus - 600 mbar (0-minus 8,7 psi)	0-minus - 750 mbar (0-minus 10,8 psi)
Inlet Pressure	1300 mbar +/-50 mbar (18,8 psi +/-0,72 psi)	2400 mbar +/-50 mbar (34,8 psi +/-0,72 psi)	800 mbar +/-50 mbar (11,6 psi +/-0,72 psi)	Vacuum below -300mbar (4,35 psi)	Vacuum below -300mbar (4,35 psi)
Control range	0 to 100% full scale				
Pressures sensor resolution	0,03% full scale on the whole range				
Stability	<0,5% full scale on the whole range				

AVAILABLE ACCESSORIES

M5-Speedfit 4 mm adapter (P/N: IAPCT4M1)

M5-Speedfit 6 mm adapter (P/N: IAPCT6M1)

Sub DB9 cable (RS232) (P/N: IAECBR51)

USB cable A to B (P/N: IAECBUSB1)

Backflow Filter (P/N: IAPABFF1)

OPERATION

1. INTRODUCTION

The Fluigent PX allows for USB (Porte B type) and RS-232 communication for a variety of applications. Do not use both USB and RS-232 ports at once.

Before powering on the device, make sure the red switch next to the serial port is set to the desired USB or RS-232, as indicated in the image below, in order to enable serial communication.

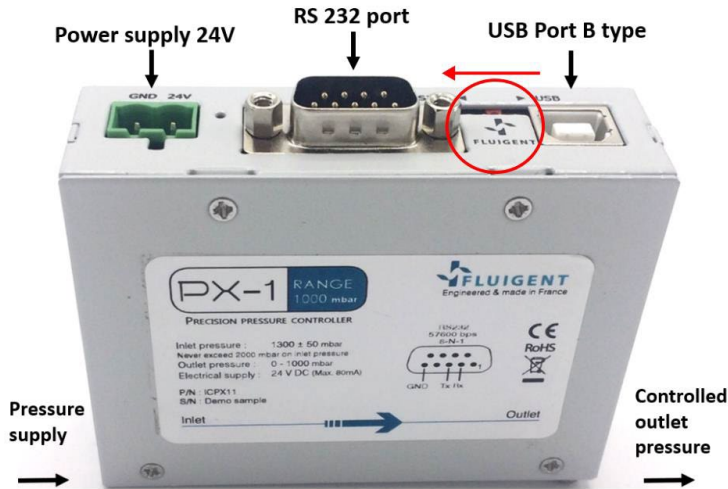


Figure 1 - Switch position for RS-232 communication

When the instrument is turned on you must follow the following preheating procedure: apply 45% on the electro-valves during 10 minutes (use the command: CHAN:1:EV:45 wait for 10 minutes and then CHAN:1:EV:0).

2. RS-232 INTERFACE

The RS-232 interface is a 9-pin D-Sub socket used for remote communication. The voltage level is ±10 V (pin 5: GND; pin 2: RX +-10V; pin 3: TX +- 10V).

3. SETTINGS FOR THE SERIAL PARAMETERS

Serial Communication parameters should be set as follows:

Baud Rate	57 600 bps
Data Bits	8
Stop Bits	1
Parity	No parity
Flow Control	None

Table 1 - Serial Parameters

REMOTE OPERATION (RS-232) - CONTINUE

4. REMOTE COMMAND SET

This remote command set is the default set available on the instrument. All commands must be terminated with a <CR>. All decimal values use the point “.” as decimal separator.

It is recommended to send a single carriage return character <CR> before sending the first command to the instrument, to ensure that the buffer is empty. Make sure your serial communication software does not add line feed or flow control characters, as the instrument will not be able to parse them and will consider the command invalid.

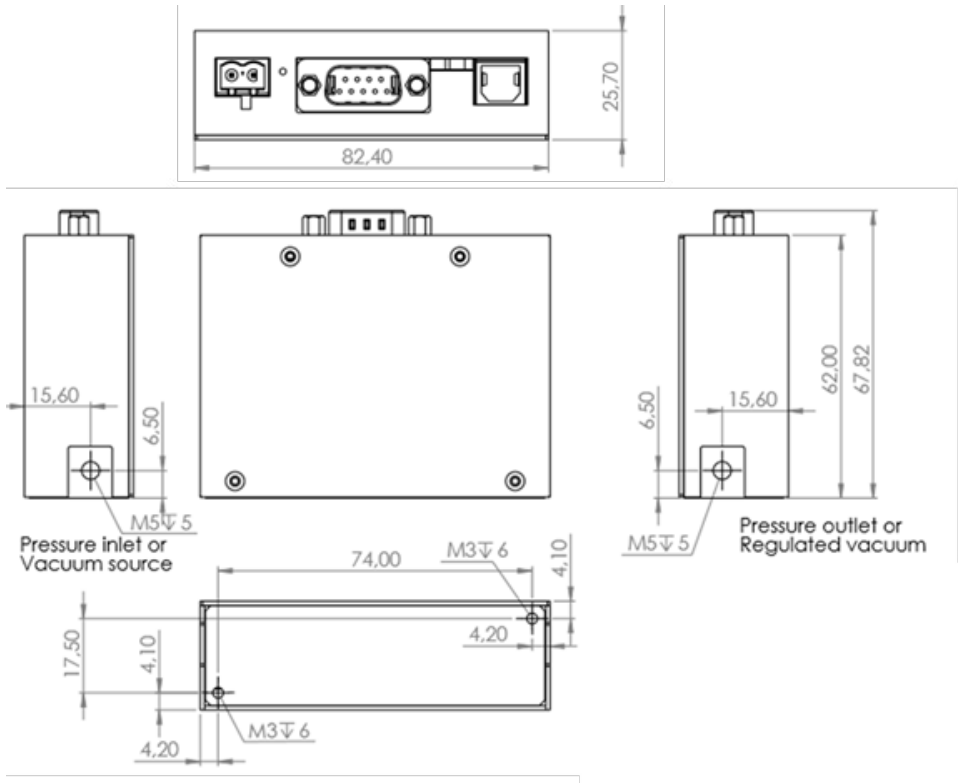
A query command ends with a question mark “?” for queries. The data column represents the response of the instrument. All response strings are terminated with a <CR>. Any response containing multiple values will have the values separated by commas “,”, without spaces.

For all commands (no question mark “?”), the data column represents the required parameters to be sent to the instrument following the string in the command column. Any command that requires multiple parameters must have the parameters separated by commas “,”. In case of error in the command spelling, the command is ignored by the instrument and no error code is returned.

Command/Query	Data	Function/Response
<CR>		Send a single carriage return character to flush the instrument's serial communication buffer
SYST:IDN?	<vendor> <instrument> <serial number> <version number>	Returns the identification string. SN and VN are in decimal and on 5 characters.
SYST:STATUS?	<status>	Returns the instrument status: 1 = Reset in progress 2 = Normal
SYST:MEAS:ALL?	<pmeasure 1>	Returns the current measured pressure on the channel P _{meas} is in mbar
SYST:RESET		Reinitialize the processor and the electro-valve
CHAN:1		If no sensor is detected on the channel the response is "ERROR CHANNEL"
CHAN:1:CONF?	<pmax> <alpha>	Returns the configuration of the channel number P _{meas} is in mbar
CHAN:1:MEAS?	<pmeasure>	Returns the current measured pressure on channel number P _{meas} is in mbar
CHAN:1:P:	<value>	Sets the pressure setpoint in mbar
CHAN:1:ALPHA:	<value>	Sets alpha value. This value is linked to the PID performance. The default value is 5.
CHAN:1:EV:	<value>	Sets electro-valve voltage (%). The manual control of the electro-valve is not recommended and the output pressure is no longer regulated.
CHAN:1:ZERO		Realizes auto zero sequence.

Table 2 - Remote Command Set

DRAWINGS WITH DIMENSIONS



CERTIFICATION

The PX Series are CE and RoHS compliant
FLUIGENT SA is ISO 9001 certified since 2010



WARRANTY CONDITIONS

- Do not apply a higher inlet pressure than the value advised by Fluigent
- Do not use oil pump
- Do not use any corrosive or toxic gas
- Use a dry and clean gas
- Prevent foreign objects or liquids from entering the PX and from spattering on the electronic card
- Connect the 2 power cables to the correct voltage
- Do not treat the PX in order the clean it (autoclave)
- Do not apply any electricity voltage on the PX other than the power supply
- Respect the temperature compatibility (from 5°C to 50°C)

CONTACT

For repair, recalibration or recycling of this product, please contact:

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