

SPR 1000



ELECTRONIC PRESSURE REGULATOR
PNEUMATIC DIVISION

MATRIX
mechatronics

SPR 1000 - ELECTRONIC PRESSURE REGULATOR

The SPR 1000 is a closed loop electronic pressure regulator with an integrated high performance volume booster (5000 NI/min @ 6 bar power stage), able to convert a variable analog or digital input signal (current, voltage, keypad, RS-232) into a proportional pneumatic output and maintain with precision a required downstream pressure. Equipped with an 8 bit microcontroller, it can process signals and commands, carry out complex functions and easily interface with other control/monitor systems via serial RS-232, perfectly integrating in applications which had required more elaborate and expensive systems up till now. The compact and functional design, overall performances and reliability make for an effortless integration in any advanced pneumatic system that requires an active component quickly adaptable to any specific requirement. The input signal, which may be analog (0-5 V, 0-10 V, 4-20 mA) or digital (serial RS-232, keypad/display), is processed by the microcontroller and converted into a proportional pressure output (0-7 bar or optional 0-12 bar) by using PWM (Pulse Width Modulation) controlled high-speed solenoid valves for feed and exhaust functions. An integrated pressure sensor continuously monitors the output pressure of the SPR 1000 providing a feedback to the controller that compares this value to the desired setpoint, which is set by the input signal. Thus any variation of the output pressure can be quickly and precisely compensated in order to maintain the requested downstream pressure. This closed loop system has a reaction time of less than 5 ms. In addition, the SPR 1000 may supply an analog output in proportion to the downstream pressure.



SPR 1000

The SPR 1000 is available in two basic versions:

SPR 1000A equipped with analog/digital input interface (0-5 V, 0-10 V, 4-20 mA*, RS-232) and status leds

SPR 1000D equipped with analog/digital input interface (0-5 V, 0-10 V, 4-20 mA*, RS-232), keypad/display user interface, status leds.

**Available upon request.*



SPR 1000

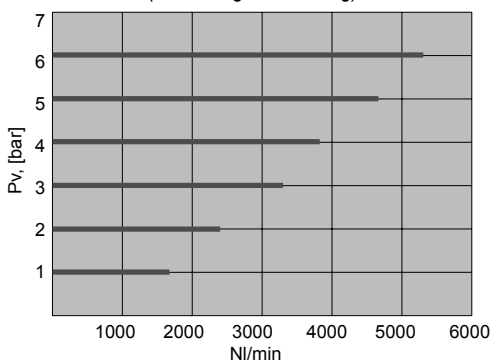
TYPICAL APPLICATIONS

The SPR 1000 may normally be used in any high flow rate industrial application which requires to quickly adjust and maintain with precision a pressure value setting in order to easily manage complex processes or functions. These include positioning, tensioning, movement, speed and force control in robotic equipments, tensioning systems, testing devices, winding devices, dispensing systems, welding equipments, clamping devices, etc. within food, automotive, textile, paper, packaging and machine tools industries.

FEATURES

- Compact size and hard wearing, designed to meet IP65 requirements in any severe industrial environments
- Very fast response times for a precise and reliable output pressure regulation
- Unaffected by shocks, vibrations or accelerations. Can be installed at any angle
- Quickly adaptable to any specific requirement with programmable configuration
- Easy to read digital display for output pressure visualization and user settings
- Low power consumption. No air consumption in steady condition
- Remote control through serial RS-232

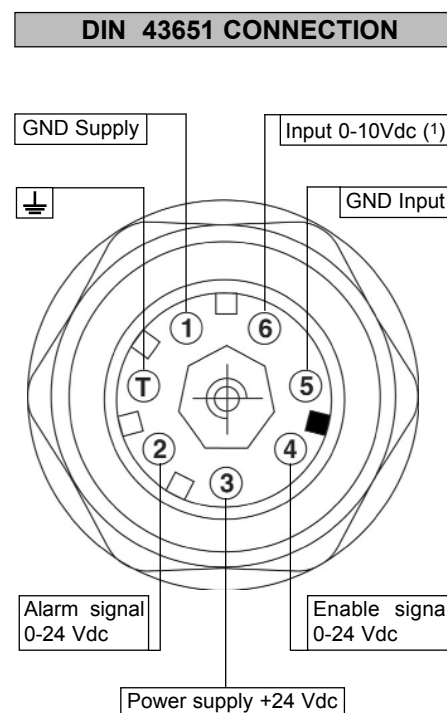
Flow rate wave (increasing- decreasing) $P_{in} = 8 \text{ bar}$



TECHNICAL CHARACTERISTICS

Dimensions	- 256 x 100 x 70 mm ⁽¹⁾
Weight	- 1,3 Kg
Protection ratio	- IP65
Pneumatic connections	- G 1/2
Operating temperature	- -10 to +50 C°
Handled fluid	- Filtered, non-lubricated and dry air
Filtration ratio	- 20 µ
Supply voltage	- 24 Vdc ± 10%
Maximum absorbed power	- 2 W
Enable signal (inlet)	- 0/24 Vdc
Alarm signal (outlet)	- 0/24 Vdc
Reaction time	- 60 ms
Response time (*)	- 100 ms ⁽²⁾ - 100 ms ⁽³⁾
Sensibility	- < 0,5 % F.S.
Linearity	- < 0,5 % F.S.
Hysteresis	- < 0,5 % F.S.
Repeatability	- < 0,5 % F.S.

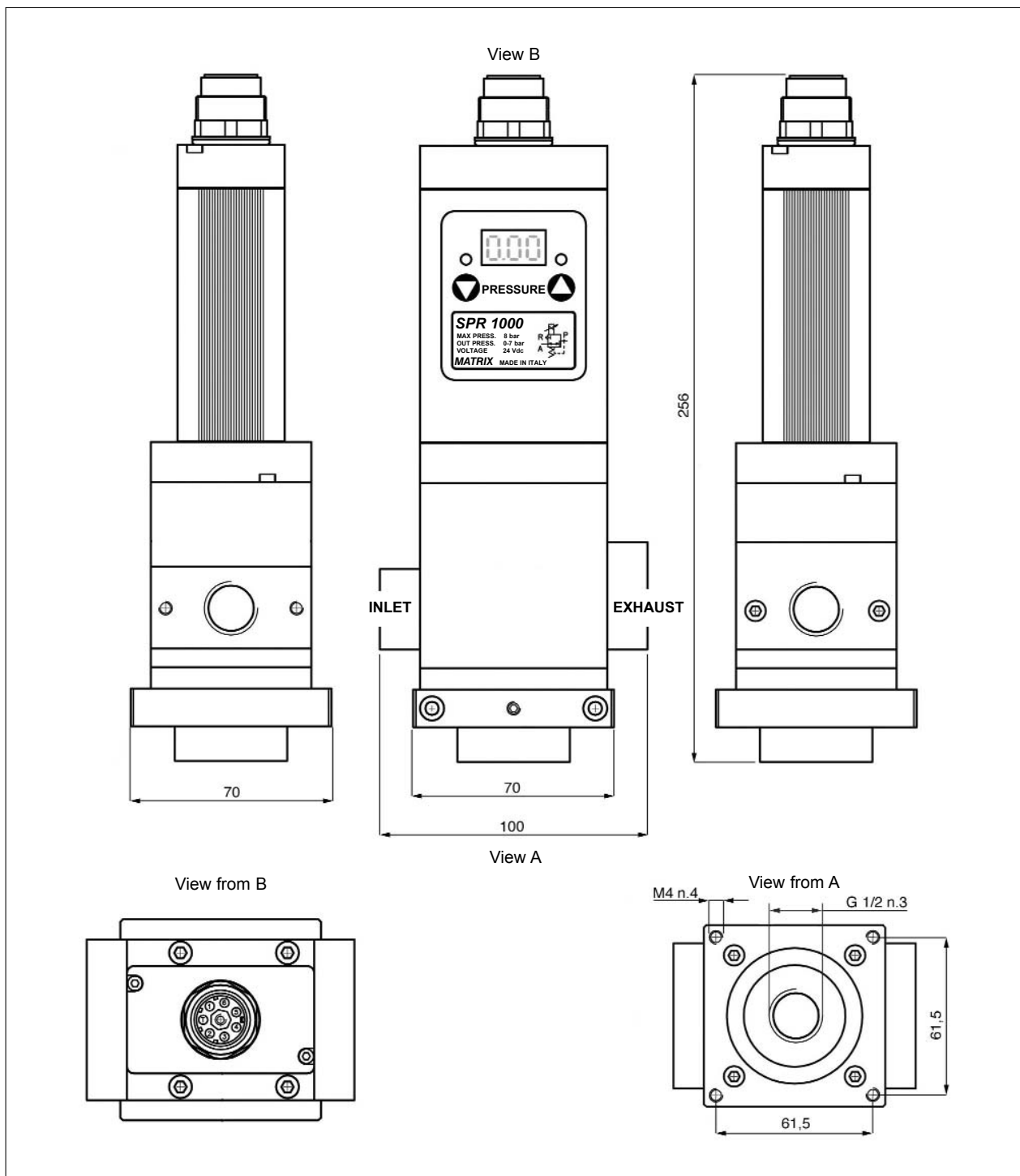
(*) Volume 30 cm³ • @ P = 8 bar • ⁽¹⁾ Hirschmann connection • ⁽²⁾ from 2 to 4 bar (rise time)
 • ⁽³⁾ from 4 to 2 bar (fall time)



⁽¹⁾ R_{in} = 90 KΩ

IDENTIFICATION CODE

S	P	R	1	0	0	0	A	0	0	0	0	A
INLET PRESSURE RANGE												
0	1-8 bar											
1	1-16 bar											
KEYBOARD AND DISPLAY OPTION												
A	Without keyboard and display											
D	With keyboard and display											
ELECTRICAL CONNECTION TYPE												
0	IP62 male D-Sub 15 poles											
1	IP65 male Hirschmann 11 poles											
2	IP65 male Hirschmann 6 poles											
3	IP65 male Italconnectors IPS02A 12 poles											
OUTLET PRESSURE RANGE (REGULATED)												
0	0-7 bar											
3	0-12 bar (1-16 bar inlet pressure range only)											
INPUT TYPE												
0	0-5 Vdc, 0-10 Vdc, RS-232											
1	0-5 Vdc, 0-10 Vdc, RS-232, 4-20 mA											
POWER STAGE THREADED PORTS												
A	G1/2"											



SPR 1000

MATRIX
mechatronics



MATRIX S.p.A. - Pneumatic Division
C.so Vercelli n. 330, 10015 Ivrea (To) Italy
Tel: +39 0125 615442
Fax: +39 0125 615377
matrix@matrix.to.it - www.matrix.to.it