

# SPR 300 / 400



**ELECTRONIC PRESSURE REGULATOR**  
**PNEUMATIC DIVISION**

**MATRIX**  
mechatronics

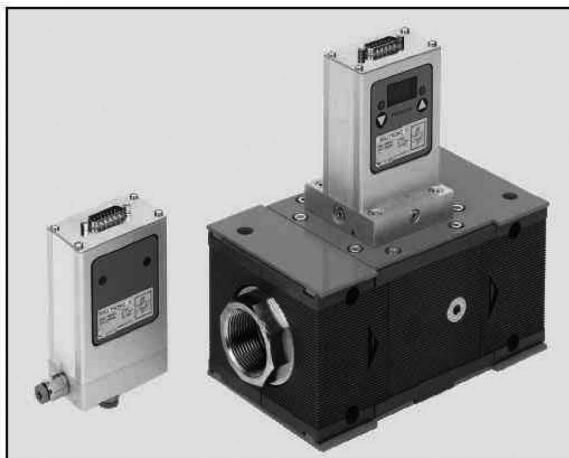
EPR 100 is an electronically-controlled pressure regulator equipped with an 8-bit microcontroller. The control signal can be analogic, digital via RS232 or digital from the keyboard. It is converted into a proportional pressure signal by means of solenoid valves. The regulator can be used alone within the indicated flow values, or in combination with a pilot-operated pressure regulator (power stage).

The advantages are:

- Integration with analogic or digital control systems (PC, PLC, etc.).
- Extremely fast response times.
- Excellent repeatability and reliability.
- Low power absorption.

Version A, with analogic control via voltage or RS232 serial line.

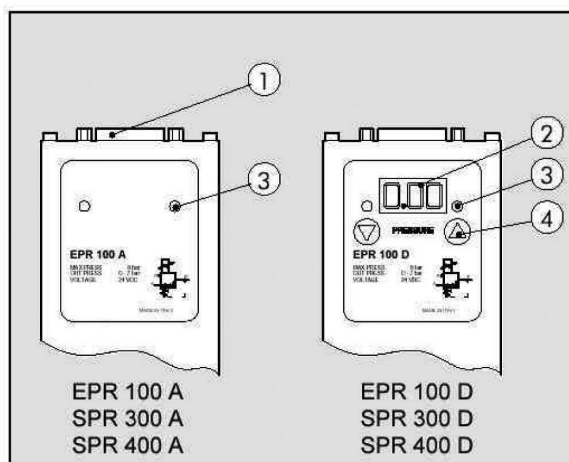
Version D, with control via RS232 serial line or keyboard or voltage, with display of the set and regulated pressures.



TECHNICAL DATA		EPR 100 A and D		SPR 300 A and D		SPR 400 A and D	
Setting range	MPa			0.03 - 0.7			
	bar			0.3 - 7			
	psi			4 - 100			
Control pressure	MPa			0.1 - 0.8			
	bar			1 - 8			
	psi			15 - 115			
Temperature range	°C			-10°C to +50°C			
	°F			14 - 122			
Degree of protection		IP 60		IP 65		IP 65	
Weight	Kg	0.4		1.9		5.6	
Fluid		20 µm filtered air, de-humidified and unlubricated.					
Supply voltage		24 V DC					
Max. absorbed power	W	2					
Control		0-5V / 0-10V / RS 232					
Flow rate at 6.3 bar ΔP 0.5 bar	NI/min	60		4500		18000	
Reaction time	ms	< 5		-		-	
Response time – rise time*	ms	60		-		-	
Response time – fall time**	ms	100		-		-	
* Volume 30 cm3 Pal= 8bar, from 2 to 4 bar							
** Volume 30 cm3 Pal= 8bar, from 4 to 2 bar							

### COMPONENTS

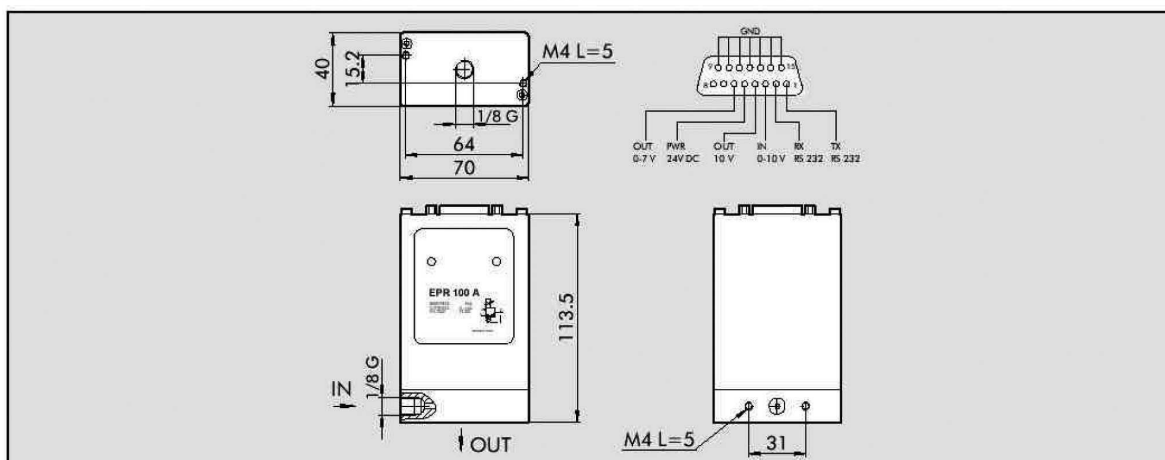
- ① Connection for power supply and serial line
- ② 3-digit digital display
- ③ Led
- ④ Instrument configuration and pressure setting keys



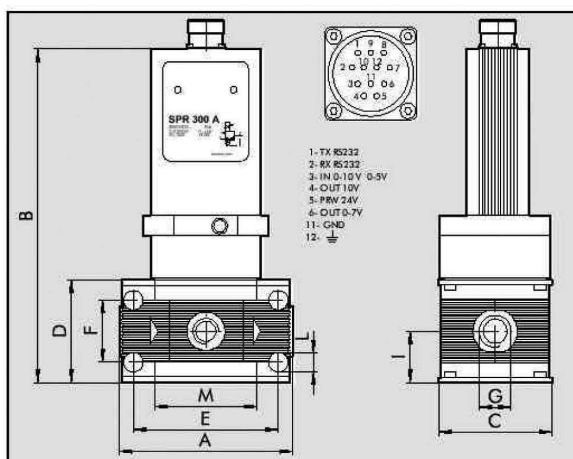
# EPR 100 A/D SPR 300 A/D SPR 400 A/D

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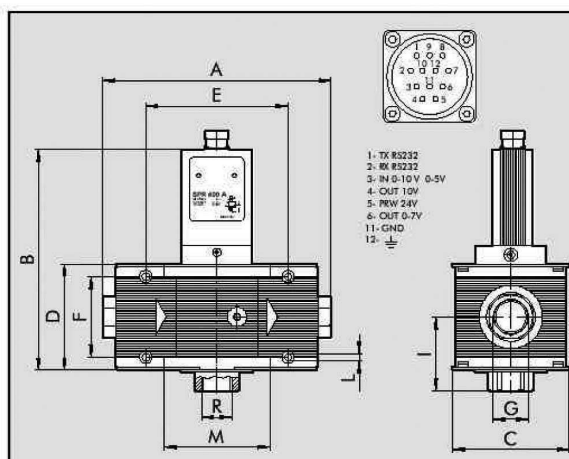
## EPR 100 A/D



## SPR 300 A/D



## SPR 400 A/D



## DIMENSIONS

	SPR 300			SPR 400			
Threaded port	G1/2"	G3/4"	G1"	G1"	G1"1/4"	G1"1/2"	G2
A	110	110	112	225÷255			283÷313
B	227			234			
C	72			116			
D	65			105			
E	92			141.4			
F	42			80			
G	G1/2"	G3/4"	G1"	G1"	G1"1/4"	G1"1/2"	G2
I	32.5			74.5			
L	M5 hole			M6 hole			
M	65			105.4			

# SPR 600 Series



***Electronic Pressure Regulator***  
***PNEUMATIC DIVISION***

**MATRIX**  
mechatronics

[www.matrix.to.it](http://www.matrix.to.it)  
[sales@matrix.to.it](mailto:sales@matrix.to.it)

The SPR 600 is an electronically-controlled pressure regulator equipped with an 8-bit microcontroller in combination with a 1" or 3/4" pilot-assisted pressure regulator (power stage). The control signal can be analogic, digital via RS232 or digital from the keyboard. It is converted into a proportional pressure signal by means of high-rate solenoid valves.

The advantages are:

- Integration with analogic or digital control systems (PC, PLC, etc.)
- Extremely fast response times
- Excellent repeatability and reliability
- Low power absorption

SPR 600 comes in two basic versions:

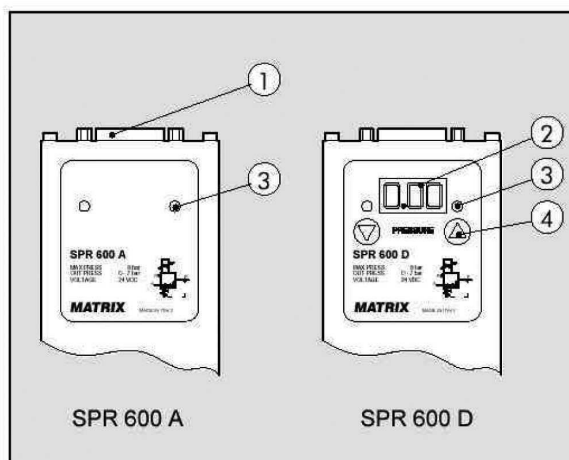
- Version A, with analogic control via voltage or RS232 serial line.
- Version D, with control via RS232 serial line or keyboard or voltage, with display of the set and regulated pressures.



TECHNICAL DATA		SPR 600 A and D	
Setting range	MPa	0.03 - 0.7	
	bar	0.3 - 7	
	psi	4 - 100	
Control pressure	MPa	0.1 - 0.8	
	bar	1 - 8	
	psi	15 - 115	
Temperature range	°C	-10°C to +50°C	
	°F	14 - 122	
Degree of protection		IP62 or IP65	
Weight	Kg	2.5	
Fluid		20 µm filtered air, de-humidified and unlubricated.	
Supply voltage		24 V DC	
Max. absorbed power	W	2	
Control		KEYBOARD / 0-5V / 0-10V / RS 232	
Flow rate at 6.3 bar ΔP 0.5 bar	NI/min	12000	
		-	

### COMPONENTS

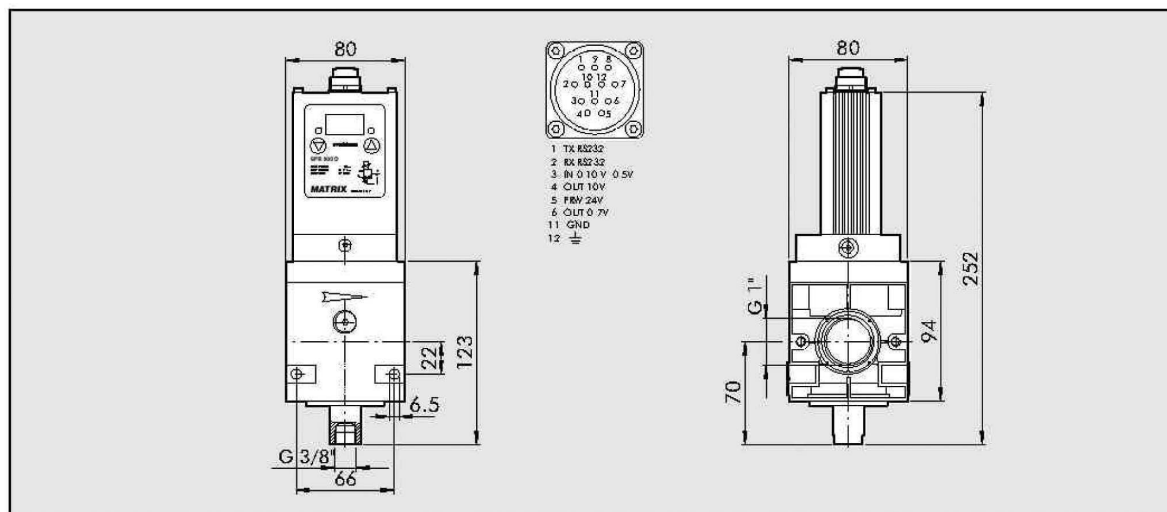
- ① Connection for power supply and serial line
- ② 3-digit digital display
- ③ Led
- ④ Instrument configuration and pressure setting keys



SPR 600 A/D

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DIMENSIONS



NOTES

# SPR 1000



**ELECTRONIC PRESSURE REGULATOR**  
**PNEUMATIC DIVISION**

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## 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

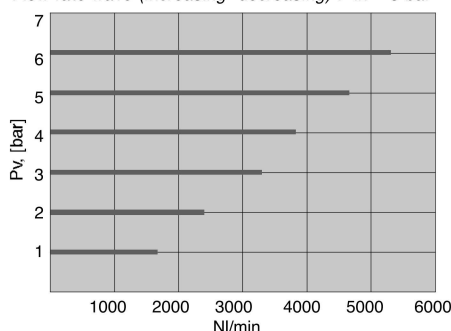
## TYPICAL APPLICATIONS

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)  $P_{in} = 8 \text{ bar}$

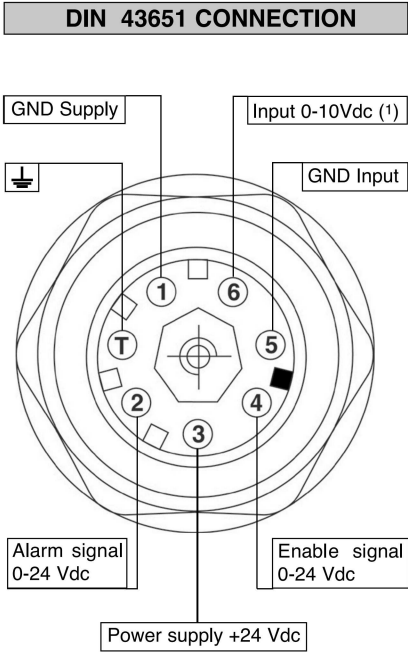




TECHNICAL CHARACTERISTICS

Dimensions	- 256 x 100 x 70 mm <sup>(1)</sup>
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 <sup>(2)</sup> - 100 ms <sup>(3)</sup>
Sensibility	- < 0,5 % F.S.
Linearity	- < 0,5 % F.S.
Hysteresis	- < 0,5 % F.S.
Repeatability	- < 0,5 % F.S.

(\*)Volume 30 cm<sup>3</sup> • @ P= 8 bar • (1) Hirschmann connection • (2) from 2 to 4 bar (rise time)  
 • (3) from 4 to 2 bar (fall time)



(1) R<sub>in</sub> = 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)

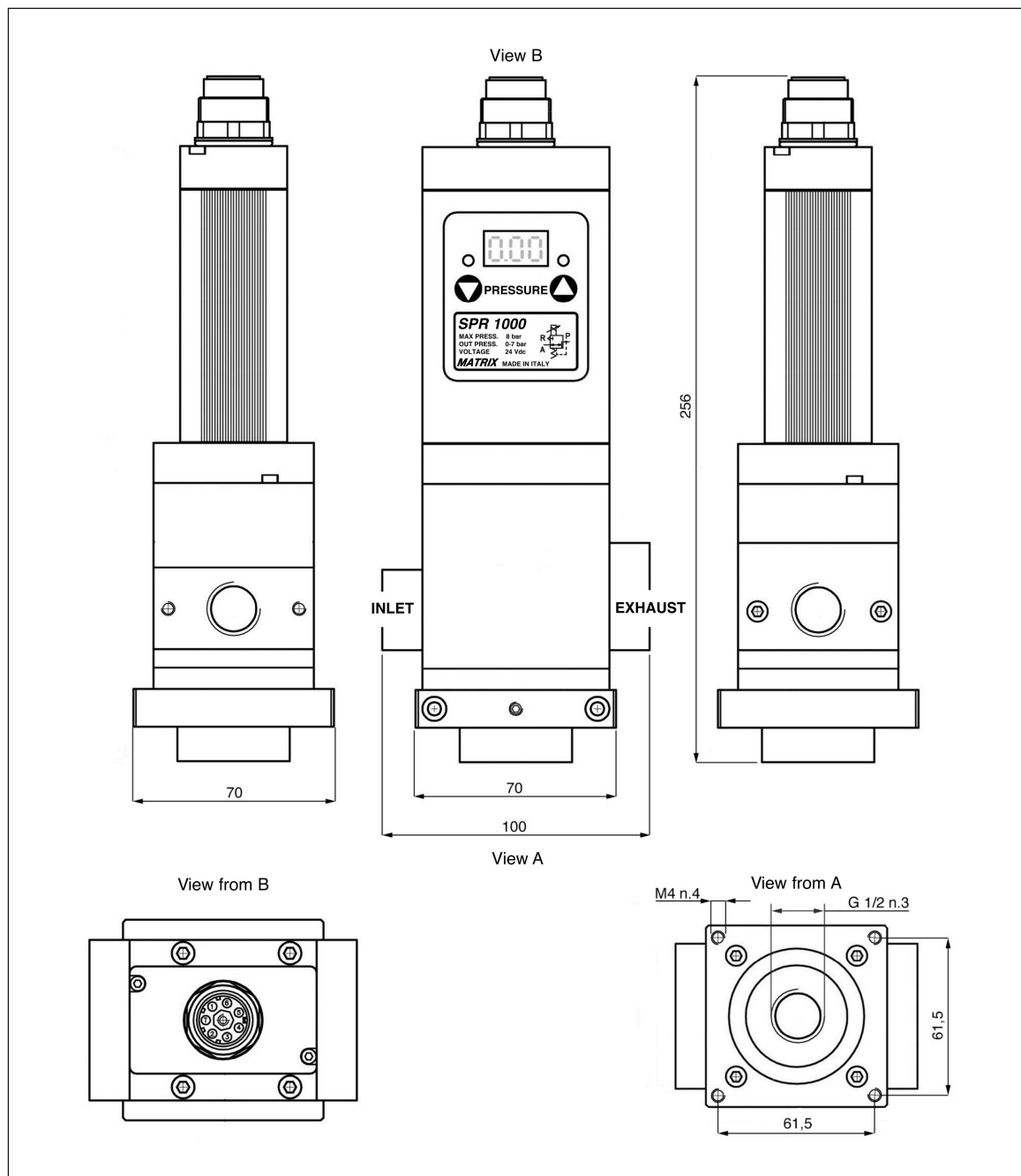
INPUT TYPE

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**

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