PRESYS®

CPY Air Compressor

Technical Manual

EM0369-02

WARNING!

Avoid electric shock risk when touching the equipment:

- Use only suitable power cable with earth connection;
- Never power the equipment to the mains socket with no earth connection.

WARNING!

Before performing or removing the pressure connections, perform a VENT operation (pressure relief). With this operation, the CPY discharges the pressure of the system through the VENT port, making safe the removal and realization of the pressure connections.

WARNING!

Careful with the pressure connections. High pressures at high volume can cause damage to both people and property. The compressor discharges gases into the atmosphere through the VENT port. Leave this port in a safe area.

WARNING!

Other pressure equipments and accessories (such as hose, reservoirs, protection devices) connected to the compressor must be appropriate to the working pressure range.

WARNING!

The instruments described in this technical manual are equipments for use in a specialized technical area. The user is responsible for the configuration and selection of suitable parameters for the instruments. The manufacturer warns about the risk of personal injury and property damage resulting from the incorrect use of the instruments. Use the instruments only according to this technical manual. Any operation not described here is not allowed.

ATTENTION!

High voltage is present inside these equipments. It can cause great damages and injuries. Do not make any repair service inside the equipment without removing the power supply plug from the mains.

ATTENTION!

The fan outlet has a filter that can accumulate dust. It is recommended to clean this filter whenever necessary to avoid overheating the CPY.

ATTENTION!
INSTRUMENT STOP BY TEMPERATURE RISING

The CPY is a compressor for use in metrology, in sealed systems. In cases of the extended periods of use with high air flow and depending on the ambient thermal condition, the compressor can interrupt its operation due to a rise of temperature detected by the safety device.

As soon as the ventilation system brings the compressor temperature back to appropriate levels, which may take a few minutes, the instrument will return to its normal operational status.

The warranty conditions are available in our sites:
www.presys.com.br/warranty

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1 - Introduction

1.1 - Description

The CPY air compressor is a microprocessor instrument that indicates and controls the output pressure. It has configurable pressure setpoint, VENT function (pressure relief) and configurable pressure unit (psi, bar, kgf/cm^2).

The CPY is suitable for use with the **PRESYS PCON-Y17** Pressure Controller and is used as a pressure supply.

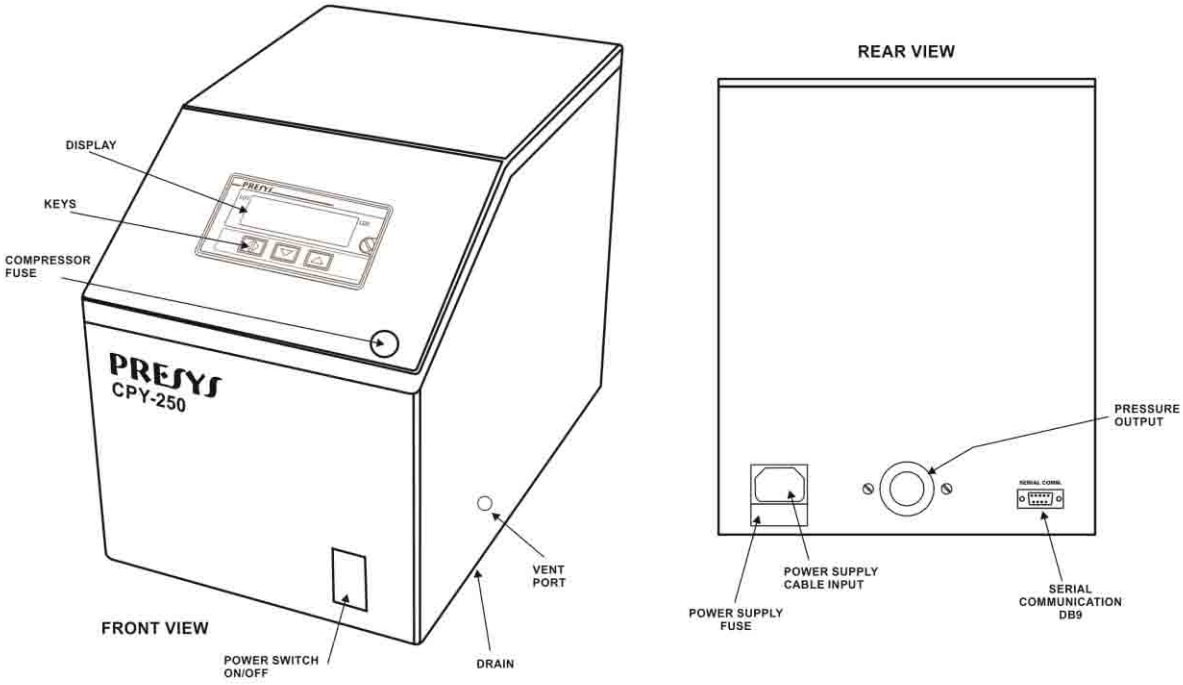


Fig. 01 – Parts Identification – DT version

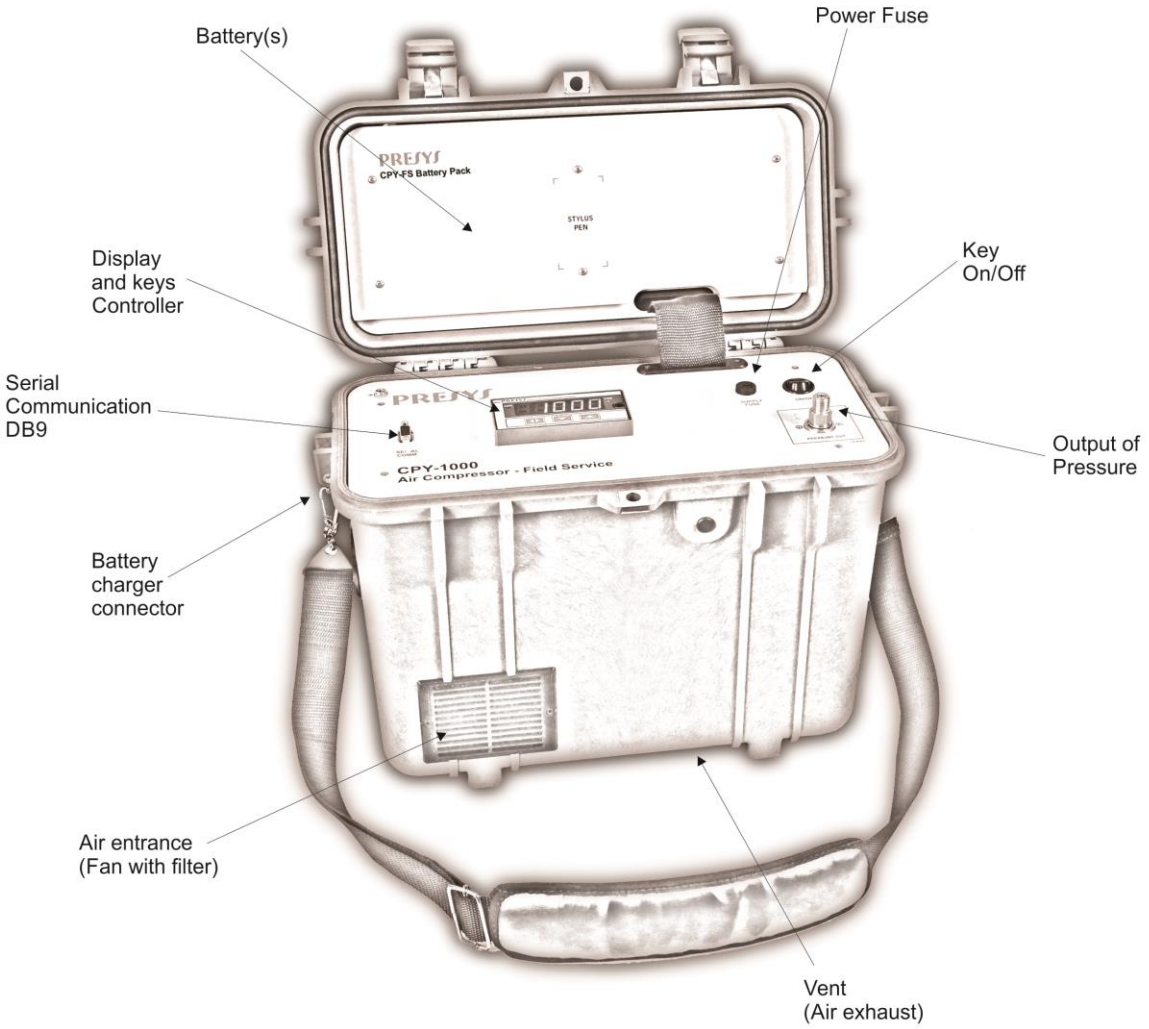


Fig. 02 – Parts Identification - FS version

1.2 - General Specifications

		CPY-250	CPY-500	CPY-750	CPY-1000
Ranges	**- C**	-15 to 350 psig*	-15 to 600 psig*	-15 to 850 psig*	-15 to 1100 psig*
		-1 to 24 bar	-1 to 41 bar	-1 to 59 bar	-1 to 76 bar
	- G	0 to 350 psig	0 to 600 psig	0 to 850 psig	0 to1100 psig
		0 to 24 bar	0 to 41 bar	0 to 59 bar	0 to 76 bar
Weight	DT	8 kg	9 kg		
	FS				
	RM	9 kg	10 kg		
Power Supply	DT	100 to 240 Vac 50/60 Hz			
	RM				
	FS	2 rechargeable batteries (25.2Vdc, 4.2Ah) or battery charger (input: 100 to 240 Vac / output: 27.2 Vdc, 4.4A)			
Dimensions	DT	280 x 210 x 330 mm (HxWxD)			
	RM	132 x 483 x 300 mm (HxWxD)			
	FS	360 x 420 x 230 mm (HxWxD)			
Accuracy		1% FS**			
Engineering Units		psi, bar, kgf/cm^2			
Resolution		1 psig; 0,1 bar; 0,1 kgf/cm^2			
Pneumatic Output Connection		1/8" Female BSPP			
Operating Temperature Range		10 to 50 °C (50 to 122 °F)			
Relative Humidity		0 to 90 % RH			
Included Accessories		technical manual, carrying case (optional), power cable, 1x adapter ¼ "NPT male for high pressure hoses (cod. 06.08.0006-00), 2x 1/8 ”BSP male adapters for high pressure hoses (code 06.08.0032-00), 2x 1/8 "sealing rings (cod. 04.04.0037-10), 1x chained plug (cod. 04.04.0039-10), 1x high pressure hose - 6000 psig - 1500mm (cod. 06.08.0028-00) and 3 fuses 6.3A x 250V (cod. 01.02.0291-21).			
Optional Accessories		- CPY-FS carrying case (code 06.01.1020-00) - CPY-DT carrying case (code 06.01.1031-00) - Tilt support (table use) + Side Protectors - use in RM version (code 02.09.0169-21)			

* For model - C the minimum vacuum setpoint that can be set is -15 psig (-1.0 bar), but the lowest pressure the CPY can generate it can vary according to the atmospheric pressure of the environment. For CPY operate as a vacuum pump the setpoint of -15 psi can be set, then the compressor will be on continuously and will reach the output pressure around -12 psi.

**FS = Nominal Full Scale (250 psig, 500 psig, 750 psig or 1000 psig).

IMPORTANT NOTES:

- The CPY has a configurable pressure setpoint. Always try to set the setpoint to the minimum value sufficient to perform the service. Do not leave the setpoint set to maximum value if it is not necessary. In addition, periodically drain the internal reservoir (see section 3.1). These precautions aim to increase the life of the compressor.

- **CPY** and **PCON-Y17** are **PRESYS** trademarks.
- Changes can be made to the instrument, altering the specifications described in this technical manual.

1.3 - Order Code

Nominal Pressure
250 psi (17 bar)
500 psi (35 bar)
750 psi (52 bar)
1000 psi (70 bar)

Compound/Gauge
C - (Compound) Generate vacuum too
G - Positive pressure only

Mounting Type
DT - Desktop version (for bench use)
RM - Rack Mounting version (fixed to a 19 "rack or bench)
FS - Field Service version (portable for use in the field) (Internal Battery)

2 - Operation

2.1 - Operating Modes

The CPY air compressor has two modes of operation: **configuration mode** and **automatic control**.

In the **configuration mode** parameters are selected and are assigned values to them. This mode is indicated by the led LD2 (red) on. In this mode the compressor is disabled.

In the **automatic control mode**, the compressor is enabled, and the output pressure is controlled according to the setpoint set. This mode is indicated by the led LD1 (green) on.

ATTENTION!
INSTRUMENT STOP BY TEMPERATURE RISING

The CPY is a compressor for use in metrology, in sealed systems. In cases of the extended periods of use with high air flow and depending on the ambient thermal condition, the compressor can interrupt its operation due to a rise of temperature detected by the safety device.

As soon as the ventilation system brings the compressor temperature back to appropriate levels, which may take a few minutes, the instrument will return to its normal operational status.

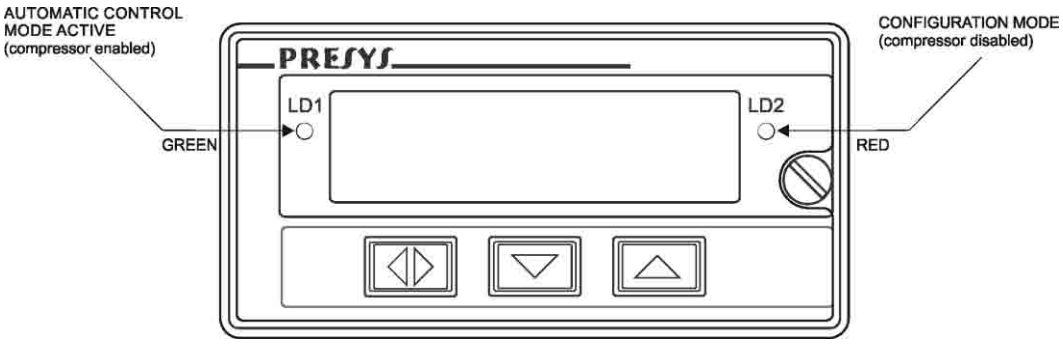


Fig. 03 – Operating Modes

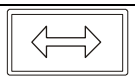
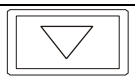
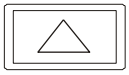
2.2 - Initialization

To turn on the instrument, connect the power cord of the **CPY** to the mains and set the switch to the ON position.

At startup, the **CPY** starts in configuration mode, with the compressor disabled.

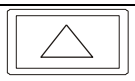
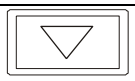
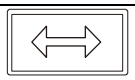
A VENT (pressure relief) operation is started automatically. The display shows the text VENT and the current system pressure. This operation discharges the system pressure through the VENT port until the pressure read is close to zero.

After the VENT operation is completed, the display shows the pressure unit (first character: "p" for psi, "b" for bar, and "k" for kgf/cm²) and setpoint value. At this level, the keys have the following functions.

Key		Function
ENTER		Starts automatic control mode
DOWN		Starts editing the setpoint
UP		Starts editing the setpoint

Therefore, if the setpoint shown is the desired value, simply press the ENTER key to start the automatic control mode (LD1 green on, compressor enabled).

If you want to change the setpoint value, simply press the UP or DOWN key. At the edit level, the keys have the following functions.

Key		Function
UP		Increases the digit
DOWN		Decreases the value
ENTER		Switches to the left digit

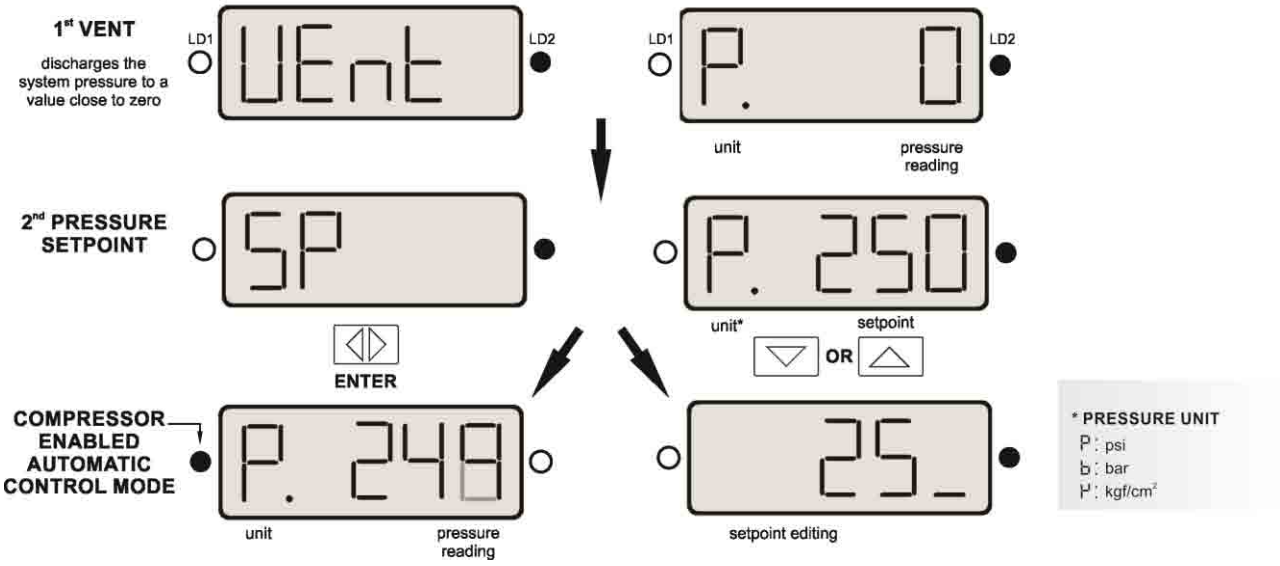


Fig. 04 – Initialization

All configuration parameters are kept in non-volatile memory and determine the normal operation of the instrument. Through these parameters the user can adapt the instrument according to the needs of the process, in case it is necessary to change the factory configuration.

2.3 - Pressure setpoint editing

When in automatic control mode, to enter configuration mode simply press the ENTER key. Pressing the ENTER key, the SP (setpoint) is displayed.

To edit it, press the UP or DOWN key. At the edit level, the keys have the following functions:

Key		Function
UP	△	Increases the digit
DOWN	▽	Decreases the value
ENTER	⇔	Switches to the left digit

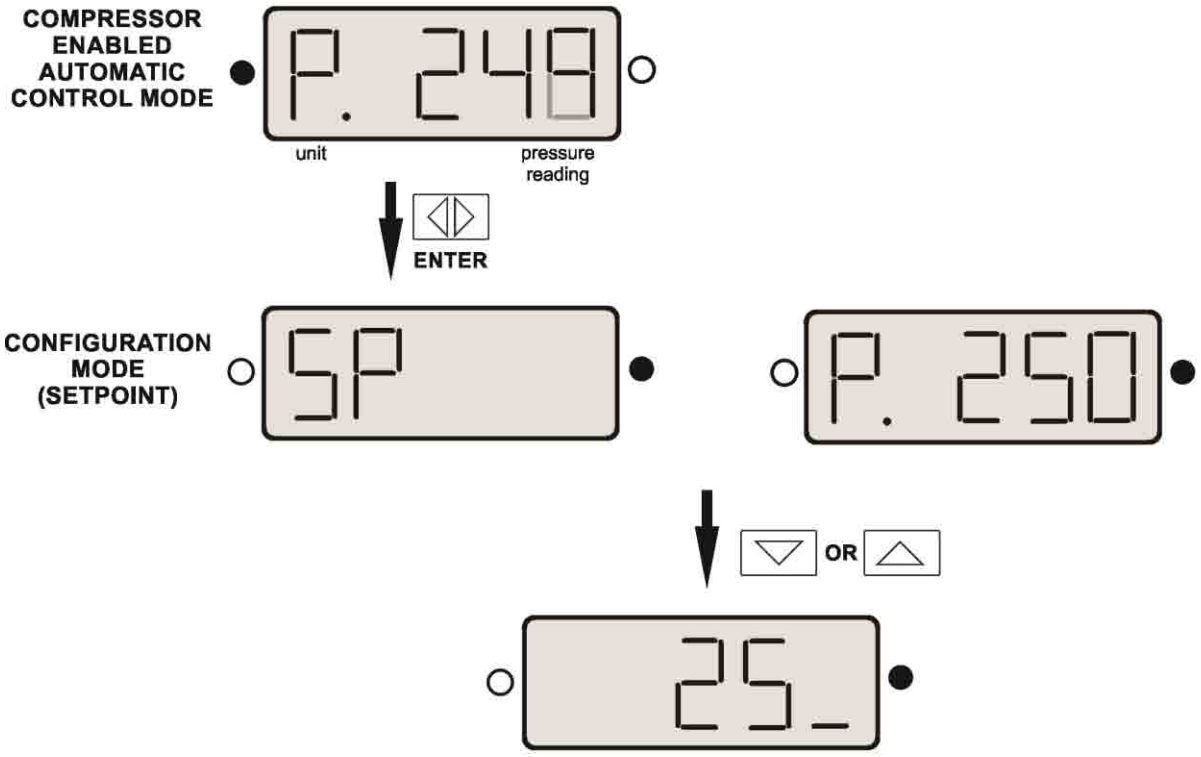


Fig. 05 – Pressure setpoint editing

2.4 - Configuration Menu

The **CPY** has a configuration menu where you can edit the hysteresis parameter, select the pressure unit, and perform the VENT (pressure relief) function.

To access this menu, press the ENTER key for more than 5 seconds. The first option shown in the menu is "psi". To navigate the menu use the UP or DOWN keys. Choose the desired option and press the ENTER key. If you want to leave the menu, select the "ESC" option.

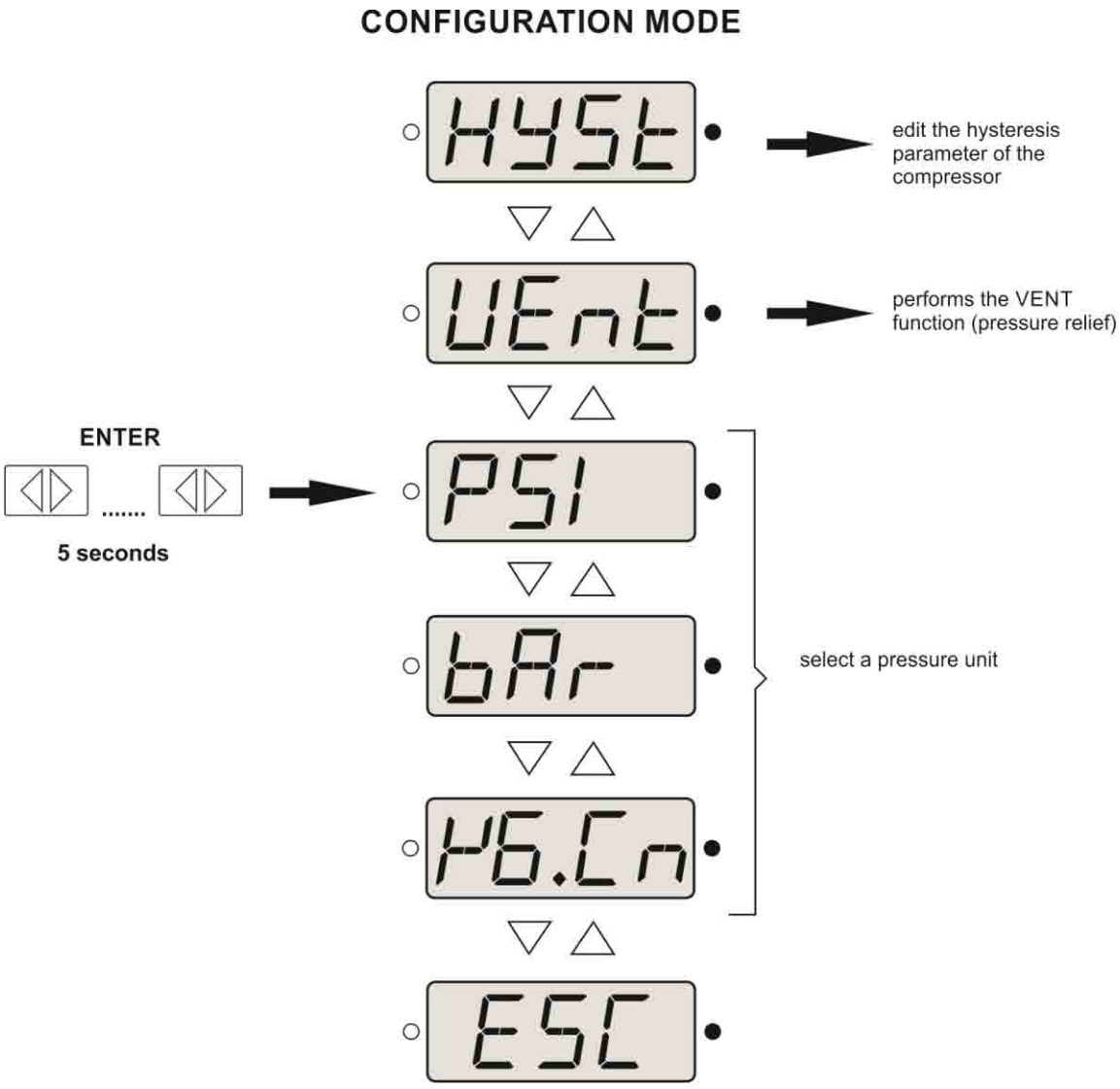


Fig. 06 – Configuration Menu

2.4.1 - Hysteresis

In automatic control mode, the CPY keeps the compressor on until the pressure setpoint (SP) is reached. As soon as this value is reached, the compressor is turned off. The compressor will only be turned on again when the pressure is below the lowest hysteresis setpoint (HYST).

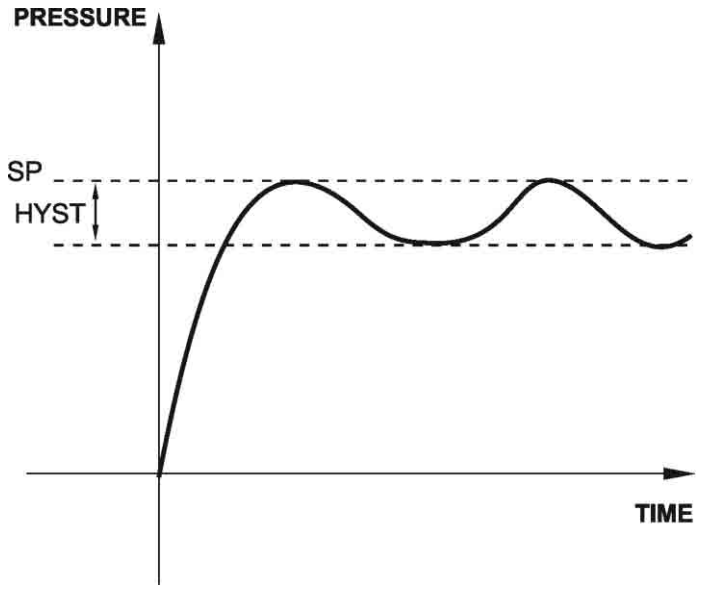


Fig. 07 – Automatic compressor control

Hysteresis is a user-configurable parameter. To edit it, enter the CPY setup menu by pressing the ENTER key for more than 5 seconds, select the "HYST" option, press the ENTER key and edit the desired value.

2.4.2 - Vent (pressure relief)

The **VENT operation (pressure relief) is strongly recommended** before removing or making pressure connections. With this operation, the CPY discharges the pressure of the system through the VENT port, making safe the withdrawal and realization of the pressure connections.

To perform the VENT function, access the CPY setup menu by pressing the ENTER key for more than 5 seconds, select the "VENT" option and press the ENTER key. The system pressure will be discharged through the VENT port to a safe level.

Upon restarting CPY it also performs the VENT operation.

2.4.3 - Pressure Unit

The CPY is set at the factory with the pressure unit "psi". However, the pressure unit can be changed.

To select the pressure unit, access the CPY setup menu by pressing the ENTER key for more than 5 seconds, select the desired unit (psi, bar, or kgf/cm²), and press ENTER.

3 - Maintenance

3.1 - Internal reservoir drainage

The CPY has an internal reservoir that can accumulate condensate (water) due to the air compression process. To drain this accumulation of water, open the valve that is in the lower position of the CPY (only old versions). Carry out this process often. Another important procedure to eliminate possible impurities or water from the reservoir is the VENT procedure (see section 2.4.2).

3.2 - Replacing the Power Supply Fuse

In case of opening of the fuse, the fuse 6.3 Amp (cod. 01.02.0291-21) (Delay Fuse 6.3 A / 250 V / 5 x 20 mm) located within the power outlet at the rear may be substituted.

The fuse may open due to a mains voltage surge or an instrument component failure. Replace the fuse once. If a second fuse burns again, it's because the cause is not so simple. In this case, contact **PRESYS** technical support.

3.3 - Replacing the Compressor Fuse (Only for DR/RM version)

To replace the compressor fuse, proceed as follows:

- Turn the fuse holder on the front panel counterclockwise. Try to use a plastic tool to avoid damaging the fuse holder;
- The fuse holder will be loose, pull it out and remove the fuse;
- Insert the spare fuse (Delay Fuse 6.3 A / 250 V / 5 x 20 mm).

The fuse may open due to a mains voltage surge or an instrument component failure. Replace the fuse once. If a second fuse burns again, it's because the cause is not so simple. In this case, contact **PRESYS** technical support.

3.4 - Replacing battery pack (only for FS version)

To replace the battery pack (order code 01.06.0074-21), proceed as follows:

a) Remove the 6 screws from the cover of the battery pack (1);
b) Remove the cover (2);
c) Disconnect the battery (3);
d) Remove the battery and replace it for the new one (4) **Don't pull through the wires;**
e) Connect the new battery and close the cover, fixing the 6 screws.

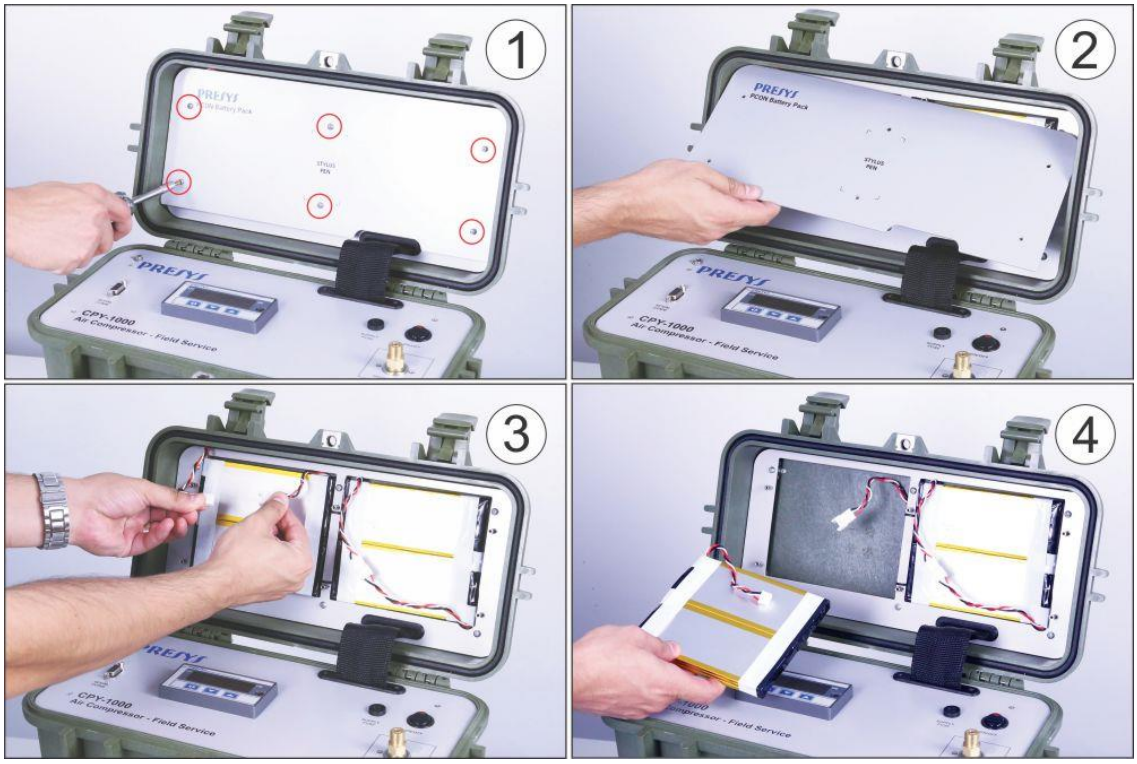


Fig. 08 – Replacing Battery Pack – FS Version

3.5 - Filter in the outlet port

The CPY is provide with an internal filter in the pressure outlet port (order code 02.09.0162-21). This filter is made of sintered brass and prevents the return of residues to the CPY (dirt, dust, remnants of PTFE tape, etc.). This filter can be removed with a screwdriver and cleaned or replaced as needed.

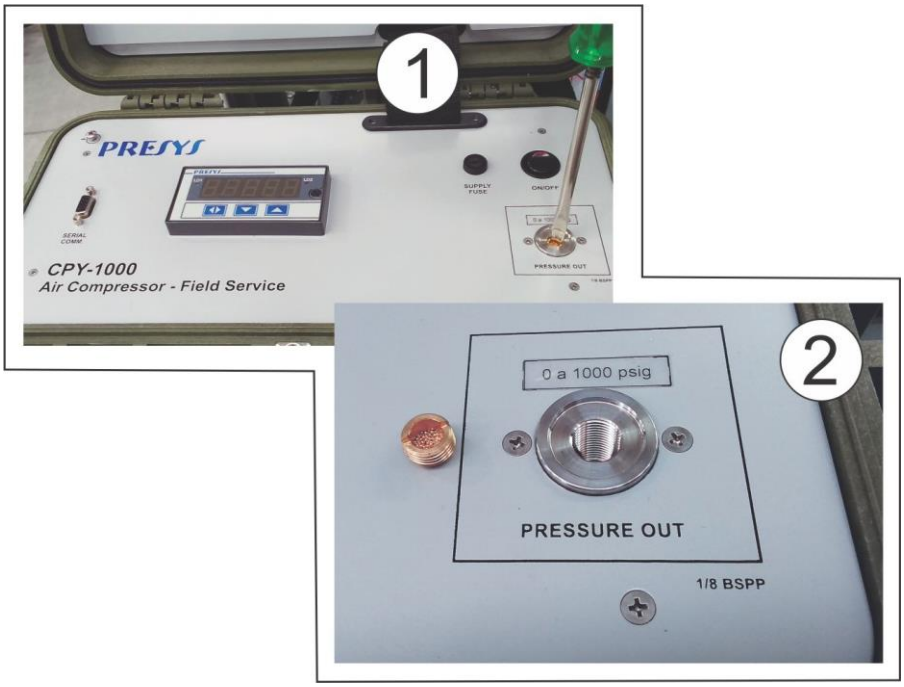


Fig. 09 – Filter in the outlet port