

# **Technical Manual**

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#### **1.0 - Introduction**

#### **1.1 - General Description**

The External Digital Pressure Module has reduced dimensions, is compact and used in conjunction with the Advanced Line calibrators for pressure reading, such as the MCS-XV or PCON Kompressor-Y18.

Thus, MPYA allows you to expand the number of pressure ranges available on each c alibrator, in add ition t o s having it s aut omatic c alibration a nd doc umentation resources.

Its technical characteristics add performance levels only comparable to laboratory standards, with an accuracy of 0.025% of the full scale. It can be supplied with one, two, three or four pressure taps. Thus, in a single module, you can have different pressure ranges, for example, vacuum, 0 to 100 psi, 0 to 1000 psi and 0 to 3000 psi or any other combination of the available ranges.

It can also be purchased with a certain number of sensor capsules and then other capsules can be added.

Enables us e in stand alone mode when connected to a c omputer for p ressure monitoring and data acquisition. It is connected to the calibrator or to the computer via USB, eliminating the need for external power.

The module can be calibrated separately and stores the calibration parameters in its internal memory, which allows its use with different calibrators.

# 1.2 - Technical Specifications

#### **Order Code**

		MPYA		
Number of Pressure Inpu 1 - onde sensor 2 - two sensors	ıts ———			
RANGE				
Input 1	RESOLUTION	ACCURACY	REMARKS	
(0) 25 mbar	0.0001	$\pm$ 0.05 % FS**	Gage pressure	
(1) 70 mbar	0.001	$\pm$ 0.05 % FS	Use with air or	
(2) 350 mbar	0.01	$\pm$ 0.025 % FS	inert gases	
(3) 1 bar	0.00001	$\pm$ 0.025 % FS		
(4) 2 bar	0.00001	$\pm$ 0.025 % FS		
(5) 7 bar	0.0001	$\pm$ 0.025 % FS	Gage or absolute	
(6) 20 bar	0.0001	$\pm$ 0.025 % FS	pressure.	
(7) 35 bar	0.001	$\pm$ 0.025 % FS	Use with fluids (gases	
(8) 70 bar	0.001	$\pm$ 0.025 % FS	or liquids) compatible	
(9) 210 bar	0.001	± 0.025 % FS	316 L stainless steel	
(10) 350 bar	0.01	± 0.025 % FS		
(11) 700 bar	0.01	± 0.05 % FS		
(12) Others, upon request	-	-		
(BR) Barometric Reference	* 0.0001	$\pm$ 0.02 % FS		
Pressure Type Input 1 (E A - Absolute (Only for rang G - Gage V - Vacuum (Only for range C - Compound*** (Only for D - Differential**** (Only	es 3 to 8) (es 3 to 8) (es 3) (for ranges 3 to 8) (for ranges 0 to	) 2)		
RANGE Input 2**** — Pressure Type Input 2**	***			
(*) BR - Barometric Reference (850 f Can be used for simulated indication (**) Full Scale (***) From - 15 psi to the full scale	to 1100 mbar): Senso of absolute pressure of the range	r for ambient pressure mea on the other sensors of the	surement. calibrator.	

(\*\*\*\*) The differential capsule occupies two pressure taps (\*\*\*\*) Same code as Input 1

#### Example of Order Code:

#### MPYA-2-2-M-3-V

Defines a module with two inputs, with input 1 for 0 to 5 psi gauge pressure, input 2 for 0 to 15 psi vacuum. Input 1 allows use with air or inert gases only and input 2 is for use with 316L stainless steel compatible fluids.

**Engineering U nits:** psi, a tm, k gf/cm<sup>2</sup>, inm H<sub>2</sub>O, m H<sub>2</sub>O, cmH<sub>2</sub>O, mmH<sub>2</sub>O, inHg, cmHg, mmHg, bar, mbar, Pa, kPa and torr, selected in the calibrator.

Pneumatic Connection: 1/4" NPTF (Note: 1/8" NPTF only for the range 0 - 10,000 psi).

Overpressure: up to twice the value of full scale pressure (to sensors up to 5,000 psi).

**Operating A mbient:** 0 t o 50 ° C am bient t emperature an d 90 % m aximum r elative humidity.

Dimensions (HxWxD): 95 mm x 144 mm x 72 mm.

Weight: 1.0 kg nominal.

Included Items: carrying case, technical manual and USB cable.

Warranty: 1 year.

#### 2.0 - Operation

#### 2.1 - Parts Identifications



Fig. 01 – Parts Identifications

#### 2.2 - Dimensional Drawing



Fig. 02 – Dimensional

### 2.3 - Connecting the MPYA Pressure Module to the PCON

Connect the module to the calibrator using the cable provided with the pressure module, as shown below.



Fig. 03 – Connecting the MPYA Pressure Module to the PCON

### 2.4 - Connecting the MPYA Pressure Module to the MCS-XV

Connect the module to the calibrator using the cable provided with the pressure module, as shown below.



Fig. 04 - Connecting the MPYA Pressure Module to the MCS-XV

#### 2.5 - Using MPYA

The Pressure Module is supplied with a USB adapter cable. Through this cable, the module is powered by the calibrator, eliminating the need for a battery or external power supply.

The MPYA is plug and play, simply connect the module to the USB Host port of the calibrator so that it is automatically recognized.

Connect the USB cable from the MPYA to the calibrator. The **MPYA EXT** option will be displayed on the Operation screen. To activate MPYA, click on **MPYA EXT** and wait a f ew seconds. **EXT** will appear next to the current pressure unit. In **MEASURE** mode, it will only display the measurements of the MPYA Module.



Fig. 05 – Connected MPYA

After activating M PYA, remember to reset the pressure; T o d o this, go t o the **RESET PRESS** menu. The two pressure sensors (External and Internal) will be reset to ensure the correct pressure reading.



In **CONTROL** mode, it will indicate the measurements of the MPYA Module and the internal pressure sensor (PCON or MCS-XV). In this mode, the calibrator will be us ing the internal sensor indication to control the pressure.



Fig. 06 - Control Mode

For the MPYA with b arometric r eference s ensor, the **RANGE** tab will s how the pressure m ode o ption: **ABS (Absolute)** and **GAUGE**. S electing the **ABS** mode, the calibrator will us e the MPYA Module ambient pressure indication to show as absolute pressure indication / control.



Fig. 07 - Settings

#### **REPO MODE**

The c alibrator also a llows t he us e of ex ternal r eading (MPYA) t o c ontrol t he pressure. To activate this function, access the **SETTINGS** menu on the **CONTROL** tab and activate the **REPO WITH MPYA** function.

AutoZero AUT	OZERO MANUAL	OFF Windowed Static Control Moder/WSCMU	
ew Rate Setting			
SLOW	MEDIUM	FAST	
abilization Settings			
Minimum time (s)	3	0	
Error window (Press. Unit) 0.004%(FS)	0.034	Repo with MPYA	
	APPLY		
TIMIZATION OPTIONS			
To use the optimization settings, y feature.	ou must UNLOCK the	UNLOCK	
DANCE	CONTROL	ADVANCED	

Fig. 08 - Settings



IMPORTANT: ENABLING THE REPO WITH MPYA FUNCTION DOES NOT GUARANTEE GREATER R ESOLUTION IN C ONTROL OR M ORE STABILITY, ON LY TH E S ETPOINT CORRECTION B Y E XTERNAL READING (MPYA).

When the **REPO MO DE** is ac tivated, the external indication will change color. When disabled, the internal indication will change color.

PARÂMETROS	ZERAR PRESS	VENT MEL	pição Ocor 2		ÂMETROS ZE	ERAR PRESS.	VENT	MEDIÇÃO	CONTRO	LE
5s 20:0.0018	<b>1.0</b> 0.9978	000	6 ba	ar G	0.0023	<b>1.0</b>	01	15	bar	G
SP= 10000	PASSO	ΡΟΝΤΟ ΒΑΡ		so si	P= 1.0000	PASSO	PONTO	RÁPIDO	μPASSO	-
	E	NTRADA					NTRADA			



#### 2.6 - Pressure Module DUO

If your Pressure Module is equipped with two capsules, the selection of the active capsule can be made through the **PARAMETERS** menu.



Fig. 10 – MPYA DUO



REMEMBER: ALWAYS D ISABLE T HE MPYA MODULE B EFORE CHANGING THE ACTIVE CAP SULE, OTHERWISE THE MODULE MAY INTERRUPT READING. ALWAYS BE SURE TO CHECK THAT THERE IS NO PRESSURE ON THE HOSES, CONNECTIONS, ETC.

FOR PREVENTION, ONLY PERFORM CHANGES WITH THE ACTIVE VENT MODE.

\* When disconnecting the PCON, the USB cable must always be reconnected to be recognized again.

#### 3.0 – Adjustment of Pressure

# Warning: Only e nter t he f ollowing o ption a fter y our pe rfect understanding. Otherwise, it may be necessary to return the pressure module to the factory to be readjusted.

Follow t he pr ocedure t o ac cess t he adjus tment r anges ( option A DJ of t he calibrator) and select the option Press in the adjustment of the inputs (IN). The calibrator will show:



