

# APM CPF Series

## Advanced Pressure Module



# Expand Your Multi-Purpose Signal Calibrator

## Now Measure Pressure!

**T**HE CRYSTAL APM CPF SERIES pressure module, with integrated CPF female connection, offers the functionality and flexibility to perform pressure calibrations with a multifunction signal calibrator. In addition, when connected to a hand-held pressure calibrator, the APM can expand its pressure range.

The APM is engineered to deliver the same high level of accuracy whether in the lab or in the field. Combined with calibrators and pump systems, the Crystal APM is a powerful calibration tool.

### Key Features

- ▶ **Accuracies to 0.025% of Reading.**  
Performance to meet almost any calibration and measurement task.
- ▶ **Seven Ranges Available.**  
Full coverage from vacuum to 15 000 psi/1000 bar.
- ▶ **Rugged Construction.**  
Machined aluminum housing. Engineered for rough field use – almost unbreakable.
- ▶ **Self-Contained, Intelligent Module.**  
Calibration data is stored in the module, so any module can be combined with any compatible JOFRA indicator. No need to “calibrate” the module to an indicator.



Crystal APM offers seamless integration with JOFRA calibrators like the ASC Series.

### Compatible with your existing JOFRA Calibrator

When combined with these JOFRA calibrators, the APM is a powerful calibration tool.



HPC500  
HPC502  
HPC600



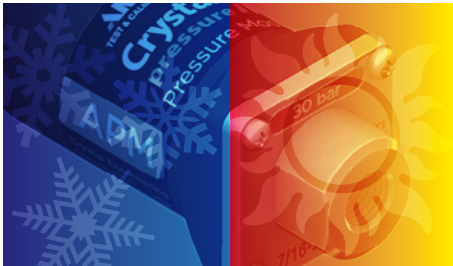
ASC300  
ASC301  
ASC321  
ASC-400  
ASC-400  
BARO



AMC910

# Lab Accuracy in the Field

## Active Temperature Compensation



Count on the same accuracy at any temperature, between -20 and 50°C.

## Calibrate with Confidence Anywhere



Take measurements with up to 0.025% of reading accuracy. Crystal Engineering calibration facilities are A2LA accredited, (#2601.01) which is internationally recognized by ILAC.

## Pressure Calibration with a Signal Calibrator



The Crystal APM converts a JOFRA ASC400 multifunction signal calibrator to a full-featured pressure calibrator. Seamlessly integrated with AMETEK pump systems, an APM combined with an ASC-400 provides the benefits of a host of features like leak-test, pressure-switch calibration, scaling, % error calculation, and more!

## FITTINGS FOR LiFE™



Crystal Pressure Fittings are machined in high-strength 316 Stainless Steel to operate with a 4:1 Safety Factor at 10000 psi / 700 bar.

- ▶ Purpose designed for testing.
- ▶ Self-venting weep hole alerts you before you disconnect from a pressurized system.
- ▶ Seamless connection to pneumatic and hydraulic pump systems.

## Removable CPF Adapter

- ▶ Shifts everyday thread wear to a replaceable adapter fitting.



# Specifications

## Accuracy

30, 100 and 300 psi

3, 10 and 30 bar

300 kPa, 1 and 3 MPa

0 to 30% of Range . . . . .  $\pm(0.0075\%$  of Full Scale)

30 to 110% of Range . . . . .  $\pm(0.025\%$  of Reading)

Vacuum. . . . . For 100 psi /10 bar /1 MPa and lower:  
 $\pm(0.06\%$  of Full Scale\*)

For 300 psi /30 bar /3 MPa:  
 $\pm(0.06\%$  of Full Scale\*)  $\pm 1$  LSD

\* Full Scale = -14.5 psi /-1.0 bar /-100.0 kPa.

1000 and 3000 psi

100 and 300 bar

10 and 30 MPa

0 to 30% of Range . . . . .  $\pm(0.015\%$  of Full Scale)

30 to 110% of Range . . . . .  $\pm(0.05\%$  of Reading)

10 000 and 15 000 psi

700 and 1000 bar

70 and 100 MPa

0 to 30% of Range . . . . .  $\pm(0.03\%$  of Full Scale)

30 to 110% of Range . . . . .  $\pm(0.1\%$  of Reading)

*Includes all effects of linearity, hysteresis, repeatability, temperature, and stability for one year.*

*All models indicate vacuum, but vacuum specification applies only where specified.*

*Not recommended for continuous use at high vacuum. Refer to [XP2i-DP data sheet](#) for gauges that are intended for continuous high vacuum use.*

## Sensor

Wetted Materials. . . . . (WRENCH TIGHT) **316 stainless steel**

(FINGER TIGHT) **316 stainless steel**

**and Viton® (internal o-ring)**

Diaphragm Seal Fluid . . . **Silicone Oil**

Connection. . . . . **Crystal CPF Female**

*All welded, with a permanently filled diaphragm seal.*

*Metal to metal cone seal; O-ring can be removed if necessary.*

*1/4" male NPT adapter is included unless BSP, M20 or 15KPSI is specified.*

*1/4" medium pressure tube system is compatible with HIP LM4 and LF4 Series, Autoclave Engr SF250CX Male and Female Series.*

## Output

Pressure Resolution . . . . . **up to 5 digits**

Display Update . . . . . **up to 10 per second**

*Pressure resolution is the maximum resolution available.*

*The resolution of your JOFRA device may be different.*

## Communication

Connector. . . . . **5-pin LEMO**

Serial . . . . . **9600 baud, 8 data, no parity, 1 stop**

Protocol . . . . . **ASCII command language**

## Pressure Overload

Overload Alarm. . . . . **"+OL" in display at 110% F.S.**

## Operating Temperature

Temperature Range. . . . . **-20 to 50° C (-4 to 122° F)**

*< 95% RH, non-condensing. No change in accuracy over operating temperature range. Gauge must be zeroed to achieve rated specification.*

*Applies to all modules.*

## Storage Temperature

Temperature Range. . . . . **-40 to 75° C (-40 to 167° F)**

## Enclosure

Dimensions. . . . . **1.4 x 1.4 x 3.0 in**

**(35.5 x 35.5 x 76.2 mm)**

Weight. . . . . **0.51 lbs (231.0 g)**

# Accuracies, Ranges, and Resolutions

	psi	bar	kPa/MPa	Overpressure	psi	kg/cm2	inHg	inH2O	mmHg	mmH2O	kPa	bar	mbar	MPa
0.025% of Reading modules	30PSI	3BAR		3.0 x	0.001	0.0001	0.001	0.01	0.01	1	0.01	0.0001	0.1	
				3.0 x	0.001	0.0001	0.001	0.01	0.01	1	0.01	0.0001	0.1	
		300KPA	3.0 x									0.01	0.0001	
	100PSI	10BAR		2.0 x	0.001	0.0001	0.01	0.1	0.1	1	0.01	0.0001	0.1	0.00001
				2.0 x	0.001	0.0001	0.01	0.1	0.1	1	0.01	0.0001	0.1	0.00001
		1MPA	2.0 x									0.01	0.0001	0.1
300PSI	30BAR		2.0 x	0.01	0.001	0.01	0.1	0.1			0.1	0.001	1	0.0001
			2.0 x	0.01	0.001	0.01	0.1	0.1			0.1	0.001	1	0.0001
	3MPA	2.0 x									0.1	0.001	1	0.0001
0.05% of Reading modules	1KPSI	100BAR		2.0 x	0.1	0.001	0.1				0.1	0.001		0.0001
				2.0 x	0.1	0.001	0.1				0.1	0.001		0.0001
		10MPA	2.0 x								0.1	0.001		0.0001
	3KPSI	300BAR		1.5 x	0.1	0.01	0.1				1	0.01		0.001
			1.5 x	0.1	0.01	0.1				1	0.01		0.001	
30MPA		1.5 x								1	0.01		0.001	
0.1% of Reading modules	10KPSI	700BAR		1.5 x	1	0.01					1	0.01		0.001
				1.5 x	1	0.01					1	0.01		0.001
		70MPA	1.5 x								1	0.01		0.001
	15KPSI*	1000BAR*		1.3 x	1	0.01					1	0.01		0.001
				1.3 x	1	0.01					1	0.01		0.001
	100MPA*	1.3 x								1	0.01		0.001	

Resolutions shown are the maximum resolutions available. The resolution of your JOFRA device may be different.

\* CPF adaptor fitting is not included. 1/4" medium pressure tube system is compatible with HIP LM4 and LF4 Series, Autoclave Engr SF250CX Male and Female Series. [See our CPF data sheet](#) for additional adapter fittings.

## Ordering Information

Model	P/N	Fitting
APM	_____	_____
		NPT.....omit
		G 1/4 B.....-BSP
		M20x1.5 ...-M20

### SAMPLE PART NUMBERS

APM30PSI ..... 30 psi APM with a 1/4" NPT pressure fitting.  
 APM700BAR-BSP ..... 700 bar APM with a 1/4" BSP pressure fitting.  
 APM10MPA-M20 ..... 10 MPa APM with an M20x1.5 pressure fitting.

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For detailed specifications  
go to the Data Sheet at [crystalengineering.net/apm](http://crystalengineering.net/apm)

**Crystal**   
**pressure**

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