

ACCURACY-PRESSURE MEASUREMENT

0 to 110% of Range: $\pm(0.05\%$ of Reading + Floor Term)

Floor Term: **0.005% of FS or display resolution, whichever is greater**

Vacuum: $\pm(0.25\%$ of Reading + Vacuum Floor Term)

Vacuum Floor Term: **0.0003 bar for 1 and 2 bar**
0.001 bar for 20 bar

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

All models indicate vacuum, but vacuum specification applies to 1 bar, 2 bar, and 20 bar models only.

Not recommended for continuous use below -1 bar. Refer to [XP2i-DP data sheet](#) for gauges that are intended for continuous high vacuum use.

ACCURACY-MILLIAMPERES

Accuracy: $\pm(0.025\%$ of Reading + 0.001 mA)

Range: **0 to 55 mA**

Resolution: **0.001 mA**

Connection: **4 mm jacks, 19 mm (0.75") spacing**

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

mA can be displayed as a percentage, where 0 to 100% corresponds to either 4 to 20 mA or 10 to 50 mA.

Jacks are compatible with safety sheathed banana plugs.

OPERATING TEMPERATURE

Temperature Range: **0 to 50° C (32 to 122° F)**

Non-condensing. No change in accuracy over operating temperature range. Gauge must be zeroed to achieve rated specification.

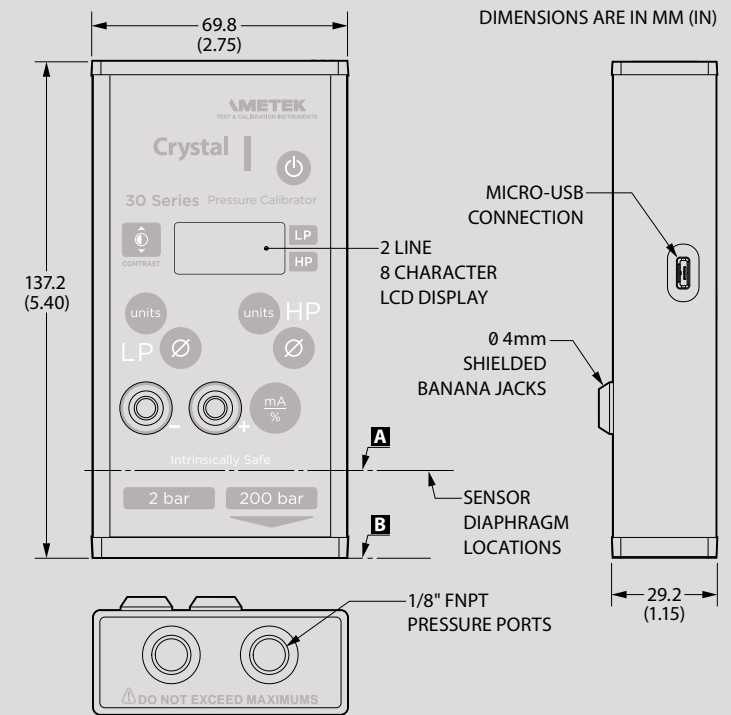
DISPLAY

Screen: **2 lines of up to 6 digits, 5 mm (0.2") high**

Display Rate: **2 readings/second (Adjustable to 1, 3, or 3.7 readings/second)**

LCD readable in sunlight.

Changes to reading rate requires software: ConfigM30 is a free download from crystalengineering.net/downloads/30series.



PRESSURE PORT VOLUMETRIC DATA:

LP distance to diaphragm (**A** to **B**): 22.4 (0.88")

LP volume: 2 ml (0.13 cubic inches)

HP distance to diaphragm (**A** to **B**): 17.8 (0.70")

HP volume: 1 ml (0.06 cubic inches)

POWER

The 30 Series is Intrinsically Safe only if powered by one of the following battery types.

ATEX/IECEX:	Approved Battery Type	Ta=	Marking
	Duracell Alkaline 9V, MN 1604	0 to 50° C	Ex ia IIC T4 Gb
	Energizer Alkaline 9V, 522		
	Energizer Lithium 9V, L522		
	Varta High Energy Alkaline 9V, 4922	0 to 45° C	

CSA:	Approved Battery Type	Marking
	Duracell Alkaline 9V, MN 1604	Class I, Division 1, A, B, C, D T4
	Energizer Alkaline 9V, 522	
	Energizer Lithium 9V, L522	
	Varta High Energy Alkaline 9V, 4922	Class I, Division 1, A, B, C, D T3C

1 x 9V: **90 hours, typical**

Uses one alkaline 9V battery. Use of USB interface reduces operating time.

For hazardous location product warnings, refer to the operation manual.

DATA/COMMUNICATION

Digital Interface: **micro-USB**

Free Labview drivers available online.

For hazardous location product warnings, refer to the operation manual.

ENCLOSURE

Model 31 ≤ 20 bar: **342 g (12.0 oz)**

Weight includes batteries.

* Model 31 ≤ 20 bar: **428 g (15.0 oz)**

*SPSS optional manifold.

Model 31 ≥ 100 bar: **360 g (13.0 oz)**

Nylon carry case included.

Model 33: **400 g (14.0 oz)**

* Model 33: **485 g (17.0 oz)**

Housing: **Extruded aluminum**

Keypad and Labels: **UV resistant polyester**

CERTIFICATIONS



II 2G Ex ia IIC T4
FTZU 06 ATEX 0010X

This product conforms to:

EN 60079-0: 2006 | EN 60079-11: 2007



II 2G Ex ia IIC T4 Gb
IECEX FTZU 10.0018X

This product conforms to:

IEC 60079-0: 2007 | IEC 60079-11: 2006



Exia Intrinsically Safe and Non-incendive for Hazardous Locations: Class I, Division 1, Groups A, B, C and D, Temperature Code T4 or T3C. For hazardous location product warnings, refer to the operation manual.



30 Series complies with the Electromagnetic Compatibility and the Pressure Equipment Directives.



The instrument was tested against **AS/NZS 3584**, C-tick EMC/EMI requirements.



30 Series is approved for use as a portable test instrument for Marine use and complies with Det Norsjke Veritas' Rules for Classification of Ships, High Speed & Light Craft and Offshore Standards.

SENSOR ≥ 100 bar

Wetted Materials: **316 stainless steel** *All welded with a permanently filled diaphragm seal.*

Diaphragm Seal Fluid: **Silicone Oil**

Connection: **Bottom, 1/8" female NPT**

SENSOR ≤ 20 bar

Wetted Materials: **316 stainless steel, Viton® (o-ring)** *Viton o-ring is internal.*

Anodized aluminum penetrated with PTFE (polytetrafluoroethylene) *All welded with a permanently filled diaphragm seal.*

Diaphragm Seal Fluid: **Silicone Oil**

Connection: **Bottom, 1/8" female NPT**

STORAGE TEMPERATURE

Temperature Range: **-20 to 70° C (-4 to 158° F)** *Batteries should be removed if stored for more than one month.*

SPECIAL FEATURES

The following requires the use of **ConfigM30** software

User Defined Unit: **Allows the user to define and display any pressure units not included, or to use the gauge to display force, level, or other pressure related parameters. Reduce or increase displayed resolution.**

Remove: **Unwanted pressure units from Units button.**

Password Protect: **Changes to configuration or userspan calibration factor(s).**

Save: **Configuration to a file.**

Copy: **Configuration to other calibrators.**

RANGE & RESOLUTION TABLES

P/N	Range (bar)	Over-pressure	Display Resolution											
			bar	mbar	kPa	MPa	psi	in H ₂ O	in Hg	mm Hg	mm H ₂ O	cm H ₂ O	kg/cm ²	
1	1	6.5 x	0.0001	0.1	0.01			0.001	0.01		0.01	1		0.0001
2	2	3.0 x	0.0001	0.1	0.01			0.001	0.01		0.01	1		0.0001
20	20	2.0 x	0.001		0.1			0.01	0.1	0.01	0.1		1	0.001
100	100	2.0 x	0.01		1	0.001		0.1						0.01
200	200	1.5 x	0.01		1	0.001	0.1							0.01
300	○ 300	1.5 x	0.01		1	0.001	0.1							0.01

○ Model 31 calibrators are not available in this range.

DUAL PRESSURE SENSORS

Model 33 calibrators have dual pressure sensors. This chart shows all of the available sensor combinations. ■

First Pressure Ranges	Second Pressure Ranges			
	20 bar	100 bar	200 bar	300 bar
1 bar	■	■	■	■
2 bar	■	■	■	■
20 bar		■	■	

ORDERING INFORMATION*

Intrinsic Safety	Model	1st Pressure Range P/N	2nd Pressure Range P/N	Pressure Unit	Pressure Manifold	CPF** Fitting Kits	Pump System**	Liquid (Systems C-H)	Carrying Case~
IS				PSI					
	Single Sensor...31				Standard.....(omit)	No.....(omit)	No Pump....(omit)		
	Dual Sensor...33				Stainless Steel...-SPSS	NPT Kit (4013)...-N	System A (pneumatic) 0 to 2 bar.....-AXX	Full.....(omit)	Aluminum...(omit)
						BSP Kit (4015)...-B	System A (pneumatic) 0 to 40 bar.....-AHX	Drained.....-E	Waterproof.....-W
							System B (pneumatic) -0.91 to 2 bar.....-BXX		
							System B (pneumatic) -0.91 to 40 bar.....-BHX		
							System C (oil) 0 to 200 bar.....-CXX		
							System C (oil) 0 to 350 bar.....-CHX		
							System D (oil) 0 to 350 bar.....-DOX		
							System D (water) 0 to 350 bar.....-DWX		
							System E (oil) 0 to 700 bar.....-EOX		
							System F (oil) 0 to 1000 bar.....-FOV		
							System F (water) 0 to 1000 bar.....-FWV		
							System G (oil) 0 to 1000 bar.....-GOX		
							System G (water) 0 to 1000 bar.....-GWX		
							System H (oil/pneumatic) -0.91 to 40 bar and 0 to 350 bar.....-HOX		

SAMPLE PART NUMBERS

- IS31-2BAR Calibrator with one sensor (2 bar).
- IS33-1/100BAR-SPSS Calibrator with two sensors (1 bar and 100 bar) with two stainless steel manifolds.
- IS33-2/200BAR-SPSS-N-HOX-W Calibrator with two sensors (2 bar and 200 bar) with two stainless steel manifolds; an NPT CPF fitting kit; a System H pump system; and a waterproof carrying case.

► Ordering a Pump System Only

Any pump system, carrying case, and connection fittings for a 30 Series calibrator may be ordered separately from the calibrator. Enter IS30-NONE followed by the Pump System part number and the Carrying Case option code.

SAMPLE PART NUMBER

- IS30-NONE-HOX-W System H pump system with a waterproof carrying case.

◆ U.S. Patent No. 8,794,677

* CPF Fitting Kits can **only** be ordered as part of a Pump System. All fittings are rated to 700 bar, with the exception of the MPF-1/2QTF rated to 350 bar.

** Refer to the following page for a more detailed description of each Pump System.

~ The Waterproof Case is an **option** for Systems A, B, and C only. The Waterproof Case is the **only option** for Systems G and H.

* BAR versions available in USA direct from factory only.



900 Series

PUMP SYSTEMS

All pump systems for the 30 Series include 1/4 NPT and BSP female fittings, (2) MPF-1/8MPT fittings, and a carrying case with custom insert. Additional fittings and accessories included with individual systems are listed below.

- ▶ **Systems A...** AXX (T-960), AHX (T-970)
MPH-1 hose, bonded seals, o-ring kit, and teflon tape.
- ▶ **Systems B...** BXX (T-965), BHX (T-975-CPF)
MPH-1 hose, bonded seals, o-ring kit, and teflon tape.
- ▶ **Systems C...** CXX (T-620), CHX (T-620H-CPF)
MPH-1 hose, MPF-CAP, MPM-PLUG, bonded seals, and teflon tape.
- ▶ **Systems D...** DOX and DWX (P-018-CPF)
Bonded seals and teflon tape.
- ▶ **System E...** EOX (P014)
Bonded seals and teflon tape.
- ▶ **Systems F...** FOV and FWV (T-1-CPF)
Bonded seals and teflon tape.
- ▶ **Systems G ...** GOX and GWX (GaugeCalHP)
Carrying case hold-down straps.
- ▶ **System H...** HOX (T-975-CPF and T-620H-CPF)
MPF-CAP, MPM-PLUG, bonded seals, o-ring kit, and teflon tape.



600 Series



P-018-CPF



P014



T-1-CPF



GaugeCalHP

CPF FITTING KITS

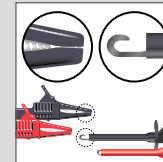
- ▶ **NPT Kit...** -N (4013)
Includes MPF-1/8QTF, MPF-1/4QTF, and MPF-1/2QTF.
- ▶ **BSP Kit...** -B (4015)
Includes MPF-1/8BSPF, MPF-1/4BSPF, MPF-3/8BSPF, and MPF-1/2BSPF.

ACCESSORIES



Carry Case and Strap P/N 2490 (included)

A clear plastic cover protects the keypad while allowing operation of all the buttons.



Test Leads P/N 1351

Our test lead kit features high quality banana to banana test leads with rugged, hard plastic insulated alligator clips.



24VDC Loop Power Supply P/N 24VDCPS

A compact, battery-powered, loop power supply, ideal for sites where power is unavailable.

COMPLIMENTARY PRODUCTS

Crystal Engineering offers a wide range of products that work with the 30 Series:

- [Fittings that connect without tools, safely and without leaks](#)
- [Lightweight, super flexible high pressure hoses](#)
- [Fitting kits and adapters](#)
- [Portable pressure comparators](#)
- [Software, for the quickest way to calibrate pressure transmitters and gauges](#)

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