

## ACCURACY—PRESSURE MEASUREMENT

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

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

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

Vacuum Floor Term: **0.004 psi for 16 and 36 psi  
0.01 psi for 300 psi**

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

*All models indicate vacuum, but vacuum specification applies to 16 psi, 36 psi, and 300 psi models only.*

*Not recommended for continuous use below -14.5 psi. Refer to [XP2i-DP data sheet](#) for gauges that are intended for continuous high vacuum use.*

## ACCURACY—MILLIAMPERES

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

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

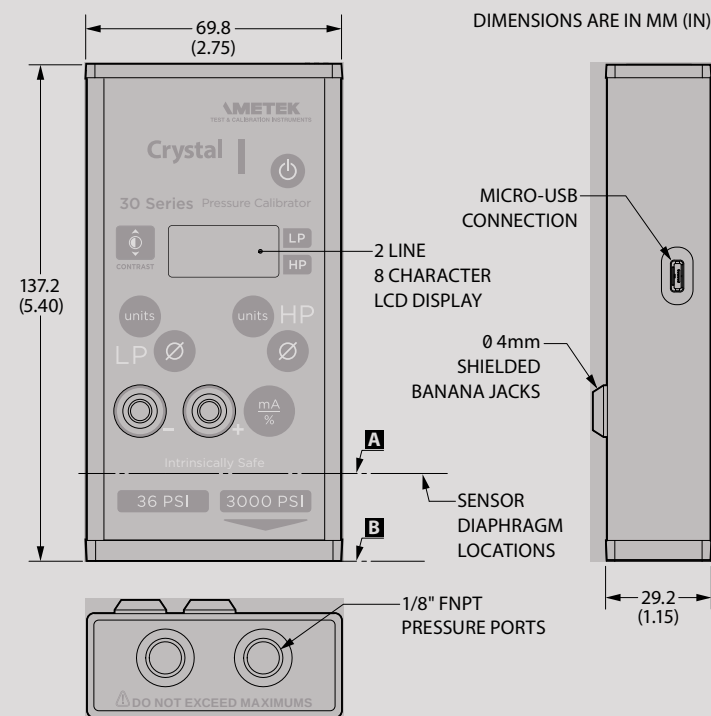
Screen: **2 lines of up to 6 digits, 5 mm (0.2") high**

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](http://crystalengineering.net/downloads/30series).*

# 30 Series Calibrator psi



### 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 ≤ 300 psi: **342 g (12.0 oz)**

Weight includes batteries.

\* Model 31 ≤ 300 psi: **428 g (15.0 oz)**

\*SPSS optional manifold.

Model 31 ≥ 1500 psi: **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**

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## 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  $\geq$  1500 psi**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  $\leq$  300 psi**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 TABLE

|      |             |               | Display Resolution |                     |       |       |                     |                     |                    |       |      |      |       |
|------|-------------|---------------|--------------------|---------------------|-------|-------|---------------------|---------------------|--------------------|-------|------|------|-------|
| P/N  | Range (psi) | Over-pressure | psi                | in H <sub>2</sub> O | in Hg | mm Hg | mm H <sub>2</sub> O | cm H <sub>2</sub> O | kg/cm <sup>2</sup> | bar   | mbar | kPa  | MPa   |
| 16   | 16          | 6.5 x         | 0.001              | 0.01                | 0.001 | 0.01  | 1                   |                     | 0.0001             |       | 0.1  | 0.01 |       |
| 36   | 36          | 3.0 x         | 0.001              | 0.01                | 0.001 | 0.01  | 1                   |                     | 0.0001             |       | 0.1  | 0.01 |       |
| 300  | 300         | 2.0 x         | 0.01               | 0.1                 | 0.01  | 0.1   |                     | 1                   | 0.001              | 0.001 |      | 0.1  |       |
| 1500 | 1500        | 2.0 x         | 0.1                |                     |       |       |                     |                     | 0.01               | 0.01  |      | 1    | 0.001 |
| 3000 | 3000        | 1.5 x         | 0.1                |                     |       |       |                     |                     | 0.01               | 0.01  |      | 1    | 0.001 |
| 5000 | ● 5000      | 1.5 x         | 0.1                |                     |       |       |                     |                     | 0.01               | 0.01  |      | 1    | 0.001 |

● Model 31 calibrators are not available in this range.

## 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 30 psi.....-AXX                             | Full.....(omit)      | Aluminum... (omit) |
|                  |                    |                        |                        |               |                         | BSP Kit (4015)...-B | System A (pneumatic) 0 to 580 psi.....-AHX                            | Drained.....-E       | Waterproof.....-W  |
|                  |                    |                        |                        |               |                         |                     | System B (pneumatic) -25 inHg to 30 psi.....-BXX                      |                      |                    |
|                  |                    |                        |                        |               |                         |                     | System B (pneumatic) -25 inHg to 580 psi.....-BHX                     |                      |                    |
|                  |                    |                        |                        |               |                         |                     | System C (oil) 0 to 3000 psi.....-CXX                                 |                      |                    |
|                  |                    |                        |                        |               |                         |                     | System C (oil) 0 to 5000 psi.....-CHX                                 |                      |                    |
|                  |                    |                        |                        |               |                         |                     | System D (oil) 0 to 5000 psi.....-DOX                                 |                      |                    |
|                  |                    |                        |                        |               |                         |                     | System D (water) 0 to 5000 psi.....-DWX                               |                      |                    |
|                  |                    |                        |                        |               |                         |                     | System E (oil) 0 to 10 000 psi.....-EOX                               |                      |                    |
|                  |                    |                        |                        |               |                         |                     | System F (oil) 0 to 15 000 psi.....-FOV                               |                      |                    |
|                  |                    |                        |                        |               |                         |                     | System F (water) 0 to 15 000 psi.....-FWV                             |                      |                    |
|                  |                    |                        |                        |               |                         |                     | System G (oil) 0 to 15 000 psi.....-GOX                               |                      |                    |
|                  |                    |                        |                        |               |                         |                     | System G (water) 0 to 15 000 psi.....-GWX                             |                      |                    |
|                  |                    |                        |                        |               |                         |                     | System H (oil/pneumatic) -25 inHg to 580 psi and 0 to 5000 psi...-HOX |                      |                    |

### SAMPLE PART NUMBERS

IS31-36PSI.....Calibrator with one sensor (36 psi).

IS33-16/1500PSI-SPSS.....Calibrator with two sensors (16 psi and 1500 psi) with two stainless steel manifolds.

IS33-36/3000PSI-SPSS-N-HOX-W...Calibrator with two sensors (36 psi and 3000 psi) 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.

## 30 Series Calibrator psi

### 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 |          |          |          |
|-----------------------|--|------------------------|----------|----------|----------|
|                       |  | 300 psi                | 1500 psi | 3000 psi | 5000 psi |
| 16 psi                |  | ■                      | ■        | ■        | ■        |
| 36 psi                |  | ■                      | ■        | ■        | ■        |
| 300 psi               |  |                        | ■        | ■        |          |

◆ 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 10 000 psi, with the exception of the MPF-1/2QTF rated to 5000 psi.

\*\* 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.



900 Series



600 Series



P-018-CPF



P014



T-1-CPF



GaugeCalHP

## 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.

## 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.

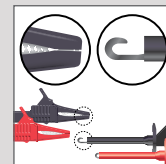
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## ACCESSORIES



### 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

Viton is a registered trademark of DuPont Performance Elastomers.