

# nVISION

New Reference Pressure Recorder

## VISUALIZE PRESSURE

The nVision is **not just** a new data-logging calibrator.

It's a field calibrator that can display data graphically on a high resolution screen.

No need to stop a test to analyze data on a PC.

Live data can be displayed graphically, with the ability to zoom into specific events, or zoom out to get a big picture of your test.

There's never been **anything** like this!

### FEATURES

- Up to 0.025% of Reading accuracy.
- nVision modules are complete and independent: Each contains dedicated signal conditioning and a microcontroller.
- Modules can be removed, exchanged, and even calibrated without the base.
- Fully temperature compensated from -20°C to 50°C.
- ATEX/IECEX intrinsically safe.
- Log and display 500,000 points at up to 10 readings/second on two sensor modules simultaneously.



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- IP67 (enclosure 1m submersible up to 30 min).
- Uses Crystal's revolutionary new leak-free CPF fittings system.
- Interactive real-time graphing of measurements.
- Discover events (spikes) or trends (leaks) in real time.



is a *very* accurate field pressure calibrator that records and displays data *graphically*, on a large (255 x 160 pixel) backlit display. Temperature, voltage and current can also be measured and recorded—depending on which modules you choose.

**nVision give you the ability to examine data on screen—no PC required.** Compare pressure with temperature on a single screen for **leak and static tests**. Or use the scrolling and zooming features to observe the repeatability and high speed performance of **pressure safety valves** (with an accuracy never possible before).

However, with a PC, a USB cable, and CrystalControl software (free), you can monitor and **download the data from an ongoing test without interrupting recording!** Any current and all previously recorded data can be viewed, and/or saved for a **permanent record** of a test. CrystalControl includes several Excel spreadsheet report format, or design your own. **Test reports have never been easier, faster or more accurate!**  
**nVision!**

## SPECIFICATIONS

Operating & Compensated Temperature Range	-20°C to 50°C (-4°F to 122°F) <sup>1, 2</sup>
Storage Temperature Range	-40°C to 75°C (-40°F to 167°F)
Humidity Range	< 95% RH, non-condensing
IP Rating	IP67 (1 m immersion for 30 min) per ISO 60529

<sup>1</sup> Pressure sensor must be zeroed to achieve rated specification.

<sup>2</sup> No change in accuracy over operating range for all modules.

### Certifications



II 1 G Ex ia IIB T4 Ga  
SIRA 09ATEX2008X



II 1 G Ex ia IIB T4 Ga  
IECEx SIR 09.0053X

Rating subject to battery type used. For details see Approved Battery Table in Power Section (pg. 4).

### Standard Items included with each nVision

Soft Carrying Case	Durable, padded case with separate pockets for your nVision and accessories (P/N 4087)
Protective Boot	Shock resistant protection, low durometer, Skydrol Resistant (P/N 3985)
Calibration Certificate	Multi-temperature from our A2LA accredited Calibration Laboratory
CrystalControl	Configure your product to meet your needs. Data log all readings for display, analysis and archiving
USB A to mini USB B Cable <sup>3</sup>	Connect to your nVision with 6' [1.8m] cable (P/N 3951)

<sup>3</sup> **WARNING:** Do not use USB interface within a hazardous atmosphere (Um=6V)

## PRESSURE

**Pressure Measurement:** See **PRESSURE MEASUREMENT, PART NUMBER, & UNITS/RESOLUTION** for part number scheme

Pressure Modules: These pressure modules come in a myriad of pressure ranges to meet your needs.

All specifications are "of Reading" to get the most out of your pressure measurement. **HIP and Autoclave Engineers**

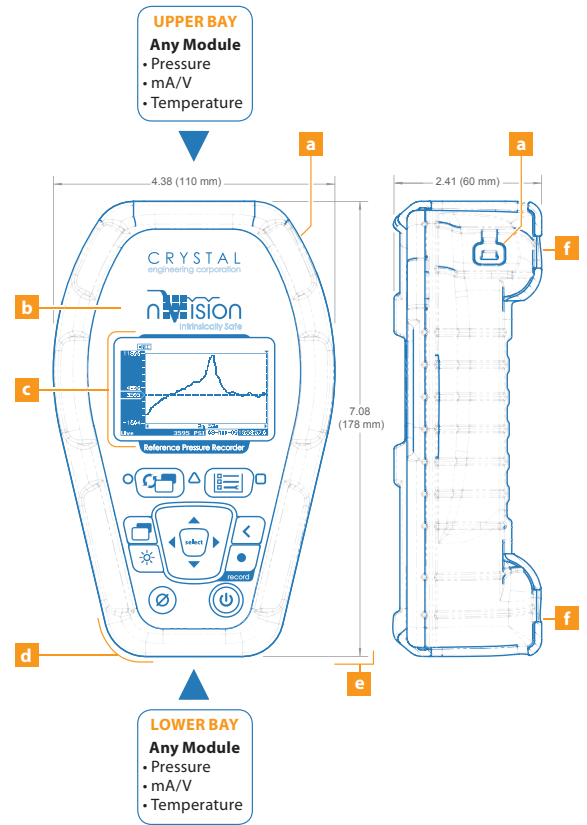
**1/4" medium pressure fittings adapt with the new Crystal Pressure Fitting (CPF) line of products.**

### Accuracy

30% to 100% of Full Scale	±(0.025% of Reading), ±(0.05% of Reading), or ±(0.1% of Reading) *
0 to 30% of Full Scale	±(0.0075% of Full Scale), ±(0.015% of Full Scale), or ±(0.03% of Full Scale)
Media Compatibility	Liquids and gases compatible with 316 stainless steel
Connection	Crystal CPF System: Medium Pressure Female (MPF) (1/4" medium pressure tube system with 7/16-20 threads. O-ring material: Viton 90)

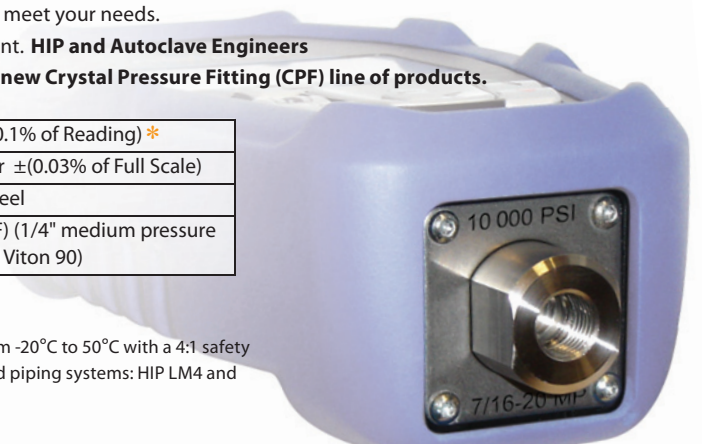
\* See Pressure Measurement, Part Number, & Units Resolution table on facing page.

† Fitting interfaces with the Crystal Pressure Fittings (CPF) System; finger tight to 10 000 psi from -20°C to 50°C with a 4:1 safety factor. System can interface wrench-tight with non-CPF medium pressure fitting, adapter, and piping systems: HIP LM4 and LF4 Series, Autoclave MAM4, SF250CS & SF250CX Series.



- a** USB: mini USB B
- b** Impact resistant injection molded housing compatible with common industrial fluids, including Skydrol
- c** Display: 255 x 160 pixel graphical display with integrated backlight. Display Rate selectable up to 10 readings per second
- d** Weight: 680g (1.5 lbs) including one each PM and RTD100 modules, 4AA battery module, and protective boot
- e** Dimensions: 178mm (7.0") H x 110mm x (4.3") W x 58mm (2.3") D
- f** M4x0.7 [8mm (0.30")] deep threaded insert mounting locations (4 places)

Modules are complete and independent: Each module contains dedicated signal conditioning and a microcontroller. Modules can be installed in either or both chassis bays, or removed, exchanged, and even calibrated without the nVision base.



# PRESSURE MEASUREMENT, PART NUMBER, & UNITS/RESOLUTION

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

\* Density of water can be set to 4°C, 60°F or 20°C/68°F with CrystalControl software.

## CURRENT & VOLTAGE (Available July '09)

### Current & Voltage Measurement: mA/V Module (P/N: MA20):

Intended for use with a 4-20mA loop measurement. This module is also capable of measuring supply voltages and has an auxiliary fixed output for use in switch open/closure testing. Each MA20 module comes with a super flexible silicone test lead kit (P/N 3952).



#### mA (Current) Input

Range	3 – 25 mA
Resolution	0.001 mA
Accuracy	±(0.015% of rdg + 0.002 mA)
Direct Impedance	15 Ω
HART Impedance	≤265 Ω

#### Voltage Input

Range	0 – 30 VDC
Resolution	0.001 VDC
Accuracy	±(0.015% of rdg + 0.002 VDC)
Input Resistance	≥ 1 MΩ

#### Switch Detection

State	Open & Closed Detection
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**WARNING:** ATEX and IECEx certification does not allow the installation of two MA20 modules simultaneously in hazardous atmosphere

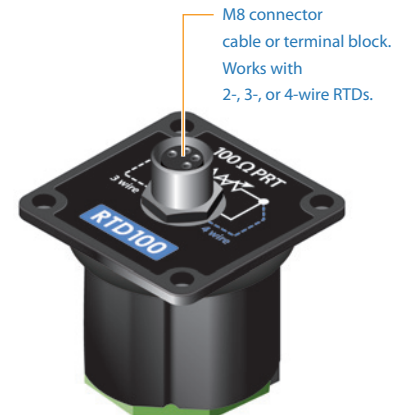
## TEMPERATURE

### Temperature Measurement: RTD Module (P/N: RTD100):

Calibrated for Pt100 RTD / PRT (100 Ohms at 0°C Platinum Resistance Temperature Detector) sensors conforming to DIN/IEC 60751 (or IEC751) with US, Euro or Lab calibration curves. An RTD is not included, but each RTD100 includes P/N 3953 RTD Connection Kit.

#### Resistance Input

Range	0 – 400 Ohms range for use with 100 Ohm PRTs
Resolution	0.01 Ω
Accuracy	± (0.015% of rdg + 0.02 Ω)
Display	°C, K, °F, R, Ω
TCRs	0.003850 Ω/Ω/°C (IEC 60751), 0.003911 Ω/Ω/°C (US Industrial Std), 0.003926 Ω/Ω/°C
Wiring	2-, 3-, 4-wire support



# POWER

## Chassis Power: Modules:

AA Battery Module (P/N: 4AA)	Four size AA (LR6) batteries; user serviceable, non-rechargeable, estimated life: 200 hours
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**Note:** Chassis can be powered by the mini-USB connector.

**WARNING:** Do not use USB interface in a hazardous atmosphere

## Approved Battery Table

Approved Battery Type	Ta=	Marking
Rayovac Max Plus 815	-20C to +50C	Ex ia IIB T4 Ga
Duracell MN1500	-20C to +45C	
Energizer E91, EN91	-20C to +50C	Ex ia IIB T3 Ga
Duracell MN1500		

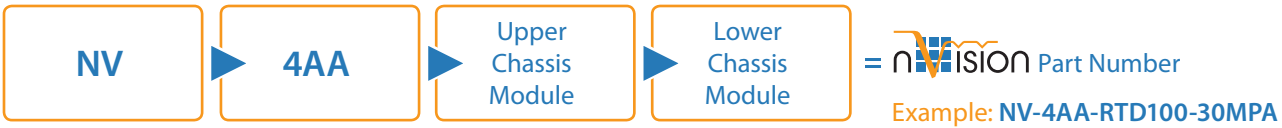
REPLACE BATTERIES WITH APPROVED TYPE IN NON-HAZARDOUS LOCATIONS ONLY

Phillips hardware has knurled edges for simple & quick battery replacement



# HOW TO ORDER

## nVision Part Numbering order system:



### Notes:

- To order nVision with a single module, enter **BNKPLT** (blank plate) for either the upper or lower chassis module.
- Ordering MA20 for both upper and lower modules nulls ATEX and IECEx Scheme certification and is not recommended

# SOFTWARE

## Included with nVision

CrystalControl	Communicate, Configure, Data Log, and Update your nVision product
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# REPLACEMENT PARTS

## Accessories / Replacement Parts

4087	Soft Carrying Case; durable, padded case with separate pockets for your nVision and accessories
3985	Protective Boot; blue, Skydrol Resistant
3951	6' [1.8m] USB A to mini USB B Cable for nV Chassis**
3952	Test Lead Kit; two 6' [1.8m] 2mm banana jack test leads with multi-purpose clip
3953	RTD Connection Kit; one IP67 terminal block connector (RTD Module not included)

\*\* **WARNING:** Do not use USB interface within a hazardous atmosphere (Um=6V)

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