

HPC40 Series Handheld Pressure Calibrator



The HPC40 Series is the world's first combined pressure and mA loop calibrator to be fully temperature compensated from -20 to 50° C. You can count on the same accuracy whether measuring pressure, current, voltage, or temperature.

The following models are available:

HPC41 with 1 Sensor
HPC42 with 2 Sensors

- **0.035% of Reading Accuracy**
- **Gauge, Absolute, and Differential Pressure to 1000 bar / 100 MPa**
- **Advanced Simplicity "Non-Menu" Interface**
- **Measure & Source mA with External Loop Power or Internal 24 VDC Power Supply**
- **High Accuracy Thermometer with "True Ohm" Technology**
- **Store & Recall Previously Used Screens**
- **Flexible Power Options Including Rechargeable**

By DAkkS according to DIN EN ISO / IEC 17025: 2005 accredited laboratory. The accreditation is valid only for the certificate system D-K-15055-01-00 listed accreditation scope.



Combine the HPC40 Series with any of our ready to use pump systems, to provide a complete calibration kit.

Advanced Simplicity:

- APM and Temperature Connection
- "Wireless" Keypad
- Mini-USB Port
- Function Buttons
- Color Display
- Cursors Keys
- CPF Pressure Connections

HPC with multiple pressure options

- Sensors
- Pressure Ranges
- Absolute Pressure
- APM Pressure Module

ACCURACY		PRESSURE MEASUREMENT
bar (Gauge Pressure)		
18 to 28°		
0 to 30% of Range:	±(0.01% of Full Scale)	
30 to 110% of Range:	±(0.035% of Reading)	
Vacuum*	±(0.05% of Full Scale**)	
-20 to 50°C		
0 to 30% of Range:	±(0.015% of Full Scale)	
30 to 110% of Range	±(0.050% of Reading)	
Vacuum*:	±(0.05% of Full Scale**)	
*Applies to 30 bar and lower ranges only.		
**Full Scale is the numerical value of the positive pressure range.		
barA (Absolute Pressure with BARO Option)		
All absolute accuracies are equivalent to the gauge pressure accuracies, except as noted below.		
3 bar Range:	Gauge Accuracy +0.0003 barA	
10 bar Range:	Gauge Accuracy +0.0001 barA	

More than Pressure:

- Thermometer
- Current, Voltage, Switch Test
- Intelligent Memory Slot

DIFFERENTIAL PRESSURE						
The Tare function can improve differential pressure measurement uncertainties. Requires the use of an equalizing valve						
Full Scale Range of both Sensors	The Greater of (+/-)					
bar	psi	mbar	inH2O	mmH2O		% of DP Reading
3	0.0005	0.04	0.014	0.4	or	0.035 %
10	0.0015	0.10	0.04	1.0		
30	0.005	0.4	0.14	4.0		
100	0.02	1.0	0.4	10.0		
300	0.05	4.0	1.4	n/a		
700	0.2	10.0	4.0	n/a		
1000	0.3	15.0	6.0	n/a		
Unit is enable in Crystal Control						
Without tare function:						
±(0,05% of static line pressure reading)						
PRESSURE SENSOR						
Wetted Materials:	(Wrench Tight) 316 stainless steel		All welded, with a permanently filled diaphragm seal.			
	(Finger Tight) 316 stainless steel and a Viton (internal O-ring)		Metal to metal cone seal; O-ring can be removed if necessary			
Diaphragm Seal Fluid:	Silicone oil		1/4" medium pressure tube system compatible with HIP LM4 and LF4 Series, Autoclave Engr. SF250CX Male and Female Series			
Connection:	Crystal CPF Female		Includes your choice of NPT, BSP, or M20 CPF Adapter			
BAROMETRIC REFERENCE (BARO)						
Accuracy:	± 0.5 mbar, ± 0.00725 psi		Includes all effects of linearity, hysteresis, repeatability, temperature, and stability for one year.			
Range:	700.0 to 1100.0mbarA, 10.153 to 15.954 psiA		Exposure to environmental extremes of temperature, shock, and/ or vibration may warrant a more frequent recertification period			
Units and Resolution:	psi.....0.001		Other units available depending on the installed modules			
	inHg.....0.001					
	mmHg.....0.01					
	mbar.....0.1					
Pressure Connection:	Cylindrical sensor fitting of 5.8mm OD. A flexible 4.8 mm [3/16"] ID tube is recommended to connect for calibration					

CURRENT & VOLTAGE MEASUREMENT			
Connection:	4 mm jacks		
Maximum Voltage:	45 V DC		
Current (mA) Input			
Accuracy:	$\pm(0.015\% \text{ of rdg} + 0.002 \text{ mA})$	Includes all effects of linearity, hysteresis, repeatability, temperature, and stability for one year.	
mA Range:	0 to 55 mA		
Percent Range:	0-20, 4 -20, 10-50	Inputs protected by a resettable fuse.	
Max Allowable Current:	60 mA	mA can be displayed as a percentage, where 0 to 100% corresponds to either 0 to 20, 4 to 20, or 10 to 50 mA. Jacks are compatible with safety sheathed banana plugs	
Resolution:	0.001 mA or 0.01%		
Units:	mA and %		
Input Resistance:	< 17.2Ω		
Voltage Burden @ 20mA:	<0.35 V		
Voltage Burden @ 50mA:	<0.86 V		
HART Resistor:	250 Ω		
Current (mA) Output			
Accuracy:	$\pm (0.015 \text{ of rdg} + 0.002 \text{ mA})$	With internal or external loop supply	
Range:	0 to 25 mA		
Step Time:	1 to 999 seconds		
Ramp Time:	5 to 999 seconds		
Voltage (VDC) Input			
Accuracy:	$\pm(0.015 \% \text{ of rdg} + 2 \text{ mV})$	Includes all effects of linearity, hysteresis, repeatability, temperature, and stability for one year	
Range:	0 to 30 VDC		
Resolution:	0.001 VDC		
Input Impedance:	> 1 MOhm		
Loop Power		Switch Test	
Fixed Output:	24 VDC	Switch Type:	Dry Contact
Voltage Output Accuracy:	$\pm 10 \%$	Closed State Resistance:	< 1K Ω
Maximum Output Current:	25 mA	Open State Resistance:	> 100K Ω
		Sample Rate:	10 Hz

TEMPERATURE MEASUREMENT											
Accuracy:	$\pm(0.015\%$ of rdg + 0.002 Ohm)				Includes all effects of linearity, hysteresis, repeatability, temperature, and stability for one year.			Combine with part number 127387 for a -45 to 150°C temperature sensor. Contact us to add a calibration certificate.			
Range:	0 – 400 Ohms										
Resolution:	0.01 on all scales										
Units:	°C, K, °F, R Ω										
Resolution:	0.01 on all scales										
TCR:	0.003850 $\Omega/\Omega/^\circ\text{C}$ (IEC 60751)										
Wirings:	2-, 3-, and 4-wire support										
Connection:	Lemo Plug, 1S Series, 304 insert configuration										
<p>The proper selection of the RTD sensing element is very important as the error associated with this device is the majority of the overall system measurement uncertainty. IEC 751 is the standard that defines the temperature versus resistance for 100Ω, 0.00385 $\Omega/\Omega/^\circ\text{C}$ platinum RTDs. IEC 751 defines two classes of RTDs: Class A and B. Class A RTDs operate over the -200 to 630°C range versus -200 to 800°C for the Class B elements. For example, the Class A uncertainty is about half that of the Class B elements as illustrated in the following table.</p>											
			Class A				Class B				
Temperature °C	HPC40 Series Uncertainty		Class A Uncertainty		HPC40 + Class A Uncertainty		Class B Uncertainty		HPC40 + Class B Uncertainty		
	$\pm\Omega$	$\pm^\circ\text{C}$	$\pm\Omega$	$\pm^\circ\text{C}$	$\pm\Omega$	$\pm^\circ\text{C}$	$\pm\Omega$	$\pm^\circ\text{C}$	$\pm\Omega$	$\pm^\circ\text{C}$	
-200	0.02	0.05	0.24	0.55	0.24	0.55	0.56	1.30	0.56	1.30	
0	0.04	0.09	0.06	0.15	0.07	0.17	0.12	0.30	0.12	0.31	
200	0.05	0.13	0.2	0.55	0.21	0.56	0.48	1.30	0.48	1.31	
400	0.06	0.17	0.33	0.95	0.33	0.96	0.79	2.30	0.79	2.31	
600	0.07	0.21	0.43	1.35	0.44	1.37	1.06	3.30	1.06	3.31	
800	0.08	0.25	0.52	1.75	0.53	1.77	1.28	4.30	1.28	4.31	
OPERATING TEMPERATURE											
Temperature Range:				-20 to 50°C (-4 to 122°F)				< 95% RH, non-condensing. No change in pressure, electrical, or temperature accuracy over operating temperature range. Gauge must be zeroed to achieve rated specification			
DISPLAY											
Screen:				320 x 240 pixel graphical display				LCD readable in sunlight			
Display Rate:				3 readings/second (standard)							
				10 readings/second (switch test and peak hi/lo modes)							

POWER		
Type	Cell Voltage	Uses 4 alkaline AA (LR6) batteries.
Alkaline	1,5 V	
NiMH	1,2 V	
Lithium	1,5 V	
Battery Life:	>12 hours non-sourcing	
	>8 hours when sourcing 12 mA	
Recharge Time:	16 hours* (Using Eneloop 2100 mA hr)	
* Charging is done through USB		
DATA / COMMUNICATION		
Digital Interface:	Mini-USB	The mini USB will power the HPC40 Series with or without the batteries installed
ENCLOSURE		
Weight:	689 g	Weight is for dual sensor model with protective boot installed.
Rating:	IP65	LCD protected from impact damage by 0.5 mm (0.02") thick polycarbonate lens.
Housing:	Machined Aluminum	
Keypad and Labels:	UV Resistant Silicone	
STORAGE TEMPERATURE		
Temperature Range:	-40 to 75 °C	Batteries should be removed if stored for more than one month.
SPECIAL FEATURES		
The following requires the use of our free software		
Remove:	Unwanted pressure units	
Auto Off:	Adjust automatic shutoff settings.	
Calibration:	Calibrate the modules and enter new Calibrated On an Calibration Due dates.	
User Defined Unit:	Define and display any pressure units not included, or to use the gauge to display force, level or other pressure related parameters.	

RANGE & RESOLUTION TABLE												
			Display Resolution									
P/N	Range (bar)	Over-pressure	bar	mbar	kPa	MPa	psi	in H ₂ O	in Hg	mm Hg	mm H ₂ O	kg/cm ²
3 BAR	3	3.0 x	0.0001	0.1	0.01		0.001	0.01	0.001	0.01	1	0.0001
10 BAR	10	2.0 x	0.0001	0.1	0.01	0.00001	0.001	0.1	0.01	0.1	1	0.0001
30 BAR	30	2.0 x	0.001	1	0.1	0.0001	0.01	0.1	0.01	0.1		0.001
100 BAR	100	2.0 x	0.001		0.1	0.0001	0.1		0.1			0.001
300 BAR	300	1.5 x	0.01		1	0.001	0.1		0.1			0.01
700 BAR	700	1.5 x	0.01		1	0.001	1					0.01
1 KBAR	1000	1.3 x	0.01		1	0.001	1					0.01
(Add one digit of resolution for differential mode.)												