FLUKE®

Calibration

6270A
Pressure Controller/ Calibrator

Extended Specifications

Specifications

General Specifications

Power Requirements	100 V ac to 240 V ac, 47 Hz to 63 Hz
Fuse	T2A 250 V ac
Max Power Consumption	100 W
Operating Ambient Temperature Range	15 C to 35 C
Storage Temperature	-20 C to 70 C
Relative Humidity	
Operating	<80 % to 30 C, <70 % to 40 C
Storage	<95 %, non-condensing. A power stabilization period of four days may be required after extended storage at high temperature and humidity.
Vibration	MIL-T-28800E
Altitude (Operation)	<2000 m
Ingress Protection	IEC 60529: IP20
Safety	IEC 61010-1, Installation Category II, Pollution degree 2
Warmup Time	15 minutes typical

Electromagnetic Compatibility (EMC)

IEC 61326-1 (Controlled EM environment)	IEC 61326-2-1; CISPR 11: Group 1, Class A Group 1 equipment has intentionally generated and/or use conductively coupled radio-frequency energy which is necessary for the internal functioning of the equipment itself. Class A equipment is equipment suitable for use in all establishments other than domestic and those directly connected to a low voltage power supply network which supplies buildings used for domestic purposes. Emissions which exceed the levels required by CISPR 11 can occur when the equipment is connected to a test object. The equipment may not meet the immunity requirements of 61326-1 when test leads and/or test probes are connected.
USA (FCC)	47 CFR 15 subpart B, this product is considered an exempt device per clause 15.103
Korea (KCC)	Class A Equipment (Industrial Broadcasting & Communication Equipment) This product meets requirements for industrial (Class A) electromagnetic wave equipment and the seller or user should take notice of it. This equipment is intended for use in business environments and not to be used in homes.

Weight

Chassis only	13 kg (28.5 lbs)

Dimensions

Height	147 mm (5.78 in)
Width	452 mm (17.79 in)
Depth	488 mm (19.2 in)
Rack Mount Dimensions	3U-19-inch rack

Pressure Limits

Supply Port	23 MPa (3300 psi) gauge
Test Port	20 MPa (3000 psi) absolute
Reference Port	115 kPa (17 psi) absolute
Vent Port	150 kPa (22 psi) absolute

Relief Valves

Chassis Supply port relief valve is set to 24.1 MPa (-0/+700 kPa), 3500 psi (-0/+100 psi)

Exhaust port relief valve is set to ~700 kPa (100 psi).

Each PMM includes a module-specific pressure protection device.

Supply Gas Type

Clean Dry N_2 or Air – Industrial Grade Nitrogen, 99.5 %+

Particulate Contamination ..... 1.25 micrometer (50 microinches)

Maximum Moisture Content ..... -50 C dew point

Maximum Hydrocarbon Content ..... 30 ppm

Vacuum Supply

>50 liters per minute capacity with Auto Vent feature

Appropriate protections for High Pressure Gauge work system exhaust gas will pass through the Vacuum supply system.

Interface / Communications

Primary remote Interfaces ..... IEEE, Ethernet, RS232, USB

System Connection ..... Supports interconnection of 2 or 3 systems

Switch Test Connection ..... Standard 4 mm Jack:

Nominal 24 V dc isolated drive

Maximum 30 V dc w.r.t. chassis ground

Aux Drivers ..... 4 external Solenoid Drivers

24 V dc Drive (Maximum drive 6 W continuous per channel)

Control Specifications

Control Precision (Dynamic Mode)

PM200-BG2.5K ..... 0.005 % Range Span

All other Ranges ..... 0.001 % Range Span

Control Turndown..... 10:1 (Typical)

Control turndown is defined as the relationship between the provided supply pressure and the appropriate supply pressure for the range. For example, a unit with a 7 MPa (1000 psi) and 700 kPa range (100 psi) with a supply pressure of 7.7 MPa (1100 psi) will provide control precision of 0.001 % range because 7 MPa is 10 times greater than 700 kPa. A system with ranges of 20 MPa (3000 psi) and 700 kPa (100 psi) with supply pressure of 22 MPa (3300 psi) will have 0.001 % range control precision on the 20 MPa range but only 0.003 % control precision on the 700 kPa range. Control precision of 0.001 % on the low range can be achieved by reducing the supply pressure.

Low Control Point ..... 1 kPa (0.15 psi) absolute

Time to Setpoint (Typical)

PM200-BG2.5K ..... 40 seconds

PM200, all other ranges ..... 20 seconds

PM600..... 35-55 seconds

Typical set time is the time required to be within 0.005 % of setpoint for 10 % steps into volumes of 0 to 50 cm^3 and pressures above 50 kPa (7.25 psi) absolute. Lower absolute pressures will require longer set times depending upon quality of the vacuum pump, diameter and material of tubing used, and test volume.

Maximum Overshoot ..... 0.01 % Range Span

Pressure Measurement Specifications

The product specifications describe the Absolute Instrumental Uncertainty of the Product. The product specifications includes linearity, hysteresis, repeatability, resolution, reference standard measurement uncertainty, 1 year stability, and temperature effects from 18 to 28 °C. The product specifications are provided at a 95 %, k=2, normally distributed, level of confidence.

PM200 Modules

Model	Range (SI Units)	Range (Imperial Units)	Measurement Mode	1-Year Specification (%FS)
PM200-BG2.5K	-2.5 kPa to 2.5 kPa	-10 inH_20 to 10 inH_20	gauge	0.20 %
PM200-BG35K	-35 kPa to 35 kPa	-5 psi to 5 psi	gauge	0.05 %
PM200-BG40K	-40 kPa to 40 kPa	-6 psi to 6 psi	gauge	0.05 %
PM200-A100K	2 kPa to 100 kPa	0.3 psi to 15 psi	absolute	0.10 %
PM200-BG100K	-100 kPa to 100 kPa	-15 psi to 15 psi	gauge	0.02 %
PM200-A200K	2 kPa to 200 kPa	0.3 psi to 30 psi	absolute	0.10 %
PM200-BG200K	-100 kPa to 200 kPa	-15 psi to 30 psi	gauge	0.02 %
PM200-BG250K	-100 kPa to 250 kPa	-15 psi to 36 psi	gauge	0.02 %
PM200-G400K	0 kPa to 400 kPa	0 psi to 60 psi	gauge	0.02 %
PM200-G700K	0 kPa to 700 kPa	0 psi to 100 psi	gauge	0.02 %
PM200-G1M	0 MPa to 1 MPa	0 psi to 150 psi	gauge	0.02 %
PM200-G1.4M	0 MPa to 1.4 MPa	0 psi to 200 psi	gauge	0.02 %
PM200-G2M	0 MPa to 2 MPa	0 psi to 300 psi	gauge	0.02 %
PM200-G2.5M	0 MPa to 2.5 MPa	0 psi to 360 psi	gauge	0.02 %
PM200-G3.5M	0 MPa to 3.5 MPa	0 psi to 500 psi	gauge	0.02 %
PM200-G4M	0 MPa to 4 MPa	0 psi to 580 psi	gauge	0.02 %
PM200-G7M	0 MPa to 7 MPa	0 psi to 1000 psi	gauge	0.02 %
PM200-G10M	0 MPa to 10 MPa	0 psi to 1500 psi	gauge	0.02 %
PM200-G14M	0 MPa to 14 MPa	0 psi to 2000 psi	gauge	0.02 %
PM200-G20M	0 MPa to 20 MPa	Psi 0 to 3000 psi	gauge	0.02 %

Notes

- Gauge mode modules (PM200-GXXX or PM200-BGXXX) with ranges of 100 kPa (15 psi) or greater will support absolute mode measurement when used with a Barometric Reference Module.
- For temperatures from 15 °C to 18 °C and 28 °C to 35 °C, add 0.003 % FS/°C. Uncertainty for gauge mode modules assumes routine zeroing. Uncertainty for absolute mode modules includes 1-year zero stability. This specification can be reduced to 0.05 % FS if the PM200 module is zeroed on a continuing basis to remove the 1-year zero stability component. Instrumental Measurement Uncertainty for gauge mode modules used in absolute mode by addition of a barometric reference module is calculated as the uncertainty of the gauge mode module plus the uncertainty of the barometric reference module.
- Instrumental Measurement Uncertainty for gauge mode modules used in absolute mode by addition of a barometric reference module is calculated as the uncertainty of the gauge mode module plus the uncertainty of the barometric reference module.
- For temperatures from 15 to 18 C and 28 to 35 C, add 0.003 % FS/C.

PM600 Modules

The product specifications describe the Absolute Instrumental Uncertainty of the Product. The product specifications includes linearity, hysteresis, repeatability, resolution, reference standard measurement uncertainty, 1 year stability, and temperature effects from 15 to 35 °C. The product specifications are provided at a 95 %, k=2, normally distributed, level of confidence.

Model	Gauge Mode Range (SI Units)	Absolute Mode Range (SI Units)	Gauge Mode Range (Imperial Units)	Absolute Mode Range (Imperial Units)	1-Year Specification		
					Relative Specification (% Reading)	Threshold Specification (% Span)	Absolute Mode Adder (% Full Scale)
PM600-BG15K	-15 kPa to 15 kPa	-	-60 inH_20 to 60 inH_20	-	0.01 %	0.003 %	-
PM600-G100K	0 kPa to 100 kPa	-	0 psi to 15 psi	-	0.01 %	0.003 %	-
PM600-G200K	0 kPa to 200 kPa	-	0 psi to 30 psi	-	0.01 %	0.003 %	-
PM600-A100K	-100 kPa to 0 kPa	6 kPa to 100 kPa	-13.8 psi to 0 psi	0.9 psi to 15 psi	0.01 %	0.003 %	0.007 %
PM600-A200K	-90 kPa to 100 kPa	10 kPa to 200 kPa	-13.2 psi to 15 psi	1.5 psi to 30 psi	0.01 %	0.003 %	0.007 %
PM600-A350K	-90 kPa to 250 kPa	10 kPa to 350 kPa	-13.2 psi to 35 psi	1.5 psi to 50 psi	0.01 %	0.003 %	0.007 %
PM600-A700K	-82 kPa to 700 kPa	18 kPa to 700 kPa	-12.1 psi to 100 psi	2.6 psi to 100 psi	0.01 %	0.003 %	0.007 %
PM600-A1.4M	-0.065 MPa to 1.4 MPa	0.035 MPa to 1.4 MPa	-10 psi to 200 psi	5 psi to 200 psi	0.01 %	0.003 %	0.007 %
PM600-A2M	-0.03 MPa to 2 MPa	0.07 MPa to 2 MPa	-5 psi to 300 psi	10 psi to 300 psi	0.01 %	0.003 %	0.007 %
PM600-A3.5M	-0.03 MPa to 3.5 MPa	0.07 MPa to 3.5 MPa	-5 psi to 500 psi	10 psi to 500 psi	0.01 %	0.003 %	0.007 %
PM600-A7M	0 MPa to 7 MPa	atmosphere to 7 MPa	0 psi to 1000 psi	atmosphere to 1000 psi	0.01 %	0.003 %	0.007 %
PM600-A10M	0 MPa to 10 MPa	atmosphere to 10 MPa	0 psi to 1500 psi	atmosphere to 1500 psi	0.01 %	0.003 %	0.007 %
PM600-A14M	0 MPa to 14 MPa	atmosphere to 14 MPa	0 psi to 2000 psi	atmosphere to 2000 psi	0.01 %	0.003 %	0.007 %
PM600-A20M	0 MPa to 20 MPa	atmosphere to 20 MPa	0 psi to 3000 psi	atmosphere to 3000 psi	0.01 %	0.003 %	0.007 %

Notes

- **Gauge mode uncertainty is the greater of the relative uncertainty and the threshold uncertainty. For absolute ranges used in gauge mode there is an additional uncertainty of ±7 Pa for dynamic barometric compensation. When combined with other uncertainties this changes the threshold uncertainty for the PM600-A100K to 0.008 % Span and for the PM600-A200K to 0.004 % Span.**
- **For absolute mode the % span for Threshold Uncertainty the span is calculated from zero to the full scale of that range.**

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