

PPCK+™

HIGH PRESSURE CONTROLLER/CALIBRATOR



- Gas pressure up to 10 000 psi (70 MPa)
- Typical pressure set time under 90 seconds
- Three ranges in each controller with 3:1 turndown of both measurement and control
- Self adapting to test system volume and leak changes
- Second generation high pressure control technology
- Local and remote protocol identical to PPC2+ pressure controller/calibrators



**Calibration Solutions
for Pressure
and Flow™**

PPCK+™ HIGH PRESSURE CONTROLLER/CALIBRATOR

INTRODUCTION

PPCK+, designed specifically to handle the difficult domain of high pressure gas, covers ranges from 1 000 to 10 000 psi (7 to 70 MPa). PPCK+ shares measurement technology and common user and remote interface protocols with PPC2+ but implements unique pressure control technology developed especially for high pressure. For the user, PPCK+ and PPC2+ provide a seamless automated transfer standard solution from low absolute and gauge pressures up to 10 000 psi (70 MPa) (see the PPC2+ brochure).

TRANSFER STANDARD QUALITY MEASUREMENT

PPCK+ reference pressure measurement is provided by state of the art oscillating quartz crystal technology pressure transducers. In addition to their extraordinary pressure measurement capability, these offer the advantages of minimal warm up time, no gas species dependence, isolation of the measuring element from the test medium and minimal sensitivity to orientation. An on-board barometer is standard and allows simple switching between gauge and absolute measurement modes.

ADVANCED PRESSURE CONTROL

Second generation PPCK+ pressure control sets new standards for high pressure performance with very real benefits to the user. The proven pressure control technology of the original PPCK has been enhanced by hardware improvements, refined pressure control algorithms and higher processing speeds. These yield more consistent operation, improved speed and adaptability to test system variability. The result is an exceptionally reliable high pressure controller with unequalled performance characteristics.

TRUE MULTI-RANGING

The combination of second generation PPCK+ pressure control technology and transfer standard quality reference transducers make PPCK+ a truly multi-ranging high pressure controller. Each controller has three ranges with a turndown ratio of 3:1 in both measurement and control without deteriorating uncertainty.

FEATURES, FEATURES, FEATURES

PPCK+ includes all the features you expect in today's state of the art instruments, and more... very low gas consumption... automatic head corrections to minimize uncertainties... onboard programmable calibration sequences... valve driver option for system design... integrated liquid trap for protection against contamination from the test system... rugged enough for standard shipment without special packaging... flash memory for easy software upgrades from a PC.

ORDERING INFORMATION

RANGES

| Model | US Version Ranges (psi) | | | SI Version Ranges (MPa) | | |
|---------------------------------|----------------------------|-------|--------|----------------------------|----|----|
| | 1 | 2 | 3 | 1 | 2 | 3 |
| PPCK+ A10000 P/N FAM 0006-01 | 3 000 | 6 000 | 10 000 | 20 | 40 | 70 |
| PPCK+ A6000 P/N FAM 0006-01 | 2 000 | 4 000 | 6 000 | 13 | 25 | 40 |
| PPCK+ A3000 P/N FAM 0006-01 | 1 000 | 2 000 | 3 000 | 6 | 12 | 20 |

OPTIONS

Drivers: (8) 12V, on/off drivers with rear panel connector
SI Units: Nominal units and limits in SI

ACCESSORIES

Rack Mount Kit (4U): P/N 400440
High Pressure Supply Kit:
 152:1, 10 000 psi (700 MPa) P/N 401086
 75:1, 6 000 psi (400 MPa) P/N 401092
Reusable Molded Shipping Case: P/N 401272

SPECIFICATIONS

GENERAL

Power Requirements: 85 to 264 VAC, 50 to 60 Hz, 60 VA max consumption
Vibration: Meets MIL-T-28800D
Weight: 12.7 kg (28.2 lb)
Dimensions: 18 cm H x 32 cm W x 40 cm D (7.1 in. x 12.6 in. x 15.8 in.)
Communications Ports: RS-232 (COM1, COM2), IEEE 488.2
Pressure Ranges: Atm to 10 000 psi (70 MPa)
Gas Supply:
 Supply Pressure: Controller full scale + 10 %
 Drive Air: 100 psi (700 kPa)
Gas Consumption: Only as needed to fill test system, no flow through
CE Conformance: Available, must be specified

PRESSURE MEASUREMENT (± F.S. of Active Range)

Warm Up Time: 30 minutes for best performance
Measurement Precision¹: ± 0.01 %
Estimated Stability: 90 day 1 year
 Gauge Mode (w/Autozero) 0.003 % 0.009 %
 Absolute Mode (w/Autozero) 0.003 % 0.009 %
 Absolute Mode (w/out Autozero) 0.006 % 0.015 %
Measurement Uncertainty²: 90 day 1 year
 Gauge Mode (w/Autozero) 0.012 % 0.015 %
 Absolute Mode (w/Autozero) 0.012 % 0.015 %
 Absolute Mode (w/out Autozero) 0.015 % 0.020 %

PRESSURE CONTROL (± F.S. of Active Range)

Control Precision³: ± 0.003 %
Nominal Test Volume:
 PPCK+ A3000 0 to 400 cc (100 cc optimal)
 PPCK+ A6000 0 to 200 cc (100 cc optimal)
 PPCK+ A10000 0 to 150 cc (50 cc optimal)
Delivered Pressure Uncertainty⁴: 90 day 1 year
 Gauge Mode 0.016 % 0.018 %
 Absolute Mode (w/Autozero) 0.016 % 0.018 %
 Absolute Mode (w/out Autozero) 0.018 % 0.022 %

¹ Measurement Precision: Combined linearity, hysteresis, repeatability of measurements made by the reference pressure transducer.

² Measurement Uncertainty: Maximum deviation of the PPCK+ indication from the true value of pressure including precision, stability, temperature effect and calibration standard accuracy of ± 0.005 %.

³ Control Precision: Minimum useable hold limit in dynamic control mode.

⁴ Delivered Pressure Uncertainty: Maximum deviation from the true value of pressure applied to the device under test in dynamic control mode with default hold limit. Includes measurement uncertainty and control precision.



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