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**MODEL 7310/7610**

High pressure pneumatic and hydraulic controllers

- Pneumatic full scale ranges to 10,000 psia
- Hydraulic full scale ranges to 40,000 psia
- Dual sensor option
- Precision to 0.01% of full scale
- Stability 0.01% of full scale per year
- Fully programmable, RS-232 and IEEE-488
- LabVIEW® driver available



# MODEL 7310 / 7610

## High pressure pneumatic and hydraulic controllers

The Model 7310 High Pressure Pneumatic Controller and Model 7610 High Pressure Hydraulic Controller provide a safe, easy to use, and effective means of automating high pressure test and calibration of a wide range of pressure measuring devices. In control mode, these controllers simultaneously measure and control pressure, and can be used for the calibration and testing of pressure gauges, transducers, pressure switches, and production pressure instruments.

### Precision and Stability

The Model 7310 and Model 7610 controllers use a quartz transducer for unmatched performance in conducting automated high pressure testing and calibration. Precision levels are 0.01% of full scale for pressures to 20,000 psi and 0.02% of full scale for pressures above 20,000 psi. Stability is 0.01% of full scale per year, providing for an annual recalibration interval.

### Automating High Pressure Test and Calibration

The Model 7310 and Model 7610 feature an easy-to-use, menu-driven user interface for straightforward, simple operation.

*Step up/down*—for calibrations where the increments are fixed intervals, enter a user-defined step value. The controller increases or decreases the pressure by the step amount with a single keystroke. No more lengthy keystroke sequences to program.

*Sweep test*—for simple exercising routines, as with dial gauges, enter a start value, a stop value, and number of times to repeat the cycle. The controller automatically exercises the device under test prior to the calibration run.

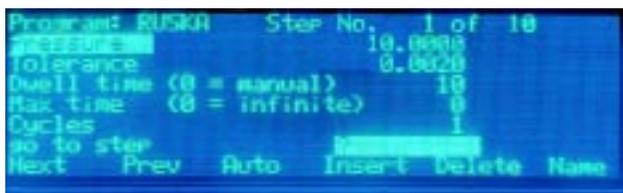
*Onboard programs*—for frequently used or lengthy calibrations, the controller can store up to 20 user-defined programs/profiles with up to a total of 1000 steps in internal memory. If more are needed, a PCMCIA memory card can be used to create a library of test routines that can simplify your procedures.

*Computer interface*—every controller is provided with both an RS-232 and IEEE-488 interface, and the controller syntax follows SCPI protocol for easy programming. A LabVIEW® driver is also available. Download it free from our web site at [www.ruska.com](http://www.ruska.com).



The Model 7610 High Pressure Hydraulic Controller features multimedia capability. Almost any liquid can be used as the pressure medium. (Customer specifies fluid with order.) Some of the fluids used in the Model 7610 include

- deionized water
- water and isopropyl alcohol
- water and antifreeze
- Spinnestric #22 oil
- DOS (dioctyl sebacate) oil
- monoplex DOS oil
- silicon oil Dow 210H hi-temp or Dow 200 50CS
- hydraulic fluid oil MIL-H-5606 or MIL-H-83282C
- Skydrol 500B-4-1
- automobile transmission fluid
- Fluorinert FC-77 or FC-70
- other media available - consult factory about your application



The Model 7310 and Model 7610 controllers are fully programmable and can store up to 20 separate programs with up to 1000 steps in all.



The Model 7310 and Model 7610 include RS-232 and IEEE-488 interfaces for control via a PC. SCPI protocol makes programming easy. A LabVIEW driver is available.

### Versatility to handle almost any high pressure calibration

These high pressure controllers are versatile enough to handle almost any type of high pressure calibration.

**Pressure ranges**—the Model 7310 is available in standard pressure ranges of 3000, 6000, or 10,000 psia full scale. The Model 7610 is available in full scale pressures from 3000 to 40,000 psia.

**Wide choice of media**—The Model 7610 offers a wide range of media compatibility. Specify any liquid as the pressure medium: water, Fluorinert™, oil, or even Skydrol®. The Model 7310 uses clean, dry laboratory grade air or nitrogen.

**Pressure units/scales**—the Model 7310 and Model 7610 feature two user-defined, programmable units of measure, and twelve standard units: inHg at 0 °C, inHg at 60 °C, kPa, bar, psi, inH<sub>2</sub>O at 4 °C, inH<sub>2</sub>O at 20 °C, inH<sub>2</sub>O at 60 °F, kg/cm<sup>2</sup>, mmHg, cmHg at 0 °C, or cmH<sub>2</sub>O at 4 °C.

**Head pressure**—the controllers automatically correct for given head pressure differences.

**Autozero**—with a few keystrokes, the controllers will automatically zero the sensor.

**Protection of the device under test**—set upper and lower pressure limits to ensure protection of the device under test.

**Options**—the Model 7310 and Model 7610 are absolute instruments and include a tare feature for simulated gauge mode operation. The following options are available:

- Dual sensor option for increasing the performance and versatility of your instrument. During operation, selection of the appropriate sensor is automatic and transparent to the operator.
- Gas booster option for Model 7310.
- Quick-fill pump option for easily purging hydraulic lines of air before starting calibrations. For Model 7610.

The Model 7310 High Pressure Pneumatic Controller and Model 7610 High Pressure Hydraulic Controller can easily automate your high pressure test and calibration workload. These controllers are easy to use, easy to maintain, and have the reliability, the performance, and the features that you want.

Ruska Instrument—setting the standard since 1944.





# MODEL 7310 / 7610

## Specifications

### GENERAL

**Model 7310 standard pressure ranges (full scale, psia)**  
3000, 6000, 10,000

**Model 7610 standard pressure ranges (full scale, psia)**  
3000, 6000, 10,000, 15,000, 20,000, 30,000, 40,000

### Tare Mode

Tare mode included for gauge calibrations

### Display

Graphical vacuum fluorescent

### Electrical power

Model 7310: 110 or 220 VAC ( $\pm 18\%$ ), 50/60 Hz, single phase

Model 7610: 110/220 VAC ( $\pm 18\%$ ), 50/60 Hz, single phase (switchable)

### Temperature

Operating temperature 5–50 °C; storage temperature -20 to 70 °C

### Humidity

5–95% relative humidity, noncondensing

### Dimensions (Model 7310 or Model 7610)

17" H x 19" W x 24" D

### Weight

Model 7310: 120 lb

Model 7610: 110 lb

### PERFORMANCE

#### Precision

0.01% FS (to 20,000 psi), 0.02% FS (over 20,000 psi)

#### Stability

0.01% RDG/1 year

#### Control stability

Model 7310: 0.01% FS for load volume 3–35 in<sup>3</sup>; control low limit is 10% of full scale pressure

Model 7610: 0.01% FS; control load volume depends on media selection, consult factory

#### Warm up time

30 minutes, may be left on indefinitely

#### Pressure medium

Model 7310: dry, clean air or nitrogen

Model 7610: virtually any liquid, consult factory

#### Supply pressure

Model 7310: 10% above full scale pressure range (may require optional external gas booster system), 100–110 psi industrial grade (shop) air for controller operation

Model 7610: 70–100 psi industrial grade (shop) air for controller operation

### AUTOMATION FEATURES

#### Head correction

Self-correcting for given head pressure between unit and device under test

#### Autozeroing

Performed electronically via keypad or remote interface

### PNEUMATICS

#### Pneumatic ports

##### Model 7610

Test port: ¼-inch autoclave

Air supply: ¼-inch NPTF

##### Model 7310

Test port: 1/8-inch NPT

Supply pressure port: 1/8-inch NPT

Air supply: ¼-inch NPT

#### Overpressure protection

Relief valves: test port set at 110% FS, supply pressure port set at 120% FS, rupture disk (Model 7610) set at 115% FS

Software limits (set by user)

### COMMUNICATIONS

RS-232 and IEEE-488; Syntax: SCPI; Ruska Series 6000 emulation; LabVIEW driver available—free at [www.ruska.com](http://www.ruska.com)

### CALIBRATION

A calibration report providing traceability to the National Institute of Standards and Technology is provided with each instrument.

Recommended calibration interval is one year

### OPTIONS

Dual sensor option *maximum low pressure range 15,000 psia*

Memory card

Gas booster (Model 7310)

Quick-fill pump (Model 7610)

Due to Ruska Instrument's process of continuous improvement, the printed specifications are subject to change without notice.

\*Precision is defined as the combined effect of linearity, repeatability, and hysteresis throughout the operating temperature range.

## Other products and services

Ruska manufactures a range of deadweight gauges for pressures from 0.2 to 72,500 psi and digital pressure controllers from 1 to 40,000 psi, air data test sets, and portable pressure indicators. Ruska also offers a complete line of fluid phase behavior instrumentation and ancillary items, mass-sorption systems (McBain-Bakr apparatus), and custom quartz component design and manufacturing. Repair and recalibration services are available to support our equipment worldwide. Regular training courses are held in Houston, Texas for all Ruska products.



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