

# Cyclic Pressure Control System

## Description

The APP Cyclic Pressure Control System (CPCS) generates cyclic pressure at user-defined intervals and minimum and maximum pressures from atmospheric pressure to 20 PSI (pneumatic system) and to 60,000 PSI (hydraulic system). The CPCS is completely microprocessor controlled and fully automated.

## Software

Easy-to-use CPCS software runs with Windows '98 and higher. Throughout the pressure control process, this software provides useful reports and data, including a real-time graphical display of pressure versus time. The CPCS main system control screen displays and allows the user to control system status parameters, including upper target pressure, lower target pressure, system pressure, pressurization rate, cycle time, dwell time, and hold time. Upon completion of the pressurization cycles, data can be downloaded to Excel for further analysis. Advanced Pressure Products also has the capability to customize the software to produce reports and data required for a specific application.



## Applications

The CPCS assesses the effect of continuous pressurization/depressurization changes on various materials. In particular, the CPCS is useful in the medical industry; the CPCS simulates the pulsing effect on artificial arteries, and thereby tests the fatigue and change in diameter over time. Other examples include fatigue testing for air bag inflators, pressure gauges, and rupture discs.

## Features

- Highly accurate pressure transducer monitors system pressure and provides feedback
- User-defined multiple target pressures, holding times, dwell times, and pressurization rates
- Pressure cycling feature allows fatigue testing
- Tests can be performed under elevated temperature to simulate actual operating conditions (optional)
- Multi-level, fail-safe system provides over-pressurization protection
- Windows-based software handles all control, measurement, data collection, and report generation; complete manual control also possible
- Compatible with Windows '98 and higher
- Real-time graphical test display depicts testing status and results throughout operation
- Multiple pressure outlet ports available
- Automatic pressure generator refill for high volume situations
- Multiple pressure generator systems for continuous and multi-axis pressurization (optional)
- Customized report formats available
- Minimal maintenance required



## Hardware: Pneumatic System (Applications up to 5,000 PSI)

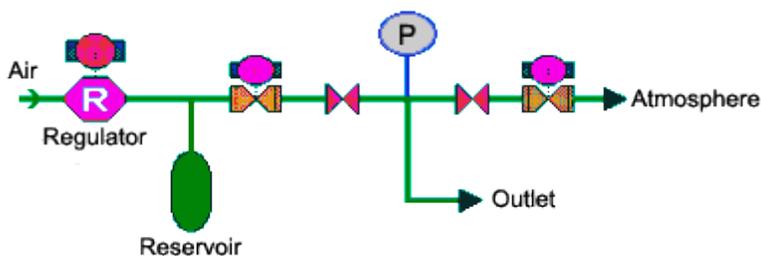
The Cyclic Pressure Control System - Pneumatic System comprises a motorized pressure regulator, pressure transducer, motorized valves, and a pressure controller. A highly accurate pressure transducer monitors system pressure and provides feedback.

The CPCS - Pneumatic System has two control modes: multi-target pressure control and pressurization rate control. (Control algorithms are based on PID control.) Multi-target pressure control allows the operator to reach the targeted pressure quickly and smoothly, while minimizing overshoot. Additionally, multi-target control holds the designated pressure for a specified length of time. The pressurization rate control provides operator control of the pressurization rate at which the target is approached.

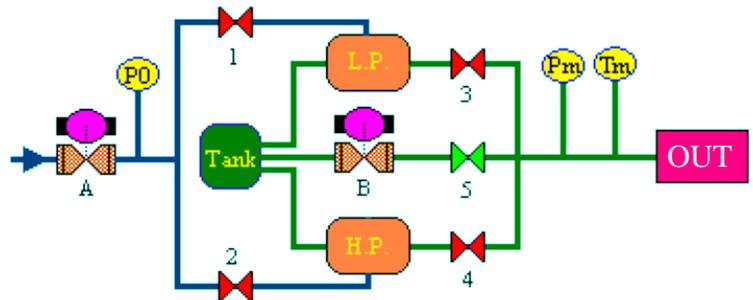
## Hardware: Hydraulic System (Application up to 60,000 psi)

The Cyclic Pressure Control System - Hydraulic System comprises a motorized pressure generator, pressure gauges, high-pressure motorized valves, and a pressure controller. The DC motor driven piston pressure generator produces up to 60,000 PSI output. A highly accurate pressure transducer monitors system pressure and provides feedback.

The APCS - Hydraulic System has two control modes: multi-target pressure control and pressurization rate control. (Control algorithms are based on PID control.) Multi-target pressure control allows the operator to reach the targeted pressure quickly and smoothly, while minimizing overshoot. Additionally, multi-target control holds the designated pressure for a specified length of time. The pressurization rate control provides operator control of the pressurization rate at which the target is approached.



Pneumatic



Hydraulic

### Specifications

#### Pneumatic

#### Hydraulic

Working Fluid	N/A	Water, Oil, or Alcohol
Air Requirement	80 psi Air	N/A
Pressure Range	0 - 5,000 psi	0 - 60,000 psi
Pressure Transducer	Range: 0 - 5,000 psi (Accuracy: Up to 0.01 % FS)	Range: 0 - 60,000 psi (Accuracy: Up to 0.01 % FS)
System Resolution	1/20,000 (65536 optional)	1/20,000 (65536 optional)
System Control Accuracy	+/- 0.02 % FS	+/- 0.02 % FS
Pressure Setting	Up to 20 different pressure steps	Up to 20 different pressure steps
Minimum Cycle Time	0.2 sec	0.2 sec
Power Requirements	110 VAC, 60 Hz (220 VAC, 50Hz optional)	110 VAC, 60 Hz (220 VAC, 50Hz optional)
Dimensions	51" H x 28.5" W x 26" D	51" H x 28.5" W x 26" D
Weight	125 lbs	300 lbs

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