



# airboards®

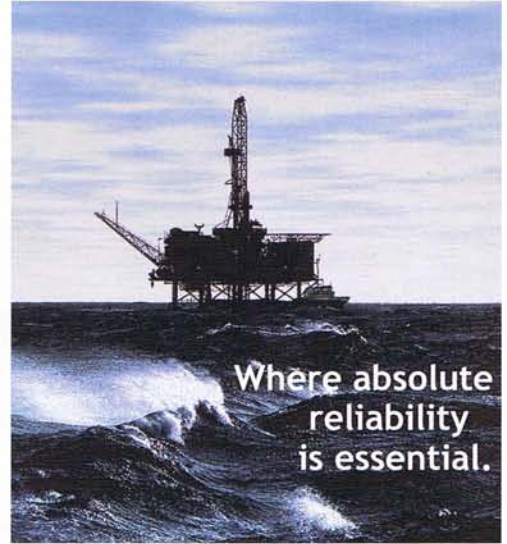
## DESIGN & PRODUCTION

The *PNEUCON airboard®* can be considered an *air circuit board*, providing an attractive, low-cost alternative to conventional pneumatic control systems. An *airboard®* consists of several machined acrylic plates which have been bonded into a compact, virtually tamper-proof air unit. Control devices (valves, timers, etc.) are tightly secured to the surface of the plate. Channels are machined into the acrylic plates to allow for interconnection of the various components.

Producing multiple copies of a typical soft tube pneumatic circuit is a labor-intensive operation. Selection of an *airboard®* reduces assembly time and the number of fittings required to complete a control system. Any component may be removed from the *airboard®* without disturbing the others and without the risk of incorrect reconnection. The use of standard manual overrides and optional pressure indicators is unimpaired. *PNEUCON* multi-valves are very well suited to the *airboard®* technique. No other manufacturer can provide a more complex system in such a small a package.

Because each *airboard®* is designed specifically for its application, the dimensions of the unit are tailored to fit your available space. Most circuits can be produced on a double layer acrylic plate less than one and a half inches thick, **including the valving**. More complex circuits may, of course, be many layers thick and have control components mounted to both the top and the bottom of the *airboard®*. If the details of your control circuit must be kept confidential, the *airboard®* may be machined from an opaque material. This makes unauthorized duplication of a circuit very difficult.

The production of an *airboard®* begins with a schematic drawing of the required sequence. A soft tubed proof-of-circuit version of the system is produced to verify its sequence and provide accurate cost comparisons. When the decision to produce an *airboard®* is made, the symbolic circuit drawing is translated into a program, i.e. *AUTOCAD*, which is easily downloaded to CNC machining to produce custom acrylic boards. Multiple editions of the system may then be quickly and accurately produced.



**absolute**  
**INTERLOCK**

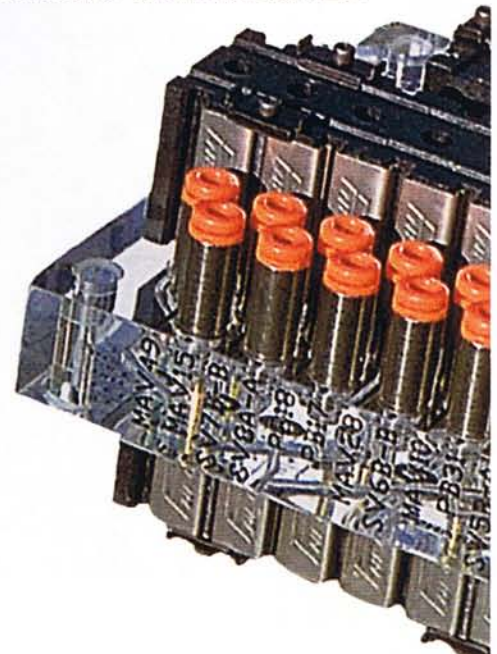
*airboards®* are part of the *PNEUCON Absolute Interlock* concept, ensuring control systems which function in the most demanding, hazardous, and extreme environments.

## APPLICATIONS -- WHERE RELIABILITY IS ESSENTIAL

An *airboard®* can be used to control the flow of any liquid or gas. Most *airboards®* are used in industrial applications to control the motion of cylinders and ancillary components through the sequencing operations of *PNEUCON's* air piloted valves. Thousands are sold into the Process Equipment Industry in the heart of California's Silicon Valley, providing a safety interlock function between a Pneumatic Logic Controller (PLC) and pilot operated gas valves. Their purpose in this application is to interlock and prohibit an errant signal from a failing PLC to accidentally turn on a gas valve at the incorrect time. This simple, safe solution is mandatory for this industry and many companies today are implementing similar programs using *PNEUCON* technology.

A large number of *airboards®* have been used in biomedical applications. By specifying the use of F.D.A. recognized materials in a few internal components, *airboard®* mounted *PNEUCON* valves may be used to control the flow of consumable fluids. *PNEUCON's* applications department will be pleased to discuss the use of *airboards®* for your fluid control application.

*airboard®* shown actual size!



# ordering

Tech  
Notes

Phone 209.772.9555  
Fax 209.772.9595  
www.pneucon.com

## SPECIFICATIONS

For operation under conditions not specified below and for information on other suitable media, please contact the PNEUCON applications department.

### CONTROL PRESSURE

MINIMUM: Vacuum  
MAXIMUM: 125 PSIG (8.8)

### TEMPERATURE

MINIMUM: 35°F (2)  
MAXIMUM: 125°F (50)

### FLOW

MAXIMUM: 20 CFM at 70 PSIG (4.9)

## DIMENSIONS

Primarily the space available and the complexity of the circuit dictate the dimensions of an *airboard*®. The dimensions from the bottom of the acrylic plate to the top of the valving can be as little as 1.5 inches.

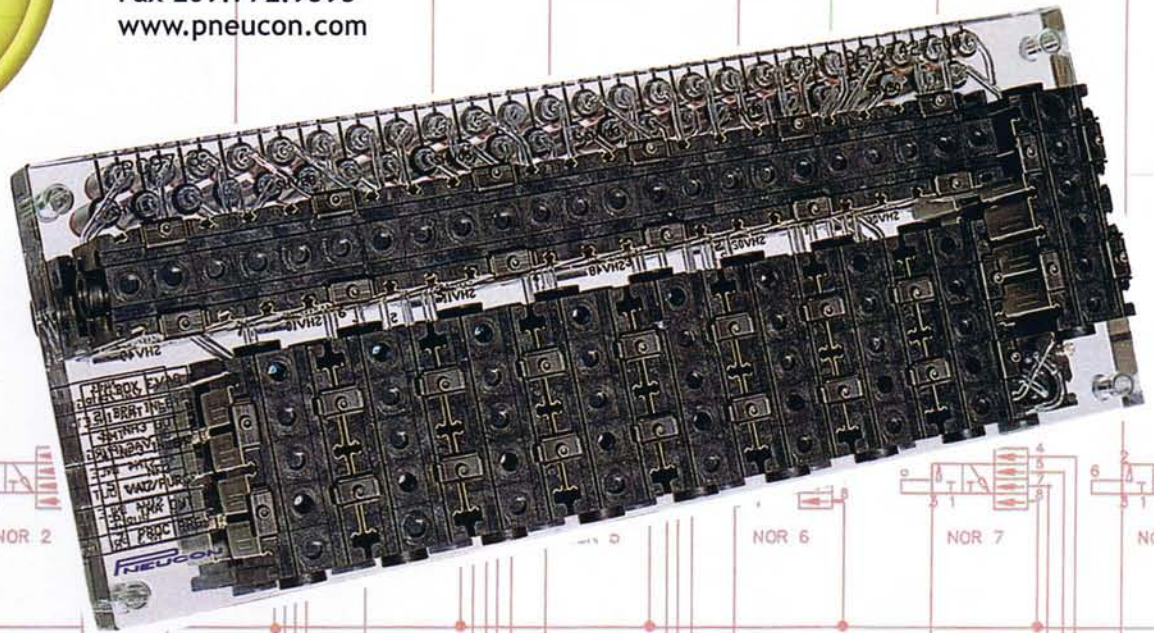
## HOW TO ORDER A PNEUCON *airboard*®

The design of a control system, even for a large relatively complicated application usually consists of a series of straight-forward, simple operations. The most difficult part of any design problem is to transfer ideas, thoughts and requirements from the mind of the specifying engineer to that of the control designer. The following information is required by the PNEUCON applications department for the design of an *airboard*®.

- **A sequence of operations.** A simple step by step sequence of events that you desire to take place.
- **List the safeties and interlocks** required to make the machine or process perform correctly.
- **If an emergency stop is desired**, state what final resting condition is necessary for each element of concern.
- **Specify the operating media, pressure and ambient conditions.**
- **State the overall function.**
- **Describe the dimensional envelope available for the *airboard*®.**

A PNEUCON *airboard*® can usually be designed, verified and built within three weeks of order placement on most systems.

If you have any questions about the information we need regarding your *airboard*® design order, please contact our applications department and we will be glad to quickly walk you through these steps.



# logic is logic . . .

We are engineers first and foremost, designing cost-effective, space-saving solutions for our clients' control system needs. Below is our **Rosetta Stone**, showing how Pneucon control logic meets every situation, and with only seven basic components! **Contact us today with your control needs.**

LOGIC ELEMENT	AND	OR	NOT	NAND	NOR	FLIP-FLOP	MEMORY (OFF RETURN)	DIFERENTIATOR (SINGLE SHOT)	ON DELAY (TIMING IN)	OFF DELAY (TIMING OUT)	
Element Function	Output if all control input signals are on.	Output if any one of the control inputs is on.	Output is single control input signal is off.	No output if all control input signals are on.	Output if all control input signals are off.	Signal turns one output on and the other output off.	Momentary (S) input produces output until reset (R).	Signal on produces output pulse.	Delayed input produces output.	Produces output after delayed (ex) input is removed.	
Standard Logic Symbol											
Boolean Algebra	$(*)$	$(+)$	$(-)$	$(*)'$	$(+)'$						
PNEUCON (VALVING)	Pressure Signal										
	Exhaust Signal										
ARO											
Mil-std-806B											
NEMA											
Electric Relay											
Electric Switch											
ASA-JIC (valving)											
Fluidic Turbulence Amplifier											
Proposed NFPA/ASA											
NOR Logic equivalent of Proposed NFPA/ASA											
NUMATICS Electrical equivalent symbol											

Contact **PNEUCON** or your local distributor for more information on **airboards®**.



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