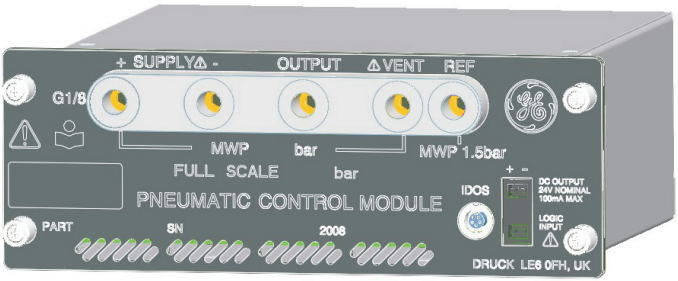
GE
Sensing & Inspection Technologies

PNEUMATIC CONTROL MODULE

Safety Instructions and User Guide - K0476



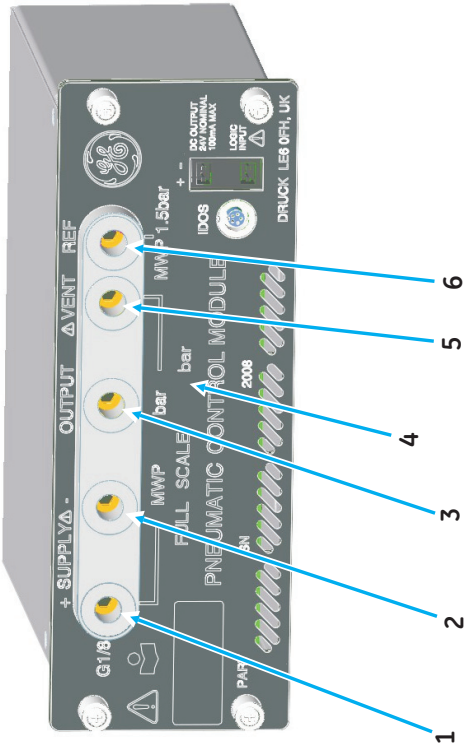

+ SUPPLY Δ -
OUTPUT
Δ VENT
REF
G1/8
MWP
bar
FULL SCALE
PNEUMATIC CONTROL MODULE
2008
IDOS
DRUCK LE8 0FH, UK
1
2
3
4
5
6

Figure 1

Introduction

When installed in a PACE instrument, the Pneumatic Control Module measures and controls pneumatic pressure.

Safety

- Do not use this device for any other purpose than that stated.
- Do not apply pressures above the maximum working pressure (MWP) stated on the rear panel (Fig 1, item 4).
- Refer to the user manual for general pressure equipment requirements.

Maximum working pressure (MWP)..... stated on rear panel
Pressure media..... clean, dry, nitrogen or air
.....compatible with stainless steel, acrylic, nitrile
Pressure connections
..... G 1/8 female (filtered)
Refer to the data sheet SDS0001 (PACE5000) or SDS0008 (PACE6000) for the complete range of adaptors.

Key to Figure 1

1	+ve supply port	2	-ve supply port	3	Output port	4	Pressure rating
5	Vent port	6	Reference port				

Pneumatic connections

WARNINGS:

- **TURN OFF THE SOURCE PRESSURE AND CAREFULLY VENT THE PRESSURE LINES BEFORE DISCONNECTING OR CONNECTING THE PRESSURE LINES. PROCEED WITH CARE.**
- **ONLY USE EQUIPMENT WITH THE CORRECT PRESSURE RATING.**
- **BEFORE APPLYING PRESSURE, EXAMINE ALL FITTINGS AND EQUIPMENT FOR DAMAGE. REPLACE ALL DAMAGED FITTINGS AND EQUIPMENT. DO NOT USE ANY DAMAGED FITTINGS AND EQUIPMENT.**

Electrical connections

WARNINGS

- **ISOLATE THE PACE INSTRUMENT POWER SUPPLY BEFORE INSTALLING THE PNEUMATIC CONTROL MODULE IN THE PACE INSTRUMENT.**

Packaging

On receipt of the Pneumatic Control Module check the contents of the packaging against the following list:

Packaging List -

i) Pneumatic Control Module.
ii) User documentation CD (UD-0001).
iii) Calibration certificate.
iv) Diffuser (IO-DIFFUSER-1).
v) Restrictor (IO-SNUBBER-1).

Preparation for Use

Refer to the PACE instrument user manual.

Note:*Allow a free flow of air around the pressure module, especially at high ambient temperatures.*

Pneumatic connections

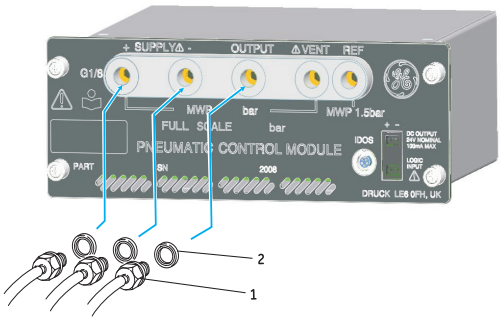
Connection

Input	supply +	G 1/8
	supply -	G 1/8
Output		G 1/8
	Vent	G 1/8
	Reference	G 1/8

Refer to the data sheet SDS0001 (PACE5000) or SDS0008 (PACE6000) for the complete range of adaptors.

Pressure supply (Figure 2)

1. The pressure supply must be clean, dry, nitrogen or air and at the correct pressure (refer to the supply equipment below).
2. Ensure the user systems can be isolated and vented.
3. Connect pressure and vacuum supplies to the SUPPLY + and SUPPLY - connection ports.
4. Connect the Unit Under Test (UUT) to the required output connection port.



1 G 1/8 connector 2 Bonded seal

***Note**: For instruments with NPT connections, use adequate pressure sealing.*

Figure 2, Pneumatic Connections

Installation

The pneumatic control module requires a positive pressure supply. Pneumatic control modules operating in an absolute range or negative pressure range require a vacuum supply. A vacuum supply should be used for a fast response for pneumatic control modules operating near atmospheric pressure.

Supply equipment

Pneumatic supplies should have isolation valves and, where necessary, conditioning equipment. The positive pressure supply should be regulated to between 110% of the full-scale pressure range and MWP stated on the control module.

To protect the control module, for ranges above 100 bar, from over-pressure a suitable protection device (such as a relief valve or bursting disc) must be fitted to limit the applied supply pressure to below the MWP.

On instruments without a negative supply, the positive pressure discharges from the system to atmosphere through the negative supply port. Fit the diffuser to the negative port to diffuse airflow.

During system pressure vent operations, the pressure discharges from the system to atmosphere through the vent port. Fit a diffuser to the vent port to diffuse airflow.

Pneumatic Connection Examples (Figures 3, 4 and 5)

These examples show connection details using supply equipment described above.

Caution:

- USING THE VENT FUNCTION CAN DAMAGE RATE-SENSITIVE EQUIPMENT CONNECTED TO THIS CONTROLLER. SET THE RATE OF CHANGE FOR THE EQUIPMENT TO A SAFE VALUE. THE VENT FUNCTION REDUCES PRESSURE AT A CONTROLLED RATE BEFORE THE VENT VALVE CAN BE SELECTED OPEN TO ATMOSPHERE.
- DO NOT EXCEED THE MAXIMUM PRESSURES STATED IN THE APPROPRIATE COMPONENT MAINTENANCE MANUAL FOR THE UNIT UNDER TEST.
- CAREFULLY DE-PRESSURIZE ALL PIPES TO ATMOSPHERIC PRESSURE BEFORE DISCONNECTING AND CONNECTING TO THE UNIT UNDER TEST.

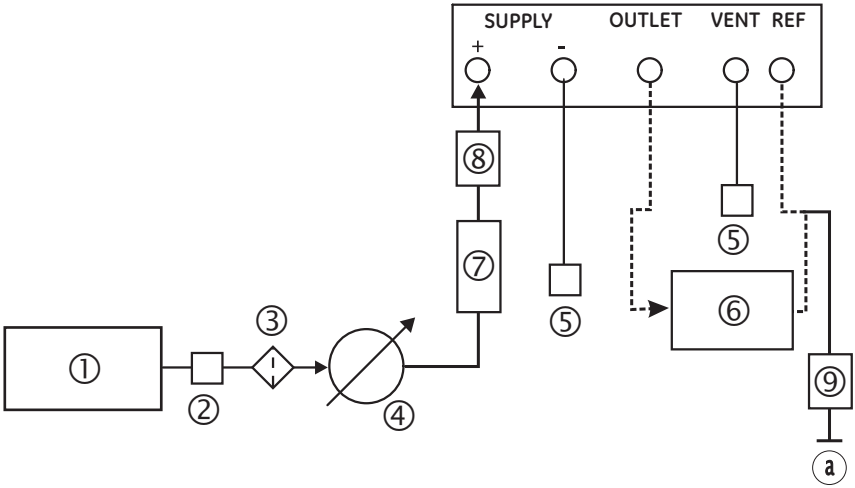


Figure 3, Pneumatic Connections without vacuum supply

Key to Figure 3

1	Pressure source	2	Conditioner	3	Filter	4	Regulate to between 110% full-scale and MWP
5	Diffuser *	6	Unit under test	7	Optional reservoir †	8	Protection device ⊙
9	Optional differential connection ★			a	atmosphere		

Notes:*Refer to the PACE User Manual, Reference and Specification for details of other system components.*

* *High pressure gas exhaust - depending on pressure range.*

† *Optimum controller transient response and minimum time to set-point may be degraded if either the pneumatic supply or vacuum system has restricted flow. Installing a reservoir volume, which has larger capacity than the load volume, located in close proximity to the controller supply ports can improve the controller response.*

⊙ *To protect the control module, for ranges above 100 bar, from over-pressure a suitable protection device (such as a relief valve or bursting disc) must be fitted to limit the applied supply pressure to below the MWP.*

★ *Optional differential connection kit.*

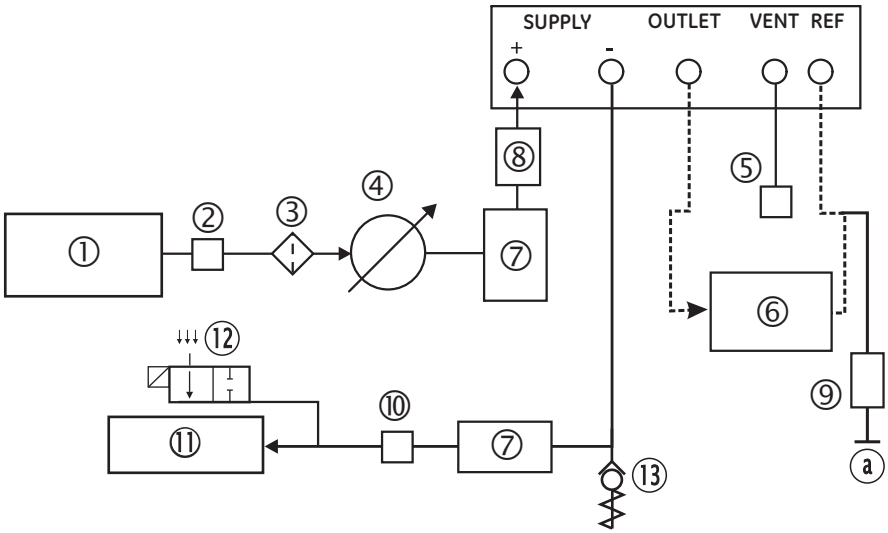


Figure 4, Pneumatic Connections with vacuum supply

Key to Figure 4

1	Pressure source	2	Conditioner	3	Filter	4	Regulate to between 110% full-scale and MWP
5	Diffuser*	6	Unit under test	7	Optional reservoir †	8	Protection device ⊙
9	Optional differential connection ★			10	Oil mist trap	11	Vacuum source
12	Normally open electrical release valve			13	Check valve ‡	a	atmosphere

Notes:*Refer to the PACE User Manual, Reference and Specification for details of other system components.*

* *High pressure gas exhaust - depending on pressure range.*

† *Optimum controller transient response and minimum time to set-point may be degraded if either the pneumatic supply or vacuum system has restricted flow. Installing a reservoir volume, which has larger capacity than the load volume, located in close proximity to the controller supply ports can improve the controller response.*

‡ *Optional vacuum system kit.*

⊙ *To protect the control module, for ranges above 100 bar, from over-pressure a suitable protection device (such as a relief valve or bursting disc) must be fitted to limit the applied supply pressure to below the MWP.*

★ *Optional differential connection kit.*

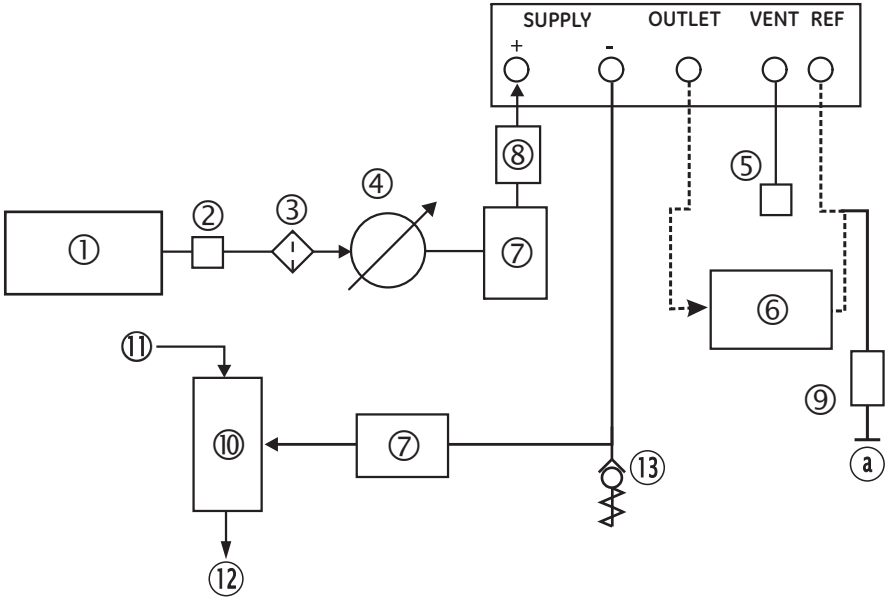


Figure 5, Pneumatic Connections with negative gauge pressure generator

Key to Figure 5

1 Pressure source 2 Conditioner 3 Filter 4 Regulate to between 110% full-scale and MWP
5 Diffuser * 6 Unit under test 7 Optional reservoir † 8 Protection device ⊙
9 Optional differential connection ★ a atmosphere 10 Vacuum generator ‡
11 Source pressure (regulated compressed air supply) 12 Exhaust to atmosphere
13 Check valve ‡

Notes:*Refer to the PACE User Manual, Reference and Specification for details of other system components.*

* *High pressure gas exhaust - depending on pressure range.*

† *Optimum controller transient response and minimum time to set-point may be degraded if either the pneumatic supply or vacuum system has restricted flow. Installing a reservoir volume, which has larger capacity than the load volume, located in close proximity to the controller supply ports can improve the controller response.*

‡ *Optional negative gauge generator kit.*

⊙ *To protect the control module, for ranges above 100 bar, from over-pressure a suitable protection device (such as a relief valve or bursting disc) must be fitted to limit the applied supply pressure to below the MWP.*

★ *Optional differential connection kit.*

Operation
After installation in the PACE instrument, the PACE system energises the pressure control module. The PACE instrument communicates with the pressure control module to send commands to the controllers and to receive pressure measurement data.

Maintenance
Refer to the User Manual for routine maintenance.
Cleaning
When necessary, clean externally using a damp lint-free cloth and mild liquid detergent.

General Specification

Operating temperature	10°C to 50°C (50° to 122°F)
Storage temperature	-20°C to 70°C (-4° to 158°F)
Operating humidity	5% to 95% RH (non-condensating)
Vibration	Def Stan 66-31, 8.4 cat III and MIL-PRF-28800 Type 2 class 5 style E/F
EMC	EN 61326 *(only when installed into the PACE instrument.)*
Electrical safety	EN 61010 *(only when installed into the PACE instrument.)*
Pressure safety	Pressure Equipment Directive - class: sound engineering practice (SEP)

Symbols
The following symbols mark the equipment to identify compliances and hazards.

CE This equipment meets the requirements of all relevant European safety directives. The equipment carries the CE mark.


This symbol, on the instrument, indicates that the user should refer to the user manual.


This symbol, on the instrument, indicates do not throw-away in domestic bin, hazardous material, dispose correctly in accordance with local regulations.

Safe Disposal of Equipment
Dispose correctly in accordance with local regulations.

Approved Service Agents
For the list of service centres visit our web site:
www.gesensinginspection.com
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