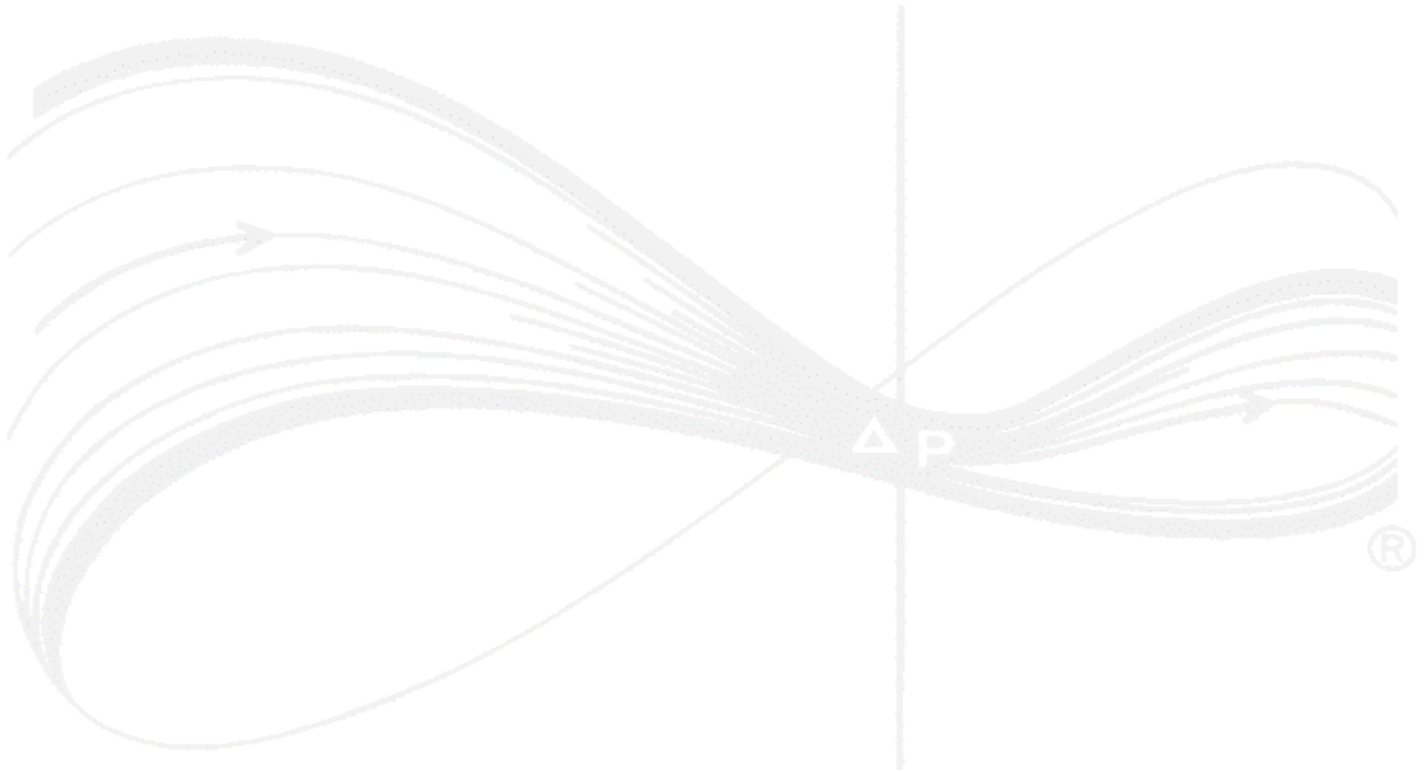


Suggested Medical Gas Master Alarm Points For Level 1 Facilities



Squire-Cogswell/Aeros Instruments Inc
1111 Lakeside Drive, Gurnee, IL 60031-4099
800-448-0770 / 847-855-0500 - Fax: 847-855-6300
www.healthcair.com
255316 Rev.2 (04/2003)

**Vacuum/Compressor Alarm Termination Points
Located Inside System Control Panel
(Lower Left Hand Corner)**

LA Lag Vacuum/Compressor Alarm

RF Receiver Flooded Alarm

High Temperature Alarm

HT1 Compressor 1

HT2 Compressor 2

HT3 Compressor 3

HT4 Compressor 4

High Water Separator Alarm

HW1 Compressor 1

HW2 Compressor 2

HW3 Compressor 3

HW4 Compressor 4

Mainline Vacuum/Pressure Switch Connections

Mainline Pressure Switch High, Oxygen (O₂), Medical Air (Air), Nitrous Oxide (N₂O), Carbon Dioxide (CO₂)

Orange Wire – NC

Brown Wire – Common

Mainline Pressure Switch/Low

Oxygen (O₂), Medical Air (Air), Nitrous Oxide (N₂O), Carbon Dioxide (CO₂)

Red Wire – NC

Purple Wire – Common

Mainline Vacuum Switch/Low

Blue Wire - N.C.

Purple Wire - Common

Mainline Pressure Switch High, Nitrogen (N₂)

N.C. N.C.

C. Common

Mainline Pressure Switch Low, Nitrogen (N₂)

N.C. N.C.

C Common

All Gases from High Pressure Manifold

Reserve in Use/Cylinder Changeover

Terminal #6 – N.C.

To Alarm Ground Terminal #7 – Common

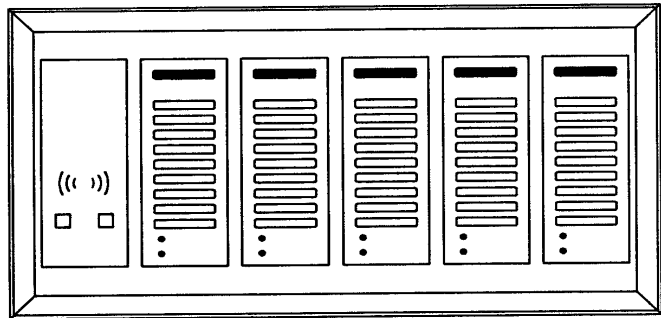
DewPoint/CO Monitor

Yellow Relay, DewPoint – C & NC

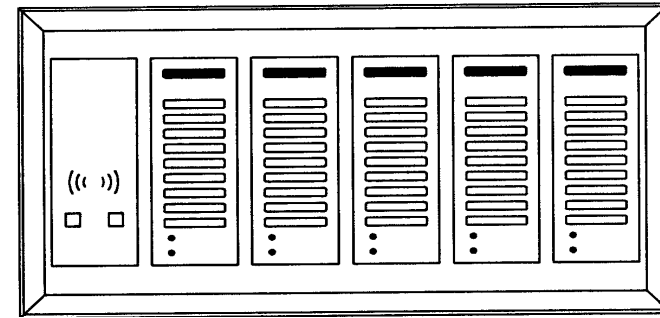
Red Relay, CO – C & NC

**NOTE: See Back Flap for mainline gauge
and switch detail**

SUGGESTED MEDICAL GAS MASTER ALARM POINTS FOR LEVEL 1 FACILITIES



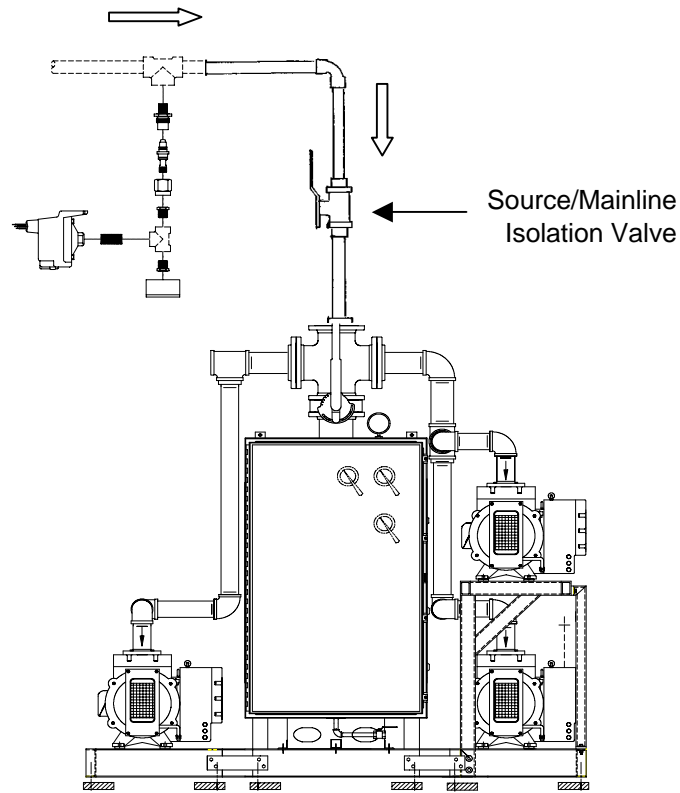
MASTER ALARM #1
MAY BE LOCATED IN SECURITY
(Requires 24 Hours/Day Surveillance)



MASTER ALARM #2
MAY BE LOCATED IN ENGINEERING DEPARTMENT/AREA

MEDICAL GAS ROOM

MECHANICAL ROOM



SUGGESTED ALARM POINTS FOR:

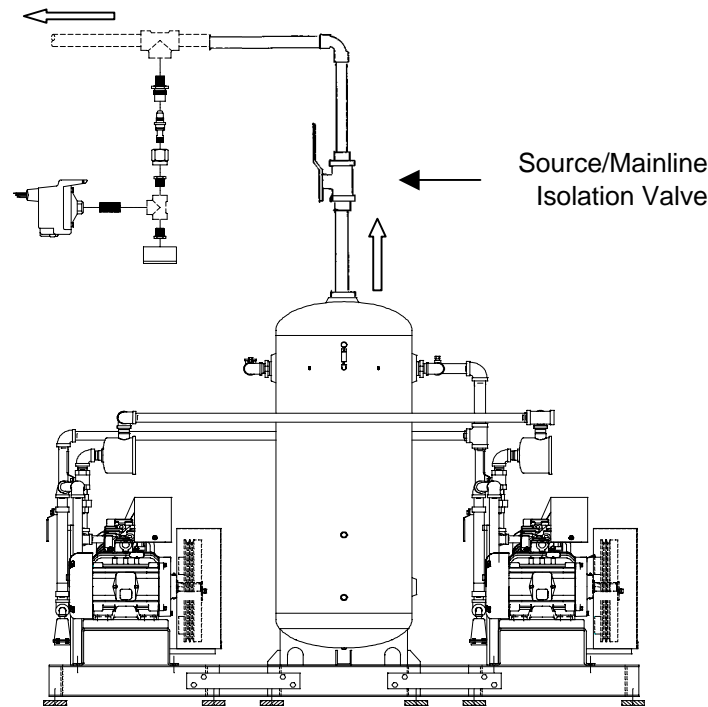
MEDICAL/SURGICAL VACUUM PUMPS

- RESERVE VACUUM PUMP RUNNING
5.1.3.6.8 / 5.1.9.2.4(8) / 5.1.9.4.2 / 5.1.9.4.4(4)
(Termination point located in vacuum control panel)
- MAIN LINE VACUUM LOW 5.1.9.2.4(7)
(Terminal point from main line vacuum switch)

WASTE ANESTHETIC GAS VACUUM PUMPS

- RESERVE VACUUM PUMP RUNNING
5.1.9.4.2 / 5.1.3.7.3.1 / 5.1.9.2.4(8) / 5.1.9.4.4(5)
(Termination point located in vacuum control panel)
- MAINLINE EVACUATION LOW 5.1.9.2.4(10)
(Termination point from main line vacuum switch)

SEE CHART ON LEFT FLAP FOR TERMINAL NUMBERS



SUGGESTED ALARM POINTS FOR:

MEDICAL AIR COMPRESSOR (All Types)

- RESERVE COMPRESSOR RUNNING 5.1.9.4.4(1) / 5.1.3.5.14.5
(Termination point located in compressor control panel)
- MAINLINE PRESSURE HIGH 5.1.9.2.4(6)
(Termination point from mainline pressure switch)
- MAINLINE PRESSURE LOW 5.1.9.2.4(6)
(Termination point from mainline pressure switch)
- CARBON MONOXIDE HIGH 5.1.9.4.4(2) / 5.1.3.5.15(2)
(Termination point from combination Co/Dewpoint monitor)
- DEW POINT HIGH 5.1.9.2.4(9) / 5.1.9.4.4(3) / 5.1.3.5.15(1)
(Termination point from combination Co/Dewpoint monitor)

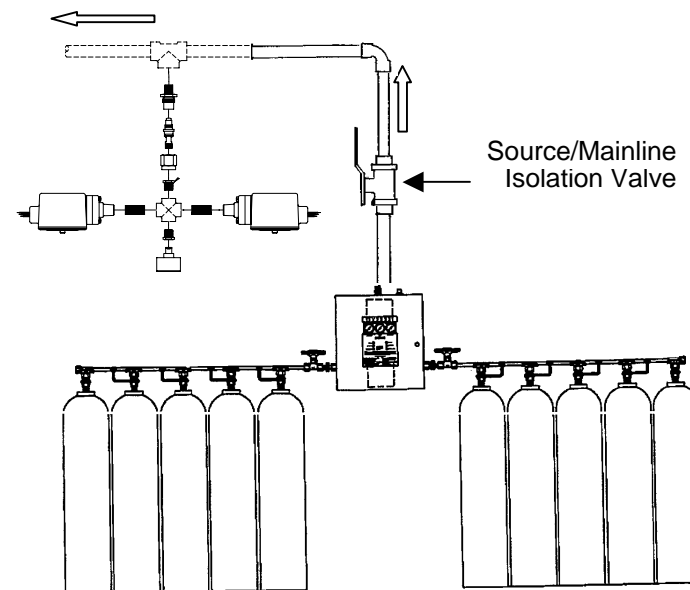
Also, For Reciprocating (Piston type) Compressors

- HIGH TEMPERATURE 5.1.3.5.14.3 / 5.1.9.4.4(9) / 5.1.3.5.14.4(1)
(Termination point located in compressor control panel)
- RECEIVER FLOODED (see note #1) 5.1.3.5.14.1 / 5.1.9.4.4(7)
(Termination point located in compressor control panel)

Also, For Liquid Ring Compressors:

- RECEIVER FLOODED 5.1.3.5.14.1 / 5.1.9.4.4(7)
(Termination point located in compressor control panel)
- HIGH WATER SEPARATOR 5.1.3.5.14.2 / 5.1.9.4.4(8)
(Termination point located in compressor control panel)

Typical Nitrogen (N2) Installation



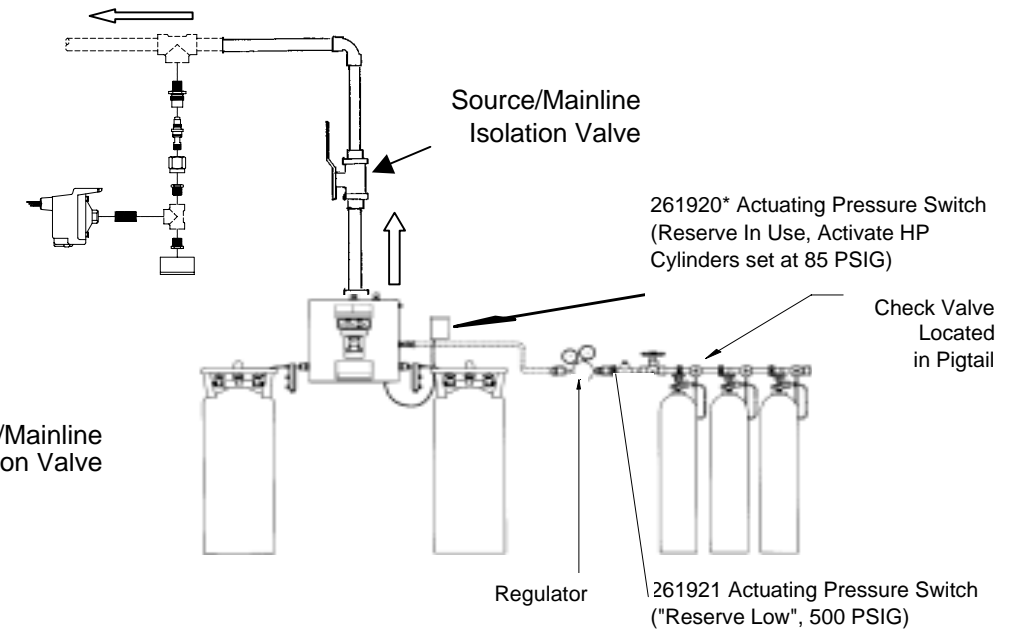
SUGGESTED ALARM FUNCTIONS FOR:

MANIFOLDS WITHOUT RESERVE

- CYLINDER BANK CHANGEOVER 5.1.9.2.4(1) / 5.1.3.4.9.6
(Termination point located in power supply)
- MAINLINE PRESSURE HIGH 5.1.9.2.4(6)
(Termination point from mainline pressure switch)
- MAINLINE PRESSURE LOW 5.1.9.2.4(6)
(Termination point from mainline pressure switch)

SEE CHART ON RIGHT FLAP FOR NOTES AND BULK GAS ALARM POINTS

Typical Oxygen (O2), Medical Air (Air), Nitrous Oxide (N2O), Carbon Dioxide (CO2) Installation



SUGGESTED ALARM FUNCTIONS FOR:

MANIFOLDS WITH RESERVE

- CYLINDER BANK CHANGEOVER 5.1.9.2.4(1) / 5.1.3.4.10.9(1)
(Termination point located in power supply)
- RESERVE IN USE 5.1.9.2.4(3) / 5.1.3.4.13.5 / 5.1.3.4.10.9(2)
(Terminal point from actuating pressure switch 261920*)
- RESERVE LOW 5.1.3.4.10.9(3)
(Terminal point from actuating pressure switch 261921*)
- MAINLINE PRESSURE HIGH 5.1.9.2.4(6)
(Termination point from mainline pressure switch)
- MAINLINE PRESSURE LOW 5.1.9.2.4(6)
(Termination point from mainline pressure switch)

NOTES:

1. Liquid air compressor and reciprocating air compressors with water cooled heads and/or water cooled aftercoolers.
2. Mainline pressure switches for oxygen, nitrous oxide, medical air and carbon dioxide will provide both "High" and "Low" pressure alarm functions. A similar switch is provided for medical/surgical vacuum and/or waste anesthetic gas evacuation, but only a "Low Vacuum" function is required. Nitrogen requires two separate switches, one for "High" and one for "Low".
3. Per NFPA 99, 2002 [5.1.8.2.3] "All pressure switches, pressure gauges and pressure sensing devices downstream of the source valve shall be provided with a gas specific demand check fitting to facilitate servicing, testing or replacement."
4. Cable requirement for area alarm module to remote sensors; master alarm to source equipment.
18-22 gauge shielded, twisted pair
Multi-conductor twisted pair cable can be used when connecting multiple sensors

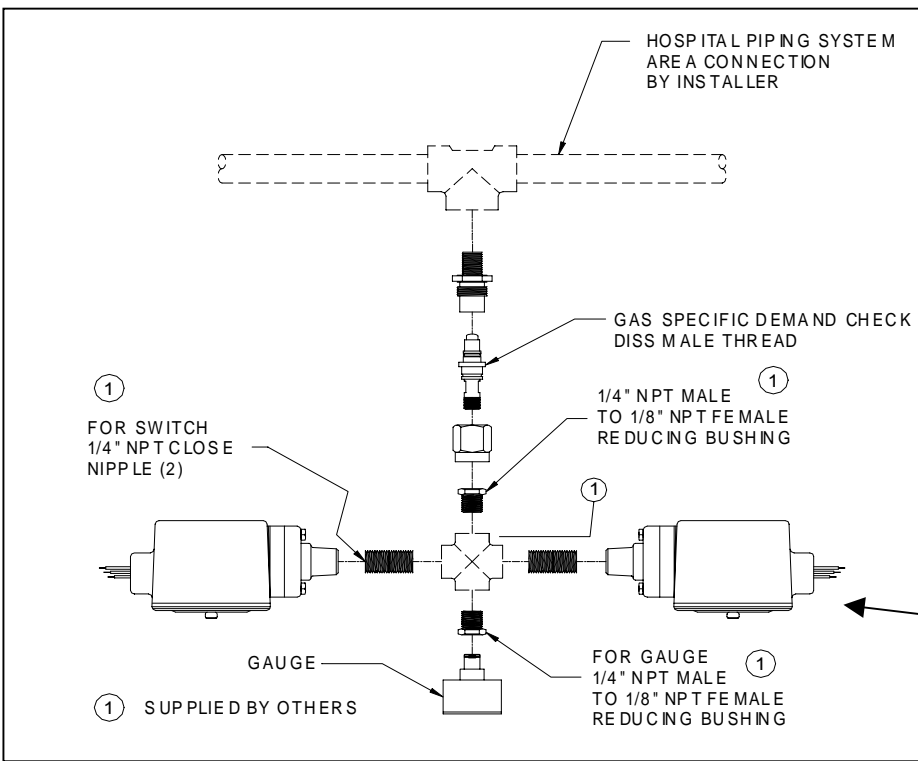
SUGGESTED ALARM FUNCTIONS FOR BULK OXYGEN SYSTEM

CRYOGENIC BULK GAS UNITS WITH CRYOGENIC RESERVE

LIQUID LEVEL LOW 5.1.9.2.4(2) / 5.1.3.4.11.6(1)
RESERVE IN USE 5.1.9.2.4(3) / 5.1.3.4.11.6(2)
MAIN LINE PRESSURE HIGH 5.1.9.2.4(6)
MAIN LINE PRESSURE LOW 5.1.9.2.4(6)
RESERVE LOW 5.1.9.2.4(4) / 5.1.3.4.11.6(3)
CHANGEOVER 5.1.9.2.4(1) / 5.1.3.4.11.6(5)
RESERVE PRESSURE LOW 5.1.9.2.4(5) / 5.1.3.4.11.6(4)

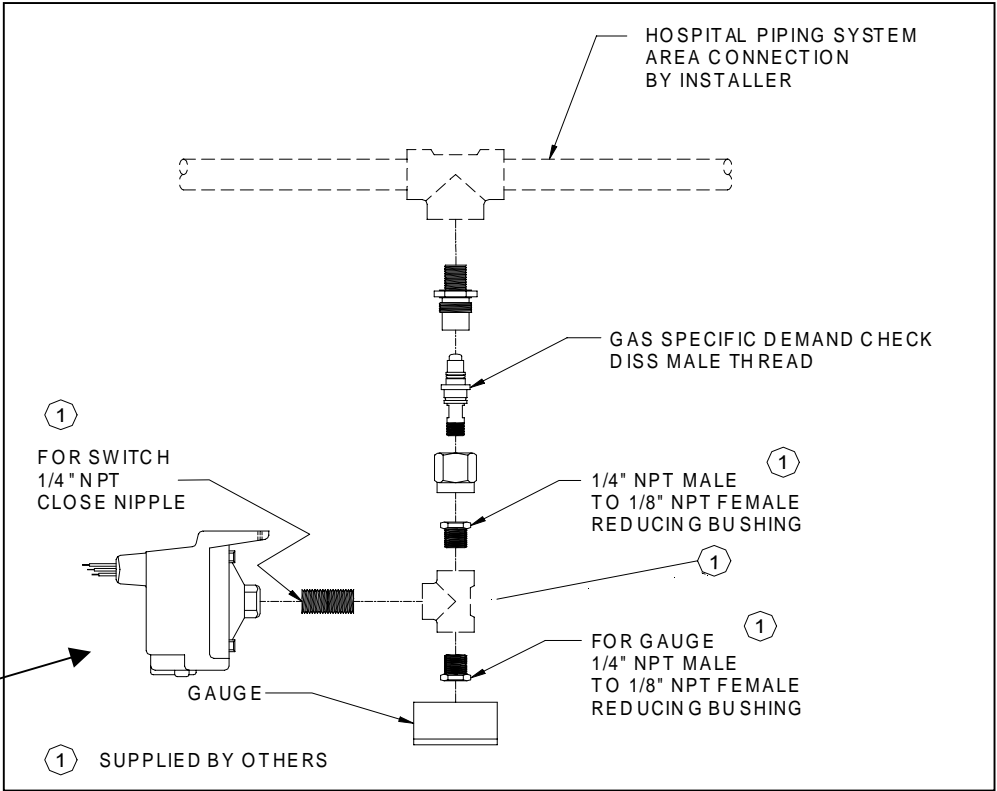
CRYOGENIC BULK GAS UNITS WITH CYLINDER RESERVE

LIQUID LEVEL LOW 5.1.3.4.11.6(1) / 5.1.9.2.4(2)
RESERVE IN USE 5.1.9.2.4(3) / 5.1.3.4.11.6(2) / 5.1.3.4.13.5
MAIN LINE PRESSURE HIGH 5.1.9.2.4(6)
MAIN LINE PRESSURE LOW 5.1.9.2.4(6)
CHANGEOVER 5.1.9.2.4(1) / 5.1.3.4.11.6(5)



Mainline Pressure Switches

Typical Nitrogen (N2) Installation



Mainline Pressure/Vacuum Switch

Typical Oxygen (O2), Medical Air (Air), Nitrous Oxide (N2O), Carbon Dioxide (CO2) and Vacuum Installation

Squire-Cogswell/Aeros Instruments Inc - 1111 Lakeside Drive, Gurnee, IL 60031-4099
 800-448-0770 / 847-855-0500 - Fax: 847-855-6300 - www.healthcair.com