Honeywell | **Industrial Safety**
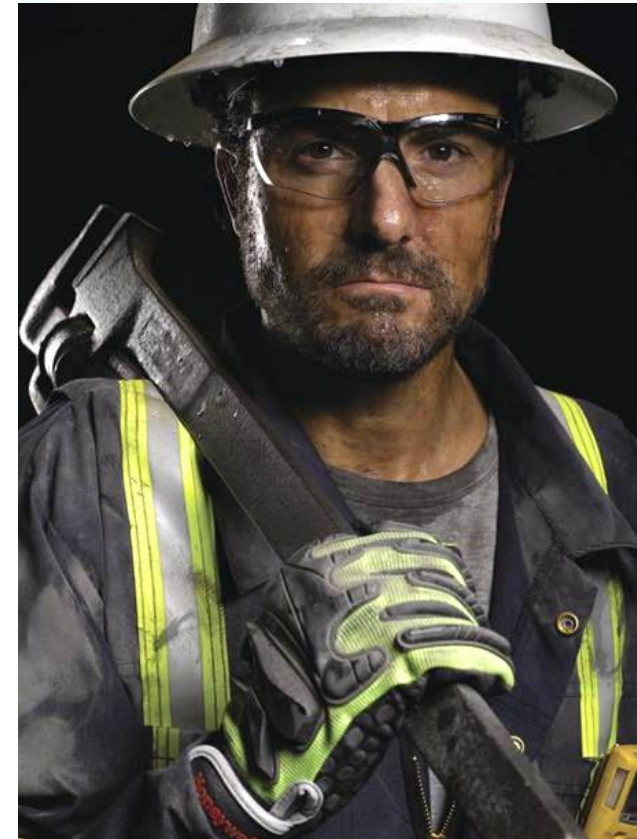
MIDAS
Training presentation

Honeywell

INTRODUCTION

- The Midas® gas detector is an extractive gas sampling system that draws a sample locally or from a remote point to a sensor cartridge that is located inside the detector's chassis. A wide range of Asphyxiant, Toxic, Flammable, Pyrophoric, Corrosive, and Oxidizer (including Oxygen) gas sensor cartridges are available that enable detection of gases used or generated in the Semiconductor and other industries.

- Midas® is wall mounted and displays gas concentration, alarm, fault and status information via its backlit LCD and LEDs. A simple to use 4-button keypad located under the display provides the facility to set-up, review, operate and make changes to the detector's configuration.

- Midas® has flexible power and communications capabilities built in as standard. These include 3 on board relays, 0-22 mA analog output, Modbus/TCP outputs for signal and service connectivity as well as the innovative Power over Ethernet (PoE) connection that enables a single Ethernet connection to be made for all power, control and communication requirements. An optional LonWorks® interface is available.

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OVERVIEW

Outputs

Relays: 3 relays for Alarm1, Alarm 2 and Fault - configurable for NO or NC, latched or unlatched

Analog: 0 - 22mA, 4 wire (isolated mA output), 3 wire Current Sink or Current Source

Digital Communications: Modbus / TCP Ethernet / Power over Ethernet (PoE) /   LonWorks

Service Port: RS232C / PPP protocol

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Overview

Specifications

Physical	
Size (unit with Sensor cartridge)	150 mm(H) x 65 mm(W) x 153 mm (D) (5.91 x 2.56 x 6.02 in)
Weight (unit with Sensor cartridge)	0.8 kg (1.76 lb)
NF$_2$ Pyrolyzer Dimensions	
Size	70 mm (H) x 63 mm (W) x 85 mm (D) (2.75 x 2.48 x 3.35 in)
Weight	0.41 kg (0.9 lb)
High-Temperature PFC Pyrolyzer Dimensions	
Size	100 mm (H) x 101 mm (W) x 140 mm (D) (3.9 x 4.0 x 5.5 in)
Weight	1.36 kg (3.0 lb)
Power Requirements:	
Operating Voltage	24 V Nominal -15 to +10% (20.4 to 26.4 VDC) (Pyrolyzer units with serial numbers at or above above 282) Midas® pyrolyzers with serial numbers at or below 281 have a restricted minimum voltage requirement of 21.6 VDC.
Operating Voltage with Power over Ethernet	36-57 Vdc via PoE, 48 V Nominal
Power Consumption:	
Transmitter unit	< 5 W
Transmitter with pyrolyzer (std or hi temp)	< 12.95 W
Transmitter with LonWorks Module	< 8 W
Transmitter with LonWorks and pyrolyzer	< 15.95 W
Outputs:	
Visual	Alarm, power and fault LEDs plus LCD with all gas readings and events.
Relays	Alarm1, Alarm2, Fault Relays (3) rated 1.0 A @ 30VDC or 0.5 A @ 125 VAC max 10 uA @ 10 mV minimum, configurable as normally open or closed, latched or unlatched.
Analog	3 wire sink, 3 wire source, or 4 wire fully isolated; 0 to 21 mA.
Digital Communications	Modbus / TCP Ethernet / Power over Ethernet (PoE) / LonWorks® Interface Module
Service Port	RS232C / PPP protocol

File Number

Specifications (Cont.)

Certification & Specification:	
European	CE Marked for sale in European Community Meets EN 50270:1999 (Type 2) and EN55011:2000
Environmental	ETL approved UL61010B-1 and CSA-C22.2 No. 1010.1-92
Performance	Designed to meet UL2075 (pending 2004)
Electrical	IEEE 802.3af-2003
Response Times:	
Typically	Refer to Individual Cartridge Datasheets
Transport System:	
Flow Rate	500 cc / min
Transport Time	2 – 30 seconds maximum
Performance	LDL < LAL LAL = ½ TLV (typically 12% FSD) FSD = Typically 4 x TLV
Sampling Distance:	
Tubing Length	Up to 30 m (100 feet) with FEP tubing
Ambient Point	In line air filter required
Exhaust Length	Up to 30 m (100 feet)
Operating Temperature:	
Unit with sensor cartridge Unit with sensor cartridge and Pyrolyzer	0°C to 40°C (32°F to 104°F) 0°C to 30°C (32°F to 86°F)
Tubing Requirement:	
Sample	6.35 mm OD (1/4") x 3.18 mm (1/8"), FEP, 30 m (100 feet) maximum dependent on gas type
Exhaust	6.35 mm (1/4") OD x 4.76 mm (3/16"), FEP, 30 m (100 feet) maximum
Wiring Requirement:	
4- 20mA	2 wire, 14 AWG maximum
Digital	CAT5 cable or equivalent; RJ45 connector
Gas Concentration Display & Interface:	
Instrument	4-digit alphanumeric display with separate units, flow rate bar graph and other icon driven indicators. 4 button interface keypad
Remote	Option for PC / PDA internet browser access via Ethernet

File Number

Specifications (Cont.)

Mounting:	Wall mounted using pre-drilled holes on chassis. Options for DIN rail or vertical bracket mounting.
Case Material:	Cover: Painted steel Chassis/Mounting Bracket: Zinc plated steel

Warranty

Transmitter Unit =   1 year

Sensor cartridge =   1 year standard (MIDAS-S-xxx)

2 years extended (MIDAS-E-xxx)

(calibration reminder default = 6 months – user adjustable beyond default)

Pump =   1 year

(2 years expected lifetime)

Pyrolyzer (Std and HT) =   1 year

(expected lifetime: Std = 18 months, HTP = 1 year)

File Number

Overview

Part Number Scheme

- **MIDAS-A-xxx = Accessories**
  - Din Rail Mounting (MIDAS-A-036)
  - Horizontal Mounting Bracket (MIDAS-A-032)
  - Top Access Tubing Connectors (MIDAS-A-031)

- **MIDAS-T-xxx = Modules**
  - Transmitter (MIDAS-T-001)
  - Pyrolyzer modules
    - Standard (MIDAS-T-00P) – NF3 gas only
      » requires "HFX" Cartridge to activate
    - High Temp (MIDAS-T-HTP) – C_4F_6, C_5F_8, CH_3F, CH_2F_2, and SF_6
      » requires "CFX" Cartridge to activate
  - LonWorks (MIDAS-T-LON)

- **MIDAS-K-xxx = Kits**
  - Transmitter (MIDAS-T-001)
  - 2 year Cartridge (MIDAS-E-xxx)

- **MIDAS-E-xxx = 2 year Cartridge**

- **MIDAS-S-xxx = 1 year Cartridge**

File Number

Overview

- ## DC power supply (regulated)
  - ### 24 VDC Nominal
    - ◆ **Transmitter unit**   **< 5 W**
    - ◆ **Transmitter with Pyrolyzer (std or hi temp)**   **< 12.95 W**
    - ◆ **Transmitter with LonWorks Module**   **< 8 W**
    - ◆ **Transmitter with LonWorks and Pyrolyzer**   **< 15.95 W**
  - ### Cabling
    - ◆ 14 AWG Maximum wire gauge

- ## PoE (Power Over Ethernet)
  - ### 36 - 57 VDC via PoE, 48V DC Nominal
    - ◆ **Transmitter unit**   **< 5 W**
    - ◆ **Transmitter with Pyrolyzer (std or hi temp)**   **< 12.95 W**
    - ◆ **Transmitter with LonWorks Module**   **< 8 W**
    - ◆ **Transmitter with LonWorks and Pyrolyzer**   **< 15.95 W**
  - ### Cabling
    - ◆ CAT 5 cable or equivalent, RJ45 connector (Ethernet cable)

⚠️ **Do _NOT_ connect 24VDC supply and Ethernet connections from a PoE type device (Hub). Doing so may result in damage to the unit.**

Installation

Mounting - Standard

mounting bracket

screws

Drill Template

Drill 2 x
M4 holes

2.3 in
(58.50mm)

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Installation
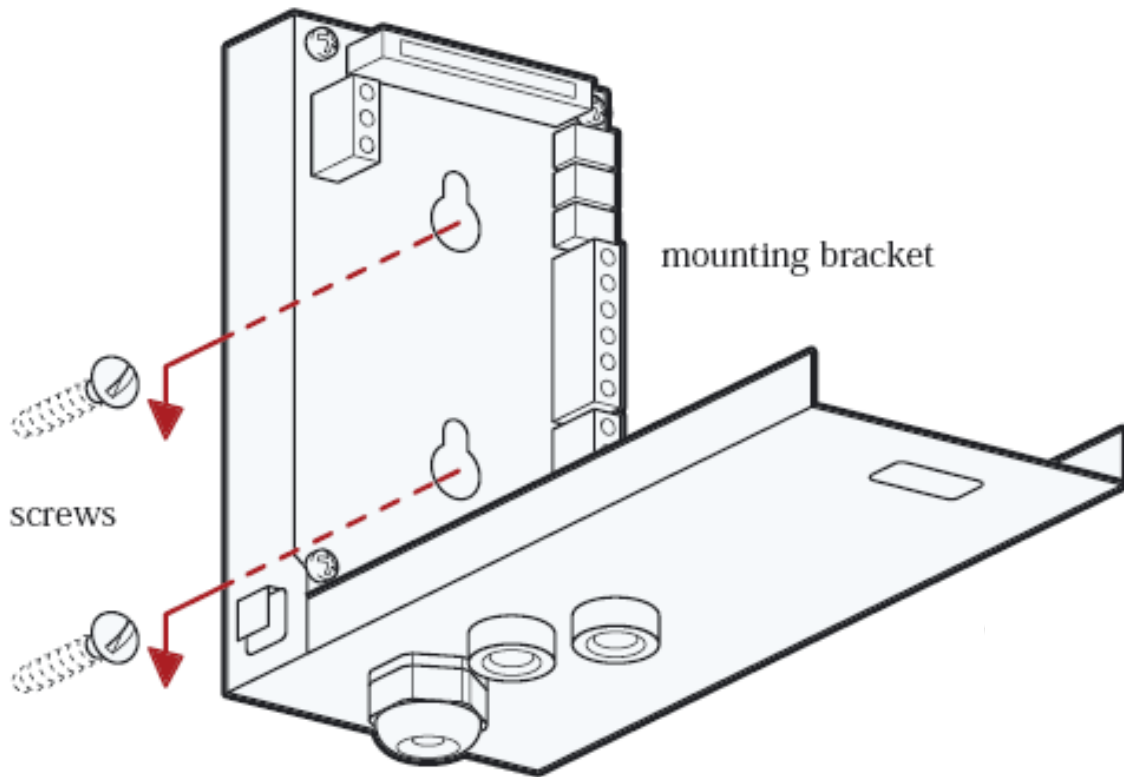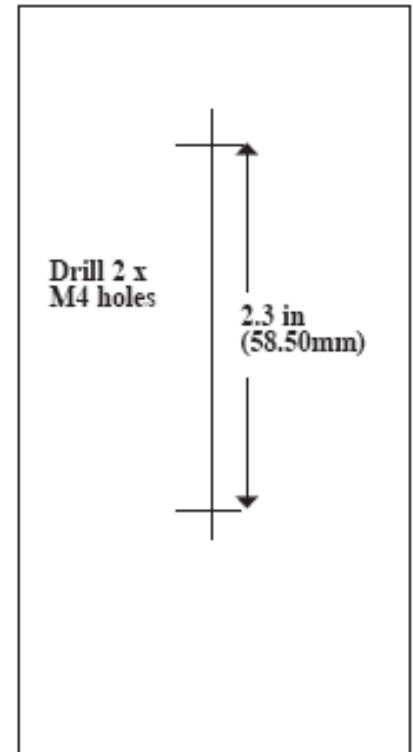
Mounting – Din Rail and Vertical

Vertical

Din Rail

Mount

Power Supply

Optional Top Shield
(MIDAS-A-033)

DIN Rail Bracket

Spacer Bracket

2x M4 Screws
Secures Midas® to
Spacer Bracket

4x M3 Screws
Secures DIN Rail
to Spacer Bracket

Optional Midas® DIN Rail
Mount (MIDAS-A-036)
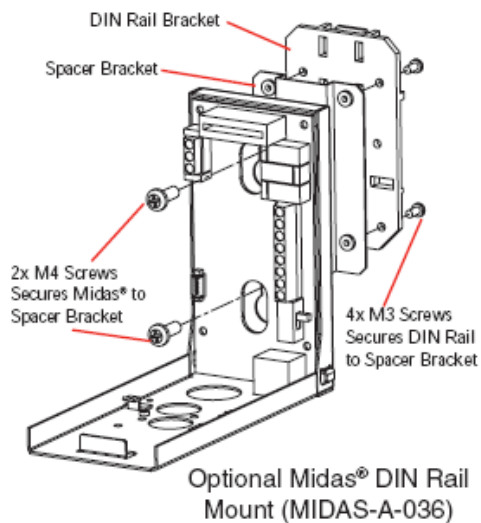
**Din Rail Power Supply
(ZDINPSUX1)**

Specs: 24VDC, 1A, 24W
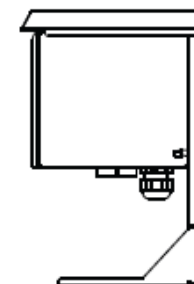
Optional Midas® Adjustable "L" Bracket Mount
(MIDAS-A-032)
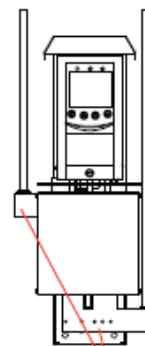
Note:
When using the Adjustable "L" bracket with the
High-Temperature Pyrolyzer unit, (2) Top
Access Tubing Connectors (MIDAS-A-031)
must be used to insure proper operation.

Installation

Electrical

mA Output
Jumper settable to:
Current Source
Current Sink
Isolated Output
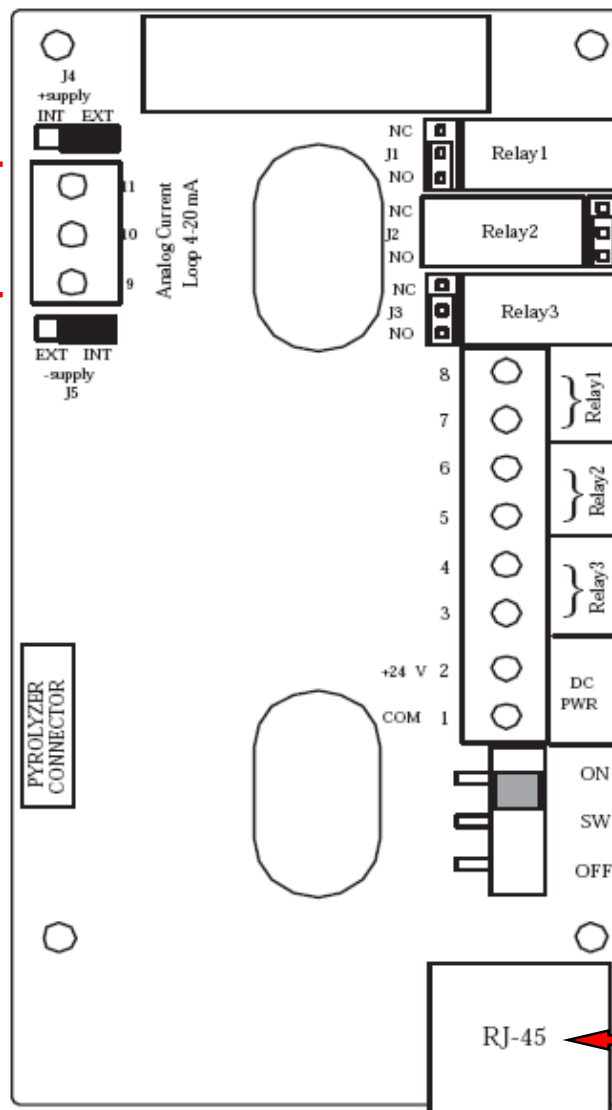
Display	Description	Relay 1	Relay 2	Relay 3
1FLt	Instrument Fault Only	Alarm 1	Alarm 2	Instrument Fault
2Flt	Separate Fault Relays	Any Alarm	Maintenance Fault	Instrument Fault
CmbF	Combined Fault Relay	Alarm 1	Alarm 2	Any Fault
nEtr	Remote control of relays via Modbus/ TCP or LonWorks®	Relays respond to Modbus or LonWorks® holding registers only.		

3 Relays with limited user definition

24 VDC Input

Ethernet connector:
PoE (Power over Ethernet)
Web pages
Modbus TCP
LonWorks (requires Lon module)

Installation

mA Output

Current Source

mA

J4

J5

24 VDC

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mA Output

mA

J4

J5

Current Sink

24 VDC

Installation

mA Output

mA

Current Isolated Output

24 VDC
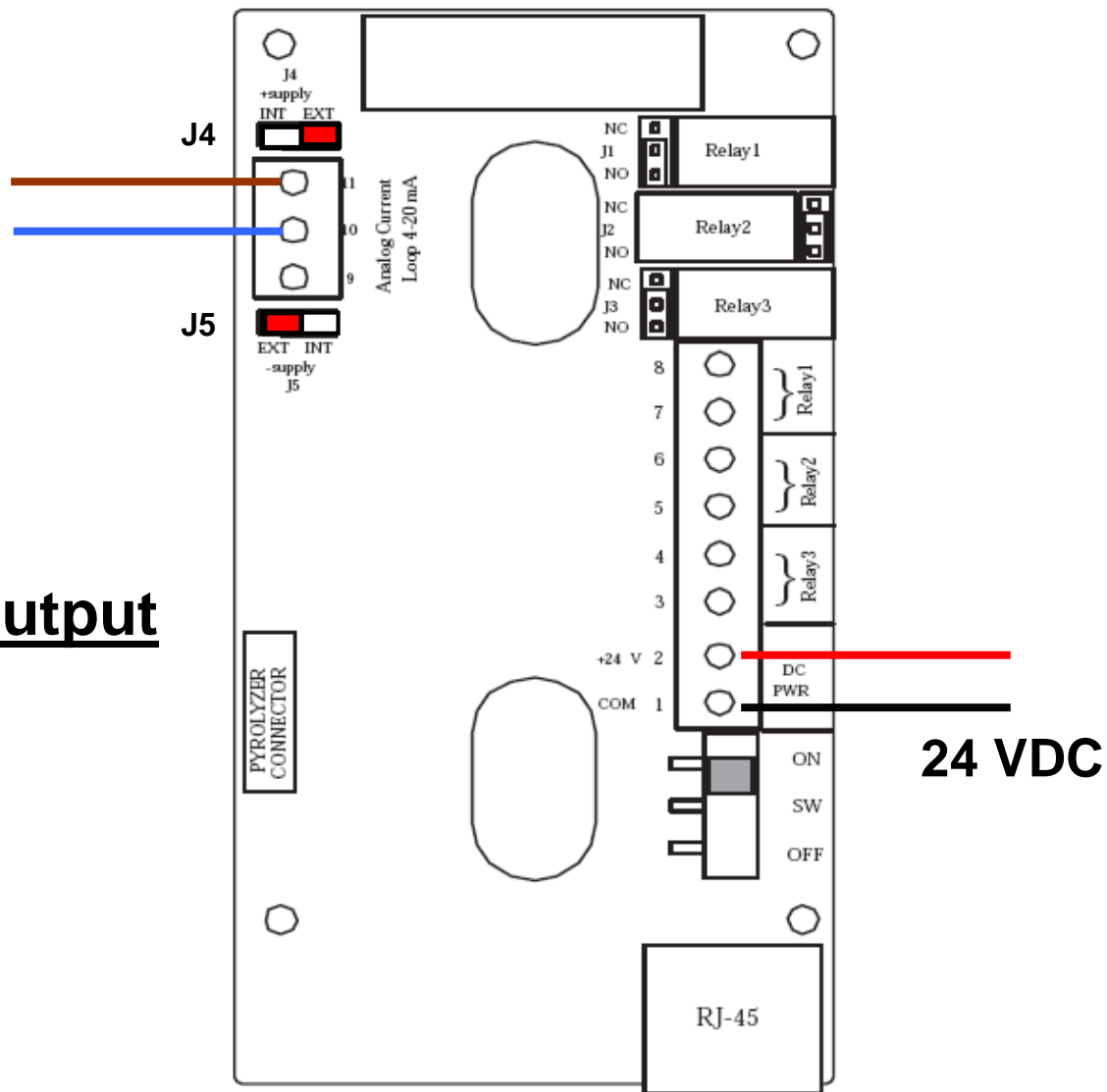
Installation

PoE with mA Output

mA

Current Isolated Output ONLY

HONEYWELL - CONFIDENTIAL   File Number
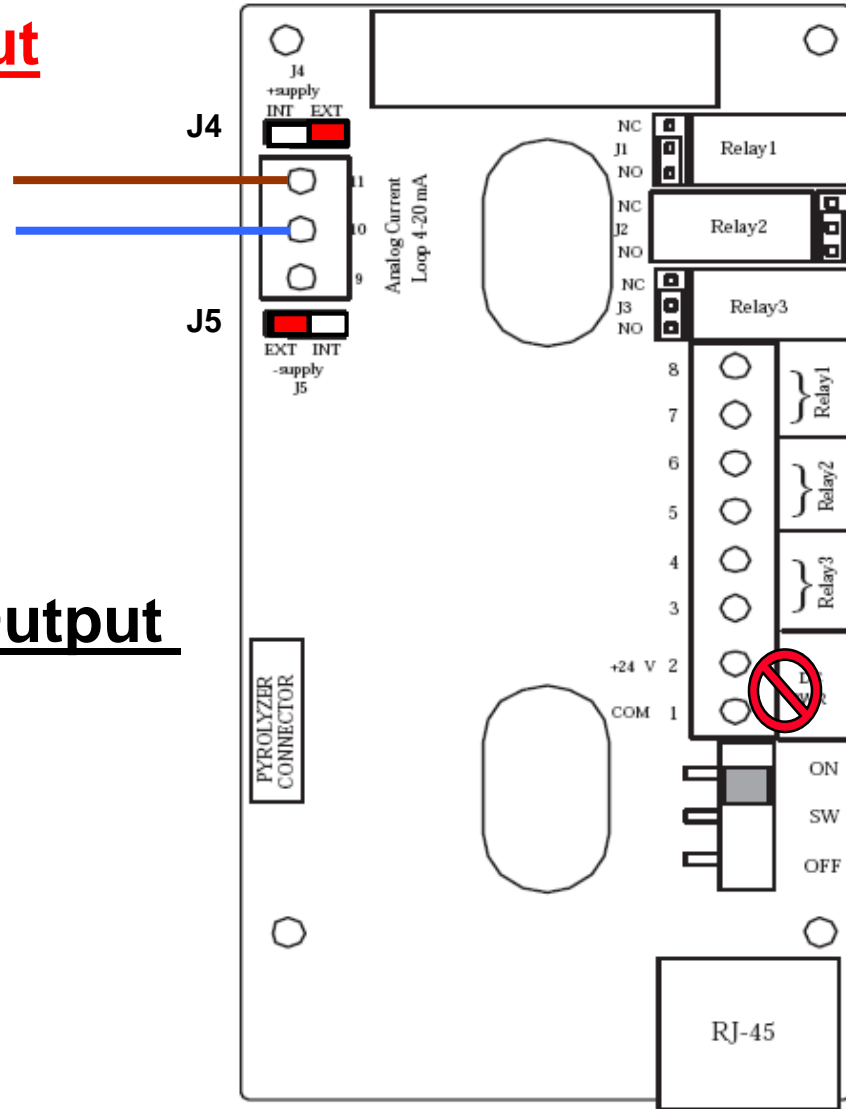
Installation

Relay Outputs

Relays (3) rated
1.0 A @ 30VDC or
0.5 A @ 125 VAC max
(latched or unlatched is software

configured)

J1
Normally Open (NO)

J2
Normally Closed (NC)

J3

VDC or VAC

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Installation
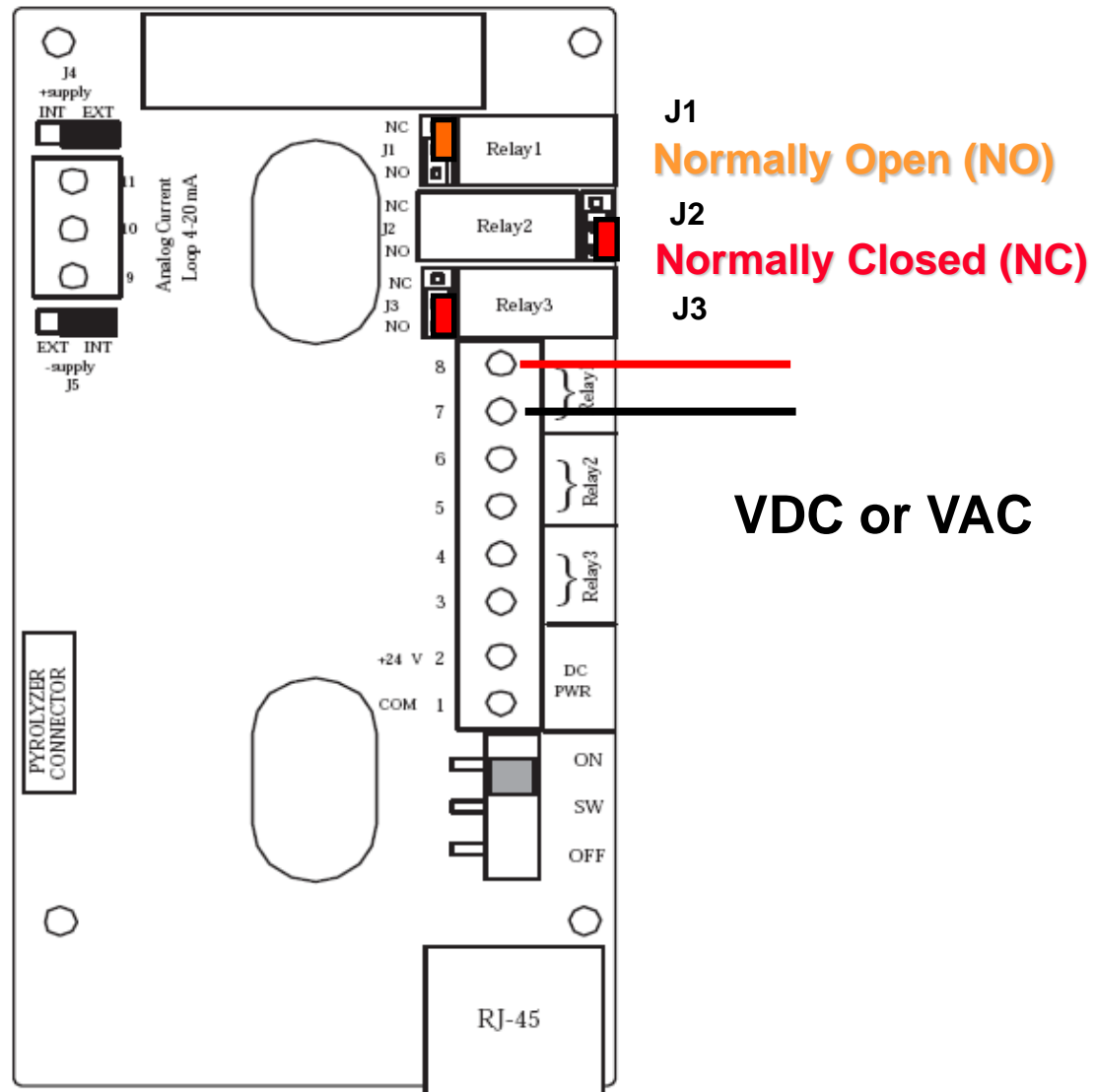
Fitting the optional Pyrolyzer (Standard or High Temp)

Important Note:

Consult label on the side of the Pyrolyzer module (Standard and High Temp) for firmware version level required in the Midas® base unit for proper operation.

P/N: MIDAS – T – 00P
05/08 REV 4 S/N: 00384
For Non – Flammable Gases Only
www.honeywellanalytics.com

This pyrolizer is to be used only with
Midas Extractive units equipped with
version 1.08 or later application software

Cable retaining clip (not shown)

socket

connector

rectangular access at bottom of bracket

mounting screws (x3)

Pyrolyzer module

midas®
Pyrolyzer Module

The use of the Vented Cover (MIDAS-A-039) is highly recommended to ensure proper operation and life of the Midas® Cartridge

Installation
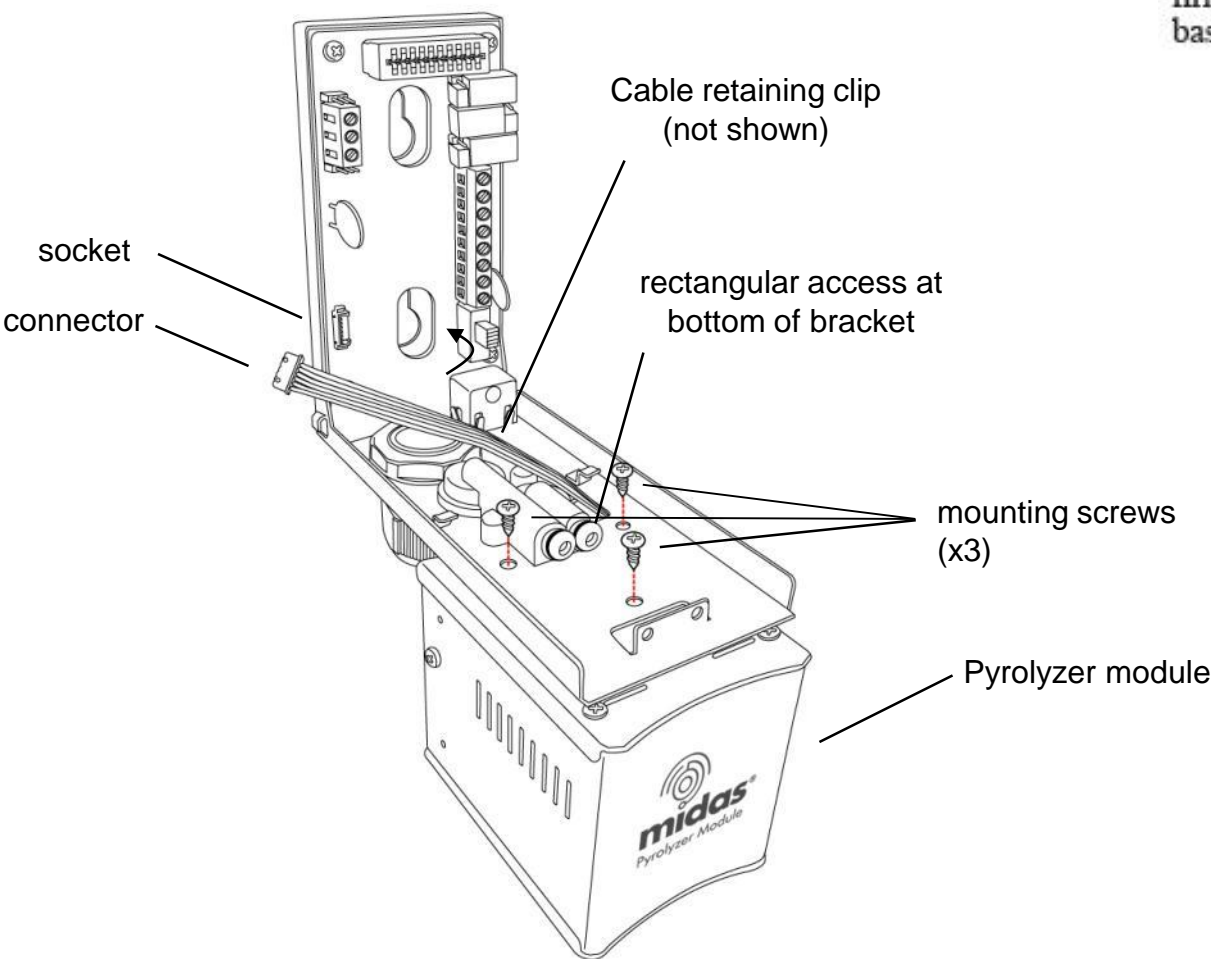
Fitting the Chassis

1. Align the PCB at the top rear of the main chassis with the connector located at the top of the mounting bracket assembly

2. At the same time align the two tubes at the bottom rear of the main chassis with the two tubes located on the bottom of the mounting bracket assembly.

3. Slide the chassis backwards on the mounting bracket assembly so that the PCB and connector and tubes engage simultaneously.

4. Ensure the PCB, connector and tubes are fully engaged by firmly pushing the main chassis horizontally backward on the mounting bracket assembly

WARNING: **DO NOT PUSH ON THE LCD DAMAGE MAY RESULT!**

5. Align the two fixing screws located at the bottom of the chassis with the screw threads on the mounting bracket assembly.

6. Tighten the screws to secure the chassis to the mounting bracket assembly.

CONNECTOR

PCB

CHASSIS SECURING HARDWARE

TUBES
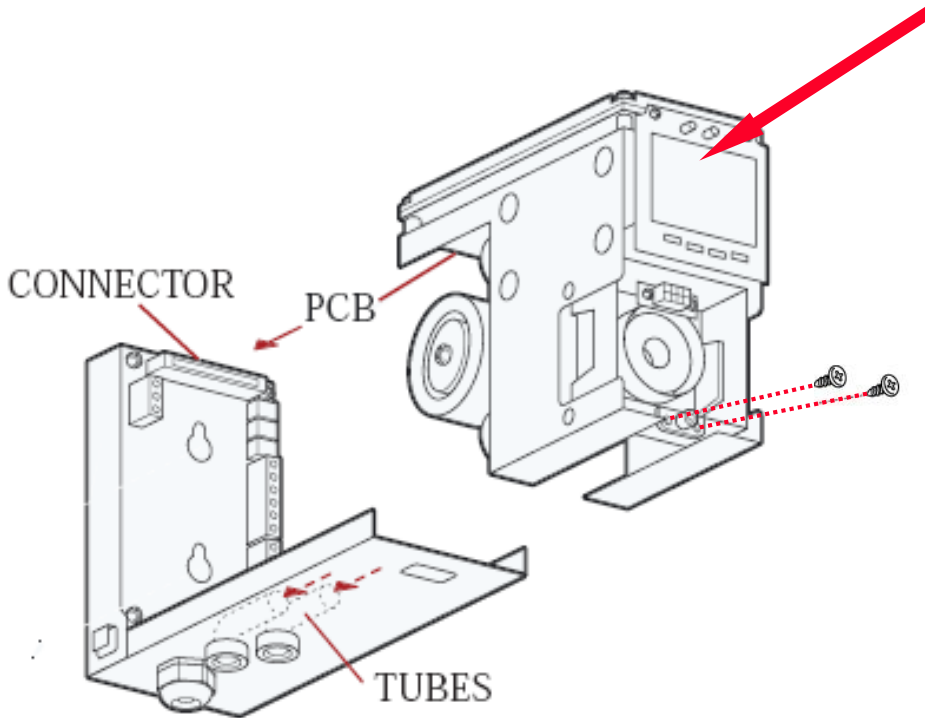
Tubing Details (supplied with every Midas®)

Material

- Sample Lines tubing material to be used is *Teflon FEP* (Fluorinated Ethylene Polymer) tubing to assure proper sample transport.

- Exhaust tubing material *polypropylene*

Length

- Sample Line - All gases have a recommended 'Maximum' sample line length in Meters ranging from 5 Meters to 30 Meters (16 feet to 100 Feet respectively). *Refer to "Appendix B" of the manual for specific gases.*

- Exhaust tubing - 30 Meters (100 Feet)

B Gas Tables

Gas Name	Formula	Range	Default Alarm 1	Default Alarm 2	Sensor Part Number	Maximum Sensor Warm-up Time (minutes)	Sensor Cartridge ID	Gas ID	Flow Rate (cc/min)		Recommended Maximum Sample Line Length (m)	End of line filter
Hydrogen (ppm)	H₂	0-1000 ppm	125 ppm	250 ppm	MIDAS-S-H2X	10	16	1	500		30	780248, 1991-0147 or 1830-0055
Hydrogen Bromide	HBr	0-8 ppm	1 ppm	2 ppm	MIDAS-S-HCL	20	10	4	500		5	1991-0147 or 1830-0055
Hydrogen Chloride	HCl	0-8 ppm	1 ppm	2 ppm	MIDAS-S-HCL	20	10	1	500		5	1991-0147 or 1830-0055

(Calibration and Bump Test data)

Midas Technical Handbook   B-1   Revision 2 (06/06)

Installation

Tubing Installation
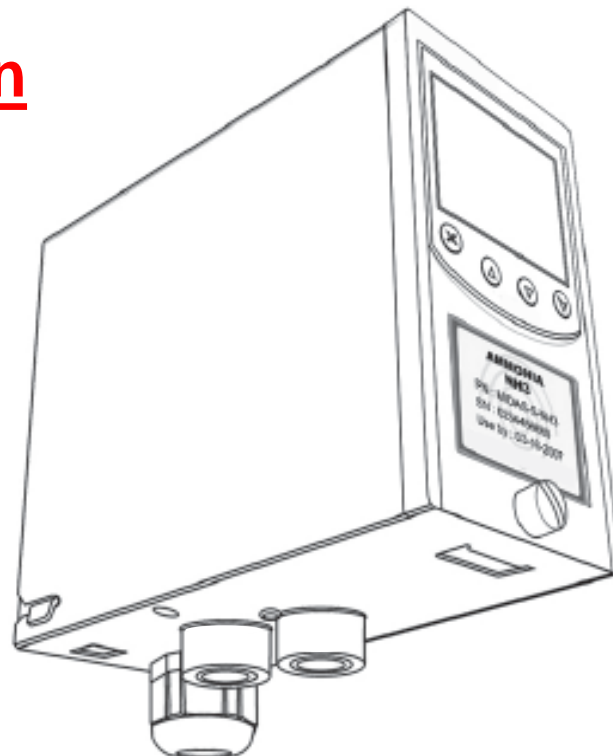
Note:

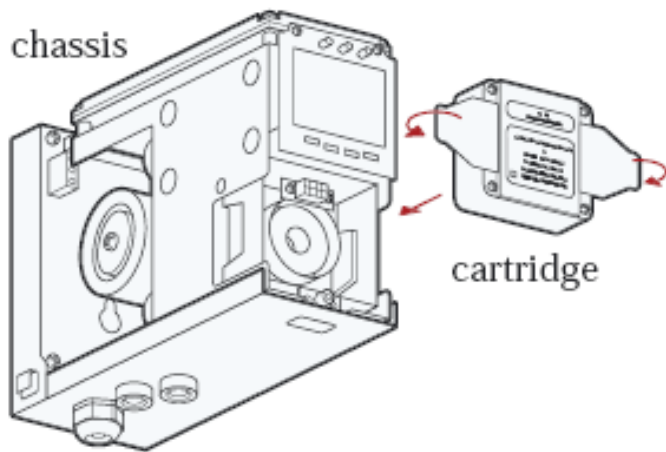If the Midas® is to be used as a local ambient monitor simply attach filter direct to the unit as shown below.
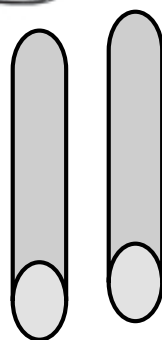
Sample Line – "IN" (Front Port)

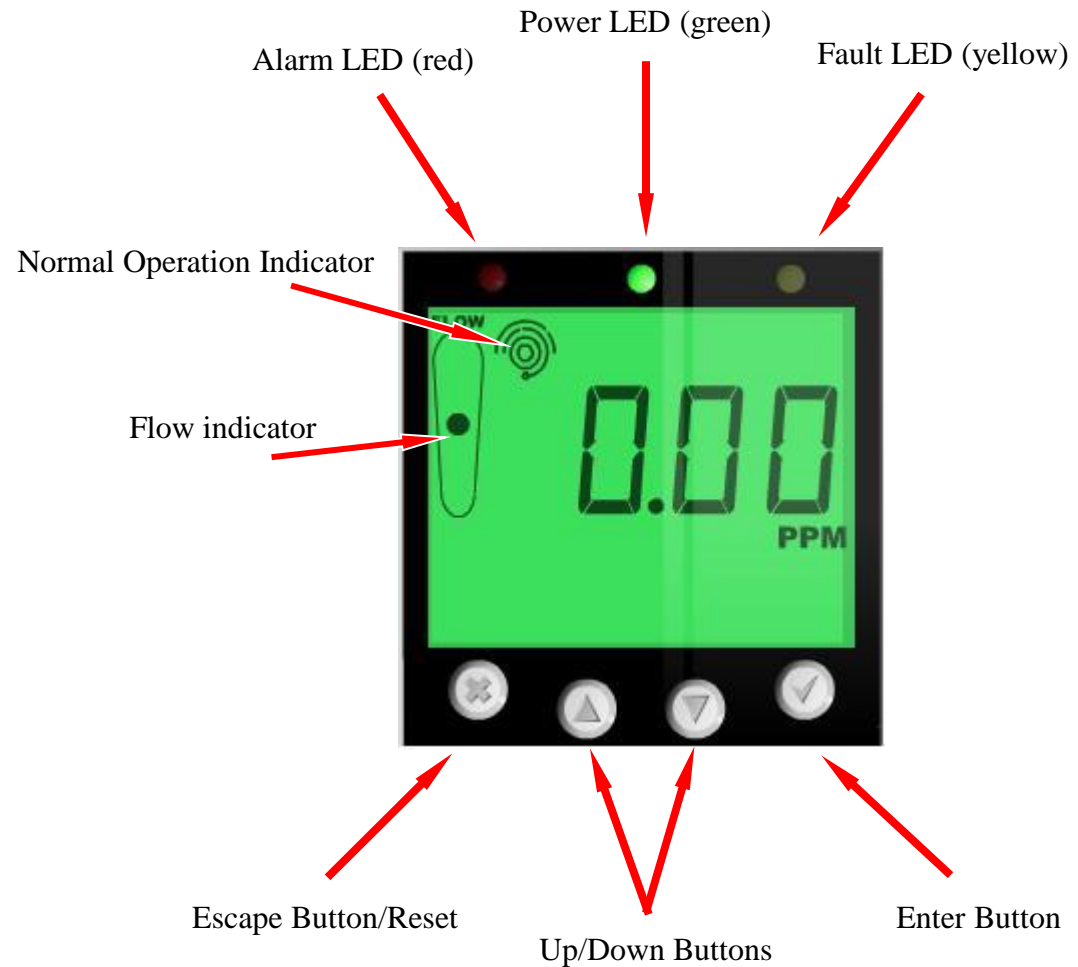**Exhaust Line – "OUT" (Rear Port)**

File Number

Installation

Fitting the Cartridge

Biased Sensor.

1. Verify the part number and type of sensor cartridge is correct for your application, then remove sensor cartridge from its packaging.

2. Remove cap from cartridge and bias battery (if applicable)

3. Add label for secondary gases (if necessary).

4. Align pins at the top of the sensor cartridge with the socket in the sensor cartridge chamber.

5. Carefully push the sensor cartridge into the sensor cartridge chamber until fully seated.

6. Lock the sensor cartridge in place using the tabs on either side of the sensor cartridge to secure the cartridge to the main chassis.

chassis

cartridge

Sensor Cartridge ID Number

Gas ID Number

	C_5F_8
20-2	
	CH_3F
20-3	
	CH_2F_2
20-4	
	SF_6
20-5	

File Number

Operation

Front Panel Indicators

Power LED (green)

Alarm LED (red)

Fault LED (yellow)

Normal Operation Indicator

Flow indicator

Escape Button/Reset

Up/Down Buttons

Enter Button

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File Number

Operation
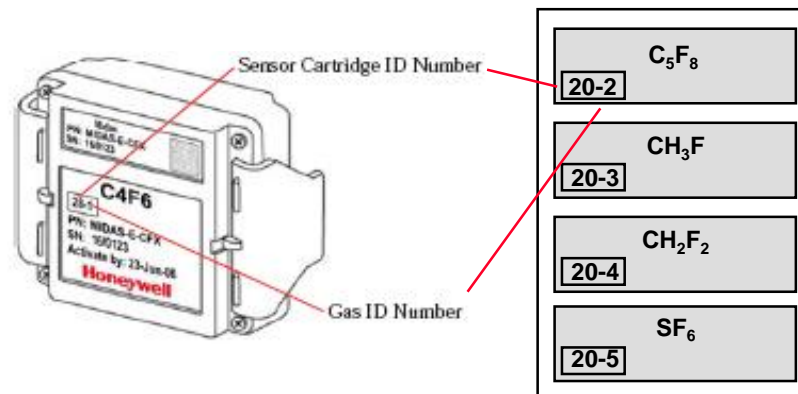
Front Panel Indicators

Unlike the past products, Midas® was developed with an icon based structure versus standard text

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Operation

Front Panel Indicators

= Review menu icon

= Set up menu icon

= Calibration menu icon

= Test menu icon

= Alarm icon

= Fault icon

= Address icon

= Inhibit icon

= Passcode icon

= Zero calibration icon
= Span calibration icon

 = **Review menu**

To enter the review mode; press and release the '▲' up or '▼' down button once. The review mode icon will appear on the display and the first review mode menu is displayed.

Display	Screen 1	Screen 2	Screen 3	Screen 4	Screen 5	Screen 6	Screen 7	Screen 8	Screen 9
Software SW	Transmitter software revision	Checksum	Password key 1	Password key 2					
Alarms ALm	Gas Selection	Alarm 1 direction: U: rising d: falling	Alarm 1 threshold	Alarm 2 direction: U: rising d: falling	Alarm 2 threshold	Alarm delay time	Alarm latching	Alarm relays normally energized/ de-energized	
Faults FLt	Fault relay configuration	Faults latching/ non-latching	Fault relays normally energized/ de-energized	Fault m12 occurrence frequency					
Calibration CAL	Days to calibration due	Days to cartridge expire	Year of last calibration	Month and day of last calibration					
Date/Time tImE	Year	Month - Day	Time						
Address nEt	Use DHCP server for IP parameters	IP address byte 1	IP address byte 2	IP address byte 3	IP address byte 4	Subnet mask byte 1	Subnet mask byte 2	Subnet mask byte 3	Subnet mask byte 4
Event Log hiSt	Date of latest event	Time of latest event	Description of latest event	Date of second latest event	Time of second event	Description of second event	Repeat for events 3-7, 3 Displays per event		

Operation

= **Set up menu**

To select set up, calibration and test mode press *and hold* the '▲' up button or '▼' down button for a second.

Display	Screen 1	Screen 2	Screen 3	Screen 4	Screen 5	Screen 6	Screen 7	Screen 8	Screen 9
Alarms ALm ⬙	Change gas ID for multi-gas sensors	Set alarm 1 direction: U: rising d: falling	Set alarm 1 threshold	Set alarm 2 direction: U: rising d: falling	Set alarm 2 threshold	Set alarm delay time	Set alarm latching	Set alarm relays normally energized/ de-energized	
Faults FLt ⚠	Set fault relay config: (1FLt, 2FLt, CmbF or nEtr)	Set fault latching/non-latching	Set fault relays normally energized/ de-energized	Set fault m12 occurrence freq: 1m12:once Wm12: wkly 0m12: never					
Calibration CAL 🏺	Set calibration interval (MIDAS-S 0-365 days, MIDAS-E 0-730 days 0 = off)								
Date/Time tImE	Set date format: dd:mm or mm:dd	Set year: yyyy (2003-2030)	Set month: mm (01-12)	Set Day: dd (01-31)	Set hour: hh (00-23)	Set minute: mm (00-59)			
Address nEt 🖥	Set Auto or Manual address: AU Y: DHCP AU n: man	Manual IP address byte 1	Manual IP address byte 2	Manual IP address byte 3	Manual IP address byte 4	Manual Subnet mask byte 1	Manual Subnet mask byte 2	Manual Subnet mask byte 3	Manual Subnet mask byte 4
Set Pass Code PWd 🔒	Press ▲ or ▼ to set pass code digit 1	Press ▲ or ▼ to set pass code digit 2	Press ▲ or ▼ to set pass code digit 3	Press ▲ or ▼ to set pass code digit 4	Press ▲ or ▼ to confirm pass code digit 1	Press ▲ or ▼ to confirm pass code digit 2	Press ▲ or ▼ to confirm pass code digit 3	Press ▲ or ▼ to confirm pass code digit 4	

File Number

= **Calibration menu**

To select set up, calibration and test mode <u>press *and hold*</u> **the '▲' up button or '▼' down button for a second.**

Display	Screen 1	Screen 2	Screen 3	Screen 4
Zero 0CAL ⬚	Icon flashes alerting user to prepare to apply zero gas	Unit is zeroing	PASS is displayed if OK, fault code displayed if not.	
Span SPAn ⬚	Set gas ID code of calibration for multi-gas sensors only	Select if humidified: HUm or dry: drY calibration gas	Adjust value to display span gas concentration used	Display steadies and displays span gas reading, dots indicate progress. PASS is displayed if OK, fault code displays if not.
Flow FLoW ⬚	Icon flashes, display shows 0 indicating flow zero will be set.	Unit counts down from 10 to 0 and sets flow zero. Display shows 1st set point target flow rate. Use ▲ or ▼ to make reading on external flow meter +/- 50cc/min of set point 1	Use ▲ or ▼ to change the flashing display to the actual reading from the external flow meter	Unit counts down from 10 to 0 and sets 1st set point. Icon flashes and displays 2nd set point target. Repeat process to set.
4-20 mA 4-20 mA	4 mA is displayed indicating analog output should be 4 mA	Adjust until analog output is 4 mA Verify output with meter	20 mA is displayed indicating analog output should be 20 mA	Adjust until analog output is 20 mA Verify output with meter

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File Number

 = Test menu

To select set up, calibration and test mode press _and hold_ the '▲' up button or '▼' down button for a second.

Display	Screen 1	Screen 2	Screen 3	Screen 4
Bump bUmP 🔋	Apply bump test gas and display shows measured gas concentration with all alarm outputs inhibited	Press 'X' to exit to test menu		
Alarm/fault SIm ◈⚠	Display shows 'Sim' and the A1 '▲' symbol. 4 states: ▲: alm 1 ▴: alm 2 ⚠ flashing: inst flt ⚠: maint flt	Display shows 'SuRE'.	Display flashes 'SIm' and simulates the selected A1, A2 or Fault display and output.	Press 'X' to exit and select another simulation or 'X' again to return to test submenu
Inhibit Inh ⊛	Press ▲ or ▼ to select ALm, ALm-Ft, ALL or nonE inhibit state	Set inhibit timeout period	UPdt is displayed and unit enters selected inhibit state. Display returns to submenu	
4-20 mA 4-20 mA	Display shows 'S XX' where XX is the mA value Press ▲ or ▼ for the desired mA output			

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Operation

<u>Web Page</u>
<u>Setup</u>

In many cases IT professionals will be required who have full administrative rights to the network to which the Midas® is to be connected.

Networking security measures, such as Firewalls and Proxy Servers, need to be considered when negotiated for communications to take place to the Midas® Web Pages.

Standard and Cross-over cable communications (no security protective measures) can be accomplished by conduction the following:

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Operation

Web Page Setup for use with Cross-over cable communications

(Pin-out *MUST* be as shown)

Cabling - Direct connect
(PC to Midas® Ethernet port)

    Belkin A3X126 Ethernet Cross-over cable or equivalent

Operation
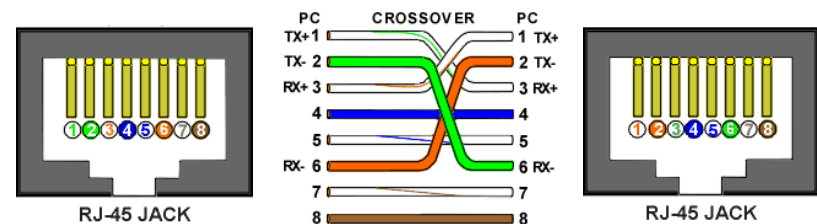
Web Page Setup for use with Cross-over cable communications

Under Network Connections in Windows® locate your Local Area Connection that is assigned to your Ethernet port
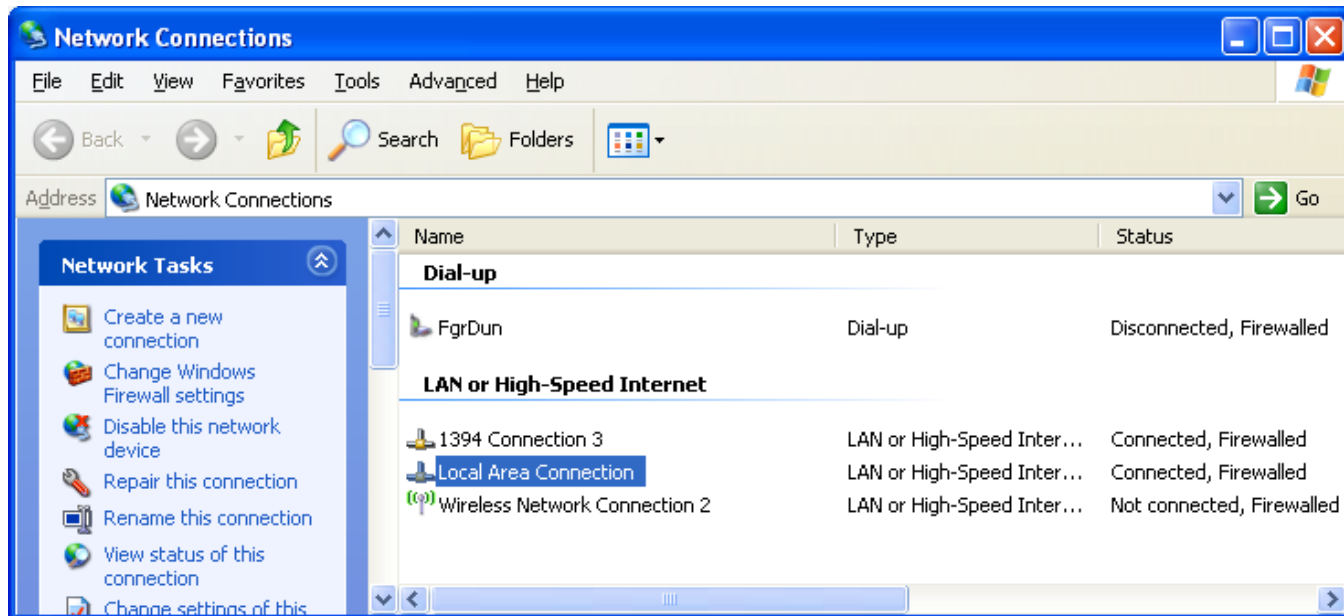
Right click and select Properties

File Number

Operation

Web Page Setup for use with Cross-over cable communications

Scroll down to Internet Protocol (TCP/IP) highlight and click Properties

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Operation
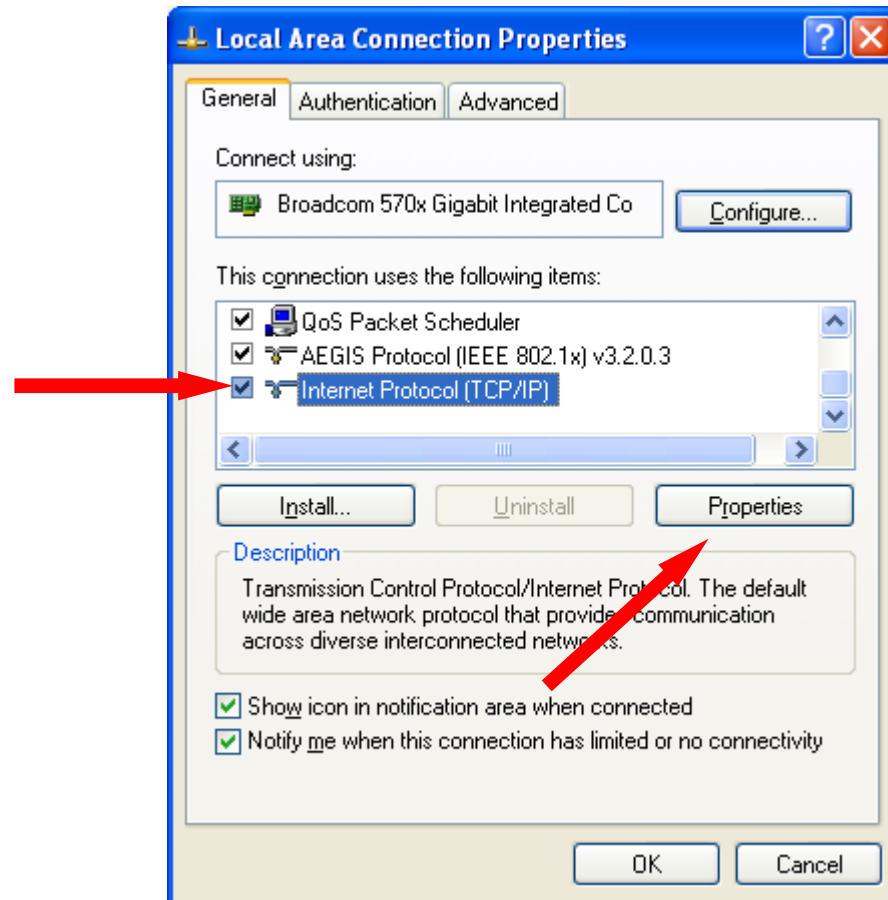
Web Page Setup for use with Cross-over cable communications

Set IP settings to Static IP address "Use the following IP address"

Enter Static IP address and Subnet mask to be used and click "OK"

Hint: **The IP Address and Subnet entered should match the information from the Midas®,** *except* **for the last 3 digits on the IP Address must be different from your PC**

Internet Protocol (TCP/IP) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically
◉ Use the following IP address:

IP address: 169 . 254 . 60 . 21
Subnet mask: 255 . 255 . 255 . 0
Default gateway:

○ Obtain DNS server address automatically
◉ Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:

Advanced...

OK   Cancel

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Operation

Web Page Setup

Open Windows® Internet Explorer and at the Address enter the Midas® IP address (Example: http://160.254.60.47)

File Number

Operation
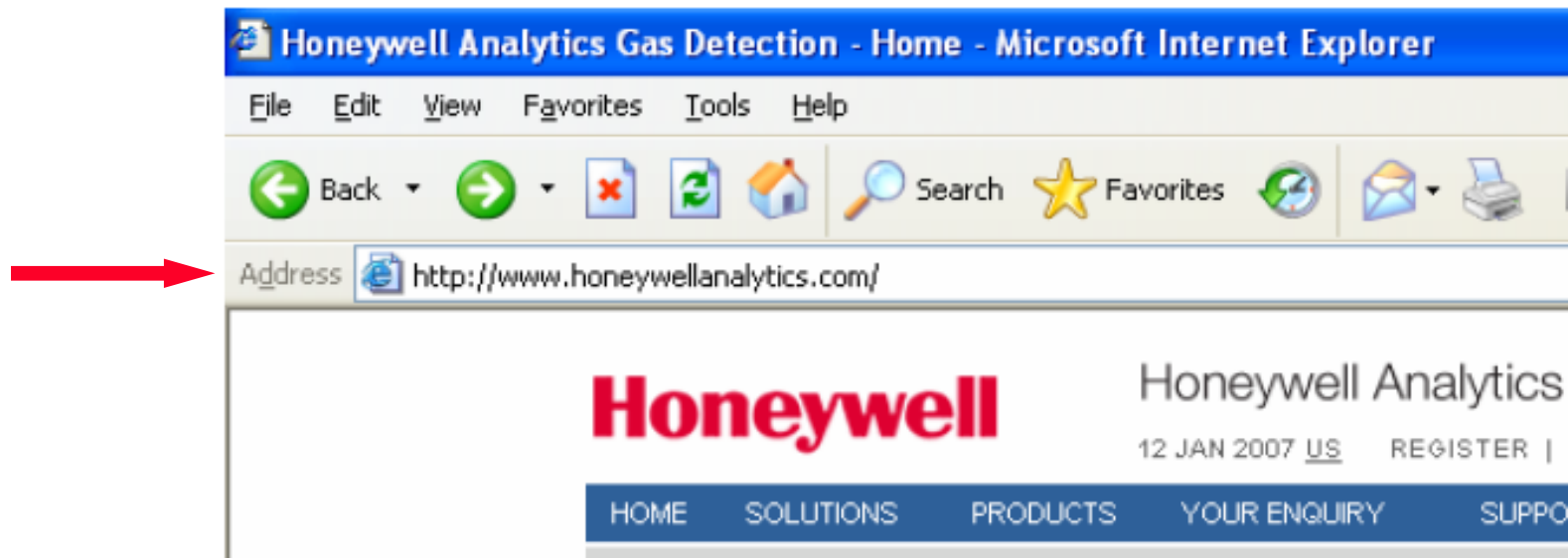
Web Page Status

Along the left-hand side of the page are the links to the individual web pages for the Midas®

On the right-hand side of the page are the detailed information that can be viewed or edited.

Operation

Front Panel Indicators

Disable = 0000

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Configuration – Security Setup Password Recovery (24 - 48 hour)

• If the password is lost, then the user/operator will need to contact their local HA service agent.

• The local HA agent is to obtain the 8 digit "Password key" values 1 and 2 via the Review Menu on the front of the unit.

• The local agent will then contact their HA authorized service center to decode the 8 digit code back to the password that the unit is setup with.

Display	Screen 1	Screen 2	Screen 3	Screen 4
Software SW	Transmitter software revision	Checksum	Password key 1	Password key 2

1. Press the '▲' up arrow – "SW" will appear on the display.

2. Press the '✓' check mark – "r1.xx" will appear on the display. This is the Midas® operational software revision.

3. Press the '✓' check mark – Four digits (alpha-numeric) will appear on the display ("XXXX"). This is the Midas® operational software revision Checksum value.

4. Press the '✓' check mark – Four digits numeric will appear on the display ("XXXX"). This is the Midas® Password key 1 value.

5. Press the '✓' check mark – Four digits numeric will appear on the display ("XXXX"). This is the Midas® Password key 1 value.

Operation

Web Pages

Pyro failure indications

Fault codes (Display and Status page):

F87 = Pyrolyzer temp limits exceeded

F88 = Pyrolyzer heater fail

F89 = Pyrolyzer power unregulated

F90 = Pyrolyzer heater mismatch

F91 = HTP module required

Status page Pyrolyzer indicator:

"FAIL" = communications failure between Pyrolyzer Module and Midas®

"~ 0.025W" = heater open

"-----" = Pyrolyzer not activated (gas type selected incorrect)

Maintenance

| Recommended Maintenance Schedule	
Component	**Frequency**
Pump	2 years
Pyrolyzer (Std and Hi-Temp)	1 year
Internal Filter	2 years/as needed
External Sample Line Filter	780248 3-6 months 1991-0147 3-6 months 1830-0055 3-6 months 1830-0027 1 month
Leak Check	Leak Check every 6 months or after pump, pyrolyzer or internal filter replacement.
Bump Test	6 months
Flow Calibration	Flow Calibrate after pump, pyrolyzer or internal filter replacement.

Maintenance

Flow Network

The pump is regulated to maintain a flow of 500cc to which is measured by Pressure Sensor (transducer) to allow for the unit to automatically compensate for tubing restrictions.

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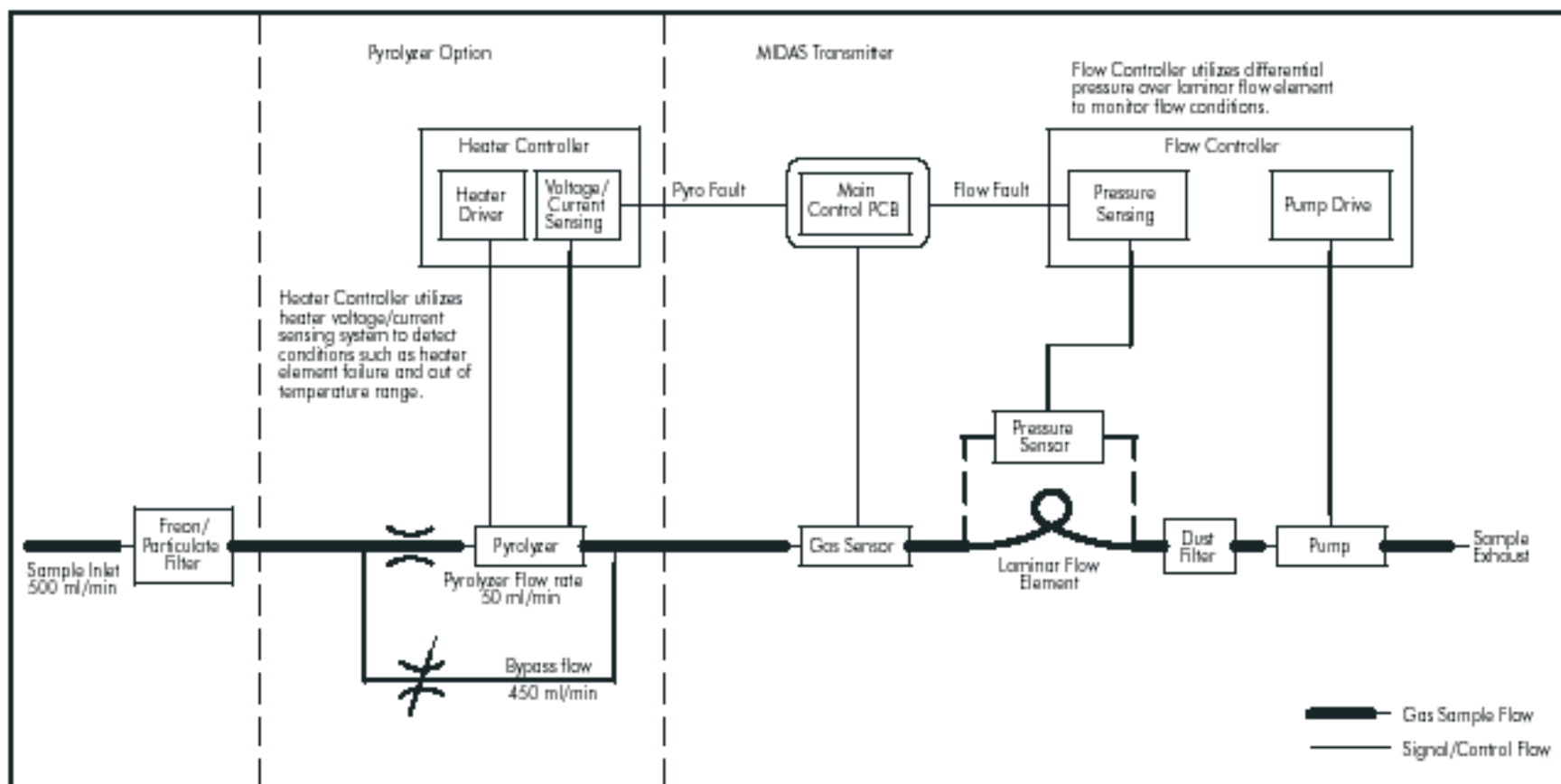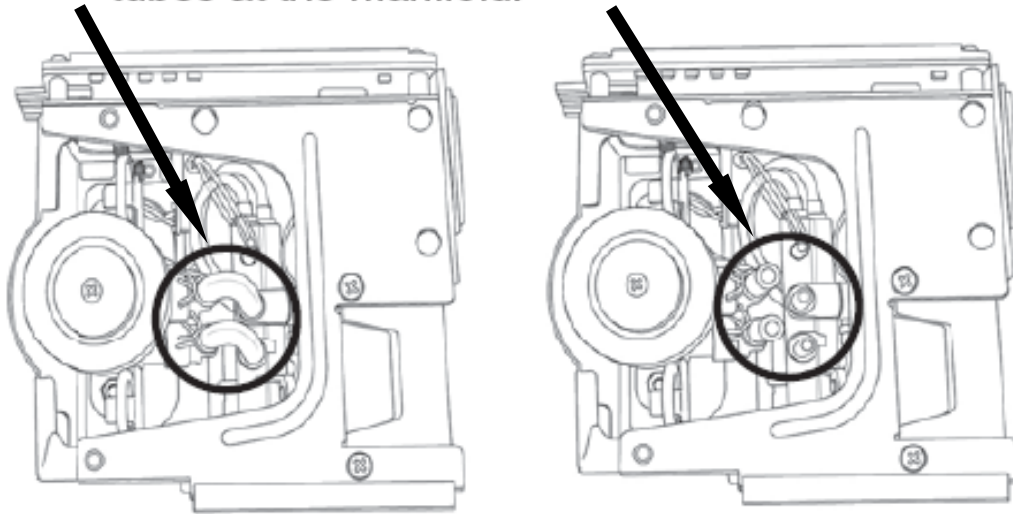
• Pump replacement

1. Isolate the power to the detector.
2. Unscrew the thumbscrew located on the front panel.
3. Remove the cover by pulling it forward off the main chassis.
4. Unscrew the two retaining screws located at the bottom front of the chassis.
5. Pull the main chassis forward to disconnect it from the mounting bracket assembly.
6. Remove the 4 pump module screws.

Maintenance
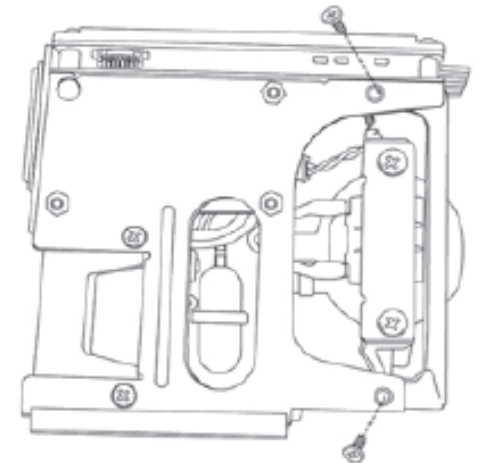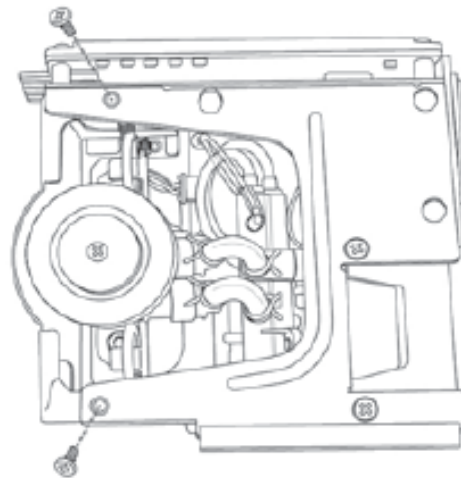
• Pump replacement

7. Remove the two fixing clips and disconnect the tubes at the manifold.

8. Slide the pump module out and disconnect the connector from the pcb.

File Number

Maintenance
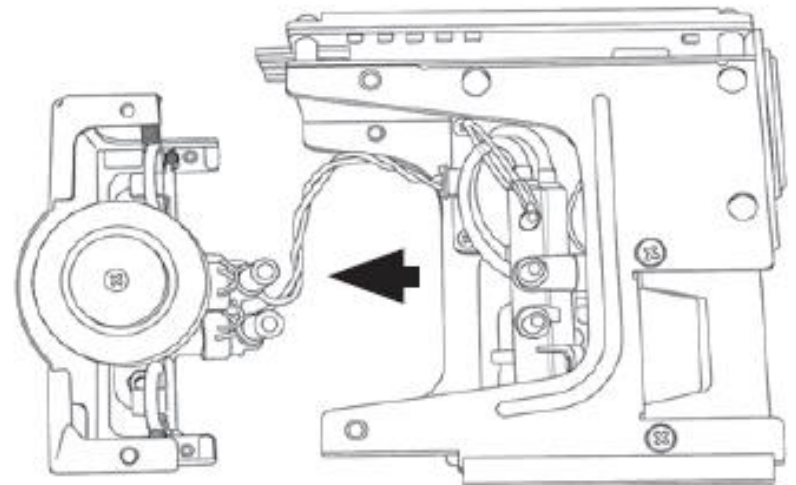
• Pump replacement

9. Fit the new pump module following the steps above in reverse order. Orient the metal retaining clamps away from the pump wiring to prevent damage. Route pump wiring away from the chassis and manifold to prevent damage.

Pump module
(MIDAS-A-007)
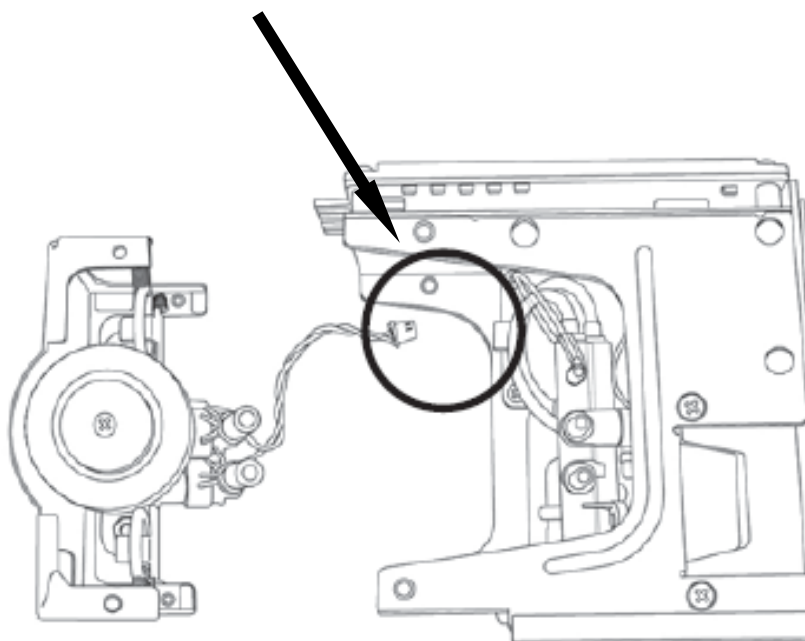
• Filter

1. Isolate the power to the detector.
2. Unscrew the thumbscrew located on the front panel.
3. Remove the cover by pulling it forward off the main chassis.
4. Unscrew the two retaining screws located at the bottom front of the chassis.
5. Pull the main chassis forward to disconnect it from the mounting bracket assembly.
6. Locate the filter access slot in the side of the main chassis.

Main chassis

Filter access slot

Filter
(MIDAS-A-009)

File Number

Maintenance
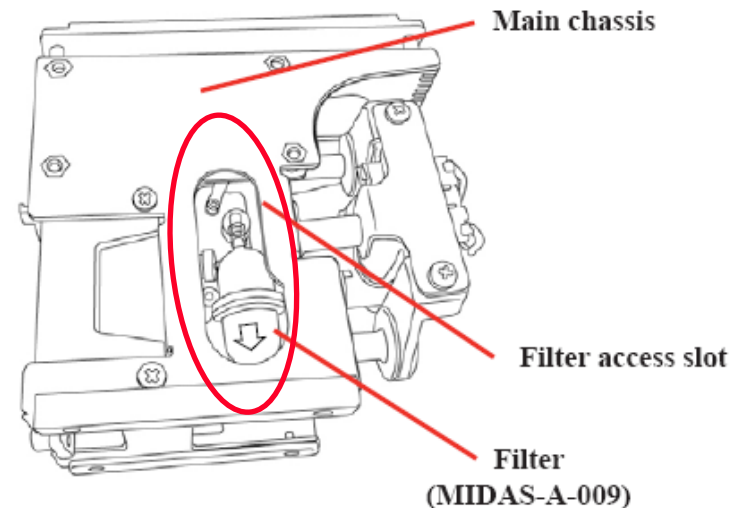
• Filter

7. Carefully disconnect both sides of the filter from the pump manifold.

8. Remove the old filter and replace with a new filter ensuring that the filter connectors are fully engaged in the manifold ports and that the filter is the correct orientation (arrow pointing downwards). Orient the metal retaining clamps away from the pump wiring to prevent damage.

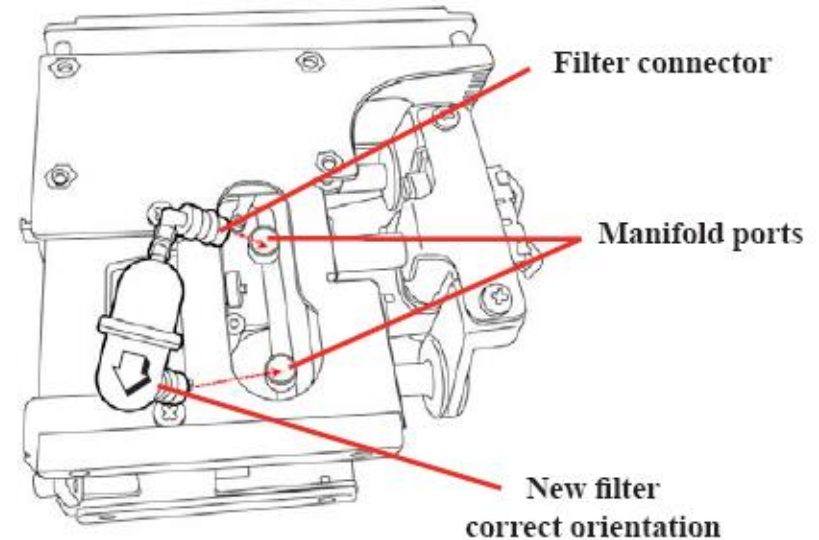9. Route pump wiring away from the chassis and manifold to prevent damage.

Filter connector

Manifold ports

New filter correct orientation

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Maintenance

Flow Calibration

'FLoW'

The flow calibration is to define 3 points for the built in transducer to allow for automatic flow compensations:

1. **Baseline (zero flow)**
2. **Setpoint 1 (500cc)**
3. **Setpoint 2 (650cc)**

Midas Flow

Actual Flow (cc) vs Midas Measured Flow (cc)
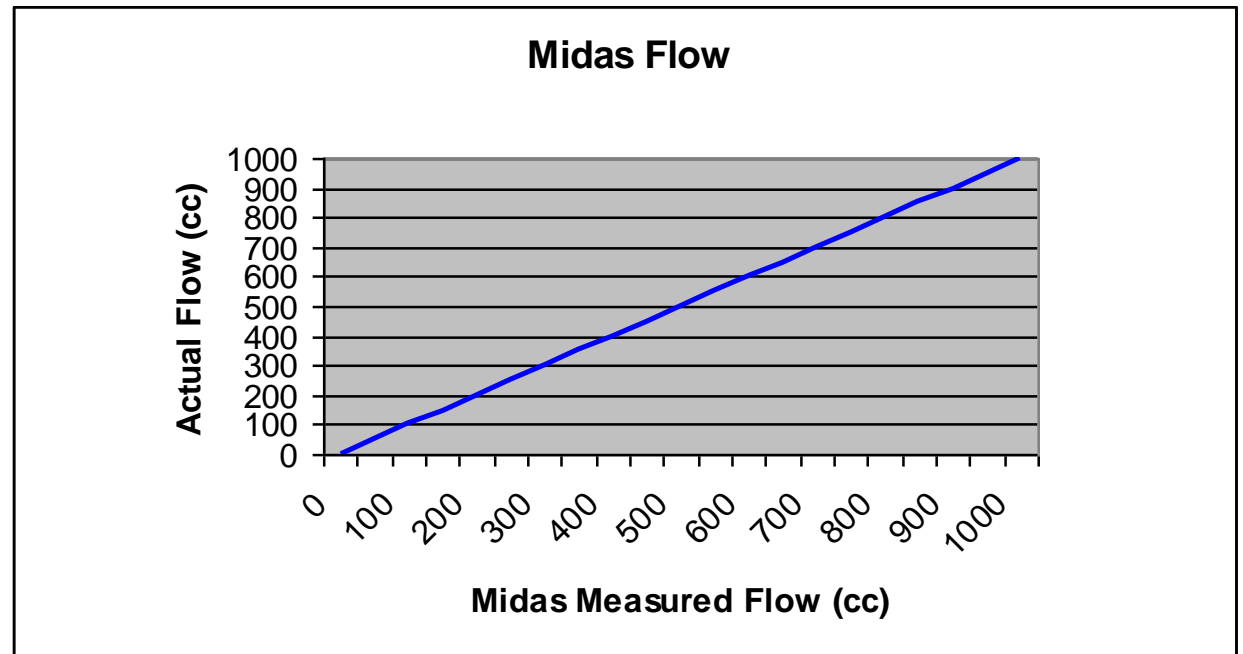
Flow Calibration

'↑FLoW'

Pre-stage:
Connect the Mass flow meter to the
Inlet port of the Midas®

1LPM (1000cc) Mass flow meter

Sample Line – "IN"
(Front Port)

Maintenance
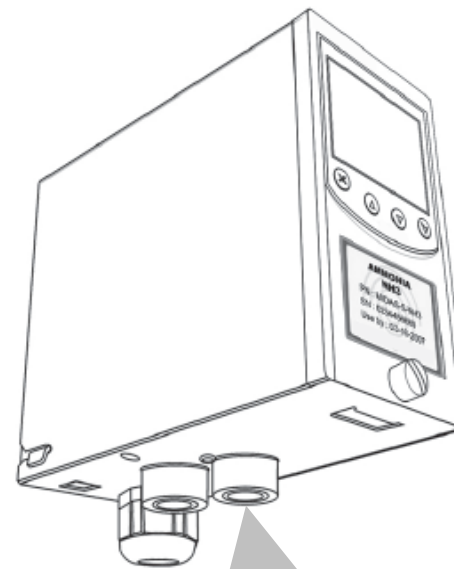
Flow Calibration

'↑FLoW'

Baseline

1. Use the '▲' up or '▼' down buttons to select the flow calibration '↑FLoW' submenu and press '✓' to accept.

2. The flow icon with the dot at the bottom starts flashing in order to tell the user that the unit is ready to read the zero flow offset.

3. The inhibit '●' icon is also displayed indicating that no alarm outputs will be generated during this process.

4. Press '✓' to confirm and the icon goes steady and a count down from 10 is shown as the zero flow offset is read.

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Maintenance

Flow Calibration

'⬆FLoW'

setpoint 1

5. The display will show the flashing flow icon with the dot approximately 1/2 way up the icon to tell the user to set the set point 1 flow (500 cc/min).

6. Press '▲' up or '▼' down keys to adjust the reading on the external flow meter to the setpoint 1 target value. (NOTE: The reading must be +/- 50 cc/min of target to be accepted).

7. Press '✓' to confirm and the target value flashes.

8. Press '▲' up or '▼' down to enter the actual value read on the external flow meter. (NOTE: Holding down the button will increase the increment speed).

9. Press '✓' to confirm and the icon goes steady and a count down from 10 is shown as the setpoint 1 value is read.

Maintenance

Honeywell

Flow Calibration

'↑FLoW'

setpoint 2

10. The display will show the flashing flow icon with the dot 3/4 ways up to tell the user to set the set point 2 flow (650 cc/min).

11. Press '▲' up or '▼' down keys to adjust the reading on the external flow meter to the set point 2 target value. (NOTE: The reading must be +/- 50 cc/min of target to be accepted).

12. Press '✓' to confirm and the target value flashes.

13. Press '▲' up or '▼' down to enter the actual value read on the external flow meter. (NOTE: Holding down the button will increase the increment speed).

14. Press '✓' to confirm and the icon goes steady and count down from 10 is shown as the setpoint 2 value is read.

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Maintenance

Flow Calibration

'↑FLoW'

Save/Update

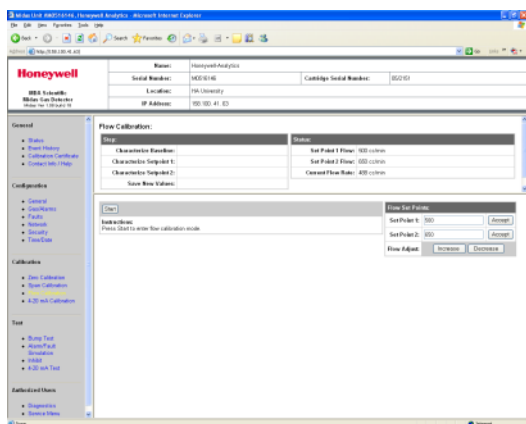15. If successful the display shows UPdt (update) or SAvE (save) and the flow calibration is complete.

16. Press '▲' up or '▼' down to select another submenu.

17. Press 'X' to return to set-up, calibration and test menu selection.

Flow Calibration Web Page

On-screen instructions supplied

Connect flow meter to Sample line
- Click "Start"
- Click "Next" for baseline
- Click "Next" for Setpoint #1
- Click "Increase" or "Decrease" to match (+/- 10%) of Setpoint value
- Click "Next" for Setpoint #2
- Click "Increase" or "Decrease" to match (+/- 10%) of Setpoint value
- Click "Finished"

Maintenance

Zero Calibration
'⇡0CAL'

1. Use the '▲' up or '▼' down buttons to select the zero calibration ' ⇡0CAL' submenu and press '✓' to accept.

2. The zero calibration icon starts flashing in order to tell the user to prepare to apply zero gas.

3. The inhibit '🔔' icon is also displayed indicating that no alarm outputs will be generated during this process.

4. Press '✓' to confirm when ready and the icon goes steady.

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File Number

Maintenance

Zero Calibration
'⬆0CAL'

⚠️ **NEVER force a sample into the Midas® damage to the unit may result**

Hardware Setup

i. Connect 1LPM regulator to the Zero Air grade gas cylinder.

ii. Connect a 'Tee' to the regulator.

iii. Connect the open end of the 'Tee' to the Midas® inlet port.

iv. Be sure the Midas® is in the "Zero Calibration" mode.

Tee

1 LPM Regulator

Zero Air

File Number

Maintenance
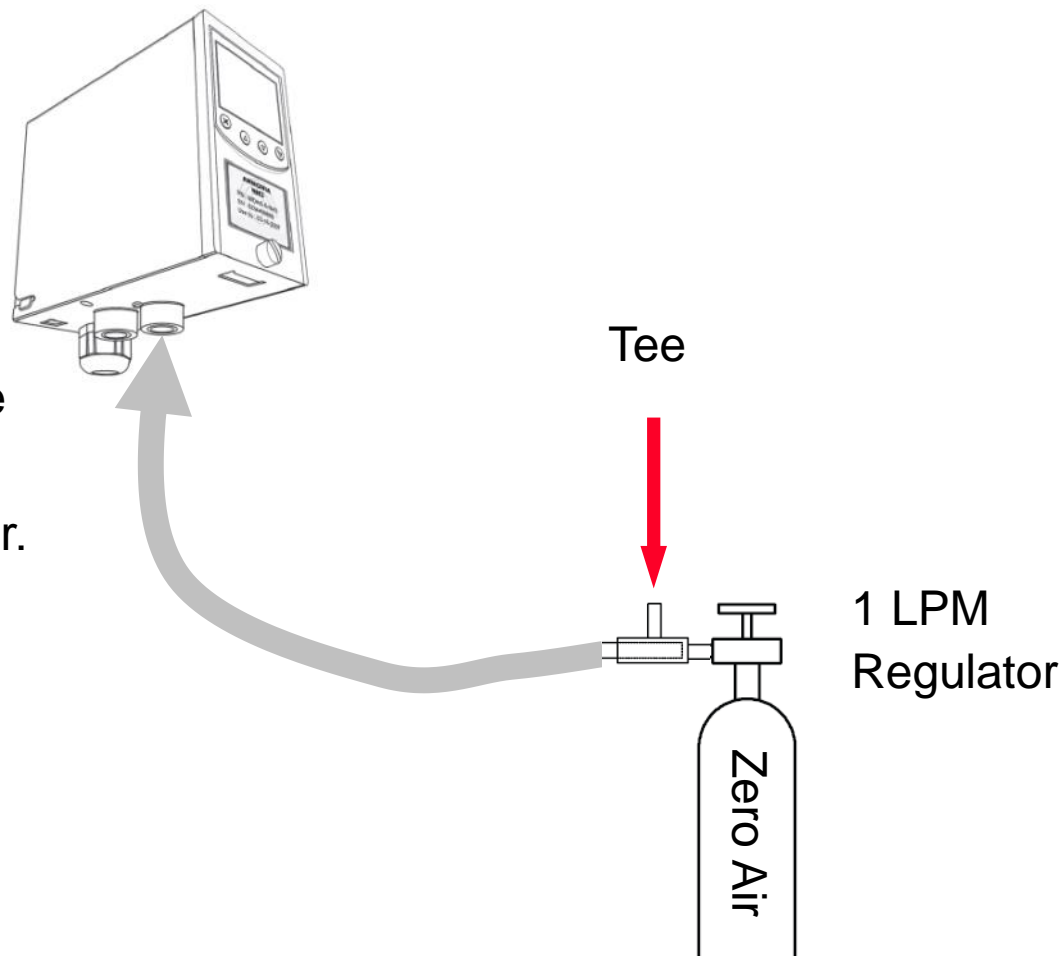
Zero Calibration
'⌐0CAL'

5. Apply the zero gas (or ambient air).

6. The dots on the left of the display indicate progress to a successful zero.

7. The display will show the zero gas reading and if measured to be stable for an appropriate period of time will display 'PASS'.

8. If the zero calibration is unsuccessful then the display will show an error code (see table below).

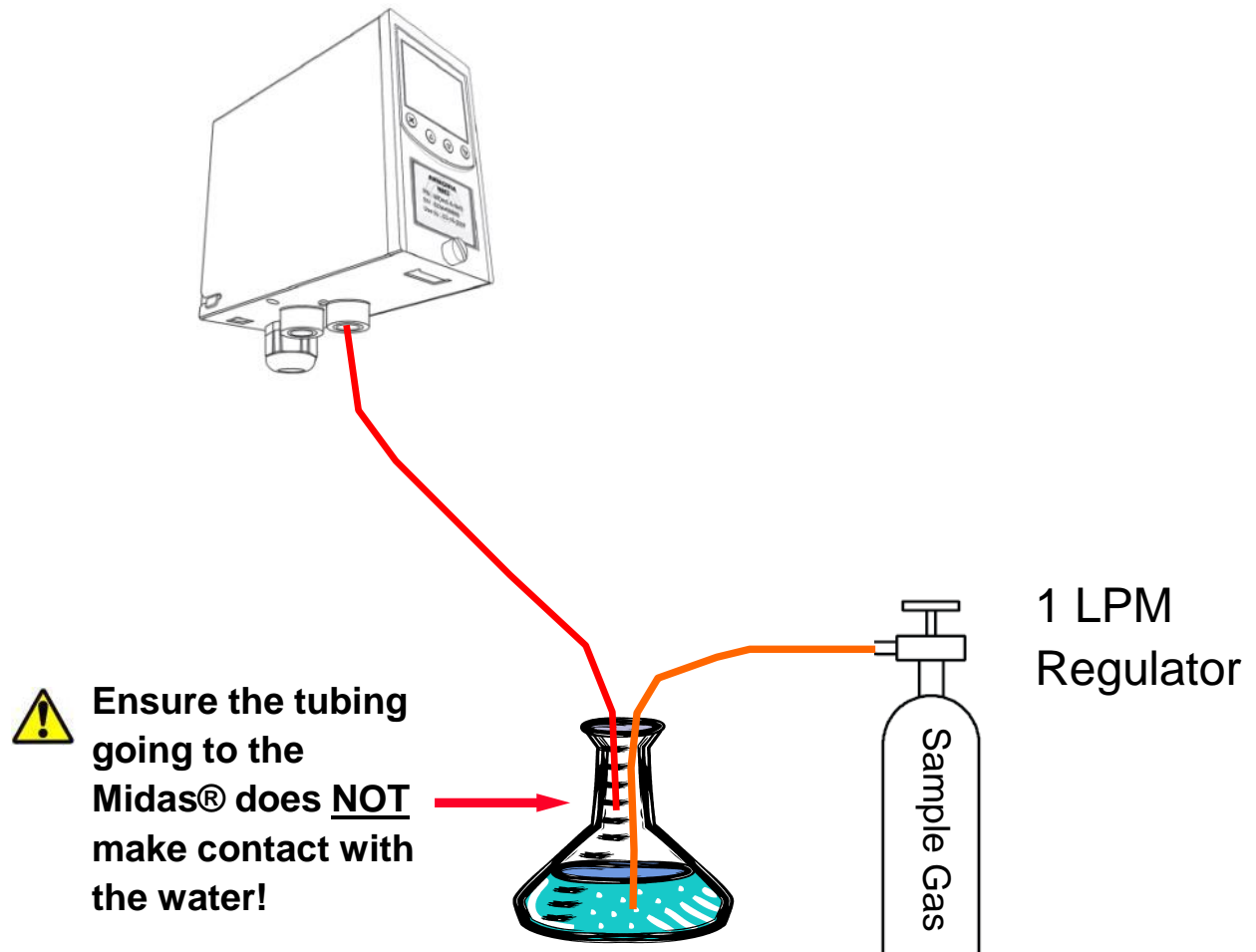| Code	Code meaning
PASS	Successful Calibration
FL:0H	Zero Calibration Timeout - Over Range
FL:0L	Zero Calibration Timeout - Under Range
FL:0U	Zero Calibration Timeout - Unstable
FL:SH	Span Calibration Timeout - Over Range
FL:SL	Span Calibration Timeout - Under Range
FL:SU	Span Calibration Timeout - Unstable

9. Press '✓' to exit.

Calibration stability icons

Icon	Meaning
■	Stable
▲	Over-Range
▲/■	Unstable-Rising
▲/■/▼	Unstable-Flat
■/▼	Unstable-Falling
▼	Under-Range

File Number

Honeywell

Bump Testing/Calibration Setup

Setup Suggestion #1:

⚠️ **Ensure the tubing going to the Midas® does NOT make contact with the water!**

1 LPM Regulator
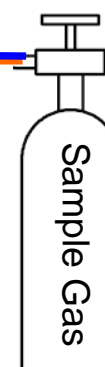
Sample Gas

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File Number

Bump Testing/Calibration Setup

Setup Suggestion #2:

1. Fill ½ the gas bag with humidified sample gas.

2. Remove the bubbler and fill remainder of the gas bag with dry sample gas.

1 LPM
Regulator

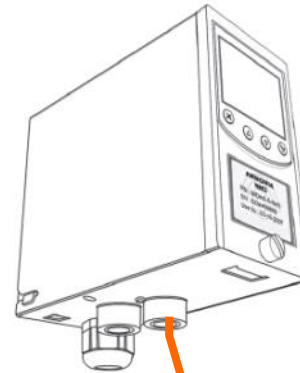Sample Gas

Maintenance

Bump Testing/Calibration Setup

Setup Suggestion #2 (cont.):

3. Enter "Bump Test" or "Calibration" menu of Midas®.

4. Attach Midas® inlet port to gas bag.

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Conclusion

- **Midas® Cartridges are factory calibrated**
  - Bump testing is recommended every 6 months versus Span calibration – confidence check only
- **Zero calibrate the Midas® Cartridge after 30 minutes of installation when possible (recommended)**
- **Anytime the flow network has been worked on (i.e. pump change, etc) the Midas® should be flow calibrated**
- **Always consult proper documentations for assistance in installation, setup, maintenance and troubleshooting**
- **Do not hesitate to ask any question regardless on how simple you may feel it is (reminder: the only unintelligent question is the one that is not asked!)**
- **HA Technical Support = 800-323-2000 and dial extension 8260**

File Number