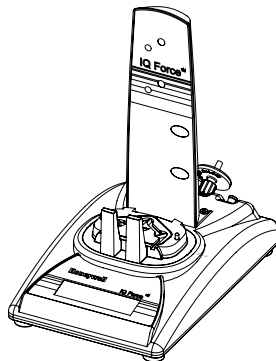


# **IQ Force™ Dock**



*Reference Manual*

**Honeywell**



---

## Limited Warranty and Limitation Liability

Honeywell Analytics (HA) warrants the product to be free from defects in material and workmanship under normal use and service for a period of two years, beginning on the date of shipment to the buyer. This warranty extends only to the sale of new and unused products to the original buyer. HA's warranty obligation is limited, at HA's option, to refund of the purchase price, repair or replacement of a defective product that is returned to an HA authorized service center within the warranty period. In no event shall HA's liability hereunder exceed the purchase price actually paid by the buyer for the Product.

This warranty does not include:

- a. fuses, disposable batteries or the routine replacement of parts due to the normal wear and tear of the product arising from use;
- b. any product which in HA's opinion, has been misused, altered, neglected or damaged, by accident or abnormal conditions of operation, handling or use;
- c. any damage or defects attributable to repair of the product by any person other than an authorized dealer, or the installation of unapproved parts on the product; or

The obligations set forth in this warranty are conditional on:

- a. proper storage, installation, calibration, use, maintenance and compliance with the product manual instructions and any other applicable recommendations of HA;
- b. the buyer promptly notifying HA of any defect and, if required, promptly making the product available for correction. No goods shall be returned to HA until receipt by the buyer of shipping instructions from HA; and
- c. the right of HA to require that the buyer provide proof of purchase such as the original invoice, bill of sale or packing slip to establish that the product is within the warranty period.

THE BUYER AGREES THAT THIS WARRANTY IS THE BUYER'S SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. HA SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, WHETHER ARISING FROM BREACH OF WARRANTY OR BASED ON CONTRACT, TORT OR RELIANCE OR ANY OTHER THEORY.

Since some countries or states do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any provision of this warranty is held invalid or unenforceable by a court of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision.

---

## Contacting Honeywell Analytics

### North America

Honeywell Analytics  
405 Barclay Boulevard  
Lincolnshire, Illinois, USA 60069  
Tel: +1 847 955 8200  
Toll free: +1 800 538 0363  
Fax: +1 847 955 8208  
*detectgas@honeywell.com*

### Canada

BW Technologies by Honeywell  
2840 - 2 Avenue SE  
Calgary, AB  
Canada  
T2A 7X9  
Tel: (403) 248-9226  
Fax: (403) 273-3708  
*info@gasmonitors.com*

### Latin America and Caribbean

Honeywell Analytics  
Av. Marginal da Rodovia dos Bandeirantes, 100  
Distrito Industrial - Jundiá, São Paulo  
Brasil  
ZIP: 13213-008  
Tel: +55 11 3309-1030  
Fax: +55 11 3309-1005  
*hala@honeywell.com*

### Europe, Middle East, and Africa

Life Safety Distribution AG  
Wilstrasse 11-U11  
CH-8610 Uster  
Switzerland  
Tel: +41 (0)1 943 4300  
Fax: +41 (0)1 943 4398  
*gasdetection@honeywell.com*

### Asia Pacific

Honeywell Analytics Asia Pacific  
#508, Kolon Science Valley (1)  
187-10 Guro-Dong, Guro-Gu  
Seoul, 152-729,  
Korea  
Tel: +82 (0)2 6909 0307  
Fax: +82 (0)2 2025 0328  
*analytics.ap@honeywell.com*

### Technical Services

*ha.global.service@honeywell.com*

## Table of Contents

<b>1. Overview</b>	<b>1</b>	2.6 Power and Connectivity	9
1.1 Tests and record keeping	1	2.6.1 PC – Single Dock via USB	9
<b>1.2 PC Connection</b>	<b>2</b>	2.6.2 PC – Multi Dock via USB	9
1.2.1 USB Connection	2	2.7 Connecting the Calibration Gas Cylinder to the Dock(s)	10
1.2.2 Ethernet Connection	2	2.7.1 Single Cylinder to Single Dock	11
1.3 PC Requirements	2	2.7.2 Single Cylinder to Multiple Docks	11
1.4 Power Requirements	2	2.7.3 Fresh Air Port Instructions	14
1.4.1 Dock with direct USB Connection to PC	2	2.8 Initial PC–Dock Connection	17
1.4.2 Multi-Dock Setup with USB Connection	2	2.8.1 USB Driver Installation	18
1.5 Sensor compatibility	2	2.8.2 Dock screens	20
1.6 Default Calibration Gas Settings	3	<b>3. Software</b>	<b>22</b>
1.7 Calibration Gas Cylinder Regulator Requirements	3	3.1 Dock Controls and Instrument Status	24
1.8 Dock Location	3	3.1.1 Dock Configuration	25
<b>2. Installation</b>	<b>3</b>	3.1.2 Hardware Configuration	25
2.1 Installation Overview	3	3.1.3 Connection Speed	25
2.2 IQ Administrator Pro and PostgreSQL Database Server Installation	4	3.1.4 Audible Alarm Sensitivity Controls	26
2.3 IQ Database Manager Software Installation	4	3.1.5 AC Power	26
2.4 IQ Force Dock Desktop Software Installation	4	3.1.6 Pump Diagnostics	26
2.5 Install IQ Administrator Pro, Database Manager, and PostgreSQL database	9	3.1.7 LCD Contrast Control	27
		3.1.8 Battery	27
		3.1.9 Calibration Interval	27
		3.1.10 Gas Configuration	28
		3.1.11 Saving new settings	29

3.1.12 Dock LCD Display .....	29
3.1.13 Ethernet Controls .....	30
3.1.14 Instrument Tab .....	31
3.2 Advanced Settings/Passcode .....	32
<b>4. Dock Use .....</b>	<b>34</b>
4.1 Test Sequence .....	34
4.2 IrDA Connection Issues .....	36
4.2.1 Connection Lost .....	36
4.2.2 Outright Failure to Connect .....	37
4.3 Test Failures .....	37
4.3.1 No gas detected .....	37
4.3.2 Span calibration failure .....	38
4.3.3 Alarm test failure .....	38
4.3.4 PC Aborted Test .....	38
<b>5. Menu Items .....</b>	<b>38</b>
5.1 File Menu .....	38
5.2 Tools Menu .....	39
5.2.1 Dock .....	39
5.2.2 IQ Force .....	40
5.2.3 Certificates .....	41
5.2.4 Email .....	42
5.3 Help Menu .....	42
5.3.1 Check for Update .....	42
5.3.2 About IQ Force .....	43

<b>6. Software Upgrades .....</b>	<b>44</b>
<b>Appendix A Calibration Frequency Recommendation .....</b>	<b>48</b>



## **WARNING**

The IQ Force Dock is designed to interface with Honeywell Analytics gas detectors.

Honeywell Analytics gas detectors have been designed for the detection of deficiencies of oxygen, accumulations of flammable gases and vapors, and accumulations of toxic vapors.




In order to ensure that the user is properly warned of potentially dangerous atmospheric conditions, it is essential that the instructions in this manual and the operations and/or reference manual(s) for the gas detector(s) be read, fully understood, and followed.

This manual is not intended to replace the operations and/or reference manuals for the gas detector. This manual is designed only to aid in the installation and operation of the automatic system and should be used in conjunction with the instrument reference or operations manual at all times.

---

## Signal Words

The following signal words, as defined by ANSI Z535.4-2002, are used in this reference manual.

-  **DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
-  **WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
-  **CAUTION** indicates a potentially hazardous situation, which if not avoided, may result in moderate or minor injury.
- **CAUTION** used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.



### 1. Overview

The IQ Force dock is an automatic calibration and test station for use with IQ Force Gas Detectors. The IQ Force dock performs up to eight critical tests including sensor identification, instrument performance, bump and alarm tests, and record-keeping procedures in about a minute. The station also retains a historical record of testing and instrument maintenance in the system's on-board memory.

The IQ Force dock may be operated as a stand-alone calibration station, or may be connected to a PC via USB/network cable for increased control over system operations.

When the dock is operated without a PC interface, it will operate with the last set of calibration gas settings that were uploaded into the dock.

Unless otherwise specified at the time of purchase, all IQ Force docks are shipped from Honeywell Analytics configured for instruments containing LEL, O<sub>2</sub>, CO (or CO-), and H<sub>2</sub>S sensors with the standard calibration gas settings. In the event that the dock is to be used as a stand-alone calibration station with non-standard alarm settings, the dock must be reprogrammed with the IQ Force dock software.

The IQ Force dock software must be loaded onto the PC prior to completing the USB connection.

#### NOTE

**Do not connect the IQ Force dock to the PC until the software has been installed.**

### 1.1 Tests and record keeping

The IQ Force dock performs the following procedures whenever an instrument is placed in the dock:

- Instrument identification
- Battery test
- Audible alarm test
- Visual alarm test
- Vibrating alarm test (if applicable)
- Fresh air calibration
- Bump (calibration/accuracy) test
- Record keeping
- Data logger and Event logger download (dock must be connected to PC)

In the event that an instrument fails the bump test, or if the instrument's calibration due date has passed, the IQ Force dock will proceed to a full calibration without further intervention from the user.

#### NOTE

**The IQ Force dock only tests the sensors that are currently detected by the IQ Force. The IQ Force only displays readings for sensors that are actively detected by the instrument. If the IQ Force does not show gas readings for a specific sensor on the instrument display, then the instrument is not detecting that sensor.**

## PC Connection

---

If the instrument fails any of the tests listed above, the IQ Force dock will notify the user through the display on the dock and through the PC if the dock is connected to a computer and the software is running.

Results of tests and calibration attempts are stored in the dock and uploaded to the IQ database if the software has been loaded and the USB/network is active to the IQ system.

### 1.2 PC Connection

Desktop software must be installed prior to connecting the IQ Force dock to the PC. An overview of the installation procedure is given below in [Section 2.1](#).

#### 1.2.1 USB Connection

Every IQ Force dock can be connected to the PC via the PC's USB port.

**Note:** USB cable length from PC to dock must not exceed 10 feet (3 meters).

#### 1.2.2 Ethernet Connection

IQ Force docks must be connected to the PC via USB to configure the network interface. For ethernet connection instructions, follow the directions given in the Dock Ethernet Instruction booklet.

Docks that are connected by ethernet have additional controls at the PC to ping the dock and to view the ethernet settings.

### 1.3 PC Requirements

- Pentium Processor 1.0GHz or better or equivalent

- 512MB RAM
- XP, Vista, Server 2003, Windows 7 (32 and 64 bit)
- 50MB hard drive disk space

### 1.4 Power Requirements

The IQ Force dock is delivered with an appropriate power supply and a variety of adapters. The IQ Force dock must be plugged into an appropriate electrical outlet using the power supply / wall cube that was included with the dock at the time of purchase when running in standalone mode or using the network connection.

#### 1.4.1 Dock with direct USB Connection to PC

If each IQ Force dock can be given its own USB port and connected directly to the PC via USB cable, then the PC will provide enough power to run the dock.

#### 1.4.2 Multi-Dock Setup with USB Connection

For multi-dock configurations, Honeywell Analytics recommends the use of a powered USB hub, which is able to power multiple USB devices directly through their USB cables.

Under no circumstances can multiple docks be run from a single USB port without supplemental power.

### 1.5 Sensor compatibility

The IQ Force dock is capable of processing instruments containing any combination of O<sub>2</sub>, LEL, CO, CO- and H<sub>2</sub>S sensors.

### 1.6 Default Calibration Gas Settings

**Table 1. Default Calibration Gas Settings and Dock Requirements**

Dock Setting	Default Cal Gas Setting
O2	18% vol.
LEL	50% LEL
CO, CO-	100 ppm
H2S	25 ppm

### 1.7 Calibration Gas Cylinder Regulator Requirements

A demand-flow regulator must be used with the dock. Contact Customer Service for availability.

### 1.8 Dock Location and Ambient Condition Use

The IQ Force dock should be located in an area that is not exposed to direct sunlight. The temperature limits are 55°F to 90°F (13°C to 32°C).

## 2. Installation

The IQ Force dock must be configured with a PC prior to use. Once it has been configured, it may be used as a stand-alone calibration station without a PC connection, or connected to a PC for increased control over system operations.

Unless otherwise specified at the time of purchase, all IQ Force docks are shipped from Honeywell Analytics configured with the standard calibration gas settings, which are shown in [Section 1.6](#).

Whenever the user chooses to activate the IQ Force without an active PC connection, the dock will operate with the last set of calibration gas settings that were uploaded into the instrument.

**Note:** Do not connect the IQ Force dock to the PC until all three items on the IQ Force installation disc have been installed or upgraded.

### 2.1 Installation Overview

A number of software programs and a PostgreSQL Database Server must be installed to control the IQ Force dock.

1. Install the PostGreSQL Database Server and the IQ Administrator Pro Program as described in the IQ Administrator Pro Reference Manual.
2. Install the IQ Database Manager Pro program as described in the IQ Database Manager Pro Reference Manual.
3. Install the IQ Force Dock Desktop Software as described below in [Section 2.4](#).
4. Create a default PostgreSQL database as described in [Section 6](#) of the IQ Administrator Pro Reference Manual.

5. If connecting the dock to the PC via USB, follow the instructions in [Section 2.6](#). If connecting the dock via Ethernet, follow the Ethernet Instruction booklet.
6. Follow the instructions in [Section 2.7](#) for providing calibration gas and fresh air to the dock(s).
7. For docks that will be connected permanently by USB port, configure the docks by connecting them to the PC's USB port. If the instrument is to be connected via Ethernet, follow the Ethernet Instructions that came with the dock.

## 2.2 IQ Administrator Pro and PostgreSQL Database Server Installation

The IQ Administrator Pro software and PostgreSQL Database Server are contained on the IQ Force installation CD. Place the CD in your PC's CD tray and follow the installation instructions given in the IQ Administrator Pro and PostgreSQL Reference Manual that is included with the dock.

## 2.3 IQ Database Manager Software Installation

The Database Manager Pro Program is contained on the IQ Force Installation Disc. Place the disc in your PC's CD tray and follow the installation instructions given in the IQ Database Manager Software manual that is included with the IQ Force.

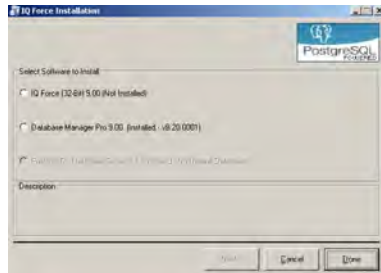
## 2.4 IQ Force Dock Desktop Software Installation

The PostgreSQL Database Server and IQ Database Manager Pro Programs should be installed before proceeding to step 1.

### NOTE

**Screens shown below may be slightly different depending on your PC's operating system.**

1. The Software Installation screen should come up automatically once the installation of Database Manager is complete. If this screen does not come up, access the CD drive using Windows Explorer.

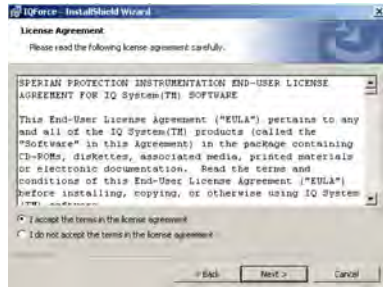


## IQ Force Dock Desktop Software Installation

2. Select **IQ Force** and click **Install**. The InstallShield Wizard will begin the installation.

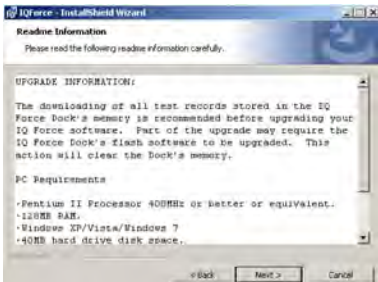


3. Click **Next** to continue with the installation. The Licensing Agreement screen will be shown.



## IQ Force Dock Desktop Software Installation

4. If you accept the terms of the License Agreement, click **I accept....** and then click **Next** to continue. The upgrade information and PC requirements will be shown.



5. Click **Next** to continue. The Customer Information screen will be shown.

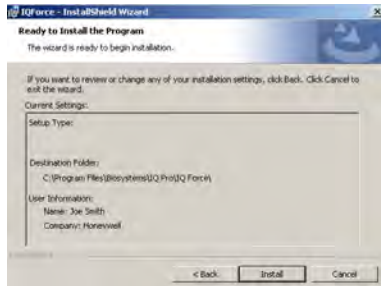


## IQ Force Dock Desktop Software Installation

6. Enter the name of the user and the name of the organization. Then select whether this application may be used by **Anyone who uses this computer** or **Only for me**. Then click **Next**. The destination folder screen will be shown.

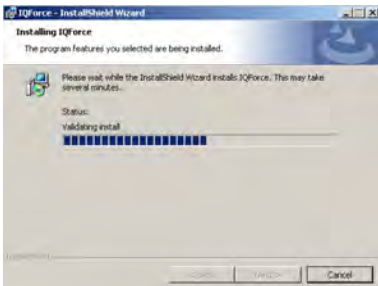


7. To install the software in the default directory at C:\Program Files\Biosystems\IQ Pro\IQ Force\ click **Next**. To install the files to another directory, click **Browse** and use Windows Explorer to specify the new location. Click **Next** once this is accomplished. The following screen will then be shown:



## IQ Force Dock Desktop Software Installation

- Click **Next** to continue. The status of the file decompression will be shown.



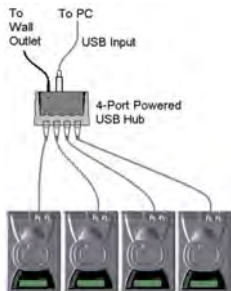
Once the installation is complete, the following screen will be shown:



- Click **Finish** to conclude the installation. The IQ Force dock logo will appear on your desktop.







### NOTE

Do not launch the IQ Force dock software again until the instructions in [Section 2.5](#) to [Section 2.8](#) below have been completed.

## 2.5 Install IQ Administrator Pro, Database Manager, and PostgreSQL database.

Proceed to the IQ Administrator Pro Reference Manual and follow the instructions to create and specify the PostgreSQL database.

## 2.6 Power and Connectivity

This section covers providing power to the IQ Force docks and connecting them to your PC. The instructions given below pertain to standard connections via the PC's USB port.

IQ Force docks that are Ethernet-ready are shipped with an Ethernet Instruction booklet. Proceed to the Ethernet Instruction booklet if you are planning to connect the dock to the PC via Ethernet. Once the instructions in the booklet have been followed and the IQ Force dock is connected, return to [Section 2.7](#) for calibration-gas cylinder connection instructions.

### 2.6.1 PC – Single Dock via USB

For single dock setups that will be run from the PC via USB, the power from the PC via the USB cable is sufficient to power the dock. Simply connect the dock to the PC with the USB cable that was included with the dock and proceed to [Section 2.7](#) for instructions concerning calibration gas.

### NOTE

**USB cable length from PC to dock may not exceed 10 feet.**

### 2.6.2 PC – Multi Dock via USB

For multi-dock configurations that will be connected via USB, Honeywell Analytics recommends the use of a powered USB hub, which is able to power multiple USB devices directly through the USB cable. With a powered USB hub, it is not necessary to use the wall cube power supplies that are included with the IQ Force docks.

#### NOTE

**With a USB hub, USB cable length from hub to dock may not exceed 10 feet.**

If you prefer to not use a powered USB hub, the following other options are available:

If you have enough open USB ports on your PC to connect each of the docks directly to its own USB Port, you may connect each dock directly to the PC. Most users decide against this option either because their PC doesn't have enough USB ports, or because it is an inappropriate use of their PC's system resources



#### CAUTION

**Under no circumstances can multiple IQ Force docks be run from a single USB port without supplemental power.**

### 2.7 Connecting the Calibration Gas Cylinder to the Dock(s)

Connection requirements for calibration gas cylinders vary with how many docks will be connected to the cylinder.

For instructions on connecting the gas cylinder to a single dock proceed to [Section 2.7.1](#).

For instructions on connecting the gas cylinder to multiple docks proceed to [Section 2.7.2](#).

## Connecting the Calibration Gas Cylinder to the Dock(s)

### 2.7.1 Single Cylinder to Single Dock

1. Insert the demand flow regulator into the calibration gas cylinder.
2. Slide the open end of the tubing assembly over the regulator.
3. Connect the end of the tubing with the white quick disconnect fitting to the toxic GAS port on the dock (see [Figure 2](#)).



**Figure 1.**

4. Proceed to [Section 2.7.3](#) for further instructions concerning the fresh AIR port.

### 2.7.2 Single Cylinder to Multiple Docks

When multiple IQ docks are connected to a single cylinder of calibration gas, a manifold is used to disperse the calibration gas from the cylinder to the docks.

The manifold is a Honeywell Analytics part and includes a detailed instruction sheet for its use. The manifold comes with tubing and fittings necessary for connecting up to eight docks to a single cylinder of calibration gas.

## Connecting the Calibration Gas Cylinder to the Dock(s)

### NOTE

Do not exceed the output capacity of your demand-flow regulator. Each IQ Force dock is able to draw calibration gas at a maximum rate of 0.50 liters/minute. The demand flow regulator supplied by Honeywell Analytics has a maximum output capacity of 3 liters per minute, so it can be used to calibrate up to four docks simultaneously. Do not connect more than four docks to a single cylinder of calibration gas while using the demand-flow regulator.

The 54-46-115 manifold is composed of:

- (1) small black elbow fitting
- (3) small black T-fittings
- (2) pieces of gas tubing 5" long
- (1) piece of gas tubing 10" long
- (1) piece of gas tubing 1" long



Figure 2.

1. Insert the demand-flow regulator into the calibration gas cylinder.
2. Modify the tubing assembly as follows depending on how many docks will be connected. If four docks will be used, no modifications are necessary. For two or three docks, begin by separating the tubing at the location described below.

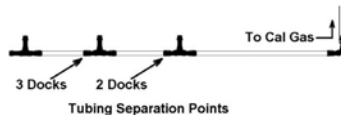


Figure 3.

Once this is accomplished, set the two parts aside. The section that will be used is shown in the following images (depending on the number of docks).



Figure 4. Manifold for two docks



Figure 5. Manifold for three docks



Figure 6. Manifold for four docks

## Connecting the Calibration Gas Cylinder to the Dock(s)

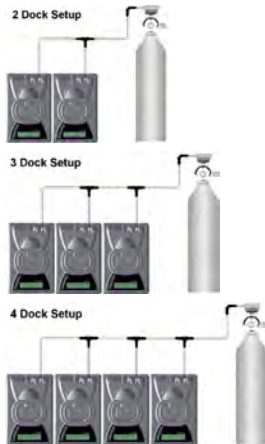


**Figure 7. Manifold for eight docks**

- Each dock is delivered with a 24" piece of tubing with a white quick disconnect fitting, which is normally used to connect a single gas cylinder directly to a single dock. Connect the white quick disconnect fittings to the GAS ports on the docks and connect the open ends to the manifold's open T-fittings.

At this point, tubing should run from each dock's GAS port to the T-fittings. There should be no open T-fittings in the procedure, but there should be one piece of open tubing on the elbow fitting.

- Connect the open piece of tubing on the elbow fitting to the Demand Flow Regulator.



**Figure 8. Final Appearance**

### NOTE

Tubing lengths in these images are not to scale.

### 2.7.3 Fresh Air Port Instructions

The Fresh Air Port is used to draw the fresh air sample into the dock for instrument processing. Check valves and/or fresh air filters are required depending on how fresh air is delivered to the dock. See the chart below for specific requirements for your setup.

**Table 2. Air filter/check valve requirements chart**

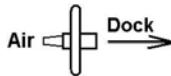
	Air Filter at Dock	Check Valve(s)
Single dock in fresh air	Yes	N/A
Multiple docks in fresh air	Yes	N/A
Single dock with zero air cylinder	No	No
Multiple docks with zero air cylinder	No	Yes
Single dock with sealed fresh air conduit	Yes	No
Multiple docks with sealed fresh-air conduit	Yes	Yes

The fresh air filter is placed on the Air Port at the dock to protect the dock from contaminants. Check valves are used to ensure the purity of external fresh air sources when more than one dock is used.

#### 2.7.3.1 Fresh Air Filter

Under normal circumstances, the IQ Force dock is located in a fresh air environment and fresh air is drawn in from the local environment. A filter is included with the dock that is used to protect the dock from contaminants that may inadvertently enter the dock. The air filter should be installed if the dock is drawing fresh air from the immediate surroundings or if it is drawing fresh air from an external source via a sealed conduit. The fresh air filter can be left off if the fresh air source is a calibration cylinder.

Only one side of the filter will screw into the Air Port on the dock.



#### 2.7.3.2 Providing Fresh Air in a Contaminated Environment

If the IQ Force is to be located in a potentially contaminated environment, fresh air must be delivered to the Air Port on the dock for use during instrument processing. This can be accomplished either by using a cylinder of “zero air” with a demand flow regulator (option 1 below) or by plumbing fresh air into the dock in a sealed conduit from an outside location that has known fresh air (option 2 below).



### WARNING

**Performing the fresh air calibration in a contaminated atmosphere will lead to inaccurate and potentially dangerous readings. Fresh air containing 20.9% oxygen and no contaminants must be provided to the IQ Force dock for instrument processing. If fresh air is unavailable in the immediate area, steps must be taken to provide fresh air to the dock.**

When a secondary fresh air source (either gas cylinder or sealed conduit) is used with two or more IQ Force docks, a one-way check valve must be placed in line between the common section of the fresh air manifold and each of the docks to ensure the purity of the fresh air source. See [Section 2.7.3.2.3](#).

#### *2.7.3.2.1 Using a Gas Cylinder to Provide Fresh Air to the Dock*

A calibration cylinder containing “zero air”, which contains 20.9% oxygen and no contaminants may be connected to the gas port labeled “AIR” to provide fresh air to the dock for calibration. The cylinder must be equipped with a demand flow regulator. The connection from the cylinder and regulator to the dock may be made with standard gas tubing.

For single docks, simply connect the “zero air” cylinder and demand flow regulator to the dock’s AIR port using standard gas tubing. A check valve is not necessary when a cylinder is used to provide fresh air to a single dock. The fresh air filter is also not required in this configuration.

For multiple dock setups (up to four), a one-way check valve must be

placed in the line between each T-fitting and dock to ensure the purity of the fresh air source. See [Section 2.7.3.2.3](#) below for further instructions. The fresh air filter is not necessary when a gas cylinder is used to provide fresh air to the dock(s).

#### *2.7.3.2.2 Option 2: Using a Sealed Conduit to Provide Fresh Air to the Dock*

Fresh air may also be delivered to the dock from a known fresh air source via a sealed conduit that feeds directly from the source into the AIR port on the dock.

For single docks, install the fresh air filter as discussed above and simply plumb the fresh air source directly into the dock’s AIR port.

For multiple dock setups in which fresh air is provided to the dock via sealed conduit, begin by installing the fresh air filter on each dock. A one-way check valve must be placed in the line between the T-fitting in the fresh air manifold and each dock to ensure the purity of the fresh air source. See [Section 2.7.3.2.3](#) below for further instructions.

## Connecting the Calibration Gas Cylinder to the Dock(s)

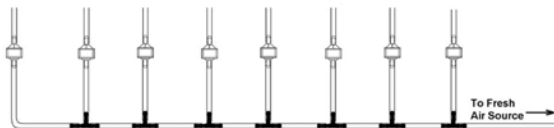
### 2.7.3.2.3 Multi-Dock Setups with Fresh Air Manifold

For more information on this, see Applications Note # AN20050722, which is available at <http://www.honeywellanalytics.com>.

The manifold is necessary for use when more than one dock is to be used with an external fresh air source, whether is be a cylinder of “zero air” or a sealed conduit to a fresh air source.

The manifold is composed of:

- (3) small black T-fittings
- (4) clear one-way check valves
- (10) pieces of gas tubing 5" long
- (1) piece of gas tubing 10" long



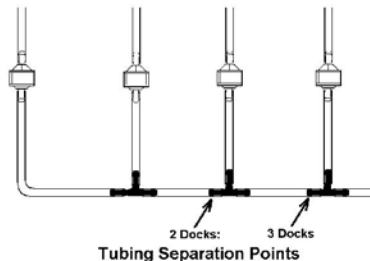
**Figure 9. 54-46-115 Tubing Assembly**

1. If the fresh air source is a calibration gas cylinder, insert the Demand Flow Regulator into the calibration gas cylinder and proceed to step 2.

OR

If the fresh air source is a sealed conduit from an external fresh air source, install the fresh filter on each dock as described above and proceed to step 2.

2. Modify the tubing assembly as follows depending on how many docks will be connected. If four docks will be used, no modifications are necessary. For two or three docks, begin by separating the tubing at the location described below.

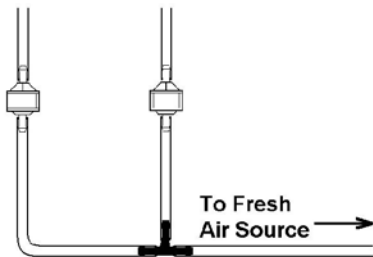


**Figure 10. Tubing Separation Points**

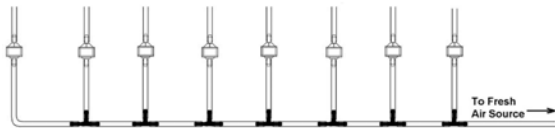


## Initial PC–Dock Connection

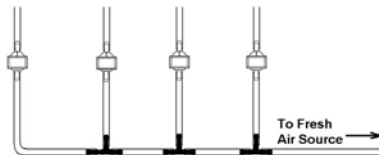
Once this is accomplished, set the two parts aside. The section that will be used is shown in the following images (depending on the number of docks).



**Figure 11. Fresh Air Tubing for two Docks**



**Figure 12. Fresh Air Tubing for eight Docks**



**Figure 13. Fresh Air Tubing for four Docks**

3. Connect the pieces of tubing above the check valves to filter that was installed on the dock in step 2.

At this point, the tubing assembly should be connected to each dock's AIR port.

4. Connect the only open piece of tubing (below the black T-fittings) to the demand flow regulator on the gas cylinder or to the conduit for the external source of fresh air.

## 2.8 Initial PC–Dock Connection

Once the software has been installed, and the USB wire(s) is/are plugged into the USB port, the Found New Hardware Wizard screen will be shown on the PC and a number of messages will be shown on the IQ Force dock.

### 2.8.1 USB Driver Installation

The Found New Hardware screens will be shown whenever a dock is plugged into a new USB port, and also whenever a dock is plugged into a USB Port that was most recently used for a different device.

#### NOTE

These screens will vary depending on your PC's operating system.

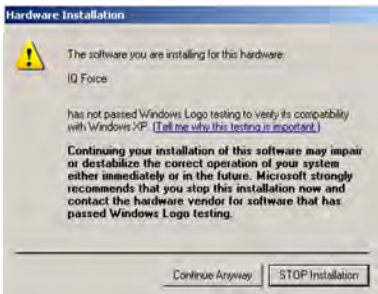


1. The software will prompt to ask if it should connect to Windows Update to search for software. Make a selection based on how you would like to use your PC's operating system and click **Next** to continue. The Wizard will proceed to search for the USB drivers.



## Initial PC–Dock Connection

2. Select **Install the software automatically** and click **Next**.



3. In Windows XP, a warning may appear screen will be shown stating that IQ Force software has not passed Windows Logo testing. Click **Continue Anyway** (XP Only). The installation will then continue.



- The software will notify you when the process is complete.



- Click **Finish**.

### 2.8.2 Dock screens

When the dock is powered up, the dock firmware version and serial number are displayed:

```
-----  
IQ Force Dock  
Version 7.62  
-----
```

```
-----  
IQ Force Dock  
Serial#100200302  
-----
```

If an alias is set for the dock in the IQ Force Desktop software (see [Section 3.1.1](#)), this screen is then displayed:

```
-----  
IQ Force Dock  
OFFICE 1  
-----
```

#### NOTE

**The dock LCD can display upper and lower case letters and numbers. If other characters are used in the dock alias, they may not display properly.**

## Initial PC–Dock Connection

Then this screen is displayed, indicating how much memory in the dock is free for storing calibration records:

```
-----  
IQ Force Dock  
100% Memory Free  
-----
```

The configuration of the gas connected to the dock is then displayed (see [Section 3.1.10](#)), followed by the interval at which instruments will be calibrated in the dock (see [Section 3.1.9](#)):

```
-----  
GAS CO/H2S/LEL  
100/25/50  
-----  
  
-----  
Dock Calibration  
Interval=30 days  
-----
```

If the USB cable is not connected to the dock, the following three screens are displayed:

```
-----  
Checking  
Network Module  
-----  
  
-----  
Configuring  
Network Module  
-----
```

```
-----  
IP Address Is  
151.150.10.201  
-----
```

When the dock is ready to accept an instrument, it alternates between the following two screens:

```
-----  
READY      10:25*  
           20 APR 2012  
-----
```

```
-----  
READY      10:25*  
           CO/H2S/LEL  
-----
```

### NOTE

**The asterisk to the right of the time indicates that the dock is connected to the PC and that the IQ Force Dock PC software is running.**

If the dock is running in standalone mode and has test records stored, a third screen in the sequence will display the number of records.

```
-----  
READY      10:25  
           2 Records  
-----
```

### 3. Software

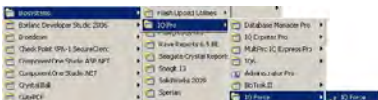
To launch the IQ Force dock desktop application, click on the IQ Force dock icon on your PC's desktop.



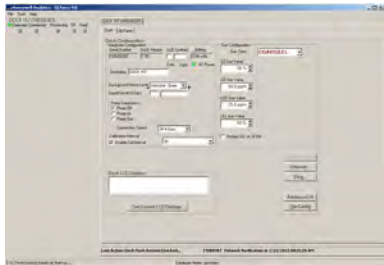
#### NOTE

**The Database Manager must be launched prior to launching the IQ Force dock Software to establish a database before the application will start normally.**

The application may also be launched by accessing the program through the start button and selecting Programs/Honeywell/IQ Pro/IQ Force/IQ Force (unless another location was specified during the installation).



The following screen will be shown once the application is launched.



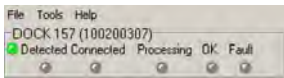
The screen is divided into right and left sides. The left side gives the status of the docks that are currently installed and recognized. At the top of the right side of the screen there is a tab for each dock that is currently installed and recognized. Within each dock tab are two sub-tabs: one for dock controls and one that shows the calibration status and details for the instrument that is currently in the dock or the last instrument tested.

### Dock Status (USB Connection)

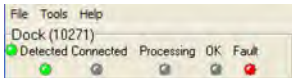
#### NOTE

If the dock is connected to the PC via ethernet, see the Status Indicators section of the IQ Ethernet Instruction Booklet.

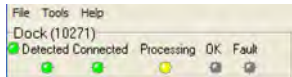
The current status of each dock is shown in the left column. When there are no instruments in the dock, each of the status indicators will be shown in grey.



When an instrument is placed in the dock, the green "Detected" indicator will light to reflect the new status. Status changes are also be shown on the dock's LCD.



During processing, the yellow "Processing" indicator LED will come on.



The dock operations performed on the instrument are listed as they occur.



If the dock is able to successfully complete the processing dictated by the instrument's template in the IQ Database Manager Pro Program, the green "OK" indicator will be illuminated.



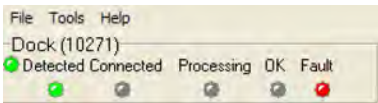
If there is a fault, the red "Fault" indicator will come on.

#### NOTE

For more information regarding template settings, see the IQ Database Manager Pro Reference Manual.

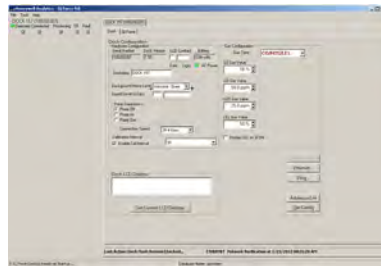
## Dock Controls and Instrument Status

If a fault is detected and the dock is unable to complete the tests, the red fault indicator will be shown on the screen. Details of the fault will be listed in the input box on the right side of the screen under the instrument tab. See [Section 3.1.2](#) for details on faults.



### 3.1 Dock Controls and Instrument Status

The right side of the screen contains individual controls for each IQ Force dock. Each dock has its own page, which can be accessed by clicking on the appropriate tab at the top of the page. Within each dock's page are two sub-tabs. One contains specific information on the dock itself. The other displays information on the instrument that is currently recognized in the dock.





### NOTE

If the **Change Config** button is enabled, press it before making any changes to the settings.

### 3.1.1 Dock Configuration

Click on the Dock tab to access the dock settings.

To change the configuration of the IQ Force dock that is displayed, click on the **Change Config** button at the lower right of the screen. Once the dock configuration is uploaded, the Set Config button will be enabled. After changes are made, click on the **Set Config** button to save the new settings.

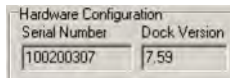


#### WARNING

**Calibration values shown in the Gas Values columns must match those appearing on the calibration gas cylinder(s) that will be used to calibrate the detector. Non-matching calibration gas and calibration gas value settings will lead to inaccurate and potentially dangerous readings.**

### 3.1.2 Hardware Configuration

The hardware configuration section contains the serial number and software version number of the dock at the upper left corner.



This information may not be changed with the software. Software updates can cause the dock firmware version to change.

### 3.1.3 Connection Speed

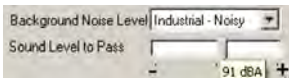
The IrDA connection speed is given below the serial number and software version. The default connection speed is 38.4 kbps, although settings from 2400 bps to 115.2 kbps are available.



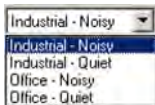
Honeywell Analytics recommends leaving the connection speed at the default setting unless you are experiencing frequent communication problems in the form of a loss of connection. If connection is frequently lost, adjust the connection speed down gradually until the problem is resolved.

### 3.1.4 Audible Alarm Sensitivity Controls

The audible alarm sensitivity controls allow the user to customize the audible alarm test criteria.



The Background Noise Level adjustment offers four levels of background noise levels. For the best results, select the one that most closely approximates the background noise level expected during testing.



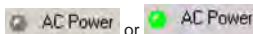
The Minimum Sound Level setting determines the minimum amount of sound required to pass the alarm test. The higher the setting, the louder the alarm will need to be to pass the test. The sound level is given in decibels when the cursor is placed over the slider.



The minimum sound level that will be accepted by the software is 80 dBA.

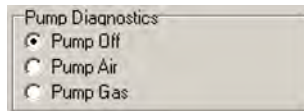
### 3.1.5 AC Power

The AC Power indicator is located directly beneath the connection speed setting. If the dock is being powered by the USB cable, the AC Power will appear grey. When the dock is being powered by an AC power source, the AC Power indicator will appear green.

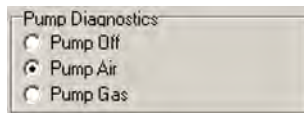


### 3.1.6 Pump Diagnostics

Pump settings are controlled through the Pump Control section on the Dock Settings page.



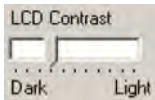
Click **Pump Gas** to draw span calibration gas through the right gas port at the back of the dock. Click **Pump Air** to draw the fresh air sample through the left gas input port.



Either pump will run until Pump Off is selected.

### 3.1.7 LCD Contrast Control

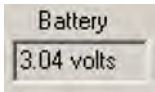
At the top right side of the Dock Configuration box is the LCD (Liquid Crystal Display) Contrast Control.



To darken or lighten the display on the dock, move the slider as appropriate. The dock will not show the new LCD setting until the **Set Config** button is pressed.

### 3.1.8 Battery

The battery level shown on the dock tab is for the internal battery in the IQ Force dock. This battery serves to keep the real-time clock accurate while the dock is unplugged and should not be a concern to the user unless the battery level drops below 2.50 volts. If this happens, return the dock to Honeywell Analytics for repair.



### 3.1.9 Calibration Interval

The dock's calibration interval settings are controlled from the Dock tab and are located at the bottom of Hardware Configuration box. The dock's calibration interval is the maximum number of days that the dock will allow to pass between calibrations for any instrument that is placed in the dock. If an instrument is placed in the dock and the interval has been exceeded, the dock will automatically initiate a full span calibration of the instrument regardless of the results of the bump test or the instrument's own calibration status.



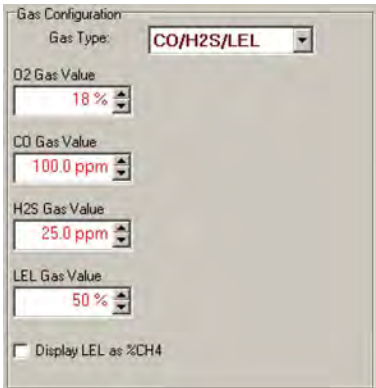
To use the setting, click on Enable Cal Interval and set the interval to the number of days between calibrations. The setting is typically enabled when the dock is used in standalone mode.

#### NOTE

**This setting may cause the instrument to undergo a full calibration even when the instrument itself is not due for calibration.**

### 3.1.10 Gas Configuration

The calibration gas configuration for the dock is located on the right side of the window. If the values are shown in red text, they can be changed. If the values are shown in black text and you wish to change them, press **Change Config**.



The screenshot shows a 'Gas Configuration' window with the following settings:

- Gas Type: CO/H2S/LEL (dropdown menu)
- O2 Gas Value: 18 % (red text, spinner control)
- CO Gas Value: 100.0 ppm (red text, spinner control)
- H2S Gas Value: 25.0 ppm (red text, spinner control)
- LEL Gas Value: 50 % (red text, spinner control)
- Display LEL as %CH4:  (checkbox)

### NOTE

**The gas values shown in the gas configuration screen are the values that will be used in calibrating the IQ Force instruments that interface with the dock regardless of the IQ Force's own built-in calibration gas settings.**

To change the calibration-gas value, use the arrows to the right of the gas value input box to increase or decrease the value.

To display LEL concentration in %CH<sub>4</sub>, check the **Display LEL as %CH4**. To display in LEL, uncheck the box.

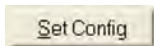


### WARNING

**Calibration values shown in the Gas Value column must match those appearing on the calibration-gas cylinder(s) that will be used to calibrate the detector. Non-matching calibration gas and calibration-gas value settings will lead to inaccurate and potentially dangerous readings.**

### 3.1.11 Saving new settings

When all necessary changes have been made, press the **Set Config** button to upload the new settings to the dock.



The software will notify you once the dock configuration has been updated.

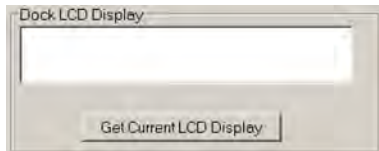


#### NOTE

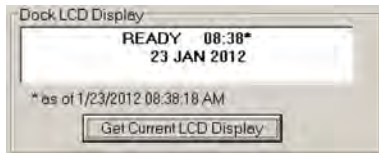
The new settings are not saved to the dock until **Set Config** is selected.

### 3.1.12 Dock LCD Display

At the lower left corner of the Dock status tab is Dock LCD Display window. This is most often used when a dock is controlled remotely via Ethernet, where the PC user is unable to physically see the dock.



To view the dock's Display, click on **Get Current LCD Display**.



### 3.1.13 Ethernet Controls

For docks that are connected by ethernet, there are two additional controls on the lower-right corner of the display: Ethernet and Ping.

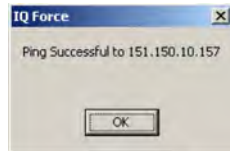
To view the Ethernet settings, click on the **Ethernet...** button.



To use DHCP for network addressing, select **Use Dynamic Ethernet**

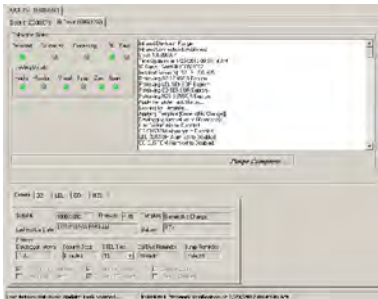
**Addressing.** To use the entered static IP address, uncheck the box.

To test the dock connection, press the **Ping...** button. A status window will be shown to indicate whether the ping was successful or not.



### 3.1.14 Instrument Tab

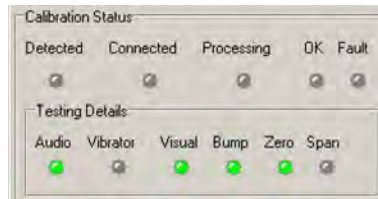
The IQ Force tab shows instrument information for the detector that is currently in the dock. The right side of the tab is identical to the Dock Status tab section discussed above. The blank space at right is an output box that shows detailed instrument information as it is processed.



The output box is updated as the instrument is detected, connected, and processed. When faults occur, the details of the fault will be shown and a red fault light will be shown. Below, a bump-test failure is the cause of the fault.



If the dock is currently empty, none of the status indicators will be lit but the result of the last test will be displayed.



### 3.2 Advanced Settings/Passcode

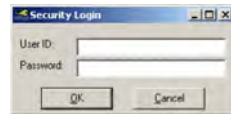
The IQ Force dock may be set to verify a specific 4-digit passcode (PIN) in any instrument that interfaces with the dock. If the dock detects a PIN in the instrument that matches its own PIN, it will process the instrument. If the dock fails to detect a PIN, or recognizes a non-matching PIN, it will not process the instrument.

To use the passcode feature, a PIN must be entered into the IQ Force dock Software and then uploaded to every instrument that will interface with the dock. Each dock must then be programmed with the same PIN and set to check for the code in the instruments.

1. Select the dock that will be used to write the PIN (Personal Identification Number) to the instrument. Connect the dock to the PC either by USB port or by Ethernet port. If using an Ethernet connection, the Ethernet setting must be configured to Live. If more than one dock will be used to update the instruments, perform steps 4–10 for each dock.
2. Open the IQ Force software.



3. Click **Advanced >>** in the row of buttons on the lower right. The software will automatically show the Security Login screen and prompt you for your user name and password. If the Advanced button is not shown, click on **Change Config** first to access it.

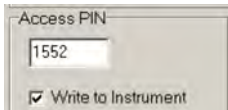


4. Enter a valid User ID and Password. The Access PIN settings will be shown:





5. Enter a unique 4-digit PIN in the input box under Access PIN and click on **Write to Instrument**.



6. Click **Set Config** to tell the dock to upload the PIN setting to the instruments. The software will automatically show the Security Login screen a second time and prompt you for your user name and password. Once a valid User ID and Password have been entered, **PIN Lock Writing Enabled** will be shown in the dock configuration window. The dock is now ready to upload the PIN to the instruments.



7. Place the instrument(s) that is/are to be configured with the PIN in the dock while PIN Lock Writing is enabled.

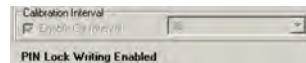
8. Once the PIN has been uploaded to all of the instruments, access the dock's advanced settings again and click on **Check PIN**. Then click the **Set Config** button.



Enter your User ID and password again when the Security Login window is shown. A window will be shown to indicate that the dock configuration has been updated.



9. Click **OK**. PIN Lock Enabled will then be shown in the PC software in the dock configuration window.



## Test Sequence

The dock will now verify the PIN in any instrument that interfaces with it.

10. For every other dock in the system, access the dock's advanced settings, enter the PIN, click on **Check PIN** and click the **Set Config** button.

With PIN lock enabled, only instruments with a PIN matching the dock's PIN will be processed.

## 4. Dock Use

Once the IQ Force is connected to the gas cylinder(s) and has been properly configured, it is ready to accept a IQ Force instrument.

The IQ Force must be in one of the following states before it is placed in the dock:

1. Instrument is on and displaying the gas monitoring screen.
2. From the OFF state, press and hold the Mode button until **PC Connect** appears on the screen.

### NOTE

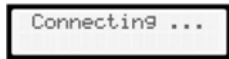
**If the IQ Force has just been turned on, wait at least three minutes after the conclusion of the startup sequence to allow the readings to fully stabilize before placing the instrument in the dock.**

### NOTE

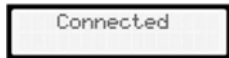
**If a sensor has just been replaced, it must be allowed to stabilize before placing the instrument in the dock. See**

**the sensor replacement section of the IQ Force Reference Manual for further information on sensor stabilization.**

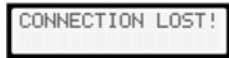
Once the dock recognizes the instrument, it will show the following screens.



Once the connection is made, the IQ Force will display Connected, followed by the instrument type, software version, and recognized sensors.



If the dock recognizes the IQ Force but is unable to maintain the connection, the following screen will be shown:



See [Section 4.2](#) for more information on connection issues

## 4.1 Test Sequence

Once the instrument has been recognized, the settings from the IQ Force's assigned IQ template will be applied. See the Database Manager Reference manual for details on templates.

## Test Sequence

### Note

**Time Zone Alert:** If the dock is connected over a network to a computer in a different time zone, the time of the computer will be used to update the dock and any instrument inserted into the dock during testing. If it is desired to keep the time zone correct, a separate computer in the proper time zone with the dock application installed should be used to control the docks in each time zone.

After template application, the instrument's clock will be updated and the battery voltage checked. If the battery voltage is too low, the dock testing will abort.

The dock will then check the IQ Force's zero calibration will be checked and if necessary calibrated



### WARNING

**Performing the fresh-air calibration in a contaminated atmosphere will lead to inaccurate and potentially dangerous readings. The IQ Force must be located in a fresh-air environment containing 20.9% oxygen and no toxic gases during calibration. If fresh air is unavailable, a cylinder of "zero air" containing 20.9% oxygen and 0 ppm toxic gases must be connected to the fresh-air port with a demand-flow regulator and a piece of tubing whenever an instrument is in the IQ Force dock.**

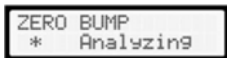
ZERO  
Calibrating

Once the zero check/calibration is complete, the dock will flow gas to the instrument in order to perform the "bump" test. If the instrument is due for calibration, the dock will bypass the bump test and proceed directly to the span calibration.

ZERO BUMP  
\* Gas Flow

## Test Sequence

Once the instrument responds to the gas, the dock will analyze the response to determine if the instrument passes the bump test.



ZERO BUMP  
\* Analyzing

The gas detector will pass the bump test if the sensor response to the gas is within 10% if the reading is lower than the expected sensor output or within 20% if the reading is higher than the expected sensor output ( $O_2 \pm 0.6\%$  absolute). If the bump test is passed, the dock will proceed to the alarm tests.



ZERO BUMP  
\* \*

If the instrument fails the bump test or if the instrument's calibration due date has passed, the dock will automatically bypass the bump test and proceed to a full instrument calibration without further input from the user.



ZERO SPAN  
\* Calibrating

Following successful bump test or calibration, the dock will test the instrument's alarm systems.



HORN LIGHT VIBR  
Testing -

If all alarms are operational, the following screen will be shown.



HORN LIGHT VIBR  
\* \* \*

See [Section 4.3](#) for further details on assessing test failures.


If all tests have been passed, the following screen will be shown.



\* READY \*  
ALL TESTS PASSED

Remove the instrument from the dock. The instrument is now fit for use.

Once the instrument is removed from the dock, the dock will reset itself and prepare itself for the next instrument. In approximately 10 seconds the display will show the READY screens. The dock is then ready for the next instrument.



READY 11:41  
15 MAR 2010

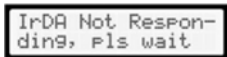
### NOTE

**The same instrument should not immediately be placed back in the dock. It is recommended to wait three minutes to allow the sensors time to recover.**

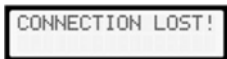
### 4.2 IrDA Connection Issues

#### 4.2.1 Connection Lost

In the event of a loss of communication between the dock and the instrument, the LCD will first indicate that the IrDA is not responding.

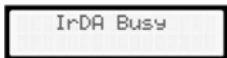


If the dock fails to reestablish the connection, the LCD will indicate "Connection Lost".



Remove the instrument from the dock. The dock should reset itself in approximately 10 seconds.

"IrDA Busy" may also be shown.



#### 4.2.2 Outright Failure to Connect

If the IQ Force is placed in the dock and connection fails outright, a dot will appear on the screen to the right of the date. The dot is an indicator that the instrument is in the dock, but the dock is unable to establish any type of connection to it.



**Figure 14. Instrument-in-dock indicator**

The dot will disappear as soon as the dock establishes a connection with the instrument.

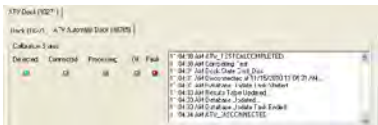
If the dot persists, take the IQ Force out of the dock and be sure it is turned on before returning it to the dock. If that fails to correct the problem, call Honeywell Analytics for more information.

#### NOTE

**This feature is only available in stand alone mode.**

### 4.3 Test Failures

Failures can occur for a number of reasons. When a fault occurs, the reason for the failure will be shown on the dock's LCD. If the IQ Force Desktop Software is running and the dock is properly connected to the PC, the fault will also be indicated in the output box on the instrument tab in the software.



#### 4.3.1 No gas detected

If the instrument fails to respond to the calibration gas, the message "No gas detected" will be shown.



#### 4.3.2 Span calibration failure

If the dock is unable to complete the span calibration, it will show the failure on the LCD. The failure will also be shown in the output box on the instrument page in the PC software.



#### 4.3.3 Alarm test failure

If the dock fails to recognize an alarm that should be present, it will indicate it on the display screen following the alarm test.



The failure will also be indicated in the software in the instrument information.

#### 4.3.4 PC Aborted Test

If the desktop software is unable to complete the tests for any reason, the following screen will be shown:

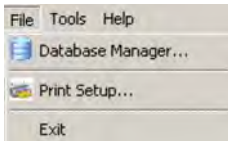


This message may be shown for a variety of reasons. See the Calibration Status output box for further details.

### 5. Menu Items

#### 5.1 File Menu

The File menu contains the Exit control and a control for directly launching the Database Manager program, printer selection and setup and exiting the application.

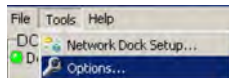


#### 5.2 Tools Menu

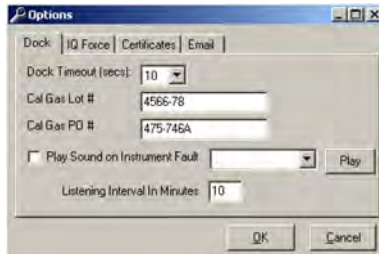
The Tools menu contains options for the IQ Force dock including the following:

- Dock Timeout Setting
- Calibration Gas Lot Number Entry (for tracking purposes)
- Instrument Settings for the detector including the Timeout Setting and the Calibration Due Reminder Setting
- Settings for Printing Calibration and Bump Test Certificates.

Click on Tools / Options to access the settings.

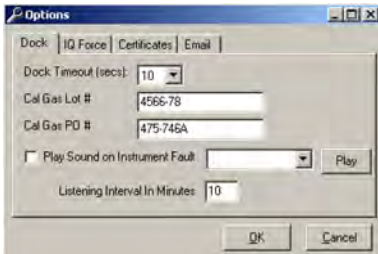


The Options screen will then be shown.



### 5.2.1 Dock

The Dock tab under Tools/Options includes settings for the Dock Timeout, Calibration Gas Lot Number, Purchase Order #, and the sound setting that the dock will use to indicate instrument faults. Each dock has its own unique settings.



The Dock Timeout Setting controls the amount of time that needs to pass after connection between the dock and the PC is lost before the system will notify you that the connection has been lost. Options are given in whole numbers between 1 and 10 seconds. To change the setting, click on the arrow to the right of the timeout setting to access the list and select the new setting.

The Calibration Gas Lot Number is an input box that allows the user to enter the lot number into the PC's records. The lot number will then be shown on any calibration certificates that are printed.

To select a specific sound that will be played when the dock experiences

a fault condition, first click the checkbox next to "Play Sound on Instrument Fault" and then select the sound from the list in the drop down box.



The Listening Interval in Minutes is the time between the calibration records queries for docks configured in Listening mode.

### 5.2.2 IQ Force

The IQ Force tab contains settings for the IQ Force instrument including the Timeout setting, the Calibration Due Reminder setting, the option to automatically update IQ Force firmware, and calibration options.





The Timeout setting controls the amount of time the dock will wait for a response from the instrument. If this time is exceeded, the command will time out and the test will fail. Options are in 5-second increments from 5 to 30 seconds. To change the setting, click on the arrow to the right of the timeout setting to access the list and select the new setting.

The Calibration Due Reminder setting controls the amount of time that needs to pass without a successful calibration before the IQ Force will remind you that calibration is due. The reminder can be set to any whole number between 1 and 180 days. To disable the calibration due reminder, change the setting to "0". To change the setting, click on the arrow to the right of the timeout setting to access the list and select the new setting.

The checkbox to the left of "Upgrade Instrument" controls automatic IQ Force firmware updates by the IQ Force dock whenever an IQ Force is placed in the dock. Click on the box to enable the automatic updates.

The IQ Force firmware must be downloaded and stored in the appropriate folder for the updates to take place. The folder location is on your local hard

drive under Program Files.

### NOTE

Refer to [Section 6](#) for details on flash file location.

The checkbox to the left of "Display Gas Readings" controls whether gas readings are shown on the IQ Force dock during instrument processing.

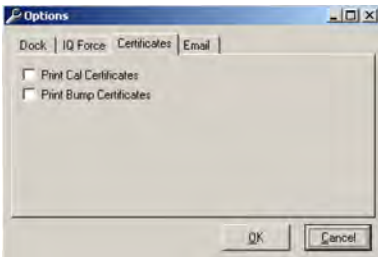
Two calibration options are listed near the bottom of the window.

Select "Calibrate Now" to automatically perform a full calibration whenever an instrument is placed in the dock.

Select "Skip Calibration" to automatically skip the calibration of any instrument that is placed in the dock. This feature should be used in with IQ template options to download the instrument's eventlogger and/or datalogger.

### 5.2.3 Certificates

The Certificates tab provides controls for the automatic printing of Calibration and Bump Test Certificates.



Click on the check box next to the option to select it. Note that a great deal of paperwork could be generated if "Print Bump Certificates" is selected and a large number of instruments are bump-tested daily through the IQ Force dock.

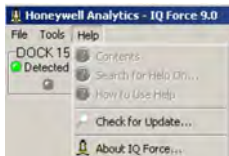
### 5.2.4 Email

The Email tab option shows the current email setting configured in Database Manager.



### 5.3 Help Menu

The Help menu contains two options: “Check for Update...” and “About IQ Force...”.



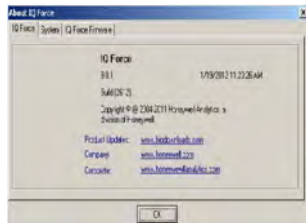
#### 5.3.1 Check for Update

The “Check for Update...” option links to Honeywell Analytics' Software Download site at: <http://www.biodownloads.com>

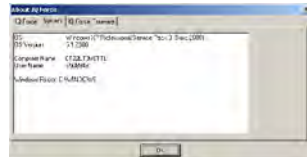
Once at the site, log on and check if any software update is available.

#### 5.3.2 About IQ Force

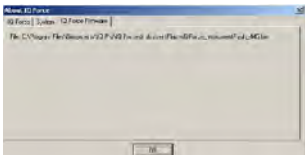
The “About IQ Force...” selection contains three tabs to convey information about the dock, the PC, and the location of any IQ Force firmware file that may be on the PC. The IQ Force dock tab shows the PC software version and basic information.



The System tab contains specific information about your PC's operating system.



The IQ Force firmware displays the latest version the application has found to use in a possible instrument upgrade. Check this tab to verify our firmware upgrade was copied into the correct folder and the application found it correctly.



## 6. Software Upgrades

Honeywell Analytics will release new versions of IQ Force dock software from time to time. Upgrades may be loaded onto the PC from a CD or may be downloaded from the Internet.

To install the new version from CD, simply place the disc in your PC's CD tray. The upload will start automatically and will immediately prompt you to install the software.

To upload the new flash file from the Internet, go to the Honeywell Analytics Software Downloads web site at: <http://www.biodownloads.com>

To upgrade the flash, download the new flash from Biodownloads.com to the following folder(s) based on your operating system:

- 32-bit operating systems: C:\Program Files\Honeywell\IQ Pro\IQ Force\Dock Flash
- 64-bit operating systems: C:\Program Files(x86)\Honeywell\IQ Pro\IQ Force\Dock Flash

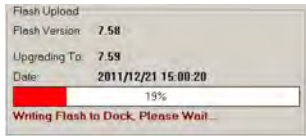
After the file is copied to the proper location, start the IQ Force dock application and the dock(s) will be upgraded automatically.

The application will load the new flash and check each dock if an upgrade is needed. If a dock needs an upgrade, the following will be shown.



## Help Menu

Click **Yes** or **Yes to All**. The status of the upload is shown at the far right of the screen in the dock's information page.



The dock' LCD will also indicate that the flash is being uploaded.



### CAUTION

Interfering with the flash upload may result in damage to the IQ Force dock.

Once the upload is completed, you'll need to restart the application for the new settings to take effect.



### NOTE

**The IQ Force dock will restart automatically.**



### Appendix A Calibration Frequency Recommendation

One of the most common questions we are asked is: “How often should I calibrate my gas detector?”

#### Sensor Reliability and Accuracy

Today’s gas sensors are designed to provide years of reliable service. In fact, most common sensors are designed so that with normal use they will only lose 5% to 10% of their sensitivity per year.

However, there are a number of reasons why a sensor may unexpectedly lose additional sensitivity or even fail to respond to gas. Such reasons include desiccation, poisoning, physical restriction of airflow, over exposure, internal leakage, or mechanical damage due to physical shock and immersion.

#### Verification of Accuracy & Related Terminology

With so many reasons why a sensor can lose sensitivity and given the fact that dependable sensors are critical to survival in a hazardous environment, frequent verification of sensor performance is paramount.

There is only one sure way to verify that a sensor can respond to the gas for which it is designed. That is to expose it to a known concentration of target gas and compare the reading with the concentration of the gas to ensure that it is within a manufacturer’s recommended tolerable limits. This is referred to as a “calibration check”. This test is very simple and takes only a few seconds to accomplish. **The safest course of action is to do a “calibration check” prior to each day’s use.**

It is not necessary to perform a full calibration (adjustment) unless readings for LEL and toxic gases/vapors are outside of the range of 90% to 120% of

the expected value. For oxygen, the acceptable range is considered to be  $\pm 0.5\%$  vol., so 20.4% to 21.4% O<sub>2</sub> in ambient clean air or via application of zero air. Further for oxygen, for application of Honeywell 18.0% O<sub>2</sub> balance gases, the reading should again be within  $\pm 0.5\%$  vol., so 17.5% to 18.5% O<sub>2</sub>.

#### Lengthening the Intervals between Calibration Checks

We are often asked whether there are any circumstances in which the period between calibration checks may be lengthened.

One of the professional organizations to which Honeywell Analytics, formerly Biosystems/Sperian, belongs is the International Safety Equipment Association (ISEA). The “Instrument Products” group of this organization has been very active in developing a protocol to clarify the specific conditions under which the interval between calibration checks may be lengthened.

A number of leading gas detection equipment manufacturers have participated in the development of the

ISEA guidelines concerning the recommended frequency and types of detector performance tests, as well as adoption of the associated standard terminology. Our procedures closely follow these guidelines.

If your operating procedures do not permit ongoing daily calibration checks, we recommend the following procedure to establish a safe and prudent accuracy check schedule for your detectors:

1. During a period of initial use of at least 10 days in the intended environment, perform a calibration check daily to be sure there is nothing in the atmosphere, which is poisoning the sensor(s). The period of initial use must be of sufficient duration to ensure that the sensors are exposed to all conditions that might have an adverse effect on them.

## Calibration Frequency Recommendation

---

2. If these tests demonstrate that it is not necessary to make a full calibration (adjustment) the time between checks may be lengthened. The interval between calibration checks should not exceed 30 days.

3. When the interval has been extended the toxic and combustible gas sensors should be replaced upon warranty expiration. This will minimize the risk of failure during the interval between calibration checks.

4. The history of the instrument response between checks should be kept. Any conditions, incidents, experiences, or exposure to contaminants that might have an adverse effect on the calibration state of the sensors should trigger the need for an immediate calibration check before further use.

5. Any changes in the environment in which the instrument is being used, or changes in the work which is being performed, should trigger a resumption of daily calibration checks.

6. If there is any doubt at any time as to the accuracy of the sensors, perform a calibration check, before further use.

Gas detectors used for the detection of oxygen deficiency, flammable gases and vapors, or toxic contaminants must be maintained and operated properly to do the job they were designed to do. Always follow the guidelines provided by the manufacturer for any gas detection equipment you use!

If there is any doubt regarding your gas detector's accuracy, do a calibration check! All it takes is a few moments to verify whether or not your detectors are safe to use.

### One Button Automatic Full Calibration and Calibration Docks

While it is only necessary to do a calibration check to ensure that the sensors are working properly, all current Honeywell Analytics/Sperian, and /Honeywell Analytics Safety Systems gas detectors offer a one button auto full calibration feature. This feature allows you to do a full calibration of a gas

detector in about the same time as it takes to complete a calibration check.

The use of calibration docks can further simplify the tasks, while automatically maintaining electronic records of sensor performance.

Please read also the application note: 13-366 "Use of 'equivalent' calibration gas mixtures". This note provides procedures to ensure safe calibration of LEL sensors that are subject to poisoning.

Honeywell Analytics's website is at: [http://www.sperian.de/Americas/Product\\_Catalog/Instrumentation.aspx](http://www.sperian.de/Americas/Product_Catalog/Instrumentation.aspx)

Don't take a chance with your life

Verify accuracy frequently

Please read also Honeywell Analytics's application note AN20010808 "Use of 'equivalent' calibration gas mixtures". This application note provides procedures to ensure safe calibration of LEL sensors that are subject to silicone poisoning



## Calibration Frequency Recommendation

---







50109191-140

Revision 1

August 2012

© 2012 Honeywell Analytics. All Rights reserved.