DSX™
DOCKING STATION



Product Manual

DSX Standalone Mode
DSXi Cloud-connected Mode
iNet® Accounts

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INDUSTRIAL SCIENTIFIC

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1

Warnings and Cautionary Statements

Failure to perform certain procedures or note certain conditions may impair the performance of this product. For maximum safety and optimal performance, please read and follow the procedures and conditions listed below.

⚠ Use only in a clean-air environment known to be nonhazardous.

⚠ Use of this product in areas where it may be subject to large amounts of electromagnetic interference may affect the reliable operation of this device and should be avoided. Sources of large amounts of interference could be and are not limited to:

Operation near high radio frequency (RF) fields (near 2-way radio transmission antennas where the RF fields may greatly exceed 10 V/M, etc.).

AC Power Mains that may have excessive power surges, spikes, or transients (from large AC motors operating heavy loads, which may induce voltage sags, etc.).

⚠ Use only at altitudes below 2,000 m (6,000 ').

⚠ NOTE: This product has been tested to, and passes all EMC requirements to EN 61326-1:2013 Electrical Equipment for Measurement, Control and Laboratory Use for Type 2 (Industrial) Apparatus, as well as FCC Part 15, Class A emissions levels when installed to the requirements outlined within this manual. Mandatory compliance to these standards helps to ensure controlled, reliable operation of this device when exposed to typical levels of electromagnetic interference as well as ensuring that this device is not the source of emissions that might interfere with other equipment installed nearby.

⚠ NOTE: Per 30 CFR 75.320(b), the product tests for oxygen deficiency of MSHA-approved oxygen detectors compatible with the product that can detect 19.5% oxygen with an accuracy of ±0.5%.

⚠ NOTE: Per 30 CFR 22.7(d)(2)(i), the acceptable limit during calibration and bump testing with 2.5% methane must be 10% for MSHA-approved instruments using Industrial Scientific certified calibration gas.

⚠ NOTE: This product has an internal pump that controls the flow of gas delivered to the system. As a result of the internal pump, a demand-flow regulator must be used in conjunction with this product.

⚠ Higher wind speeds and areas that use strong ventilation systems can dilute calibration gases during zeroing, bump testing, and calibration.

Notice: The software associated with this product contains open source components. To obtain licensing and related information about these components, click here.

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General Information

Introduction
Capabilities
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System Requirements and Supplies
Certifications
Care and Operating Guidelines
Training

Introduction

The DSX™ Docking Station can be installed for use with the gas detection instruments and program platforms of Industrial Scientific. Within this manual, the docking station is referred by order type or the references noted below:

Order type	Reference
DSX Standalone Mode	Standalone Mode (unit, order, etc.)
DSXi Cloud-connected Mode (DSXi)	DSXi (unit, order, etc.)
DSX-to-DSXi upgrade (DSXi)	DSXi (unit, order, etc.)
iNet® Account (replacement or add-on equipment)	iNet Account (unit)

Capabilities

The DSX Docking Station order types named above each provide the following**.**

- Choice of 3 or 6 gas intake ports
- Charging of compatible instruments
- Choice of display-screen language: English, French, German, Portuguese (Brazilian), or Spanish
- Automated and on-demand (“forced”) bump tests and calibrations

Each order type offers additional functionality as summarized below.

DSX Standalone Mode

Automatically performs one on-dock task (bump test [default setting] or calibration).

When a USB data storage device (included) is connected, the following are automatically downloaded to the device when an instrument is docked:

- Records for station-performed bump tests
- Records for station-performed calibrations
- Instrument data logs

Downloaded data are saved to the USB in CSV (comma separated values) file format, which can be opened with (or imported to) a spreadsheet.

DSXi Cloud-connected Mode

Automatically performs all scheduled instrument tasks on-dock including bump tests, calibrations, firmware updates, and settings changes.

Instrument data logs and station-performed bump tests and calibrations are automatically uploaded to the cloud-based Gas Detection Program Platform, iNet Control.

Access to the iNet Control software interface, which provides these capabilities:

- View your gas detection program summary and learn of specific issues that need attention.
- View alarm events, other instrument data, reports, and alerts.
- Basic account administration including global (fleet) event settings and special events.
- Organizational tools to create equipment groups and assign settings to equipment groups or equipment items.
- Set up users for iNet Control access and the automatic receipt of reports and alerts; limit or expand a user's access level.

Docking station firmware and iGas® cylinder compatibility data are automatically updated.

iNet Accounts

Automatically performs all scheduled instrument tasks on-dock including bump tests, calibrations, firmware updates, and settings changes.

Instrument data logs and station-performed bump tests and calibrations are automatically uploaded to the cloud-based Gas Detection Program Platform, iNet Control.

Access to the iNet Control software interface, which provides these capabilities:

- View your gas detection program summary and learn of specific issues that need attention.
- View alarm events, other instrument data, reports, and alerts.
- Basic account administration including global (fleet) event settings and special events.
- Organizational tools to create equipment groups and assign settings to equipment groups or equipment items.
- Set up users for iNet Control access and the automatic receipt of reports and alerts; limit or expand a user's access level.

Docking station firmware and iGas cylinder compatibility data are automatically updated.

All iNet docking stations and instruments are leased from and maintained by Industrial Scientific. When an equipment item is in need of service, iNet Control notifies the account administrators, removes the item from service, and ships a replacement item.

Compatibilities

Each docking station is compatible with one of the following Industrial Scientific instruments:

- GasBadge® Pro
- MX6 iBrid® Multigas Monitor
- Tango® TX1 Single-gas Monitor
- Tango® TX2 Two-gas Monitor
- Ventis® LS Multigas Monitor
- Ventis® MX4 Multigas Monitor
- Ventis® Pro4 Multigas Monitor
- Ventis® Pro5 Multigas Monitor
- SafeCore® Module (used with Radius® BZ1 Area Monitor)

The docking station is compatible with only iGas cylinders used with demand-flow regulators and card-reader-and-tubing assemblies, all from Industrial Scientific. The use of demand-flow regulators that have an iGas pressure switch is recommended for DSXi units and required for iNet Accounts.

The adapter tubing assembly (part number 17156572) *must be* used with the aspirated SafeCore Module.

DSXi units are compatible with iNet for the cloud-based storage of and access to data. Standalone Mode units use a USB storage device for data storage and access, and can be used with PCL3 compatible printers.

System Requirements and Supplies

DSX Standalone Mode

A PC and Ethernet cable is recommended for setup.

DSXi Cloud-connected Mode and iNet Accounts

A network connection is required for setup and operation.

The network connection must provide 10/100 Ethernet support using a Cat5 (or greater) Ethernet cable with RJ45 connectors. For longer cables, 14−110 m (46–360 '), use a solid conductor shielded twisted pair Ethernet cable.

The docking station does not natively support wireless networking. If a wireless connection is desired, it can be established through third-party hardware solutions such as wireless bridges or mobile broadband routers plugged into the unit's LAN port. Use of such a wireless solution will not affect docking station operation.

Certifications

The product is certified for use as indicated on the labels affixed to the docking station.

Care and Operating Guidelines

Use the following guidelines to enhance personal safety and the protection of the docking station and working environment.

The unit should be serviced by qualified personnel only. Contact Industrial Scientific for Technical Support, troubleshooting, or repair service.

The unit is equipped with a fixed-voltage power supply and will operate at only one voltage (see the regulatory label on the outside of the unit for its operating voltage). To help protect the unit from sudden, transient increases or decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).

To reduce the risk of electric shock or fire:

- Do not use the unit during an electrical storm without proper protection.
- Do not connect or disconnect any cables to or from the unit during an electrical storm.
- Do not expose the unit to rain or moisture.
- Do not push any objects into the openings of the unit.

To avoid possible damage to the unit's system board, wait 5 seconds after powering off the unit before restarting. To avoid shorting the unit when *disconnecting* a network cable, first unplug the cable from the unit, and then from the network jack. When *connecting* a network cable, first plug the cable into the network jack, then the other end into the unit.

Be sure nothing rests on the unit's cables or tubing and that the tubing is not kinked. Ensure cables and tubing are not located where they can be stepped on, tripped over, loosened, disconnected, or cut.

- Do not place the unit on or near flammable materials.
- Do not use corrosive chemicals or vapors near the unit.
- Do not immerse the power cable or plug in water.
- Do not drop the unit.

Before cleaning the unit, disconnect the power supply from the power source.

- Clean the unit with a soft cloth dampened with water.
- Do not spray water directly onto the unit.
- Do not use liquid or aerosol cleaners, which may contain flammable substances.

Compressed gas cylinders and their contents may present specific hazards to the user. Use only in a well-ventilated area. Use only in accordance with the instructions and warnings as marked on the cylinder and the appropriate Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS).

Training

Industrial Scientific offers classroom and self-guided online training options for a variety of topics, including the setup and operation of the docking station. For more information, visit the *Training* section of the Industrial Scientific website, www.indsci.com.

3

Getting Started

Work-space Checklist
Unpack
Hardware Overview
Specifications

Work-space Checklist

- ✓ Set up and use the docking station in an area that is known to be nonhazardous.
- ✓ Choose a work space that is large enough to accommodate the unit and its accessories with an accessible power source.
- ✓ For DSXi and iNet Account units, choose a work space that is in close proximity to a network connection; for DSX Standalone Mode units, a computer connection.
- ✓ As needed, mount cylinder holders to the desired desk or wall locations.
- ✓ Abide by all care and operating guidelines during setup and operation.

Unpack

The box contains those items listed and shown below (as ordered). Each ordered item should be accounted for in the unpacking process.

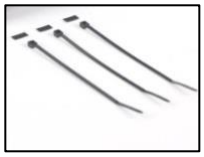
After unpacking, if any item is missing or appears to have been damaged, contact Industrial Scientific or a local distributor of Industrial Scientific products.



Item (part number)

DSX Docking Station

- GasBadge® Pro (18109331)
- MX6 iBrid® (18109329)
- SafeCore® Module (18109396)
- Tango® TX1 and Tango® TX2 (18109330)
- Ventis® LS (18109328)
- Ventis® Pro4, Ventis® Pro5, and Ventis® MX4 (18109327; diffusion model shown here)

	Item (part number)
	iGas Card-reader-and-tubing assembly (18105684)
	Cable retainer rubber pads and cable ties (17156905-1)
	Power supply (17156869) With adapters for Australia, Europe (Europlug), North America, and UK and Ireland
	Power cord, dedicated (optional; use with power supply in place of adapter) • Australia (17155001) • Europe [Europlug] (17155003) • North America (17155000) • UK and Ireland (17155005)
	Fresh-air fitting (factory installed)
	USB data storage device (17157119; for DSX Standalone Mode orders only)
	Diffusion insert (18109547; for Ventis Pro4, Ventis Pro5, and Ventis MX4 diffusion instruments only)
	Aspirated insert (18109548; for Ventis Pro4, Ventis Pro5, and Ventis MX4 aspirated instruments only)
See Figure 5.1	SafeCore adapter tubing (17156572; for SafeCore aspirated modules only) MX6 pump adapter (17131285; for MX6 aspirated instruments only)

Hardware Overview

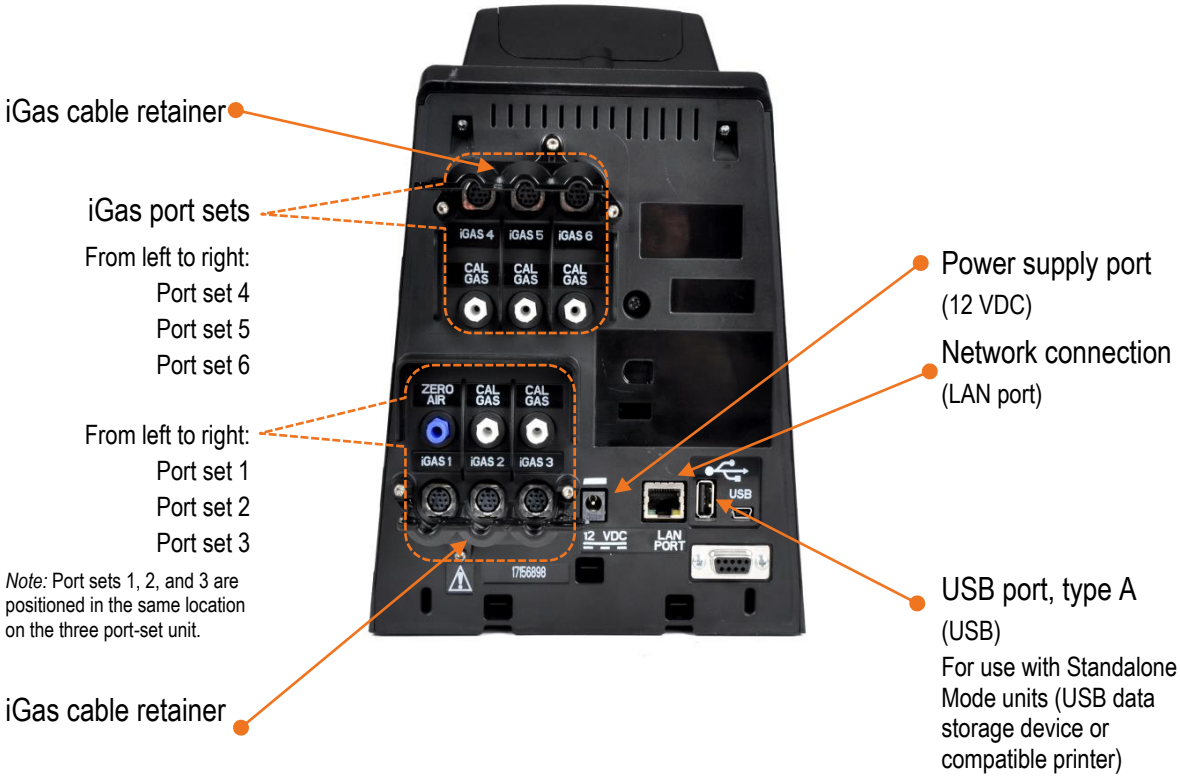
Front

(Ventis Pro Series and Ventis MX4 diffusion model shown)



Back

Back panel (six port-set unit shown)



Specifications

Physical Specifications

Instruments supported	GasBadge® Pro, MX6 iBrid®, SafeCore® Module, Tango® TX1, Tango® TX2, Ventis® LS , or Ventis® Pro4, Ventis® Pro5 and Ventis® MX4
Dimensions	GasBadge Pro, Tango TX1, and Tango TX2: H: 22.66 cm (8.92 "); W: 18.1 cm (7.13 "); D: 30.22 cm (11.9 ") Ventis Pro4, Ventis Pro5, Ventis MX4: Aspirated: H: 27.94 cm (11 "); W: 17.78 cm (7 "); D: 30.48 cm (12 ") Diffusion: H: 25.4 cm (10 "); W: 17.78 cm (7 "); D: 30.48 cm (12 ") Ventis LS: H: 24.97 cm (9.83 "); W: 18.1 cm (7.13 "); D: 30.22 cm (11.9 ") MX6 iBrid: H: 25.3 cm (9.96 "); W: 18.1 cm (7.13 "); D: 30.22 cm (11.9 ") SafeCore Module: H: 27.3 cm (10.75”); W: 18.1 cm (7.13”); D 32.12 cm (12.65”)
Gas and fresh-air intake ports	3-port configuration: two gas and one fresh air 6-port configuration: five gas and one fresh air
Pump flow rate	1.2 SCFH (550 mL/min)
Communication	10/100 Ethernet support using a Cat5 (or greater) Ethernet cable with RJ45 connectors (for longer cables, 14−110 m [46–360 '], use a solid conductor shielded twisted pair Ethernet cable). USB port for data storage device or printer (for use with Standalone Mode units only).
Display	128 x 64 dot matrix LCD Language options: English, French, German, Portuguese (Brazil), or Spanish

Performance Specifications

Operating temperature range	0–50 ºC (32–122 ºF)
Operating humidity range	0–80% relative humidity (RH) up to 30 ºC (86 ºF), decreasing linearly to 50% RH at 50 ºC (122 ºF)
External power supply ratings	Supply voltage: 100–240 VAC/12 VDC Frequency range: 50–60 Hz Current rating: 5A

4

Setup

Introduction
Setup Instruction

Introduction

Based on your order type, complete the instruction steps noted below. It is important to complete these tasks in the stated order.

Order type	Complete these steps*
DSX Standalone Mode	2–20
DSXi Cloud-connected Mode	1A and 2–18
DSX-to-DSXi upgrade	1B and 2–18
iNet Account (replacement or add-on equipment)	2–18

*If the docking station will be dedicated to service only Ventis Pro Series and Ventis MX4 units, also complete step 21.



When setup is completed, your docking station will look similar to the image shown here. It may differ based on the number or type of connected cylinders and whether the unit is or is not connected to a network or computer. If you have any questions during setup, contact Industrial Scientific.

Setup Instruction

Step Task

1 Activation

To activate a DSXi Cloud-connected unit or a DSX-to-DSXi upgrade unit:

a. Go to www.indsci.com/mydsx

b. Follow the on-screen prompts to activate your DSX Docking Station and request access to your iNet Control account.

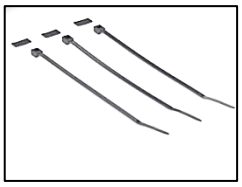
Note: The Docking Station serial number (S/N) is *required* for activation. The S/N is printed on a sticker located on the back of the unit (S/N also displays on screen when the unit is powered on).

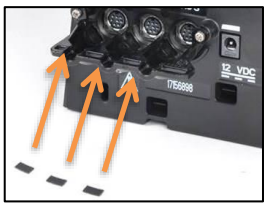
c. To install additional units, log into iNet Control. Click on the “Fleet” tab: from the drop-down menu, select “Activate a Docking Station” and follow the on-screen instructions.

The remaining setup steps are shown below in detail. Those pertaining to the back of the docking station (steps 2-18) can also be viewed as part of a completed docking station setup on page 18.

2 iGas Cable Retainer Setup

The docking station comes with three adhesive-backed rubber pads and three cable ties. They are used to prevent movement of the iGas cables while they are connected to the docking station.





Install the adhesive-backed rubber pads into the recessed areas of the cable retainer.

3 Network connection *for DSXi units and iNet Accounts*
PC connection *for Standalone Mode units*

For DSXi units and iNet Accounts, a network connection is required for setup and operation.

For Standalone Mode units, a PC connection is recommended for setup. This allows you to access and adjust the unit's settings through the on-board, easy-to-use DSX Configurator. For example, you can change the unit's date and time setting to match your time zone so that bump test and calibration records have accurate date-time stamps. Once setup is completed, Standalone Mode units can be disconnected from the computer.

–

Plug the cable into the Network (or PC for Standalone Mode orders).



Connect the other end to the docking station's LAN port.

4-8 Start-up

The docking station comes with a power supply and plug adapters. If ordered, a dedicated power cord can be used in place of the adapter, an option that works well with narrow power strips. Instruction is provided for using either option.



4. Connect the power supply to the docking station's 12 VDC port.



5. From the other end of the power supply, remove its cover: press the release tab and slide the cover in the direction indicated. Store the cover for possible future use.





6. In the manner the cover was removed, replace it with the adapter that is suitable for your outlet (above left). If a dedicated power cord was ordered, use it in place of the adapter (above right).

There is no power switch on the docking station. The unit is powered on and off at the power source.



7. Plug the power cord into a suitable outlet.

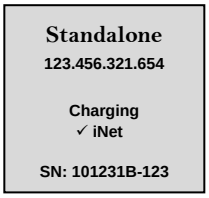
A series of start-up messages appear on the docking station's display screen to indicate the unit is receiving power.

The LED lights turn on to verify they are functioning and a chirp will sound.

Note: If the unit doesn't power on, check the power connections at the back of the unit, power supply, and power source.

–





8. Check the docking station's display panel.

When start-up is successfully completed, the green LED light will be on and the "ready screen" should display this text:

- For Standalone Mode units, "Standalone" (above right).
- For DSXi units and iNet Accounts, "Docking Station" and "√ iNet" (above left). Note: If these messages don't display within 15 minutes, the unit is not cloud-connected. DSXi users, recheck the work you did in Step 1, "Activation". For iNet accounts, contact Industrial Scientific.

i iGas port sets

Each docking station features three (shown here) or six port sets.

A port set comprises two items that are vertically aligned, a numbered *cable port* (labeled iGAS X, where X=1, 2, 3, 4, 5, or 6) and a corresponding *intake port* for tubing.

- Use the port set iGAS 1 *for air only*. Its intake port is labeled ZERO AIR and is *blue* in color.
- Use the port sets iGAS 2 through iGAS 6 for calibration gas. Each set's intake port is labeled CAL GAS and is *white* in color.



Close-up of port sets 1, 2, and 3

9 Fresh-air fitting

The fresh-air fitting is installed at the factory and is connected to the blue intake port labeled ZERO AIR (shown here). The corresponding iGAS 1 cable port is *not* used with the fresh-air fitting.



If your application *uses* a fresh-air fitting, go to step 10.

If your application *does not use* a fresh-air fitting and requires a zero-grade-air cylinder, remove the fresh-air fitting: turn its white swivel connector counterclockwise.



10-18 iGas cylinder connections

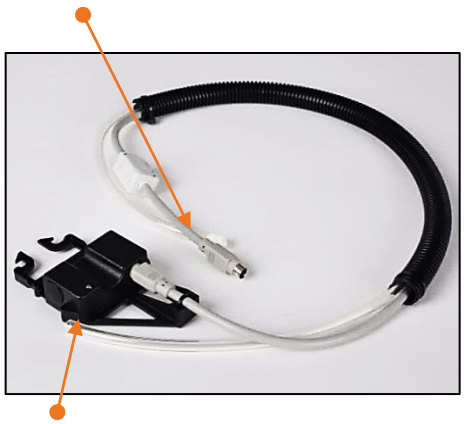
The docking station is compatible only with iGas cylinders that are equipped with demand-flow regulators. Each compatible cylinder is connected to the docking station using an iGas card-reader-and-tubing assembly (assembly; shown at right).

Whether it contains calibration gas or zero-grade air, each cylinder is connected to its port set in the same manner.

- Connections for a calibration gas cylinder are shown and described below using the port set, iGAS 2−CAL GAS.
- If you are connecting a zero-grade-air cylinder, follow the instructions below, *but* use the port set iGAS 1−ZERO AIR.

Depending on site needs, each calibration-gas port set can be connected for use or left disconnected when not needed. The air port set should always have either the fresh-air fitting or a zero-grade-air cylinder connection.

Note: The docking station will recognize any incompatible cylinders on connection and will indicate the error on the display screen. A Standalone Mode unit will recognize the compatible cylinders contained in its memory, which can be updated by contacting Industrial Scientific.



iGas Card-reading-and-tubing assembly



10. Attach the appropriate demand-flow regulator to the cylinder. Turn the cylinder clockwise to tighten.



11. Slide the iGas card, which is attached to the cylinder, into the assembly's card reader.



12. Attach the open end of the assembly's tubing to the regulator nipple.



13. If the regulator is equipped with a pressure switch (recommended for DSXi units and required for iNet Accounts), plug its tab into the slot on the side of the card-reader.



14. Plug the cable connector (arrow faces up) into the iGAS 2 cable port.



15. From underneath the retaining bracket, insert the narrow tip of the cable tie through the hole to the right of the cable being secured. Feed the cable tie over the cable, then down through the hole on the left side of the cable. Guide the tip through the fastener head.



16. Pull the cable tie to tighten the cable securely into position.



17. Trim the excess.

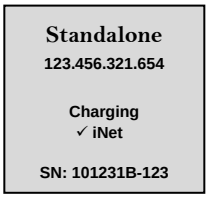


18. Attach the tubing's white swivel connector to the CAL GAS port located directly above the iGAS 2 cable port. Turn clockwise to tighten.

Important!: Do NOT "cross-connect" any assembly's tubing and cable to two different port sets! The docking station will *not* recognize this and bump test and calibrations will fail.

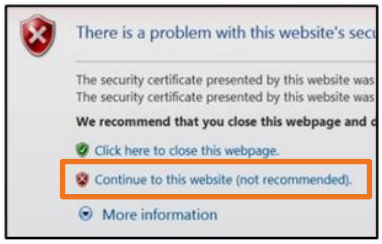
Repeat steps 10-18 to connect additional calibration gas cylinders using the port sets iGAS 3, 4, 5, or 6.

19 Settings *for DSX-i and Standalone Mode units* ***ONLY***



19.1 Find the unit's IP address displayed on the "ready" screen (123.456.321.654 shown here).

Open a web browser and enter https:// followed by the unit's IP address and press enter.



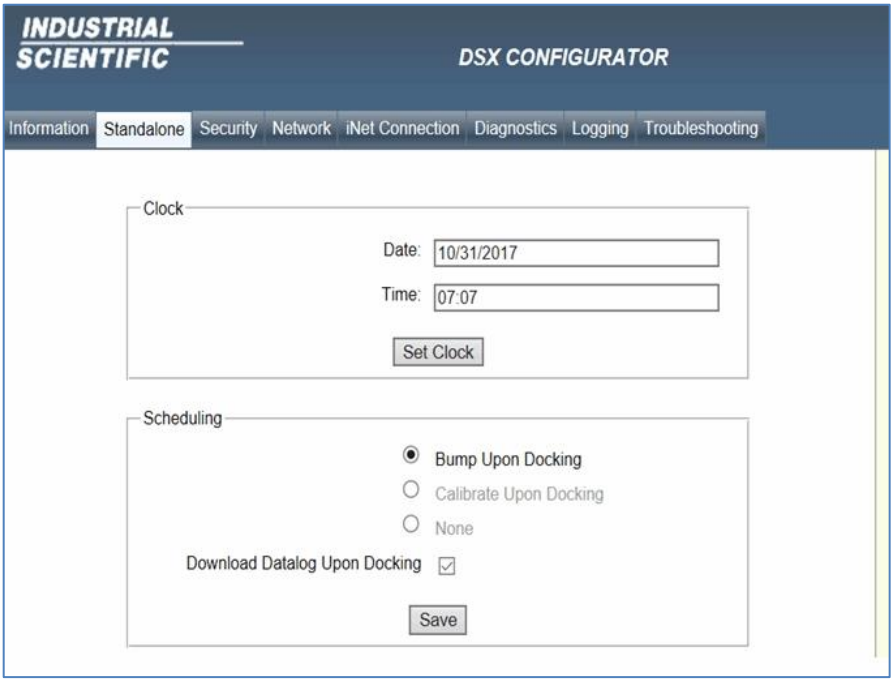
19.2 At the security warning window, choose the option that allows you to continue. This device web site uses a certificate signed by Industrial Scientific. *Note:* This option may *not* be recommended.



19.3 In the security dialog, enter DSX for user name, the unit's serial number (e.g. 101231B-123, *case sensitive*) for password. Click OK. You will be prompted to change the password before continuing.

Note: For older versions of the DSX docking station, enter "DSX" for the password. Click OK. You *may* be prompted to change the password.

DSX Configurator will open:



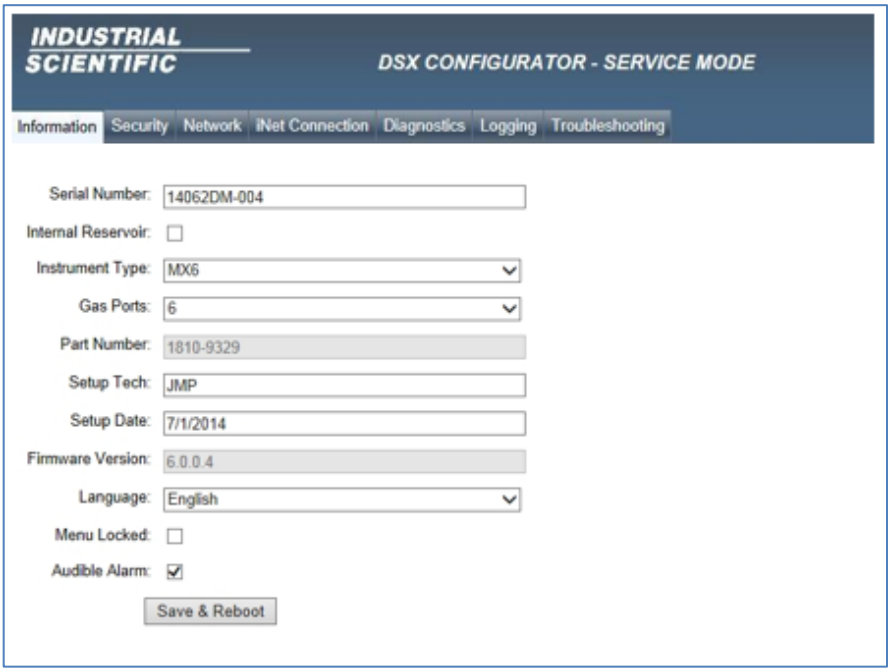
19.4 Click on the configurator's Standalone tab.

Set the date and time (24-hour format). Click on Set Clock.

Set the on-dock task (bump test, calibration, or none).

Enable the Download Data log feature with a checkmark (recommended). This enables the automatic download of a docked instrument's data to a connected USB data storage device. To disable this feature (not recommended), click on the box to remove the checkmark.

Click on Save.



19.5 Click on the configurator's Information tab.

From the Language drop-down menu, choose the desired language for the docking station display.

The Audible alarm feature is enabled with a checkmark and causes the docking station to alarm when an instrument is docked. To disable this feature, click on the box to remove the checkmark and turn off the on-dock alarm.

When the Menu Locked option is enabled with a checkmark, the docking station *cannot* be used for on-demand tasks.

Click on Save & Reboot.

19.6 After the docking station reboots, you may disconnect it from the computer for Standalone Mode operation.

20 Records and data *for Standalone Mode units* ***ONLY***

For Standalone Mode units, Industrial Scientific recommends that a USB data storage device be connected to the docking station's USB port (type A). As shown here, the USB port is located on the back of the unit next to the LAN port.



When connected, the following are automatically downloaded to the device when an instrument is docked: instrument data logs and records for docking station-performed bump tests and calibrations. It is important to connect a USB device because *no records or data are ever saved to the docking station itself*.

As noted earlier, records and data are saved to the USB device in CSV file format, which can be opened with (or imported to) a spreadsheet.

Notes:

After a data log is downloaded to the USB device, the docking station will clear it from the instrument.

A compatible printer can be connected in place of the USB data storage device; however, only calibration and bump test records–not instrument data logs–will be sent to the printer.

Either the USB device *or* printer can be connected at any one time, but not both at the same time.

21 Ventis cradle insert installation



Aspirated



Diffusion

The Ventis cradle inserts are for docking stations dedicated to Ventis Pro Series and Ventis MX4 instruments. The instruments with a pump will use the aspirated insert; instruments without a pump will use the diffusion insert. Removal and installation are the same for both types of inserts.



Loosen the top captive screws* and lift the insert up and out of the opening.



Position the replacement insert's bottom tab into the cutout of the opening; seat into place.



Tighten the top captive screws* by pushing down to compress the spring, while turning clockwise.

*A Phillips screwdriver is required.

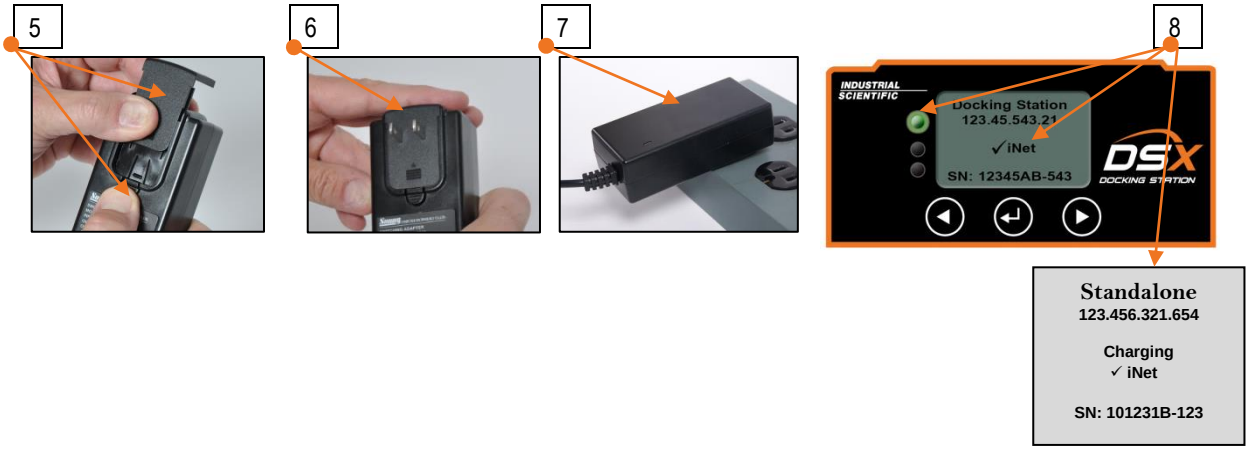
Setup Steps 2–20

1 See “Activation”.



iGas card-reader-and-tubing assembly (use for steps 10–18)





iGas cylinder with a demand flow regulator that is equipped with a pressure switch

Card-reader-and-tubing assembly connects the cylinder to the port set iGAS 2–CAL GAS (also shown: fresh-air filter, power cord, and Ethernet cable)

5

Use

Instrument docking orientation
Use Instruction
Error Messages
Warranty

Instrument docking orientation

Not all instruments are docked the same way. Figure 5.1 below shows the docking orientation based on the instrument type. Notice some of the instruments are docked faceup, while others are docked facedown. The SafeCore® Module for the Radius® BZ1 Area Monitor is docked by module connector.

Faceup

MX6 iBrid®		GasBadge® Pro	Ventis® LS
			
Aspirated	Diffusion		

Facedown

Ventis® Pro4, Ventis® Pro5, and Ventis® MX4		Tango® TX1 and Tango® TX2	
			—
Aspirated	Diffusion		

Module Connector			
SafeCore® Module (Radius® BZ1)			
		—	—
Aspirated	Diffusion		

Figure 5.1 Instrument docking orientation

Use Instruction

The docking station can be used when the green LED is on. If the red or yellow LED is on, check the station's display screen for a message. Yellow usually indicates that the docking station is performing some task, such as "Updating Instrument Settings." Red means there is an error, which will be indicated on the display screen. Error messages are covered later in this chapter.

On-dock use

DSXi and iNet Account units will automatically perform all scheduled tasks and updates for any compatible instrument in the account.

Standalone Mode units will automatically perform the on-dock task established in *Chapter 4, Step 19.4.* If a USB data storage or printer has been connected, records or data will be sent to the device as described in *Chapter 4, Step 20*.





Dock a compatible instrument (Ventis Pro Series diffusion shown).

Lift the hood and place the instrument facedown, bottom first into the cradle; lower the hood.The hood uses spring tension to hold the instrument in place.

⚠ **Caution:** Pinch points—Keep fingers and hands clear of the spring hinge.

Based on the sensor configuration of the installed instrument, the docking station will draw gas (or air), as needed, from the appropriate cylinder(s).

On-demand use

When an instrument is docked, the B (bump test) and C (calibration) symbols display on screen above the left and right arrow buttons, indicating the availability of one-button bump testing and calibration.



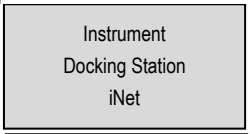
You can perform a one-button bump test or calibration when the docking station is in these states.

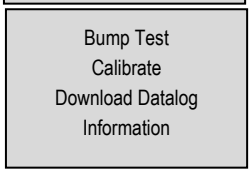
- Instrument Ready
- Bump Test Failure
- Calibration Failure

To perform an on-demand, one-button bump test, press the left arrow button (◁). To perform an on-demand, one-button calibration, press the right arrow button (▷). The docking station will ask you to confirm the event and will initiate the respective gas operation after confirmation.

You can also initiate an on-demand bump test or calibration using the following steps.

1. Press the enter button (↵) to display the main menu (shown at right).
2. Use either arrow button (◁ or ▷) to highlight *Instrument*, then press the enter button to display the instrument menu.
3. Use either arrow button to highlight the desired procedure from the instrument menu (shown at right).
4. Press the enter button to initiate the highlighted procedure.
5. Follow on-screen prompts to complete the selected procedure.





After a bump test failure, if an on-demand calibration procedure is initiated and successfully completed, the docking station will automatically perform a bump test on the instrument. Similarly, the docking station will automatically perform a calibration procedure on an instrument when a calibration procedure fails, and an on-demand bump test is initiated and successfully completed.

Notes: The Instrument menu's "Information" option will display the instrument type, firmware version, and serial number. For Standalone Mode units, the "Download data log" option appears on the instrument menu only if a USB device is connected.

Like the instrument menu, there are docking station and iNet menus that are accessible from the main menu. They feature these options:

Docking Station menu options

- Diagnose*: use this to initiate docking station diagnostics.
- Information: view basic information about the docking station, such as serial number.
- Cylinder: view information about the cylinders that are connected to the docking station.
- Force gas retry: viewable only when a non-iGas cylinder is assigned and is empty.
- Troubleshoot: use this when instructed to do so by an Industrial Scientific representative.

iNet menu* options

- Refresh settings: refresh the docking station's iNet settings between automatic settings updates.
- Account: view the docking station's account number for a cloud-connected unit. If the unit is not associated with an account, the display message will read "Not activated". *Note:* Standalone Mode units may display an account number that is assigned for use by Industrial Scientific representatives.

*Not available for Standalone Mode units.

Error Messages

The station's red LED light indicates one of these general conditions:

- There is error with the docking station.
- The docking station is unable to communicate with the gas cylinders, the internet, or iNet.
- The instrument is in some state of failure.

Read the docking station's display message and refer to Table 5.1 for information about possible causes, status, and recommended actions.

Table 5.1 Understanding error messages

Message	Possible causes or status	Recommended actions
Biasing Failed	A bias sensor is installed in the instrument and has failed biasing.	Contact Industrial Scientific.
Bump Failure (H2S, CO) Check Gas Connection. Both B and C symbols display on screen.	More than one installed sensor failed bump test. The display message will indicate the in-failure sensors and recommend checking the gas connections. (H2S and CO shown)	Check the gas connections. If the sensor type requires a manual bump test, undock the instrument and bump test the sensor; otherwise, use the docking station to complete an on-demand bump test.
Bump Stopped (Check Pump Tubing)	Low gas flow detected; the bump test is stopped until proper flow is restored.	Check all external tubing, gas cylinder, and regulator. Perform an on-demand bump test, once flow is restored.
Calibration Failure (H2S). C symbol displays on screen.	One or more installed sensors failed calibration. The display message will indicate the in-failure sensors. (H2S shown)	If the sensor type requires manual calibration, undock the instrument and calibrate the sensor; otherwise, use the docking station to complete an on-demand calibration. Replace any sensors that will no longer pass calibration.
Calibration Stopped (Check Pump Tubing)	Low gas flow detected; the calibration is stopped until proper flow is restored.	Check all external tubing, gas cylinder, and regulator. Perform a calibration once flow is restored.
Check Cylinder Connections (1810-XXXX)	Indicates a possible error in the cylinder connections. The part number of the affected cylinder is displayed.	Check the cable and tubing connections at the back of the station, the card-reader, and the cylinder's regulator. Be sure that each cable and tubing pair is connected to one port set (i.e., the cables or the tubes are not "cross connected").
Check SD Card	There is an issue with the SD card.	Reboot the docking station. If the issue persists, contact Industrial Scientific
Clear Fresh/Zero Air Port	There may be a blockage at the zero/fresh-air port or in its tubing.	Check for and clear any debris or blockages; check and correct any kinks in the tubing. If the issue persists, contact Industrial Scientific.
Communication Error, Please Retry	This may occur during a gas operation, such as calibration, to indicate the dock is unable to communicate with the docked instrument.	Retry the operation. If the issue persists, contact Industrial Scientific.

Table 5.1 Understanding error messages

Message	Possible causes or status	Recommended actions
Communication Error	The docking station is unable to communicate with the docked instrument. This may indicate a low or dead battery, or an issue is preventing the instrument from charging. For example, the instrument was docked after exposure to cold weather or excess heat was generated during charging.	If the error persists, check the instrument's battery and replace if needed.
Connect Fresh Air or Zero Air to Port 1	The docking station configuration in iNet Control supports both fresh air and zero-grade air on port one.	Ensure a calibration gas cylinder is not connected to this port.
Connect Fresh Air to Port 1	The docking station configuration in iNet Control supports fresh air on port one.	Connect a fresh air fitting to port one.
Connect Zero Air to Port 1	The docking station configuration in iNet Control supports a zero-grade air cylinder on port one.	Connect a zero-grade air cylinder to the fresh air port set.
Contact ISC Code 101-X	The docking station has a system-level error and is inoperable.	The unit requires factory service. Contact Industrial Scientific.
Contact ISC Code 102	There is an issue with the docking station's serial number.	Contact Industrial Scientific.
Contact ISC Code 106	There is an issue with the docked instrument's serial number.	Undock the instrument. Contact Industrial Scientific.
Contact ISC Code 109	An error occurred during an update to the docked instrument's firmware.	Undock the instrument. Contact a member of the safety team or Industrial Scientific.
Contact ISC Code 118	The docking station has a system-level error and is inoperable.	The unit requires factory service. Contact Industrial Scientific.
Contact ISC Code 118-A	As part of calibration, if the instrument did not complete zero for one or more installed sensors	Contact Industrial Scientific.
Contact ISC Code 118-B	An internal error is preventing the docking station from performing its normal operations.	Contact Industrial Scientific.
Cylinder Expired (1810-XXXX)	This message indicates the gas cylinder is expired. The cylinder part number is displayed.	Replace the cylinder.
Cylinder Low (1810-XXXX)	The part number indicates the Industrial Scientific gas cylinder is low.	Plan to replace the cylinder soon.
Instrument Error	The docked instrument is in system alarm. If the instrument is an MX6 a four digit error code will be displayed in the message.	Undock the instrument. Contact a member of the safety team or Industrial Scientific.
Instrument Not Ready	The sensor is biasing, and not ready for gas application.	Wait for the biased sensor to stabilize. The docking station will display a "Ready" message when the sensor has stabilized.

Table 5.1 Understanding error messages

Message	Possible causes or status	Recommended actions
Instrument Pump Fault	The docked instrument is in a pump fault state.	Undock and power off the instrument. Check the instrument's pump and correct for debris, improper installation, or damage in these areas: inlet cap, inlet barrel, and dust filter. Replace any damaged or consumed parts.
Lid Not Closed	An instrument is docked, but the station's lid is not closed.	Check the cradle lid. On closure a slight connection impact can be felt. For stations that serve aspirated instruments, some have a detachable lid: check that the lid is fully attached.
Network Error (DSXi units and iNet Accounts only)	The docking station is unable to connect to iNet Control. If available, the station's IP address is stated on its display screen.	Contact Industrial Scientific.
No Enabled Sensors	The instrument has no installed sensors or the installed sensors are disabled.	Undock the instrument and address any sensor installation or enablement issues.
Prev Cal Fail Manually Calibrate (CLO2)	The display message will indicate the sensor that previously failed calibration. (CLO2 shown) Note: This applies only to sensors that require manual calibration (e.g., CLO2 and O3).	Manually calibrate the instrument.
Replace Cylinder (1810-XXXX)	This message indicates the gas cylinder is empty. The cylinder part number is displayed.	Replace the cylinder.
Return Docking Station to Industrial Scientific (iNet Accounts only)	The station is inoperable. It has been deactivated by iNet.	If an instrument is docked, undock it, and dock the instrument on another compatible docking station. Return the inoperable docking station to Industrial Scientific.
Return Instrument to Industrial Scientific (iNet Accounts only)	The instrument is inoperable. It has been deactivated by iNet. Depending on the instrument type, it may alarm, or it may display a message similar to "config".	Undock the instrument and return it to Industrial Scientific.
Saving to USB drive: FAILED (DSX Standalone Mode units only)	The instrument data download failed.	Check the USB drive connection.
Sensor Error	The docked instrument has a sensor in an error state. If available the position of the in-error sensor will be displayed.	Undock the instrument and address any sensor installation issues.
Sensor Missing	The docked instrument uses DualSense® technology (sensor redundancy) and has only one sensor installed.	The instrument display will indicate which sensor caused the error. Respond according to company safety policy.
Sensor Not Ready (gas abbreviation(s)) Redock instrument	During a bump test or calibration the Sensor-ready check reports the indicated sensor(s) not ready.	Undock and redock the instrument. If the issue persists, contact Industrial Scientific.
Unauthorized Instrument	New or unregistered instrument docked.	Contact your local site administrator if you believe that this message should not be displayed for the docked instrument.
Unavailable Gas CL2	CL2 gas not supplied.	Connect the CL2 cylinder and retry operation.

Table 5.1 Understanding error messages

Message	Possible causes or status	Recommended actions
Undocked Instrument	An instrument was undocked during a docking station operation. The message displays only for a short time.	Redock the instrument.
Zero Failure C displays on screen.	One or more installed sensors failed zero. The display message will indicate the failed sensors.	Use the dock's buttons to request an on-demand calibration.
Zero Timeout C displays on screen.	One or more installed sensors did not complete zero..	Retry the operation. If the issue persists, contact Industrial Scientific.

Warranty and Limitation of Liability

Warranty

Industrial Scientific Corporation's DSX Docking Stations are warranted to be free from defects in material and workmanship under normal and proper use and service as follows:

- DSX Standalone Mode: for two years from the initial date of shipment by Industrial Scientific Corporation.
- DSXi Cloud-connected Mode: for as long as the docking station is supported by Industrial Scientific Corporation.

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