



## Dräger X-dock 5300 Dräger X-dock 6300/6600

**Technical Manual** 



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### 1 For your safety

#### 1.1 General safety notes

- Before using this product, carefully read these Instructions for Use and those of the associated products.
- Strictly follow the Instructions for Use. The user must fully understand and strictly observe the instructions. Use the product only for the purposes specified in the Intended use section of this document.
- Do not dispose of the Instructions for Use. Ensure that they are retained and appropriately used by the product user.
- Only trained and competent users are permitted to use this product.
- Comply with all local and national rules and regulations associated with this product.
- Only trained and competent personnel are permitted to inspect, repair and service the product. Dräger recommend a Dräger service contract for all maintenance activities and that all repairs are carried out by Dräger.
- Only trained and competent personnel are permitted to inspect, repair and service the product as detailed in these Instructions for Use.
- Use only genuine Dräger spare parts and accessories, or the proper functioning of the product may be impaired.
- Do not use a faulty or incomplete product. Do not modify the product.
- Notify Dräger in the event of any component fault or failure.

#### 1.2 Definitions of alert icons

The following alert icons are used in this document to provide and highlight areas of the associated text that require a greater awareness by the user. A definition of the meaning of each icon is as follows:

#### 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, could result in physical injury, or damage to the product or environment. It may also be used to alert against unsafe practices.

#### NOTICE

Indicates additional information on how to use the product.

### 2 Description

#### 2.1 Product overview



- 1 Master
- 2 Module
- 3 Status LED
- 4 Touchscreen display
- 5 Function key
- 6 Fresh air inlet with filter
- 7 Antitheft slot
- 8 Power supply
- 9 USB ports
- 10 Ethernet port
- 11 Mini USB port
- 12 Exhaust
- 13 Gas inlets
- 14 Compressed air inlet
- 15 Type plate
- 16 X-am 125 module
- 17 Charge status LED
- 18 X-am 125+ module (with charging function)
- 19 Pac module

#### 2.2 Feature description

#### 2.2.1 Master

The master assumes control of the sequencing of the maintenance station for functional testing, calibration and adjustment, as well as functions for user management, instrument management, printing of standard reports and standard certificates (using PostScript printers only), and also the user interface.

#### 2.2.2 Modules

The instrument-specific interfaces such as, e.g., IR communication, gas exposure unit and charging contact are integrated into the modules. In addition, the modules contain sensors for detecting the visual, audible and vibration alarms on the instruments.

#### 2.3 Intended use

The Dräger X-dock 5300/6300/6600 is a maintenance station of modular construction. The X-dock can be used to perform automated calibrations, adjustments and bump tests on portable gas monitors in parallel and independently from one another. A system consists of one master for 3 (X-dock 5300/ 6300) or 6 (X-dock 6600) test gases. The X-dock 5300 consists of a master station with one module and cannot be expanded. Up to 10 modules can be connected to the X-dock 6300 and 6600 master. The modules automatically detect when an instrument has been inserted and control the gas supply so that an appropriate supply to the instrument is ensured at all times.



#### CAUTION

If car adapter X-dock is used as power supply for the maintenance station only 5 modules at the most may be connected to the master. You might damage the car adapter X-dock if you connect additional modules.

The following gas measuring devices can be used with the X-dock and its modules:

X-dock 5300/6300/6600		
with Pac module:	with X-am 125 (+) module:	
Dräger Pac 3500	Dräger X-am 1700	
Dräger Pac 5500	Dräger X-am 2000	
Dräger Pac 7000	Dräger X-am 2500	
	Dräger PARAT 5000	
	Dräger PARAT 5600*)	

#### 2.4 Limitations on use

Dräger X-dock 5300/6300/6600 and their modules were not designed to meet the directives for firedamp and explosion protection and must not be used below ground or in hazardous locations.

#### 2.5 GPL (General Public Licence)

Some of the device software includes open-source software, which has been published under GPL, LGPL or another opensource licence. They include GPL GPLv2, LGPL, MIT, PostgreSQL, Apache, Apache 2, zlib. The source texts of the software can be obtained from Dräger on a CD under material number 83 21 874 for at least three years after purchase of the software. The licence terms and conditions of the software are included on CD.

#### 3 Installation

#### WARNING

Risk of personal injury and damage to equipment through faulty maintenance of gas detection instruments.

Unless the maintenance station is properly set up for the scheduled tasks, there is a risk that gas detection instruments are not checked and serviced as expected.

Prior to initial operation the correct design and dimensioning of the appropriately configured instruments must be approved by a qualified specialist.

The maintenance station can automatically recognise the test gases required for the instrument and cross-check them with the connected and configured test gases.

The gas exposure sequence always results from the sequence of the connected test gas cylinders.

The maintenance station has various safety mechanisms at its disposal to prevent configurations critical to safety. For example there are limitations with regard to specific test gas concentrations or an automatic flushing process takes place at the beginning of the test in case of high measured values. Nevertheless, it is necessary for a qualified specialist to design and approve the station for the required task.

The designer for example must take into consideration the cross-sensitivities of the sensors with connected test gases and consult the respective sensor data sheets. A description of the tasks to be accomplished must be provided which in turn determines which test method with which test gas concentration is appropriate.

If the required expert knowledge is not available, it has to be obtained from others (e.g. specialists, test institutions or manufacturers).

#### NOTICE

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Ensure adequate space for the entire assembly.

The master and all modules must have the same firmware version. If this is not the case, a firmware update needs to be carried out (see chapter 9.4 on page 23).

- 1. If applicable, install modules on the master station in accordance with the assembly instructions (X-dock 6300/ 6600 only).
  - A maximum of 10 modules can be installed on one master station.
  - The available modules can be combined in any way desired.
- 2. If applicable, install wall mount or cylinder holder in accordance with the assembly instructions.

3. Remove the sleeves from the intended gas inlets and from the gas outlet.

#### NOTICE

- If the sleeve is not removed from the gas outlet, the station will be unable to conduct the self-test without errors.
- 4. Fit the gas feed hoses to the gas inlets on the master and connect them to the regulator valve on the test gas cylinder.

#### NOTICE

For the gas exposure sequence Dräger recommends using toxic gases with increasing concentrations.

Dräger recommends not to exceed a hose length of 10 m for the gas supply hoses.

- 5. If required, connect an exhaust hose (max. 10 m long) to the exhaust outlet.
- 6. Ensure a supply of compressed air or fresh air:
  - Connect the compressed air hose to the compressed air port (outlet pressure of pressure regulator valve 0.5 bar, flow rate >3 l/min).
  - Adjust fresh air input (see chapter 4.7.2 on page 11). Setting: Supplied by compressed air input.

#### OR

- If required, connect the fresh air hose to the fresh air filter.
- Adjust fresh air input if necessary (see chapter 4.7.2 on page 11). Setting: Supplied by pump.



#### WARNING

Risk of personal injury!

Impurities of the ambient air may result in faulty measurements.

If you use the internal pump to supply fresh air through the fresh air inlet you need to ensure that the ambient air is devoid of interfering substances.

- 7. Connect the power pack.
  - Station with up to 3 modules: Power pack 24 V / 1.33 A
  - Station with 4 to 10 modules: Power pack 24 V / 6.25 A
  - The entire system is supplied with power via the master.



#### NOTICE

Dräger recommends the use of Dräger test gas cylinders and Dräger pressure regulator valves (see chapter 12 on page 25). Alternatively there is the option of using a suitable pressure regulator valve with 0.5 bar outlet pressure and >3 L/min flow rate.

Dräger recommends connecting an exhaust hose (max. 10 m long) to the exhaust outlet to discharge the test gas into the open air.

#### 4 Basics

#### 4.1 Switching the station on or off

#### NOTICE

If no action has occurred for 10 minutes, the station switches automatically to standby mode.

To switch the station on:

Press and hold the (b) key on the master for approx.
 1 second.

The following information is displayed during the switch-on process:

o Software version number

To switch the station off:

 Press and hold the (1) key on the master for approx. 3 seconds. The station switches off.

Standby mode:

- Standby mode is activated after approx. 10 minutes with no activity on the station (input via touchscreen or opening/ closing of a module cover).
- When the station switches over to standby mode, any user logged in will be logged off automatically. The user will need to log back in again when switching back to operating mode.
- The touchscreen is switched off in standby mode.
- The charging function of X-am 125+ modules with charging function is not affected by standby mode. The charging process is not interrupted.
- To switch to operating mode:
  - Tap the function key or
  - $\circ$  touch the touchscreen or
  - $\circ$   $\,$  open or close a module flap.

#### 4.2 Initial setup of station

- 1. Switch on the station, see chapter 4.1 on page 8.
- Log in with the preconfigured "admin" user (user name: admin, password: 123456), see chapter 4.5 on page 9.
- 3. Configure the test gas inlet, see chapter 4.7 on page 10.
- 4. Change language if necessary:
  - a. Select > System configuration > Language.
    b. Select desired language.
  - c. Confirm selection with **OK**.
- 5. Set date and time where necessary:
  - a. Select **System configuration > Date & time**.
  - b. Make the desired settings.
  - c. Confirm settings with OK.
- 6. If required, change standard tests (see chapter 4.8 on page 12.
- 7. If required, set up network (see chapter 6.4.3 on page 18).

#### 4.3 Touchscreen display

The buttons on the touchscreen display change dynamically depending on the task being executed. To execute an action, select the corresponding icon on the display.

Press the (1) key on the master at any time to access the start screen.

#### 4.4 Start and test screens

The keys on the start and test screen change dynamically depending on the log-in status, single-mode status and the number of modules in use.

### Start screen: User logged in (Single mode deactivated)



### Start screen: User not logged in (Single mode deactivated)





#### Start screen: single mode activated:

# Menu

K	Confirm	Select this button to confirm an input or function.
٢	Cancel	Select this button to cancel an input or function.
	Back	Select this button to access the previous screen.
2	Log user in or out	Select this button to log users in or out. The number in the symbol

page 17).

indicates the permission level (see chapter 7 on page 20).

Select this button to access the

menu (see chapter 6 on

#### 4.5 Logging users in or out



#### NOTICE

A User-ID is required to log in. This must be created beforehand by the Administrator (see chapter 4.6 on page 9).

A user with administrator rights is created by default:

### User name: admin Password: 123456



#### NOTICE

Dräger recommends changing the admin password after initial start-up.

To log in a user:

- 1. Select P.
  - a. Select
  - b. Select the desired user name from the list.
  - or
  - a. Select Select user.
  - b. Enter desired user name.
- Enter the password and confirm with A.



#### NOTICE

When entering the user name, 3 already saved user names will automatically be suggested and displayed. For quick selection, please select the desired user name.

To log out the current user:

- 1. Select 💁
  - Information about the current user will be displayed.
- Select . The current user will be logged out.

#### 4.6 Managing user profiles

• Select **∃** > **Data management** > **Users**. The user overview will be displayed.



#### To create a new user profile:

1. Select **> Data management > Users > New**. The input form will be displayed.

	Edit user	₽₅
Enter last name	Family Name	
Enter first name	First Name	
Enter User ID	User ID	
	User I 🔻	Password
Enter company name	Company Name	9
Enter location	Location	
Enter comments	Comment	
	×	ОК

- 2. The following information must be created:
  - o User name
  - User ID 0
  - Permission level (see chapter 7 on page 20) 0
  - 0 Password
- The following information can optionally be given: 3.
  - o Company name
  - Location
  - Comments
- Save the new user profile with OK.

#### NOTICE

User profiles can only be created by the administrator or by users with authorisation level 5.

To edit an existing user profile:

- 1. Select **> Data management > Users**. The user profiles will be displayed.
- 2. Select the user profile.
- 3. Select Edit.
- 4. Edit the desired settings.
- 5. Confirm the new settings with OK.

#### 4.7 Configuring the test gas inlet



#### WARNING

The gas concentrations entered must be identical to the specifications on the gas cylinder used. Incorrect details will result in faulty measurement results.

#### NOTICE

When the test gas concentration is changed, the corresponding test gas inlet must be reconfigured.

To configure a test gas inlet:

1. Select **E** > Station gas configuration.

#### An overview of the test gas connections is displayed.



2. Select desired test gas inlet. The configuration menu will appear.



When using a Dräger gas cylinder:



NOTICE

Upon entering the part no. of a Dräger gas cylinder, a gas cylinder level indicator is displayed automatically, unless this function was deactivated before (see chapter 4.7.2 on page 11).

1. Enter the part no. of the Dräger gas cylinder. All the necessary details for the configuration will be filled in automatically. The batch number and the expiry date can be entered manually in addition.



The values entered automatically must be matched with those indicated on the test gas cylinder. If these values are not identical, the value indicated on the gas cylinder is to be considered and a manual correction of the values must be made in the station.

2. If necessary select **Further options** and **(a)**, to reset the gas cylinder level indicator.

3. If required, configure other gas inlets in the same way. When using a gas cylinder from another manufacturer:

- 1. Create or delete test gas component.
  - Create a new test gas component with
  - Delete the current test gas component with X.



#### NOTICE

Deleting all test gas components deletes all information of the test gas inlet.

- 2. Select gas.
- 3. Enter the gas concentration.
- 4. Select gas units.
- 5. If required, create additional test gas components.
- 6. The following information can optionally be given:
  - Part no. of the gas cylinder
  - o Batch number of test gas cylinder
  - Expiry date of the gas cylinder
- 7. If required, enter Further options.

#### 4.7.1 Further options

#### NOTICE

It is necessary to specify the volume, volume type, pressure and unit to use the gas manager.

	Further options	v 🔓	
Configured test gas  components	Valve 1		
·	Gas	Concentration	
	H2S	15 ppm	
	СО	50 ppm	
	CO2	2 Vol%	
	CH4	2.5 Vol%	
	02	18 Vol%	
Enter volume	58.0	Relax. 🔻	<ul> <li>Volume type</li> </ul>
Enter pressure	500	psig 🔻	<ul> <li>Enter unit for pressure</li> </ul>
Hose length	Schlauch > 2m	(™)✓ 🛕	<ul> <li>State of gas pressure/</li> </ul>
	+		Gas cylinder level indicator <sup>1</sup>

- 1 Select this symbol to reset the gas cylinder level.
- 1. Enter volume of gas cylinder.
- Specify the type of volume: compr. = cylinder volume relaxed = gas volume (cylinder volume x pressure)
- 3. If required, refresh test gas pressure.
- If necessary, activate Hose > 2m if the length of the test gas hose exceeds 2 m.



### NOTICE

Dräger recommends not to exceed a hose length of 10 m for the gas supply hoses.

5. If required, configure other gas inlets in the same way.

#### State of gas pressure:

Display	Gas pressure	Meaning
<del>(</del> )+	<0.4 bar	Gas pressure too low.
( <sup>+</sup> )✓	0.4 - 0.6 bar	Gas pressure correct.
(-)+	>0.6 bar	Gas pressure too high.

#### Gas cylinder level indicator:

Display	Gas cylinder level
Ê	61 - 100 %)
Ê	30 - 60 %)
Â	< 30 %
â	Gas cylinder level indicator deactivated

#### 4.7.2 Settings

#### 1. Select **∃** > Station gas configuration > Settings.

	Settings	
Select test gas for X-am 2000	X-am 2000	>
Fresh air inlet setting	Fresh air	>
Expert settings	Expert settings	>
Select test gas for PAC 7000 OV	PAC 7000 OV	>
Gas cylinder level indicator	Gas balance	>
	<b>•</b>	

The OV sensor of the PAC 7000 OV allows to choose between two different test gases that are also used for calibration and testing. These test gases are carbon monoxide (CO) and ethylene oxide (EO).

For the X-am 2000, it is possible to choose between three different test gases that are also used for calibration and testing. The three options are methane (CH<sub>4</sub>), propane (C<sub>3</sub>H<sub>8</sub>) and pentane (C<sub>5</sub>H<sub>12</sub>). The sensor is calibrated with different sensitivity levels depending on the gas selected. More information on this can be found in the relevant sensor data sheets.

#### NOTICE

The corresponding gas must be connected to one of the gas inlets and set in the gas configuration.

There is also the option of setting an "increased sensitivity" option for propane and pentane. This option artificially increases the sensitivity to calibrate the sensors so that these have approximately a nonane sensitivity level (in other words, a sensitivity level as if they were calibrated for nonane). More information on the subject of cross-sensitivity calibration can be found in the relevant sensor data sheets.

To select the test gas for X-am 2000:

#### 1. Select X-am 2000.

- 2. Select the required test gas from the list. The following selection is available:
  - Methane CH<sub>4</sub> (default setting)
  - $\circ$  Propane C<sub>3</sub>H<sub>8</sub>
  - Pentane PENT

For propane and pentane, the "Increased sensitivity" (vapour sensitivity) option can also be activated.

3. Confirm selection with OK.

To set the fresh air input:

- 1. Select Fresh air.
- 2. Select desired setting:
  - **Supplied by pump** fresh air inlet (default setting)
  - Supplied by compressed air input compressed air inlet
- 3. Confirm selection with OK.

The following settings can be made in the expert menu:

- Ignore max. concentration for quick bump test
- Set test behaviour for missing test gases

To ignore the concentration limit specified by Dräger for the quick dump test:

- 1. Select Ignore max. conc. for BTQ.
- 2. Activate checkbox (default setting: deactivated).
- 3. Confirm selection with OK.

WARNING

Activating this feature allows users to use higher test gas concentration for the quick bump test than recommended by Dräger.

To set the test behaviour with missing test gases:

This feature must only be activated by trained and qualified personnel since wrongly selected test gas concentrations may lead to a positive test result although the gas detector's warning comes too late.

- 1. Select Cancel the test on missing gas.
- 2. Activate checkbox (default setting: activated).
- 3. Confirm selection with OK.

This function can be used to set whether or not a test or calibration is carried out when a required test gas is not connected.



#### WARNING

If this function is deactivated, the corresponding channel is not tested or calibrated.

To select the test gas for PAC 7000 OV:

- 1. Select PAC 7000 OV.
- 2. Select the required test gas from the list.
  - The following selection is available:
  - Ethylene oxide EO (default setting)
- Carbon monoxide CO
   Confirm selection with OK.

To set the gas cylinder level indicator:



#### NOTICE

The gas cylinder level indicator is only available for cylinders that are configured via a Dräger part no..

- 1. Select Gas level monit..
- 2. Activate or deactivate check box Gas level monit.
- 3. Confirm selection with OK.

To reset the gas cylinder level indicator for a new test gas cylinder:

- 1. Connect a new test gas cylinder to a test gas connector.
- 2. Select **Station gas configuration**.
- 3. Select desired gas inlet.
- 4. Select **Further options** and select **(a)** to reset the gas cylinder level indicator.

#### 4.8 Manage tests

• Select **∃** > **Define test**.

The test overview will be displayed.



#### 4.8.1 Selecting the test mode

The following test modes are available. The test modes define the behaviour of the system when the user is logged off. The Test scheduler and Log-in mode test modes are configurable.

Mode	Description
Favorites mode	The Favorites mode displays the predefined tests. These can be selected via the favourites bar.
Single mode	In Single mode, a predefined test is started by closing the module flap. Several tests can be started and executed in parallel.

Test scheduler	The Test scheduler enables the user to configure the time and weekday when a predefined test should be performed. To configure the Test scheduler mode, select Annual tests can only be started when the user is logged in.
Log-in mode	Only logged-in users (level 2-5) can perform tests in Log-in mode. The configuration enables you to define whether a user should be automatically logged off after the completion of a test. To configure the Log-in mode, select .

To select the test mode:

- 1. Select .
- 2. Select desired test mode.
- 4. If necessary, edit tests (see chapter 4.8.2 on page 13).
- 5. Save settings with OK.

NOTICE

#### 4.8.2 Creating or editing a test

### i

A maximum of 3 favourites may be created.

The first 3 characters of the test name are displayed in the list of favourites.

- To create or edit a test:
- 1. Select the symbol **∠** of the test to be edited. The editing window is displayed.



- 2. Enter desired test name.
- 3. Select the desired gas test. The following gas tests are available:

The following gas tests are available.	
-	No gas test, only the activated
	options are run.
Quick bump test	Test threshold override test (if test gas = measured gas, concentration A1; see chapter 4.8.3 on page 13).
L	

Extended bump test	Test for reaching cylinder concentration within a tolerance range (see chapter 4.8.3 on page 13).
Calibration	Zero point and sensitivity adjustment

4. Select **Options** if necessary.

The following options are available:			
Response time test (only for calibration)	The response times of the sensors are tested.		
Alarm test	All the alarm functions of the gas monitor are checked (noise, light, vibration if configured).		
Zero check	The zero point is checked.		

#### NOTICE

When the alarm functions are being tested, the ambient noise must not be too loud as otherwise the station will not be able to check the horn function.

5. If required, select Further options:

The time on the gas monitor is
synchronised with the station.
If this option is selected, <b>Reset DL</b>
and <b>Reset TWA</b> are automatically
also activated to ensure that the DL
(data logger) is unique.
Download data memory and events
memory data from the gas monitor
to the station.
The data in the data and events
memories are cleared.
The TWA <sup>1</sup> time is reset.
The gas monitor is switched off
automatically after the test.
Perform automatic repair (e. g.
calibrate after a faulty bump test).
calibrate after a faulty bump test). The system is purged with fresh air
calibrate after a faulty bump test). The system is purged with fresh air after every test.
calibrate after a faulty bump test). The system is purged with fresh air after every test. Create certificate (stored in the
calibrate after a faulty bump test). The system is purged with fresh air after every test. Create certificate (stored in the station as a PDF file).
calibrate after a faulty bump test). The system is purged with fresh air after every test. Create certificate (stored in the station as a PDF file). Print out the certificate on a

1 Average shift values (time-weighted average) are generally limited to eight hours exposure per day per workplace for 5 days a week during a work lifetime.

6. Save settings with OK.

#### 4.8.3 Quick/extended bump test overview

	Quick bump test	Extended bump test
Test duration	++	0
Gas consumption	++	0
Response to reactive gases (adsorption)	+	0
Assessment of accuracy / residual sensitivity	-	++

	Quick bump test	Extended bump test
Response to wrong test gas application (e. g. set the wrong concentration or undefined cross-sensitivity, since wrong test gas cylinder connected; gas remaining in hose etc.)	-	++
Range of admissible test gas concentrations (minimal and maximum allowable concentration)	0	++
Testing beneath A1 possible	-	++

++ very good, + good, o normal, - not being tested

#### NOTICE

For increased safety and in case of cross-sensitivities to the connected test gases, Dräger recommends using the extended bump test.

#### 4.9 Managing instrument profiles

• Select **∃** > **Data management** > **Devices**. The instrument overview is displayed.



To create an instrument profile:

• A new instrument profile will be created automatically as soon as a gas instrument that is not yet stored in the station is placed in a module.

#### Use

5

#### WARNING

A defective pressure reducer on the gas cylinder can lead to increased pressure in the station. The gas hoses may loosen as a result and gas may escape.

Health hazard! Test gas must not be inhaled. Observe the hazard warnings in the relevant Safety Data Sheets. Provide venting into a fume cupboard or outside the building.

#### 

To prevent loss of gas, Dräger recommends closing the gas cylinders when the station is left unattended for long periods.

Adjustment may not be possible due to instrument and channel errors.

#### 5.1 Conducting a visual inspection

A visual inspection of the instruments must be conducted every time before being inserted into the station.

- 1. Check that the housing, external filters and the nameplates are intact.
- 2. Check the battery contacts and sensor inputs for dirt.

#### NOTICE

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Instruments that did not pass visual inspection must not be inserted into the station. Otherwise the test cannot be correctly assessed in its entirety.

# 5.2 Inserting or removing the gas measuring device into or from a module



To insert the instrument in the module:

- 1. If necessary, push the lock up slightly and open the module cover upwards.
- 2. Place the instrument in the corresponding module.
- 3. Close the module flap. The instrument will be detected automatically.

- X-am-125+ module with charging function only:
  - After the instrument is inserted, the charging status is displayed for approx. 5 seconds via the charging status LED.
  - The charging function starts automatically approx. 15 mintues after the last test.

To remove the instrument from the module:

- 1. Push the lock up slightly and open the module cover upwards.
- 2. Remove the instrument.

#### 5.3 Station self-test

A self-test is carried out:

- When the station is started up.
- When the last successful self-test was more than 24 hours ago and a test is being carried out.

The station is tested for leaks, pump function, and the software version of the individual modules and the master.

#### 5.4 Conducting a test

#### WARNING

NOTICE

When using methane, propane or butane in the range >100 %LEL, an exhaust hose (max. 10 m long) must be connected to the exhaust outlet to ensure the extraction of excess explosive gas.



Single mode is activated by default.

Several tests can be started and executed in parallel in the Single mode.

A failure of a LED, horn or vibration test results in a negative evaluation of the overall test, and thus in the locking of the respective gas measurement system.

A test of the sensor reserve is only performed with sensors that support this function. The results are displayed under test details and give information about the state of the sensor.

The following tests are preconfigured:

Test 1: QT	Quick bump test including alarm testing
Test 2: EXT	Extended bump test incl. zero-point check and alarm testing.
Test 3: CAL	Calibration, alarm test, fresh air flushing and certificate.

- 1. If necessary, open the test gas cylinders.
- 2. If necessary, switch on the X-dock.
- 3. Conduct a visual inspection of the instruments (see chapter 5.1 on page 14).
- 4. Insert the instruments into the modules (see chapter 5.2 on page 14).

If Single mode is activated:

 The default test is started automatically when the module flap closes.
 The Status LED flashes blue.
 The individual test phases are displayed.

If Favorites mode is activated:

 Select the desired test from favourites bar. Test will be started automatically. The status LED flashes blue. The individual test phases are displayed.

If Test scheduler is activated:

- If necessary, log user out on the station (see chapter 4.5 on page 9).
- The preset test is performed according to the configured time schedule.

If Log-in mode is activated:

- Log user in on the station (see chapter 4.5 on page 9).
- Select the desired test from favourites bar. Test will be started automatically. The status LED flashes blue. The individual test phases are displayed.

#### Test passed:



- Confirmation is shown on the display.
- The Status LED flashes green.
- If required, select the desired instrument field for additional information.
- Remove the instrument from the module.



#### WARNING

Prior to each use of the gas detector, check whether it is switched on and in measuring mode after removing it from the X-dock. Otherwise the user may carry a device that is switched off!

#### Test passed, with reservations:



This state means that partial tests of the favourite could not be conducted due to special settings.

- Confirmation is shown on the display.
- The status LED flashes yellow.
- If required, select the desired instrument field for additional information.
- Remove the instrument from the module.



#### WARNING

Prior to each use of the gas detector, check whether it is switched on and in measuring mode after removing it from the X-dock. Otherwise the user may carry a device that is switched off!

#### Test not passed:



- An error message is shown on the display.
- The Status LED flashes red.
- If required, select the desired instrument field for additional information.
- Identify and rectify the error.
- Repeat the test if necessary.

#### Overview of status LEDs

Colour	Status	Meaning
blue	flashing	Process in progress
green	flashing	Test passed
yellow	flashing	Test passed, with reservations:
red	flashing	Test failed/cancelled

#### 5.5 After use

- 1. If required, remove instruments from modules.
- 2. Close the test gas cylinders.

#### NOTICE

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To keep energy consumption low, Dräger recommends switching off the equipment after use according to the Instructions for Use.

### 6 Menu

### 6.1 Menu overview



### NOTICE

The menu is only available for users with permission level 5.

Define test		
Station gas configuration		
System configuration	Date & time	
Data management	Language	
	Network	System address
	Database	DBMS address
	Info screen	
	Update	
	Service interval	
	Devices	
	Users	
	Station event logger	
	Export data logger	
	Export certificates	
	Mobile synchronization	
	MSD <sup>1</sup>	

1 Massenspeicher

#### 6.2 Manage tests

In this menu, the existing tests can be edited, new tests can be created and the standard test can be defined.

The test overview will be displayed. For more information see chapter 4.8 on page 12.

### 6.3 Test gas configuration of the station

The individual gas connections can be configured in this menu.

#### 6.4 System configuration

#### 6.4.1 Set Date & time

NOTICE

If the station is connected to a server, only place and format can be changed. The station synchronises time and date automatically.

The following settings can be made in this menu:

- o Time zone
- o Date format
- o Date
- o Time
- o Location

To set the date and time:

- 1. Select **∃** > System configuration > Date & time.
- 2. Make the desired settings.
- 3. Confirm settings with **OK**.

#### 6.4.2 Setting the language

- 1. Select **> System configuration > Language**.
- 2. Select desired language.
- 3. Confirm selection with OK.

#### 6.4.3 Network

### NOTICE

If the IP or DBMS address is changed, the station must be re-started to make the change active.

To set System address:

- 1. Select **∃** > System configuration > Network > System address.
- 2. Select dynamic or static IP address.
- 3. Where necessary, enter the IP of the system address.
- 4. Where necessary, enter the Subnet Mask (default: 255.255.255.0).

To set the central database address:

- 1. Select **∃** > System configuration > Network > DBMS address.
- 2. Enter the server IP.

#### 6.4.4 Cleaning the database

- Select ∃ > System configuration > Database > Clean up.
- 2. Select Start clean up.
- 3. Confirm deletion of the database entries with OK. The progress of the deletion is displayed.

#### NOTICE

The database entries, data loggers and certificates are deleted.

#### 6.4.5 Display info screen

- 1. Select **B** > System configuration > Info screen.
  - The following information is displayed:
    - $\circ \quad \text{Application version} \quad$
    - o Hardware version
  - Kernel version
  - MAC address
  - o IP address

#### 6.4.6 Performing an update

To perform a firmware update, see chapter 9.4 on page 23.

#### 6.4.7 Service interval

- 1. Select **B** > System configuration > Service interval.
- 2. This function displays how many days have passed since the last service was performed. If the service interval has been exceeded, an additional check box to deactivate the note for the self check for 365 days is displayed.

#### 6.5 Data management

### NOTICE

All entries are stored in UTC time (Universal Time Coordinated).

#### 6.5.1 Managing instruments

The individual instrument profiles can be displayed in this menu.  $% \label{eq:construction}$ 

 Select > Data management > Devices. The instrument profiles will be displayed. For detailed information see chapter 4.9 on page 14.

#### 6.5.2 Managing user profiles

User profiles can be created, edited or deleted in this menu.

#### 6.5.3 Export Station event logger

The saved data of the event memory can be saved to a connected USB storage device with this function.

To copy data from the event memory to a USB data storage device:

1. Connect USB data storage device to the USB port of the station.

The USB icon is displayed in the status bar.

- Select ∃ > Data management > Station event logger. The event memory is displayed.
- 3. Select the required files from the list.
- 4. Acknowledge selection with **OK**.

The selected files are copied onto the USB data storage device.

#### 6.5.4 Export data memory

The saved data of the data memory can be saved to a connected USB storage device with this function.

To copy data from the data memory to a USB data storage device:

1. Connect USB data storage device to the USB port of the station.

The USB icon is displayed in the status bar.

- 2. Select **∃** > Data management > Export data logger. The data memory is displayed.
- 3. Select the required files from the list.
- Acknowledge selection with OK. The selected files are copied onto the USB data storage device.

#### 6.5.5 Export certificates

This function can be used to save the stored certificates to a connected USB storage device.

To copy certificates to a USB data storage device:

- 1. Connect USB data storage device to the USB port of the station.
  - The USB icon is displayed in the status bar.
- Select ∃ > Data management > Export certificates. The event memory is displayed.
- 3. Select the required certificates from the list.
- Acknowledge selection with OK. The selected certificates are copied onto the USB data storage device.

#### 6.5.6 Mobile synchronization

This function can be used to copy the local database, reports, certificates and device data loggers to a connected USB storage device or the internal MSD area. This is useful if the data cannot be exchanged via the network connection. The data can then be imported via the X-dock Manager (see X-dock Manager Online Help).

- 1. If necessary, connect the USB storage device to the USB port on the station.

The available target locations are displayed.

- Select desired target location.
- Confirm the selection with OK. The data is copied to the target location.



#### NOTICE

Dräger recommends cleaning the local data after successfully importing the data into the database (see chapter 6.4.4 on page 18).

Dräger recommends exporting the local data on a regular basis to keep the amount of data to be exported, and thus copied, small.

The export via the MSD area is faster than via a USB storage device.

#### 6.5.7 Activate or deactivate MSD mode..

Use this feature to use the station as USB data storage device. Data saved on the station can be copied to a connected PC.

To activate MSD mode:

- 1. Connect PC via USB mini B cable with the X-dock.
- 2. Select => Data management > MSD mode.
- 3. Activate MSD mode.
- Acknowledge settings with OK. The station will be displayed as a drive on the PC.



#### NOTICE

While the MSD mode is activated, no other actions can be performed on the station.

To deactivate MSD mode:

 Cancel MSD mode with X. The station is ready to roll.

### 7 Permission level

The availability of functions, tests or menu items depends on the privileges for the particular permission level.

Function	Permission level				
	1	2	3	4	5
Performing default tests in logged off condition	Х	Х	Х	Х	Х
Performing default tests in logged on condition		Х	Х	Х	Х
Change password					X
Define test					X
Export data memory (station)					Х
Set Station gas configuration					Х
Show devices					Х
Specifying advanced options					Х
Manage users					X
Set date and time					Х
Perform SW update (station)					Х
Set Language					Х
Set network configuration					X
Database operations					Х

### 8 Troubleshooting

Faults	Cause	Remedy
	Power supply not connected.	Check connections to mains supply, power pack and station.
Station does not start.	Power pack defective.	Replace power pack.
		Check that the station can be started by pressing the function key.
	Module dirty.	Clean module.
Cas monitor not detected	Instrument dirty.	Clean instrument.
	Module defective.	Contact DrägerService.
	SW version of gas monitor out of date.	Update gas monitor SW.
	Instrument and/or module dirty.	Clean instrument and/or module.
Measuring chamber leaky.	Seal worn.	Replace seal (see chapter 9.5 on page 24)
	Ethernet cable not connected correctly.	Check cabling.
	Ethernet cable defective.	Replace Ethernet cable.
	IP address incorrectly configured.	Reconfigure IP address.
No communication with PC.	Firewall is blocking data traffic.	Configure the firewall correctly.
	X-dock does not function with computers in networks with the IP address 192.168.79.XXX.	Try other address range.
	Hose connections incorrect.	Check hose connections.
Gas monitors do not pass the gas tests	Station gas configuration not correct.	Check Station gas configuration.
(test gas not reaching the instrument).	Test gas cylinder empty or closed.	Check test gas cylinder.
	Pressure regulator valve incorrectly set.	Check setting of pressure regulator valve.
	Pressure regulator valve incorrectly set.	Check setting of pressure regulator valve.
Test gas pressure is too low.	Hose connections incorrect.	
	Test gas cylinder empty or closed.	
Test gas pressure is too high.	Pressure regulator valve incorrectly set.	Check setting of pressure regulator valve.
Alarm element test not carried out.	External light sources are interferring with the alarm element test.	Check whether or not external light sources are creating interference, re- position light sources or station as necessary.
The system does not recognize the connected USB storage device.	The formatting of USB storage devices varies, depending on the manufacturer. This applies to the file system (e.g. FAT32 or NTFS) as well as the partitioning.	Dräger recommends using FAT32 and a partitioning that contains partitioning tables (USB-ZIP or USB-HDD).
Touchscreen cannot be operated or only with restrictions.	Touchscreen no longer correctly calibrated.	Recalibrate the touchscreen, see chapter 9.7 on page 24.
Module not found or Wrong (incompatible) SW version error	This error can occur if a master is connected to modules with different software versions.	In this case, a firmware update has to be performed via the master, even if the most current firmware is already installed on the master.
connected correctly).	If the modules are not connected correctly, the electrical connection may be faulty.	Check whether all connections are correctly connected and screwed tight.
Error message Firmware version not supported on module: X.	The firmware version of the affected gas monitor is not compatible with X-dock.	Perform an update with the CC Vision PC software.

#### 9 Maintenance

#### 9.1 Maintenance intervals

#### NOTICE

The maintenance intervals must be established in each individual case and shortened if necessary, depending on safety considerations, process conditions, and the technical requirements of the equipment. Dräger recommend a Dräger service contract for all maintenance activities and that all repairs are carried out by Dräger.

#### 9.1.1 Before every start-up

The following work must be carried out before every start-up of the equipment:

- Check the hoses for dirt, brittleness and damage and replace if necessary.
- Check the hoses are secure, to prevent escapes of gas.
- Check that all cable connections are secure.
- Visual inspection of the modules and sensor seals. If very dirty or if there are visible defects, the sensor seal must be replaced.

#### 9.1.2 Annually

Inspection of the entire X-dock station by competent personnel.

#### 9.2 Replacing a test gas cylinder

To replace an empty test gas cylinder with an identical full test gas cylinder:

- 1. Close empty test gas cylinder valve.
- 2. Unscrew the pressure regulator valve from the test gas cylinder.
- 3. Screw pressure regulator valve on full test gas cylinder with identical test gas concentration.
- 4. Slowly open the test gas cylinder valve.
- 5. If gas balancing was activated, reset cylinder level (see chapter 4.7 on page 10).
- 6. If lot number and/or use-by date were specified, update lot number and/or use-by date (see chapter 4.7 on page 10).

To replace a test gas cylinder with a test gas cylinder with other test gas concentration:

- 1. Close empty test gas cylinder valve.
- 2. Unscrew the pressure regulator valve from the test gas cylinder.
- 3. Screw pressure regulator valve on full test gas cylinder with changed test gas concentration.
- 4. Slowly open the test gas cylinder valve.
- 5. Reconfigure the corresponding test gas inlet, see chapter 4.7 on page 10.

# 9.3 Charging function for gas detectors (optional)

- It is only possible to charge the instrument batteries using the X-am 125+ module with charging function.
- The charging time is approx. 4 hours for a completely empty battery.
- A new NiMH supply unit reaches its full capacity after 3 full charge/discharge cycles. Never store the device for extended periods (max. 2 months) without a power supply as the internal buffer battery will run down.

To charge a gas detector using a X-am 125+ module:

- 1. Place the gas detector in the X-am 125+ module.
- 2. Close the module flap.

The instrument will be detected automatically.

- After the instrument is inserted, the charging status is displayed for approx. 5 seconds via the charging status LED.
- The charging function starts automatically approx. 15 minutes after the last test.

If an error occurs:

- Remove from the module and re-insert.
- If this does not correct the error, have the module repaired.

#### 

A short-circuit in the charging contacts in the modules, e. g. due to metal objects falling into the device, will not damage the station but should be avoided due to a potential risk of overheating and error displays on the module.

#### Overview of charge status LEDs

Colour	Status	Meaning
green	on continuously	Charge status 100 %
green	flashing	Battery charging.
red	flashing	Charging error

#### 9.4 Perform a firmware update



#### CAUTION

The station power supply must not be disconnected during the installation process. The station may be damaged if this is not observed.



#### NOTICE

The station does not support any USB data storage device with an NTFS file system.

- 1. Download the firmware update from the internet:
  - a. Go to www.draeger.com.
  - b. Go to the X-dock product page and unzip the firmware update to the root directory of an empty USB data storage device.



#### CAUTION

The USB data storage device must not contain older firmware files!

2. Connect USB data storage device with the firmware update to the USB port of the station.

The USB icon is displayed in the status bar.

- Select System
   Configuration > Update.
   A list of all firmware updates available on the USB storage device will be displayed.
- 4. Select the desired firmware update from the list. The selected firmware update is marked blue.



**OK** 

5. Start the firmware update using **OK**.

The installation progress will be displayed:



X

- 6. Following successful transfer to the station, the start is restarted automatically and the firmware update is installed immediately afterwards. During the installation process, the status LEDs on the modules will be white.
- 7. After the installation is complete, the station changes to operating mode. The station is ready for operation.

#### 9.5 Changing the sealing insert

#### NOTICE

The sealing inserts must be changed at regular intervals (e. g. at each inspection) or sooner as required.



- 1. Open the module cover.
- Squeeze the two external locking lugs in and withdraw the sealing insert downwards.
- 3. Release the hoses from the sealing insert.
- Replace the sealing insert.
   Fit the hoses to the new sealing insert (note the arrows on the sealing insert and the hose).
- Squeeze the external locking lugs in and insert the sealing insert into the module cover until the locking lugs engage.
- 7. Check that the sealing insert is fitted correctly in the module cover.





#### 9.6 Changing the fresh air filter

### NOTICE

With regular use and depending on the conditions of use, the fresh air filter should be changed typically every 2 months.

1. Unscrew the old fresh air filter.

2. Screw in the new fresh air filter.

#### 9.7 Calibrating the touchscreen

- 1. At system start hold the function key until the calibration screen is displayed.
- 2. Press each of the 5 position markers displayed in succession.

#### 9.8 Cleaning



#### CAUTION

Abrasive cleaning implements (brushes, etc.), cleaning agents and cleaning solvents can destroy the fresh air filter.

The device does not need any special care.

- If very dirty, the equipment can be carefully wiped down with a damp cloth.
- Carefully dry the device using a cloth.

#### 10 Disposal



- This product must not be disposed of as municipal waste. This is indicated by the adjacent icon.
- You can return this product to Dräger free of charge. For information please contact the national marketing organisations and Dräger.

#### 11 **Technical data**

Dimensions	(H x	Wх	D):
------------	------	----	-----

Master	approx. 3.54 x 5.70 x 9.84 inches (120 x 130 x 250 mm)
Module	approx. 3.54 x 5.70 x 9.84 inches (90 x 145 x 250 mm)
Weight:	
Master	approx. 4.02 pounds (48.23 ounces; 1500 g)
Module	approx. 2.57 pounds (30.86 ounces; 960 g)
Ambient conditions:	
During operation During storage	32 °F to +104 °F (0 °C to +40 °C) 4 °F to +122 °F (-20 °C to +50 °C)
	700 to 1300 hPa
	max. 95% relative humidity
Gas connections:	1x fresh air connection
	1x compressed air inlet
	1x exhaust outlet
X-dock 5300/6300	3x gas inlets
X-dock 6600	6x gas inlets
Inlet pressure:	
for the measured gas	0.5 bar ±20 %
for compressed air	0.5 bar ±20 %
Power supply:	11 V - 28 V DC, 6.25 A
Connections:	3x USB 2.0 standard A
	connection, (nost, cable <3 m)
	(device. cable < 3 m)
	1x Ethernet port RJ45
	Data rate 10/100 Mbit
Serial no. (year of	The year of construction is given
manufacture).	number located on the nameplate:
	B=2010, C=2011, D=2012,
	E=2013, F=2014, G=2015, H=2016_etc
	Example: Serial number ARFH-
	0054, the 3rd letter is F, so the
	year of construction is 2014.
CE mark:	Electromagnetic compatibility (Directive 2004/108/FC)

### 12 Order list

Name and description	Order No.
Dräger X-dock 5300 X-am 125	83 21 880
Dräger X-dock 5300 Pac	83 21 881
Dräger X-dock 6300 Master	83 21 900
Dräger X-dock 6600 Master	83 21 901
Dräger X-dock Module X-am 125	83 21 890
Dräger X-dock Module X-am 125+ (with charge function)	83 21 891
Dräger X-dock Module Pac	83 21 892
Dräger X-dock Module X-am 125, AA Version	83 24 260
Dräger X-dock Module X-am 125+, AA Version (with charge function)	83 24 261
Dräger X-dock Module Pac, AA Version	83 24 262
Single wall mount	83 21 922
Comfort wall mount	83 21 910
Cylinder holder (table-top version)	83 21 918
Cylinder holder for top-hat rail	83 21 928
Power pack 24 V / 1.33 A (up to 3 modules)	83 21 849
Power pack 24 V / 6.25 A (up to 10 modules)	83 21 850
X-dock car adapter	83 21 855
Pressure regulator valve 0.5 bar (nickel-plated)	83 24 250
Pressure regulator valve 0,5 bar, Flowstop	83 24 251
Pressure regulator valve 0.5 bar (stainless steel)	83 24 252
Hose clamp, 5 pce.	83 24 095
Pump filter set (includes filter and hose connector)	83 19 364
Fluorinated rubber hose	12 03 150
Sealing insert (X-am)	83 21 986
Sealing insert (Pac)	83 21 987
X-dock Master display protector film	83 21 804
Stickers for module numbering	83 21 839
Barcode label, exterior (22 x 8 mm, 500 labels)	AG02551
Barcode scanner	83 18 792
Dräger X-dock Manager Basic	83 21 860
Dräger X-dock Manager Professional	83 21 870
Dräger X-dock Manager Licence (1x, both versions)	83 21 857
Dräger X-dock Manager Licence (5x, both versions)	83 21 858

### 13 Glossary

Abbreviation	Description
ALARM	Alarm element test
BTQ	Quick bump test
втх	Extended bump test
CAL	Calibration
DB	Database
DBMS	Database management system
DL	Data logger
FAV	Favourite
HORN	Horn
LED	Light-emitting diode
LEL	Lower explosive limit
MSD	Mass storage device
MST	Master
SPAN	Span calibration
SW	Software
Т90	Response time test
TWA	Time-weighted average
UNDEF	Unknown
UNK	Unknown info
VIB	Vibration
ZCHECK	Zero-point check
ZERO	Zero-point calibration

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