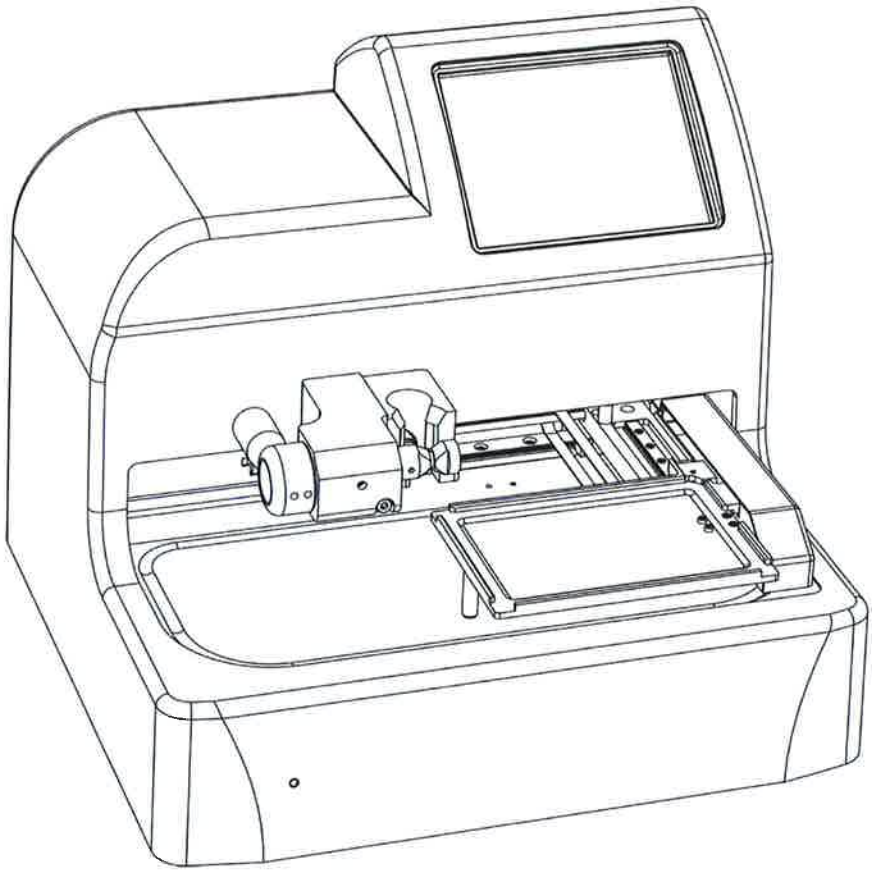
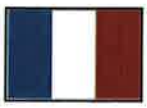
TREK DIAGNOSTIC SYSTEMS

MAGELLAN BIOSCIENCES

Sensititre® AIM™



User Manual

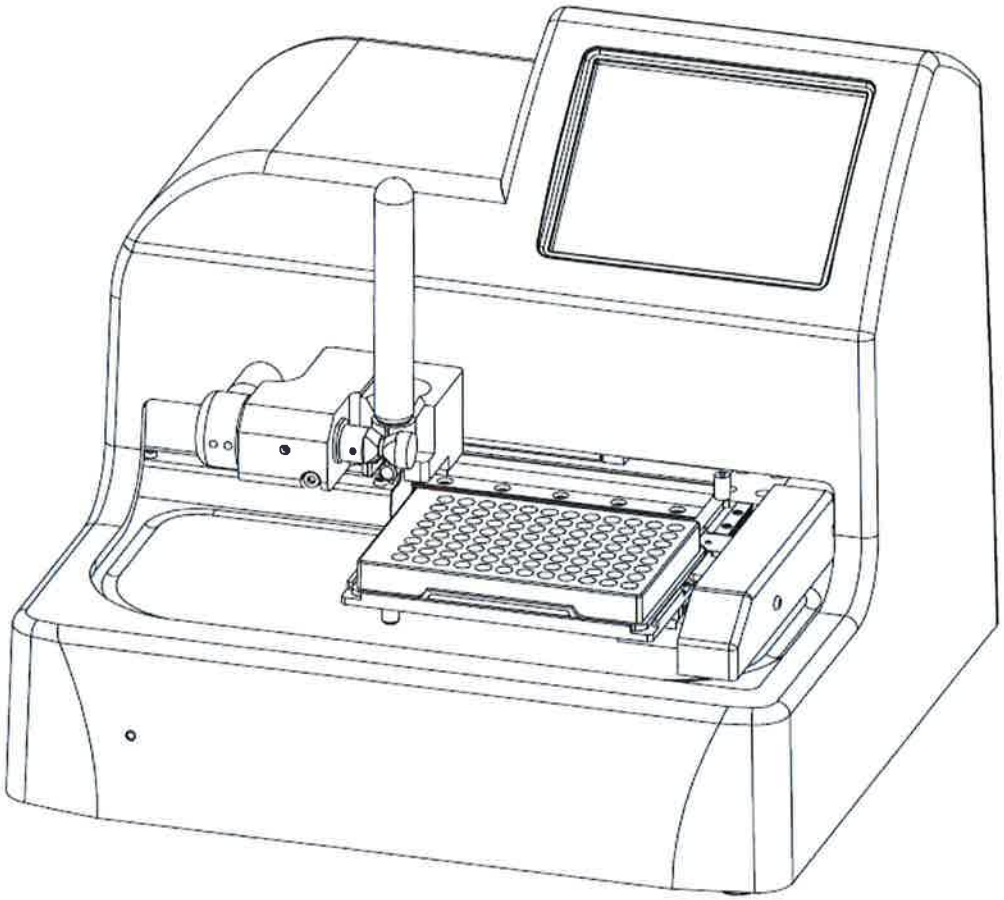






Version 1.1

Sensititre® AIM™

Operators Manual



Version 1.1

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Introduction

Product information

The Sensititre® AIM™ is a microprocessor-controlled instrument that rapidly delivers inoculum in multiples of 50µl to a 96-well microtitration plate.

Avoid contamination by using the Sensititre® disposable dosing head. This ensures that inoculum does not come into contact with the instrument, either through aerosol formation or direct contact.

Installation

WARNING!

Do not connect the Power cable until the following steps have been completed.

Unpacking

It is possible for a single person to unpack the AIM™. However, the unpacking process is performed most easily by two people working together, to ensure the safe removal of the AIM™ from its packing box and separation from its packing foam.

1. Remove the AIM™ from its box, maintaining the instrument in an upright position
2. Remove the AIM™ from its plastic bag, maintaining the instrument in an upright position
3. Place the AIM™ on a flat solid surface
4. Remove the protective plastic film from the touch screen display
5. Remove foam panel holder transit clamp insert from the AIM™

NOTE: The AIM™ is supplied with a set of replacement fuses which are supplied in a small zip lock bag. Please ensure that these fuses are retained and stored for possible future use.

Installation Site Requirements

1. A horizontal flat surface, 33.8 cm x 31.2 cm (13.3" x 12.3"), with a 28.7 cm (11.3") height clearance.
2. The surface must be able to support at least 8 kg (17.6 lbs).

Operators Manual

Intended use

3.1.1.

The Sensititre® AIM™ is a microprocessor-controlled instrument designed to deliver multiples of 50µl of inoculum to a Sensititre 96-well microtitration plate. Other brands of 96 well microtitration plates (non-Sensititre plates) may be used on the AIM™ instrument however they should be pre-qualified before use.

Disclaimer

Neither TREK Diagnostic Systems nor its affiliates shall be liable to the purchaser of this product or third parties for damages, losses, costs, or expenses incurred by purchaser or third parties as a result of: accident, misuse, or abuse of this product or unauthorized modifications, repairs, or alterations to this product, or (excluding the U.S.) failure to strictly comply with TREK Diagnostic Systems operating and maintenance instructions.

WARNING!

Only qualified, Sensititre® trained service engineers or technicians should undertake repair and service of the instrument.

Some parts of the AIM™ system operate at a lethal voltage. Only qualified, Sensititre® trained service engineers or technicians should undertake repair and service of the instrument.

IVD

Intertek

CE

b2b compliance

WEE/CH0116XU

Installation Procedure

1. Connect the main cable to the connector at the back of the instrument. The main plug should only be inserted into a socket outlet with a protective earth contact. Do not use an extension cord without an earth line.

2. Ensure that the instrument is connected to a protected earth terminal.

3. Switch the instrument on using the power located on the back of the AIM™. The main power switch is marked with a **'1' (ON)** and a **'0' (OFF)**. See Figure 2.

WARNING!

Locate the AIM™ so that either the power cable plug or the main power switch can easily be accessible for urgent disconnection.

Identify product parts

The following illustrations identify the components of the AIM™.

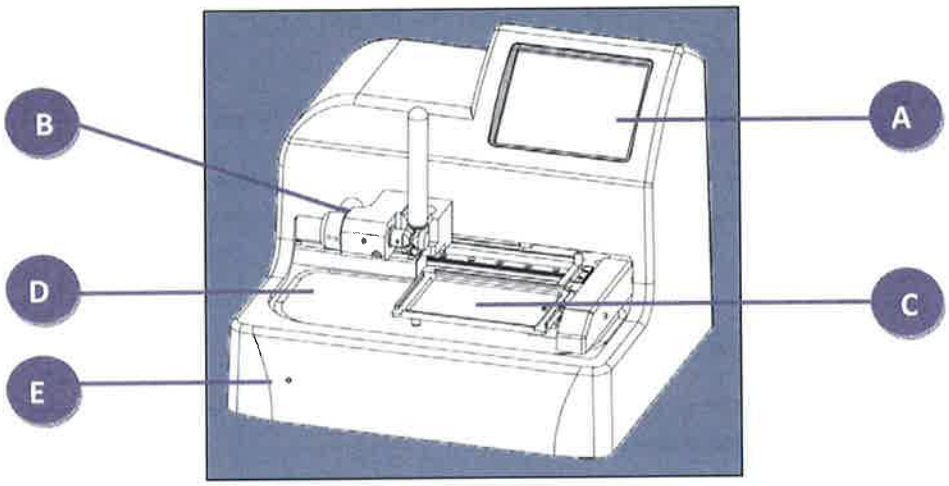


Figure 1 AIM™, front view

A	LCD touchscreen display
B	Dosing clamp mechanism
C	Panel holder
D	Work deck
E	Power on LED

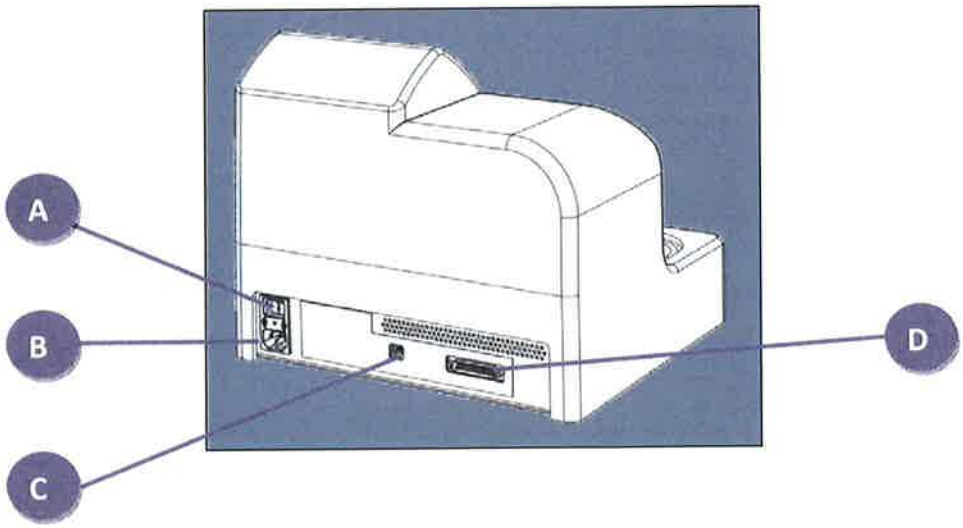
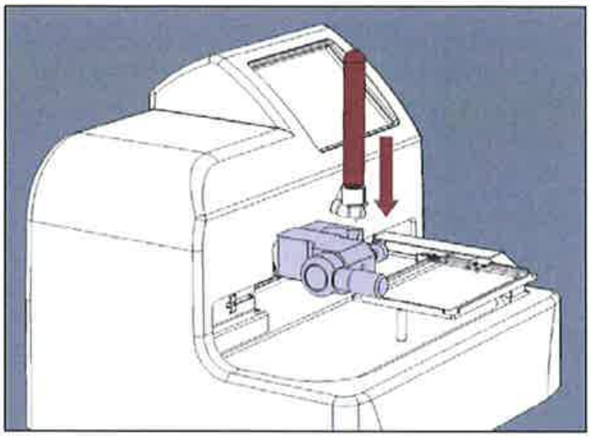


Figure 2 AIM™, back view

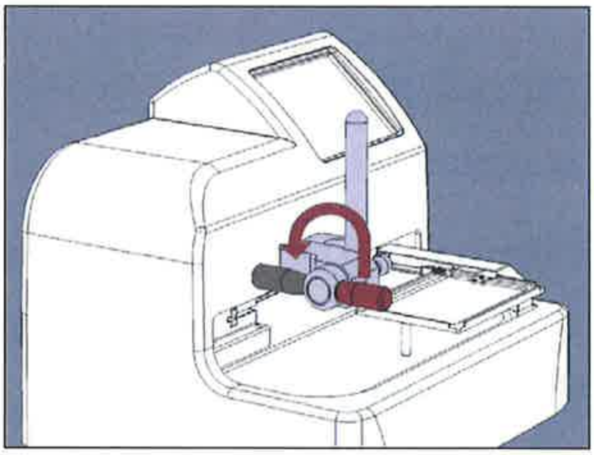
A	Main switch and main fuse holder
B	Main power inlet
C	USB Port (Used for firmware updates)
D	RS232 serial port

2. Insert the test tube with attached dosing head into the dosing clamp. Ensure that the dosing clamp is fully open.

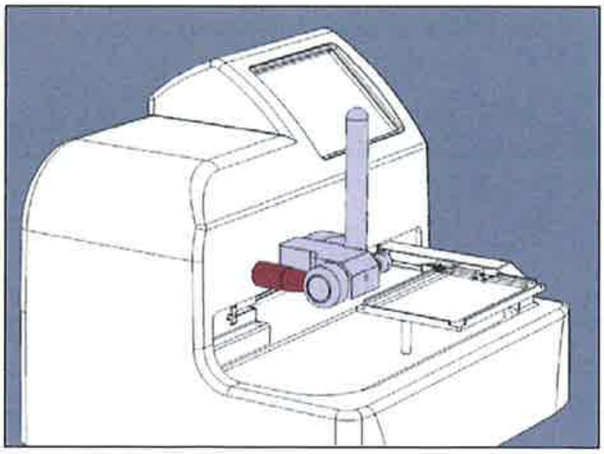


3.1.3
2. [illegible]

3. Close the dosing clamp by pushing the clamp away from you. Ensure the clamp is fully closed.



4. Tube is now inserted and ready to inoculate the plate.



Using the touchscreen

3.1.4.
seite 1

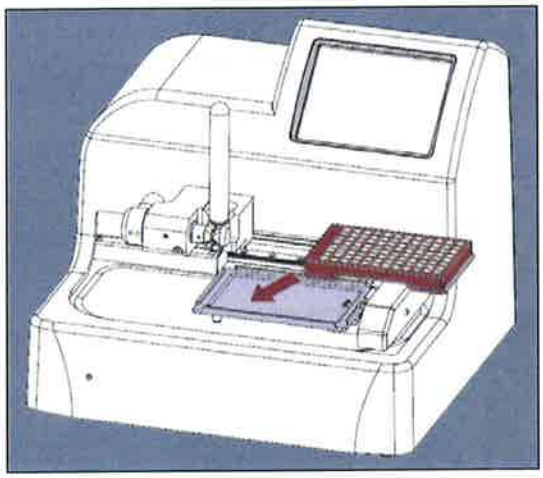
The AIM™ touchscreen is used by firmly touching the screen with one finger to select or activate the required function. Gloves can be worn, if required, and will not affect the performance of the instrument. Do not touch the screen with anything sharp (i.e. pen, pencil) as this will damage the screen.

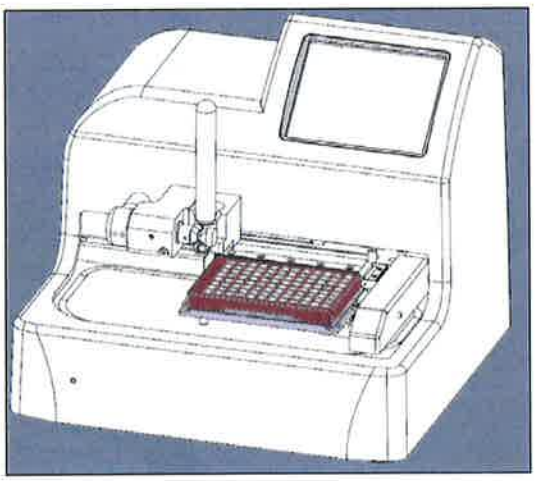
Basic inoculation operation

WARNING!

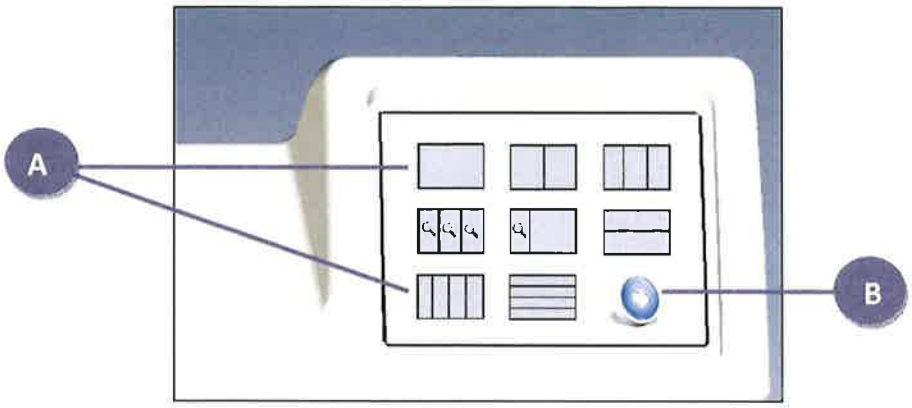
After panel inoculation has been completed the test tube and the dosing head should be discarded together as bio hazardous waste. Carefully screw the dose head to the test tube to prevent cross threading.

1. Insert panel into the AIM™ panel holder ensuring the panel is positioned the correct way (panel lettering must be upright and to the left side of the panel; the Sensititre panel barcode will face towards you)



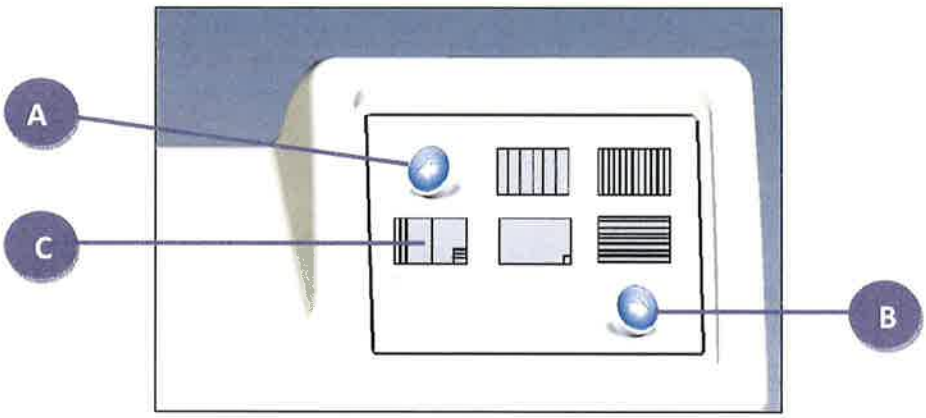


5. The main dosing pattern screen is the first screen displayed after the instrument is switched on.



A	Dosing pattern (See the Dosing pattern section for a detailed list of patterns)
B	For additional patterns press the right facing blue arrow

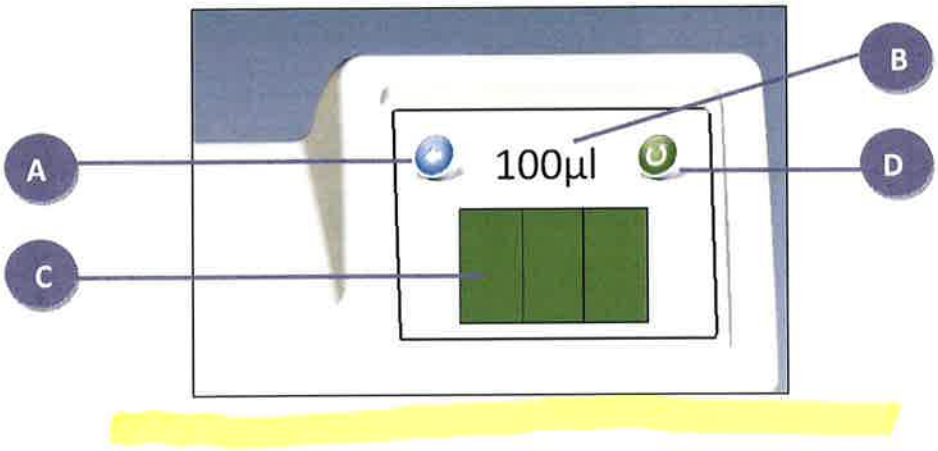
6. Select the required dosing pattern by touching the center of the pattern required.



A	Left facing blue arrow returns you to the previous screen.
B	Right facing blue arrow takes you to additional dosing patterns and onto the maintenance and information screen.
C	Dosing patterns (See the Dosing pattern section for a detailed list of patterns)

3.1.2.

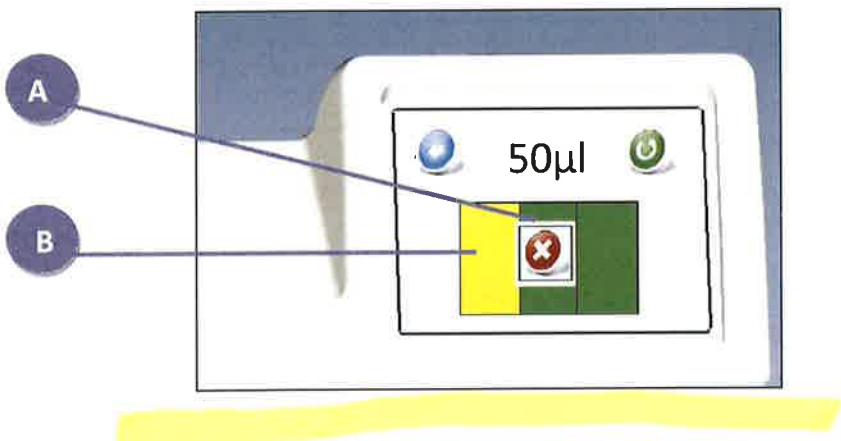
7. Once the required dosing pattern has been selected, the screen will display the chosen pattern along with the inoculum amount that will be delivered to the panel wells. The inoculum amount can be changed by pressing the inoculum level displayed in the center of the screen.



A	Left facing blue arrow returns you to the dosing pattern selection screen
B	Press the inoculum level to select the required dispensing volume
C	Panel section
D	Panel reset icon. This icon is used to reset the dosing pattern ready for a new panel. This is only required if a full panel inoculation is not completed.

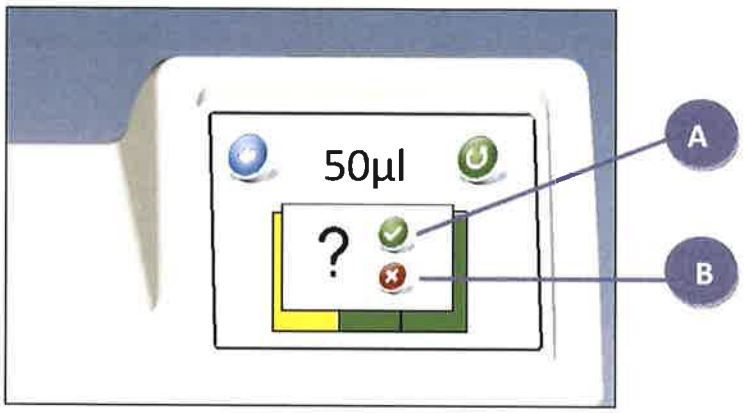
8. Press the center of the section you want to inoculate.

9. During inoculation, the section being inoculated will be colored yellow until inoculation has been completed. At the end of the inoculation process, the section will turn red.



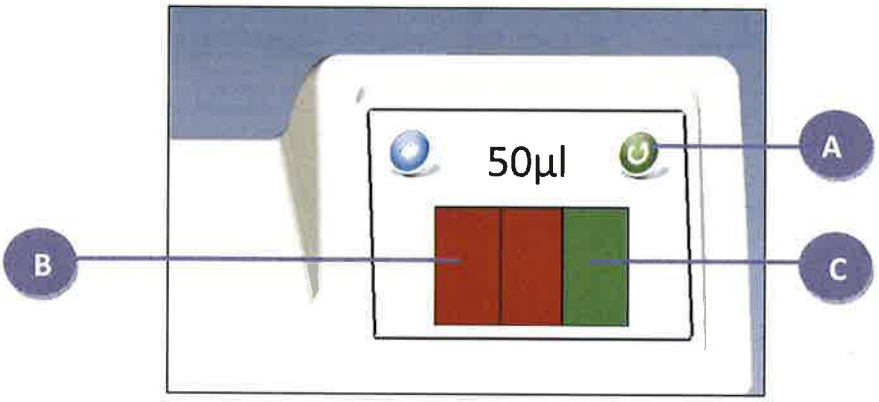
A	Abort inoculation icon.
B	Yellow panel section indicating this section is currently being inoculated.

10. If any area of the display is pressed during the inoculation process (while the Abort inoculation icon is displayed) the instrument will pause and you will have the option to continue or fully abort the inoculation process.



A	The green check marked can be pressed to continue the inoculation
B	The red cross can be pressed to abort the inoculation

11. **Multi section panels only.** A section turns red once inoculated and cannot be inoculated again until the entire panel inoculation has been completed or the reset icon is pressed.



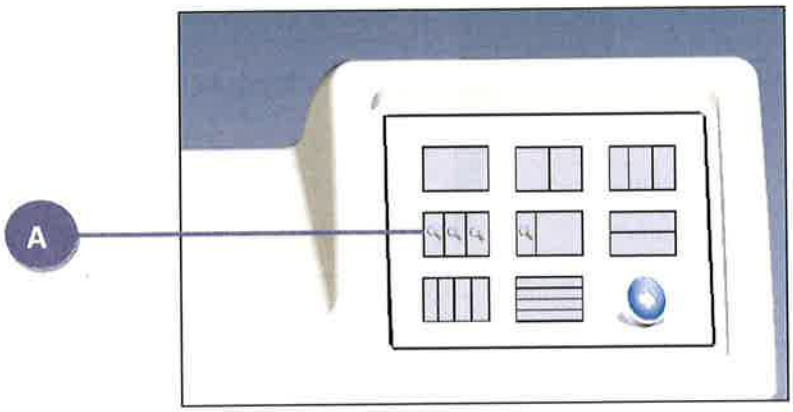
A	Reset panel icon
B	Red panel section indicates completed section
C	Green panel section indicates a section that has not yet been inoculated

Remove the test tube/dosehead combination from the AIM™® within 30 seconds of dosing a plate and store inverted in a rack or discard.

Inoculation of identification panels

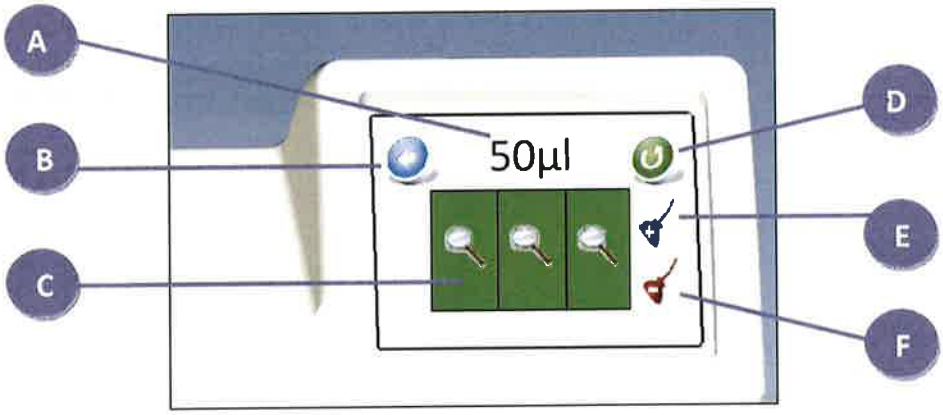
Inoculation of identification sections is similar to the basic operation of the instrument. The inoculation process also incorporates the optional oil overlay functionality.

1. Select the identification dosing pattern from the main dosing pattern



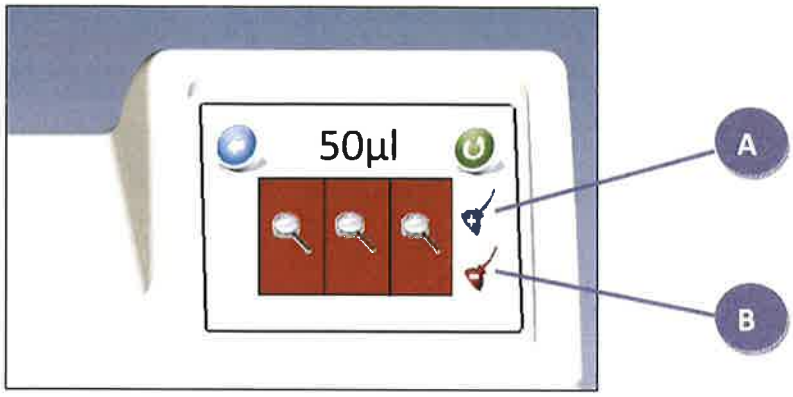
1	Identification dosing panel

2. The dosing screen will display a magnifying glass in each section indicating the dosing pattern is specifically for an identification section.



A	Press the inoculum level to select the required dispensing volume
B	To return to the previous screen press the left facing blue arrow
C	To start inoculation of a specific section press in the center of the section for inoculation
D	Reset panel icon
E	Gram positive identification oil overlay icon (This icon will only be displayed if the oil overlay option is enabled; refer to the instrument configuration section for further details)
F	Gram negative identification oil overlay icon (This icon will only be displayed if the oil overlay option is enabled; refer to the instrument configuration section for further details)

3. If the oil overlay option is enabled (See maintenance and configuration section) then you will notice 2 additional icons displayed the right hand side of the screen. Once the identification section has been inoculated; the oil overlay can be selected. Insert a test tube containing mineral oil and a dosing head onto the AIM™ instrument and select the oil overlay required for the specific panel type



A	Oil overlay for the GPID panel (Gram positive)
B	Oil overlay for the GNID panel (Gram negative)

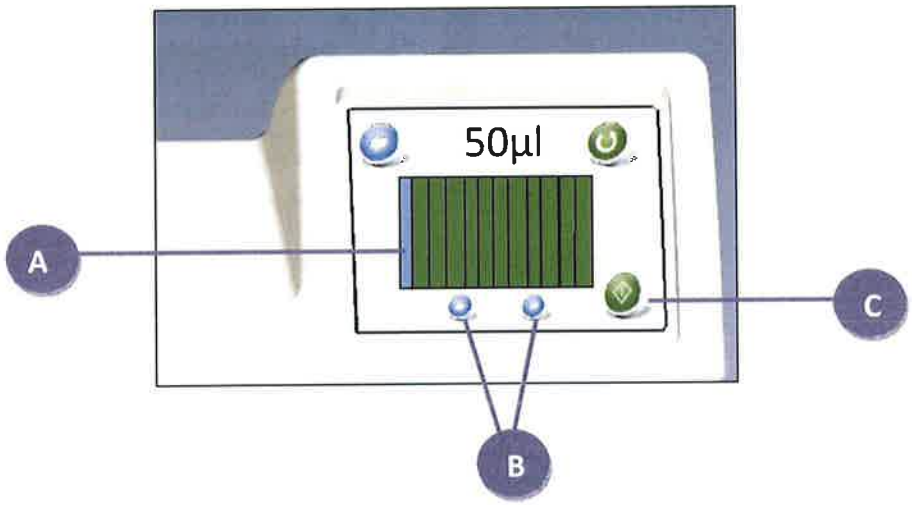
Remove the test tube/dosehead combination from the AIM™® within 30 seconds of dosing a plate and store inverted in a rack or discard.

Inoculation of small section panels

For panels with a number of small sections it is not easy to accurately select the required section with your finger. Therefore, functionality has been adapted to allow a greater amount of control in selecting the correct section.

1. The section that is ready to be inoculated is highlighted in blue. To select a different section to inoculate, touch the section required and/or use the blue arrow buttons located at the bottom of the screen.

2. Once the target section is highlighted, press the start icon to start the inoculation of the section.



A	The blue section indicates the section highlighted to be inoculated
B	Section selection buttons allow specific sections to be highlighted ready for inoculation
C	Start inoculation icon

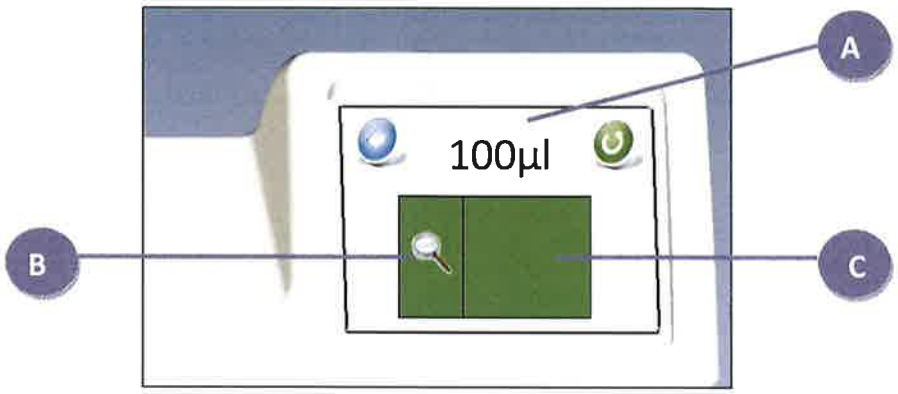
3. Once inoculation is complete, the instrument will automatically highlight the next available section to the right.

Remove the test tube/dosehead combination from the AIM™® within 30 seconds of dosing a plate and store inverted in a rack or discard.

Inoculation of combo panels (identification/susceptibility)

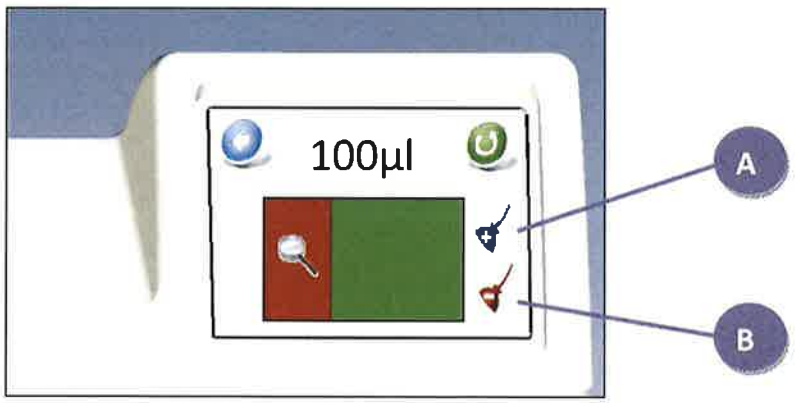
The inoculum amount that is selected relates to the susceptibility section only; the identification section uses a fixed 50µl inoculum.

4. Select the dosing pattern for the identification section which will display a magnifying glass in the identification section.



A	Press the inoculum level to select the required dispensing volume for the susceptibility section
B	Identification section
C	Susceptibility section

5. If the oil overlay option is enabled (See maintenance and configuration section there will be 2 additional icons displayed the right side of the screen. Once the identification section has been inoculated the appropriate oil overlay can be used by inserting a test tube (containing mineral oil and a dosing head)onto the AIM™ and selecting the oil overlay required for the specific panel type.

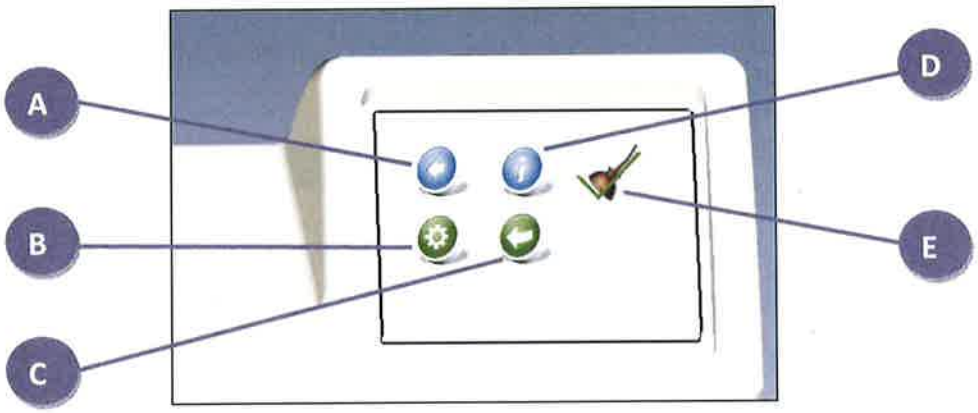


A	Oil overlay for the GPID section (Gram positive)
B	Oil overlay for the GNID section (Gram negative)

Remove the test tube/dosehead combination from the AIM™® within 30 seconds of dosing a plate and store inverted in a rack or discard.

Maintenance and configuration

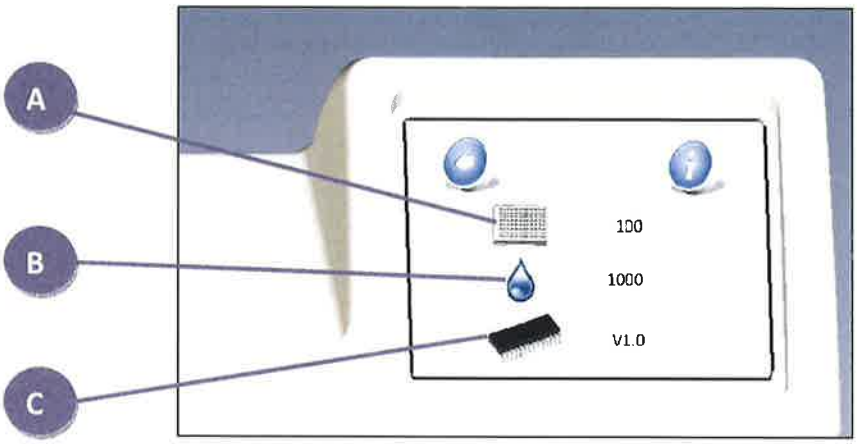
The maintenance screen can be accessed from the main dosing pattern screen using the right blue arrow.



A	To return to the previous screen press the left facing blue arrow
B	Service tools icon can be selected to go to the service and maintenance screen
C	Panel offset icon can be toggled to allow you to setup the AIM™ to inoculate a Sensititre panel, standard microtitre panel or both panel types.
D	Information icon takes you to the information screen
E	Oil overlay icon can be toggled to enable or disable oil overlay functionality for ID products.

Information screen

The information screen can be accessed by pressing the blue icon and will display information regarding the dosing activity along with the version number of the firmware installed on the instrument.



A	Displays the number of panels inoculated
B	Displays the number of individual doses performed
C	Displays the instrument firmware version

Oil overlay setting

The oil overlay icon can be toggled on and off by pressing the oil overlay icon displayed below. When enabled the oil overlay function will allow you to perform the oil overlay from the main inoculation screen. This option will only be displayed for panels that contain an identification section.

Oil Overlay Enabled

Oil Overlay Disabled

Service tools

The service icon is restricted for use by a Sensititre trained service engineer. There are no user serviceable parts inside the AIM™.

Service tools icon

Panel well offset setting

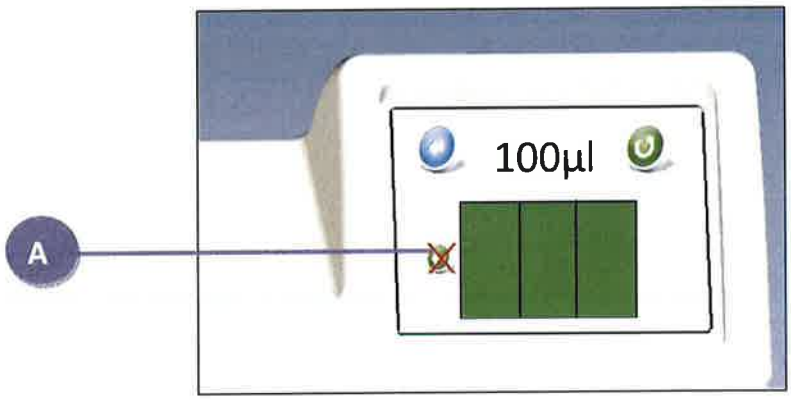
The panel well offset setting can be toggled through 3 settings by pressing the offset icon displayed below. The instrument is configured for Sensititre panels that have a slightly different well offset compared to standard 96 well microtitre panels. To accommodate both panel types there are several options.

Sensititre panels only with no offset. (Default setting)

Standard microtitre panels only . Uses required dosing offset

Both Sensititre and standard microtitre panels

If the Sensititre and standard microtitre panels option is selected, an additional icon will be displayed on the inoculation screen. This option allows switching between Sensititre and standard microtitre panels by toggling the offset icon located on the left side of the screen.



A	Panel offset button allows you to switch between Sensititre and standard microtitre panels.

Troubleshooting

Loss of Power

If the"Power On" LED on the front of the instrument is off and main LCD display is also off, the system has lost power.

1. Disconnect the main supply.
2. Check the fuse in the main fuse holder, which is located above the main socket on the instruments back panel. (See technical specification for correct type and rating). Replace the fuse if necessary.

Instrument errors

Problem	Cause	Solution
E1	NVR Checksum Error	Restart the instrument If the issue persists contact a Service Engineer
E2	Plate Carrier Error	Ensure that nothing is obstructing the panel holder. Press the touchscreen to reset the instrument If the issue persists contact a Service Engineer
E3	Pump Error	Ensure that the tube and dosing head are correctly inserted into the instrument correctly. Press the touchscreen to reset the instrument If the issue persists contact a Service Engineer
E4	Processor Error	Press the touchscreen to reset the instrument If the issue persists contact a Service Engineer

Other Faults

Problem	Cause	Solution
Erratic dosing and splashing	Incorrect panel offset selected	Check offset setting chosen is correct for the required panel type.
	Incorrect clamping of the dosing head	Ensure the dosing head clamp is fully closed during inoculation
	Incorrectly loaded panel	Check the panel is loaded with the correct orientation
	Panel corner clamp not engaging with panel correctly	Clean panel corner clamp with approved cleaning solution. If unsuccessful, contact service engineer.
	Incorrect mechanical setup	Contact Service Engineer
No response from the Touchscreen	No Power	Ensure the instrument is powered on. (See Loss of Power section
	Firmware problem	Power cycle the instrument
	Physical damage	Contact Service Engineer
No movement of panel holder	Physical obstruction	Inspect panel for obvious obstructions. If no obstruction to the panel holder, contact service engineer.
	Panel holder drive failure	Contact Service Engineer
Dosing clamp will not close fully	Dosing head not loaded correctly	Refer to dosing head loading instructions
	Dosing head clamp out of adjustment	Contact Service Engineer
	Physical obstruction to the dosing clamp	Inspect dosing clamp mechanism for obvious obstructions. Clean dosing clamp mechanism.
Dosing head will not load correctly	Dosing clamp already closed	Open dosing clamp fully
	Drive mechanism incorrectly positioned	Power cycle the instrument. If the problem persists contact service engineer.
No liquid being dispensed	Dosing head blocked	Replace dosing head
	Dosing mechanism failure	Contact Service Engineer
	Dosing clamp not closed fully	Ensure the dosing clamp fully closed
Incorrect wells being dosed	Incorrect panel layout selected	Select the correct panel layout
Incorrect volume being dosed	Incorrect inoculum selected	Select the correct dosing volume
	Incorrect instrument calibration	Contact Service Engineer

If any symptoms persist, consult TREK Diagnostic Systems customer support or your Sensititre® distributor.

Cleaning and maintenance

 **WARNING!**

Disconnect the power cable from the AIM™ before applying disinfectant. Leave the disinfectant to evaporate before reconnecting the power cable.

Decontamination and Cleaning

The following cleaning solutions are recommended for decontamination and cleaning of the AIM™.

IPA
0.5% Sodium hypochlorite
Biphenyl-2-ol 7.7% + Clorophene 7.7% (STERIS® Environ™ LpH™)
Hydrogen Peroxide 1% + Peroxyacetic Acid 0.08% (STERIS® SPOR-KLENZ)

The following may be decontaminated as required:

Work deck
Dosing clamp mechanism
Panel holder
Touchscreen
Main case work

Internal components are protected from accidental spillage.

Maintenance

There are no user serviceable parts inside the AIM™®.

Service Interval

It is recommended that the instrument is serviced annually by a Sensititre® trained service engineer.
Disclaimer: TREK will not warrant the performance of any instrument not maintained in accordance with the TREK preventative maintenance program

USB Port

The AIM™ features a USB port, located at the back of the instrument. This USB port is for use by a Service Engineer to support service functions, such as firmware upgrades. When connected to the USB port, the host computer and any other external connecting equipment should have reinforced insulation and comply with standard UL 60950-1.

Storage and Transportation Conditions

When not in use, the AIM™ should be stored and/or transported within a 15 to 45 Deg C temperature condition.

Technical specifications

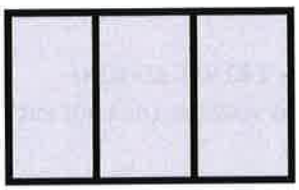
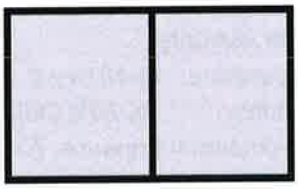
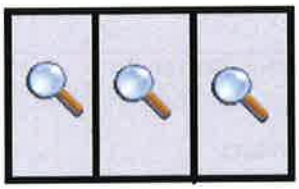
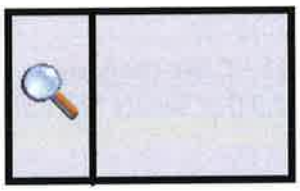
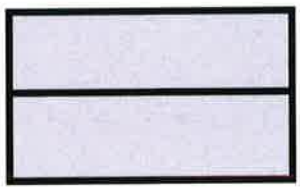
Dimensions:	Width 338 mm (13.3in) Depth 312 mm (12.28in) Height 287 mm (11.3in)
Weight:	Weight8kg (17.6lbs)
Electrical safety class:	Class 1 (the power supply ***must*** have a good ground connection at **all** times).
Main supply voltage:	100 – 240 VAC 50-60Hz Mains voltages shall not exceed +/- 10%
Main input frequency:	50-60 Hz.
Environmental conditions:	Indoor use only Temperature: 15-40 Deg C Humidity: 5%-80% (Relative Humidity) Environmental Pressure: 70-160 kPa Operating Altitude up to 2000 meters (6,562ft) Installation Category II
Pollution Degree:	Pollution Degree 2
Power consumption:	150 Watts
Main Fuse Rating:	T3.15AH250V
Communications:	RS 232 – C DTE configured USB 2.0 (For Service Software upgrades)

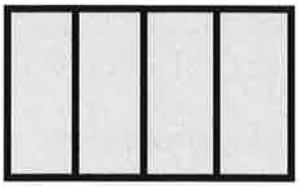
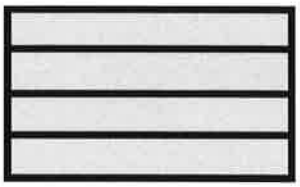
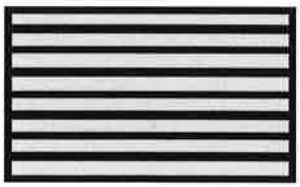
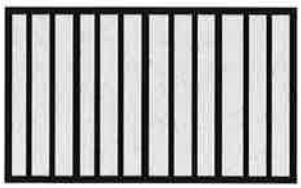
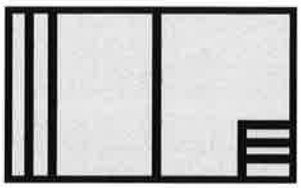
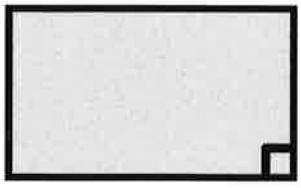
3.1.3.
3 reclamations

3.1.4.
2 reclamations

3.1.5.

AIM™ dosing patterns

Dosing Pattern	Dose Description
	Doses all 96 wells starting at A1
	Three section panel Section 1: A1 – H4 Section 2: A5 – H8 Section 3: A9 – H12
	Two vertical section panel Section 1: A1 – H6 Section 2: A7 – H12
	Three section Identification panel Section 1: Doses well C3 first then A1 – H4 Section 2: Doses well C7 first then A5 – H8 Section3: Doses well C11 first then A9 – H12
	Combo panel Section 1: Doses well C3 first then A1 – H4 Section 2: Doses well A5 – H12
	Two horizontal section panel Section 1 – Rows A – D Section 2 – Rows E – H

Dosing Pattern	Dose Description
	Four vertical section panel Section 1 – Columns 1, 2 and 3 Section 2 – Columns 4, 5 and 6 Section 3 – Columns 7, 8 and 9 Section 4 – Columns 10, 11, and 12
	Four horizontal section panel Section 1 – Rows 1 and 2 Section 2 – Rows 3 and 4 Section 3 – Rows 5 and 6 Section 4 – Rows 7 and 8
	Eight horizontal section panel Section 1 – Row 1 Section 2 – Row 2 Section 3 – Row 3 Section 4 – Row 4 Section 5 – Row 5 Section 6 – Row 6 Section 7 – Row 7 Section 8 – Row 8
	Twelve vertical section panel Section 1 – Column 1 , Section 2 – Column 2 Section 3 – Column 3, Section 4 – Column 4 Section 5 – Column 5, Section 6 – Column 6 Section 7 – Column 7, Section 8 – Column 8 Section 9 – Column 9 , Section 10 – Column 10 Section 11 – Column 11, Section 12 – Column 12
	DQC5 Trek use only
	Doses all 96 wells except H12

AIM™ icons

Icon	Icon Description
	Return to the previous menu screen
	Move to the next menu screen
	Abort the panel inoculation
	Reset the current panel inoculation
	Indicates the inoculators is configured for standard microtitre panels and is using the calculated well position offset
	Indicates the inoculators is configured for Sensititre panels
	This icon is located on the configuration screen and indicates that the AIM™ is setup to handle both Sensititre and standard microtitre panels

Icon	Icon Description
	Identification oil overlay function is enabled.
	Identification oil overlay function is disabled.
	Service and maintenance icon. Only to be used by Sensititre trained service engineer.
	Information screen displays information regarding the number of panel inoculated and the instrument firmware version.
	Start inoculation icon and will only appear for small section panels where accurate finger contact with a section is difficult.
	Displayed if a panel abort is triggered. Pressing this icon will continue the inoculation process.
	Starts the oil overlay dosing for the Gram+ identification panel 150 µl into A1,A5,A9. Note that only identification sections that have been previously inoculated will have the oil overlay applied.
	Starts the oil overlay dosing for the Gram- identification panel 150 µl into (A1,A2),(A5,A6) (A9,A10) Note that only identification sections that have been previously inoculated will have the oil overlay applied.

The panel icon on the information screen indicates the number of panels that have been inoculated.

The droplet icon on the information screen indicates the number of individual doses that have been performed.

This icon on the information screen indicates the version number of the firmware currently installed on the instrument.