

STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



Mentor Portable Refrigerant Identifier For Automotive Applications For R-1234yf & R-134a



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1 MENTOR KIT

The Mentor Portable Refrigerant Identifier is supplied in a sturdy carrying case together with a kit of parts as detailed below.



Mentor Kit (with Printer) Stock No. SS980-KIT
Mentor Kit (without Printer) Stock No. SS980-KIT-NP

Contents

- Mentor R134a/R1234yf Identifier.
- R1234yf cylinder adapter – Honeywell.
- R1234yf cylinder adapter – Dupont.
- R134a quick connect coupler.
- R1234yf quick connect coupler.
- Connection hose with oil restrictor.
- USB cable.
- Universal mains charger.
- Bluetooth Printer (Optional) & Charger.
- Calibration certificate.
- Instruction Manual.

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Mentor Kit

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2 DESCRIPTION

This manual is to be used in conjunction with TD20/003 Mentor Refrigerant Identifier Communications manual.

The Mentor Portable Refrigerant Identifier is intended for either stand-alone use or connection to SAE J2843, SAE J2851 or SAE J3030 certified Automotive Air Conditioning Service equipment to provide accurate identification of the refrigerant purity of R-1234yf and R-134a either within storage cylinders or vehicle air conditioning units. For connection to an AC service machine, connect one end of the USB cable supplied to the USB socket on side of the identifier and the other end to the AC service machine. If Data Encryption is selected, the output will be encrypted (using AES-256 algorithm) by the Refrigerant Identifier prior to transmission to the Service Unit. The Service Unit will therefore need to have the capability to de-encrypt the data.

The unit is supported by a comprehensive PC software application that allows Service Unit manufacturers to test and configure the identifiers during the production process.

The unit is designed to be compatible with existing equipment.

3 SCOPE OF THE MANUAL

This manual provides details on the correct and safe use of the **Mentor Portable Refrigerant Identifier** when used in automotive air system conditioning applications.

4 CONFORMITY

CE, ROHS and ISO 9001:2015

Certified to meet the SAE J2912 standard.

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5 SAFETY PRECAUTIONS



Working with refrigerants and mixtures of refrigerants can be dangerous if the correct safety precautions are not adhered to. Please ensure anyone using the Mentor Refrigerant Identifier has read and understands the following precautions.

- Suitable safety glasses and gloves need to be worn when working with refrigerants as these can cause frostbite or loss of sight.
- R1234yf and Hydrocarbon refrigerants are flammable. Make sure you are working in a well-ventilated area with no naked flames.
- R134a and/or mixtures of other refrigerants may also be flammable.
- Ensure the vehicle engine is turned off and/or the keys are removed from the ignition before carrying out any sample tests.
- Avoid breathing refrigerant and oil vapour.

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6 OVERVIEW



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7 BATTERY CHARGING

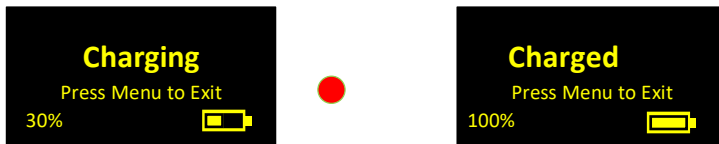


The Refrigerant Identifier is supplied with a 100 to 240 VAC / 9V DC charger. This should always be used to recharge the internal Lithium-ion battery. Use of any other power source may cause damage to the electronics and invalidate the product warranty.

The internal battery can be charged with or without the Identifier switched on.

An amber LED indicator next to the charging input is socket is illuminated when charging is taking place, even if the Identifier is switched off.

If the Identifier is switched on, a Red LED on the front panel is illuminated during the charging process. When the battery is fully charged, the Green LED is illuminated as shown below.



The charge time can be up to 8 hours depending upon the initial state of charge.

Note: The charge indication can take several seconds to update when the charger is first connected / disconnected.

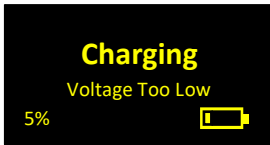
7.1 Using the Identifier when charging

During charging, the identifier can be used for gas testing and accessing the menu functions provided that the battery has at least 10% of its full capacity. This is achieved by pressing the **MENU** button when the display reads 'Press Menu to Exit' as shown above.

However, if the battery charge level is below 10% then gas testing and access to the menu functions is unavailable and the display is as follows:

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7.2 Auto Power Off

The auto power off function conserves battery power when the Identifier is switched on but is not being used. This works by automatically switching off the identifier after a preset period of inactivity. The period can be changed within the **Settings** menu. The setting options are 15, 30, 60 minutes or Disabled.

When the unit powers down the display shows:



and beeps. To power back up, follow the procedure in section 9.1.

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8 MENU NAVIGATION

The Identifier has a numeric keypad.

Keys 1, 4, 5, 6 & 9 also have menu navigation arrows as shown below to navigate the display cursor between the various instrument functions and character entries.



Press  to select a required function/character.

Within functions that require character entry, e.g. operator names, key 5 can be used to delete an entry.

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9 SET UP AND FUNCTIONS

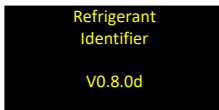
9.1 Power on

Press the power on button once.



The display will illuminate and show the software version.

(If the display fails to appear then charge the instrument as detailed in section 7).



The gas sensor inside the identifier uses a heat source that requires 2 minutes to stabilise at its operating temperature. Therefore, when power is applied, the instrument enters a warm up period during which the following messages appear: -

Warmup...

The Instrument takes 2 minutes to warm up. Instructions follow.

Warmup...

Check the filter for Signs of discolouration, Replace if necessary!

Warmup...

Check sample lines for signs of oil before use, Replace if necessary!

Warmup...

Turn on the printer if required. It can take up, To 30 secs to connect.



WARNING – If oil gets inside the identifier it will cause irreparable damage to the NDIR unit and is not covered under any warranty.

Other warning messages may also appear during the warmup period for example –

- **Calibration Required!**
- **Filter Change Overdue!**
- **Air Sensor Change Overdue!**

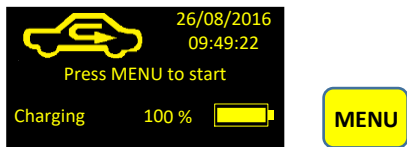
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9.2 Setting the Clock/Date

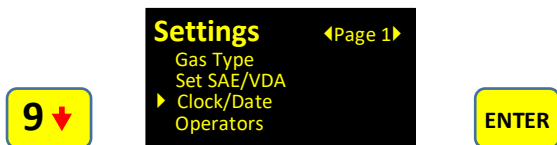
After warming up, the main page is displayed. Press **MENU** to start.



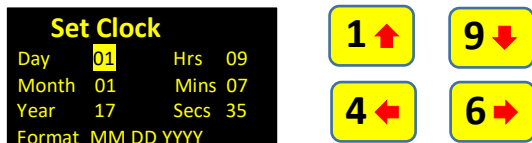
Page 1 is displayed. Use the down arrow to go to page 2, **Settings** then press **ENTER**.



Use the down arrow to select **Clock/Date** then press **ENTER**.



The **Set Clock** page is displayed.



Use the **Up** and **Down** arrow buttons to increase or decrease the highlighted values or scroll through the Date **Format** options.

Use the **Left** and **Right** arrow buttons to move between the **Day**, **Month**, **Year**, **Hours**, **Minutes** and **Seconds** settings.

Press **ENTER** to save the **Clock/Date** settings or **MENU** to exit without saving.

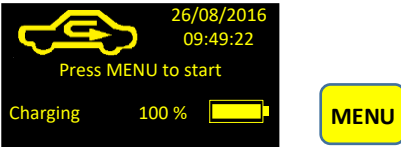
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9.3 Selecting the Language

After warming up the main page is displayed. Press **MENU** to start.



Page 1 is displayed. Use the down arrow to go to **Settings** on Page 2 then press **ENTER**.



Page 1 is displayed. Use the down arrow to select **Language** on Page 2 then press **ENTER**.



The **Set Language** page is displayed. Use the down arrow to select the required Language then press **ENTER** to save the selection or **MENU** to exit without saving.



THIS LANGUAGE OPTION IS NOT CURRENTLY AVAILABLE

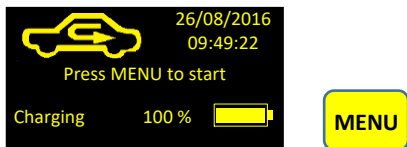
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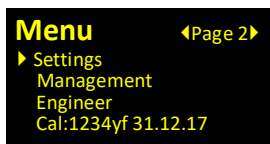
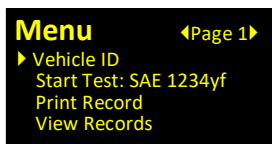


9.4 Setting the operator names

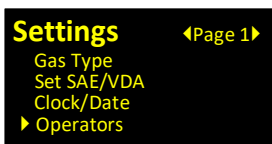
After warming up, the main page is displayed. Press **MENU** to start.



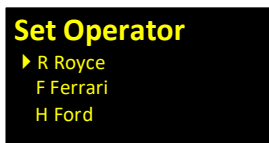
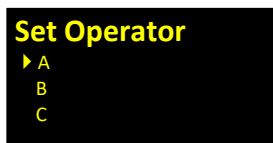
Page 1 is displayed. Use the down arrow to go to **Settings** on Page 2 then press **ENTER**.



Use the down arrow to select **Operators** then press **ENTER**.






The **Set Operator** page is displayed.



Display with no entries.

Display with 3 existing entries.

Use the down  arrow to make the selection then press  or  to exit.

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A character entry page is then displayed, and the operator name can be entered.



← Entries appears here

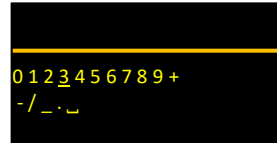
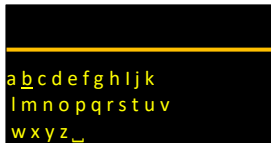
Use the **arrow keys** shown below to navigate the cursor between the characters.



Press **ENTER** to select the required character and **5** to delete the entry.



Repeated pressing of the **Down** arrow key navigates to the lower-case letters page followed by the numbers page.



Spaces can be added by selecting and entering _

Press **MENU** to save and exit.

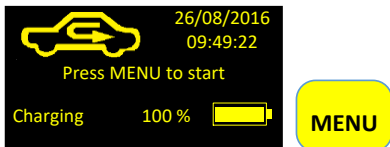
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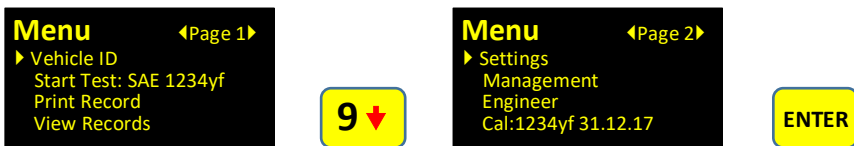


9.5 Setting the company name

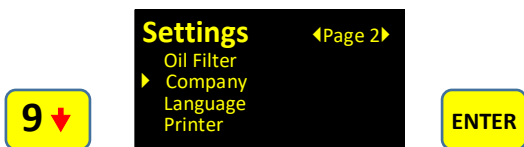
After warming up, the main page is displayed. Press **MENU** to start.



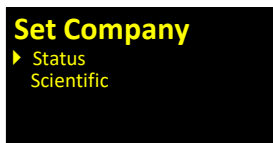
Page 1 is displayed. Use the down arrow to go to **Settings** on Page 2 then press **ENTER**.



Use the down arrow to select **Company** on Page 2 then press **ENTER**.



Select which line to edit or press **MENU** to exit



The **Set Company** page is displayed.



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Use the **arrow keys** shown below to navigate the cursor between the characters.



Press **ENTER** to select the required character and **5** (left arrow) to delete the entry.

Repeated pressing of the **Down** arrow key navigates to the lower-case letters page followed by the numbers page.



Spaces can be added within the by selecting and entering **_**

Press **MENU** to save and exit.

9.6 Bluetooth

The Mentor is fitted with a Bluetooth module so that it can be used to download test results to a Bluetooth printer.

For the Mentor to communicate with the printer, it's necessary to register the MAC address of the printer. If the Mentor and printer are purchased together, this will normally be pre-entered prior to shipment however, if the printer is purchased separately or for some reason the MAC address has been deleted then it can be entered as follows.

9.6.1 How to find the MAC address for the Porti-S Woosim printer

- 1 Switch off the printer.
- 2 Check the paper.
- 3 Hold down the FEED button and press the power on button.
- 4 A PRINTER STATUS print-out will be produced containing the data below.
- 5 The MAC address is shown as **BDA** and will be different for each printer.

```
** PORTI-S(ARM) **  
PRINTER STATUS (ENG)  
[Ver 1.0 2014/04/24]
```

```
MODE = Bluetooth  
SERIAL = 57600 BPS  
8 DATA BIT  
NO PARITY  
1 STOP BIT
```

```
DENSITY = MEDIUM
```

```
MARK = NO USE  
SENSOR = LOW
```

```
COMMAND = Type0  
PWDN = NO USE
```

```
BDA : 00 -15-0E-E5-31-83  
PIN : 1234
```

← **MAC Address**

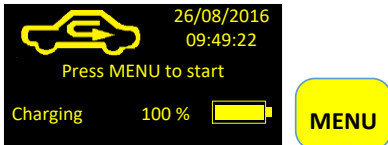
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9.6.2 Entering the MAC address

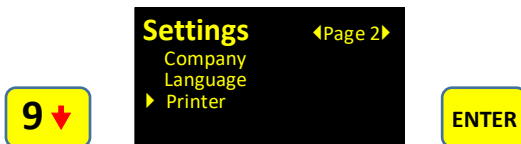
After warming up, the main page is displayed. Press **MENU** to start.



Page 1 is displayed. Use the down arrow to go to **Settings** on Page 2 then press **ENTER**.



Use the down arrow to select **Printer** on Page 2 then press **ENTER**.



The **Set Printer** page is displayed, use the down arrow to select **On** then press **ENTER**.



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Now use the down arrow to select **Printer MAC** then press **ENTER**.



Press **ENTER** to edit, **MENU** to exit



The **Set Printer MAC** page is displayed.

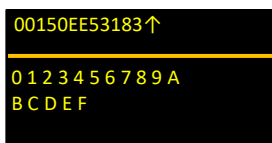


Enter the MAC address using the **arrow keys** shown below to navigate the cursor between the characters.



Press **ENTER** to select the required character and **5** with a left arrow to delete the entry.

Upon completion, a **↑** symbol will appear as shown below. Press **MENU** to save and exit.



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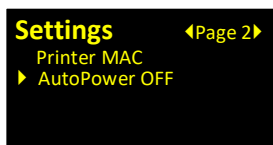


9.7 Auto Power Off

The auto power off conserves battery power when the Identifier is switched on but is not being used.

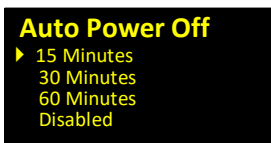
The period of inactivity after which the Identifier enters the power save mode can be set as follows.

Select **AutoPower OFF** from within the **Settings** menu and press **ENTER**.



The **Auto Power Off** page is displayed. The cursor points to the current setting. Use the down key to select the required time or disable the function then press **ENTER**.

Press **MENU** to escape.



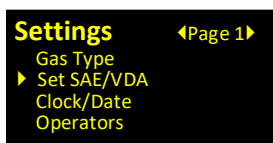
Or



9.8 Set SAE/VDA

Set the protocol required as follows. using the down key navigate the cursor to set

SAE/VDA with page 1 of the Settings menu and press **ENTER**



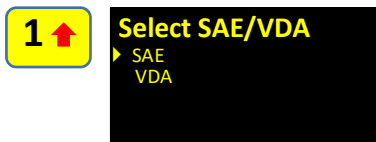
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Using the up or down keys, navigate to the required protocol and press **ENTER** to

save the protocol setting or **MENU** to exit without saving



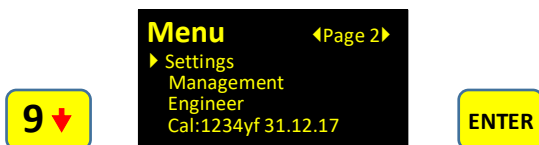
10 OPERATION

10.1 Selecting R1234yf or R134a Tests

After warming up, the main page is displayed. Press **MENU** to go to page 1.

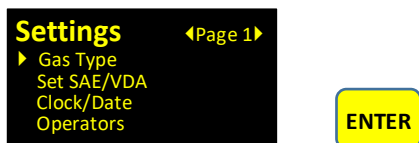


Use the down arrow to go to **Settings** on Page 2 then press **ENTER**



NOTE: The latest date of calibration for the selected gas is shown at the bottom of Page 2 as shown above. If the instrument has not been calibrated, 'Not Calibrated' is shown instead of the date.

The cursor will point to **Gas Type**. Press **ENTER**

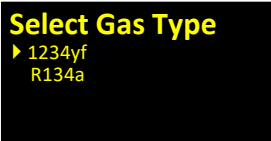


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Use the **Up/Down** arrows to select the required test, then press **ENTER**. The selection will now be stored (even if the instrument is switched off) until it is changed.

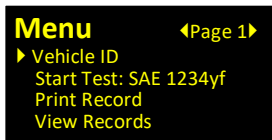


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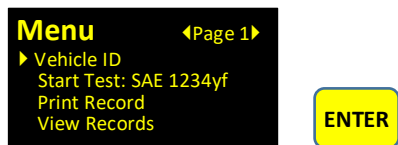


The selection is shown next to the **Start Test** function on Page 1 of the **Menu** as shown below.

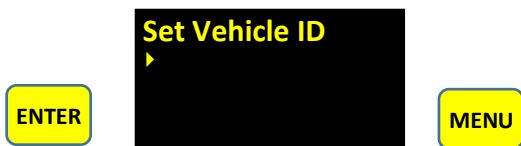


10.2 Entering the vehicle details

Navigate to **Vehicle ID** then press **ENTER**.



Press **ENTER** to edit, **MENU** to exit



The **Vehicle ID** page is displayed.



Use the **arrow keys** shown below to navigate the cursor between the characters.



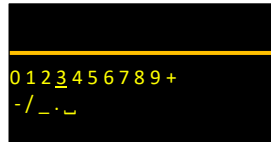
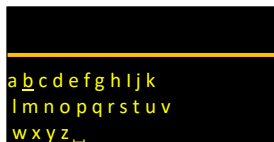
Press **ENTER** to select the required character and **5** (left arrow) to delete the entry.

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Repeated pressing of the **Down** arrow key navigates to the lower-case letters page followed by the numbers page.



Spaces can be added within the vehicle ID by selecting and entering _

Press **MENU** to save and exit.

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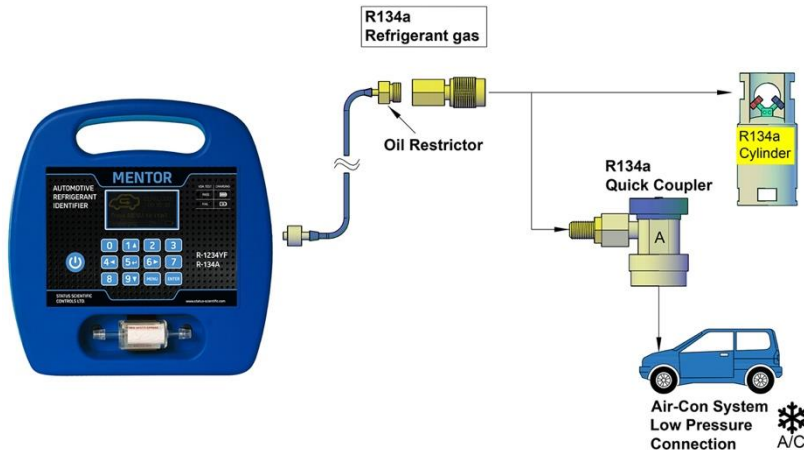
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10.3 Testing for R134a

Selecting an R134a test will test for the purity of R134a in the sample.

Either a refrigerant gas cylinder or vehicle air conditioning system can be tested.



To reduce the possibility of oil contamination, make sure engine has been off for 10 minutes or more. Total purge and test time is 140 seconds

Test Procedure

If necessary, select the R134a test as described in section 10.1

On page 1 of the menu navigate to **Start Test** using the **Down** arrow key then press **ENTER**. The **Set Operator** page is displayed.

Menu ◀Page 1▶
Vehicle ID
▶ Start Test: SAE R134a
Print Record
View Records

ENTER

Set Operator
▶ R Royce
E Ferrari
H Ford

Use the down **9** arrow to make the selection then press **ENTER** or **MENU** to exit.

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The unit will now purge the system with ambient air.

Purging...

Time remaining
35 seconds

After the purge then the unit prompts the user to connect the hose.

Connect Hose
Open Valve
Press ENTER to Test
MENU to exit

Test: R134a

Time remaining
45 seconds

Completed

Close Valve
Disconnect Hose
Press Menu to Exit

The test will run automatically once the vehicle connection is opened (and the flow rate is within the preset limits) on the vehicle or cylinder as per below and will take a maximum of 80 seconds.

The test results are shown automatically, press **MENU** to finish the test.

SAE Results Format

Results 134A

R134a	0.0	Air 0.1
R12	94.0	Stat 0
R22	0.0	Test 9
HC	6.0	

Or

VDA Result Format

Results 134A

Fail < 95%



 PASS
 FAIL

Refer to Section 10.5 on how to print out the results.

Refer to section 10.6 on how to retrieve stored results.

If the analysis results determine that the sample is not pure, it is recommended the sample be retested. This will minimise incorrect results due to interference from large electrical or RF pulses or extreme temperature changes.

STATUS SCIENTIFIC CONTROLS

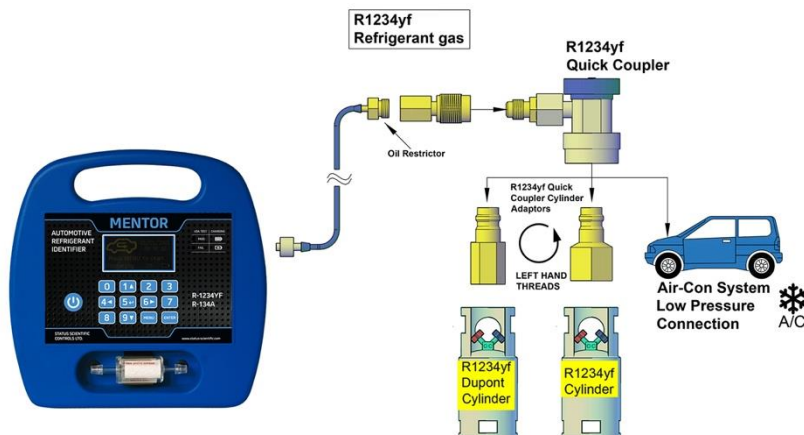


- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •

10.4 Testing for R1234yf

Selecting an R1234yf test will test for the purity of R1234yf in the sample.

Either a refrigerant gas cylinder or vehicle air conditioning system can be tested.

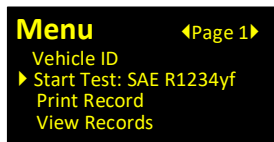


To reduce the possibility of oil contamination, make sure engine has been off for 10 minutes or more. Total purge and test time is 140 seconds

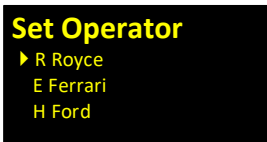
Test Procedure

If necessary, select the R1234yf test as described in section 10.1

On page 1 of the menu navigate to **Start Test** using the **Down** arrow key then press **ENTER**. The **Set Operator** page is displayed.



ENTER



Use the down



arrow to make the selection then press



or



to exit.

STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



The unit will now purge the system with ambient air.

Purging...

Time remaining
35 seconds

After the purge then the unit prompts the user to connect the hose.

Connect Hose
Open Valve
Press ENTER to Test
MENU to exit

Test: R1234yf

Time remaining
45 seconds

Completed

Close Valve
Disconnect Hose
Press Menu to Exit

The test will run automatically once the vehicle connection is opened (and the flow rate is within the preset limits) on the vehicle or cylinder as per below and will take a maximum of 80 seconds.

SAE Results Format

Results YF

R134a	0.0	Air 0.1
R1234yf	94.0	Stat 0
R22	0.0	Test 9
HC	6.0	



Or

VDA Result Format

Results YF

Fail < 95%



 PASS
 FAIL

Refer to Section 10.5 on how to print out the results.

Refer to section 10.6 on how to retrieve stored results.

If the analysis results determine that the sample is not pure, it is recommended the sample be retested. This will minimise incorrect results due to interference from large electrical or RF pulses or extreme temperature changes.

STATUS SCIENTIFIC CONTROLS



- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •

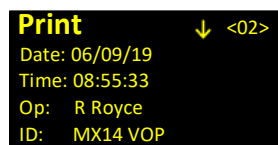
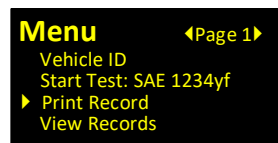
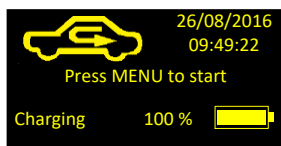
10.5 Printing test results

To print test results, a Bluetooth printer is required. For successful operation:

- The identifier and printer must be paired by entering the printer MAC address as detailed in section 9.6.
- The printer must be switched on/charged.
- The printer function within the **Settings** menu must be set to **On**.

The results can either be printed at the end of a R143a or R1234yf test or later from the **Print Records** menu as detailed below.

Up to 50 tests can be stored for retrieval and printing with the latest test being shown on the first **Print** screen.



Use to view the record details.



Use to scroll through the records.



STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



Press to exit.

If the printer is found, then the results will automatically be printed.

Status Scientific Controls Ltd.

Date:	01/12/2017
Time:	15:05:25
Op:	R Royce
ID:	MX14 VOP
R1234yf:	0.0
R134a:	100.0
R22:	0.0
HC:	0.0
Air:	0.1
Refrigerant:	R134a

The percent refrigerant purity indicated by this equipment includes the amount of air that may be in the refrigerant being tested, but the percentage of non-condensable gases (such as air) is an independent number.

If the refrigerant being tested is identified as contaminated, any visual percentages being displayed of HFC-134a (R134a) or HFO-1234yf (R-1234yf), outside the design certified value is informal and may not be accurate.

If the refrigerant in the sample contains less than 70% of the primary refrigerant, this may be displayed as zeroes in all the analysis categories, indicating that the analysis has completed but the primary gas is less than 70% pure.

With the SAE gas analysis output, any hydrocarbons and/or R152a levels identified will display in the HC category.

STATUS SCIENTIFIC CONTROLS

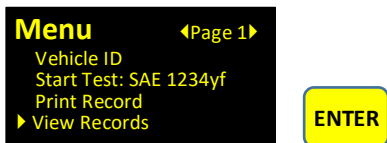
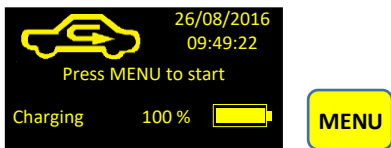
- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



10.6 Stored results

The Identifier will store the last 50 tests, with the latest test being shown on the first **VIEW** screen.

Navigate to **Page 1** of the **Menu**, select **View Records** then press **ENTER**.



The **Log** screen is displayed.



Use to view the record details.



Use to scroll through the records.

Press **MENU** to exit.



STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



10.7 USB Output

The USB communications output operates using the protocol specified in **Appendix B of SAE standard J2912, December 2014.**

Reference should be made to the above standard for full details of the communications protocol. Use TD20/003 Mentor Refrigerant Identifier Communications manual for information.

The USB output is used for the following.

- Transferring test data to A/C service machines.
- Transferring test data to a PC.
- Uploading vehicle and user information from a PC.
- Uploading software updates from a PC.
- Re-calibration.

10.8 PC software and updates

The Mentor PC Application provides the following facilities.

- Transfer vehicle and operator details to the Mentor
- Check sensor calibration data
- Upload software updates

11 MAINTENANCE

11.1 Hose

The sample hose supplied is specifically designed to deliver the correct quantity of refrigerant at the correct pressure to ensure no damage to the instrument. This hose and the brass oil trap should be checked at regular intervals for exterior damage, and any traces of oil or debris in the hose itself. Any oil or debris should be completely removed before re-use. If this is not possible the hose and oil trap will need replacing – See spare parts list.

STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



11.2 Vehicle Connectors

The R134a and R1234yf vehicle quick connect couplers should be checked at regular intervals for damage, leakage and correct fitment.

11.3 Oil Filter Counter

This facility allows a message to be displayed to advise the user to change the oil filter after a pre-set number of refrigerant tests have been carried out. Successful operation of this function depends upon the counter being reset within the **Management** menu each time a new filter is fitted. **Please refer to Section 12.3 for details.**

11.4 Oil filter Replacement

If oil is allowed into the Identifier gas sensing chamber, then this will cause damage and failure of the Identifier thereby invalidating the warranty.

A replaceable white in-line oil filter is provided to minimise the risk of damage in the event of oil entering the sampling hose. Periodic examination of the filter and sample hose is vital and, if oil contamination is observed, then further testing must cease until the filter and/or hose have been replaced.

The white filter has an activated dye medium that turns red when exposed to oil in the system.

Please note, small red spots at the ends of the entry and exit tubes are not necessarily an indication of oil contamination, this may just be powder ink / dust due to the production processes of the filter.

To replace, firstly obtain a replacement filter. Make a note of the direction of flow shown on the identifier or existing filter. Pull the existing filter forwards out of the retaining clip. Carefully uncouple the black rubber tubing from both sides of the filter. Do not allow the tubing to slip back into the unit. Inspect the hose assemblies for signs of oil contamination.

Making sure the new filter is installed in the correct direction of flow, install the tube ends onto the barbs of the new filter. Carefully slide the filter and tubing back in place

STATUS SCIENTIFIC CONTROLS



- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •

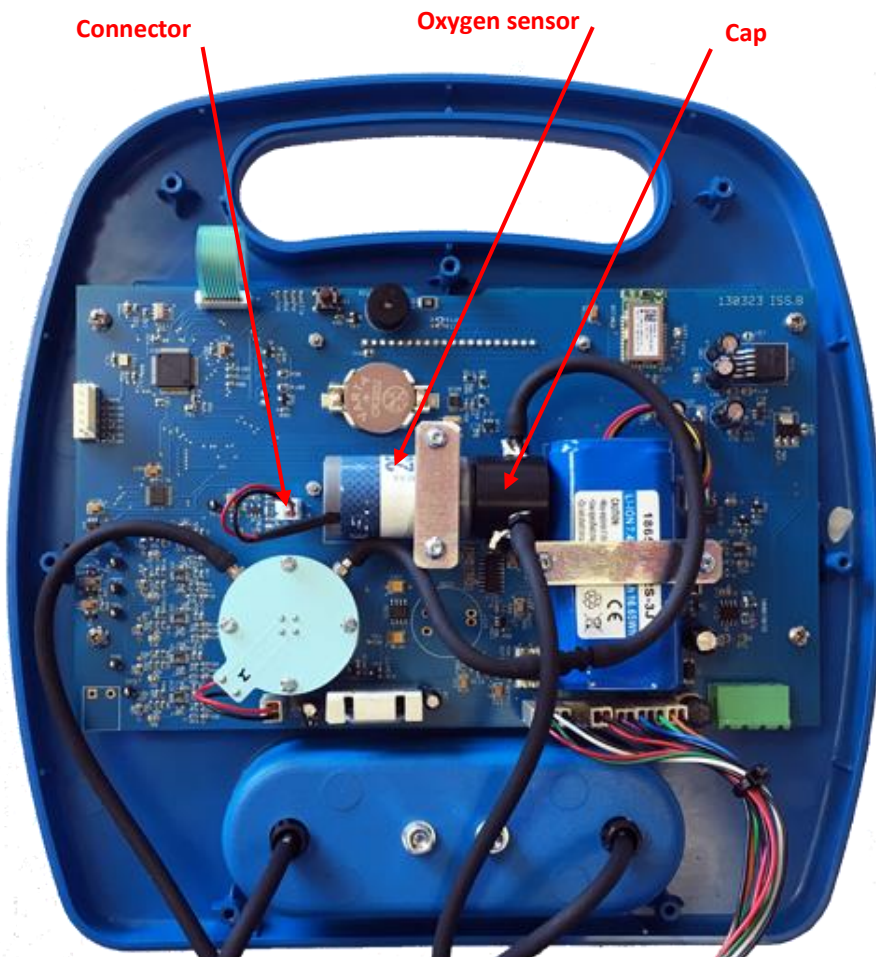
until the new filter is correctly seated into the retaining clip, checking there are no kinks in the tubing.

Dispose of the old filter in an environmentally friendly manner. Replacement of the sample filter usually requires replacement of the sample hose with oil restrictor.

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •

11.5 Oxygen Sensor Replacement

The Oxygen (Air) sensor has an expected life of 5 years. It will need to be replaced when indicated on the instrument display. The sensor is situated on a printed circuit board behind the front panel as shown below.



STATUS SCIENTIFIC CONTROLS



- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •

To replace the sensor, carry out the following procedure: -

- Switch the Identifier off and place it face down on a flat clean surface large enough to accommodate both the front and rear of the case when open.
- Remove the 7 x self-tapping stainless-steel screws that hold together the instrument case using a 'Torx' T8 driver.
- Open the case and carefully separate the two halves without disturbing the wiring or tubing. Lay the rear of the case flat on the surface.
- Disconnect the 2-way connector.
- Remove the two screws holding the clamp then carefully lift the oxygen sensor and remove the black cap.
- Fit the new sensor using a reverse of the above procedure. Before closing and securing the case, check to ensure that none of the wires or tubing has been disturbed.
- Switch on the Identifier.
- After the warm-up period has elapsed, use the menu to navigate to **Management > Oxygen Sensor** and register that a new sensor has been fitted as detailed in section 12.2.

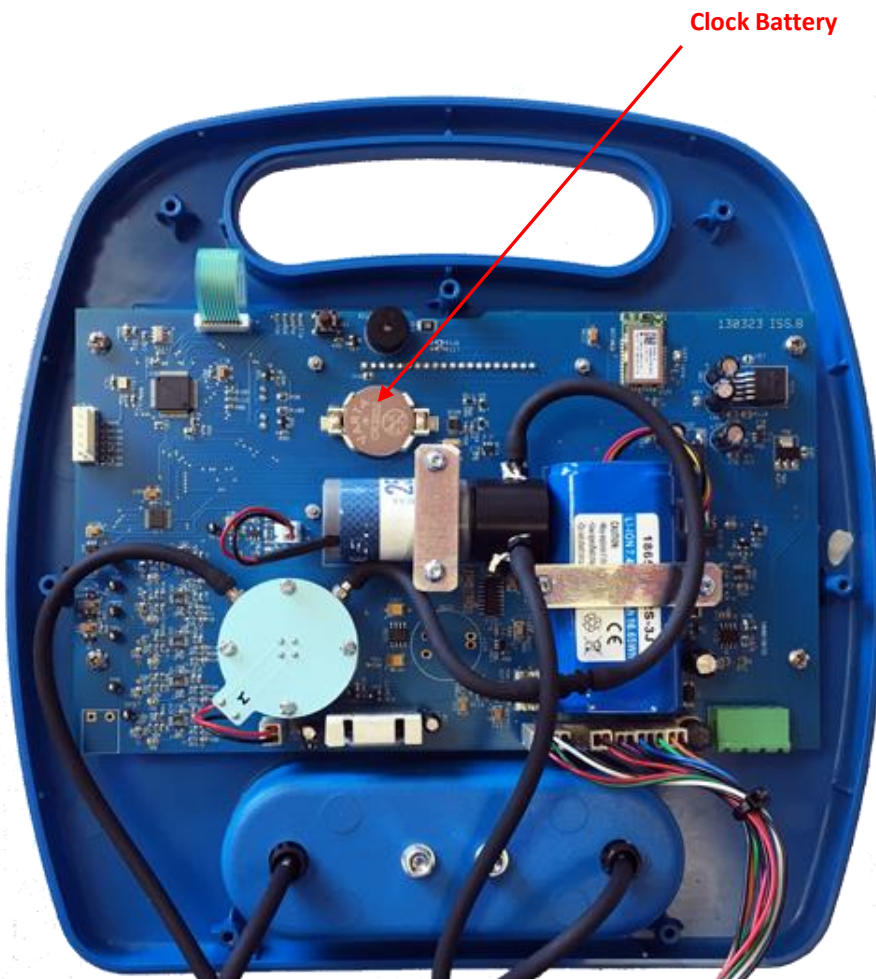
STATUS SCIENTIFIC CONTROLS



- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •

11.6 Clock Battery Replacement

To maintain the time and date when the instrument is switched off, the Identifier is fitted with a Type 2032 3V Lithium coin cell as shown below: -



STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



To replace the cell, carry out the following procedure: -

- a) Switch the Identifier off and place it face down on a flat clean surface large enough to accommodate both the front and rear of the case when open.
- b) Remove the 7 x self-tapping stainless-steel screws that hold together the instrument case using a 'Torx' T8 driver.
- c) Open the case and carefully separate the two halves without disturbing the wiring or tubing. Lay the rear of the case flat on the surface.
- d) Note the orientation then carefully remove the battery from its holder and replace it with a new one of the same type.
- e) Set the time and date as described in section 9.2.

STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



12 MANAGEMENT

Management of the Identifier operation is carried out using a **Password** protected menu. Details of the password can be provided to approved users upon request.

The management menu contains the following functions.

- **Calibration** – allows re-calibration of the identifier.
- **Oxygen Sensor** – registers when the Oxygen (Air) sensor is replaced.
- **Oil Filter Counter** – pre-sets the Oil Filter replacement count.
- **Diagnostics.**
- **Restore Backup.**

12.1 Calibration

To ensure optimum accuracy and sensitivity of the Identifier it is advisable to periodically re-calibrate the instrument against **reference cylinders of 100% R1234yf and 100% R134a.**

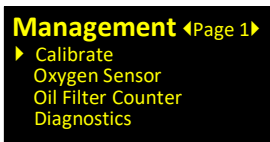
It is recommended that re-calibration is carried out at least every 5 years. The identifier must be returned to your local distributor to carry this out.

<https://refrigerantidentifier.com/distributors/>

Alternatively, contact us, the manufacturer Status Scientific Controls Limited, contact details provided on the cover page.

The latest date of calibration for the selected gas is shown at the bottom of Page 2 of the main menu.

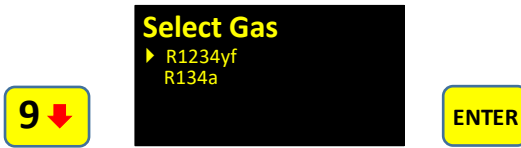
Select **Calibrate** from within the **Management** menu and press **ENTER**.



The **Select Gas** menu is displayed. Use the down arrow to select the reference gas and press **ENTER**.

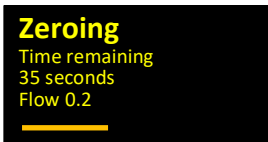
STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



The unit will now purge the system with ambient air for 60 seconds.

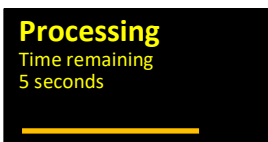
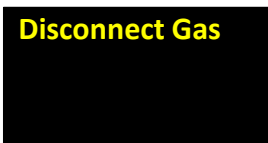
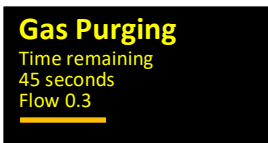
(Note that the Flow values may vary from those shown).



After the zeroing, the unit prompts to connect the reference gas cylinder.



When the gas is connected and provided the flow rate is within the preset limits the process continues automatically - disconnect the gas when prompted.



STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



Select Gas

▶ R1234yf ✓
R134a

A tick next to the gas indicates successful calibration. Repeat the process for R134a.

STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •

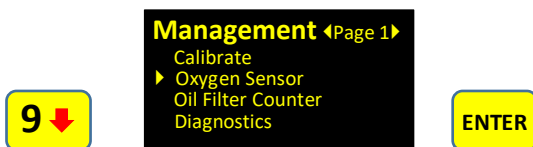


12.2 Oxygen Sensor

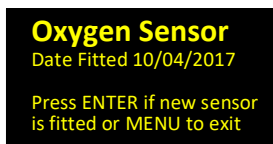
To ensure accuracy of the **AIR** readings provided by the Identifier, it is necessary to instruct the instrument that the Oxygen sensor has been replaced.

To carry out this function, proceed as follows.

Select **Oxygen Sensor** from within the **Management** menu and press **ENTER**.



The **Oxygen Sensor** page is displayed.



Press **ENTER** to confirm that a new sensor has been fitted or **MENU** to exit.

If **ENTER** is pressed, the identifier will purge with air for 60 seconds then calibrate the sensor. The date fitted will then change accordingly.

STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •

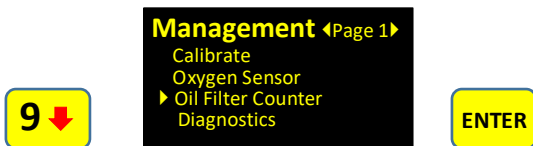


12.3 Oil Filter Counter

This facility allows the number of tests between oil filter changes to be pre-set.

To carry out this function, proceed as follows.

Select **Oil Filter Counter** from within the **Management** menu and press **ENTER**.



The **Oil Filter Counter** page is displayed as shown below. By pressing **ENTER**, the counter value can be changed using the keypad.



Press **ENTER** to register the new counter value or **MENU** to exit without change.

NOTE – If the value entered = 0, a default value (e.g. 150) will be set.

The **Auto Power Off** page is displayed. The cursor points to the current setting. Use the down key to select the required time or disable the function then press **ENTER**.

STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



11.4 Diagnostics

The diagnostics menu is for use by Status Scientific Controls' technical staff.

It contains various pages of data about the performance of the Identifier electronics and is useful in the diagnosis of faults. It is of no value to the normal user.

13 Restore Backup

This allows the Identifier to be reset to the factory settings and should therefore be used with care. The table below shows the effect on user functions when **Restore Backup** is activated.

Function	Result
Vehicle ID	Deleted
Test Records	Deleted
Gas Type	
Clock/Date	Not affected
Operators	Deleted
Company	Defaults to Status Scientific
Oil Filter Counter Setting	Not affected
Oxygen Sensor Date Fitted	Restores factory sensor date fitted
Oxygen Sensor Span Value	Restores factory base span factor
Calibration Data Values	Restores factory R1234yf & R134a calibration values
Calibration Date	Restores factory calibration date

To carry out a **Restore Backup**, proceed as follows.

Using the down key, navigate the cursor to **Restore Backup** within Page 2 of the **Management** menu and press

ENTER

Management ◀Page 2▶
▶ Restore Backup

STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



The **Restore Backup** page is displayed.

Press **ENTER** to proceed with the restore.

Restore Backup

► * FACTORY DATA
WILL BE LOADED
Press ENTER to Proceed
Press MENU to Exit

ENTER

STATUS SCIENTIFIC CONTROLS



- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •

14 ENGINEER

The **Engineer** menu is for use by Status Scientific Controls Technical staff and is unavailable to the user.

STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



15 TROUBLE SHOOTING

Problem / Error Message	Possible Cause	Remedy
No Display.	Battery discharged.	Refer to section 7.
Low Battery Message.	Battery requires charging.	Refer to section 7.
Incorrect Time & Date.	Requires setting. Clock battery exhausted.	Refer to section 9.2. Replace battery, refer to section 11.6.
Temperature Range.	Ambient temperature too low or too high.	Move to area within temperature range +10°C and +49°C.
No Printer Output.	1. Printer switched off. 2. Printer not paired. 3. Print option turned Off in Management menu.	1. Turn printer on. 2. Pair printer and identifier using Bluetooth. 3. Turn printer On via Management menu.
Unable to carry out test.	Pressure in hose is too high or low.	1. Check vehicle connector is open. 2. Check for oil in hose or oil trap or other restriction. 3. Check there is pressure in A/C system.
Red Spots on Oil Filter.	Oil ingress.	1. Do not use until filter is replaced. 2. Check hose and oil trap. 3. Clean or replace hose assembly.
No Keypad Response.	Possible software issue.	Turn Identifier off for 10 secs. then turn back on.
No Gas Selected.	The refrigerant gas type has not been selected.	Select either R1234yf or R134a as required in the Settings menu. See Section 10.1.

If you find any of the above remedies do not resolve the issue, please contact your Mentor distributor

STATUS SCIENTIFIC CONTROLS



- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •

16 SPECIFICATIONS

Refrigerants and other vapours identified	R1234yf and R134a.
Design Standard	SAE J2912
Maximum Pressure	44psi / 3 Bar - 174psi / 12 Bar
Sample type	Vapour only
Sample volume	Less than 5 grams per test
Operating temperature range	+10°C to +49°C
Sensor type	NDIR – Non-Dispersive Infrared
Warm-up time	2 minutes after power on
Rechargeable battery	Lithium-ion, 7.4V / 2250 mAh
Clock Battery	Type 2032 3Volt Lithium
AC power input to mains charger	100-240V AC @ 50/60HZ, 0.4A
Mains charger output voltage	9 Volts DC
Maximum charging voltage	14.5 Volts DC
Operating time on fully charged battery	8 hours minimum or approximately 200 tests
Expected air sensor lifetime	5 years
Test cycle time (purge + test)	Typically, 140 seconds
Communication portal	USB 3.0
Printer communication	Bluetooth 4.2
Stored test results capability	50 tests maximum
Weight	1.25Kg (2.7lb)
Approvals	SAE J2912, CE, EMC, UL 61010

STATUS SCIENTIFIC CONTROLS

- Refrigerant Identifiers •
- Fixed Gas Detectors • Gas Detection Control Units •



17 SPARE PARTS

Part No	Description
SS990	Bluetooth printer
SS991	Sample hose with oil restrictor
150408	Pump c/w cable, connector and ties
162019	Battery charger
170340	USB cable
SS997	Oil filter
250004	Type 2032 3Volt Lithium Battery
270155	Oxygen (Air) sensor c/w cable and connector
271101	R134a vehicle quick coupler
271100	R1234yf vehicle quick coupler
271108	R134a cylinder adapter – ¼" flare
231956	R1234yf cylinder adapter – Honeywell
231955	R1234yf cylinder adapter – Dupont
300223	Thermal Printer Roll

Please contact your local distributor for service, repair and spare parts.

<https://refrigerantidentifier.com/distributors/>

Alternatively, contact us, the manufacturer Status Scientific Controls Limited, contact details provided on the cover page.


STATUS SCIENTIFIC CONTROLS



- Refrigerant Identifiers •
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18 WARRANTY

The Mentor Refrigerant Identifier is warrantied for 2 years against failure of parts.

- *  **The Refrigerant Identifier is supplied with a 100 to 240 VAC / 9V DC charger. This should always be used to recharge the internal Lithium-ion battery. Use of any other power source may cause damage to the electronics and invalidate the product warranty.**

