axicon
THE BARCODE EXPERTS

Axicon linear barcode verifiers
user guide

This document was made using:
2.2.8 version of the Axicon Linear Verifier Software for Windows 10.

Contents

Important information

The Axicon verifier is a high precision opto-electronic device and should be handled carefully. Please keep and use the case to protect the verifier when it is not in use.

Only use power and data cables supplied by Axicon as the use of non-approved accessories will invalidate the warranty. If the verifier is dropped (or subjected to similar misuse) the accuracy of the results may be affected and it should be returned to Axicon immediately for servicing.

We recommend that the verifier is factory serviced annually to ensure that it remains compliant to ISO/IEC 15426-1. The unit should be returned to Axicon or to your approved Axicon reseller for this servicing.

Software updates are always available free of charge, and can be downloaded from our website, www.axicon.com

Introduction

What is in the case.

One or more of the following verifiers:

- Axicon 6000 series verifier with USB cable.
- Axicon 6500 series verifier with USB cable.
- Axicon 7000 series verifier with USB cable.
- Software CD.
- Wallet containing this user guide and calibration card.

The Axicon verifier is designed to work with any PC running a version of Microsoft Windows currently supported by Microsoft.
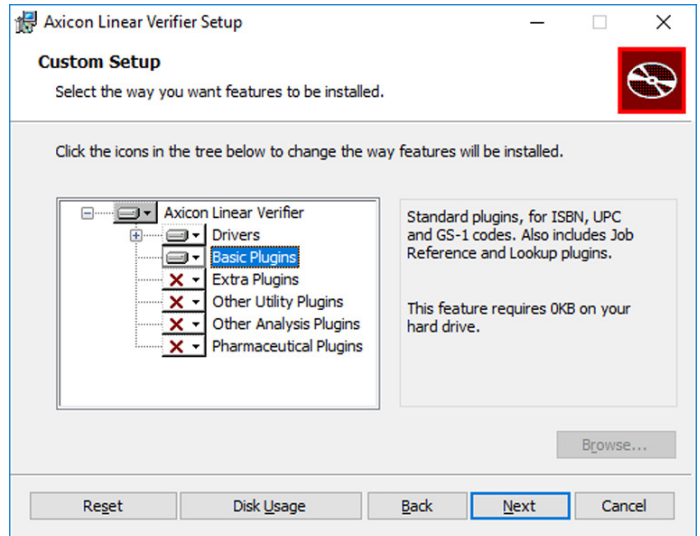
Installation

Software installation.
Insert the CD into the CD drive. The Install Program should run automatically (if not, open the CD using Windows Explorer and double-click the Autorun Program). Click **Install Axicon Verifier** and follow the installation instructions after agreeing to the licence terms and conditions.

At the **Custom setup** window, the boxes relating to **Drivers** and **Main Program** are automatically selected. It also provides for optional extra plugins (see page 7). After installation is completed you will find the **Axicon Verifier** directory in **Start Menu/Programs** and a shortcut to the program on your desktop.

If you have downloaded the software from our website then simply click on the setup file and follow the instructions.

Hardware installation
Plug the verifier into any available USB port on the computer. For Windows 7, Windows 8 and Windows 10 installations the drivers should be installed automatically.

Note: Please follow these installation instructions in the correct order, namely installing the software before the verifier is plugged into any USB port. If the verifier is plugged in before the software has been installed, Windows will attempt to find the correct drivers for the verifier via the internet, and choose an incorrect option. This then causes problems as the software is unable to install the correct driver.

When you reach the **Custom setup** window you will see a selection of optional plugins. The **Drivers** and **Basic Plugins** are selected by default. If you require other plugins then simply select one or more of the **Extra**, **Utility**, **Analysis** or **Pharmaceutical** plugins.

The Axicon Linear Verifier software includes several programs that are installed automatically and which are not normally accessed by users. These are programs that enable different functions for particular applications. These include Choose Language, Inline Verifier, RepGen, Scan File Data Extractor, and Verifier Help. You can access these via the Windows Start menu, and they are in the Axicon Verifier folder.

Choose Language, explained on page 26, allows you to change the default language of the software.

Inline Verifier is used only when a 6525-S or 7025-S verifier is used to verify every barcode printed by a thermal printer.

RepGen is used to create reports from sets of Axicon verifier scan files. Instead of looking at each scan file individually, you can choose to create one file that includes all the data that you want about each verification, and that can be added to as each verification takes place. Details about how you set up your report template are provided in the Help files of the main software.

Scan File Data Extractor is the precursor of RepGen, and is provided for backwards compatibility.

Verifier Help is all the help information that is normally accessed via the Help menu shown on the Command Window of the Axicon Linear Verifier software.

Holding the verifier

The Axicon verifiers are all designed to be used with the verifier positioned so that it touches the barcode, as shown in the pictures opposite.

Each verifier can be controlled via the software, and they also have a button to take a scan. The button on the 6000 series is underneath the read head. The 6500 and 7000 series each have two buttons on the top. These have the same function so use whichever button is more convenient.

Wait for at least a minute after switching on the verifier (when the red LEDs will be illuminated) before using it. This allows the circuitry of the reader to stabilise.

It is important that the front flap of the 6500 or 7500 verifier is closed so that as much ambient light as possible is excluded from the verification process.

If the code you are verifying is printed around the circumference of a curved surface, the varying distance of the reader from the code may produce inconsistent results.

Press the trigger button. The reader will beep and the data from the first scan will be displayed in the software immediately. For full ISO/IEC verification you should scan the barcode ten times, moving through its height and avoiding the top 10% and bottom 10%.

The Axicon 6000 series - All four corners of the verifier are touching the surface. The 6000 series verifier cannot be used for symbols wider than 66mm, and this dimension includes the quiet zones.

The 6500 series can be operated either horizontally or vertically (on the side of a carton) but always in contact with the barcode. The 6500 series verifier cannot be used for symbols wider than 125mm, and this dimension includes the quiet zones.

The Axicon 7000 series is being placed flat onto the label with the barcode in the field of view. The 7000 series verifier cannot be used for symbols wider than 200mm, and this dimension includes the quiet zones.
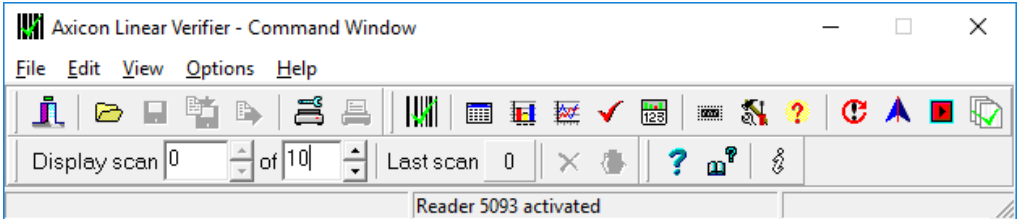
Getting started

When you first start the software you will see the **Command** window and the **Summary** window.

The Command window gives access to all of the main features of the verifier. Use the pull down menus or the icons to operate the software.

The **Summary** window shows the overall print quality of the barcode as measured in accordance with the ISO/IEC standards.
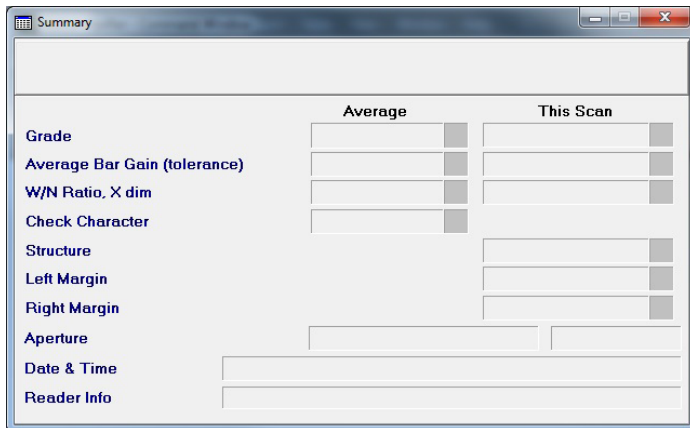
Information is also given on the:
• bar gain (ink spread or bleed),
• the size of the x-dimension (the width of the narrowest bars)
• validation of the check digit
• structure
• the quiet zones (the clear spaces or light margins each side of the barcode)

Calibration

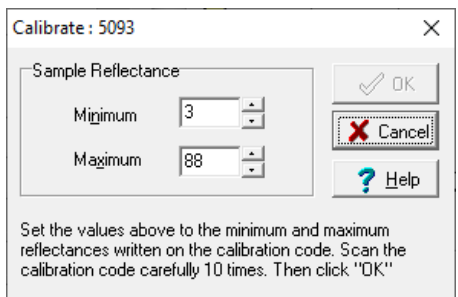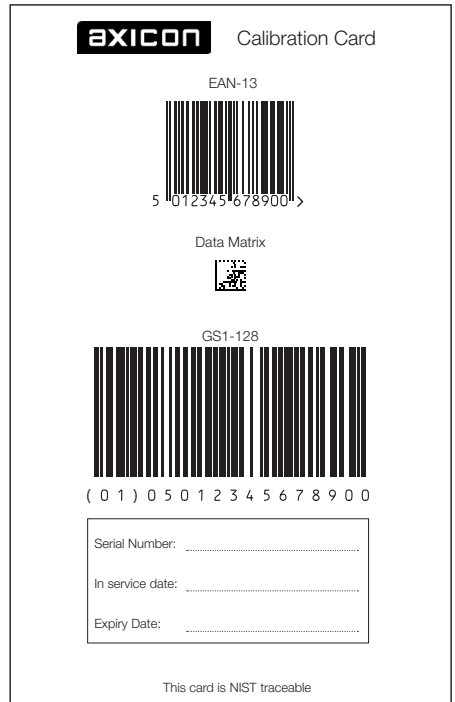Calibration should be carried out after installation and at regular intervals. When the software detects an uncalibrated reader the following dialogue box will appear **Reader XXXX has not been calibrated**. You must click OK to continue. You will also need your calibration card which should be located in your documentation wallet.

For the Axicon 6000 series use the EAN-13 calibration code at the top of the card. For the Axicon 6500 and 7000 series use the large GS1-128 calibration code at the bottom of the card.

Calibration is a quick and simple process. Select **Calibrate** from the **Options** menu of the command window (or press F2). You will see a window with two edit boxes for minimum and maximum reflectance values. Ensure that the values shown in the window match the values printed at the bottom of the calibration card. Modify the figures on the window if necessary to ensure that they are the same as the card.

With the **Calibration** window open scan the calibration barcode 10 times. Then click the OK button. The verifier is now calibrated and ready to use. After calibration, store the calibration card in the documentation wallet, away from light and physical damage. If your calibration card should ever become damaged or discoloured, please contact Axicon or your supplier for a replacement.

axicon Calibration Card

EAN-13

5 012345 678900 >

Data Matrix

GS1-128

(01) 0 5 0 1 2 3 4 5 6 7 8 9 0 0

Serial Number: ....

In service date: ....

Expiry Date: ....

This card is NIST traceable

Calibrate : 5093

Sample Reflectance

Minimum 3

Maximum 88

OK

Cancel

Help

Set the values above to the minimum and maximum reflectances written on the calibration code. Scan the calibration code carefully 10 times. Then click "OK."

Software windows

There are five more windows you can open to look at the verification results. Go to the **View** menu on the **Command** window, and the select the window you want, or use the icons that appear just below the menu headings. If you hold your mouse over each icon a brief description of its function will appear at the bottom left of the Command window. The four most important windows are briefly described below.

Details
This window shows each of the ISO/IEC parameters that are measured and individually graded (as both grades and percentages). Seven parameters are graded and the lowest single grade becomes the overall grade for that scan. If the **Summary** window has shown poor print quality then the **Details** window is the ideal point to initially see what is wrong with the barcode.

Scan reflectance profile
The scan reflectance profile window shows you what the barcode will look like to a scanner. At the top of the graph are the higher levels of reflectance from the background and at the bottom of the graph are the lower levels of reflectance from the darker bars.

Dimensional Analysis
If the **Details** window has shown a poor **Decodability** grade then this is normally because of bad dimensional accuracy – this screen will show the accuracy of the bar/space dimensions and highlight any problem areas.

Pass / Fail
This window is ideal for users who need a quick visual indication of whether the barcode meets the right print quality standards.

Rearranging the windows
Most of the windows described above can be moved, expanded or shrunk as required. When you have decided which windows you would like displayed on your PC just use the **View** pull-down menu and click on **Save Positions**. Then whenever the software is started it will always have those windows in those positions.

The help menu from the **command** window gives you access to context-sensitive help about the software. It also has a search function to find relevant information. The F1 key can also be used as a shortcut to switch on this help.

Continuous scan

The Axicon **S** range verifiers have a unique continuous scan feature. When first installed this feature is automatically activated on start-up (but can be de-activated if required) and allows the user to get an assessment of the barcode quality in a fraction of the time that it would take with other linear verifiers.

The verifier should be placed either just above or just below the barcode and the trigger pressed. With the trigger still pressed, move the verifier down the height of the barcode. The verifier will scan at the rate of 100 verifications a second until it reaches the bottom of the barcode (or gets to the maximum number of scans).

The verifier will automatically calculate an average of the results of all of the scans to provide an overall quality grade based upon an assessment across the scanned bar height.

When verifying barcodes on awkward shaped packaging you may find it easier to switch off the **Continuous scan** mode. This feature can be activated or de-activated as required with a toggle switch on the **Command** window.

6025-S

6525-S

7025-S

Selecting the verifier

If you have more than one verifier plugged into your computer at the same time (for example a 6015 and a 7015), you will need to choose which one you want to use. If the LEDs are not illuminated on the verifier you need, go to the Options menu on the Command window, and then choose Show Reader Info (or use the shortcut F3).
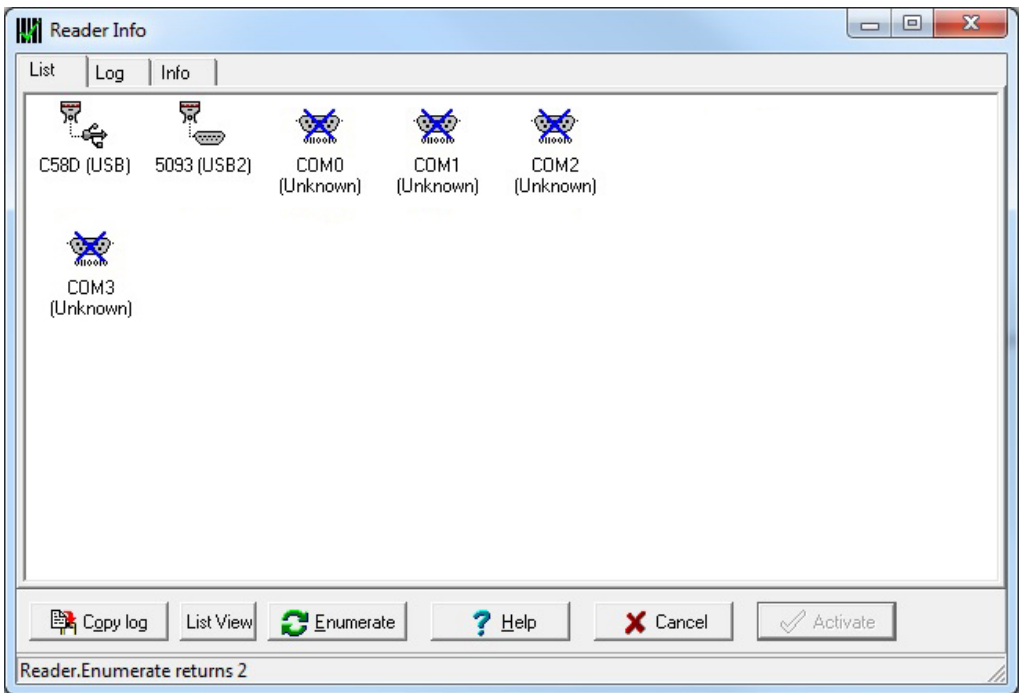
A new window, **Reader info**, will appear.

At the bottom you see the button **Enumerate**. Click on this and in a few moments all the connected verifiers will be displayed as small icons. The first four characters are the serial number of each verifier which is clearly marked on each one. Double click on the icon for the particular verifier you wish to activate.

Setup

All of the primary configuration of the verifier is done through the **Setup** section. From the Command window choose **Options** then **Setup** or press F5.

General
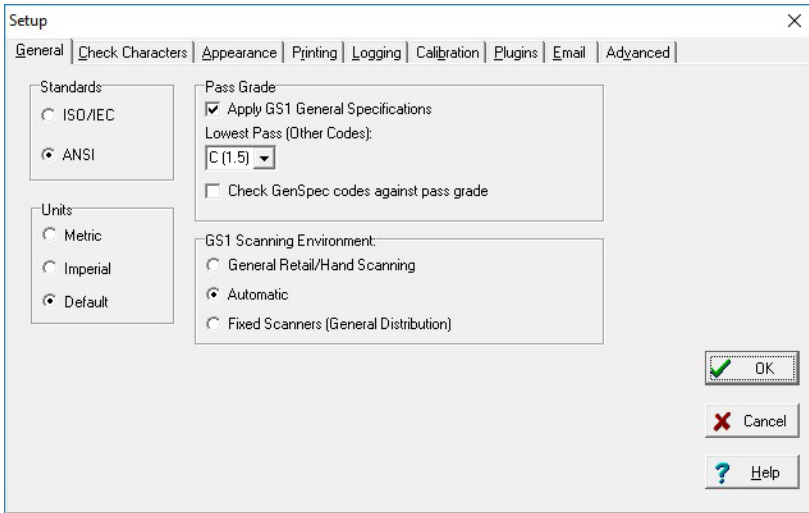
Standards: Click on **ISO** if you want only the numeric ISO result to be shown – or click on **ANSI** if you would prefer to be shown both results. The default is to track the Windows settings for metric or imperial measurements – alternatively you can set this as required.

Pass Grade: If you are working with GS1 barcodes then the **Apply GS1 General Specifications** should remain ticked. The user can select the pass/fail grade for other barcode types as specified either by an industry application specification or by their customer.

Check Characters

This tab allows the user to select the barcode types that have optional check digits. If these are being used then the verifier can be set to validate them.
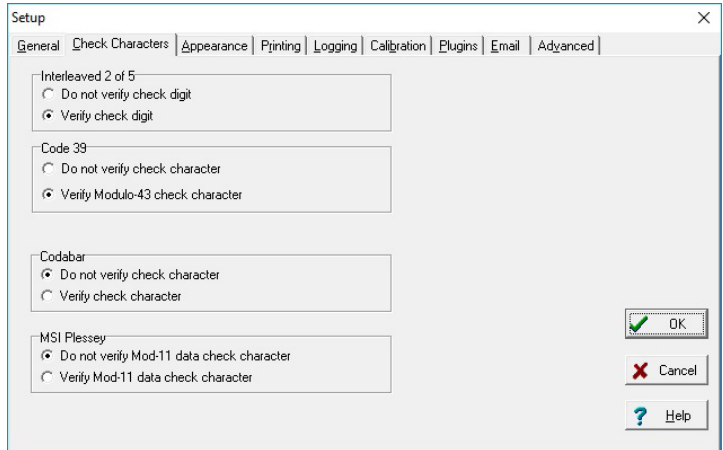
Appearance

This tab can be used to adjust any display colours/shades for the pass, warning and fail messages – and can also be used to add Windows wave sounds to give an audible indication of quality.
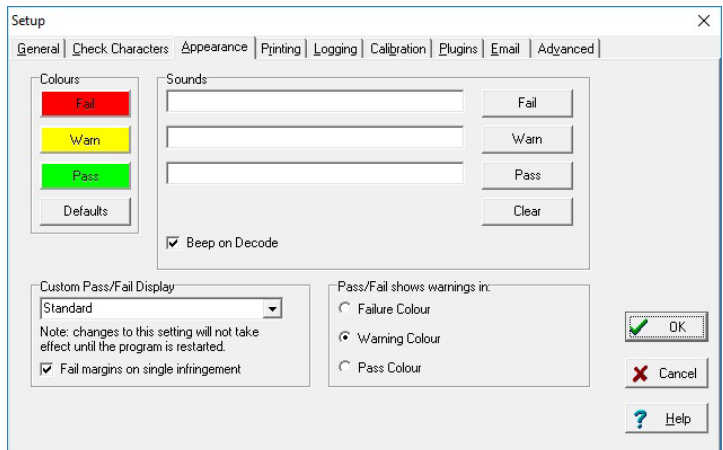
Setup

Printing

This tab can be used to pre-select any particular reports that are required. This includes the option to have a personalised report generated through the built-in Report Generator. The verifier software can also be set to **Autoprint** to avoid forgetting to print a particular report.

Tick **Print graph in black & white** if you are using a monochrome (black and white) printer, otherwise a scan reflectance profile will only show the outline and not the detail. Also, the standard printed report can be personalised if required using the **Report header** feature.
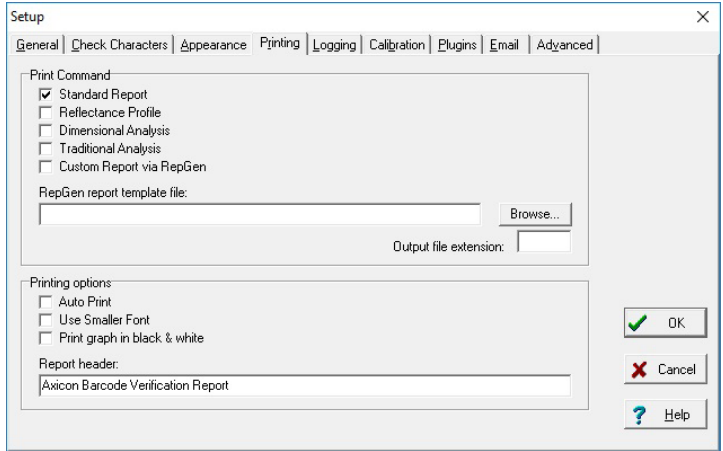
Logging

The **Logging** tab is used to set the saving of records and to run pre-configured external programs from the verifier.

If the **Enable** box is ticked under the **Auto Save Scan File** section (at the top) then the software will auto save every scan file in the chosen directory.
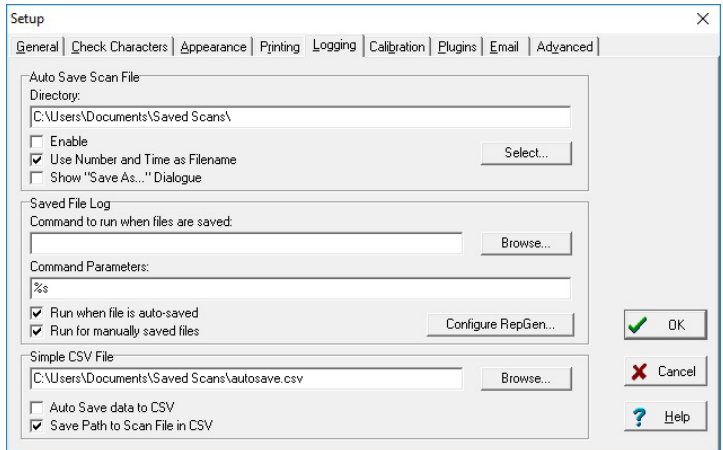
The files saved through this process can be regarded as audit quality records of the verifications made and can also be used for remote diagnostics purposes. The files can be saved automatically with a filename comprising the decoded number, date and time and a sequential number, or by using a dialogue box.

Save File Log allows users to run any Windows program each time a file is saved. It is intended for use with RepGen or ScanDB, but could be used to perform any action on the saved file.

Simple CSV File allows a subset of the scan information to be automatically appended to the specified file in CSV format.

Calibration

The **Calibration** tab specifies the file and directory in which calibration data will be saved. This can be altered by clicking on the browse button and choosing the required directory and filename. If **Allow scans after calibration has expired** is not ticked, no scans will be allowed until the verifier has been calibrated. Within the **Allowed Calibration Codes** is a list of the data content of barcodes with which calibration is permitted
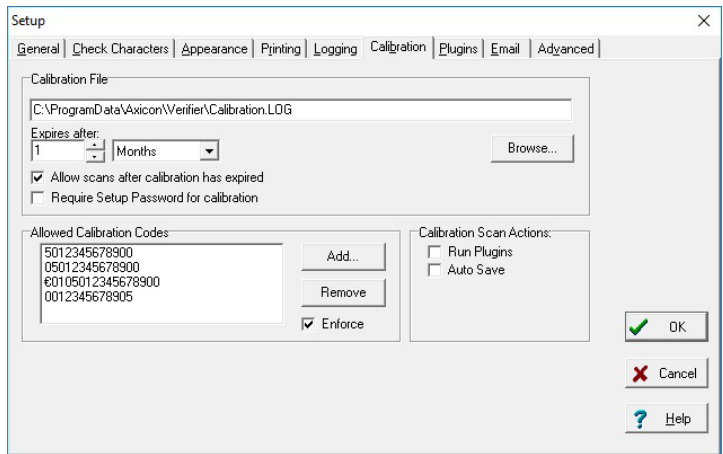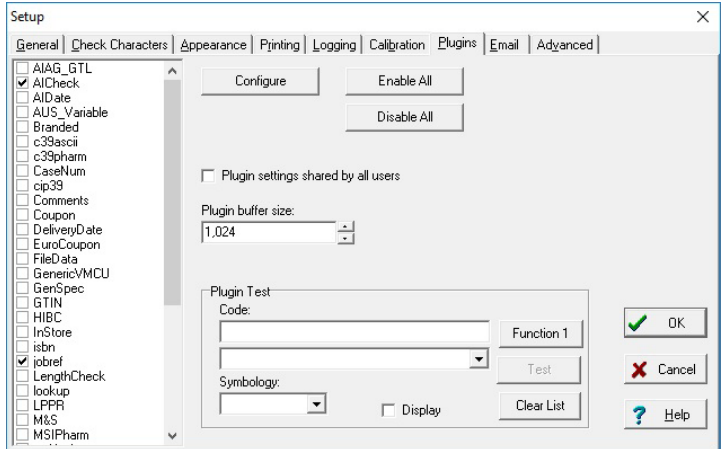
Setup

Plugins

The **Plugins** tab allows the software to be tailored to industry specific or user specific features, such as running a product lookup database, validation of the structure of variable weight items, or identifying the formats of European pharmaceutical codes – and a whole lot more. An explanation of what each plugin does is on our website.

Email

The **Email** tab allows scan files to be emailed. Users can configure the **From:** and **Destination address**, and the email server to be used. You can also enter the text to be used in the email body here.
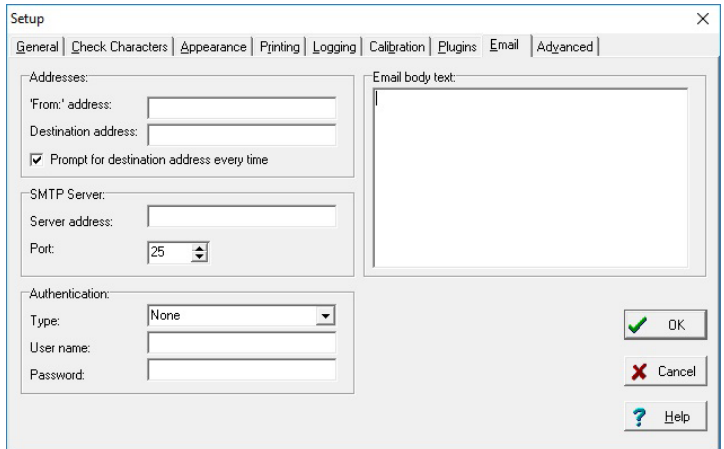
Advanced

There are several settings in the **Advanced** tab. If a barcode is such a poor quality that the verifier cannot decode it then there is an option to manually input the barcode under **When barcode cannot be decoded**. **Use RepGen for CSV file save** is ticked by default: this means that simple CSV file saving is performed using repgen.exe and the supplied template file **csv-template.txt**.
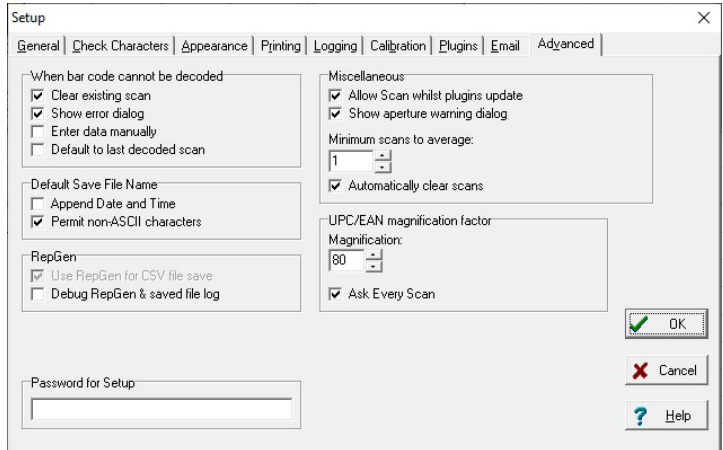
UPC/EAN magnification factor is for users using the discontinued Axicon 5000 verifier.

The **Password for Setup** allows password protection of the settings in the Setup dialogue. This is useful for ensuring features such as the Pass/Fail grade and file saving directories can only be altered by an authorised user. To apply a setup password, enter it in the **Password for Setup** box and click **OK**. You will be asked to re-enter the password you gave. Now, to alter the settings you must enter the same password into the **Password for Setup** again before you click OK.

Android app

An app that allows Axicon barcode verifiers to be used on the move with either Android tablets or Android smartphones is now available from Google Play. Free to use, this app allows anyone with an Axicon 6000, 6500 or 7000 series verifier to use it with an Android device, and record the results as easily as with a PC or laptop.

Most users will need to use a USB OTG (on the go) adapter for their device, and they will need to check which one they require to connect to the verifier.

Calibrate
Before any verification scans the verifier will need to be calibrated. Calibration is achieved in the same way as the PC software using the same calibration card.

Select the menu on the top right of the screen and then 'Calibration'. The message below will appear. Scan the relevant barcode (see page 11) three times and calibration will be complete.

Calibrate Reader

Calibration mode: make 3 scans to complete

CANCEL   GET SCAN

Axicon Linear Veri...	READER INFO	⋮

4.0/06/660 (A)

Average	1 of 3	2 of 3	3 of 3

5012345678900
Symbology: EAN-13

△ General

Time:	16/03/2017 14:51:04	
X Dimension:	330 µm	
Gain:	20 µm (6%)	
Gain Tolerance:	±31%	
Magnification:	100%	
Aperture:	150 µm (06)	
Left Margin:	3 Pass, 0 Fail	
Right Margin:	3 Pass, 0 Fail	
Check Character:	Pass ('0')	

△ ISO Parameters

Overall:	4.0 (A)	
Minimum Reflectance:	4.0 (A)	5.1%
Symbol Contrast:	4.0 (A)	79.7%

▽ Reader

Scan loaded successfully: 5012345678900-20170316-145104.scn

Clear Scans

The app software is based upon the Axicon PC verifier software, so the results of the verification are displayed equally clearly, with the ISO/IEC grade together with details of the individual parameters.

The screen shots below show the data content results displayed at the bottom for a GS1-128 barcode.

Swipe from right to left to view each scan. The average result is always shown first.

Left screenshot:

Axicon Linear Veri...   READER INFO ⋮

0.7/10/660 (D)

| Average | 1 of 3 | 2 of 3 | 3 of 3 |

F1 0108032891704073151707101 0L17166 F1
Symbology: GS1-128

Left Margin:	Pass	
Right Margin:	Pass	
Check Character:	Pass (70)	

△ ISO Parameters

Overall:	0.7 (D)	
Minimum reflectance:	4.0 (A)	10%
Symbol Contrast:	4.0 (A)	80%
Minimum Edge Contrast:	4.0 (A)	36%
Modulation:	1.3 (D)	45%
Decodability:	1.0 (D)	32%
Defects:	4.0 (A)	7%
Decode:	2.7 (B)	67%

▽ Data Content:
(01)08032891704073(15)170710(10)L17166

▽ Reader

Scan loaded successfully: 0108032891704073151707101 0L17166.scn

Clear Scans

Right screenshot:

Axicon Linear Veri...   READER INFO ⋮

0.7/10/660 (D)

| Average | 1 of 3 | 2 of 3 | 3 of 3 |

F1 0108032891704073151707101 0L17166 F1
Symbology: GS1-128

△ General

| Time: | 22/06/2017 13:25:13 |

△ Data Content:
(01)08032891704073(15)170710(10)L17166

| (01)08032891704073 | (15)170710 | (10)L17166 |

Best Before Date (YYMMDD) [n2+n6]

2017-07-10

Using passed date

AI (15) must be processed together with AI: GTIN or (8006)

▽ Reader

Scan loaded successfully: 0108032891704073151707101 0L17166.scn

Clear Scans

Android app

Menu

The 3 dot icon on the right hand side of the app will display the following menu. 'Load Scan' is where any previous scans can be viewed and 'Save Scan' is where individual scans can be saved. 'Print Report' can be used to save the verification report to PDF. The menu is also where you can view the 'Encodation' of the barcode.

'Show Profile' option is where you can view the scan reflectance profile of the verification scan like on the PC software (see page 12).

'Clear Scans' option clears the existing scan; this option is also at the bottom of the main screen. For settings menu please see next page (page 25). 'About' displays information about the Android app build details.

| Load Scan… |
| Save Scan… |
| Print Report… |
| Show Encodation |
| Show Profile |
| Clear Scans |
| Calibrate |
| Settings |
| About |
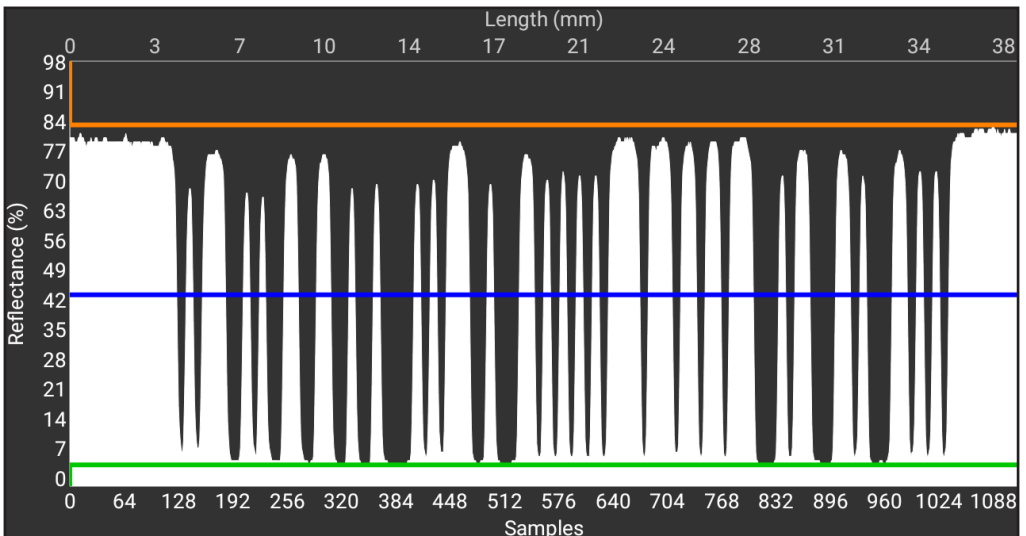
Settings

Settings includes these two options, 'General Application Configuration' and 'Calibration Configuration'.

General is where you can set number of scans (scan set size), minimum pass grade and enable auto save. (The saved scan files records can be transferred to a PC and form the basis of any quality control system.) The volume button can be used as a trigger and the measurements changed to display imperial units.

Calibration is where changes to the minimum and maximum reflection values can be made to match the calibration card and change the calibration expiry date.

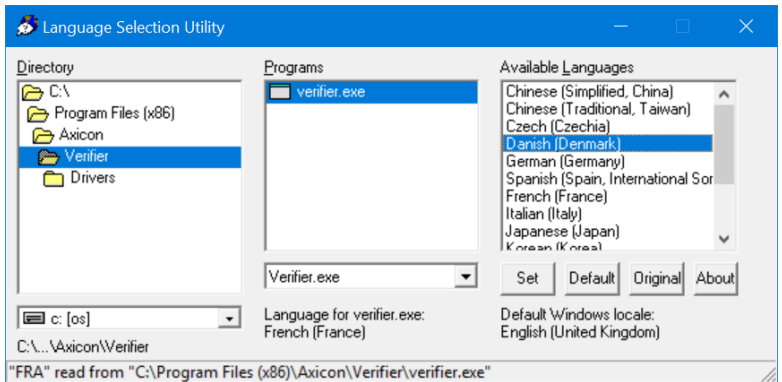|	
Scan set size 3	**Minimum reflectance** 3%
Pass grade (ISO) 1.5 (C)	**Maximum reflectance** 88%
Enable autosave Save to a new scanfile when set is complete	**Calibration expires after (days)** 30
Enable volume button triggers Make scans by pressing the physical volume up/down buttons	
Use imperial units Display physical dimensions in inches	

Changing the language

The Axicon Linear Verifier (ALV) software will automatically use the computer's local Window system's locale to determine the language that will be used. If you want to change this language, go the Windows start menu (by clicking on the Windows logo in the task bar), and find the 'Choose Language' software option within the Axicon verifier heading. You do not need to open the Axicon Linear Verifier software to do this.

Click on 'verifier. exe' in the central panel, and then choose the language you require from the list that appears on the right.
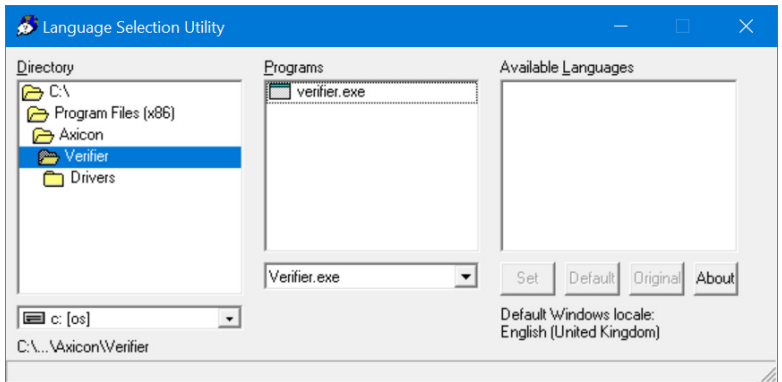
Once you have chosen the language you require, click on Set, then close this window. Now start the ALV software and you will see that the change has been made. If you want to see the software in English, you will need to click on the 'Default' button beneath the right-hand panel listing all the language options. Then close this window and re-start the ALV software.

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Axicon may terminate your licence upon notice of failure to comply with any of these terms. Upon termination, you must immediately destroy the software, together with all copies, adaptations and merged portions in any form.

Software licence agreement

Export requirements
You may not export or re-export the software in contravention of any applicable laws or regulations.

This agreement should be construed in accordance with the laws of England.

DISCLAIMER
In the following the expression "verifier" means the verifier hardware and the associated software.

We have taken care to ensure that this verifier is free from defects. However since we have no control over the circumstances in which you might use it you must satisfy yourself that it is suitable for your needs. Neither Axicon Auto ID Limited nor the vendor of this verifier can accept any liability for any loss or damage (consequential or otherwise) which may be caused by its use.

If the verifier or any part of it is defective in any way, or in some other way does not meet your expectations, the liability of Axicon Auto ID Limited is limited to the cost of the product. You should bear this limitation in mind if you use this verifier in any situations where the acceptance or rejection of shipments of goods or your reputation may depend upon the quality of a barcode.

Warranty

All Axicon products covered by this documentation (Axicon 6000, 6500 and 7000 series verifiers) are sold with a two year parts and labour warranty against manufacturing defects. This is a return to bench warranty with shipping costs in one direction being borne by the customer/distributor.

Should you need to return the unit to Axicon the original case (plus appropriate packaging) must be used. If the equipment is returned without the original case, we will automatically charge an additional sum for its replacement.

Axicon's standard repair turnaround time is 7-10 working days. This standard warranty does not include the provision of a loan unit. Loan units can be supplied on request.

Axicon reserves the right to charge an inspection fee for any equipment returned under warranty for which no fault is found. Please contact us to obtain an RMA number before returning any equipment. This number must be quoted on all documentation. We cannot accept responsibility for equipment returned without an RMA number.

Maintenance agreement

A service contract may be purchased within 30 days from the date of despatch. This allows you to return your verifier back to us at no extra cost for its annual VCAS (verifier conformance and alignment service) so that you can be sure it still measures barcode quality in accordance with the requirements of ISO/IEC 15426-1.

The service contract will also extend the warranty beyond two years, so that if it breaks down, all parts and labour will be provided free of any extra charges. The only exception is when the verifier has been misused, in which case labour costs will be covered, but not those of the parts.

Annual service

All verifiers need servicing every year to ensure that they measure barcode quality in accordance with the relevant ISO/IEC standards. This verifier conformance and alignment service (VCAS) ensures that the verifier is internally dust-free, checks that it is focused correctly, and adjusts the hardware to account for any change in the brightness of the LEDs used to illuminate the barcodes.

This annual service is not the same as user calibration, as it looks at the output of the LEDs and corrects for any variance in their evenness of illumination across the whole field of view. Over time the LEDs will fade but they will not fade uniformly. User calibration ensures that the verifier is measuring the darkest and brightest reflectances correctly but it cannot correct for any variance in the illumination.

After your verifier has been serviced, we will return it you with the latest version of the software on CD together with a new calibration card, a new user guide and a new certificate of ISO/IEC conformance. You will then need to calibrate the verifier before you use it again. The latest software can always be downloaded free of charge from our website, www.axicon.com.

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