Calibration Extension with the ACE-1000A

Application Note

Introduction

The ACE-1000A is a calibration solution that allows customers to self-calibrate their Kaelus PIM analyzers in the field, factory or laboratory. With successful calibration, the ACE calibration extender will extend your analyzer's calibration while reducing downtime to less than one hour and increasing productivity by retaining instruments in the field.

The ACE-1000A is compatible with all iPA, iTA and iQA portable PIM analyzers as well as all iBA and SI E-Series bench PIM analyzers used in manufacturing, test and engineering development.

The technology incorporated in the ACE-1000A is comparative calibration against standards characterized in a strict, quality controlled environment. Two of each standard types are used to verify calibration while ensuring there are no false fails due to the failure of a standard. Another advantage of two standards, is ongoing, expert system comparison of the standards themselves which will notify the user when a standard has drifted or failed and is due for replacement. This eliminates the need for a calibration frequency of the standards themselves. The process and expert system are controlled via the Kaelus Cloud Environment which guides the user through the process of calibration extension, and houses and maintains calibration files, calibration certificates and customer reports.

While most Kaelus PIM Analyzers will be capable of an ACE calibration extension, there will be times when the ACE-1000A will diagnose a deeper issue with the PIM Analyzer and ACE calibration extension will not be possible. In this scenario, the application will guide the user through basic fault finding steps to try and rectify the problem which may be caused by worn connector savers, external interference or hardware failure of the instrument itself. Should the fault finding steps not assist in finding a solution to the problem, the instrument may require repair and a full recalibration at a Kaelus service center. Once a full factory alignment and calibration has been undertaken on an instrument, it is predicted that the ACE-1000A will typically provide yearly calibration extension on that instrument for 3 to 5 years depending on hardware aging and care of equipment.

In the event the PIM analyzer's accuracy does not meet the requirements for calibration extension, links to support channels will be made available to ensure the fastest return to serviceability.

Equipment Setup

As mentioned previously, the calibration process is controlled through the Kaelus Cloud Environment. There are two applications involved for calibration depending on product type being calibrated. For iPA and iTA instruments, calibrations are performed via the Kaelus Unify application. For all other products including, iBA, iQA and SI E-Series instruments, calibration is performed via the PIM Server application. Please ensure all iPA, iTA and iQA instruments have the latest firmware version installed, as per the Kaelus website, prior to calibration.

Passive Intermodulation can be caused by foreign material such as swarf located in connectors, making connector cleaning vital, prior to performing the calibration. Please ensure all connectors are clean and free of debris prior to calibration. The correct connector torque (25Nm) is also vital for calibration. Using the torque wrench supplied in the ACE kit, ensure the proper torque.

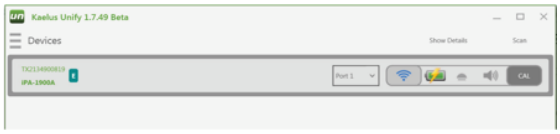
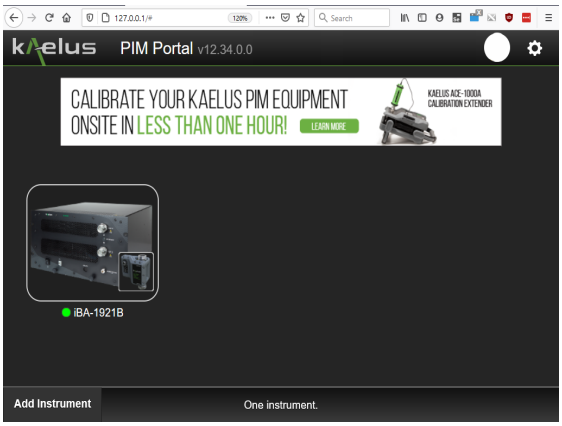
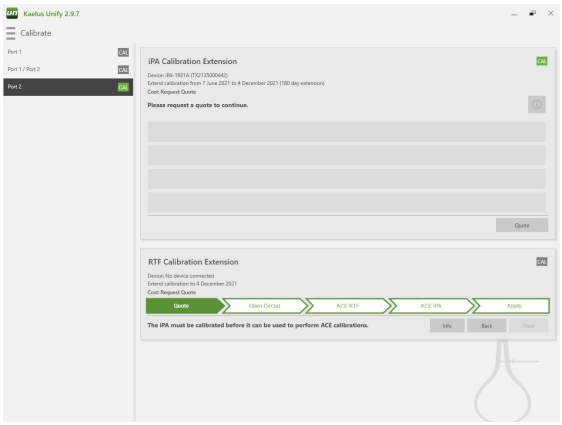
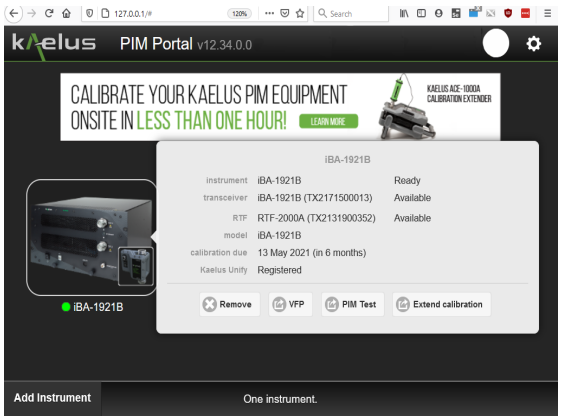
The environment for calibration must be between 20 and 30 degrees Celsius, 68 and 86 degrees Fahrenheit.

Please ensure that RTF modules, cables and adaptors are removed from the test port prior to calibration, unless calibrating the RTF module. Only the connector saver should be attached to the test port during calibration. It is recommended that the connector saver be replaced if there are signs of wear and tear or failure of calibration

The following software environments will need to be downloaded and logged into for the two types of calibrations.

iPA and iTA	**iBA, iQA and SI E-Series**
Download Kaelus Unify App for Windows from the Kaelus website	Download the latest PIM Server software from the Kaelus website
Register the device to be calibrated on the Kaelus Unify Portal (Optional) https://www.kaelusunify.com/login	Register the device to be calibrated on the Kaelus Unify Portal (Optional) https://www.kaelusunify.com/login
Supporting documentation includes… Kaelus Unify Manual iPA OPERATING MANUAL QUICK START GUIDE ACE-1000A	Supporting documentation includes… iBA Series OPERATING MANUAL BPIM OPERATING MANUAL E-Series iQA C-SERIES OPERATING MANUAL QUICK START GUIDE ACE-1000A
Ensure the iPA/iTA battery is charged more than 80% prior to beginning the calibration	
The calibration must be performed in an environment between 20 and 30 degrees Celsius; between 68 and 86 degrees Fahrenheit	The calibration must be performed in an environment between 20 and 30 degrees Celsius; between 68 and 86 degrees Fahrenheit
Your PC will need to remain online during the calibration process. It is therefore recommended to connect to the iPA or iTA using a USB connection instead of a direct WiFi connection.	The computer that is connected to the iBA/iQA/E-Series unit will require internet connection to perform the calibration. the calibration can only be performed on the PC that is connected to the iBA/iQA/SI-E,

Performing the Calibration Extension

iPA and iTA	iBA, iQA and SI E-Series
Log into the Unify application and proceed to the Devices tab	Download the latest PIM Server software from the Kaelus website
	
Ensure the iPA/iTA is connected via one of the connection options. Attach the iPA/iTA via USB and connect to it by clicking the USB symbol on the device.. Then click CAL	Click on the instrument to be calibrated and select Extend Calibration and login to your Unify account
	
Click on Quote in the application to display the amount to be charged to your Kaelus Unify account then connect the first standard from the ACE kit and click on the highlighted button in the Application to begin analyzing the standards	Click on Quote in the application to display the amount to be charged to your Kaelus Unify account then connect the first standard from the ACE kit and click on the highlighted button in the Application to begin analyzing the standards

Performing the Calibration Extension Continued

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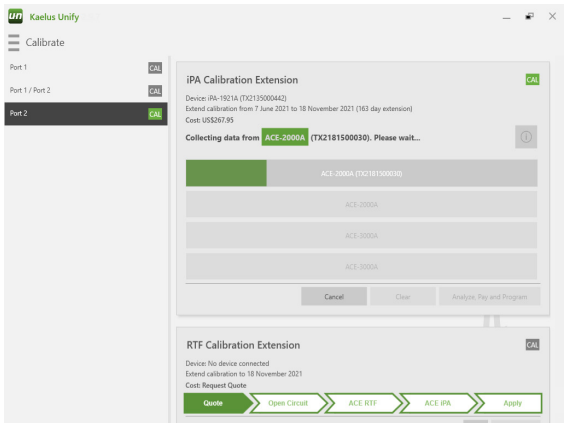
<td> 
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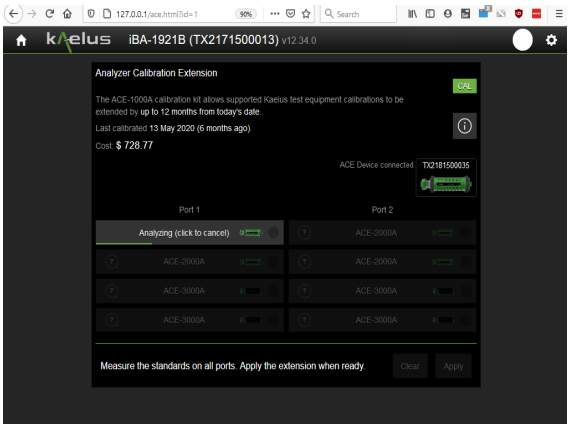
<td> 
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<tr>
<td>Continue through all four standards from the ACE kit. Progress is indicated by the progress bars on each standard.</td>
<td>Continue through all required standards from the ACE kit and click the appropriate button in the application. Progress bar indicates progress.</td>
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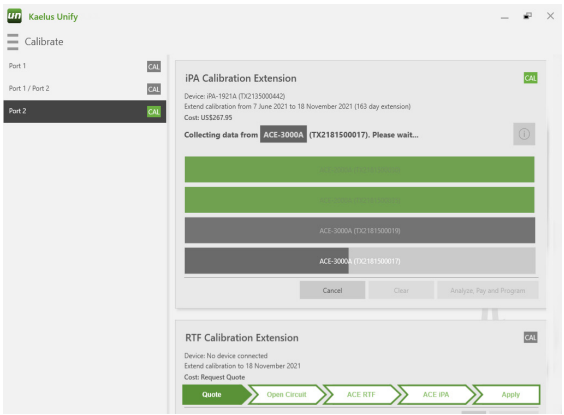
<td> 
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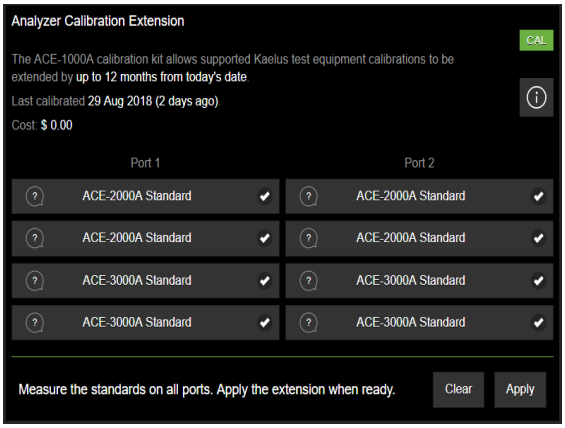
<td> 
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<td>Once all Standards tests have been performed and are successful, the Calibrate button will highlight to perform the calibration. This is when the credit card or account will be charged</td>
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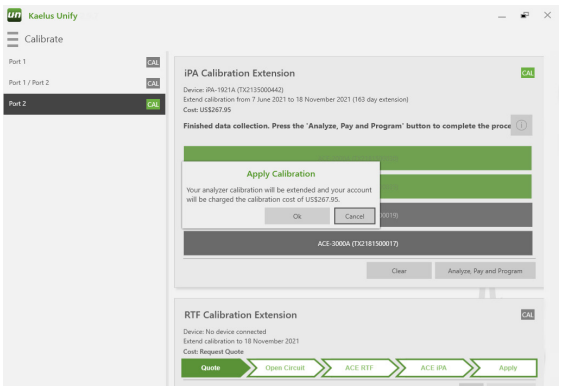	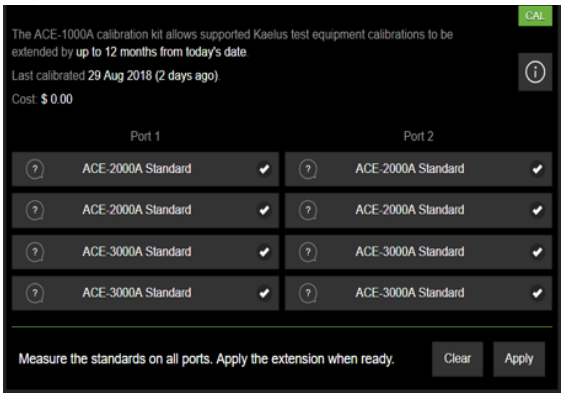
Upon successful calibration, navigate to Kaelus Unify website to obtain calibration certificatehttps://www.kaelusunify.com/login	Upon successful calibration, navigate to Kaelus Unify website to obtain calibration certificatehttps://www.kaelusunify.com/login

iPA and iTA Connection

1. USB

IBA Connection

1. USB