What's New with ALERT 4.0

ALERT 4.0, including the TRIO Collector 4.0 application, is packed full of powerful, analysis features.

ALERT 4.0 is truly a powerhouse of analysis feature for the technical analyst and field engineers. It arms analysts with advanced tools to view dynamic data and fully understand the historical trends of machinery diagnoses. ALERT 4.0 includes a new layout with larger icons for easier use in the field. With more than 50 specific product improvements, these are some of the top features certain to benefit the majority of the ALERT users.

- All new status views for plants and areas and improved status indicator flags for machines and locations gives users a better visual for the existing fault states of a machine. Status flags indicate the fault severity state, whether the machine has been reviewed by an analyst, and whether a machine or location has been tested or is due.
- 2. The History View section has now become the Analysis View with better visual indicators of the trend of the machine condition, the ability to filter notes, comments, and results, indications as to whether a machine information has been modified with the Event Tracker, had additional special tests, had new notes inserted, or has been flagged for a second opinion following the latest machine review state. This will give better visibility to the machine and the quality of results presented to all involved.
- A new motor lookup database is now part of the MID / Machine creation wizard. With 15,000 motors available, the motor database will allow analysts to identify specific motor components for enriched vibration analysis.
- 4. Improved bearing database. With 75,000 bearing plus the ability for users to define their own bearings, ALERT 4.0 includes more search functions and bearing frequency calculations. This is beneficial to users who desire to annotate exact bearing frequencies in their vibration spectrum.
- 5. Simple communication between analyst and data collector is important in any program. ALERT 4.0 continues with Azima DLI's unmatched communication mechanisms. 4.0 includes a new analyst notes section which increases the efficiency and consistency in relaying additional tests or steps for data collectors in the field.

Note: ALERT 4.0 is backwards compatible with ALERT 3.60 systems via Replication. ALERT 4.0 does not support direct installation on DCX or DCA-60 nor does it support SFE or Load/Unload with DCA-50, DCA-31, or DCA-60. Legacy hardware only supported via Replication.

For the serious analyst, ALERT 4.0 includes many improvements to the way data is presented and analyzed. In addition to a new series of hot keys to speed up the analysis process and a more manageable graphic interface to present data, the top improvements of ALERT 4.0 include the following:

- Enhanced visualization of dynamic data. A new graph navigator remote control allows analysts to quickly manage data views for high quality analysis. This remote control logically locates the common analyst functions such as cursor control, peak locator, unit / scaling switching, harmonic and sideband family locators, location progression, test date progression, and alarm screening.
- 2. ALERT 4.0 adds the powerful auto correlation displays of waveform data and circular waveform plots to greatly empower analysts' abilities to identify faults.
- 3. Bode data and Nyquist plots are now available and presented in both single and triaxial formats for advanced analysis capabilities.
- 4. New improved user preferences and header information give analyst more options to display spectral graphs and plots in units with better meaning to their program. This includes the ability to display waveforms as waterfalls, single or double triax, or as native, single, or double integrated values.
- 5. Improved orbit and circular plots displays will greatly benefit advanced vibration analysts for getting better representations of machine vibration and fault analysis.

In the field there have been 28 specific feature improvements to the TRIO Collector and Collector X applications. Designed to give the user faster and more meaningful information while still maintaining the simplicity of use the TRIO users have come to know. Some of the top improvements include:

- 1. A greatly improved graphic viewer gives more information to users. This includes mosaic views, legends, and improved cursor controls.
- 2. New amplitude alarm triggers from waveform data, spectral data, and overall values.
- 3. Improved handling of mixed-sensor programs where users have both single axis sensors and triaxial sensors. This is common for machines that have permanently installed sensors which are accessed from a junction box. The M-12 plus single BNC adapter cable allows users to keep their triaxial sensor permanently connected and still collect data from the single channel sensor.
- 4. Along with the ALERT 4.0 software release, a new and improved TRIO DP-2 data processor is available which offers a full +/-10 Volt range. This will greatly benefit users who have loud or high impacting machines.
- 5. The new DP-2 comes in a new polycarbonate enclosure with improved ruggedness and durability.

ALERT 4.0: ExpertALERT, ExpertALERT Cloud-subscription, StandardALERT, ViewALERT

The user interface of ALERT 4.0 has an all new look. Though the buttons are larger (57% larger) with a more updated design, they are in the same locations as before as to no impact the habits of our common users.

Let's walk through a couple of the key changes here.

The thing to note in the **Data Collection menu** is that ALERT 4.0 does not support load/unload or survey file exchange with the legacy WATCHMAN Data Collectors such as DCA-31, DCA-50, or DCA-60. The only Data Collector which is supported through these communication methods is the **TRIO**. Customers with DCA-60s or DCXs can use replication to communicate, however, those platforms do not support the installation of ALERT 4.0. For replication, ALERT 4.0 is reverse compatible with DCX and DCA-60 using ALERT 3.60 through replication.

Loading a data collector
Machines Options
Select the data collector
TRIO
Removable Drive Network
Enter data collector's IP address or network name:
Trio
Database name:
EADB
<u> </u>

Added to the **Reports menu** now is a new selection to view or print a Notes Report. With the diverse system which separates analysts from data collectors, the notes are the best communication mechanism to ensure quality data and analytical understanding. Analysts will greatly benefit from this new report to see all machines which have notes applied.

ALERT Notes	Report			Î
Azima DLI Demo Plant	:			
Common Machines				
Chilled Water Pump #4				
Name	Date	Туре	Note	1
Your name here	12/21/1999 5:55:23 PM	AN	Note: This machine has screeching motor bearing problems	
Exhaust Fan #1				
Name	Date	Туре	Note	
DBA	3/8/2016 6:18:22 AM	FN	replaced motor. identical motor, replaced late january	
Generator Fan Unit				
Name	Date	Туре	Note	
mhogan	3/30/2016 9:55:06 AM	FN	206 New MotorDriver 207 New Driven Equipment New everyfning	
Makeup Water Pump #12				
Name	Date	Туре	Note	
mhogan	1/26/2016 10:47:15 AM	FN	101 Equipment NOT running	
Machine Groups				
Feed Pump C				
Name	Date	Туре	Note	
Administrator	8/27/2015 6:29:46 AM	FN	201 After Alignment 206 New Motor/Driver	
Feed Pump D				
Name	Date	Туре	Note	
Dan Hogan	2/8/2016 9:22:44 PM	RA	Confirm motor replacement with a note.	
Feed Pump F				
Name	Date	Туре	Note	
Dan Hogan	6/3/2015 10:33:59 PM	RA	Confirm pump work with notes.	
Main Service Pump #1				
Name	Date	Туре	Note	
Administrator	3/27/2014 10:01:47 AM	FN	805 Sound - Caar Mesh Whine 805 Sound - Nuchbing COMPONENT: Driven Unit LOCATION: Pump Free End Voice Note (Elapsed Time: 6 Seconds) Photh Mais	•
4				F

The **Expert menu** has a couple of changes to note. First, the option to select when a machine to be processed has 50 Hz or 60 Hz line current is now removed from the dialog.

Expert system report	A Expert system report
Machines Dates Options	Machines Dates Options
Machine speed detection parameters	Machine speed detection parameters
Normalize if necessary (RECOMMENDED)	 Normalize if necessary (RECOMMENDED)
C Compute speed using nominal and average data	C Compute speed using nominal and average data
C Customize speed computation	C Customize speed computation
Electrical line frequency	
C 50 Hertz	
© 60 Hertz	
Print report automatically	Print report automatically
Skip tests previously processed	Skip tests previously processed
Suppress demodulated spectra	Suppress demodulated spectra
Suppress all waveforms	Suppress all waveforms
<u> </u>	<u>D</u> K Sa <u>v</u> e as default



Line frequency is now set as part of the options at the AREA Level.

The second change to the **Expert menu** which should be noted for all users who connect to the WATCHMAN Data Center is the option to Quick Review. This allows users to blanket review all machines of a certain priority state. So how is this used in application? Consider a database which is relatively mature, most MIDs have a healthy average baseline and the system is running efficiently with the expert automated diagnostic engine. Data arrives, the expert system reviews, and the analyst has a good trust in the diagnostics. As always, there needs to be a review to ensure the accuracy as machines should never be shut down or repaired based solely on the automated system. But, with a mature average baseline, healthy machines need only a very quick glace to ensure the machine was running and that the data is valid. An analyst can do a very quick scan through the data to ensure this and then with one action, mark all of those machines as reviewed. This allows the analyst to then focus on the diagnostics of the machines which have serious or extreme problems.

ALERT 4.0 has many new rules that apply to the diagnostic engine. These include setup and diagnostics of variable frequency drives and new peak screening tools for machines with impact demod waveform.

In the **Utilities menu** there is now better tools for managing both the <mark>Internal Bearings Library,</mark> <mark>the External Bearing Library, and the all-new Motor Library</mark>.

Internal bearings are bearings that are added or edited by the end users; bearings that are unique to the plant. The external bearing library is a separate bearing database that is installed with ALERT that contains about 75000 bearings for use in your analysis. Both selections here in the menu provide new tools for searching for these bearings.

	Export Data
	Import Data
	Add and Review Drawings
_	Define Units
ſ	Internal Bearings
I	External Bearing Library
l	External Motor Library
	Edit User-Defined Note
	ID Tag Check
	Regroup Tests
	Delete Data

ALERT 4.0 includes more search functions and bearing frequency calculations. This is beneficial to users who desire to annotate exact bearing frequencies in their vibration spectrum.

Search External Bearing	Library				×	🔺 I	nternal Bearings					- • ×
Manufacturer: [First Search String: [ເ⊂ Second Search String: [SKF 303 And C Z	Match at Ar	ny Position in Field ny Position in Field ny Position in Field			S	earch parameters Bearing ID Search <none> Machine speed 1</none>	(E)	amples: ''SKF62: From	%", "%6203%") To	[
Searc <u>h</u> :	<none></none>	• Erom:		To:			Bearing &D	Rollers	Cage Train	Roller Spin	Outer Race	Inner Race
Bearing ID	Rollers	Cage Train	Roller Spin	Outer Race	Inner Race		FAF 7320	12	0.4009	1.9858	4.8108	7.1892
SKF 3303 A-2ZTN9	7	0.3782	1.6723	2.6474	4.3526		SKF 16013	19	0.4519	5.1484	8.5861	10.4139
SKF 6303-2Z	7	0.3636	1.6961	2.5452	4.4548		SKF6315	8	0.3852	2.0640	3.0820	4.9180
SKF 6303-2ZNR	7	0.3636	1.6961	2.5452	4.4548	+	*					
SKF 6303-Z	7	0.3636	1.6961	2.5452	4.4548							
SKF 6303-ZNR	7	0.3636	1.6961	2.5452	4.4548							
SKF ¥ 6303-2Z	7	0.3636	1.6961	2.5452	4.4548							
© R Search	Stop	Search	Select Bearing		X <u>Cancel</u>		Start Search Bearing Calcol	ulator De	Jete Bearing	Save Cha	nges	✓ X <u>C</u> ancel

A new motor lookup database is now part of the MID / Machine creation wizard. With 15,000 motors available, the motor database will allow analysts to identify specific motor components for enriched vibration analysis.

Creating motor assets in ExpertALERT will present a motor lookup to users to help them understand the driven component forcing frequency. By searching a couple of strings such as manufacturer and model or frame, the user can select an applicable motor to insert as part of the setup. Detailed searches can also be made from fields such as poles, RPM range, line frequency, horsepower, voltage, and current. For understanding motor bars and slots, this database will definitely help analysts identify electrical vibration.

						ſ	MID Creat	ion Wiz	ard			
							p Wizard	Descrit and an Gene	ails DC Mot	tor. Pleas hany quest rings or or	e ensure that you check eac tions as possible. Cooling fan on motor?	h page
3. Search External Motor Manufactu Frame Search St	Library Irer: RE ring:	L		v Matcl v Matcl	h at Any h at Any	Position Position	MID Setu			D D ary	Number of motor bars 🛛	0
Model Search St	⊙ A ring:	nd 🤇	Or	🔽 Matcl	h at Any	Position	Cance			< <u>B</u> a	ack <u>N</u> ext >	Einish
✓ Poles	4						Power-H	IP	50		To 100	
RPM from	1780	Το	180	0			Voltage		42	0	To 480	
Line Frequency	○ 50 H	z	œ و	60 Hz			Current	Amps	5		To 200	
OEM & Frame ID	RPM	Poles	HP	Voltage	Amps	Freq/Hz	Phases	Туре	Bars	Slots	Model/Label	
REL 364T	1781	4	60	460	136	60	3	ACI	47	60	P36G5234	
REL 364T	1781	4	60	460	140	60	3	ACI	47	60	P36G51	
REL 364T	1781	4	60	460	136	60	3	ACI	47	60	P36G3326	
REL 364TC	1781	4	60	460	136	60	3	ACI	47	60	P36G1035	
REL 364TS	1781	4	60	460	136	60	3	ACI	47	60	P36G3354	
REL 365T	1780	4	75	460	172	60	3	ACI	47	60	P36G564	
REL 365T	1780	4	75	460	170	60	3	ACI	40	48		
REL 365T	1781	4	75	460	172	60	3	ACI	47	60	P36G3365	
REL 365T	1781	4	75	460	174	60	3	ACI	47	60	P36G52	
REL 365T	1781	4	75	460	172	60	3	ACI	47	60	P36G3364	
REL 365T	1783	4	75	460	178	60	3	ACI	47	60	P36G3356	
REL 365TC	1781	4	75	460	172	60	3	ACI	47	60	P36G1036	
REL 365TS	1781	4	75	460	172	60	3	ACI	47	60	P36G3307	-
<u>S</u> earch			Stop Se	arch			Select M	otor			<u>Cancel</u>	

Also new in the setup is the ability to select variable frequency drive motors as its own unique type of machine. This will apply new rules for diagnosing these assets.



The buttons in ALERT 4.0 have a new look and better sized (57% larger than in 3.60) but mostly function the same. Some key things to note is they will gray out or disappear completely depending on the location in the tree. This helps to avoid confusion and increase user efficiency.

One change includes the pop-up tree toggle. This function would pop up the tree when it was toggled closed. With monitors sized wider than in the past, this function was no longer needed. All other buttons are the same as before.

Another change to note is that the History view button is now called **Analysis View** and provides significantly more details to aid in the understanding of machine trends and activities that happen between previous analysis and current data arriving into the database.

The **navigation tree** has three significant changes. First is the Database top level. This Analysis View level of the database gives users a quick understanding of their overall program.

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File Edit View Data Collection Reports Expert I	n-Tray Utilities Help														
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Database	Summary of Ma	chine Fa	ults and	Severity	/										
Azima DLI Demo Plant	Plant Name	Extreme	Serious	Moderate	Slight	No Faults	Nev	ver N	leeds	Total					
H Setup Examples	Azima DLI Demo Plant	2	5	5	3	E Detected	les	acea ra	13	34 34					
HIV Verified Calibration	Setup Examples	0	0	0	0	0	10	0	0	10					
H ASTER LISTS	TRIO Verified Calibration	0	0	0	0	0	3	3	0	3					
EXPERT SYSTEM MID:															
MACHINE SURVEYS															
DATA COLLECTION SETUPS															
	, 	-htm - D													
	Summary of IVIa	chine Re	ecomme	naea Aci	cions/Ev	ents and Pi	iority								
	Plant Name	Mandatory	Important	Desirable	N Recomme	o Ne Indations Te	sted M	Total lachines							
	Azima DLI Demo Plant	2	5	5	9	1	13	34							
	Setup Examples	0	0	0	0	1	10	10							
	TRIO Verified Calibration	0	0	0	0		3	3	l						
Administrator. Welcome to ExpertALERT ©2016 Azima DLI. Vers	sion 4.0.0.44 Trial expires or	r: 9/28/2016									(UTC-08:00) P	acific Time (US &	Canada) 8/30/	2016 02:19	PM

Next area of improvement is the Data Collector Setup section. There are more common setups provided out of the box. Also, ALERT now displays a list of machines which utilize those setups as part of the machine or test location's setup.

The final area to note is the main content pane of ExpertALERT. Aside from the new graphing functions, the most impactful change comes from the **Analysis View**. When looking at the Database level, Plant level, or Area level the user will get high level information about the section status.

Database Level:

Summary of Machine Faults and Severity

Plant Name	Extreme	Serious	Moderate	Slight	No Faults Detected	Never Tested	Needs Review	Total Machines
Azima DLI Demo Plant	2	5	5	3	6	0	13	34
Setup Examples	0	0	0	0	0	10	0	10
TRIO Verified Calibration	0	0	0	0	0	3	0	3

Summary of Machine Recommended Actions/Events and Priority

Plant Name	Mandatory	Important	Desirable	No Recommendations	Never Tested	Total Machines
Azima DLI Demo Plant	2	5	5	9	13	34
Setup Examples	0	0	0	0	10	10
TRIO Verified Calibration	0	0	0	0	3	3

Plant Level:

Summary of Machine Faults and Severity

Area Name	Extreme	Serious	Moderate	Slight	No Faults Detected	Never Tested	Needs Review	Total Machines
Uncommon Machines	0	3	0	0	0	0	0	3
Common Machines	1	1	1	0	3	0	4	10
Machine Groups	1	1	4	3	3	0	9	21

Summary of Machine Recommended Actions/Events and Priority

Area Name	Mandatory	Important	Desirable	No Recommendations	Never Tested	Total Machines
Common Machines	1	1	1	3	4	10
Machine Groups	1	1	4	6	9	21
Uncommon Machines	0	3	0	0	0	3

Area Level:

Summary of Machine Faults and Severity

Machine Name						
Chilled Water Pump #4	3/18/2016	8/24/2015	4/21/2015	1/24/2015	8/12/2014	6/18/2002
Boiler Feed Pump A	3/18/2016	10/10/2015	9/8/2015	8/14/2015	7/9/2015	7/1/2015
Aeration Blower #1	7/26/2010	4/13/2010	1/13/2010	10/7/2009	7/17/2009	
Exhaust Fan #1	4/8/2016	3/8/2016	2/11/2016	1/15/2016	12/3/2015	11/13/2015
Generator Fan Unit	3/30/2016	2/25/2016	1/26/2016	12/18/2015	11/23/2015	10/29/2015
Makeup Water Pump #12	3/30/2016	12/18/2015	11/23/2015	5/1/2015	3/26/2015	11/24/2014

 Default Impact Demod 3200L HPF-40kHz
 Default Impact Demod 3200L HPF-40kHz
 Default Impact Demod 3200L HPF-4kHz
 Default Impact Demod 3200L HPF-4kHz
 Default Impact Demod 3200L HPF-4kHz
 Default Impact Demod 3400L HPF-4kHz
 Belaul Impact Demod 6400. HFF-3Htz

 Defaul Invace R=12800. Selup

 Demod Common Setup

 Demod Common Setup

 Displacement Proximity Probe MIs 0800.

 Displacement Proximity Probe MIs 0800.
 Displacement Prowing Probe MM 08000
 Displacement Prowing Probe MM 08000
 Provide
 B
 Impact Demod 1600, HPF-1kHz

 B
 Impact Demod 1600, HPF-3kHz

 B
 Impact Demod 3200, HPF-3kHz

 B
 Impact Demod 4000, HPF-3kHz
 Impact Demod S400L HPF+skHz
 Impact Demod S400L HPF+skHz
 Impact Demod S400L HPF=skHz
 Impact Demod S400L HPF=skHz
 Motor Current 100mV 3200L
 Motor Current 100mV 3200L
 Motor Current 100mV 3200L
 Bit Motor Lurrent Tum's 2001.

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 🖶 💾 Azima DLI Demo Plant Asima DLi Demo Plant Asima DLi Demo Plant Acation Blower #1 Boler Feed Pump 8 Chiled Water Pump #1 Chiled Water Pump #3 Chiled Water Pump #3 Chiled Water Pump #3 Chiled Water Pump #4 Water Service Pump #1 Han Service Pump #1
 Man Service Pump #2
 Man Service Pump #2
 Man Service Pump #1
 Man Service Pump #1
 Service Pump #2
 Service Pump #4
 Service Pump #4
 Service Pump #5
 Service Pump #5 🗄 遇 Service Pump #6 . Water Pump #1 Water Pump #2 Water Pump #3 Water Pump #4 Water Pump #4 Water Pump #5 E H Setup Examples E H TRIO Verified Ca Velocity VdB 1600L Common Setup - 🔜 Velocity VdB 1600L Common Setup - 🔜 Velocity VdB 3200L Common Setup

Natabase

Azima DLI Demo Plant Comparison DLI Demo Plant

EXPERT SYSTEM MID:

MACHINE SURVEYS
 DATA COLLECTION SETUPS

A A COLLECTION SET UP-5
 Acceleration Gs 04000L Common Setup
 Acceleration Gs 0800L Common Setup
 Acceleration Gs 1600L Common Setup
 Acceleration Gs 4000L Common Setup

 Default Impact Demod U800L HFP-0.5kHz

 Default Impact Demod 1600L HFP-0.5kHz

 Default Impact Demod 1600L HFP-3kHz

 Default Impact Demod 1600L HFF-3kHz

 Default Impact Demod 1600L HFF-3kHz

 Default Impact Demod 1600L HFF-3kHz

 Default Impact Demod 1600L HFF-3kHz

When at the Machine level, the top view presents the historical trend of event of the last six reviewed results as well as status indicators as to whether the machine has field notes or event tracker entries. This helps an analyst understand what other factors may be contributing to the machine's health for at-a-glance diagnostic information.







Also, in the **history window**, the user can filter what is visible to help increase the efficiency of the analyst.

For the serious EA analyst, users can dive deeper into the diagnostic rules which comprise the automated result.



Graphing Toolbar



The major area of change will be noticed when using the graphing functions of ALERT. There were major changes here to accommodate more advanced and power users of the software.

To scrub though volumes of data two features have been added. The first is all-new hotkeys functions which will allow for common functions to be performed via keystrokes. The second is a remote control which puts common functions and advanced techniques into a common location separated from the main application window. Users with large screen will appreciate the remote and the ability to go through data without requiring lots of extraneous mouse movements.

Major changes that will be noticed by existing users include:

The location of the Demodulation data is no longer part of the data types but now part of the range selection. When looking at Spectrum, for example, you will see Low Range, High Range, and Demod Range as options. When looking at Waveform, again Low range, High Range, and Demod Range as options. This is dependent of collecting Demod Spectrum or Demod Waveform as part of the machine location setup.

When looking at Spectrum, there are a few changes to how

to display data. First is the layout. This used to be a toggle between overlay and waterfall, it now offers single graph with separate selection for average overlay, waterfall of all related data, and overlay of all related data. These all function independent of the average baseline overlay.

When looking at **Waveform**, there are new formats for how this will be displayed. Single, triax and double triax, and waterfall displays are now available, you can select orbits with more options, and entirely new are single and triaxial circular graphs.

New improved user preferences and header information give analyst more options to display spectral graphs and plots in units with better meaning to their program. This includes the ability to display waveforms as waterfalls, single or double triax, or as native, single, or double integrated values.



New data displays include:

Filtered (1x-5x) Orbit of Acceleration Data:



Triaxial Circular Waveform Plot:



Triaxial Waveform Plot:



Autocorrelation Plot of Waveform Data Above:



Spectral Waterfall with Overall Trend:



Triaxial Spectral Plot with Remote Control:



Bode Plot – Single Axis



Bode Plot - Triaxial



Nyquist Plot – Single Axis



Nyquist Plot - Triaxial



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P	eak Lis	t													×
ļ	A	xie	ıl	R	adial		Tangential		High Range		3/7/2016 17:31			-	1
	Peak		Frequ	iency	Am	plitude	Order	-		<u> </u>		111 5 - 25.0			
	No.	i	(0	(PM)		VdB	(xRPM)		Spectral		Amplitude	Amplitude	Amplitude	Parameter	-
	1		17	792.0		129.0	0.999		Parameter	İ	A	R	Т	Units	
	2	3	35	578.8		105.6	1.996		Spectrum Overall		129.3	133.8	137.7	VdB	
	3		53	361.6		81.7	2.990		Floor Ampltude		78.2	86.4	88.2	VdB	
	4	2	72	202.8		116.2	4.017		SubSynchronous					VdB	
	5	7	89	987.6		87.5	5.013		Synchronous		129.0	133.7	137.6	VdB	
	6		107	753.1		77.6	5.997		Nonsynchronous		95.2	91.2	94.0	VdB	
	7	6	12	599.7		87.9	7.027		1xBPM		129.0	133.7	137.6	VdB	
	8	4	144	407.5		100.2	8.035		2xRPM		105.6	102.5	100.7	VdB	
	9		161	184.0		72.9	9.026		3xRPM		81.7	89.4	86.0	VdB	
	10		179	983.9		65.0	10.030		4xRPM				90.9	VdB	
	11		198	817.0		81.7	11.052		5xRPM		87.5	85.1	86.3	VdB	
	12		216	509.2		82.6	12.052		6xRPM		77.6	65.6		VdB	
	13		234	412.0		75.7	13.057		7xBPM					VdB	
	14		25070.3 62.7 13.982		8xRPM				81.3	VdB					
	15		269	999.9		80.7	15.059	-	9xRPM					VdB	-

Peak and Parameter list from Spectral Data

The graph Preferences has some new functions in the Scale tab. This updated section better handles the display of data.

Caraph Preferences
Spectrum
Units Scale Options Colors Comparision
Frequency (⊠) scale
Set best scale
O Set scale manually
Manual Scale Units CPM 👻
Maximum 0 CPM
Minimum 0 CPM
Amplitude (Y) scale
C Use scale limits assigned to the units
Set best scale for all axes
C Set best scale for each axes
C Set scale manually
Maximum 0.17 🔲 Maximum dB 80
Minimum 0 Maximum Decades 4
<u>O</u> K Save as <u>d</u> efault <u>Apply</u>

The remote control puts all common analytical tools in one location. This makes the analyst more efficient and minimizes mouse movements. This remote control logically locates the common analyst functions such as cursor control, peak locator, unit / scaling switching, harmonic and sideband family locators, location progression, test date progression, and alarm screening. For the power users who spend lots of time looking at data, there are all new hot-keys assigned for the most operations.



Finally, the data viewing window can now be resized to help paint the best analytical picture for determining the patterns to vibration. In a double triax view, the Low Range and the High Range can be repositioned to utilize the space.

Alt ◄►	Changes horizontal space assigned to Low and High Range for dual triax graphs
Home	Toggles the visibility of the slider arrows for dual triax graphs

TRIO



All new status indicator flags for machines and locations give users a better visual for the existing fault states of a machine. Status flags indicators include independent visibility of automated diagnostic results from reviewed diagnostic results, as well as an all new machine and location screening algorithm to present a better pass/fail following machine collection.



ID Tag	New Note	New Speed	More Data	Options Q	Analysis	Unload	Help	Exit X
Service Pump Motor Free E	o #2 nd					POS: 1 RAT	Last	1702 RPM (Test Data) tested 10/29/2015 7:12 AM
Machine	List	Status		Picture	Т	est Setup	1	Details
₽	in Service Pump in Service Pump in Service Pump	#1 #2 #3		Auton is SEI Locat MODE	nated diagnostic status RIOUS. ion screening status is RATE. uus reviewed machine	Previous Mac	hine 🔿 🕈 Pr	evious Location
B Bi Ser	In Service Pump vice Pump #1 vice Pump #2 Motor Free	End		status MODE	(1/29/2014) was RATE.	Next Machin	•	lext Location
	 Motor Drive vice Pump #3 Motor Free 	End				E Stop Test		Start Test
e∎ ^{®'} ⊡ Ser	 Motor Drive vice Pump #4 Motor Free Motor Drive 	End End End				View Data	MAN	
⊪Ser ⊪	vice Pump #5 vice Pump #6 ter Pump #1					*	s 🗾	
						Battery: AC TRIO-DP1-0	774:93% Connected on	Bluetooth 9/13/2016 9:02 AM

A new status tab presents a variety of data to the analyst in the field. Screening indication gives users better sense of pass or fail ahead of detailed diagnostics. The view can be expanded to show a mosaic of data plots to give a better picture of what is happening.

ID Tag	New Note	New Speed	More Data	Optio	ns	Analysis	Unload M	Help	Exit ¥
Service Pum Motor Free E	p #2 nd	·					POS: 1 RAT ID: 164	Last test	1702 RPM (Test Data) ed 10/29/2015 7:12 AM
Machine	List	Status		Picture	•	Te	st Setup	Det	ails
Automated diag Machine screet Previous review Machine is ove	gnostic status is SE ning status is MODE wed machine status rdue for testing.	RIOUS. RATE. (1/29/2014) was MOI	DERATE.	Tes	st Date: 10 st Duration	1780 RPM 0/29/2015 7:12 AM n: 1 Minutes	Previous Machir	ne	ous Location
	Spectrum	n Overalls - Low rang	e	High rang	e		-	•][
Motor Free End Motor Drive End	Radial 105.5 102.6	Axial Tangentia 98.5 120.5 95.8 116.1	VdB 100.1 VdB 100.1	al Axial 1 93.8 8 94.2	Tangential 109.0 109.0	VdB VdB	Next Machine	Next	Location
	Wavefo	orm Peak - High range	•	Demod					
Motor Free End Motor Drive End	ed diagnostic statu	Axial Tangentia 0.52 0.33 0.42 0.31	g g warnings	40.5 40.4	dBmV dBmV	Axis Radial Radial	stop Test	Star	t Test
Report generater MID: Service Pun	d: 10/29/2015 7:13:22 A np Reliance 60HP (4) able data at pickup(s) : 1	M Rulebase vers Averages: 1 1T,2T.	ion: 20130322 Max Figu	imum level is 113 ure of merit: 911	(+57) VdB	[1T] at 0.382xM	View Data	MMA	,
Attention Requ	Verify validity o	of data and any diag	onoses. retest u	nit if necessa	ry. Exp	oand View	Stored Notes	Z	
				-			Battery: AC TRIO-DP1-00774	93% Connected on Bluet	ooth 9/13/2016 9:06 AM

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Simple communication between analyst and data collector is important in any program. ALERT 4.0 continues with Azima DLI's unmatched communication mechanisms. 4.0 includes an improved analyst notes section which increases the efficiency and consistency in relaying additional tests or steps for data collectors in the field.

ID Tag	New Note	New Speed	More Data	Options ©	Analysis	Unload M	Help	Exit
Service Pum	p #2					-	-	
Enter New N	otes		Prede	afined Notes				
Categories			101	Equipment NOT rur	ning			
1 Status/safety iss	sues		102	Equipment NOT in	Operable State			
2 As-Is State			103	Analyst - IMMEDIA	E ATTENTION REC	UIRED		
3 Structural Condi 4 Bearing-Belt-Bla	tions de-Motor-Shaft		104	Test Operating Cor	ditions Not Met			
5 Filter-Leaks-Flui	d		106	Unsteady Operation	1			
6 Overheating			107	Unit is NOT Loaded	1			
7 Pressure-Load			108	Access Is Difficult/	Dangerous			
 Sounds 9 Modify Database 			110	Missing Safety Ban	ier/Notice			
10 User-Defined N	otes		111	Broken Gauges				
			112	REQUESTED ACTI	ON Not Performed			
Componer	nt				-			
	Select	ted Notes					Shift	
Location							Up	Add Note
Photo Note	e						Shift	Remove Note
Free Text	t						ļ	
		Save	H		Cancel 🍃	¢		Clear Notes
						Battery: AC TRIO-DP1-00774	92% Connected	on Bluetooth 9/13/2016 9:07 AM



A greatly improved graphic viewer gives more information to users. This includes mosaic views, legends, and improved cursor controls.





	10/0/2010	7.20.24740					
ocation so	reening status					42.4 VdB at 1071	RPM: 1
	j	W	aveform		Sp	ectral Data	
Max	Axis	Peak (-)	Peak (+)	Overalls	1st Peak	2nd Peak	3rd Peak
Low ran	ge	g		VdB			
	Axial	-0.548	0.548	100.3	97.5 @ 1.00x	92.8 @ 7.40x	87.3 @ 8.41x
Hz	Radial	-0.243	0.243	94.8	88.2 @ 1.00x	85.6 @ 3.11x	85.6 @ 7.40x
	Tang.	-0.336	0.336	112.5	109.2 @ 1.00x	105.6 @ 0.49x	96.9 @ 0.92x
High rar	ige	g		VdB			
	Axial	-2.627	2.627	102.0	96.8 @ 1.00x	94.0 @ 10.1x	92.9 @ 7.41x
Hz	Radial	-2.957	2.957	96.9	89.9 @ 0.52x	89.3 @ 1.00x	85.9 @ 7.41x
	Tang.	-1.807	1.807	113.2	110.6 @ 0.51x	109.7 @ 1.00x	96.2 @ 3.70x
Demo	d	Volts		dBmV			
			-			-	
Hz	Radial		5.360	43.6	33.4 @ 1.00x	33.0 @ 2.01x	30.8 @ 4.01x
					-		

New amplitude alarm triggers from waveform data, spectral data, and overall values.

New to users is the ability to quickly change the orientation of the triaxial sensor while in the collector application. When collecting data, and the sensor is incorrectly positioned or needs to be relocated, the user can simply change the setting on the fly.

ID Tag	New Note	New Speed	More Data	Options	Analysis	Unload	Help		Exit
Service Pump Motor Free E	o #4 nd					POS: 1 RAT ID: 168	L	1.ast tested 10/8/	946 RPM (Test Data) 2015 7:25 AM
Machine	List	Status		Picture	Te	est Setup		Details	
Test Conditions: Ensure low spee Machine Collect Machine Test Ti	Test online afte ed stop. ion Period: 60 [me Span: 10 Mi	er sufficient warm Days inutes	up.			Previous Machir	ne 🗨	Previous Loca	ition /1
Location Setup:	,	POS: 1 RAT			Change Orientation	Next Machine	⊜∤	Next Locatio	י א ו ע
Low range - Vel High range - Ve Demod - Demod Overalls - <not a<br="">Phase - <not ac<="" td=""><td>ocity VdB 0800L locity VdB 0800 l Common Setu Active> :tive></td><td>L Common Setup L Common Setup p,600 Hz,800 Line</td><td>,300 Hz,800 Line ,3000 Hz,800 Li es</td><td>es nes</td><td></td><td>Stop Test</td><td></td><td>Start Test</td><td>0</td></not></not>	ocity VdB 0800L locity VdB 0800 l Common Setu Active> :tive>	L Common Setup L Common Setup p,600 Hz,800 Line	,300 Hz,800 Line ,3000 Hz,800 Li es	es nes		Stop Test		Start Test	0
						View Data	MARA		
						Stored Notes	Z		
						Battery: AC TRIO-DP1-00774	:89% Connected	on Bluetooth 9/13/	2016 9:27 AM

The details tab in Collector now presents the information that is stored in the details view of ExpertALERT as well as the machine design.

ID Tag	New Note	New Speed	More Data	Options Q	Analysis	Unload M	Help ()	Exit 💥
Main Service Motor Free E	Pump #4 nd					POS: 1 RAT ID: 158	Last te	1784 RPM (Test Data) ested 11/21/2014 1:37 PM
Machine	List	Status		Picture	Te	est Setup	D	etails
Machine Design	Information Baldor 50HP A with 58 motor b	urora Pump ars				Previous Machir	ne	vious Location
- Rolling el - Supporte - 8 first stag - Flexible Co	ement bearings d rotor with rollir ge vanes second upling	and no cooling t ng element main d stage vanes	fan and thrust bear	ings		Next Machine		ext Location
 Centrifugal Machine Bear No bearing 	Pump ring Information information for a	any locations on	this machine			Stop Test	ja s	lart Test
						View Data	Man Li	
						Battery: AC TRIO-DP1-00774	: 87% Connected on B	luetooth 9/13/2016 9:37 AM

A change to the way collection occurs is the visibility of any test operating conditions which are specified for a machine. When the first location of a machine is selected for data collection, if any test conditions are defined, these will be displayed for acknowledgement before proceeding.

Generator Fan Unit Motor Drive End				DOG- 2 VAL		THE REPORT OF STATES
				ID: 137	Last teste	3575 RPM (Test Data) ed 3/30/2016 9:48 AM
Machine List	Status	Picture	Te	est Setup	Deta	ils
Common Machines Aeration Blower #1 Beacher Feed Pump A MOTOR NOI MOTOR NOI MOTOR DRI PUMP DRIVE PUMP NON I Beacher Bea	N DRIVE END VE END E END DRIVE END #1 #2 #3 #4 End End Drive End	Review	red status is OK.	Test Conditions: Generator must operating conditi Generator load r Ensure Fan moto	be operating under ons. nust be between 2 or is running in fast	r normal 5 and 50%. speed.

ID Tag	New Note	New	Speed	More Da	ita Op	tions Q	Analysis	Unload	Help 7	Exit
Generator Fa	n Unit							POS: 2 VAH		3575 RPM (Test Data)
Motor Drive E	nd							ID: 137	Last test	ed 3/30/2016 9:48 AM
Enter or Mea	sure Machine	e Spee	ed]]	-		Speed Ur	its		
		7	8	9			RPM RPS			
		4	5	6	Mea	asure	Divide	e Tach		
		4	2		Back	space	V Tacho	meter Power		
		•	2		CI	ear				
		0)		Delayed	Capture (3	sec.)			
	Ş	Save	1					Cancel	×	
								Battery: AC TRIO-DP1-00774	86% Connected on Blueto	oth 9/13/2016 9:44 AM

Collector 4.0 now allows a user to specify tachometer power requirement attached to the DP-2.

Collector 4.0 adds the ability to show a mosaic display during data collection so more information can be presented to the user in a logical fashion.



Using Azima DLI's proprietary algorithms, ALERT 4.0 will validate the data collected and screen it for potential problems ahead of full diagnostics through the Expert Automated Diagnostic System of ExpertALERT or manual analysis.

nerator Fa wer Drive	n Unit - 3575 F End - 9/13/201	RPM 16 9:47:36 A <u>M</u>				🚔 All Graphs	🞇 Next 🛛 🖌 OK
ocation so	creening status	is MODERATE					RPM: 35
		w	aveform		Spe	ectral Data	
FMax	Axis	Peak (-)	Peak (+)	Overalls	1st Peak	2nd Peak	3rd Peak
Low ran	ige	g		in/s			
	Axial	-1.904	1.905	0.305	0.231 @ 2.02x	0.160 @ 1.00x	0.105 @ 8.06x
Hz	Vert.	-0.645	0.598	0.040	0.027 @ 8.06x	0.022 @ 1.00x	7.6E-03 @ 8.04x
	Horiz.	-0.619	0.613	0.277	0.276 @ 1.00x	0.016 @ 8.06x	0.010 @ 2.02x
High ran	nge	g		in/s			
	Axial	-1.858	1.788	0.301	0.234 @ 2.01x	0.158 @ 1.00x	0.099 @ 8.06x
Hz	Vert.	-0.783	0.607	0.044	0.033 @ 8.06x	0.022 @ 1.00x	8.5E-03 @ 2.01x
	Horiz.	-0.947	1.125	0.278	0.275 @ 1.00x	0.020 @ 8.06x	0.012 @ 2.01x
Demo	d	g		g			
			-	-			
Hz	Vert.	-	0.365	0.031	6.6E-03 @ 1.02x	5.0E-03 @ 3.02x	4.6E-03 @ 2.00x
		-	-			-	-
					Patter	- AC TPIC-DD1-00774-96% Coop	parted on Plustooth 0/12/2016 0-49

Now users can utilize channel 1 or channel 4 as part of single axis sensors. This saves time and wear and tear on the data collector by utilizing an adapter which puts both a triax and a single axis (portable or through a junction box) into the collector without needing to move cables.

ID Tag	New Note	New Speed	More Data	Options	Analysis	Unload	Help	Exit
R		2		2	4	1	0	×
Data Collection Options		New Spee Advance auto Show graphs Show test su Show interme Portable acer Single-axis so Diamond nav Analog Integral Hours to consid	ed omatically when tes during data collect mmary after all loca addiate averages (ov alerometer (ovenide ansor mode tgation pad- tion:	ting at this location ion Spectra ations tested erlap processing of st database default © Char Char Low range tion tested: 2	A Pause afte W measureme displaying: Data Summary	Pause after measurement, displaying: Mosaic		
		Tachometer trigger level (+/- Volts): 2.5 Enable speech recognition Enable auditory feedback Show status indicators Show numbers with status Show reviewed status Show expert system status Spectral peak alarms			ie w overdue indicato w status legend fer reviewed status w screening status	Low Range Sp Low Range W High Range Sp High Range Sp High Range W Demod Spectr Demod Wavef S	Data Summary Low Range Spectra Low Range Waveforms High Range Waveforms Demod Spectra Demod Waveforms	
Change Database Save 🕨					Ca	incel 💥		
Battery: AC TRIO-DPI-00774: 86% Connected on Bluetooth 9/13/2016 1:29 PM								

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ID Tag	New Note	New Speed	More Data	Options Q	Analysis	Unload	Help 7	Exit X	
Data Collecti	on Options	New Speed							
Data Collection Options		New Speet	d matically when test during data collect mmary after all loca diate averages (ov elerometer (override ensor mode gation pad ion:	ting at this location ion Spectra ations tested erlap processing of es database defaul Char Low range tion tested: 2): 2.5	is finished Time Mosa f) ts) hand to Channel handed mode	A Pause after measureme displaying: Mosaic Data Summary Low Range Sp Low Range Mo	Pause after Preasurement, displaying: Mosaic Data Summary Low Range Spectra		
		Enable speed	ory feedback	Volun	Volume		High Range Spectra		
		Show status	ndicators	✓ Sho	w overdue indicato	Demod Spectra	Demod Spectra		
		Show number	s with status	Sho	Show status legend		Demod Waveforms		
		Show reviewed status		Pre	Prefer reviewed status Show carooning status				
		Show expert system status Social peak alarms				•			
		F b							
Chang	e Database		Save 👂		Ca	ncel 💥		•	
Battery: AC TRIO-DPI-00774: 86% Connected on Bluetooth 9/13/2016 1:29 PM									

Collector 4.0 offers Left-handed mode of operation:



Not all features of ALERT 4.0 or Collector 4.0 are needed by all users. The user preference option allows for user to decide what information needs to be presented.

ID Tag	New Note	New Speed	More Data	Options Q	Analysis	Unload 🗳	Help 7	Exit X
Data Collecti	on Options	New Spee	ed]		-	-		
		New See	matically when tes during data collect mmary after all loca diate averages (ow elerometer (override ansor mode igation pad tion: — High range fer machine or loca gger level (+/- Volts th recognition ary feedback indicators rs with status ed status system status a calarms	ting at this location ion Spectra ations tested erlap processing of as database defaul © Char © Low range tion tested: 2): 2.5 Volum © Shc © Shc © Pre © Shc	is finished Time Mosa f) ts) nnel 1 Channel handed mode ter woverdue indicato woverdue indicato woverdue indicato woverdue status ter reviewed status woverening status	A Pause after Mosaic Data Summary Low Range Sp Low Range Wa High Range W High Range W Demod Spectr Denod Wavef	ectra ectra iveforms eectra aveforms a aveforms a arms	
Chang	e Database		Save 👂	•	Са	ncel 💥		-
Battery: AC TRIO-DP1-00774:86% Connected on Bluetooth 9/13/2016 1:29 PM								

Finally, for advanced users, Collector-X allows for the display of orbits.





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