

## METRIS

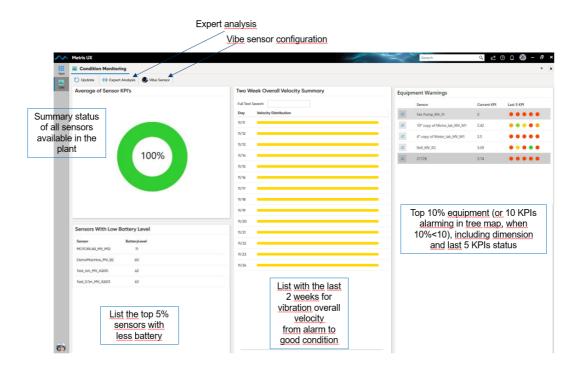
# ANDRITZ Automation | Metris Digital Solutions : Condition Monitoring

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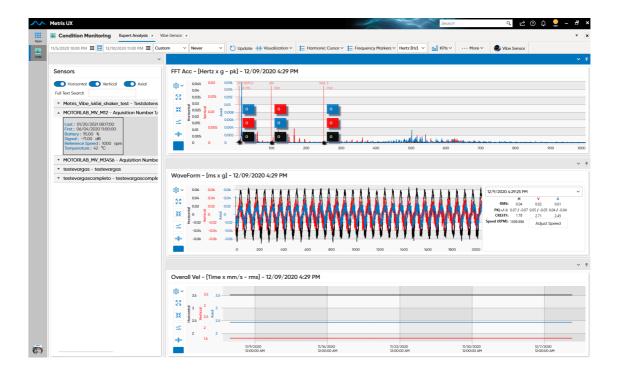


Condition Monitoring systems are described as systems that monitor the condition of machines and systems. The primary goal of Condition Monitoring is to determine and relay the current condition of a system as well as to provide advanced detection or prediction of a fault and any possible damage.

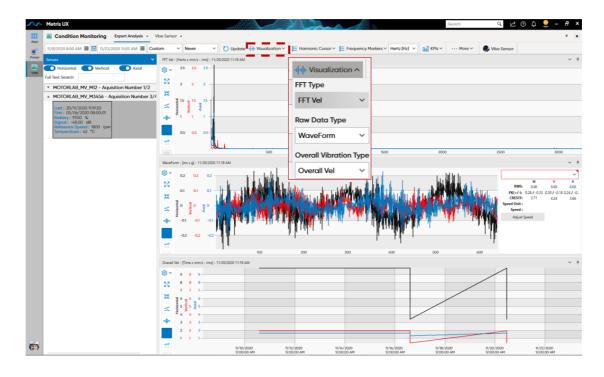
Condition monitoring is an app designed to visualize data from Andritz Metris Vibe sensors, including raw signal, overall vibration, the FFTs and temperature. Beside that, it allows the users to configure their own spectral bands (vibration bands) to monitor issues like misalignment, unbalancing, bad lubrication, bearing related issues, etc.



Condition Monitoring app overview page



List of sensors (left) and Expert analysis, including Frequency markers



CMS app - Plot visualization options

Edit	×
General Reference Speed Frequency Markers	
MOTORLAB_MV_M12	
Description	
Aquisition Number 1/2	
Serial Number	
MOTORLAB_MV_M12	
Installation Local	
Motor lab 🧷 🗓	
Temperature	
MOTORLAB_MV_M12_T	
Battery	
MOTORLAB_MV_M12_battery	
Signal Strength	
MOTORLAB_MV_M12_signal_strength	
Axis	
X Y Z	
Vertical (V): Image: Constraint of the second	
Save Cancel	
Save Cancel	

#### Metris Vibe sensor configuration

A	dd Sir	ngle Frequency	Add Bearing Free	quency			
		Failure Frequency	Description	Frequency Unit	Component	Numbe	er Enabled
C		Test_F	Freq	Hertz [Hz] 🗸 🗸	250.00	~ /	🔪 💽 On
C		6N	6 x rpm	Hertz [Hz] 🗸 🗸	100.00	~ /	🔪 🂽 On
6	Ì	11162R/300 BSF	11162R/300 BSF	Hertz [Hz] 🗸 🗸	3.63	~ /	Off
0	Ì	11162R/300 BPFO	11162R/300 BPFO	Hertz [Hz] 🗸 🗸	8.27	~ /	🔪 💽 On
0		gearmesh	geramesh	Order v	19.00	~ /	🔪 💽 On
0	Ì	Test_F_2T	Freq_2	Order v	1.00	~ /	🔪 💽 On
C		6312ZZ BSF	6312ZZ BSF	Order v	2.04	~ /	Off
0		6312ZZ BPFO	6312ZZ BPFO	Order v	3.07	~ /	Off
0	Ì	6312ZZ BPFI	6312ZZ BPFI	Order v	4.93	~ /	🔪 💽 On

Adding Frequency markers - Single frequency or Bearing frequency

								Tre	e map - Vibe	for all sensors	- Iree Map									
								Non Défini										Ré	cupération et Utili	ités
81-0011_MVA1399_P _x_General_21_40N_s ec_rms_vel	3 P1 z General 4N	399 P2 z Gener	0529 P1 x Gen	1025 M2 y Ge	0529_P1_y_Gen	0471 M1 z Ge	0549 P2 x Gen	1233_P1_x_Gen	0529 P1 y Gen	1025 M2 z Ge	1025 M2 x Ge	0471 M1 z Ge	0529_P1_x_Gen	1025 M2 z Ge	0549 P2 z Ger	0549 P2 y Ge	n 1399 P2 y Ger		529 P1 x Gener	025 M2 3
	281-0011_MVA139	281-0011_MVA1	0540 P2 v Gen	1399 P2 x Gen	0549 P2 x Gen	1233 P1 y Gen	1399 P2 y Gen	0471_M1_x_Ge	0549_P2_x_Gen	0471_M1_y_Ge	0529 P1 y Gen	1233 P1 z Gen	1025 M2 z Ge	1025 M2 x Ge	0471 M1 z Ge	0471 M1 2 G	e 0549 P2 z Gen	281-0011_MVA1 025_M2_y_Gener	471 M1 z Gener	529 P1 z
	9_92_x_General_2N _spec_rms_vel	al_SN_spec_rms_	_acc	ms_vel	ms_vel	or	ms_vel	rms_vel	ms_vel	ec_rms_vel	ms_vel	ec_rms_vel	rms_vel	rms_vel	rms_vel	ec_rms_vel	ms_vel		•	e
81-0010_MVA1233_P _x_General_Spec_pea _acc		281-0011_MVAD	0529_P1_z_Gen eral_4N_spec_r	1025_M2_z_Ge	281-0011_MVA 0471_M1_y_Ge neral_21_40N_s pec.rms.vel	1233_P1_y_Gen	1025_M2_z_Ge	1399 P2 x Gen	0529_P1_z_Gen	1399 P2 y Gen	1025 M2 x Ge	0529_P1_x_Gen	0549_P2_z_Gen	1399_P2_z_Gen	1233_P1_z_Gen	0471_M1_x_G	e 1025_M2_z_Ge	281-0011_MVA0 529_P1_y_Gener al_Crest_factor	399_P2_y_Gener	399_P2_z
	281-0011_MVA139 9_P2_z_General_2N _spec_rms_vel	471_M1_z_Gener al_2N_spec_rms_ vel	281-0011_MVA 0520_P1_x_Gen	281-0011_MVA 0471_M1_x_Ge	281-0011_MVA	281-0011_MVA 0471_M1 × Ge	281-0011_MVA	281-0011_MVA	281-0011_MVA 1399 P2 x Gen	281-0011_MVA 1025_M2_x_Ge	281-0011_MVA 0529_P1_y_Gen	281-0010_MVA	281-0010_MVA 1233_P1_y_Gen	281-0011_MVA	281-0010_NFVA	281-0011_MW	A 281-0011_MVA n 0529_P1_y_Gen r eral_6N_spec_r	281-0011_MVA0 529_P1_x_Gener al_Crest_factor	281-0011_MVA0 S29_P1_y_Gener al_Spec_peak_ac	025_M2_z
81-0010_MVA1233_P z General 3N spec		281-0010_MVA1 233_P1_v_Gener	eral_4N_spec_r ms_vel	rms_vel	rms_vel	rms_vel	ms_vel	rms_vel	ms_vel	rms_vel	ms_vel	c_rms_vel	ec_rms_vel	c_rms_vel	ms_vel	ms_vel	ms_vel	281-0011 MVA0	c 281-0011 MVA0	281-0011
	281-0011_MVA102 5_M2_z_General_2 N_spec_rms_vel		0471_M1_y_Ge neral_SN_spec_r	0549_P2_z_Gen eral_Spec_peak	1025_M2_x_Ge neral_6N_spec_	1233_P1_x_Gen eral_3N_spec_r	1233 P1 2 Gen	1399 P2 z Gen	0549_P2_x Gen	281-0011_MVA 1399_P2_y_Gen eral_21_40N_sp ec_rms_vel	1025_M2_y_Ge	1233_P1_z_Gen eral_2N_spec_r	0549_P2_y_Gen	0549_P2_x_Gen	0471_M1_y_Ge	0549_P2_y_Ge	A 281-0010_MVA n 1233_P1_y_Gen r eral_2N_spec_r ms_vel	471_M1_y_Gener al_Crest_factor	529_P1_z_Gener al_Crest_factor	399_P2_y al_Spec_p c
		281-0011_MWA1 025_M2_y_Gene	ms_vel	_8CC	rms_vel	ms_vel	or	-	DES OVER MELA	2010 0010 1010	001-0011 MM	281-0010 MWA	281-0010 MVA	201-0011 MVA	281-0011 MVA	281-0011 M/4	A 281-0011 MMA	399_P2_x_Gener	281-0011_MVA0 471_M1_x_Gener	025_M2_y
81-0011_MVA1399_P _y_General_SN_spec_	281-0010_MVA123 3_P1_x_General_4N	ral_21_40N_spec	1399_P2_x_Gen eral_8N_spec_r	0471_M1_z_Ge neral_3N_spec_							0529 P1 v Gen	0549 P2 y Ge	0549 92 x Gen	0471 M1 x Ge	0471 M1 y Ge	0471 M1 z Gr	e 1025_M2_x_Ge neral_21_40N_s pec_rms_vel	al_Urest_factor	al_Crest_factor	B]_Crest_ta
ns_vel	_spec_rms_vel	281-0011_MVA1 025_M2_x_Gener	ms_vel 281-0010_MVA	rms_vel 281-0010_MVA 0549_82 x Geo				281-0011_MVA	281-0011_MVA	281-0011_MVA								471 M1 z Gener	200 02 - Care	471_M1_y
	281-0011_MVA139 9_P2_x_General_5N	al_4N_spec_rms_ vel	eral_5N_spec_r ms_vel	eral_1N_spec_r ms_vel	eral_8N_spec_r ms_vel	eral_3N_spec_r ms_vel	eral_3N_spec_r ms_vel	neral_1N_spec_ rms_vel	eral_4N_spec_r ms_vel	pec_rms_vel	eral_9_20N_spe c_rms_vel	eral_on_spec_r ms_vel	rms_vel	ms_vel	ec_rms_vel	ms_vel	ms_vel	025 M2 - Canad	281-0011_MVA0 471_M1_x_Gener	471 341 -
81-0011_MVA0529_P _x_General_2N_spec_ ms_vel	_spec_rms_vel	281-0010_MVA0 549_P2_y_Gener al 5N spec.rms															281-0010_MVA 0549_P2_y_Gen eral_8N_spec_r	al_Spec_peak_ac c	al_Overall_vel	
	281-0011_MVA139	vel	ms_vel	ec_rms_vel	ms_vel	rms_vel	ms_vel	ms_vel	rms_vel	eral_7N_spec_r ms_vel	ms_vei	trins_ver	ACCUMENCE.			ms_vel	ms_vel 281-0010_MVA1	471_M1_y_Gener	471_M1_z_Gener	025_M2_x
81-0010_MVA1233_P	9_P2_y_General_ZN _spec_rms_vel	281-0011_MVA0 471_M1_z_Gener al_4N_spec_rms_	0010 01 - C	1233 P1 v Gen	1025 M2 x Ge	1233 P1 v Gen	1233 P1 x Gen	0549 P2 x Gen	0471 M1 v Ge	281-0011_MVA 0529_P1_x_Gen eral_1N_spec_r	1390 P2 x Gen	0471 M1 z Ge	1399_P2_y_Ge	A1233_P1_2_G eneral_7N_spe	k0549_P2_y_G_21 meral_21_40N [_I spec_rms_vel	3 P1 y Genera	233_P1_z_Genera I_Overall_vel	281-0011_MVA1	281-0011_MVA0	281-0011
_y_General_7N_spec_ ms_vel	281-0010_MVA123	vel	ec_rms_vel	ms_vel	rms_vel	ms_vel	ms_vel	ms_vel	rms_vel	ms_vei	ms_vel	rms_vel	pec_rms_vei	Citing ver	2	31-0010_M 28	1-0010_MVA0549	025_M2_y_Gener al_Overall_vel	529_P1_y_Gener al_Overall_vel	529_P1_z_ al_Overall
	2 D1 - Connel Ebi	281-0011_MVA0	281-0010_MVA	281-0011_MVA	281-0011_MVA	281-0010_MVA	281-0011_MVA	281-0010_MVA 1233_P1_z_Gen eral_9_20N_spe	281-0011_MVA 0529 P1 x Gen	281-0011_MVA 1025_M2_x_Ge	281-0011_MVA	281-0011_MVA 0529_P1_z_Gen	281-0011_MVA 1399_P2_z_Ge		10549_P2_z_G_c			281-0011_MVA1 025_M2_z_Gener	281-0011 MVA1	281-0011

Vibe sensors tree map - different vibration bands status



#### Functionalities of the Condition Monitoring System:

- Monitoring the condition/status of machines and systems
- Vibration is one of the first indications that some form of damage is developing
- Detection in advance can predict potential damage and outages
- Send warning/alarm to the operator
- Means of increasing reliability and customer productivity, as well as decreasing downtime
- Detect unexpected noise/sounds
- Schedule a more effective maintenance plan, including planned stoppages
- Smart spare part management

## Benefits

- "Online" vibration monitoring
- Vibration levels per bands
- Customizable alarms & notifications
- Integration with process variables
- Integration with data analytics and RBM
- Easy set-up

### Objectives

#### # Objective

- 1 Monitor the vibration of mill's assets and set alarms to ensure equipment and production reliability.
- 2 Allow the users to configure their own vibration spectral bands to be monitored.
- **3** Enable a user friendly view to analyze vibration data by a technician when needed.

	Objective 1	Objective 2	Objective 3
Mill Coordinator	MEDIUM	LOW	LOW
Production Manager	HIGH	LOW	LOW
Maintenance Manager	HIGH	HIGH	HIGH
Maintenance Engineer	HIGH	HIGH	HIGH

#### Importance: LOW MEDIUM (HIGH

#### Use cases

#	User Story
1	As a Production Manager, I want to know the number of assets operating at high vibration/temperature levels so I can discuss with the Maintenance Manager the proper actions to be taken.
2	As a Maintenance Manager, I want to know the main problems from the assets operating at high vibration/temperature levels so I can budget the solutions for the problems.
3	As a Maintenance Engineer, I want to identify the assets operating at high vibration/temperature levels and their origin, so that I can work on troubleshooting the causes and find opportunities or avoid production losses.

## See also

- Condition Monitoring Articles
- Condition Monitoring FAQ
- Condition Monitoring Release notes
- Condition Monitoring Metris UX/X CMS User manual
- Condition Monitoring Use cases
- Metris Vibe Installation procedure

- Metris Vibe App
- Condition Monitoring Metris UX/X Web CMS User manual