

ENGINEERING
TOMORROW



Application Guide

VACON® Condition-based Monitoring



Contents

1	Introduction to the Application Guide	5
1.1	Version History	5
1.2	Purpose of this Application Guide	5
1.3	Additional Resources	5
1.4	Reading the Parameter Table	5
2	Introduction to Condition-based monitoring	7
2.1	System Requirements and Compatibility	7
2.1.1	Filters with the stator winding monitoring function	7
2.1.2	Sensor Configurations and Analog Inputs	7
2.2	Ordering Condition-based Monitoring in drives	7
2.2.1	Ordering Condition-Based Monitoring From Factory	8
2.2.2	Ordering Condition-based Monitoring in an Existing VACON Drive	8
2.3	Overview of Condition-based Monitoring	8
2.4	Condition-based Monitoring Workflow	9
2.4.1	Step 1: Baseline Configuration	9
2.4.2	Step 2: Sensor Configuration (Optional)	10
2.4.3	Step 3: Threshold Generation	10
2.4.4	Step 4: Faults and Warnings	11
3	Examples of Condition-based Monitoring Functions	12
3.1	Example 1: Motor Stator Winding Monitoring	12
3.2	Example 2: Load Envelope	12
3.3	Example 3: Vibration Monitoring	12
4	Commissioning of Condition-based Monitoring	14
4.1	Commissioning Overview	14
4.2	Commissioning Using the VACON Live or NCDrive Software Tool	14
4.3	Recommended Parameter Setup using the VACON® Live or NCDrive Software Tool	15
4.4	Threshold Configuration Guidelines	15
4.4.1	Application specific input for monitoring Motor Stator Winding	15
4.4.2	Application specific input for Vibration Monitoring	15
5	Monitor Menu	17
5.1	Condition-based Monitoring	17
6	Parameters Menu	21
6.1	Condition-based Monitoring	21

7	Monitoring Value Descriptions	31
7.1	Baseline Data	31
7.2	Stator Winding Monitor	32
7.3	Vibration	33
7.4	Load	33
8	Parameter Descriptions	35
8.5	Manual Run	36
8.6	Stator Winding Monitoring	38
8.7	Vibration	38
8.8	Load	39
8.9	Threshold Value	39
8.10	Warning and Alarm/Fault Stages	42
9	VACON 100 Fault Codes	50
10	VACON NXP Fault Codes	52

1 Introduction to the Application Guide

1.1 Version History

This guide is regularly reviewed and updated. All suggestions for improvement are welcome.

The original language of this guide is English.

Version	Remarks
172K0746A	First version. Information in this version of the guide corresponds to the following application software versions: - VACON® 100 INDUSTRIAL: FW0072 V035 - VACON® 100 FLOW: FW0159 V026 - VACON® NXP System Software: NXP00002 V206 - VACON® NXP Multi-Purpose: APFIFFO6 V268 - VACON® NXP SIA II: APFIFF40 V101 - VACON® NXP Marine: APFIFFO9 V233

1.2 Purpose of this Application Guide

This application guide provides information on working with Condition-based monitoring parameters on the VACON® 100 or VACON® NXP series. It provides an overview of parameters and value ranges for operating the drive.

Installation and operating instructions are not in scope of the application guide.

1.3 Additional Resources

Additional resources are available to help you understand related information.

Technical documentation for various product options is available via the Danfoss home page in the Service and Support/Documentation section.

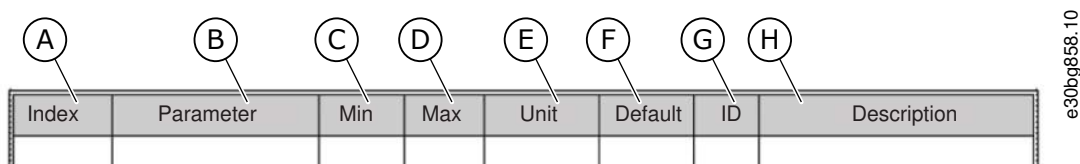
Safety Symbols

The following symbols are used in this manual:

⚠ D A N G E R ⚠
Indicates a hazardous situation when not avoided, results in death or serious injury.
⚠ W A R N I N G ⚠
Indicates a hazardous situation when not avoided, could result in death or serious injury.
⚠ C A U T I O N ⚠
Indicates a hazardous situation when not avoided, could result in minor or moderate injury.
N O T I C E
Indicates information considered important, but not hazard-related (for example, messages relating to property damage).

1.4 Reading the Parameter Table

This guide includes a large quantity of parameter tables. These instructions explain how to read the tables.



A	B	C	D	E	F	G	H
Index	Parameter	Min	Max	Unit	Default	ID	Description

Illustration 1: Parameter Table Reading Guide

A	The location of the parameter in the menu, that is, the parameter number.	E	The unit of the value of the parameter. The unit shows if it is available.
B	The name of the parameter.	F	The value that was set in the factory.
C	The minimum value of the parameter.	G	The ID number of the parameter.
D	The maximum value of the parameter.	H	A short description of the values of the parameter and/or its function.

2 Introduction to Condition-based monitoring

2.1 System Requirements and Compatibility

To enable Condition-based Monitoring and ensure it functions effectively, verify the following software compatibility and system-requirements.

VACON® software application compatibility for Condition-based Monitoring

VACON® Product	Minimum Software Compatibility Version
VACON® 100 INDUSTRIAL	FW0072 V035
VACON® 100 FLOW	FW0159 V026
VACON® NXP System Software	NXP00002 V206
VACON® NXP Multi-Purpose	APFIFFO6 V268
VACON® NXP SIA II	APFIFF40 V101
VACON® NXP Marine	APFIFFO9 V233

Stator Winding Monitoring Compatibilities

Control mode	Compatibility
VACON 100: - Sensorless (Voltage, INDUSTRIAL) - Open loop (Current)	Yes
NX: - Closed loop (Voltage) - Open loop (Current) - Sensorless (Voltage)	Yes

Motor type	Compatibility
Induction Motor	Yes
Permanent Magnet Motor	Yes
Reluctance Motor	Yes

2.1.1 Filters with the stator winding monitoring function

If a filter is installed in the system, the baseline must be run with the filter.

If the filter is installed later, make sure that a new baseline is generated.

When the filter is in the motor output, both motor and filter are monitored.

2.1.2 Sensor Configurations and Analog Inputs

Condition-based Monitoring uses external sensors to obtain data. These external sensors are connected to the AC Drive via Analog Inputs (AI).

By default, one sensor is enabled in the software. The sensor is used for vibration monitoring.

2.2 Ordering Condition-based Monitoring in drives

Condition-based monitoring can be activated in the factory when ordering a new drive. The user can also activate condition-based monitoring on an existing VACON® product using a license code.

When the license code is active, parameters and monitoring values related to Condition-based Monitoring are visible in the control panel, Vacon Live or NCDrive, and fieldbus. For further information on specific license codes for each VACON product, refer to the Selection Guide.

2.2.1 Ordering Condition-Based Monitoring From Factory

For the license code to be activated in the factory, the code +LCBM has to be entered during product selection in the configurator.

2.2.2 Ordering Condition-based Monitoring in an Existing VACON Drive

For retrofit, licenses can be ordered from the regional sales office. See Product Compatibility.

N O T I C E

License codes are unique to a single drive. The license code cannot be used on multiple drives.

In VACON 100 the license code is composed of 16 alphanumeric characters in the format (XXXX-XXXX-XXXX-XXXX).

In VACON NX, the license is a number between the values 1-99999.

Note:

It is possible that the NXC serial number and the power module serial number are different. In this case, check the serial number from the power module or with NCDrive.

VACON 100 Procedure

After receiving the license code, perform the following steps:

1. Go to parameter group *6.8 License Parameters*.
2. Insert the license code to the parameter *P6.8.1 Insert License* with the keypad.
3. Perform a power reset by switching the power supply off and on again, so that the monitoring values and parameters become visible.

VACON NX Procedure

After receiving the license code, perform the following steps:

1. Go to parameter group *3.6 License Parameters*.
2. Insert the license code to the parameter *P3.6.1 Insert License* with the keypad or with NCDrive.
3. Perform a parameter upload to NCDrive, so that the condition-based monitoring parameters become visible.

2.3 Overview of Condition-based Monitoring

Condition-based Monitoring in VACON[®] 100 and VACON[®] NX drives is launched as a factory-flashed licensed firmware, embedded within the drive.

Condition-based Monitoring enables regular checks of the condition and performance of the machine when the drive is in service, and detects mechanical, motor, or application failures in advance. Corrective actions can be performed before the process or application is impacted. Alarms/faults or warnings are triggered in the drive to notify customers or service technicians. Some of the corrective actions include replacement of faulty motors or bearings and ensuring the motor is running within optimal conditions.

Benefits of using Condition-based Monitoring are:

- Reduces unexpected downtime
- Eliminates unexpected halts in production
- Optimizes maintenance
- Reduces spare part stock inventory
- Optimizes production processes

The following are the monitoring capabilities introduced:

- **Motor stator winding monitoring:** During monitoring, inter-turn short circuit or unbalance in the motor winding is detected in advance. Damage caused by motor stator winding isolation occurs over time. When more winding turns are impacted, the extensive heating activates the overcurrent protection and stops the motor.
- **Load envelope:** Mechanical load of an application is monitored by comparing current load curve with expected load curve based on data gathered during commissioning. During monitoring, overload and underload deviations which occur in applications are detected.
- **Vibration monitoring:** With the help of external sensors, the drive can monitor vibration levels in a motor. Vibrations affect motor control and can lead to motor failure. During monitoring, early detection of motor misalignment is detected and wear and tear of mechanical parts is identified earlier.

N O T I C E

ISO 10816 standard provides guidance for evaluating vibration severity for machines operating within 10–200 Hz of frequency range. The standard shall be complied with before commissioning of vibration monitoring function.

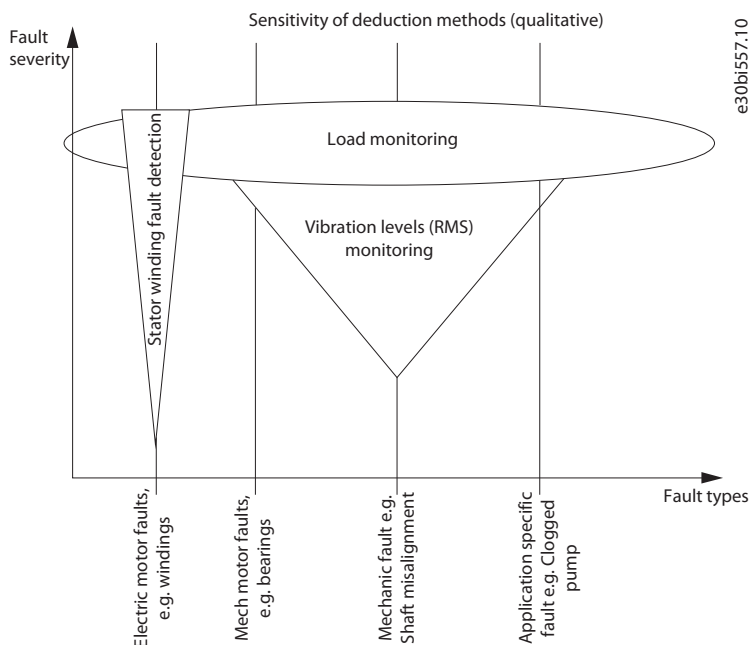


Illustration 2: Condition-based Monitoring

2.4 Condition-based Monitoring Workflow

Before starting the commissioning of condition-based monitoring, make sure that the system is configured (installed and commissioned) for normal operation of the drive.

Depending on the requirements of the user, commissioning condition-based monitoring allows the possibility to configure thresholds before or after initiating the baseline measurement. The process of obtaining baseline measurements after initiation can take up to 6 months.

The following illustration depicts the two ways to commission condition-based monitoring in a drive.

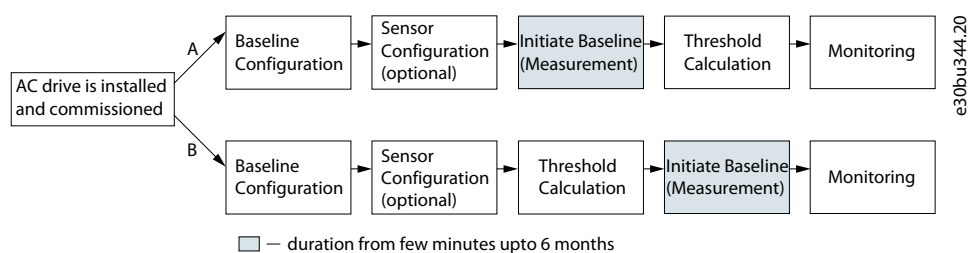


Illustration 3: Condition-based Monitoring Workflow Overview

2.4.1 Step 1: Baseline Configuration

Baseline configuration is the **1st step** and essential when commissioning a drive for condition-based monitoring. A baseline signature is required to determine any deterioration in the stator winding, load operating point, or vibration/sensor level of the application. The baseline is recorded for each of the condition-based monitoring functions and independent of whether the function is enabled for monitoring.

Following are the different ways to generate baseline:

- **Baseline Run:** The drive takes control of the motor speed defined by the user, and measures the recorded signal values. This baseline generation is only applicable for applications which operate from minimum to maximum speed, independent of the connected elements in the application. Depending on the load conditions, it is not always possible to execute the baseline run when the load does not allow it.
- **Online Baseline:** In this method, the baseline is created by the operation of the application and thereby the signal values that the drive uses, and condition-based monitoring records the baseline. The operation of the application defines the operation

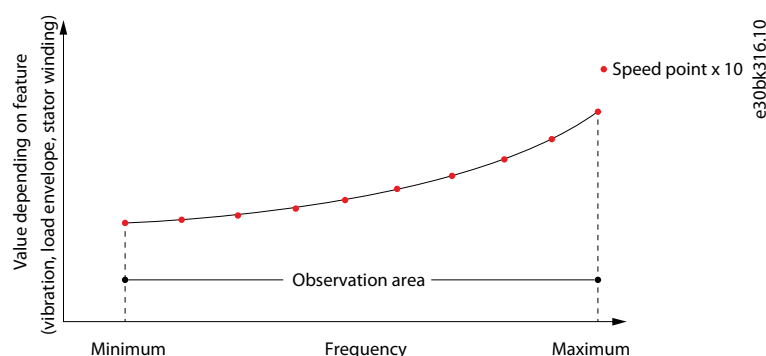
Application Guide

speeds and is successful when values for all speed intervals are collected. The baseline information is collected independent of the operation mode (manual or automatic) and collection is stopped by the defined time window or when interrupted by the user.

- **Manual Baseline:** Manual baseline threshold generation is also possible. In this method, the baseline values are defined using prior experience, and the values are configured in the drive.

The baseline run should be used if the baseline can be recorded for long enough. Baseline accuracy gets better as more recording points are made. Motor temperature might also have an effect on the motor winding imbalance measurement or vibration.

As illustrated in the graph below, a baseline consists of 10 speed points which are captured based on the user-defined minimum and maximum speed of the application.



NOTICE

For new installations, ISO 20816 recommends a wear-in period before taking a baseline measurement.

2.4.2 Step 2: Sensor Configuration (Optional)

Vibration monitoring requires installation of an external vibration transmitter. The sensor is connected via analog input using, for example, AI1 or AI2 analog input. When using these inputs, make sure to scale correctly. See control connections and analog input parameter settings from the relevant Application Guide and Installation Guide.

The condition-based monitoring feature makes it possible to include any sensor type which can provide an analog input for monitoring, where speed variation also plays a role in the monitoring. Currently condition-based monitoring includes vibration, flow, and pressure as possible signal types. Vibration sensors are installed in most of the applications where condition-based monitoring is introduced. Hence the manual focuses more on vibration sensors.

Make sure to configure the correct scaling using parameters in the parameter group *Input Signals*.

For example, when **analog input 2** is used, configure the following:

Parameter ID and name	Example Values
P 2.2.3.1 AI2 Signal Sel	AnIN:A.2
P 2.2.3.3 AI2 Signal Range	1/4mA/20%–100%
P 2.2.3.4 AI2 Custom Min	20.00%
P 2.2.3.5 AI2 Custom Max	100.00%
P 2.13.3.2 Vibration Input	2/AI2

If these terminals are in use for other equipment, it is possible to extend the analog input with extension options. For information on extension options, see the Selection Guide.

2.4.3 Step 3: Threshold Generation

Defining or setting the threshold values

Thresholds for warnings and faults are typically created on the recorded baseline values because condition-based monitoring should provide early information on changes over time to secure maximum uptime. The selection of threshold values should be evaluated against the collected baseline values to ensure a correct and stable operation, as the baseline may indicate instability in the operation of the application that might generate a warning shortly after enabling condition-based monitoring.

Thresholds can also be generated manually based on earlier conclusion or standards in vibration applications. **Stator winding monitoring** is considered as a special scenario because of the following reasons.

- An identification run is recommended before starting a baseline recording.
- The condition-based monitoring default threshold generation and selection of parameters must not be changed.

All other selection of thresholds values are depending of the application and thereby need the user knowledge to set up the CBM monitoring correctly.

There are 3 methods of threshold generation.

- **Absolute:** This is the common method when the equipment values are already known. The threshold has a fixed value irrespective of the measured baseline value. For example, when the operator knows the absolute limit for the equipment, an absolute value is set for the warning threshold. In case of vibration monitoring, the limit values described in standards such as ISO 10816/20816 can be used for the warning threshold as an absolute value. Absolute values also means manual configuration of the thresholds values, when the values are directly entered into the thresholds parameters.
- **Offset:** This method of setting threshold values requires understanding of the application and baseline values. The threshold depends on the baseline value to which a user-defined offset is considered in the threshold configuration. Setting a very low or high value leading to false positives is a risk when using this method. False settings can cause irresponsive monitoring, even in the case of faults.
- **Factor:** This method is easier to use when compared to offset, because it does not require in-depth application knowledge. The threshold depends on the baseline value which is multiplied by a factor. For example, the threshold value may be 150% of the baseline. Setting a very high threshold is a risk when using this method of threshold calculation.

2.4.4 Step 4: Faults and Warnings

In condition-based monitoring, for each feature, the user can define activation stages for warnings and faults. The interpretation of fault and warning color codes are as follows:

Green: Condition-based monitoring has not observed any operational conditions where actual values have crossed the defined thresholds levels.

Yellow: First indication of a warning-stage 1 event is visible. Stage 1 warning events are also shown as *Stage 1 Warning (S1)*. This is a notification to users to plan for maintenance operations. In this stage, condition-based monitoring operations continue.

Orange: Clear indication of a warning-stage 2 event is visible. Stage 2 warning events are also shown as *Stage 2 Warning (S2)*. This is a notification to users to act as soon as possible before the event becomes a critical fault.

Red: A critical fault has occurred and the drive has stopped, though condition-based monitoring is running.

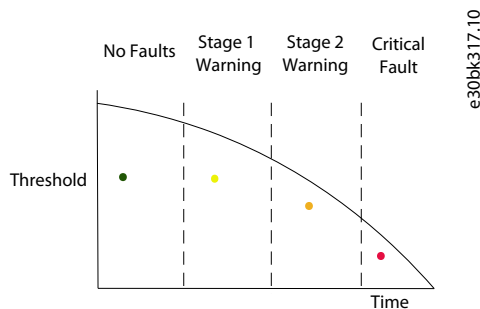


Illustration 4: Warning and Fault Stages

For more information, see [3.1 Example 1: Motor Stator Winding Monitoring](#), [3.2 Example 2: Load Envelope](#), and [3.3 Example 3: Vibration Monitoring](#).

3 Examples of Condition-based Monitoring Functions

3.1 Example 1: Motor Stator Winding Monitoring

The AC drive provides variable magnitude of voltage and frequency to the stator terminal of connected 3-phase induction motors. During healthy conditions of the motor with good stator winding insulation between inter-turn, the electrical signature shows consistency on the measurement. The electrical signature repeats the baseline value for repeated measurement.

However, in case of weakened insulation or inter-turn short circuit condition, the electrical signatures deviate from its original baseline values. The function withstands false positive in case of AC mains unbalance.

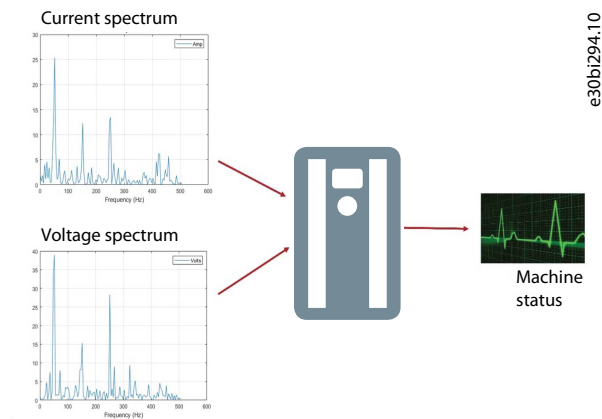


Illustration 5: Example of Motor Stator Winding Monitoring

3.2 Example 2: Load Envelope

The function monitors torque and speed profile of the application which is measured during the baseline measurement. The threshold configuration works similar to the other functions. Condition-based monitoring can detect underload and overload situations. Hence, there are 2 warning stages for high side (overload scenario) and 2 warning stages for underload scenario.

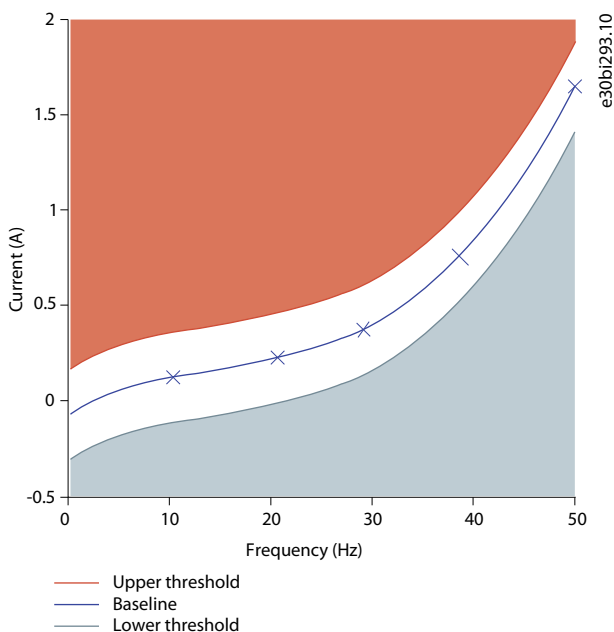


Illustration 6: Load Envelope Example

3.3 Example 3: Vibration Monitoring

The standard ISO 10816/20816 is the recommendation for vibration monitoring. The advantage that VACON® condition-based monitoring provides is the speed reference to the vibration level instead of an absolute level. The absolute level can mislead in lower levels of the speed reference.

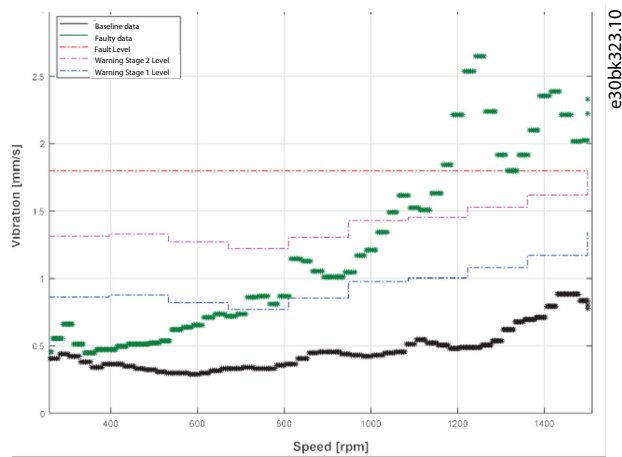


Illustration 7: Vibration Monitoring Example

4 Commissioning of Condition-based Monitoring

4.1 Commissioning Overview

This chapter describes the commissioning of condition-based monitoring from baseline creation to monitoring the system. Before performing commissioning steps, it is assumed that the drive is installed, motor identification has been done, and the license code for condition-based monitoring is activated in the drive.

Danfoss Drives recommends using the VACON® Live or NCDrive Software Tool for commissioning of condition-based monitoring. It is also possible to perform the commissioning using the control panel. With VACON 100 the license code must be installed using the control panel.

The following sections in this chapter contain the following:

- Commissioning using the VACON® Live Software Tool
- Commissioning using NCDrive
- Threshold Configuration Guidelines

4.2 Commissioning Using the VACON Live or NCDrive Software Tool

To set up condition-based monitoring in the drive, perform the following steps.

- Ensure the latest version of VACON® Live or NCDrive is installed.
- Ensure that the desktop or laptop is connected to an AC drive that is powered on and has an activated license code.
- Familiarize yourself with the parameter descriptions and the different setting options. See [8 Parameter Descriptions](#).

Procedure: The following are the recommended steps to set up condition-based monitoring:

1. Configure the stator winding monitoring parameters.

The function is activated when *Warning* or *Fault*, *Warning* is selected in parameter P3.24.2.1.

Index	VariableText	Value	Min	Max	Unit	Default	ID
3.24.2. Stator Winding (3)							
P 3.24.2.1	Stator Winding Fault Mode	Warning	No Action	Fault, Warning		Warning	3540
P 3.24.2.2	Line Freq	50.00	0.00	100.00	Hz	50.00	1913
P 3.24.2.3	Line Freq Hyst	1.00	0.00	10.00	Hz	1.00	1914

e30bk104.10

2. Configure the vibration monitoring parameters.

Check the vibration sensor analog input settings. For more information, see [2.4.2 Step 2: Sensor Configuration \(Optional\)](#).

The function is activated when *Warning* or *Fault*, *Warning* is selected in parameter P3.24.3.1.

Index	VariableText	Value	Min	Max	Unit	Default	ID
3.24.3. Vibration (2)							
P 3.24.3.1	Vibration Fault Mode	Warning	No Action	Fault, Warning		Warning	3588
P 3.24.3.2	Vibration Input	Not Used	Not Used	AI4		Not Used	3587

e30bk106.10

3. Configure the load envelope parameters.

The function is activated when *Warning* or *Fault*, *Warning* is selected in parameter P3.24.4.1.

Index	VariableText	Value	Min	Max	Unit	Default	ID
3.24.4. Load (1)							
P 3.24.4.1	Load Fault Mode	Warning	No Action	Fault, Warning		Warning	3589

e30bk107.10

4. Select the minimum and maximum frequency ranges for baseline run.

Note:

Select the minimum and maximum values based on the normal operating range. Do not include acceleration and deceleration ramps when starting and stopping.

Index	VariableText	Value	Min	Max	Unit	Default	ID
3.24.1. Baseline Settings (10)							
P 3.24.1.1	Baseline Type	BaselineRun	Off	Baseline Finished		Off	3501
P 3.24.1.2	Baseline MinFreq	0.00	0.00	49.00	Hz	0.00	3502
P 3.24.1.3	Baseline MaxFreq	50.00	1.00	50.00	Hz	50.00	3503
P 3.24.1.4	Baseline Duration	2	1	120	min	2	3504

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- Specify the duration for the baseline run.

When creating an online baseline, the data is more accurate the longer the run duration is. When doing a baseline run, the timer starts after the drive starts, and time is shared evenly for all 10 frequency points. Also with the baseline run, the data is more accurate the longer the run duration is.

- Select the baseline type.

Note:

For the online baseline run, it is recommended to first set all CBM-related parameters and then select the baseline type. If the baseline duration setting is changed after selecting the baseline type, the baseline status counter can show incorrect data.

- If creating an online baseline, when all parameters are specified, start the baseline creation by running the application normally. If creating a baseline run, start the baseline creation by giving the start command.

Note:

If the baseline run is interrupted, it triggers a fault and the baseline is not usable. In this case, the baseline run must be started again from the beginning.

Note:

When running a manual baseline for vibration monitoring, there can be resonance points in the system that are left unnoticed.

4.3 Recommended Parameter Setup using the VACON® Live or NCDrive Software Tool

Condition-based monitoring related parameters have default values that give a common base for the parametrization. Individual parameter values are always dependent on the application, and the default values can be used as a common base to start with.

It is always recommended to use the alarm setting "Alarm" in the beginning. This way the process will not be halted when the condition-based monitoring related limits are exceeded. Instead, there will be warnings dependent on the monitoring source.

4.4 Threshold Configuration Guidelines

Default values for thresholds are a good starting point for every application. Application-specific adjustments can and should be done after the baseline run is finished.

4.4.1 Application specific input for monitoring Motor Stator Winding

Following are the recommendation configurations for different motor sizes to monitor motor stator winding.

Fault or Warning	Motor Size < 22kW	Motor Size 22kW to <90 kW	Motor Size 90kW to <355 kW	Motor Size 355kW and higher
Fault ^(*)	6.00	4.00	3.00	3.00
Warning 2	4.00	2.00	2.00	2.00
Warning 1	2.00	1.00	1.00	1.00

^{*} By default, the setting should be Warning, as system operation stops when a fault occurs.

4.4.2 Application specific input for Vibration Monitoring

Following are the recommendation configurations for different motor sizes to monitor vibration.

Table 1: Recommendation for Vibration Monitoring

Zone	Part 3 (Industrial Machines >15kW)				Part 7 (Pumps)				Part 1 (Rest)	
	Rigid		Flexible		Category 1 (critical)		Category 2 (less critical)		Small / Rigid	Large / Flexible
	<300kW	>300kW	<300kW	>300kW	<200kW	>200kW	<200kW	>200kW		
Zone C limit (mm/s)	4.5	7.1	7.1	11	6.6	7.6	8.5	9.5	4.5	14.7
Zone B limit (mm/s)	2.8	4.5	4.5	7.1	4	5	5.1	6.1	1.8	9.3
Zone A limit (mm/s)	1.4	2.3	2.3	3.5	2.5	3.5	3.2	4.2	0.71	4.5
Vibration Warning Offset (mm/2)	0.7	1.125	1.125	1.775	1	1.25	1.275	1.525	0.45	2.325
Off-set % for level 1 Example ⁽¹⁾	2.8	4.5	4.5	7.1	4	5	5.1	6.1	1.8	9.3

¹⁾ sensor range 25mm/s**Note:**

The vibration values are shown as percentages.

5 Monitor Menu

5.1 Condition-based Monitoring

The index numbers listed in the table include the numbers for VACON[®] 100 (both FLOW and INDUSTRIAL), and VACON[®] NX Multi-Purpose. The index numbers for VACON[®] NX SIA II and VACON[®] NX Marine are listed in the [7 Monitoring Value Descriptions](#) chapter.

Table 2: Condition-based Monitoring

Index	Name	Min	Max	Unit	Default	ID	Description
V2.16.1 or V1.24.1 Baseline Data							
VACON [®] 100: V2.16.1.1 VACON [®] NX MP: V1.24.1.1	BaselineRun Status	0	14	-	0	3622	Baseline status in Condition-based Monitoring: 0 = Not Started 1 = Running 0% 2 = Running 10% 3 = Running 20% 4 = Running 30% 5 = Running 40% 6 = Running 50% 7 = Running 60% 8 = Running 70% 9 = Running 80% 10 = Running 90% 11 = Completed 12 = Run Failed 13 = Manual Before Baseline 14 = Manual After Baseline
VACON [®] 100: V2.16.1.2 VACON [®] NX MP: V1.24.1.2	BaselineDataElement1	-214748.36	214748.36	Various	0.00	3601	Baseline data element in Condition-based Monitoring
VACON [®] 100: V2.16.1.3 VACON [®] NX MP: V1.24.1.3	BaselineDataElement2	-214748.36	214748.36	Various	0.00	3602	Baseline data element in Condition-based Monitoring
VACON [®] 100: V2.16.1.4 VACON [®] NX MP: V1.24.1.4	BaselineDataElement3	-214748.36	214748.36	Various	0.00	3603	Baseline data element in Condition-based Monitoring
VACON [®] 100: V2.16.1.5 VACON [®] NX MP: V1.24.1.5	BaselineDataElement4	-214748.36	214748.36	Various	0.00	3604	Baseline data element in Condition-based Monitoring
VACON [®] 100: V2.16.1.6 VACON [®] NX MP: V1.24.1.6	BaselineDataElement5	-214748.36	214748.36	Various	0.00	3605	Baseline data element in Condition-based Monitoring

Index	Name	Min	Max	Unit	Default	ID	Description
VACON® 100: V2.16.1.7 VACON®NX MP: V1.24.1.7	BaselineDataE- lem6	-214748.36	214748.36	Various	0.00	3606	Baseline data element in Condi- tion-based Monitoring
VACON® 100: V2.16.1.8 VACON®NX MP: V1.24.1.8	BaselineDataE- lem7	-214748.36	214748.36	Various	0.00	3607	Baseline data element in Condi- tion-based Monitoring
VACON® 100: V2.16.1.9 VACON®NX MP: V1.24.1.9	BaselineDataE- lem8	-214748.36	214748.36	Various	0.00	3608	Baseline data element in Condi- tion-based Monitoring
VACON® 100: V2.16.1.10 VACON®NX MP: V1.24.1.10	BaselineDataE- lem9	-214748.36	214748.36	Various	0.00	3609	Baseline data element in Condi- tion-based Monitoring
VACON® 100: V2.16.1.11 VACON®NX MP: V1.24.1.11	BaselineDataE- lem10	-214748.36	214748.36	Various	0.00	3610	Baseline data element in Condi- tion-based Monitoring
V2.16.2 or V1.24.2 Stator Winding Monitor							
VACON® 100: V2.16.2.1 VACON®NX MP: V1.24.2.1	Current Unbal- ance	0.00	100.00	%	0.00	3617	
VACON® 100: V2.16.2.2 VACON®NX MP: V1.24.2.2	Current Baseline Value	0.00	100.00	%	0.00	3620	Current baseline value in Condi- tion-based Monitoring
VACON® 100: V2.16.2.3 VACON®NX MP: V1.24.2.3	Current Warning S1 High Thresh- old	0.00	100.00	%	0.00	3611	Warning threshold value in Condi- tion-based Monitoring
VACON® 100: V2.16.2.4 VACON®NX MP: V1.24.2.4	Current Warning S2 High Thresh- old	0.00	100.00	%	0.00	3612	Warning threshold value in Condi- tion-based Monitoring
VACON® 100: V2.16.2.5 VACON®NX MP: V1.24.2.5	Current Alarm High Threshold	0.00	100.00	%	0.00	3613	Warning threshold value in Condi- tion-based Monitoring

Index	Name	Min	Max	Unit	Default	ID	Description
V2.16.3 or V1.24.3 Vibration							
VACON®100: V2.16.3.1 VACON®NX MP: V1.24.3.1	Vibration	0.00	100.00	%	0.00	3623	Vibration in Condition based Monitoring
VACON®100: V2.16.3.2 VACON®NX MP: V1.24.3.2	Vibration Baseline Value	0.00	100.00	%	0.00	3624	Vibration Baseline value in Condition-based Monitoring
VACON®100: V2.16.3.3 VACON®NX MP: V1.24.3.3	Vibration Warning S1 High Threshold	0.00	100.00	%	0.00	3625	Warning threshold value in Condition-based Monitoring
VACON®100: V2.16.3.4 VACON®NX MP: V1.24.3.4	Vibration Warning S2 High Threshold	0.00	100.00	%	0.00	3626	Warning threshold value in Condition-based Monitoring
VACON®100: V2.16.3.5 VACON®NX MP: V1.24.3.5	Vibration Alarm High Threshold	0.00	100.00	%	0.00	3627	Alarm/Fault threshold value in Condition-based Monitoring
V2.16.4 or V1.24.4 Load							
VACON®100: V2.16.4.1 VACON®NX MP: V1.24.4.1	Motor Torque	-300.0	300.0	%	0.0	4	Actual torque of the motor
VACON®100: V2.16.4.2 VACON®NX MP: V1.24.4.2	Load Baseline Value High	-300.00	300.00	%	0.00	3628	Load baseline value in Condition-based Monitoring
VACON®100: V2.16.4.3 VACON®NX MP: V1.24.4.3	Load Warning S1 High Threshold	-300.00	300.00	%	0.00	3629	Warning threshold value in Condition-based Monitoring
VACON®100: V2.16.4.4 VACON®NX MP: V1.24.4.4	Load Warning S2 High Threshold	-300.00	300.00	%	0.00	3630	Warning threshold value in Condition-based Monitoring
VACON®100: V2.16.4.5 VACON®NX MP:	Load Alarm High Threshold	-300.00	300.00	%	0.00	3631	Alarm/fault threshold value in Condition-based Monitoring

Index	Name	Min	Max	Unit	Default	ID	Description
V1.24.4.5							
VACON [®] 100: V2.16.4.6 VACON [®] NX MP: V1.24.4.6	Load Baseline Value Low	-300.00	300.00	%	0.00	3628	Load baseline value in Condition-based Monitoring
VACON [®] 100: V2.16.4.7 VACON [®] NX MP: V1.24.4.7	Load Warning S1 Low Threshold	-300.00	300.00	%	0.00	3632	Warning threshold value in Condition-based Monitoring
VACON [®] 100: V2.16.4.8 VACON [®] NX MP: V1.24.4.8	Load Warning S2 Low Threshold	-300.00	300.00	%	0.00	3633	Warning threshold value in Condition-based Monitoring
VACON [®] 100: V2.16.4.9 VACON [®] NX MP: V1.24.4.9	Load Alarm Low Threshold	-300.00	300.00	%	0.00	3634	Alarm/fault threshold value in Condition-based Monitoring
VACON [®] 100: V2.16.5 VACON [®] NX MP: V1.24.5	Condition Based Monitoring Status	0	65535		0	3619	Fault status in Condition-based Monitoring B0= Stator current warning S1 B2= Vibration warning S1 B3= Load warning S1 B5= Stator current warning S2 B7= Vibration warning S2 B8= Load warning S2 B10= Stator current alarm/fault B12= Vibration alarm/fault B13= Load alarm/fault

6 Parameters Menu

6.1 Condition-based Monitoring

The index numbers listed in the table include the numbers for VACON®100 FLOW, VACON®100 INDUSTRIAL, and VACON®NX Multi-Purpose. The index numbers for VACON®NX SIA II and VACON®NX Marine are listed in the [8 Parameter Descriptions](#) chapter.

Table 3: 3.23.1 or 3.24.1 or 2.13.1 Baseline Settings

Index	Parameter	Min	Max	Unit	Default	ID	Description
VACON®100 INDUSTRIAL: P3.23.1.1 VACON®100 FLOW: P3.24.1.1 VACON®NX MP: P2.13.1.1	Baseline Type	0	3	-	0	3501	0 = Off 1 = Baseline Run 2 = Online 3 = Baseline Finished
VACON®100 INDUSTRIAL: P3.23.1.2 VACON®100 FLOW: P3.24.1.2 VACON®NX MP: P2.13.1.2	Baseline MinFreq	0.00	Various	Hz	0.00	3502	-
VACON®100 INDUSTRIAL: P3.23.1.3 VACON®100 FLOW: P3.24.1.3 VACON®NX MP: P2.13.1.3	Baseline MaxFreq	1.00	Various	Hz	50.00	3503	-
VACON®100 INDUSTRIAL: P3.23.1.4 VACON®100 FLOW: P3.24.1.4 VACON®NX MP: P2.13.1.4	Baseline Duration	1	300000	min	2	3504	-
VACON®100 INDUSTRIAL: P3.23.1.5 VACON®100 FLOW: P3.24.1.5 VACON®NX MP: P2.13.1.5	Modified Array	0	12	-	0	3505	0 = Freq Points 1 = Current Max 2 = Current Min 3 = Current Mean 4 = Current Std 5 = Vibration Max 6 = Vibration Min 7 = Vibration Mean 8 = Vibration Std 9 = Load Max 10 = Load Min 11 = Load Mean 12 = Load Std
VACON®100 INDUSTRIAL: P3.23.1.6	Modified Point	0	9	-	0	3506	

Index	Parameter	Min	Max	Unit	Default	ID	Description
VACON® 100 FLOW: P3.24.1.6 VACON® NX MP: P2.13.1.6							
VACON® 100 INDUSTRIAL: P3.23.1.7 VACON® 100 FLOW: P3.24.1.7 VACON® NX MP: P2.13.1.7	Modified Value	-300.00	320.00	Various	0.00	3507	
VACON® 100 INDUSTRIAL: P3.23.1.8 VACON® 100 FLOW: P3.24.1.8 VACON® NX MP: P2.13.1.8	Modified Activation	0	1	-	0	3508	0 = Disabled 1 = Enabled
VACON® 100 INDUSTRIAL: P3.23.1.9 VACON® 100 FLOW: P3.24.1.9 VACON® NX MP: P2.13.1.9	Baseline Data Selector	0	15	-	0	3509	0 = Freq Points 1 = Current Max 2 = Current Min 3 = Current Mean 4 = Current Std 5 = Vibration Max 6 = Vibration Min 7 = Vibration Mean 8 = Vibration Std 9 = Load Max 10 = Load Min 11 = Load Mean 12 = Load Std 13 = Current Counter (Online) 14 = Vibration Counter (Online) 15 = Load Counter (Online)
VACON® 100 INDUSTRIAL: P3.23.1.10 VACON® 100 FLOW: P3.24.1.10 VACON® NX MP: P2.13.1.10	Speed Band	0.00	10.00	Hz	5.00	3510	

Table 4: 3.23.2 or 3.24.2 or 2.13.2 Stator Winding

Index	Parameter	Min	Max	Unit	Default	ID	Description
VACON® 100 INDUSTRIAL: P3.23.2.1 VACON® 100 FLOW: P3.24.2.1	Stator Winding Fault Mode	0	2	-	1	3540	0 = No Action 1 = Warning 2 = Fault, Warning

Index	Parameter	Min	Max	Unit	Default	ID	Description
VACON®NX MP: P2.13.2.1							
VACON®100 INDUSTRIAL: P3.23.2.2 VACON®100 FLOW: P3.24.2.2 VACON NX: P2.13.2.2	Line Freq	0.00	100.00	Hz	50.00	1913	-
VACON®100 INDUSTRIAL: P3.23.2.3 VACON®100 FLOW: P3.24.2.3 VACON®NX MP: P2.13.2.3	Line Freq Hyst	0.00	10.00	Hz	1.00	1914	-
3.23.2.4 or 3.24.2.4 or 2.13.2.4 Current Unbalance							
3.23.2.4.1 or 3.24.2.4.1 or 2.13.2.4.1 Threshold Value							
VACON®100 INDUSTRIAL: P3.23.2.4.1.1 VACON®100 FLOW: P3.24.2.4.1.1 VACON®NX MP: P2.13.2.4.1.1	Mean Factor	-10.0	10.0.0	-	1.0	3511	-
VACON®100 INDUSTRIAL: P3.23.2.4.1.2 VACON®100 FLOW: P3.24.2.4.1.2 VACON®NX MP: P2.13.2.4.1.2	Min Factor	-10.0	10.0.0	-	0.0	3512	-
VACON®100 INDUSTRIAL: P3.23.2.4.1.3 VACON®100 FLOW: P3.24.2.4.1.3 VACON®NX MP: P2.13.2.4.1.3	Max Factor	-10.0	10.0.0	-	0.0	3513	-
VACON®100 INDUSTRIAL: P3.23.2.4.1.4 VACON®100 FLOW: P3.24.2.4.1.4 VACON®NX MP: P2.13.2.4.1.4	Std Factor	0	10.0.0	-	3.0	3514	Absolute Value
VACON®100 INDUSTRIAL: P3.23.2.4.1.5 VACON®100 FLOW:	Interpolation Type	0	1	-	1	3515	0 = Constant 1 = Linear

Index	Parameter	Min	Max	Unit	Default	ID	Description
P3.24.2.4.1.5 VACON®NX MP: P2.13.2.4.1.5							
3.23.2.4.2 or 3.24.2.4.2 or 2.13.2.4.2 Limits							
VACON®100 INDUSTRIAL: P3.23.2.4.2.1 VACON®100 FLOW: P3.24.2.4.2.1 VACON®NX MP: P2.13.2.4.2.1	Warning S1 Mode	0	2	-	0	3516	0 = Absolute Value 1 = Baseline Offset 2 = Baseline Factor
VACON®100 INDUSTRIAL: P3.23.2.4.2.2 VACON®100 FLOW: P3.24.2.4.2.2 VACON®NX MP: P2.13.2.4.2.2	Warning S1 High	0.00	100.00	%	0.00	3517	-
VACON®100 INDUSTRIAL: P3.23.2.4.2.3 VACON®100 FLOW: P3.24.2.4.2.3 VACON®NX MP: P2.13.2.4.2.3	Warning S1 Delay	0	3600	s	0	3518	-
VACON®100 INDUSTRIAL: P3.23.2.4.2.4 VACON®100 FLOW: P3.24.2.4.2.4 VACON®NX MP: P2.13.2.4.2.4	Warning S2 Mode	0	2	-	0	3519	0 = Absolute Value 1 = Baseline Offset 2 = Baseline Factor
VACON®100 INDUSTRIAL: P3.23.2.4.2.5 VACON®100 FLOW: P3.24.2.4.2.5 VACON®NX MP: P2.13.2.4.2.5	Warning S2 High	0.00	100.00	%	0.00	3520	-
VACON®100 INDUSTRIAL: P3.23.2.4.2.6 VACON®100 FLOW: P3.24.2.4.2.6 VACON®NX MP: P2.13.2.4.2.6	Warning S2 Delay	0	3600	s	0	3521	-
VACON®100 INDUSTRIAL: P3.23.2.4.2.7 VACON®100 FLOW:	Alarm/Fault Mode	0	2	-	0	3522	0 = Absolute Value 1 = Baseline Offset 2 = Baseline Factor

Index	Parameter	Min	Max	Unit	Default	ID	Description
P3.24.2.4.2.7 VACON®NX MP: P2.13.2.4.2.7							
VACON®100 INDUSTRIAL: P3.23.2.4.2.8 VACON®100 FLOW: P3.24.2.4.2.8 VACON®NX MP: P2.13.2.4.2.8	Alarm/Fault High	0.00	100.00	%	0.00	3523	-
VACON®100 INDUSTRIAL: P3.23.2.4.2.9 VACON®100 FLOW: P3.24.2.4.2.9 VACON®NX MP: P2.13.2.4.2.9	Alarm/Fault Delay	0	3600	s	0	3524	-

Table 5: 3.23.3 or 3.24.3 or 2.13.3 Vibration

Index	Parameter	Min	Max	Unit	Default	ID	Description
VACON®100 INDUSTRIAL: P3.23.3.1 VACON®100 FLOW: P3.24.3.1 VACON®NX MP: P2.13.3.1	Vibration Fault Mode	0	2	-	1	3588	0 = No Action 1 = Warning 2 = Fault, Warning
VACON®100 INDUSTRIAL: P3.23.3.2 VACON®100 FLOW: P3.24.3.2 VACON®NX MP: P2.13.3.2	Vibration Input	0	4	-	0	3587	0 = Not Used 1 = AI1 2 = AI2 3 = AI3 4 = AI4
3.23.3.3 or 3.24.3.3 or 2.13.3.3 Threshold Value							
VACON®100 INDUSTRIAL: P3.23.3.3.1 VACON®100 FLOW: P3.24.3.3.1 VACON®NX MP: P2.13.3.3.1	Mean Factor	-10.0	10.0.0	-	1.0	3550	-
VACON®100 INDUSTRIAL: P3.23.3.3.2 VACON®100 FLOW: P3.24.3.3.2 VACON®NX MP: P2.13.3.3.2	Min Factor	-10.0	10.0.0	-	0.0	3551	-

Index	Parameter	Min	Max	Unit	Default	ID	Description
VACON® 100 INDUSTRIAL: P3.23.3.3.3 VACON® 100 FLOW: P3.24.3.3.3 VACON® NX MP: P2.13.3.3.3	Max Factor	-10.0	10.0.0	-	0.0	3552	-
VACON® 100 INDUSTRIAL: P3.23.3.3.4 VACON® 100 FLOW: P3.24.3.3.4 VACON® NX MP: P2.13.3.3.4	Std Factor	0	10.0.0	-	3.0	3553	-
VACON® 100 INDUSTRIAL: P3.23.3.3.5 VACON® 100 FLOW: P3.24.3.3.5 VACON® NX MP: P2.13.3.3.5	Interpolation type	0	2	-	0	3554	0 = Constant 1 = Linear
3.23.3.4 or 3.24.3.4 or 2.13.3.4 Limits							
VACON® 100 INDUSTRIAL: P3.23.3.4.1 VACON® 100 FLOW: P3.24.3.4.1 VACON® NX MP: P2.13.3.4.1	Warning S1 Mode	0	2		0	3555	0 = Absolute Value 1 = Baseline Offset 2 = Baseline Factor
VACON® 100 INDUSTRIAL: P3.23.3.4.2 VACON® 100 FLOW: P3.24.3.4.2 VACON® NX MP: P2.13.3.4.2	Warning S1 High	0.00	100.00	%	0.00	3556	-
VACON® 100 INDUSTRIAL: P3.23.3.4.3 VACON® 100 FLOW: P3.24.3.4.3 VACON® NX MP: P2.13.3.4.3	Warning S1 Delay	0	3600	s	0	3557	-
VACON® 100 INDUSTRIAL: P3.23.3.4.4 VACON® 100 FLOW: P3.24.3.4.4 VACON® NX MP: P2.13.3.4.4	Warning S2 Mode	0	2		0	3558	0 = Absolute Value 1 = Baseline Offset 2 = Baseline Factor

Index	Parameter	Min	Max	Unit	Default	ID	Description
VACON® 100 INDUSTRIAL: P3.23.3.4.5 VACON® 100 FLOW: P3.24.3.4.5 VACON® NX MP: P2.13.3.4.5	Warning S2 High	0.00	100.00	%	0.00	3559	-
VACON® 100 INDUSTRIAL: P3.23.3.4.6 VACON® 100 FLOW: P3.24.3.4.6 VACON® NX MP: P2.13.3.4.6	Warning S2 Delay	0	3600	s	0	3560	-
VACON® 100 INDUSTRIAL: P3.23.3.4.7 VACON® 100 FLOW: P3.24.3.4.7 VACON® NX MP: P2.13.3.4.7	Alarm/Fault Mode	0	2		0	3561	0 = Absolute Value 1 = Baseline Offset 2 = Baseline Factor
VACON® 100 INDUSTRIAL: P3.23.3.4.8 VACON® 100 FLOW: P3.24.3.4.8 VACON® NX MP: P2.13.3.4.8	Alarm/Fault High	0.00	100.00	%	0.00	3562	-
VACON® 100 INDUSTRIAL: P3.23.3.4.9 VACON® 100 FLOW: P3.24.3.4.9 VACON® NX MP: P2.13.3.4.9	Alarm/Fault Delay	0	3600	s	0	3563	-

Table 6: 3.23.4 or 3.24.4 or 2.13.4 Load

Index	Parameter	Min	Max	Unit	Default	ID	Description
VACON® 100 INDUSTRIAL: P3.23.4.1 VACON® 100 FLOW: P3.24.4.1 VACON® NX MP: P2.13.4.1	Load Fault Mode	0	2	-	1	3589	0 = No Action 1 = Warning 2 = Fault, Warning
3.23.4.2 or 3.24.4.2 or 2.13.4.2 Threshold Value							
VACON® 100 INDUSTRIAL: P3.23.4.2.1 VACON® 100 FLOW: P3.24.4.2.1	Mean Factor	-10.0	10.0.0	-	1.0	3567	-

Index	Parameter	Min	Max	Unit	Default	ID	Description
VACON®NX MP: P2.13.4.2.1							
VACON®100 INDUSTRIAL: P3.23.4.2.2 VACON®100 FLOW: P3.24.4.2.2 VACON®NX MP: P2.13.4.2.2	Min Factor	-10.0	10.0.0	-	0.0	3568	-
VACON®100 INDUSTRIAL: P3.23.4.2.3 VACON®100 FLOW: P3.24.4.2.3 VACON®NX MP: P2.13.4.2.3	Max Factor	-10.0	10.0.0	-	0.0	3569	-
VACON®100 INDUSTRIAL: P3.23.4.2.4 VACON®100 FLOW: P3.24.4.2.4 VACON®NX MP: P2.13.4.2.4	Std Factor	0	10.0.0	-	3.0	3570	Absolute Value
VACON®100 INDUSTRIAL: P3.23.4.2.5 VACON®100 FLOW: P3.24.4.2.5 VACON®NX MP: P2.13.4.2.5	Interpolation Type	0	1	-	1	3571	0 = Constant 1 = Linear
3.23.4.3 or 3.24.4.3 or 2.13.4.3 Limits							
VACON®100 INDUSTRIAL: P3.23.4.3.1 VACON®100 FLOW: P3.24.4.3.1 VACON®NX MP: P2.13.4.3.1	Warning S1 Mode	0	2		0	3572	0 = Absolute Value 1 = Baseline Offset 2 = Baseline Factor
VACON®100 INDUSTRIAL: P3.23.4.3.2 VACON®100 FLOW: P3.24.4.3.2 VACON®NX MP: P2.13.4.3.2	Warning S1 Low	-300.0	300.0	%	0.00	3584	-
VACON®100 INDUSTRIAL: P3.23.4.3.3 VACON®100 FLOW: P3.24.4.3.3 VACON®NX MP:	Warning S1 High	-300.0	300.0	%	0.00	3573	-

Index	Parameter	Min	Max	Unit	Default	ID	Description
P2.13.4.3.3							
VACON®100 INDUSTRIAL: P3.23.4.3.4 VACON®100 FLOW: P3.24.4.3.4 VACON®NX MP: P2.13.4.3.4	Warning S1 Delay	0	3600	s	0	3574	-
VACON®100 INDUSTRIAL: P3.23.4.3.5 VACON®100 FLOW: P3.24.4.3.5 VACON®NX MP: P2.13.4.3.5	Warning S2 Mode	0	2		0	3575	0 = Absolute Value 1 = Baseline Offset 2 = Baseline Factor
VACON®100 INDUSTRIAL: P3.23.4.3.6 VACON®100 FLOW: P3.24.4.3.6 VACON®NX MP: P2.13.4.3.6	Warning S2 Low	-300.0	300.0	%	0.00	3585	-
VACON®100 INDUSTRIAL: P3.23.4.3.7 VACON®100 FLOW: P3.24.4.3.7 VACON®NX MP: P2.13.4.3.7	Warning S2 High	-300.0	300.0	%	0.00	3576	-
VACON®100 INDUSTRIAL: P3.23.4.3.8 VACON®100 FLOW: P3.24.4.3.8 VACON®NX MP: P2.13.4.3.8	Warning S2 Delay	0	3600	s	0	3577	-
VACON®100 INDUSTRIAL: P3.23.4.3.9 VACON®100 FLOW: P3.24.4.3.9 VACON®NX MP: P2.13.4.3.9	Alarm/Fault Mode	0	2		0	3578	0 = Absolute Value 1 = Baseline Offset 2 = Baseline Factor
VACON®100 INDUSTRIAL: P3.23.4.3.10 VACON®100 FLOW: P3.24.4.3.10 VACON®NX MP: P2.13.4.3.10	Alarm/Fault Low	-300.0	300.0	%	0.00	3586	-
VACON®100 INDUSTRIAL:	Alarm/Fault High	-300.0	300.0	%	0.00	3579	-

Index	Parameter	Min	Max	Unit	Default	ID	Description
P3.23.4.3.11 VACON®100 FLOW: P3.24.4.3.11 VACON®NX MP: P2.13.4.3.11							
VACON®100 INDUSTRIAL: P3.23.4.3.12 VACON®100 FLOW: P3.24.4.3.12 VACON®NX MP: P2.13.4.3.12	Alarm/Fault Delay	0	3600	s	0	3580	-

7 Monitoring Value Descriptions

7.1 Baseline Data

7.1.1 (ID 3622) Baseline Run Status

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.1.11**

Location in the VACON® NX Multi-Purpose menu: **V1.24.1.11**

Location in the VACON® NX SIA II and Marine menu: **V1.32.1.11**

This monitoring value shows the baseline run status.

7.1.2 (ID 3601) Baseline Data Element 1

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.1.1**

Location in the VACON® NX Multi-Purpose menu: **V1.24.1.1**

Location in the VACON® NX SIA II and Marine menu: **V1.32.1.1**

This monitoring value shows the baseline data. The baseline data is selected using the baseline data selector.

7.1.3 (ID 3602) Baseline Data Element 2

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.1.2**

Location in the VACON® NX Multi-Purpose menu: **V1.24.1.2**

Location in the VACON® NX SIA II and Marine menu: **V1.32.1.2**

This monitoring value shows the baseline data. The baseline data is selected using the baseline data selector.

7.1.4 (ID 3603) Baseline Data Element 3

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.1.3**

Location in the VACON® NX Multi-Purpose menu: **V1.24.1.3**

Location in the VACON® NX SIA II and Marine menu: **V1.32.1.3**

This monitoring value shows the baseline data. The baseline data is selected using the baseline data selector.

7.1.5 (ID 3604) Baseline Data Element 4

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.1.4**

Location in the VACON® NX Multi-Purpose menu: **V1.24.1.4**

Location in the VACON® NX SIA II and Marine menu: **V1.32.1.4**

This monitoring value shows the baseline data. The baseline data is selected using the baseline data selector.

7.1.6 (ID 3605) Baseline Data Element 5

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.1.5**

Location in the VACON® NX Multi-Purpose menu: **V1.24.1.5**

Location in the VACON® NX SIA II and Marine menu: **V1.32.1.5**

This monitoring value shows the baseline data. The baseline data is selected using the baseline data selector.

7.1.7 (ID 3606) Baseline Data Element 6

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.1.6**

Location in the VACON® NX Multi-Purpose menu: **V1.24.1.6**

Location in the VACON® NX SIA II and Marine menu: **V1.32.1.6**

This monitoring value shows the baseline data. The baseline data is selected using the baseline data selector.

7.1.8 (ID 3607) Baseline Data Element 7

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.1.7**

Location in the VACON® NX Multi-Purpose menu: **V1.24.1.7**

Location in the VACON® NX SIA II and Marine menu: **V1.32.1.7**

This monitoring value shows the baseline data. The baseline data is selected using the baseline data selector.

7.1.9 (ID 3608) Baseline Data Element 8

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.1.8**

Location in the VACON® NX Multi-Purpose menu: **V1.24.1.8**

Location in the VACON® NX SIA II and Marine menu: **V1.32.1.8**

This monitoring value shows the baseline data. The baseline data is selected using the baseline data selector.

7.1.10 (ID 3609) Baseline Data Element 9

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.1.9**

Location in the VACON® NX Multi-Purpose menu: **V1.24.1.9**

Location in the VACON® NX SIA II and Marine menu: **V1.32.1.9**

This monitoring value shows the baseline data. The baseline data is selected using the baseline data selector.

7.1.11 (ID 3610) Baseline Data Element 10

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.1.10**

Location in the VACON® NX Multi-Purpose menu: **V1.24.1.10**

Location in the VACON® NX SIA II and Marine menu: **V1.32.1.10**

This monitoring value shows the baseline data. The baseline data is selected using the baseline data selector.

7.2 Stator Winding Monitor

7.2.1 (ID 3617) Current Unbalance

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.2.1**

Location in the VACON® NX Multi-Purpose menu: **V1.24.2.1**

Location in the VACON® NX SIA II and Marine menu: **V1.32.2.1**

This monitoring value shows the current unbalance when condition-based monitoring is activated.

7.2.2 (ID 3620) Current Unbalance Threshold Value

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.2.2**

Location in the VACON® NX Multi-Purpose menu: **V1.24.2.2**

Location in the VACON® NX SIA II and Marine menu: **V1.32.2.2**

This monitoring value shows the threshold value after interpolating.

7.2.3 (ID 3611) Current Warning S1 High Threshold

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.2.3**

Location in the VACON® NX Multi-Purpose menu: **V1.24.2.3**

Location in the VACON® NX SIA II and Marine menu: **V1.32.2.3**

This monitoring value shows the warning S1 high threshold value.

7.2.4 (ID 3612) Current Warning S2 High Threshold

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.2.4**

Location in the VACON® NX Multi-Purpose menu: **V1.24.2.4**

Location in the VACON® NX SIA II and Marine menu: **V1.32.2.4**

This monitoring value shows the warning S2 high threshold value.

7.2.5 (ID 3613) Current Alarm High Threshold

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.2.5**

Location in the VACON® NX Multi-Purpose menu: **V1.24.2.5**

Location in the VACON® NX SIA II and Marine menu: **V1.32.2.5**

This monitoring value shows the alarm/fault high threshold value.

7.3 Vibration

7.3.1 (ID 3623) Vibration

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.3.1**

Location in the VACON® NX Multi-Purpose menu: **V1.24.3.1**

Location in the VACON® NX SIA II and Marine menu: **V1.32.3.1**

This monitoring value shows the vibration when condition-based monitoring is activated.

7.3.2 (ID 3624) Vibration Threshold Value

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.3.2**

Location in the VACON® NX Multi-Purpose menu: **V1.24.3.2**

Location in the VACON® NX SIA II and Marine menu: **V1.32.3.2**

This monitoring value shows the threshold value after interpolating.

7.3.3 (ID 3625) Vibration S1 High Threshold

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.3.3**

Location in the VACON® NX Multi-Purpose menu: **V1.24.3.3**

Location in the VACON® NX SIA II and Marine menu: **V1.32.3.3**

This monitoring value shows the warning S1 high threshold value.

7.3.4 (ID 3626) Vibration S2 High Threshold

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.3.4**

Location in the VACON® NX Multi-Purpose menu: **V1.24.3.4**

Location in the VACON® NX SIA II and Marine menu: **V1.32.3.4**

This monitoring value shows the warning S2 high threshold value.

7.3.5 (ID 3627) Vibration Alarm High Threshold

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.3.5**

Location in the VACON® NX Multi-Purpose menu: **V1.24.3.5**

Location in the VACON® NX SIA II and Marine menu: **V1.32.3.5**

This monitoring value shows the alarm/fault high threshold value.

7.4 Load

7.4.1 (ID 3628) Load Threshold Value

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.4.2**

Location in the VACON® NX Multi-Purpose menu: **V1.24.4.2**

Location in the VACON® NX SIA II and Marine menu: **V1.32.4.2**

This monitoring value shows the threshold value after interpolating.

7.4.2 (ID 3629) Load S1 High Threshold

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.4.3**

Location in the VACON® NX Multi-Purpose menu: **V1.24.4.3**

Location in the VACON® NX SIA II and Marine menu: **V1.32.4.3**

This monitoring value shows the warning S1 high threshold value.

7.4.3 (ID 3630) Load S2 High Threshold

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.4.4**

Location in the VACON® NX Multi-Purpose menu: **V1.24.4.4**

Location in the VACON® NX SIA II and Marine menu: **V1.32.4.4**

This monitoring value shows the warning S2 high threshold value.

7.4.4 (ID 3631) Load Alarm High Threshold

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.4.5**

Location in the VACON® NX Multi-Purpose menu: **V1.24.4.5**

Location in the VACON® NX SIA II and Marine menu: **V1.32.4.5**

This monitoring value shows the alarm/fault high threshold value.

7.4.5 (ID 3635) Load Baseline Value Low

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.4.6**

Location in the VACON® NX Multi-Purpose menu: **V1.24.4.6**

Location in the VACON® NX SIA II and Marine menu: **V1.32.4.6**

This monitoring value shows the threshold value after interpolating.

7.4.6 (ID 3632) Load S1 Low Threshold

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.4.7**

Location in the VACON® NX Multi-Purpose menu: **V1.24.4.7**

Location in the VACON® NX SIA II and Marine menu: **V1.32.4.7**

This monitoring value shows the warning S1 low threshold value.

7.4.7 (ID 3633) Load S2 Low Threshold

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.4.8**

Location in the VACON® NX Multi-Purpose menu: **V1.24.4.8**

Location in the VACON® NX SIA II and Marine menu: **V1.32.4.8**

This monitoring value shows the warning S2 low threshold value.

7.4.8 (ID 3634) Load Alarm Low Threshold

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.4.9**

Location in the VACON® NX Multi-Purpose menu: **V1.24.4.9**

Location in the VACON® NX SIA II and Marine menu: **V1.32.4.9**

This monitoring value shows the alarm/fault low threshold value.

7.5 (ID 3619) Condition-based Monitoring Status

Location in the VACON® 100 FLOW and INDUSTRIAL menu: **V2.16.5**

Location in the VACON® NX Multi-Purpose menu: **V1.24.5**

Location in the VACON® NX SIA II and Marine menu: **V1.32.5**

This monitoring value shows the fault status of the condition-based monitoring.

8 Parameter Descriptions

8.1 (ID 3501) Baseline Type

Location in the VACON® 100 FLOW menu: **P3.24.1.1**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.1.1**

Location in the VACON® NX Multi-Purpose menu: **P2.13.1.1**

Location in the VACON® NX SIA II menu: **P2.19.1.1**

Location in the VACON® NX Marine menu: **P2.19.1.1**

Use this parameter to select the baseline type.

- 1. Baseline Run

A baseline run is made before normal operation. The idea is to compare actual measurements to measurements taken when the system was in healthy/normal condition. The measurements from the healthy condition are called the baseline.

In a baseline run, the measurements of the motor current unbalance for stator winding, vibration, and load are collected.

The baseline run goes through 10 frequency points including 10 steady and 9 ramp states. It collects the minimum, maximum, mean, and standard deviation values, and stores the statistical baseline data in arrays. A normal start command is required after baseline run start.

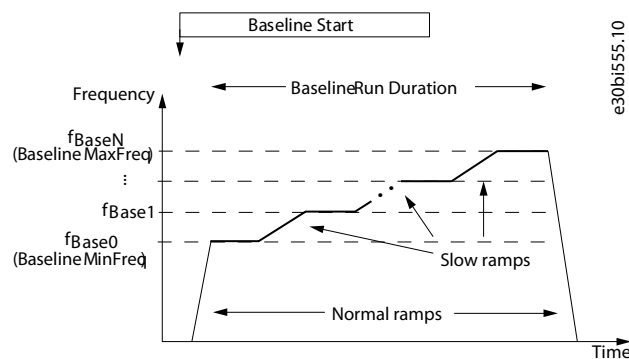


Illustration 8: BaselineRun Start

- 2. Online

An online baseline can be done during normal operation when the process is running. For a user-specified time, the drive gathers the relevant signals. Signals are only gathered between baseline minimum and maximum frequencies, when the signal is inside the speed band. This method provides a better representation of normal variation in the application.

- 3. Baseline Finished

This option is automatically selected after a successful baseline operation. This option must also be selected after a manual baseline is finished. Condition based monitoring can start when the baseline is finished.

8.2 (ID 3502) Baseline MinFreq

Location in the VACON® 100 FLOW menu: **P3.24.1.2**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.1.2**

Location in the VACON® NX Multi-Purpose menu: **P2.13.1.2**

Location in the VACON® NX SIA II menu: **P2.19.1.2**

Location in the VACON® NX Marine menu: **P2.19.1.2**

Use this parameter to set the frequency point where the baseline run is started.

8.3 (ID 3503) Baseline MaxFreq

Location in the VACON® 100 FLOW menu: **P3.24.1.3**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.1.3**

Location in the VACON® NX Multi-Purpose menu: **P2.13.1.3**

Location in the VACON® NX SIA II menu: **P2.19.1.3**

Location in the VACON® NX Marine menu: **P2.19.1.3**

Use this parameter to set frequency point where baseline run is ended.

8.4 (ID 3504) Baseline Duration

Location in the VACON® 100 FLOW menu: **P3.24.1.4**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.1.4**

Location in the VACON® NX Multi-Purpose menu: **P2.13.1.4**

Location in the VACON® NX SIA II menu: **P2.19.1.4**

Location in the VACON® NX Marine menu: **P2.19.1.4**

Use this parameter to set the duration of the baseline run.

The maximum value is 120 minutes for baseline run and 300 000 minutes for online baseline.

8.5 Manual Run

Before or after baseline run, each measurement point can be modified by parameter. One array includes 10 points in steady state and 9 points in ramp state.

8.5.1 (ID 3506) Modified Array

Location in the VACON® 100 FLOW menu: **P3.24.1.5**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.1.5**

Location in the VACON® NX Multi-Purpose menu: **P2.13.1.5**

Location in the VACON® NX SIA II menu: **P2.19.1.5**

Location in the VACON® NX Marine menu: **P2.19.1.5**

Use this parameter to change the modified array:

Table 7: Selection table

Selection number	Selection name
0	Freq Points
1	Current Max
2	Current Min
3	Current Mean
4	Current Std
5	Vibration Max
6	Vibration Min
7	Vibration Mean
8	Vibration Std
9	Load Max
10	Load Min
11	Load Mean
12	Load Std

8.5.2 (ID 3507) Modified Point

Location in the VACON® 100 FLOW menu: **P3.24.1.6**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.1.6**

Location in the VACON® NX Multi-Purpose menu: **P2.13.1.6**

Location in the VACON® NX SIA II menu: **P2.19.1.6**

Location in the VACON® NX Marine menu: **P2.19.1.6**

Use this parameter to modify a measurement point in the array.

8.5.3 (ID 3508) Modified Value

Location in the VACON® 100 FLOW menu: **P3.24.1.7**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.1.7**

Location in the VACON® NX Multi-Purpose menu: **P2.13.1.7**

Location in the VACON® NX SIA II menu: **P2.19.1.7**

Location in the VACON® NX Marine menu: **P2.19.1.7**

Use this parameter to give a new value to the point selected with *ID 3507*.

8.5.4 (ID 3505) Modified Activation

Location in the VACON® 100 FLOW menu: **P3.24.1.8**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.1.8**

Location in the VACON® NX Multi-Purpose menu: **P2.13.1.8**

Location in the VACON® NX SIA II menu: **P2.19.1.8**

Location in the VACON® NX Marine menu: **P2.19.1.8**

Before or after the baseline run, each measurement point can be modified. Use this parameter to activate the *Modified value (ID 3508)* of the *Modified point (ID 3507)*.

8.5.5 (ID 3509) Baseline Data Selector

Location in the VACON® 100 FLOW menu: **P3.24.1.9**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.1.9**

Location in the VACON® NX Multi-Purpose menu: **P2.13.1.9**

Location in the VACON® NX SIA II menu: **P2.19.1.9**

Location in the VACON® NX Marine menu: **P2.19.1.9**

Use this parameter to select which array points can be monitored in monitor group *M2.16.1 Baseline data*:

Table 8: Selection table

Selection number	Selection name
0	Freq Points
1	Current Max
2	Current Min
3	Current Mean
4	Current Std
5	Vibration Max
6	Vibration Min
7	Vibration Mean
8	Vibration Std
9	Load Max
10	Load Min
11	Load Mean
12	Load Std
13	Current Counter (Online)
14	Vibration Counter (Online)
15	Load Counter (Online)

The counter shows the stored two minutes of captured monitoring values of the speed points.

8.5.6 (ID 3510) Speed Band

Location in the VACON® 100 FLOW menu: **P3.24.1.10**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.1.10**

Location in the VACON® NX Multi-Purpose menu: **P2.13.1.10**

Location in the VACON® NX SIA II menu: **P2.19.1.10**

Location in the VACON® NX Marine menu: **P2.19.1.10**

Use this parameter to define a window for capturing the baseline data of different speed points when the speed of the drive is within the specified band range. Setting the parameter increases the chance of capturing all speed points in online baseline mode.

8.6 Stator Winding Monitoring

For stator winding monitoring, the motor currents are being evaluated for evolving unbalances. For this purpose, current unbalance is computed and monitored. If there are the unbalanced grid voltages, a resonance-like oscillation can occur if the motor frequency matches the grid frequency.

8.6.1 (ID 3540) Stator Winding Fault Mode

Location in the VACON® 100 FLOW menu: **P3.24.2.1**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.1**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.1**

Location in the VACON® NX SIA II menu: **P2.19.2.1**

Location in the VACON® NX Marine menu: **P2.19.2.1**

Use this parameter to set the response of the drive to an exception.

Selection number	Selection name	Description
0	No Action	
1	Warnings	Warning levels S1 and S2 are used.
2	Fault + Warnings	Warning S1, warning S2 and alarm/fault levels are used.

8.6.2 (ID 1913) Line Freq

Location in the VACON® 100 FLOW menu: **P3.24.2.2**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.2**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.2**

Location in the VACON® NX SIA II menu: **P2.19.2.2**

Location in the VACON® NX Marine menu: **P2.19.2.2**

Use this parameter to set the grid Nominal Frequency.

8.6.3 (ID 1914) Line Freq Hysteresis

Location in the VACON® 100 FLOW menu: **P3.24.2.3**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.3**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.3**

Location in the VACON® NX SIA II menu: **P2.19.2.3**

Location in the VACON® NX Marine menu: **P2.19.2.3**

Use this parameter to set the hysteresis of the grid Nominal Frequency. Stator winding monitoring is not used in the hysteresis area.

8.7 Vibration

8.7.1 (ID 3588) Vibration Fault Mode

Location in the VACON® 100 FLOW menu: **P3.24.3.1**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.1**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.1**

Location in the VACON® NX SIA II menu: **P2.19.3.1**

Location in the VACON® NX Marine menu: **P2.19.3.1**

Use this parameter to set the response of the drive to an exception.

Selection number	Selection name	Description
0	No Action	
1	Warnings	Warning levels S1 and S2 are used.
2	Fault + Warnings	Warning S1, warning S2 and alarm/fault levels are used.

8.7.2 (ID 3587) Vibration Input

Location in the VACON® 100 FLOW menu: **P3.24.3.2**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.2**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.2**

Location in the VACON® NX SIA II menu: **P2.19.3.2**

Location in the VACON® NX Marine menu: **P2.19.3.2**

Use this parameter to select the analog input to vibration.

Table 9: Selection table

Selection number	Selection name
0	Not Used
1	AI1
2	AI2
3	AI3
4	AI4

8.8 Load

8.8.1 (ID 3589) Load Fault Mode

Location in the VACON® 100 FLOW menu: **P3.24.4.1**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.1**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.1**

Location in the VACON® NX SIA II menu: **P2.19.4.1**

Location in the VACON® NX Marine menu: **P2.19.4.1**

Use this parameter to set the response of the drive to an exception.

Selection number	Selection name	Description
0	No Action	
1	Warnings	Warning levels S1 and S2 are used.
2	Fault + Warnings	Warning S1, warning S2 and alarm/fault levels are used.

8.9 Threshold Value

The several statistical data points (mean, minimum, maximum, and standard) from the baseline model can be combined to one threshold value.

Threshold value = MeanFactor * mean + MinFactor * min + MaxFactor * max + StdFactor * stddev

8.9.1 (ID 3511) Current Mean Factor

Location in the VACON® 100 FLOW menu: **P3.24.2.4.1.1**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.1.1**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.1.1**

Location in the VACON® NX SIA II menu: **P2.19.2.4.1.1**

Location in the VACON® NX Marine menu: **P2.19.2.4.1.1**

Use this parameter to set the mean factor in the threshold value. If the threshold value is zero, the mean factor is not used.

8.9.2 (ID 3512) Current Min Factor

Location in the VACON® 100 FLOW menu: **P3.24.2.4.1.2**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.1.2**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.1.2**

Location in the VACON® NX SIA II menu: **P2.19.2.4.1.2**

Location in the VACON® NX Marine menu: **P2.19.2.4.1.2**

Use this parameter to set min factor in the threshold value. If the threshold value is zero, the min factor is not used.

8.9.3 (ID 3513) Current Max Factor

Location in the VACON® 100 FLOW menu: **P3.24.2.4.1.3**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.1.3**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.1.3**

Location in the VACON® NX SIA II menu: **P2.19.2.4.1.3**

Location in the VACON® NX Marine menu: **P2.19.2.4.1.3**

Use this parameter to set the max factor in the threshold value. If the threshold value is zero, the max factor is not used.

8.9.4 (ID 3514) Current Std Factor

Location in the VACON® 100 FLOW menu: **P3.24.2.4.1.4**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.1.4**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.1.4**

Location in the VACON® NX SIA II menu: **P2.19.2.4.1.4**

Location in the VACON® NX Marine menu: **P2.19.2.4.1.4**

Use this parameter to set the std factor in the threshold value. If the threshold value is zero, the std factor is not used.

8.9.5 (ID 3515) Current Interpolation Type

Location in the VACON® 100 FLOW menu: **P3.24.2.4.1.5**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.1.5**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.1.5**

Location in the VACON® NX SIA II menu: **P2.19.2.4.1.5**

Location in the VACON® NX Marine menu: **P2.19.2.4.1.5**

Use this parameter to select interpolation type for the notification threshold values across frequency points.

Table 10: Selection table

Selection number	Selection name
0	Constant
1	Linear

8.9.6 (ID 3550) Vibration Mean Factor

Location in the VACON® 100 FLOW menu: **P3.24.3.3.1**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.3.1**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.3.1**

Location in the VACON® NX SIA II menu: **P2.19.3.3.1**

Location in the VACON® NX Marine menu: **P2.19.3.3.1**

Use this parameter to set the mean factor in the threshold value. If the threshold value is zero, the mean factor is not used.

8.9.7 (ID 3551) Vibration Min Factor

Location in the VACON® 100 FLOW menu: **P3.24.3.3.2**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.3.2**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.3.2**

Location in the VACON® NX SIA II menu: **P2.19.3.3.2**

Location in the VACON® NX Marine menu: **P2.19.3.3.2**

Use this parameter to set the min factor in the threshold value. If the threshold value is zero, the min factor is not used.

8.9.8 (ID 3552) Vibration Max Factor

Location in the VACON® 100 FLOW menu: **P3.24.3.3.3**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.3.3**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.3.3**

Location in the VACON® NX SIA II menu: **P2.19.3.3.3**

Location in the VACON® NX Marine menu: **P2.19.3.3.3**

Use this parameter to set the max factor in the threshold value. If the threshold value is zero, the max factor is not used.

8.9.9 (ID 3553) Vibration Std Factor

Location in the VACON® 100 FLOW menu: **P3.24.3.3.4**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.3.4**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.3.4**

Location in the VACON® NX SIA II menu: **P2.19.3.3.4**

Location in the VACON® NX Marine menu: **P2.19.3.3.4**

Use this parameter to set the std factor in the threshold value. If the threshold value is zero, the std factor is not used.

8.9.10 (ID 3554) Vibration Interpolation Type

Location in the VACON® 100 FLOW menu: **P3.24.3.3.5**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.3.5**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.3.5**

Location in the VACON® NX SIA II menu: **P2.19.3.3.5**

Location in the VACON® NX Marine menu: **P2.19.3.3.5**

Use this parameter to select interpolation type for the notification threshold values across frequency points.

Table 11: Selection table

Selection number	Selection name
0	Constant
1	Linear

8.9.11 (ID 3567) Load Mean Factor

Location in the VACON® 100 FLOW menu: **P3.24.4.2.1**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.2.1**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.2.1**

Location in the VACON® NX SIA II menu: **P2.19.4.2.1**

Location in the VACON® NX Marine menu: **P2.19.4.2.1**

Use this parameter to set the mean factor in the threshold value. If the threshold value is zero, the mean factor is not used.

8.9.12 (ID 3568) Load Min Factor

Location in the VACON® 100 FLOW menu: **P3.24.4.2.2**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.2.2**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.2.2**

Location in the VACON® NX SIA II menu: **P2.19.4.2.2**

Location in the VACON® NX Marine menu: **P2.19.4.2.2**

Use this parameter to set the min factor in the threshold value. If the threshold value is zero, the min factor is not used.

8.9.13 (ID 3569) Load Max Factor

Location in the VACON® 100 FLOW menu: **P3.24.4.2.3**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.2.3**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.2.3**

Location in the VACON® NX SIA II menu: **P2.19.4.2.3**

Location in the VACON® NX Marine menu: **P2.19.4.2.3**

Use this parameter to set the max factor in the threshold value. If the threshold value is zero, the max factor is not used.

8.9.14 (ID 3570) Load Std Factor

Location in the VACON® 100 FLOW menu: **P3.24.4.2.4**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.2.4**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.2.4**

Location in the VACON® NX SIA II menu: **P2.19.4.2.4**

Location in the VACON® NX Marine menu: **P2.19.4.2.4**

Use this parameter to set the std factor in the threshold value. If the threshold value is zero, the std factor is not used.

8.9.15 (ID 3571) Load Interpolation Type

Location in the VACON® 100 FLOW menu: **P3.24.4.2.5**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.2.5**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.2.5**

Location in the VACON® NX SIA II menu: **P2.19.4.2.5**

Location in the VACON® NX Marine menu: **P2.19.4.2.5**

Use this parameter to select interpolation type for the notification threshold values across frequency points.

Table 12: Selection table

Selection number	Selection name
0	Constant
1	Linear

8.10 Warning and Alarm/Fault Stages

Each of the three detection levels (Warning S1, Warning S2, Alarm/Fault) has a configurable timer associated that delays the response. The timing principle is like an electrical fuse where the response time is long for low levels and it is short for high levels.

8.10.1 (ID 3516) Current Warning S1 Mode

Location in the VACON® 100 FLOW menu: **P3.24.2.4.2.1**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.2.1**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.2.1**

Location in the VACON® NX SIA II menu: **P2.19.2.4.2.1**

Location in the VACON® NX Marine menu: **P2.19.2.4.2.1**

Use this parameter to select the warning S1 mode which is used for calculating warning S1 notification threshold.

Selection number	Selection name	Description
0	Absolute	The threshold is an absolute value
1	Offset	Calculates threshold as sum of the computed baseline data and the offset values
2	Factor	Calculates threshold as baseline data factor

8.10.2 (ID 3517) Current Warning S1 High

Location in the VACON® 100 FLOW menu: **P3.24.2.4.2.2**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.2.2**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.2.2**

Location in the VACON® NX SIA II menu: **P2.19.2.4.2.2**

Location in the VACON® NX Marine menu: **P2.19.2.4.2.2**

Use this parameter to set the threshold value for computing the warning 1 high notification threshold. Threshold value range varies based on warning mode selection. This limit is not used when value is zero.

8.10.3 (ID 3518) Current Warning S1 Delay

Location in the VACON® 100 FLOW menu: **P3.24.2.4.2.3**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.2.3**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.2.3**

Location in the VACON® NX SIA II menu: **P2.19.2.4.2.3**

Location in the VACON® NX Marine menu: **P2.19.2.4.2.3**

Use this parameter to define the length of time the actual value must be above the warning S1 notification level to trigger the warning S1. This level is not used when delay is zero.

8.10.4 (ID 3519) Current Warning S2 Mode

Location in the VACON® 100 FLOW menu: **P3.24.3.3.2.4**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.3.2.4**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.3.2.4**

Location in the VACON® NX SIA II menu: **P2.19.3.3.2.4**

Location in the VACON® NX Marine menu: **P2.19.3.3.2.4**

Use this parameter to select the warning S2 mode which is used for calculating warning S2 notification threshold.

Selection number	Selection name	Description
0	Absolute	The threshold is an absolute value
1	Offset	Calculates threshold as sum of the computed baseline data and the offset values
2	Factor	Calculates threshold as baseline data factor

8.10.5 (ID 3520/3720) Current Warning S2 High

VACON® 100 FLOW ID: 3520. Location in the VACON® 100 FLOW menu: **P3.24.2.4.2.5**

VACON® 100 INDUSTRIAL ID: 3520. Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.2.5**

VACON® NX Multi-Purpose ID: 3720. Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.2.5**

VACON® NX SIA II ID: 3520. Location in the VACON® NX SIA II menu: **P2.19.2.4.2.5**

VACON® NX Marine ID: 3720. Location in the VACON® NX Marine menu: **P2.19.2.4.2.5**

Use this parameter to set the threshold value for computing the warning 2 high notification threshold. Threshold value range varies based on warning mode selection. This limit is not used when value is zero.

8.10.6 (ID 3521/3721) Current Warning S2 Delay

VACON® 100 FLOW ID: 3521. Location in the VACON® 100 FLOW menu: **P3.24.2.4.2.6**

VACON® 100 INDUSTRIAL ID: 3521. Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.2.6**

VACON® NX Multi-Purpose ID: 3721. Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.2.6**

VACON® NX SIA II ID: 3521. Location in the VACON® NX SIA II menu: **P2.19.2.4.2.6**

VACON® NX Marine ID: 3721. Location in the VACON® NX Marine menu: **P2.19.2.4.2.6**

Use this parameter to define the length of time the actual value must be above the warning S2 notification level to trigger the warning S2. This level is not used when delay is zero.

8.10.7 (ID 3522) Current Alarm/Fault Mode

Location in the VACON® 100 FLOW menu: **P3.24.2.4.2.7**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.2.7**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.2.7**

Location in the VACON® NX SIA II menu: **P2.19.2.4.2.7**

Location in the VACON® NX Marine menu: **P2.19.2.4.2.7**

Use this parameter to select the alarm/fault mode which is used for calculating alarm/fault notification threshold.

Selection number	Selection name	Description
0	Absolute	The threshold is an absolute value
1	Offset	Calculates threshold as sum of the computed baseline data and the offset values
2	Factor	Calculates threshold as baseline data factor

8.10.8 (ID 3523) Current Alarm/Fault High

Location in the VACON® 100 FLOW menu: **P3.24.2.4.2.8**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.2.8**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.2.8**

Location in the VACON® NX SIA II menu: **P2.19.2.4.2.8**

Location in the VACON® NX Marine menu: **P2.19.2.4.2.8**

Use this parameter to set the threshold value for computing the alarm/fault high notification threshold. Threshold value range varies based on alarm/fault mode selection. This limit is not used when value is zero.

8.10.9 (ID 3524) Current Alarm/Fault Delay

Location in the VACON® 100 FLOW menu: **P3.24.2.4.2.9**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.2.4.2.9**

Location in the VACON® NX Multi-Purpose menu: **P2.13.2.4.2.9**

Location in the VACON® NX SIA II menu: **P2.19.2.4.2.9**

Location in the VACON® NX Marine menu: **P2.19.2.4.2.9**

Use this parameter to define the length of time the actual value must be above the alarm/fault notification level to trigger the alarm/fault. This level is not used when delay is zero.

8.10.10 (ID 3555) Vibration Warning S1 Mode

Location in the VACON® 100 FLOW menu: **P3.24.3.4.1**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.4.1**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.4.1**

Location in the VACON® NX SIA II menu: **P2.19.3.4.1**

Location in the VACON® NX Marine menu: **P2.19.3.4.1**

Use this parameter to select the warning S1 mode which is used for calculating warning S1 notification threshold.

Selection number	Selection name	Description
0	Absolute	The threshold is an absolute value
1	Offset	Calculates threshold as sum of the computed baseline data and the offset values
2	Factor	Calculates threshold as baseline data factor

8.10.11 (ID 3556) Vibration Warning S1 High

Location in the VACON® 100 FLOW menu: **P3.24.3.4.2**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.4.2**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.4.2**

Location in the VACON® NX SIA II menu: **P2.19.3.4.2**

Location in the VACON® NX Marine menu: **P2.19.3.4.2**

Use this parameter to set the threshold value for computing the warning 1 high notification threshold. Threshold value range varies based on warning mode selection. This limit is not used when value is zero.

8.10.12 (ID 3557) Vibration Warning S1 Delay

Location in the VACON® 100 FLOW menu: **P3.24.3.4.3**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.4.3**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.4.3**

Location in the VACON® NX SIA II menu: **P2.19.3.4.3**

Location in the VACON® NX Marine menu: **P2.19.3.4.3**

Use this parameter to define the length of time the actual value must be above the warning S1 notification level to trigger the warning S1. This level is not used when delay is zero.

8.10.13 (ID 3558) Vibration Warning S2 Mode

Location in the VACON® 100 FLOW menu: **P3.24.3.4.4**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.4.4**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.4.4**

Location in the VACON® NX SIA II menu: **P2.19.3.4.4**

Location in the VACON® NX Marine menu: **P2.19.3.4.4**

Use this parameter to select the warning S2 mode which is used for calculating warning S2 notification threshold.

Selection number	Selection name	Description
0	Absolute	The threshold is an absolute value
1	Offset	Calculates threshold as sum of the computed baseline data and the offset values
2	Factor	Calculates threshold as baseline data factor

8.10.14 (ID 3559) Vibration Warning S2 High

Location in the VACON® 100 FLOW menu: **P3.24.3.4.5**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.4.5**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.4.5**

Location in the VACON® NX SIA II menu: **P2.19.3.4.5**

Location in the VACON® NX Marine menu: **P2.19.3.4.5**

Use this parameter to set the threshold value for computing the warning 2 high notification threshold. Threshold value range varies based on warning mode selection. This limit is not used when value is zero.

8.10.15 (ID 3560) Vibration Warning S2 Delay

Location in the VACON® 100 FLOW menu: **P3.24.3.4.6**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.4.6**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.4.6**

Location in the VACON® NX SIA II menu: **P2.19.3.4.6**

Location in the VACON® NX Marine menu: **P2.19.3.4.6**

Use this parameter to define the length of time the actual value must be above the warning S2 notification level to trigger the warning S2. This level is not used when delay is zero.

8.10.16 (ID 3561) Vibration Alarm/Fault Mode

Location in the VACON® 100 FLOW menu: **P3.24.3.4.7**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.4.7**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.4.7**

Location in the VACON® NX SIA II menu: **P2.19.3.4.7**

Location in the VACON® NX Marine menu: **P2.19.3.4.7**

Use this parameter to select the alarm/fault mode which is used for calculating alarm/fault notification threshold.

Selection number	Selection name	Description
0	Absolute	The threshold is an absolute value
1	Offset	Calculates threshold as sum of the computed baseline data and the offset values
2	Factor	Calculates threshold as baseline data factor

8.10.17 (ID 3562) Vibration Alarm/Fault High

Location in the VACON® 100 FLOW menu: **P3.24.3.4.8**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.4.8**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.4.8**

Location in the VACON® NX SIA II menu: **P2.19.3.4.8**

Location in the VACON® NX Marine menu: **P2.19.3.4.8**

Use this parameter to set the threshold value for computing the alarm/fault high notification threshold. Threshold value range varies based on warning mode selection. This limit is not used when value is zero.

8.10.18 (ID 3563) Vibration Alarm/Fault Delay

Location in the VACON® 100 FLOW menu: **P3.24.3.4.9**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.3.4.9**

Location in the VACON® NX Multi-Purpose menu: **P2.13.3.4.9**

Location in the VACON® NX SIA II menu: **P2.19.3.4.9**

Location in the VACON® NX Marine menu: **P2.19.3.4.9**

Use this parameter to define the length of time the actual value must be above the alarm/fault notification level to trigger the alarm/fault. This level is not used when delay is zero.

8.10.19 (ID 3572) Load Warning S1 Mode

Location in the VACON® 100 FLOW menu: **P3.24.4.3.1**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.3.1**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.3.1**

Location in the VACON® NX SIA II menu: **P2.19.4.3.1**

Location in the VACON® NX Marine menu: **P2.19.4.3.1**

Use this parameter to select the warning S1 mode which is used for calculating warning S1 notification threshold.

Selection number	Selection name	Description
0	Absolute	The threshold is an absolute value
1	Offset	Calculates threshold as sum of the computed baseline data and the offset values
2	Factor	Calculates threshold as baseline data factor

8.10.20 (ID 3573) Load Warning S1 High

Location in the VACON® 100 FLOW menu: **P3.24.4.3.3**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.3.3**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.3.3**

Location in the VACON® NX SIA II menu: **P2.19.4.3.3**

Location in the VACON® NX Marine menu: **P2.19.4.3.3**

Use this parameter to set the threshold value for computing the warning 1 high notification threshold. Threshold value range varies based on warning mode selection. This limit is not used when value is zero.

8.10.21 (ID 3574) Load Warning S1 Delay

Location in the VACON® 100 FLOW menu: **P3.24.4.3.4**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.3.4**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.3.4**

Location in the VACON® NX SIA II menu: **P2.19.4.3.4**

Location in the VACON® NX Marine menu: **P2.19.4.3.4**

Use this parameter to define the length of time the actual value must be above the warning S1 notification level to trigger the warning S1. This level is not used when delay is zero.

8.10.22 (ID 3575) Load Warning S2 Mode

Location in the VACON® 100 FLOW menu: **P3.24.4.3.5**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.3.5**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.3.5**

Location in the VACON® NX SIA II menu: **P2.19.4.3.5**

Location in the VACON® NX Marine menu: **P2.19.4.3.5**

Use this parameter to select the warning S2 mode which is used for calculating warning S2 notification threshold.

Selection number	Selection name	Description
0	Absolute	The threshold is an absolute value
1	Offset	Calculates threshold as sum of the computed baseline data and the offset values
2	Factor	Calculates threshold as baseline data factor

8.10.23 (ID 3576) Load Warning S2 High

Location in the VACON® 100 FLOW menu: **P3.24.4.3.7**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.3.7**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.3.7**

Location in the VACON® NX SIA II menu: **P2.19.4.3.7**

Location in the VACON® NX Marine menu: **P2.19.4.3.7**

Use this parameter to set the threshold value for computing the warning 2 high notification threshold. Threshold value range varies based on warning mode selection. This limit is not used when value is zero.

8.10.24 (ID 3577) Load Warning S2 Delay

Location in the VACON® 100 FLOW menu: **P3.24.4.3.8**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.3.8**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.3.8**

Location in the VACON® NX SIA II menu: **P2.19.4.3.8**

Location in the VACON® NX Marine menu: **P2.19.4.3.8**

Use this parameter to define the length of time the actual value must be above the warning S2 notification level to trigger the warning S2. This level is not used when delay is zero.

8.10.25 (ID 3578) Load Alarm/Fault Mode

Location in the VACON® 100 FLOW menu: **P3.24.4.3.9**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.3.9**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.3.9**

Location in the VACON® NX SIA II menu: **P2.19.4.3.9**

Location in the VACON® NX Marine menu: **P2.19.4.3.9**

Use this parameter to select the alarm/fault mode which is used for calculating alarm/fault notification threshold.

Selection number	Selection name	Description
0	Absolute	The threshold is an absolute value
1	Offset	Calculates threshold as sum of the computed baseline data and the offset values
2	Factor	Calculates threshold as baseline data factor

8.10.26 (ID 3579) Load Alarm/Fault High

Location in the VACON® 100 FLOW menu: **P3.24.4.3.11**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.3.11**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.3.11**

Location in the VACON® NX SIA II menu: **P2.19.4.3.11**

Location in the VACON® NX Marine menu: **P2.19.4.3.11**

Use this parameter to set the threshold value for computing the alarm/fault high notification threshold. Threshold value range varies based on warning mode selection. This limit is not used when value is zero.

8.10.27 (ID 3580) Load Alarm/Fault Delay

Location in the VACON® 100 FLOW menu: **P3.24.4.3.12**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.3.12**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.3.12**

Location in the VACON® NX SIA II menu: **P2.19.4.3.12**

Location in the VACON® NX Marine menu: **P2.19.4.3.12**

Use this parameter to define the length of time the actual value must be above the alarm/fault notification level to trigger the alarm/fault. This level is not used when delay is zero.

8.10.28 (ID 3584) Load Warning S1 Low

Location in the VACON® 100 FLOW menu: **P3.24.4.3.2**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.3.2**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.3.2**

Location in the VACON® NX SIA II menu: **P2.19.4.3.2**

Location in the VACON® NX Marine menu: **P2.19.4.3.2**

Use this parameter to set the threshold value for computing the warning 1 low notification threshold. Threshold value range varies based on warning mode selection. This limit is not used when value is zero.

8.10.29 (ID 3585) Load Warning S2 Low

Location in the VACON® 100 FLOW menu: **P3.24.4.3.6**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.3.6**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.3.6**

Location in the VACON® NX SIA II menu: **P2.19.4.3.6**

Location in the VACON® NX Marine menu: **P2.19.4.3.6**

Use this parameter to set the threshold value for computing the warning 2 low notification threshold. Threshold value range varies based on warning mode selection. This limit is not used when value is zero.

8.10.30 (ID 3586) Load Alarm/Fault Low

Location in the VACON® 100 FLOW menu: **P3.24.4.3.10**

Location in the VACON® 100 INDUSTRIAL menu: **P3.23.4.3.10**

Location in the VACON® NX Multi-Purpose menu: **P2.13.4.3.10**

Location in the VACON® NX SIA II menu: **P2.19.4.3.10**

Location in the VACON® NX Marine menu: **P2.19.4.3.10**

Use this parameter to set the threshold value for computing the alarm/fault low notification threshold. Threshold value range varies based on warning mode selection. This limit is not used when value is zero.

9 VACON 100 Fault Codes

9.1 Fault Code 70, ID 1120 - BaselineRun Failed

Cause

- There was a failure during the baseline run.

Troubleshooting

- Do a check of the parameters in the baseline run settings.

9.2 Fault Code 71, ID 1121 - Stator Winding: Current Warning S1

Cause

- Current unbalance has exceeded the detection high limit. Early fault detected in motor.

Troubleshooting

- Check motor stator windings.

9.3 Fault Code 71, ID 1122 - Stator Winding: Current Warning S2

Cause

- Current unbalance has exceeded the detection high limit. Severe fault can soon occur in the motor.

Troubleshooting

- Check motor stator windings.

9.4 Fault Code 71, ID 1123 - Stator Winding: Current Alarm/Fault

Cause

- Current unbalance has exceeded the detection high limit. Severe fault is detected in motor.

Troubleshooting

- Check motor stator windings.

9.5 Fault Code 71, ID 1127 - Vibration Warning S1

Cause

- Vibration has exceeded the detection high limit. Early fault detected in motor.

Troubleshooting

- Check root cause for increased vibration.

9.6 Fault Code 71, ID 1128 - Vibration Warning S2

Cause

- Vibration has exceeded the detection high limit. Severe fault can occur soon in the motor.

Troubleshooting

- Check root cause for increased vibration.

9.7 Fault Code 71, ID 1129 - Vibration Alarm/Fault

Cause

- Vibration has exceeded the detection high limit. Severe fault detected in motor.

Troubleshooting

- Check root cause for increased vibration.

9.8 Fault Code 71, ID 1130 - Load Warning S1

Cause

- Load outside of the window limits. Early fault detected in motor.

Troubleshooting

- Check root cause for excessive overload or underload.

9.9 Fault Code 71, ID 1131 - Load Warning S2

Cause

- Load outside of the window limits. Severe fault can occur soon in the motor.

Troubleshooting

- Check root cause for excessive overload or underload.

9.10 Fault Code 71, ID 1132 - Load Alarm/Fault

Cause

- Load outside of the window limits. Severe fault is detected in motor.

Troubleshooting

- Check root cause for excessive overload or underload.

10 VACON NXP Fault Codes

10.1 Fault 85 - Baseline Run

Cause

There was a failure during the baseline run.

Troubleshooting

Check parameters in the baseline run settings.

10.2 Fault 86 - Condition-based Monitoring, Subcode A1 - Motor Stator Winding Current Fault

Cause

Current unbalance has exceeded the detection high limit.

Troubleshooting

Check motor stator windings.

10.3 Fault 86 - Condition-based Monitoring, Subcode A2 - Motor Stator Winding Voltage Fault

Cause

Voltage unbalance has exceeded the detection high limit.

Troubleshooting

Check motor stator windings.

10.4 Fault 86 - Condition-based Monitoring, Subcode A3 - Motor Stator Winding Current Warning S2

Cause

Current unbalance has exceeded the detection high limit.

Troubleshooting

Check motor stator windings.

10.5 Fault 86 - Condition-based Monitoring, Subcode A4 - Motor Stator Winding Voltage Warning S2

Cause

Voltage unbalance has exceeded the detection high limit.

Troubleshooting

Check motor stator windings.

10.6 Fault 86 - Condition-based Monitoring, Subcode A5 - Motor Stator Winding Current Warning S1

Cause

Current unbalance has exceeded the detection high limit.

Troubleshooting

Check motor stator windings.

10.7 Fault 86 - Condition-based Monitoring, Subcode A6 - Motor Stator Winding Voltage Warning S1

Cause

Voltage unbalance has exceeded the detection high limit.

Troubleshooting

Check motor stator windings.

10.8 Fault 86 - Condition-based Monitoring, Subcode A7 - Vibration Fault

Cause

Vibration has exceeded the detection high limit.

Troubleshooting

Check root cause for increased vibration.

10.9 Fault 86 - Condition-based Monitoring, Subcode A8 - Vibration Warning S2**Cause**

Vibration has exceeded the detection high limit.

Troubleshooting

Check root cause for increased vibration.

10.10 Fault 86 - Condition-based Monitoring, Subcode A9 - Vibration Warning S1**Cause**

Vibration has exceeded the detection high limit.

Troubleshooting

Check root cause for increased vibration.

10.11 Fault 86 - Condition-based Monitoring, Subcode A10 - Load Fault**Cause**

Load outside of the window limits.

Troubleshooting

Check root cause for excessive overload or underload.

10.12 Fault 86 - Condition-based Monitoring, Subcode A11 - Load Warning S2**Cause**

Load outside of the window limits.

Troubleshooting

Check root cause for excessive overload or underload.

10.13 Fault 86 - Condition-based Monitoring, Subcode A12 - Load Warning S1**Cause**

Load outside of the window limits.

Troubleshooting

Check root cause for excessive overload or underload.

Index

A

Absolute.....11

B

Baseline Data Element 1 (ID 3601)..... 31, 31, 31
 Baseline Data Element 10 (ID 3610).....32, 32, 32
 Baseline Data Element 2 (ID 3602)..... 31, 31, 31
 Baseline Data Element 3 (ID 3603)..... 31, 31, 31
 Baseline Data Element 4 (ID 3604)..... 31, 31, 31
 Baseline Data Element 5 (ID 3605)..... 31, 31, 31
 Baseline Data Element 6 (ID 3606)..... 31, 31, 31
 Baseline Data Element 7 (ID 3607)..... 31, 31, 31
 Baseline Data Element 8 (ID 3608)..... 32, 32, 32
 Baseline Data Element 9 (ID 3609)..... 32, 32, 32
 Baseline Data Selector (ID 3509)..... 37, 37, 37, 37, 37
 Baseline Duration (ID 3504).....36, 36, 36, 36, 36
 Baseline MaxFreq (ID 3503)..... 35, 35, 35, 35, 35
 Baseline MinFreq (ID 3502)..... 35, 35, 35, 35, 35
 Baseline Run..... 9
 Baseline Run Status (ID 3621)..... 31, 31, 31
 BaselineRun Start (ID 3501).....35, 35, 35, 35, 35

C

Commissioning Overview..... 14
 Condition-based Monitoring.....8, 17
 Condition-based Monitoring Status (ID 3619).....34, 34, 34
 Current Alarm High Threshold (ID 3613)..... 32, 32, 32
 Current Alarm/Fault Delay (ID 3524).....44, 44, 44, 44, 44
 Current Alarm/Fault High (ID 3523).....44, 44, 44, 44, 44
 Current Alarm/Fault Mode (ID 3522).....44, 44, 44, 44, 44
 Current Interpolation Type (ID 3515).....40, 40, 40, 40, 40
 Current Max Factor (ID 3513).....40, 40, 40, 40, 40
 Current Mean Factor (ID 3511).....40, 40, 40, 40, 40
 Current Min Factor (ID 3512).....40, 40, 40, 40, 40
 Current Std Factor (ID 3514).....40, 40, 40, 40, 40
 Current Unbalance (ID 3617)..... 32, 32, 32
 Current Unbalance Threshold Value (ID 3620)..... 32, 32, 32
 Current Warning S1 Delay (ID 3518).....43, 43, 43, 43, 43
 Current Warning S1 High (ID 3517).....43, 43, 43, 43, 43
 Current Warning S1 High Threshold (ID 3611)..... 32, 32, 32
 Current Warning S1 Mode (ID 3516).....42, 42, 42, 42, 42
 Current Warning S2 Delay (ID 3521).....43, 44, 44
 Current Warning S2 Delay (ID 3721).....44, 44
 Current Warning S2 High (ID 3520)..... 43, 43, 43
 Current Warning S2 High (ID 3720).....43, 43
 Current Warning S2 High Threshold (ID 3612)..... 32, 32, 32
 Current Warning S2 Mode.....43, 43, 43, 43, 43

E

Example of Load Envelope..... 12
 Example of Motor Stator Winding Monitoring.....12
 Example of Vibration Monitoring..... 12

F

Factor.....11

L

Line Freq (ID 1913).....38, 38, 38, 38, 38
 Line Freq Hysteresis (ID 1914).....38, 38, 38, 38, 38

Load Alarm High Threshold (ID 3631).....34, 34, 34
 Load Alarm Low Threshold (ID 3634).....34, 34, 34
 Load Alarm/Fault Delay (ID 3580)..... 48, 48, 48, 48, 48
 Load Alarm/Fault High (ID 3579).....48, 48, 48, 48, 48
 Load Alarm/Fault Low (ID 3586).....49, 49, 49, 49, 49
 Load Alarm/Fault Mode (ID 3578).....48, 48, 48, 48, 48
 Load Baseline Value Low (ID 3635)..... 34, 34, 34
 Load Fault Mode (ID 3589).....39, 39, 39, 39, 39
 Load Interpolation Type (ID 3571).....42, 42, 42, 42, 42
 Load Max Factor (ID 3569).....42, 42, 42, 42, 42
 Load Mean Factor (ID 3567).....41, 41, 41, 41, 41
 Load Min Factor (ID 3568).....41, 41, 42, 42, 42
 Load S1 High Threshold (ID 3629).....33, 33, 33
 Load S1 Low Threshold (ID 3632).....34, 34, 34
 Load S2 High Threshold (ID 3630).....33, 33, 33
 Load S2 Low Threshold (ID 3633).....34, 34, 34
 Load Std Factor (ID 3570).....42, 42, 42, 42, 42
 Load Threshold Value (ID 3628).....33, 33, 33
 Load Warning S1 Delay (ID 3574).....47, 47, 47, 47, 47
 Load Warning S1 High (ID 3573).....47, 47, 47, 47, 47
 Load Warning S1 Low (ID 3584).....48, 48, 48, 48, 48
 Load Warning S1 Mode (ID 3572).....46, 46, 46, 46, 46
 Load Warning S2 Delay (ID 3577).....47, 48, 48, 48, 48
 Load Warning S2 High (ID 3576).....47, 47, 47, 47, 47
 Load Warning S2 Low (ID 3585).....48, 48, 49, 49, 49
 Load Warning S2 Mode (ID 3575).....47, 47, 47, 47, 47

M

Manual Run.....36
 Modified Activation (ID 3505).....37, 37, 37, 37, 37
 Modified Array (ID 3506).....36, 36, 36, 36, 36
 Modified Point (ID 3507).....36, 36, 36, 36, 36
 Modified Value (ID 3508).....37, 37, 37, 37, 37
 Motor Stator Winding Application Recommendation.....15

O

Offset.....11
 Online Baseline.....10

S

Speed Band (ID 3510).....38, 38, 38, 38, 38
 Stator Winding Fault Mode (ID 3540).....38, 38, 38, 38, 38
 Stator Winding Monitoring.....38
 System Requirements..... 7

T

Threshold Value.....39

V

Version history..... 5
 Vibration (ID 3623).....33, 33, 33
 Vibration Alarm High Threshold (ID 3627).....33, 33, 33
 Vibration Alarm/Fault Delay (ID 3563).....46, 46, 46, 46, 46
 Vibration Alarm/Fault High (ID 3562).....46, 46, 46, 46, 46
 Vibration Alarm/Fault Mode (ID 3561).....46, 46, 46, 46, 46
 Vibration Fault Mode (ID 3588).....38, 38, 38, 39, 39
 Vibration Input (ID 3587).....39, 39, 39, 39, 39
 Vibration Interpolation Type (ID 3554).....41, 41, 41, 41, 41
 Vibration Max Factor (ID 3552).....41, 41, 41, 41, 41

Vibration Mean Factor (ID 3550).....	40, 40, 40, 40, 41	Vibration Warning S1 Mode (ID 3555).....	44, 44, 44, 44, 44
Vibration Min Factor (ID 3551).....	41, 41, 41, 41, 41	Vibration Warning S2 Delay (ID 3560).....	45, 46, 46, 46, 46
Vibration Monitoring Application Recommendation.....	15	Vibration Warning S2 High (ID 3559).....	45, 45, 45, 45, 45
Vibration S1 High Threshold (ID 3625).....	33, 33, 33	Vibration Warning S2 Mode (ID 3558).....	45, 45, 45, 45, 45
Vibration S2 High Threshold (ID 3626).....	33, 33, 33		
Vibration Std Factor (ID 3553).....	41, 41, 41, 41, 41	W	
Vibration Threshold Value (ID 3624).....	33, 33, 33	Warning and Alarm/Fault Stages.....	42
Vibration Warning S1 Delay (ID 3557).....	45, 45, 45, 45, 45		
Vibration Warning S1 High (ID 3556).....	45, 45, 45, 45, 45		

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