

VIBXPERT® EX

Short instructions



VIBPERT[®] EX

**FFT data collector and
signal analyzer with intrinsic safety**

Short instructions



Version 2.2x
Edition December 2009
LIT.53.101.EN

Contents

| | |
|---|----|
| Safety notes for VIBXPERT EX | 4 |
| Symbols used | 4 |
| Limitations for VIBXPERT EX | 4 |
| Interface parameters for VIBXPERT EX | 5 |
| Description | 6 |
| Overview | 6 |
| Keyboard | 7 |
| LED display | 8 |
| Power supply | 9 |
| Connection to the PC | 10 |
| Printing the report | 11 |
| Operation | 12 |
| Basic operating functions | 12 |
| Examples for typical operation procedures | 13 |
| Off-route measurement ('Multimode') | 16 |
| Route measurement | 18 |
| Measuring with a machine template | 20 |
| Measuring a route with VIBCODE | 22 |
| Declaration of conformity | 23 |

About this manual

This short instruction manual is intended to provide a handy day-to-day reference for the most important functions of the instrument and basic program operation procedures.

For truly complete information, however, the full-length VIBXPERT operating manual (VIB 9.805.G) contains detailed explanations of all functional features as well as considerable background information on condition monitoring.

The operation of the optional 'Balancing' module is described in the 'VIBXPERT - Balancing' operating manual (VIB 9.806.G).

Safety notes for VIBXPERT EX

Symbols used



Attention!

Warning of operating errors that can lead to data loss or equipment damage.



Note

Information and tips on operating the data collector.



Limitations for VIBXPERT EX

The connection cable for extra-low signal current (VIB 5.434) and extra-low signal voltage (VIB 5.433) may not be used with VIBXPERT EX.

The following applies in **potentially explosive environments**:

- For vibration measurements, you may only use
 - > LineDrive transducers of the VIB 6.1xx DEX model series
 - > VIBCODE transducers (VIB 8.660 HEX)
- Under no circumstances may you take measurements with the following sensors:
 - > TIPTECTOR hand-held probe,
 - > LineDrive transducers of the VIB 6.1xx EX model series
 - > LineDrive transducers of the VIB 6.1xx REX model series.
- Under no circumstances should you recharge the battery.
- Under no circumstances should you use the VIBXPERT case (VIB 5.329).
- The protective film must be removed from the display.



Note

Also observe the safety notes in the VIBXPERT operating manual - VIB 9.805.G!

Interface parameters for VIBXPERT EX

Analog output circuit

In type of protection intrinsic safety Ex ib IIC, only suitable for the connection to devices intended for this

$$\begin{array}{lll} U_o = 28V & C_i = 54nF & L_i = 300\mu H \\ I_o = 63mA & C_o = 83nF & L_o = 7mH \\ P_o = 300mW & & \end{array}$$

The sensors of the VIB 6.1***DEX model series can also be connected to this interface. The sensors of the VIB 6.1***EX model series should not be connected to this interface.

Temperature sensor circuit

In type of protection intrinsic safety Ex ib IIC, only suitable for the connection to NiCr-Ni-thermocouple

$$\begin{array}{ll} U_o = 6V & C_o = 40\mu F \\ I_o = 6mA & L_o = 0.8H \\ P_o = 9mW & \end{array}$$

Digital output circuit

in type of protection intrinsic safety Ex ib IIC only suitable for the connection to devices intended for this

$$\begin{array}{ll} U_o = 12V & C_o = 1,41\mu F \\ I_o = 188mA & L_o = 0.8mH \\ P_o = 600mW & \end{array}$$

LAN/USB circuit

Do not use this interface in an explosive environment! Only devices with $V_m < 6V$ or the communication adapter for VIBXPERT EX (order no. VIB 5.330 UNV) may be connected for data transmission purposes.

Battery load circuit

Do not use this interface in an explosive environment!

To charge the batteries, use chargers VIB 5.322 and VIB 5.323 only!

Description

Overview

① **Keyboard:** suitable for right-hand-/ left-hand operation. The keys and the joystick can be comfortably operated with the thumb.

② **Light sensor** controls key board illumination.

③ **LEDs** indicate:

- Alarm condition
- Measurement error
- Battery charge status.

④ **Display** - large, backlit, high-contrast.

⑤ **Channel A / B** measure analog sensor signals.

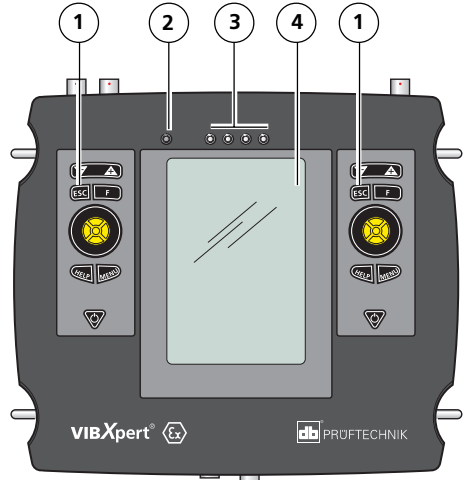
⑥ **Temperature** - interface for thermo couple type K

⑦ **Digital input / analog output** for:

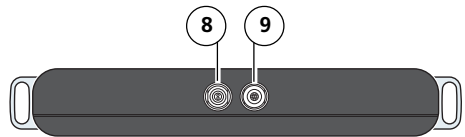
- Trigger / RPM sensor
- Data transfer via RS 232
- Headphone / Oscilloscope
- Stroboscope control

⑧ **Charging socket**

⑨ **Communication/ printer**
Connect PC / printer via universal communication adapter VIB 5.330-UNV.

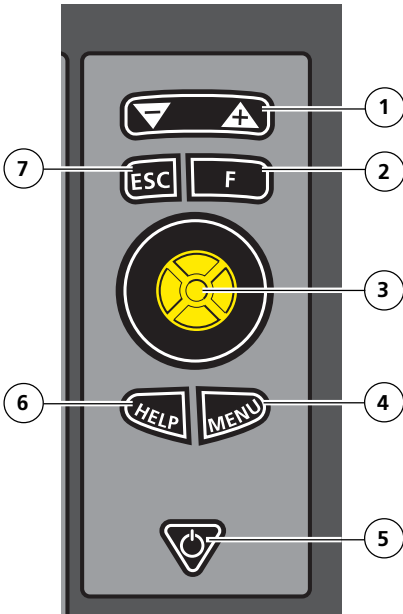


Top view



Bottom view

Keyboard



①
Rocker key +/- :
- Zoom for X axis
- Change tab

②
F key:
special functions such as
tab, fast menu, search,...

③
Joystick:
- Navigation
- ENTER

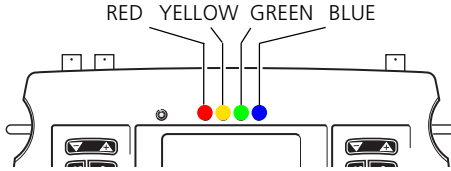
④
MENU key:
- Menu functions
(context-sensitive)

⑤
On/Off key:
- Switch on
- Switch off
- Restart ('Reset')

⑥
HELP key:
- Help page

⑦
ESC key:
- Cancel
- Return
- Switch off
(in the start screen)

LED display



Status and alarm indication

| LED | RED ● | YELLOW ● | GREEN ● | BLUE ● |
|-----------------|-----------------------------------|--------------------|-------------------|-------------------------|
| constant | Alarm | Warning | Prewarning | Meas. OK |
| flashing | Signal overload, Battery empty | Signal unstable | Trigger signal | Battery almost empty |

Flashing LEDs have the higher priority.

Examples:

Signal overloads and exceeds the alarm level => RED flashes.

Signal unstable and exceeds the alarm level => YELLOW flashes.

Battery status during charging

| LED | RED ● | YELLOW ● | GREEN ● | BLUE ● |
|-----------------|-------|---------------------|-----------------|--------|
| constant | Error | Battery charging | Battery full | --- |

Power supply

The rechargeable battery is permanently installed in the housing and can be charged using the VIBXPERT EX charger (VIB 5.322 or VIB 5.323). The residual charge of the battery is displayed in the battery icon.



Battery full



Battery half empty



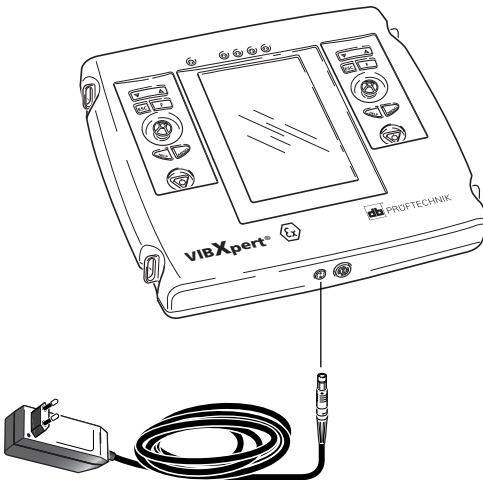
Do not charge the battery in a potentially explosive environment!

Permissible charging temperature: 0°C to 50°C.

The battery may only be replaced by authorized PRÜFTECHNIK employees.



Attention!



VIBXPERT EX
charger

Connection to the PC

A PC or Laptop must be connected to VIBXPERT EX via the universal communication adapter (VIB 5.330 UNV).

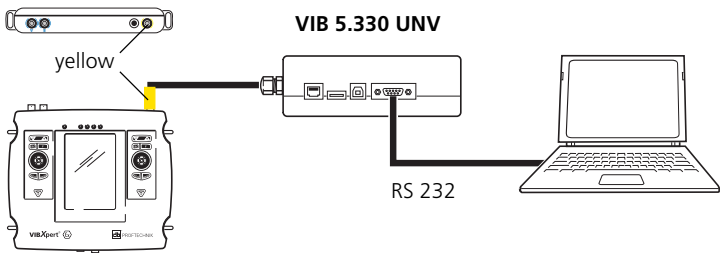


Attention!

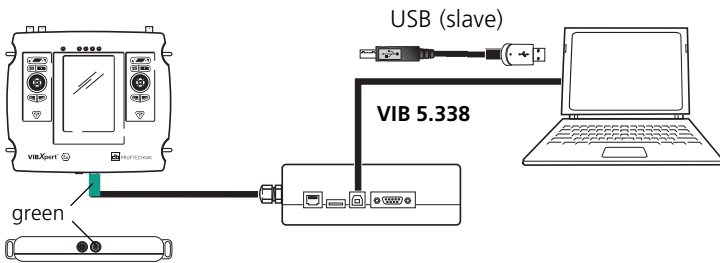
Do not use the adapter in a potentially explosive environment!

Direct connection to the PC / laptop

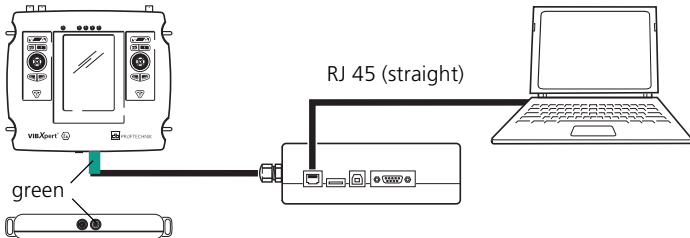
Serial



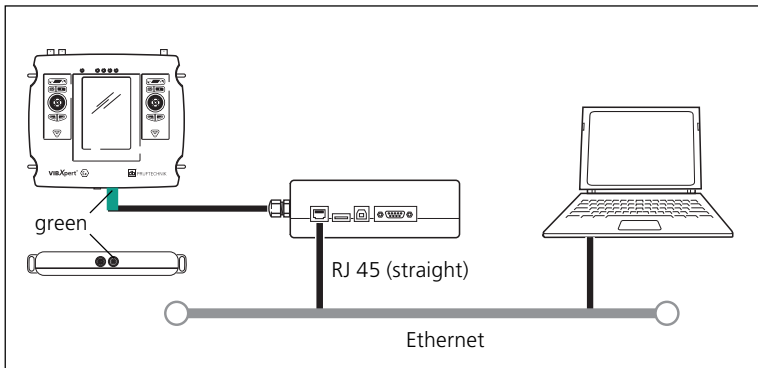
USB



Patch



Connecting the PC / laptop via a network



LAN

Printing the report

VIBXPERT can generate the following report types:

Screenshot: Contains the content of the current screen.

Measurement report: Contains the measurement results and information on the operator and measurement.

Route/template report: Contains the results and, if applicable, the exceeded thresholds of a route/template and general data on the measurement tasks.

The reports can be printed to a PDF file or, using the 'VIBXPERT utility' tool, copied to a PC and printed from there.


Details on configuring the measurement report in the device, selecting the PDF printer and transferring PDF files to a PC can be found in the VIBXPERT operating manual (art. no.: VIB 9.805.G).




Note


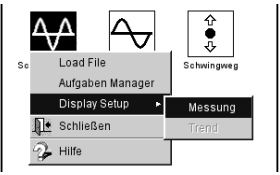
Operation


Basic operating functions

| | |
|---|---|
|  <p>Switching on, switching off, resetting VIBXPERT.</p> | <p>Switching on:</p> <ul style="list-style-type: none">• Hold the key down for 2 seconds.• The start screen appears after approx. 30 seconds. <p>Switching off:</p> <ul style="list-style-type: none">• Hold the key down for 2 seconds.• Confirm the query to switch off with 'YES'. <p>Resetting:</p> <ul style="list-style-type: none">• Hold the key down for 5 seconds until the device switches off and restarts. |
|---|---|

| | |
|---|---|
|  <p>Navigation: Move the cursor in the screen and select an element.</p> | <ul style="list-style-type: none">• The joystick can be shifted in vertical or horizontal direction respectively. |
|---|---|


| | |
|--|---|
|  <p>Confirm selection with ENTER.</p> | <ul style="list-style-type: none">• Press (click) the joystick. |
|--|---|

| | |
|---|--|
|  <p>Open the 'Menu'.</p> |  <p>The functions of the current program section are found in the 'Menu'</p> |
|---|--|

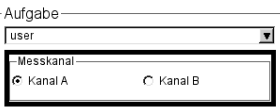
| | |
|---|--|
|  <p>Cancel operation and close current screen.</p> | <ul style="list-style-type: none">• Only in the start screen: Switch off device. |
|---|--|

Examples for typical operation procedures

Example 1: How to change the setting in a field




Select the respective field.

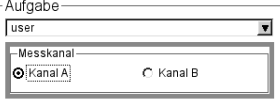


Aufgabe
user
-Messkanal
Kanal A Kanal B

Black frame




Confirm with ENTER.

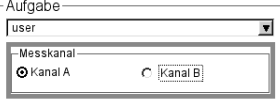


Aufgabe
user
-Messkanal
Kanal A Kanal B

Grey frame (edit mode)




Select new setting.

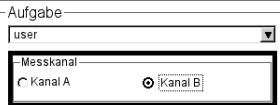


Aufgabe
user
-Messkanal
Kanal A Kanal B

Selection has dotted frame.




Confirm with ENTER.





Aufgabe
user
-Messkanal
Kanal A Kanal B

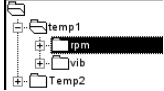
The Edit mode is closed. The cursor can be moved over the entire screen again.

Example 2: How to navigate in a tree view (Route, File manager,...)


 Select a tree node in the same hierarchy.

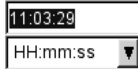


 Open the parent node and show the child nodes.

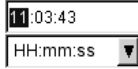



Example 3: How to enter numbers (Time, Date, IP address,...)

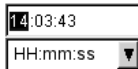
 Select the respective field.



 Enter Edit mode.




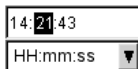
 Increase / decrease value.



 Select next value.




 Increase / decrease value.



 Confirm changes and exit edit mode.




Example 4: How to enter a text (name, comment, ...)

 Select the respective character.

- Changing character table -> 0.1
- Deleting text -> 0.2
- Special characters (, + /) are not allowed in a file name

| | | | | | |
|------|---|---|---|---|---|
| USB1 | | | | | |
| A | B | C | D | E | F |
| G | H | I | J | K | L |
| M | N | O | P | Q | R |
| S | T | U | V | W | X |
| Y | Z | 0 | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 |
| . | , | - | _ | ← | ↵ |

Backspace 'key'

 Confirm selection, and enter the next character.

| | | | | | |
|---|---|---|---|---|---|
| U | | | | | |
| A | B | C | D | E | F |
| G | H | I | J | K | L |

  Finally save the text.

| |
|-----------|
| OK |
| Exit |
| Tables |
| Caps lock |

0.1 Changing character table:







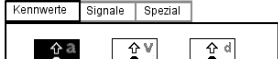

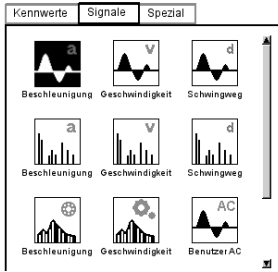

0.2 Deleting text:

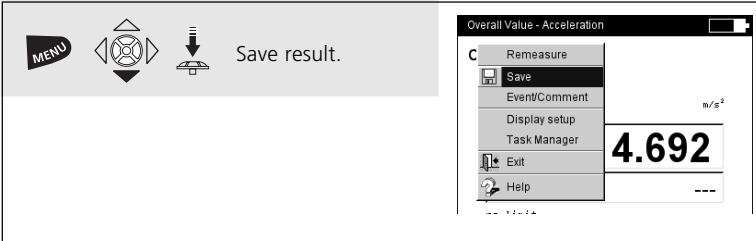
- Position the cursor in the text field.
- Delete the character left to the cursor with the Backspace 'key'



Note

Off-route measurement ('Multimode')

| | |
|---|---|
|  | <p>Switch on VIBXPERT.</p> <ul style="list-style-type: none"> • see section 'Basic operating functions'. |
|  | <p>Start 'Multimode'.</p>  <p>Multimode</p> |
|  | <p>Open tab for overall, signal or advanced measurements.</p>  |
|  | <p>Select measurement icon.</p>  <ul style="list-style-type: none"> • Changing the meas. task -> 1.1 • New / edit task -> 1.2 • Connecting the sensor -> 1.3 |
|  | <p>Start measurement with ENTER.</p> <ul style="list-style-type: none"> • Sensor connection is checked, if sensor detection is enabled. • Green LED is flashing during meas: Trigger OK. • Blue LED lights up after the meas.: Measurement OK. • Live mode: Keep the joystick pressed when the measurement starts. • Repeating the measurement -> 1.4 |






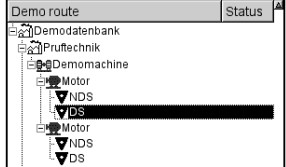

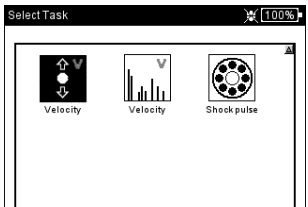


| | |
|--|--|
| <p>1.1 Changing the measurement task:</p> | |
| <p>1.2 New task / edit task:</p> | |
| <p>1.3 Sensor and measurement channel are displayed in the info field.</p> | |
| <p>1.4 Repeating the measurement: Press ENTER twice, if safety note appears.</p> | |



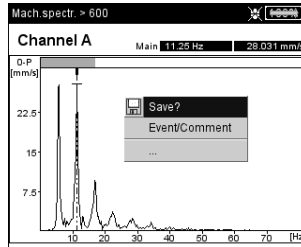
Note

Route measurement

|  | <p>Switch on VIBXPRT.</p> | <ul style="list-style-type: none"> see section 'Basic operating functions'. | | | | | | | | |
|---|-------------------------------------|---|-------|--------|------------|-----|------|-----|-----|-----|
|  | <p>Start 'Route' mode.</p> |  Route | | | | | | | | |
|  | <p>Select route.</p> | <table border="1"> <thead> <tr> <th>Route</th> <th>Fertig</th> </tr> </thead> <tbody> <tr> <td>Demo route</td> <td>0/8</td> </tr> <tr> <td>test</td> <td>0/4</td> </tr> <tr> <td>vxp</td> <td>0/8</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Route contains <u>no</u> VIBCODE location. | Route | Fertig | Demo route | 0/8 | test | 0/4 | vxp | 0/8 |
| Route | Fertig | | | | | | | | | |
| Demo route | 0/8 | | | | | | | | | |
| test | 0/4 | | | | | | | | | |
| vxp | 0/8 | | | | | | | | | |
|  | <p>Select measurement location.</p> |  <ul style="list-style-type: none"> Change view: tree or list -> 2.1 No meas. location in tree view visible? -> 2.2 Skip route element -> 2.3 | | | | | | | | |
|  | <p>Select measurement icon.</p> |  <ul style="list-style-type: none"> Reference measurement must be carried out first. Skip task -> 2.3 Connecting the sensor -> 1.3 | | | | | | | | |



Start measurement with ENTER.



- Meas. tasks with the same sensor are performed automatically one after the other.
- Results are saved automatically, if 'AutoSave' is enabled (-> 2.4).
- 'Route is finished' appears, if all measurements have been completed.

2.1 Route view mode:



Device setup



Route

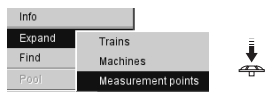


Display

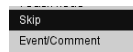


Note

2.2 Show meas. locations in tree view:



2.3 Skip element (considered to be completed):



2.4 AutoSave:



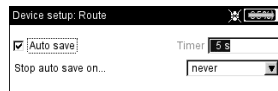
Device setup







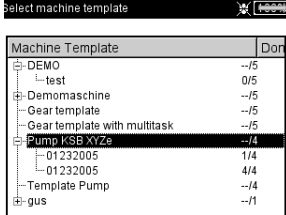

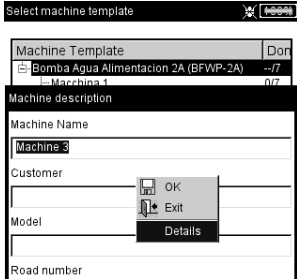


Route


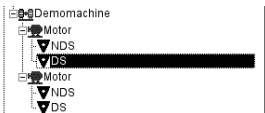



Saving




Measuring with a machine template






|  <p>Switch on VIBXPRT.</p> | <ul style="list-style-type: none"> see section 'Basic operating functions'. | | | | | | | | | | | | | | | | | | | | | | |
|---|--|------------------|-----|------|------|--------|-----|--------------|------|---------------|------|------------------------------|------|---------------|------|------------|-----|------------|-----|---------------|------|-----|------|
|  <p>Start 'Machine template' mode.</p> |  <p>M. template</p> | | | | | | | | | | | | | | | | | | | | | | |
|  <p>Select machine template.</p> |  <table border="1"> <thead> <tr> <th>Machine Template</th> <th>Don</th> </tr> </thead> <tbody> <tr> <td>DEMO</td> <td>--/5</td> </tr> <tr> <td> --test</td> <td>0/5</td> </tr> <tr> <td> Demomaschine</td> <td>--/5</td> </tr> <tr> <td> Gear template</td> <td>--/5</td> </tr> <tr> <td> Gear template with multitask</td> <td>--/5</td> </tr> <tr> <td> Pump KSB XYZe</td> <td>--/4</td> </tr> <tr> <td> --01232005</td> <td>1/4</td> </tr> <tr> <td> --01232005</td> <td>4/4</td> </tr> <tr> <td> Template Pump</td> <td>--/4</td> </tr> <tr> <td> gus</td> <td>--/1</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Machines where measurements have already been carried out appear subordinate to the associated template. | Machine Template | Don | DEMO | --/5 | --test | 0/5 | Demomaschine | --/5 | Gear template | --/5 | Gear template with multitask | --/5 | Pump KSB XYZe | --/4 | --01232005 | 1/4 | --01232005 | 4/4 | Template Pump | --/4 | gus | --/1 |
| Machine Template | Don | | | | | | | | | | | | | | | | | | | | | | |
| DEMO | --/5 | | | | | | | | | | | | | | | | | | | | | | |
| --test | 0/5 | | | | | | | | | | | | | | | | | | | | | | |
| Demomaschine | --/5 | | | | | | | | | | | | | | | | | | | | | | |
| Gear template | --/5 | | | | | | | | | | | | | | | | | | | | | | |
| Gear template with multitask | --/5 | | | | | | | | | | | | | | | | | | | | | | |
| Pump KSB XYZe | --/4 | | | | | | | | | | | | | | | | | | | | | | |
| --01232005 | 1/4 | | | | | | | | | | | | | | | | | | | | | | |
| --01232005 | 4/4 | | | | | | | | | | | | | | | | | | | | | | |
| Template Pump | --/4 | | | | | | | | | | | | | | | | | | | | | | |
| gus | --/1 | | | | | | | | | | | | | | | | | | | | | | |
|  <p>Click on 'Details' and enter the necessary machine data.</p> |  <p>Machine description</p> <p>Machine Name Machine 3</p> <p>Customer</p> <p>Model</p> <p>Road number</p> <p>OK Exit Details</p> <ul style="list-style-type: none"> Click on OK, if you only want to accept the recommended name. | | | | | | | | | | | | | | | | | | | | | | |
|  <p>Save machine description.</p> |  <p>ACME Inc.</p> <p>Modell</p> <p>MT 1234</p> <p>Nummer</p> <p>OK Schließen Details</p> | | | | | | | | | | | | | | | | | | | | | | |

| | |
|---|---|
|  <p>Select measurement location.</p> |  |
| <p>A machine template is set up like a route and resembles a route in operation and workflow.</p> | |

| | |
|---|---|
|  <p>Select measurement icon.</p> | <ul style="list-style-type: none"> • see section 'Route'. • Connecting the sensor -> 1.3 |
|---|---|

| | |
|--|--|
|  <p>Start measurement with ENTER.</p> | <ul style="list-style-type: none"> • see section 'Route'. |
|--|--|

Measuring a route with VIBCODE

|  | <p>Switch on VIBXPRT.</p> | <ul style="list-style-type: none"> • see section 'Basic operating functions'. | | | | | | | | |
|---|----------------------------|---|-------|--------|------------|-----|------|-----|-----|-----|
|  | <p>Start 'Route' mode.</p> |  <p>Route</p> | | | | | | | | |
|  | <p>Select route.</p> | <table border="1"> <thead> <tr> <th>Route</th> <th>Fertig</th> </tr> </thead> <tbody> <tr> <td>Demo route</td> <td>0/8</td> </tr> <tr> <td>test</td> <td>0/4</td> </tr> <tr> <td>vxp</td> <td>0/8</td> </tr> </tbody> </table> | Route | Fertig | Demo route | 0/8 | test | 0/4 | vxp | 0/8 |
| Route | Fertig | | | | | | | | | |
| Demo route | 0/8 | | | | | | | | | |
| test | 0/4 | | | | | | | | | |
| vxp | 0/8 | | | | | | | | | |
| <p>Connect the VIBCODE transducer to the VIBCODE measurement location.</p> | |  <ul style="list-style-type: none"> • Measurements start automatically, if the location is found in the route. • If the meas. location is in the VIBCODE pool: First measurement starts automatically, all other measurements must be triggered manually with the joystick. | | | | | | | | |

CERTIFICATE

Declaration of conformity in accordance with ISO/IEC Guide 22



This is to certify that the following product

Equipment / designation: **VIBXPRT EX**
Type / Order-no(s).: **VIB 5.300 EX - xx**
Configuration: **FFT data collector & signal analyzer**

corresponds to the fundamental safety requirements as laid down in the guidelines of the advice for the approximation of laws of the member states on electromagnetic compatibility (2004/108/EC) and Annex IV of the Council Directive 94/9/EC.

EC-Type Examination Certification Number: **ZELM 07 ATEX 0355 X**

Marking of the equipment: **Ⓔ II 2 G Ex Ib IIC T4**

For the appraisal of this certification with respect to the fulfillment of the safety requirements, the following standards were consulted:

- DIN EN 61326: 03/2002
- IEC 61326: 1997 + A1:1998 + A2:2000
- DIN EN 61000-4-2: 12/2001
- DIN EN 61000-4-3: 11/2003
- DIN EN 61000-4-4: 07/2002
- DIN EN 61000-4-5: 12/2001
- DIN EN 61000-4-6: 12/2001
- DIN EN 61000-4-11: 12/2001
- DIN EN 55022: 09/2003
- DIN EN 60079-0: 2006
- DIN EN 60079-11: 08/2007

The party responsible for this declaration is

PRÜFTECHNIK
Condition Monitoring GmbH
Oskar-Messter Str. 19-21
85737 Ismaning, Germany

Issued by
Johann Lös
- Managing director -

Ismaning, May 26th, 2008
Place and date of issue


Authentic signature



PRÜFTECHNIK

Productive maintenance technology

PRÜFTECHNIK
Condition Monitoring
Oskar-Messterstr. 19-21
85737 Ismaning, Germany
www.pruftechnik.com
Tel. +49 89 99 61 6-0
Fax +49 89 99 61 6-300
eMail: info@pruftechnik.com



PRÜFTECHNIK

Printed in Germany LIT.53.101.EN.12.2009
VIBXPERT®, VIBCODE®, OMNITREND® are registered
trademarks of PRÜFTECHNIK Dieter Busch AG.
PRÜFTECHNIK products are the subject of patents
granted and pending throughout the world. Con-
tents subject to change without further notice, par-
ticularly in the interest of further technical develop-
ment. Reproduction, in any form whatsoever, only
upon express written consent of PRÜFTECHNIK.

© Copyright 2009 by PRÜFTECHNIK AG



Faithful companion

VIBSCANNER® is the ideal partner for your daily measuring and inspection rounds. Integrated transducers record all important machine signals. Process parameters can be supplied as analog signals or entered manually. A checklist of visual inspection tasks, e.g. "Check oil level", assists in tracing faults. FFT and balancing is also included. Graphic user guidance and intuitive joystick navigation make operating child's play.

VIBSCANNER® – Machine evaluation, data collection & balancing



wwwatch me now

VIBROWEB® lets you monitor and analyze your machine condition from around the globe. It is the first telediagnosis system in the world to take advantage of Internet technology for communication and data transmission. When the situation at hand demands immediate attention, the VIBROWEB® instantly notifies the specialists by eMail or SMS.

VIBROWEB®: Telediagnosis via Internet & mobile phone



Ingenious and ergonomic

ROTALIGN® Ultra is equipped with backlit color screen and alpha-numeric keyboard. The implemented Bluetooth® technology, concise navigation and its heavy-duty rechargeable battery, ensure convenient and flexible operation. Usage can be extended from shaft alignment to flatness measurement and bore alignment, making ROTALIGN® Ultra an ideal alignment partner.

ROTALIGN® Ultra – The ultimate alignment system

PRÜFTECHNIK Condition Monitoring
Oskar-Messter-Straße 19-21
85737 Ismaning, Germany
www.pruftechnik.com
Tel.: +49 89 99616-0
eMail: info@pruftechnik.com