



# Product Data

## Data Collector System - 2526 Series

Data Collector Type 2526 MK2  
Intrinsically Safe Data Collector Type 2526E  
Balancing Program Type 7111  
Field Analysis & Balancing (FAB) Program Type 7112

### USES:

- Collection and analysis of rotating machine vibration and process data in safe and hazardous environments for reliable machine fault prediction
- As a portable, PC-based monitoring system, or as part of an integrated on-line and off-line protective and predictive monitoring system
- For the static and dynamic balancing of rotors in the field (up to four planes)

### FEATURES:

- Weighs only 1.2kg and is easily held in one hand
- Accepts inputs from accelerometers, proximity probes, tachometers and process transducers
- Sealed to IP 54 for use in 'industrial' environments
- Display backlight (2526 MK2)

- Certified intrinsically safe for  $\text{Ex}$  environments
- Logs DC, bandpass, lowpass, vector, speed, spectrum (CPB, FFT, & SED) and cepstrum measurements
- Simple, two-button operation for all measurements
- Full spectrum display with zoom and harmonic cursors
- Event Severity Indicator (ESI™) and alarm flagging for accurate in-the-field indication of machine condition
- Digital Signal Processing (DSP) design enables fast download of setups and easy software upgrades
- Host software for both Windows® (SENTINEL™) and UNIX (COMPASS™) environments
- Remote loading and unloading of Data Collectors
- Choice of European or US units
- Optional software packages for field analysis and balancing capabilities

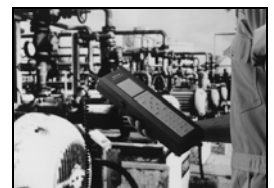
The 2526 Series Data Collector System is a powerful off-line monitoring solution that comprises fast and easy data collection, innovative and versatile computer-based predictive maintenance software, and optional upgrade packages for extended Data Collector capabilities.

The 2526 MK2 and 2526E Data Collectors incorporate a choice of input capabilities for vibration and process transducers, a multitude of measurement techniques, and a flexible user-interface that allows machine condition and alarm status to be viewed on-the-spot. For hazardous environments, the 2526E Data Collector is certified intrinsically safe.

Using rapidly advancing Digital Signal Processing (DSP), future enhancements to Data Collector Systems will require no hardware changes. Optional field analysis and balancing capabilities are supplied as upgrade packages, while Brüel & Kjær Vibro's range of computer-based monitoring software provides a complete system for detecting, diagnosing and trending of all kinds of machine faults.



Portable



Explosion-proof



Integrated



## General Applications

Off-line (or "walk-around") monitoring with the **2526 Series Data Collector System** is the ideal solution for the economic coverage of a large number of measurement points on non-critical rotating machinery.

Offering a combination of general purpose and specialist measurement techniques, the lightweight (1.2 kg) yet rugged (IP54) 2526 Series Data Collectors are capable of detecting the widest range of machine faults at the early stages of development.

Additionally, the 2526 MK2 version is equipped with a backlight, making the display easily readable in dimly lit environments.

### Warnings in the field

2526 Series Data Collectors are so easy to use that even inexperienced operators can take and store any type of measurement with a simple, two-button operation.

Comparison with limits takes place immediately 'on-the-spot', and a quick glance at the special *Event Severity Indicator (ESI™ plot)* immediately indicates to the operator the presence and the extent of an alarm.

### Total predictive maintenance solutions

Back at the office, measurements made in the field by the Data Collector are unloaded to a host computer for further processing, storage, and

display. Computer-based predictive maintenance software allows the progress of faults to be monitored closely, allowing the time for repair to be dictated by the maintenance section and not the machine.

Where monitored machinery covers a wide geographical area, measurement and alarm data can be **remotely** transferred between the host and the Data Collector.

### None of the risks!

Having all of the features and capabilities of its standard cousin but complying with CENELEC standards EN50014 and EN50020, the **2526E Data Collector** delivers all of the benefits of predictive maintenance but with none of the risks!

The 2526E Data Collector addresses the needs of customers who want to realise the benefits of predictive monitoring in their explosive areas, while avoiding the additional costs associated with gas sniffers and permits.

The 2526E is certified intrinsically safe to **EEx ib I/IIB T4** for use in Zone 1 and Zone 2 environments. This means that it can be used directly in explosive atmospheres where, for example, crude oil, town gas or ethylene emissions may occur during normal operations. It is also certified for use in mines susceptible to firedamp.



### Field analysis & balancing

As maintenance personnel become more skilled in collecting machine data, their ability to troubleshoot machine problems may be enhanced by the acquisition of more advanced software.

To keep pace with the user's future monitoring requirements, optional **field analysis** and **balancing** programs for the Data Collectors are available.

## Choice of Computer-based Software for Portable or Integrated Solutions

Detailed fault diagnosis to find out exactly what is going wrong, trend analysis to determine exactly when the fault will become critical and, of course, storage in an easy-to-retrieve format are just some of the many functions undertaken by the host software.

Software packages are available for both Windows and UNIX environments, ranging from basic entry-level versions to more advanced packages for specialist fault detection and analysis. This *building-block* approach provides facility managers with the flexibility and economy of customising a predictive maintenance program that is specifically suited to the needs of both operators and machinery.

### Windows for portable solutions

For DOS computers, **SENTINEL™ Machine Monitoring Software** is an attractive range of Window-based

software packages that combines extensive display facilities and diagnostic tools with Windows-based simplicity.

Used together with the 2526 Series Data Collectors, **SENTINEL™** allows you to design an off-line monitoring strategy specifically suited to the needs of your machines, at a cost you can afford.

For full details on this Brüel & Kjær CMS product, refer to the **SENTINEL** product data sheet.

### UNIX for integrated solutions

The UNIX solution forms part of the Brüel & Kjær **COMPASS™ Machine Monitoring System**. It offers all the advantages of an integrated on/off-line monitoring system, with the simplicity of operation of software designed for control-room use. This solution also enables users to start with a small off-line system, and then later expand to a full off/

on-line system when enough experience has been gained.

### Remote monitoring

With both software solutions, the Data Collector can be loaded and unloaded –

- **directly** via a *RS232 serial interface* from/to the host computer
- **remotely** via a *telephone/modem connection* from/to the host computer

The **COMPASS** system also allows the Data Collector to be loaded and unloaded **remotely** via any UNIX-based X-terminal on a *TCP/IP LAN network* from/to a networked Central Vibration Monitor (CVM).

For further information on either **COMPASS** or **SENTINEL**, please ask for detailed product data sheets.

# Powerful Monitoring and Measurement Capabilities for Reliable Fault Detection

## Multiple inputs for all signal types

The 2526 Series accept inputs from accelerometers (both charge and current-drive), proximity probes, process transducers and tachometers. Input to the Data Collector is in the form of four connectors mounted at the top of the instrument or from the front-panel keyboard.

## Powerful measurement capabilities

The 2526 Series measure, analyse and log both machine vibration and process variables. The 2526 Series can apply every generally accepted monitoring technique, ranging from the simplest to the most advanced, and includes:

- **DC** – for monitoring shaft axial position, and process variables such as pressure and temperature

- **Lowpass and Bandpass** – to isolate a frequency range containing components of particular interest
- **Autospectra** – for high resolution narrowband frequency monitoring
- **CPB spectra (6%, 23% & 70%)** – for optimized detection of a wide range of faults
- **Cepstra** – for detecting faults in gearboxes and other machinery which produce complex harmonics
- **Selective Envelope Detection (SED) spectra** – for detecting faults in rolling-element bearings
- **Vector (magnitude & phase)** – for monitoring magnitude and phase of synchronous components e.g. detecting unbalance
- **RPM** – for measuring shaft rotational speed and as a reference for speed and phase-related measurements
- **Keyboard Input** – for inputting a numerical keyboard entry such as a control panel reading

Measurements can be made in either *absolute frequency* or *tracked as orders*, depending upon the type of measurement used e.g. the vector measurement is tracked as orders only. Averaging for FFT-based spectra is made in the frequency domain, or as synchronous time domain averaging.

## Total flexibility

*Digital Signal Processing (DSP)* provides the Data Collectors with flexibility, power, reliability, and all important growth possibilities. This gives unsurpassed performance, and means that the 2526 Series will never go out of date. New applications and new measurement techniques will require no hardware changes – software upgrades can be made directly from the host computer, without the need to return the instrument to the factory.

Measurement Type	Frequency/Order/Speed Range	Filter Characteristics	Averaging/Enhancing	No. of Lines/Bands	Zoom	Weighting Function	General
DC	—	—	100ms to 25.5s (in 100ms steps)	—	—	—	—
Lowpass/ Bandpass	1Hz to 44.7kHz (or order)	Bandwidth min. 1Oct., (60dB/decade roll-off)					Absolute or relative tacho/ RPM
Vector	Rotational speed 12 to 150000RPM	Order no.(n): Magnitude 1/2, 1 to 10 Phase 1 to 10  Bandwidth: 21% to 0.05% (depends upon aver. time & RPM)					Tacho triggered, time domain averaged
RPM	Rotational speed 0.5 to 3000000RPM  (12 to 150000RPM for relative meas.)	—	—	—	—	Keyboard, DC-transducer or tacho based (Gear Multiplication Factor is $N1/D1 \times N2/D2$ , where N, D = 1 to 999)	
FFT Spectra (including Cepstra and SED)	10Hz to 40kHz/20kHz for SED (or orders)  Min. Freq. Resolution: 0.025Hz	—	1 to 1000 Spectra (Cepstra)	400 lines	Up to 4000X (SED 2000X)	Rectangular  Hanning	Absolute or Relative Tacho/ RPM (Gear Multiplication Factor is $N1/D1 \times N2/D2$ , where N, D = 1 to 999)
CPB Spectra	1Hz to 44.7kHz	Bandwidth 70% (280dB/dec roll-off min.)  Bandwidth 23% and 6% (120dB/dec roll-off min.)	100ms to 100s (in 100ms steps)	up to 15, 46, & 186 bands	—	—	Absolute or compensated by best fit or tacho

Table 1 Measurement capabilities of the 2526 Series Data Collectors

## Setting Up a Measurement Route was Never Easier

To effectively detect and analyse machine faults at an early stage of development, the 2526 Series must be set up to achieve a specific monitoring purpose. The setup procedure is the means by which the monitoring purpose or requirement is 'communicated' to the Data Collector, and it plays a crucial role in achieving successful predictive maintenance.

Whether the setups are handled by the host or locally by the Data Collector, the structure of the setup for the 2526 Series is the same and includes:

- **What is to be monitored** – This is done by creating a *route hierarchy*, or 'map', which identifies and localises all machinery to be monitored.
- **What are the running conditions that the machine will be**

**monitored under** – This is done by creating *restrictions*, which allow different monitoring strategies to be defined for specific running conditions (available only with COMPASS software).

- **What kind of monitoring is to be done and to what limits** – This is done by defining *measurement(s)* and *alarm limits* for each measurement point.

One of the major problems common to many standard monitoring systems is the time taken to set up, particularly for the setup of measurement and alarm parameters. With perhaps 1000 points and a choice of up to 12 measurements per point, getting up and running in a short period of time would seem unlikely.

However, the setup procedure in the 2526 Series is very much simplified.

The operator sets up the route structure and allocates the selected measurement types to the measurement points in the route. No further setting up is required. Measuring the route once and unloading it to the host will automatically define all of the measurements as **reference measurements** with optimal gain. **Default alarm limits** for the reference measurements are automatically calculated and can be used in future monitoring runs.

This feature is available both for downloaded routes, and for routes created locally in the field.

## User-interfaces for Both Novice and Expert Operators

The versatile user-interface of the 2526 Series Data Collectors eases the measuring procedure, no matter if the operator is a novice or an expert.

### For the novice

For the beginner, the *ROUTE Screen* provides a one way 'road map' to pre-defined measurement points in the facility.

For routine data collection, the operator need never leave this screen display, as all the necessary information is displayed on one single screen including the name of the route, the machine group, the machine, the measurement point, the type of measurement, and the transducer to be used. See Fig. 1.

A two-button operation – **Measure** and **Enter** – is all that is required to measure and store a measurement. The ROUTE Screen will automatically update and point in the direction of the next measurement point or measurement in the route.

### For the expert

For the expert, the *VIEW Screen* gives the user access to a wealth of information. As well as displaying the same 'road map' to measurement points, the VIEW Screen also displays the **alarm status**; the **measurement status**; an **ESI™ plot** of the measurement; and the measured value of **restrictions** used to restrict the measurement to a process class.

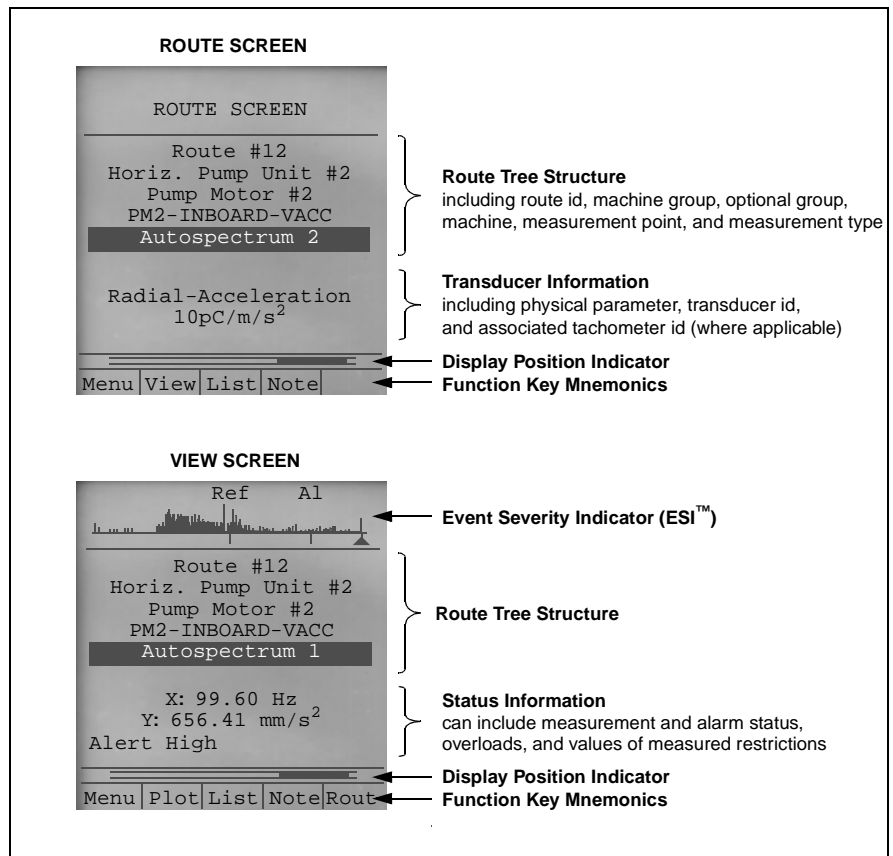


Fig. 1 For routine data collection, the versatile user-interface allows operators to choose the level of information displayed

Where a measured value is inconclusive or unacceptable, the VIEW Screen allows the measurement to be retaken as many times as required.

For detailed analysis in the field, this screen can also be used to access the 400-line spectrum display (see Full Spectrum Display).

# Special Design Features to Take the Drudgery Out of Data Collection

2526 Series Data Collectors have a number of in-built special features that are designed to reduce the operational costs for data collection.

### Adding inspection notes

Operator observations, such as spilled oil, can be entered in the field alongside a machine or measurement point (see Fig.2). The *NOTE Screen* can be accessed via the ROUTE and VIEW Screens, and displays a list of inspection notes that have been predefined by the user at the host PC, and then downloaded together with the route to the Data Collector.

### Hierarchical directories

At any time in the route the operator can call up a *LIST Screen*, which shows a list of all the 'nodes' at the selected hierarchical level, while simultaneously showing an overview of the measurement status for any selected node on the list. The operator can jump in the route if required and make a measurement at any of the points displayed.

This screen is also used by the optional upgrade packages to extend the Data Collector's field analysis capabilities.

### Alarm limits

Up to five possible limits can be downloaded into the Data Collectors via the host computer:

- *Danger High* and *Danger Low* (Danger Low only for scalar values)
- *Reference* (where it exists, will always be downloaded)
- *Alert High* and *Alert Low*

For phase measurements, 'High/Low' are replaced with 'Lead/Lag' respectively.

### Event Severity Indicator (ESI™)

With the unique Event Severity Indicator (ESI™), even the most complex spectra can be assessed 'at-a-glance'.

The ESI™ plot is used to judge the **quality** of a measurement and to give alarms in the field. It is not a true spectrum plot but rather a *relative distribution* of the measurement around downloaded reference and alarm limits. See example of Fig.3.

### Battery pack status

Batteries behave differently under different environmental conditions. 2526 Series Data Collectors have a special function that 'learns' the discharge characteristics of a battery.

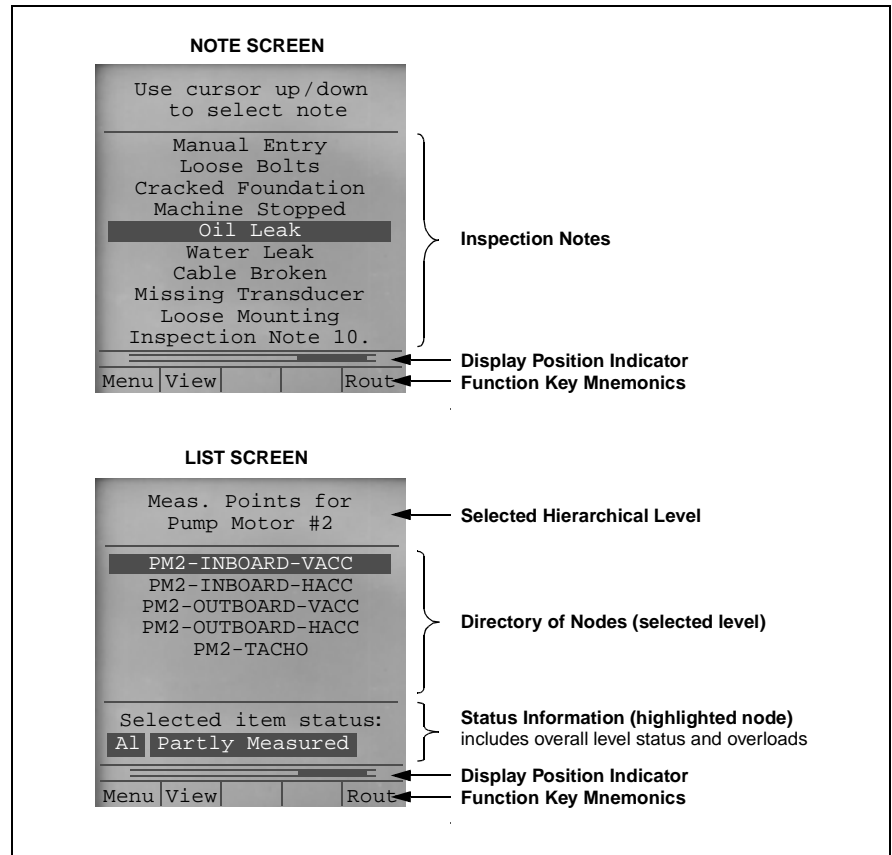


Fig. 2 There is a host of special screens and features to minimise operator skills and effort

They are thus able to give an accurate estimate of battery capacity for a given condition.

To ensure optimum operation at all times, the discharge characteristics can be stored for different battery packs, or for the same battery pack but operating under different environmental conditions.

### Demo route

The *Demo Route* is a small but comprehensive preprogrammed route. Using *Demo Route* an operator can get to know all about the Data Collector's

basic features and functions without leaving the comfort of the office.

### Less frequently used functions

In order not to burden everyday use of the Data Collector with such things as default settings, setting up the RS-232 interface and downloading new versions of the software, a special *Menu System* is used to access all of the less frequently used functions.

### Translated screen text

Screen text is available in English, French and German as standard.

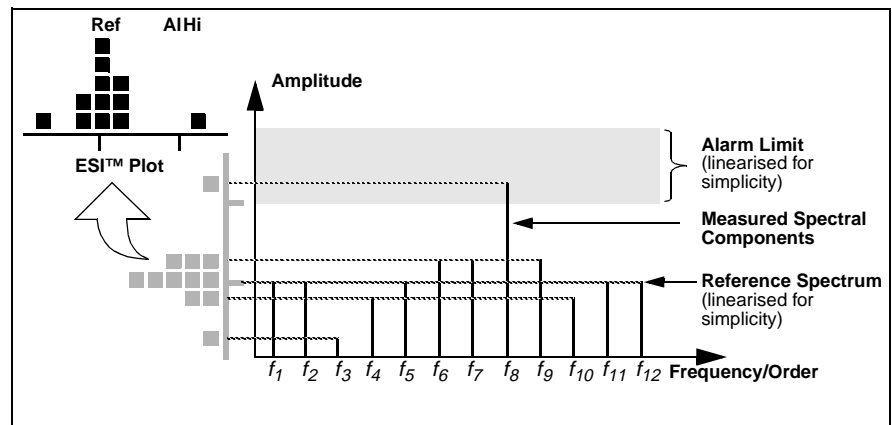


Fig. 3 Example of how a simple spectrum is plotted on the Event Severity Indicator

## Full Spectrum Display Facility

For detailed analysis in-the-field, a *plot* facility on the VIEW Screen allows you to display the spectrum plot for any of the measured spectra or cepstra measurements. See Fig.4.

A special 'zoom' feature on the spectrum display allows the operator to enhance particular areas of interest on the spectrum.

Using the *harmonic cursors*, the harmonic series for any selected component (taken as the fundamental) can be displayed. The left and right arrow keys on the Data Collector front panel can then be used to scroll along the x-axis. Each time a harmonic component is reached, the displayed x- and y-values at the top of the physical display highlight.

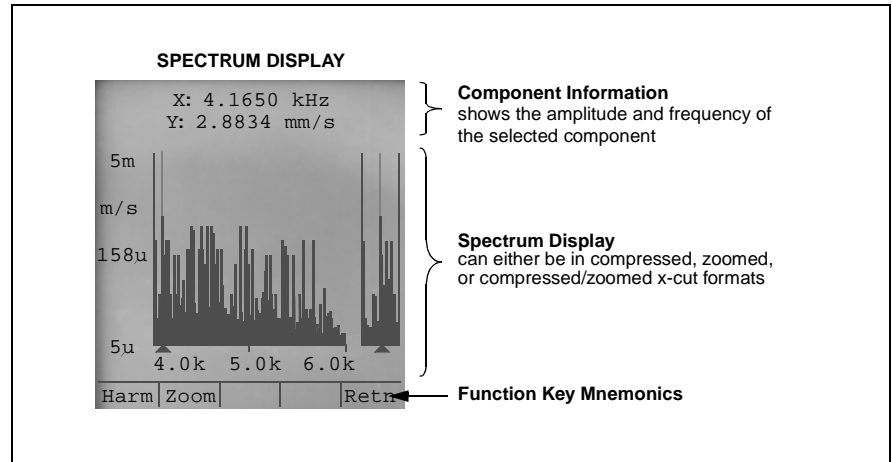


Fig.4 The Data Collector's spectrum display

## Optional Field Monitoring and Analysis Capabilities

Two optional software packages can be loaded directly into the Data Collector to economically extend its basic facilities to include extensive field monitoring and balancing capabilities.

The two software packages currently available are the –

- **Balancing Program Type 7111** for the static and dynamic balancing of rotors in-the field.
- **Field Analysis & Balancing (FAB) Program Type 7112** for in-situ editing of downloaded measurements; for creating and editing local Data Collector routes; and for field balancing of rotors as for the Type 7111.

### Familiar user-interface

Both of these optional packages are menu driven and, where possible, use the same user interfaces as the standard Data Collector program. This familiarity of screen displays, minimises the training required for proficiency in using the software.

### Editing downloaded measurements in the field

Using the FAB Program, the Data Collector operator can change the setup parameters for existing measurements in a downloaded route (Fig.5.). This editing feature is often used to 'fine-tune' measurement parameters – for example, when optimising the quality of a reference measurement.

Alternatively, where existing measurements in the route(s) are insuffi-

cient for the monitoring purpose, completely new measurements may be added.

### Local routes

This feature of the FAB Program enables the user to create and edit *local routes* in the Data Collector.

Local routes are routes that can be made by the operator in the field via the Data Collector's front panel. Local routes are totally independent of the host software, and will reside in the Data Collector's memory for as long as required, providing a simple, portable alarm-based monitoring system.

Local routes are initiated from the Data Collector's LIST screen. From here routes, machine groups, ma-

chines, measurement points and measurements can be inserted, edited or deleted.

All of the Data Collector's powerful measurement techniques are available to the field setup user. To make the task of setting up the measurement parameters in the field easier, measurement setups can be selected from a user-defined local database of 'template' measurement setups. Up to 50 user-defined setups can be stored, and copied into a route. Here the default measurement setup can be 'fine-tuned' using the editing facility.

In addition to the default setups, local reference measurements and locally calculated default alert and danger limits can also be generated for local routes.

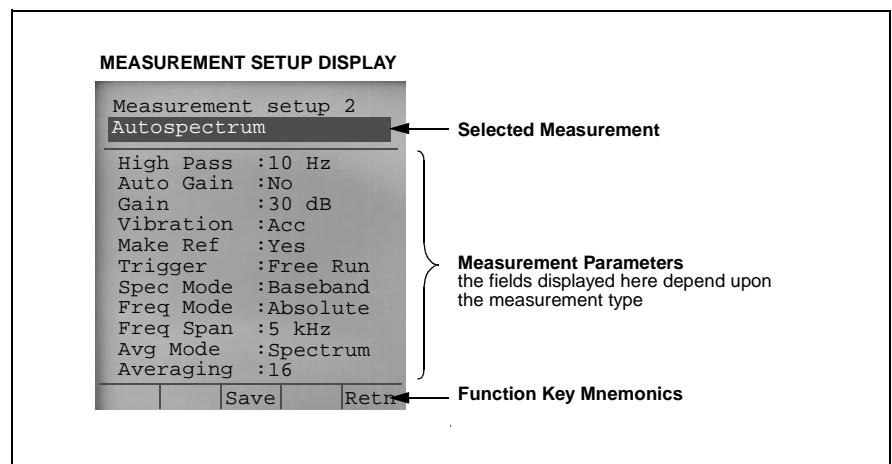


Fig.5 The measurement parameter setup display of the FAB Program

## Optional Field Balancing Capabilities

Unbalance is the most common source of vibration in machines with rotating parts.

Both the Type 7111 Balancing Program and Type 7112 FAB Program provide the 2526 Series Data Collectors with field rotor\* balancing capabilities.

### Static and dynamic balancing

With any one of the optional software programs installed, 2526 Series Data Collectors can perform both *static* balancing and *dynamic* balancing for up to four planes. Based on the magnitude and phase of vibrational forces produced at the rotational speed of the rotor, the balancing program calculates the compensating masses to be added to (or removed from) the rotor and their positions.

Balancing setups can be made for a new machine; for a machine from one of the normal Data Collector routes; or for a previously finished or unfinished balancing job recalled from the Data Collector memory.

Note that up to 25 machines may be stored in the Data Collector's memory for balancing.

### Recommended trial masses

The balancing program can recommend trial masses, based on the **mass** of the rotor, its **radius** (or circumference), and the speed of rotor rotation (see Fig.6). This feature allows operators to begin with temporary or permanent trial masses that better approximate the final correction masses than guesswork itself would allow.

### Correction mass position

The position of the correction mass in each plane and the result is calculated and displayed in **degrees**. Where the operator prefers using a tape meas-

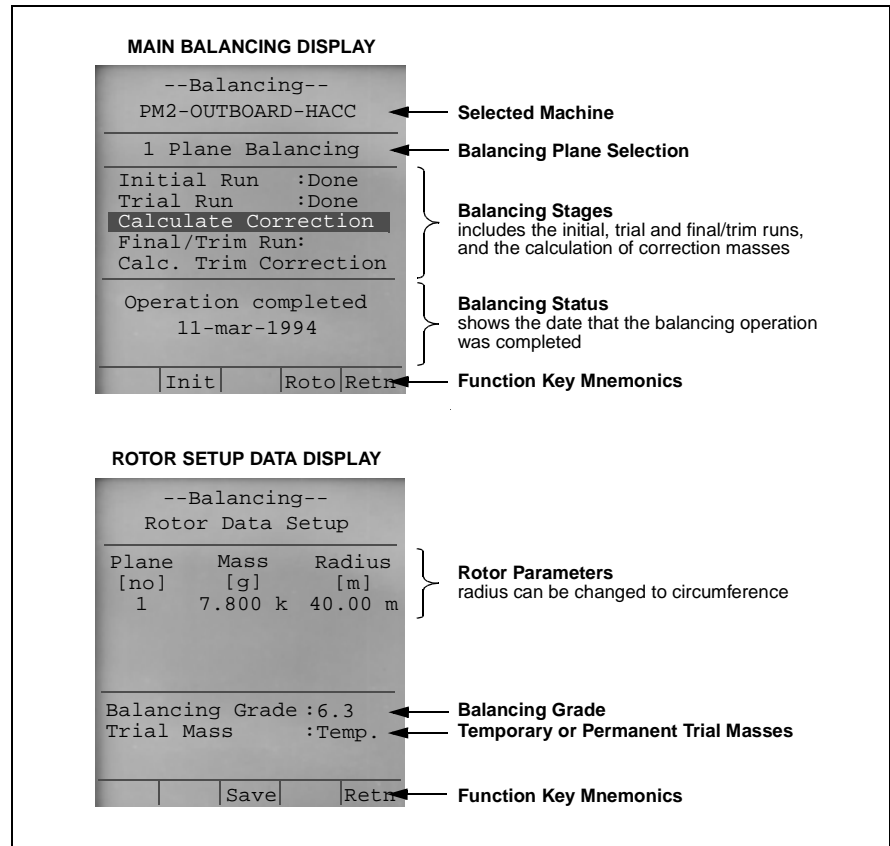


Fig.6 Two of the main displays from the balancing program

ure along the circumference of the rotor as opposed to a protractor, then the correction mass position can be converted to **arc length**.

### Fixed correction angles

For rotors with *fixed correction angles* (for example a fan), the balancing program can calculate correction masses for each of the positions. The equivalent correction masses calculated will be based upon the previously calculated correction mass, and the total number of equally spaced correction positions.

### Trimming

A *trim* function in the balancing programs can be used to reduce the residual vibrations on rotors that have just been balanced, or to re-balance previously balanced rotors – **without** the use of trial masses.

\* Note that although specifically intended for balancing rigid rotors, the 7111 and 7112 can also be used to balance many types of flexible rotors (refer to the recent issue of ISO 5406 "The Mechanical Balancing of Flexible Rotors").

## Ordering Information

<p><b>Type 2526 MK2:</b> Data Collector <b>Type 2526E:</b> Intrinsically Safe version</p> <p><b>The 2526 Series include the following –</b>          DH0541: Shoulder Strap          DH0686: Strap-clip for Accelerometer          KE0319: Carrying Case          ZG0341: Battery Charger          AO1386: Interface Cable to Host PC</p> <p><b>2526 MK2 Only</b>          ZG0340: Extra Battery Pack</p> <p><b>2526E Only</b>          ZG0349: Extra Battery Pack          KE0329: Leather Carrying Bag          QA0221: Battery Pack Key</p>	<p><b>Optional Accessories</b></p> <p><b>TRANSDUCERS:</b>  <b>Type 4391:</b> Industrial Accelerometer  <b>Type 4391E:</b> Intrinsically-safe Accelerometer  <b>Type 4395-S:</b> Industrial Accelerometer  <b>Type 8325F:</b> Industrial Accelerometer  <b>Type 8326F:</b> Intrinsically-safe Accelerometer  <b>Type 8327F:</b> Industrial Accelerometer  <b>AO0268:</b> Accelerometer Cable  <b>UA0553:</b> Mechanical Filter (for 4391)  <b>MM0024:</b> Photoelectric Tachometer  <b>ZC0028:</b> Non-contact Thermometer  <b>ZC0029:</b> AC Current Probe</p>	<p>For a complete listing of transducer accessories, refer to the "Industrial Transducer Overview" product data sheet (literature number BP 1509).</p> <p><b>HARDWARE:</b>  <b>WL0858:</b> Modem Cable  <b>WQ0623:</b> Headset with Amplifier</p> <p><b>APPLICATION PROGRAMS:</b>  <b>Type 7111:</b> Balancing Program  <b>Type 7112:</b> Field Analysis &amp; Balancing (FAB) Program</p> <p><b>CALIBRATION:</b>  <b>2526-CAF:</b> Data Collector Accredited Cal.  <b>2526-E-CAF:</b> Data Collector Accredited Cal.  <b>2526-MK2-CAF:</b> Data Collector Accredited Cal.</p>
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# Specifications 2526 Series

Unless otherwise stated, all specifications refer to both 2526 MK2 and 2526E Data Collectors

## GENERAL:

### Display:

128 x 128 dots Super Twist LCD. Manual and temperature compensated contrast regulation.  
Backlight Display (2526 MK2 only)  
Number of Display Lines..... 16  
Number of Characters per Line..... 21

### Power Supply:

Charger.....ZG0341 (charge time 4hrs)  
2526 MK2 Only:  
Battery Pack.....ZG0340 (7.2V @ 1.8Ah)  
Operation Time.....8hrs (normal usage)  
(can be reduced by 1 hour with extensive use of backlight)  
2526E Only:  
Battery Pack.....ZG0349 (7.2V @ 1.8Ah)  
Operation Time.....7hrs under normal usage

### Measurement Storage:

Memory 2526E/2526 MK2 ..... 2/3 Mbyte  
(~ 1.5 Mbyte program, route data 560kbyte  
(2526E + 7111, 7112) or 1760kbyte (2526  
MK2 + standard program)

The number of measurements stored depends on measurement type and package installed i.e.

Measurement Type	Standard Program	Balancing/FAB Program
Scalar – 2526E: 2526 MK2:	~ 1720 ~ 3960	~ 1240 ~ 3450
Spectra, no Ref. – 2526E: 2526 MK2:	~ 690 ~ 1600	~ 500 ~ 1410
Spectra with Ref. – 2526E: 2526 MK2:	~ 430 ~ 990	~ 314 ~ 875

### Charge Input (TNC):

Lower Freq. Limit (-1dB) .....0.16Hz (no gain)  
(0.30Hz with gain)  
Upper Freq. Limit.....44.7kHz (40kHz in FFT)  
Max. Input (Peak).....1420ms<sup>-2</sup>  
(0dB gain, B&K Accelerometer Type 4391)

### AC/DC Input (BNC):

Lower Freq. Limit (-1dB) .....DC (no gain)  
(0.30Hz with gain)  
Upper Freq. Limit.....44.7kHz (40kHz in FFT)  
Max. Input (Peak).....±10V  
DC Offset..... 0V or -10V  
DC Offset Error...(0V) <±3mV/(-10V) <±150mV  
DC Calibrated Accuracy.....>±0.15dB  
Input Impedance.....>0.5MΩ

### Current-drive Input (BNC):

Lower Freq. Limit (-1dB) .....0.30Hz (no gain)  
(0.45Hz with gain)  
Upper Freq. Limit.....44.7kHz (40kHz in FFT)  
Max. Input (Peak) (2526 MK2) .....5000ms<sup>-2</sup>  
Max. Input (Peak) (2526E).....1420ms<sup>-2</sup>  
(0dB gain, B&K Accelerometer Type 8327)

### Tacho (AC Coupled, BNT):

Hysteresis ..... 50mV  
Trig. Level ..... Typically 300mV digital (pk-pk)  
(Maximum 42V RMS)

Output/Supply ..... 6.2V/100mA  
Note that this input can be used with the MM0024, or other digital input sources

### High Pass Filter:

Lower Limiting Freq. (-0.1dB).....1,3, or10Hz  
Filter Slope ..... 60dB/decade

### Integrators:

One or two Integrations (Velocity and Displ.)  
Lower Limiting Freq.....1Hz  
Upper Limiting Freq.....Vel.20kHz/Displ.500Hz

### Amplifiers:

Settings..... 0 to 40dB in 10dB steps

### Dynamic Range (BW = 1Hz):



Digital (when Analog >80dB)..... >84dB  
Analog:

Amp. Setting	Range from Max. Level
0	100dB
10	90dB
20	80dB
30	70dB
40	60dB

### Overall Accuracy:

±0.5dB

## COMPLIANCE WITH STANDARDS

	CE-mark indicates compliance with EMC directive 89/336/EEC and Low Voltage Directive 73/23/EEC.
<b>Safety</b>	EN 61010-1 (1993) and IEC 1010-1 (1990): Safety requirements for electrical equipment for measurement, control and laboratory use.
<b>EMC Emission</b>	EN 50081-1 (1992): Generic emission standard. Residential, commercial and light industry. EN 50081-2 (1993): Generic emission standard. Industrial environment. CISPR 22 (1993): Radio disturbance characteristics of information technology equipment. Class B Limits. FCC Rules, Part 15: Complies with the limits for a Class B digital device.
<b>EMC Immunity</b>	EN 50082-1 (1992): Generic immunity standard. Residential, commercial and light industry. EN 50082-2 (1995): Generic immunity standard. Industrial environment. <b>Note:</b> The above is guaranteed using accessories listed in this Product Data sheet only.
	<b>2526E Only</b> EN 50014 (1997): Electrical apparatus for potentially explosive atmospheres. General requirements. Including amendments 1 and 2. EN 50020 (2002): Electrical apparatus for potentially explosive atmospheres. Intrinsic safety "i". Refer to the Ex-certificate for further details.
<b>Temperature</b>	IEC 68-2-1, IEC 68-2-2 & IEC 68-2-14: Environmental testing. Cold, Dry Heat, Change of Temperature Storage temperature: -25°C to +70°C <b>2526 MK2/2526E:</b> Operating Temperature: -10°C to +55°C Change of Temperature: -10°C to +55°C (2 cycles, 1°C/min.) <b>ZG 0341:</b> Operating Temperature: 0°C to +40°C
<b>Humidity</b>	IEC 68-2-3: Damp heat: 90% RH (non-condensing at 40°C)
<b>Mechanical</b>	Non-operating: IEC 68-2-6: Vibration: 0.3 mm, 20 m/s <sup>2</sup> , 10-500 Hz IEC 68-2-27: Bump: 3000 bumps at 400m/s <sup>2</sup> IEC 68-2-29: Shock: 1000 m/s <sup>2</sup>
<b>Enclosure</b>	IEC 529 (1989): Protection provided by enclosures (IP-code): IP54

## TRIGGER FUNCTION:

On Signal..... Free run, Positive or Negative Slope  
On Tacho..... Positive Slope only  
Gear Multiplication Factor for FFT Spectra.....  
N1/D1 x N2/D2 (N, D= 1 to 999)

## AC/DC OUTPUT:

BNC connector to tape recorder, headphone-preamp, etc

## Output Level:

Charge Input..... 1 mVxAmp (Setting=pC)  
Current-Drive Input (2526 MK2) ..3.16mVxAmp  
(Setting=mV)  
Current-Drive Input (2526E)..... 1 mVxAmp  
(Setting=mV)  
AC/DC Input ..... 0.141 mVxAmp (Setting=mV)  
AC/DC Output (max.)..... 1V<sub>RMS</sub>

## SERIAL INTERFACE:

9-pin male D-range connector. Complies with EIA 574 [compatible with EIA 232 (RS 232)]. Coupled as DTE (Data Terminal Equipment)

## Modem:

Please see your local Sales Representative for up-to-date information on modem requirements

## Body Dimensions:

Length..... 304mm  
Width..... 108mm  
Height ..... 55mm  
Weight..... 1.2kg (including battery)

Brüel & Kjær Vibro reserves the right to change specifications and accessories without notice

# Brüel & Kjær Vibro

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