

# SKF QuickCollect Sensor

CMDT 391 / CMDT 391-Ex



User Manual Part No. 15V-090-00090-100  
Revision B – March 2020

**⚠ WARNING!** Read this manual before using the product. Failure to follow the instructions and safety precautions in this manual can result in serious injury, damage to the product or incorrect readings. Keep this manual in a safe location for future reference.

® SKF is a registered trademark of the SKF Group.

Android is a trademark of Google LLC.

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by SKF is under license.

ICP® is the registered trademark of PCB Group.

iOS is a trademark or registered trademark of Cisco in the US and other countries.

All other trademarks and trade names are the property of their respective owners.

© SKF Group 2019

The content of this publication is the copyright of the publisher and may not be reproduced (even in extract form) unless prior written permission is granted. Every care has been taken to ensure the accuracy of the information contained in this publication, but no liability can be accepted for any loss or damage whether direct, indirect or consequential arising from the use of the information contained herein.

#### **Product Support – Contact Information**

*Product Support* – To request a [Return Authorisation](#), [Product Calibration](#) or [Product Support Plan](#), use the web page links for direct contact and support.

*Product Sales* – For customer support or information on purchasing condition monitoring products, contact your [local SKF sales office](#).

#### **General Product Information**

For general product information (i.e. product data sheets, accessories catalogue, etc.), visit the [Condition Monitoring Systems](#) page at SKF.com and select the appropriate product link.

#### **Technical Support Group**

For technical support when troubleshooting product installation or product performance, etc., use our [technical support](#) web page to search the knowledgebase, find further product information or contact one of our Technical Support Groups.

201703FP/PW-Feb-2020

# Table of Contents

<b>Introduction</b>	<b>1-1</b>
 Safety Messages	1-1
Specific Conditions of Use	1-2
About This Manual	1-2
Technical Support	1-3
<b>SKF QuickCollect Sensor</b>	<b>2-1</b>
SKF QuickCollect Sensor System Overview	2-1
Sensor Controls and Indications	2-3
Vibration and Temperature Measurements	2-4
Calibration, Repair and Disposal	2-7
<b>Using the QuickCollect Sensor</b>	<b>3-1</b>
Preparing the Sensor for Use	3-1
Measurement Guidelines	3-2
<b>Using the QuickCollect or ProCollect Apps</b>	<b>4-1</b>
ProCollect App	4-1
Downloading, Installing and Launching the QuickCollect App	4-1
Preparing to Take Measurements	4-2
Taking Measurements	4-7
Over-the-Air Firmware Updates (OTA)	4-10
Viewing Graphical Measurement Results	4-14
Reporting Measurement Results	4-16
<b>Index i</b>	<b>i-1</b>



## Safety Messages

---

***⚠ WARNING! Your safety is extremely important. Read and follow all warnings in this document before handling and operating the equipment. Failure to observe the safety warnings may result in personal injury and/or damage to the equipment and data loss.***

**WARNING!** - Warning messages are used to highlight an operating procedure, practice, condition or statement that must be strictly observed to prevent equipment damage or destruction, or corruption to or loss of data.

**IMPORTANT:** Important messages means that there is a risk of product or property damage if the instruction is not heeded.

### **Personnel Safety**

Dress properly. Do not wear loose clothing or jewellery. Keep hair, clothing and gloves away from moving parts.

Do not overreach, always maintain proper footing and balance when placing or retrieving the sensor.

Use safety equipment. Always wear eye protection. Non-slip safety shoes, hard hat and hearing protection must be used in the appropriate settings.

Do not repair or adjust energised equipment alone, under any circumstances. Someone capable of providing first aid must always be present for your safety.

Persons working on or near high-voltage equipment should be familiar with approved industrial first-aid methods.

Never open or work on energised electrical systems unless authorised by a responsible authority. Energised electrical systems are dangerous and electric shocks from energised systems can be fatal. Always ensure that the necessary permission or permit to work has been obtained before commencing any work.

Always obtain first aid or medical attention immediately after sustaining an injury. Never neglect an injury, no matter how superficial it initially seems.

### **Device Safety**

If the sensor has been dropped, check for damage before using. Sensors must only be serviced by qualified SKF repair personnel.

Use only accessories recommended or provided by SKF or the manufacturer. The magnet must only be attached by hand, no mechanical advantage is to be used. Be aware that the use of excessive torque when attaching the magnet can damage the sensor. The recommended torque is 2.9 Nm.

## No Submersion/Immersion

The sensor is dust tight and has an IP rating consistent with resisting water spray from all directions. If it is subjected to more extreme conditions, this may affect its operation.

## Avoiding Damage and Injury

To avoid damage to the sensor or injury caused by the sensor falling, always place it on a solid stable surface when not in use and do not place any heavy objects on it.

Use a damp, clean cloth for general cleaning. Unless explicitly stated otherwise do not use cleaning fluids, abrasives or aerosols as these might cause damage, fire or electrical shock.

## Specific Conditions of Use

---

The Ex approved version of the QuickCollect sensor, CMDT 391-Ex, must be used in accordance with the safety instructions provided with that device.

Agency approvals for the CMDT 391-Ex with CMAC 8010-Ex cable:



Ex ib IIC T4 Gb  $-20\text{ °C} \leq T_a \leq +60\text{ °C}$



Ex ib IIC T4 Gb  $-20\text{ °C} \leq T_a \leq +60\text{ °C}$

Class I, Zone 1, AEx ib IIC T4 Gb  $-20\text{ °C} \leq T_a \leq +60\text{ °C}$

IS Class I, Div. 2, Group A, B, C, D, T4

## About This Manual

---

This manual provides information on the setup and use of the SKF QuickCollect Sensor **Bluetooth**<sup>®</sup> instruments (part no. CMDT 391 and CMDT 391-Ex) and the SKF QuickCollect app. In this manual, the sensor instrument is commonly referred to as the QuickCollect sensor, or just the sensor and the companion app as SKF QuickCollect app or just the app.

The features and functions are described from the perspective of a CMDT 391 but apply equally to the CMDT 391-Ex provided that the safety instructions are followed.

In this manual certain conventions are used:

**Bold** type is used to indicate text that appears in a menu, window or dialogue box.

*Italics* are used to emphasise important information.

➤ is used to indicate notes to the reader.

Step-by-step procedures are sequenced using bullet points, •.

## Technical Support

---

For any questions regarding the installation or operation of SKF products, before contacting the help desk, please visit the self-help portal to see if the answer has already been published:

*Technical Support Self-help Portal:* [www.skf.com/cm/tsg](http://www.skf.com/cm/tsg)

If further assistance is needed, please submit a support request by clicking on the SUPPORT tab, and one of our support engineers will be in contact.

The technical support team can be reached during normal business hours (7 am to 4 pm local time) by phone, e-mail or live chat:

*Customers in Europe, Middle East and Africa:*

Phone: +46 31 337 6500

E-Mail: [TSG-EMEA@skf.com](mailto:TSG-EMEA@skf.com)

Chat: [www.skf.com/cm/tsg](http://www.skf.com/cm/tsg)

*Customers in all other locations:*

Phone: 1-858-496-3627 or toll-free (USA) 1-800-523-7514

E-Mail: [TSG-Americas@skf.com](mailto:TSG-Americas@skf.com)

Chat: [www.skf.com/cm/tsg](http://www.skf.com/cm/tsg)





### SKF QuickCollect Sensor System Overview

---

The SKF QuickCollect sensor is part of the SKF Enlight QuickCollect system, which also includes SKF mobile apps and SKF Machine Health software. This system is used by service, reliability, operations or maintenance personnel as part of a walk-around data collection program. With one wireless vibration and temperature sensor which can be connected to a tablet, smart phone or smart watch, the user can monitor hundreds of assets per day and thousands of assets per month. The data can be analysed on the spot in real time or sent to the cloud for analysis.



Figure 2 - 1.  
On the job with an Enlight QuickCollect system.

In brief, a typical operation would include the following steps:

Take the QuickCollect sensor and smart device out to the rotating machinery to be monitored (such as a pump or motor).

Mount the sensor on the bearing housing using the magnetic mount.

Initiate the sensor measurement wirelessly using **Bluetooth**® Low Energy from the SKF QuickCollect, DataCollect or ProCollect app running on a smart device.

After making the measurement, remove the sensor and proceed to the next machine or measurement location and continue taking measurements.

When complete, return the sensor to its charger.



Figure 2 - 2.  
A portable data collection system.

The QuickCollect sensor uses **Bluetooth**® low-energy version 4.2 wireless technology to communicate with off-the-shelf iOS and Android devices using the SKF QuickCollect, DataCollect or ProCollect applications for capturing overall machine vibration (velocity and enveloped acceleration), time waveform and temperature data.

The QuickCollect sensor features wireless data transfer, a rugged design and a rechargeable battery. The sensor increases operator safety by eliminating the hazards and inconvenience of cumbersome cables to provide a safe, fast and easy-to-use system for performing front-line machinery condition monitoring. The data collected and transferred to the SKF app is displayed on the screen with easy-to-identify colour-coded bars that indicate alarm status: green for acceptable, yellow for alert and red for danger.

Full specifications for the sensor are listed in its product datasheet.



Figure 2 - 3.  
QuickCollect sensors CMDT 391 and CMDT 391-Ex.



Figure 2 - 4.  
The SKF QuickCollect app for mobile devices.

## Sensor Controls and Indications



Figure 2 - 5.  
Sensor controls and LEDs.

- ① Power button
- ② Battery LED
- ③ Communication LED
- ④ All-purpose check LED

**Power button** – Powers the sensor on and off. When the sensor is off, pressing the power button will immediately turn on the sensor.

When powered on, a 15-minute inactivity timer will start. If no communication is detected between the sensor and QuickCollect, DataCollect or ProCollect within 15 minutes, the sensor will automatically power off.

When powered on, a button press of less than 3 seconds will reset the inactivity timer.

When powered on, a press and hold of greater than 3 seconds will power off the sensor.

#### **Battery LED – (Green, Red)**

When connected to a (powered) charger:

Green – Indicates battery had reached full charge, charging has stopped.

Red, solid – Indicates battery is being charged.

Otherwise, the battery LED is normally off but:

Red, slow blinking – Indicates low battery. Remaining life is about 15% of fully charged level.

Red, fast blinking – Indicates battery charge is too low to keep the sensor powered on; the device will power itself off.

#### **Communication LED – (Green, Red)**

Off – Indicates the sensor is powered off.

Green, blinking – Indicates the sensor is powered on and not connected to the app.

Green, solid – Indicates the sensor is powered on and connected to the app.

Toggleing between green and red – Firmware update in progress.

#### **All-purpose check LED – (Green, Red, Amber)**

Green – No errors

Red, solid – Indicates an error condition: factory state, no serial number, uncalibrated.

Red, fast blinking – Indicates a critical error.

Toggleing between red and amber – Indicates an external sensor error.

---

## **Vibration and Temperature Measurements**

When used directly on a machine, the QuickCollect sensor can collect simultaneous vibration and temperature measurements. Note that when an external sensor is being used (external sensor cable connected), a temperature measurement cannot be made.

### **Vibration**

Most machinery problems result in excessive vibration. Mechanical looseness, imbalance, soft foot (foundation), misalignment, shaft bow, bearing wear, gear defects, or rotor damage can all be detected using vibration measurements.

When performing measurements, the sensor's vibration output is processed to produce two very meaningful vibration measurements for each measurement point.

**Velocity** – Vibration velocity is considered the “general purpose” vibration measurement for detecting machinery problems. This is because most machinery problems generate low to mid-frequency sinusoidal-type vibration signals (problems such as imbalance, misalignment, bent shaft and looseness), and velocity measurements focus on detecting vibration signals occurring in this frequency range. ISO standards provide general guidelines for vibration severity using velocity criteria.

**Enveloped acceleration** – Rolling element bearing faults cause low-amplitude impulsive -type vibration signals at a regular rate of repetition. When monitored using velocity measurements, these low-energy impulsive signals are typically lost in surrounding machinery vibration noise caused by imbalance, misalignment, looseness, etc. Enveloped acceleration measurements filter out surrounding machine vibration noise and enhance the impulsive nature of repetitive rolling element bearing or gear fault vibration signals, allowing much earlier and accurate bearing fault detection. Not used for overall machine vibration monitoring, enveloped acceleration measurements ensure consistent early detection of bearing and gear-type defects.

**Measurement and analysis capabilities** – When the sensor is used in conjunction with the SKF ProCollect app and SKF Enlight Centre the available sample rates (bandwidth) and FFT resolution are extended and adjustable.

### QuickCollect Sensor - Temperature

Temperature measurement is a useful indicator of mechanical condition or the load applied to a specific component. As a bearing or its lubrication fails, friction causes its temperature to rise. Measuring temperature changes at the bearing helps the early recognition of problems and the scheduling of corrective maintenance before a serious and expensive failure occurs.

The sensor’s opening for taking temperature measurements is located next to the magnet mounting, Figure 2 – 6 below. The infrared (IR) sensor has a range of 4 cm and quickly determines the temperature of the equipment to which the QuickCollect sensor has been attached. Note that the temperature measurement is unavailable when the external sensor cable is in use.

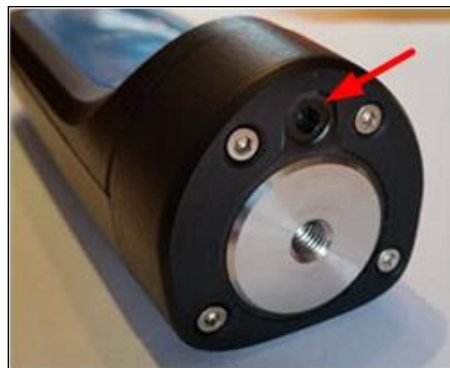


Figure 2 - 6.  
IR sensor location.

### External Sensor Setup (not compatible with the CMDT 390 sensor)

The CMDT 391 has been engineered to support any two-wire, constant current powered, external accelerometer that provides an output of 100 mV/g and a bias voltage to indicate sensor OK.

For the connection to the CMDT 391, the correct SKF cable (part no. CMAC 8010) must be used, Figure 2 – 7 below. This cable has a 6-pin connector that mates with the unit's external sensor/charging connector, [Figure 3 - 1](#).



Figure 2 - 7.

CMAC 8010 – External sensor cable for the CMDT 391.

**⚠ Important: Note that the CMDT 391-Ex uses cable part number CMAC 8010-Ex. Refer to the safety instructions for specific conditions of use and the entity/connector parameters to be considered when selecting a suitable Ex approved external accelerometer.**

The SKF recommended external accelerometer for use with the CMDT 391 is the CMSS 2100 and for the CMDT 391-Ex it is the CMSS 786A-IS.

Ensure the external sensor cable is securely attached by following these steps:

- Locate the small notch on the QuickCollect connector.
- Align the cable connector's keyway to that notch and press gently to join the two connectors.
- Tighten the screw lock on the cable mounted connector to secure it (do not over tighten).

Or alternatively:

- Press the two connectors gently together and slowly rotate one connector until the keyway slides into the notch, and then tighten the screw lock to secure.

The maximum total external cable length the CMDT 391 can drive, is 10 metres. The CMAC 8010 cable is 2-metres long so the maximum length of additional external cable is 8-metres.

The other end of the external sensor cable has a 2-pin (MIL-C-5015) connector suitable for direct connection to standard SKF accelerometers. If the cable is to be attached to another type of connector then a suitable adapter must be sourced.

Note the following:

- It is not possible to take a measurement using the internal sensor whilst a cable is attached to this connector, as the internal sensor is disconnected and therefore inoperable. This applies even if no external sensor is attached to that cable.
- When using an external sensor cable the temperature measurement is similarly unavailable.
- Battery life will be reduced as the QuickCollect sensor is powering the external sensor.
- Never carry the QuickCollect sensor by the attached cable.

The following status conditions may apply when using an external sensor/cable combination:

1. No cable plugged in - this is the expected status when using the internal sensor to acquire data and not having any sort of cable attached.
2. Cable plugged in and no error detected - this is the expected status when using an external sensor to acquire data. It indicates the external sensor cable is attached and no error condition detected.
3. Cable plugged in and a short circuit error detected.
4. Cable plugged in and an open circuit error detected.
5. Cable plugged in, but no sensor attached.

Notes:

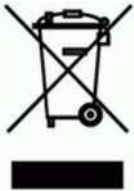
Status conditions 3, 4 and 5 are considered error conditions and are signalled by the All-purpose check LED flashing alternate amber and red, approximately 2 times a second

It is not possible to take a measurement when an error condition is detected.

At present, it is not possible to distinguish between the open circuit error condition (4) and the no sensor attached condition (5).

## Calibration, Repair and Disposal

---



It is recommended that the QuickCollect sensor be calibrated every 24 months, with the first calibration due 24 months from the first date of in-service, use.

SKF can provide calibration and if needed repair/replacement of QuickCollect sensors.

Electrical waste and electrical equipment should be recycled as specified by the WEEE-directive and not be placed in the general refuse. Product should be sent to an approved recycling centre for safe recycling, recovery, reuse or returned to SKF.





## Using the QuickCollect Sensor

### Preparing the Sensor for Use

---

#### Charging the Battery

**⚠ The battery should only be charged in an office environment. Always use the correct charger: for the CMDT 391 this is the CMAC 8004 and for the CMDT 391-Ex this is the CMAC 8007.**

The sensor is equipped with an internal lithium ion battery. Prior to using the sensor for the first time, use the provided power supply to fully charge the sensor battery.

The sensor's only external connector is the 6-pin "back" connector. This is dual use: for charging the sensor (when not collecting data) and for using an external accelerometer to take vibration measurements.



Figure 3 – 1.  
External sensor and charging connector.

#### To charge the battery:

Connect the charger to an AC outlet (if necessary, use regional AC outlet adapters).

Align, connect and tighten the charger's cable to the sensor's external 6-pin connector.

The battery LED will be red whilst the battery is charging. The battery will be fully charged after approximately four hours. The battery LED will be green when the battery is fully charged.

Once the battery is fully charged, the sensor is ready for operation. The battery LED will blink red when the power level is low. If the battery level becomes too low, the sensor will automatically power itself off to prevent battery damage.

- When not being used for data collection, connect the sensor to its charger.

## Measurement Guidelines

---

### Performing Vibration Measurements

Vibrations measurements are typically performed with the machine operating under normal conditions. For example, when the machinery has reached its normal operating temperature and is running under its normal rated condition (at rated voltage, flow, pressure and load). For machines with varying speeds or loads, perform measurements at all extreme rating conditions, as well as at selected conditions within these limits.

Place the sensor's magnet on the machine's measurement point. When placing the sensor on the machine, generally avoid greasy, oily or wet surfaces, housing joints, panels and non-structural parts. Select the best measurement point (specifically avoid unloaded bearing zones) and be consistent in terms of sensor position, sensor angle/alignment and contact pressure.

If possible, choose a flat surface in the bearing's load zone. Measurements should be taken at the same precise location (as moving the probe only a few inches can produce drastically different vibration readings). To ensure measurements are taken repeatably, mark the measurement point with a permanent marker.

Proper hand-held sensor technique is vital to the accuracy of measurements. It is critical that consistent measurements are made.

When taking measurements using an external cable and sensor, care must be taken not to move the cable during data collection.

Using the cable in conjunction with different external accelerometers may give different readings due to the variation in the accelerometers used. Measurements will also vary between the internal sensor and an external sensor. Be consistent by always using the same sensor for a particular measurement point, i.e. internal sensor or same external sensor.

### Performing Infrared Temperature Measurements

To perform accurate non-contact infrared temperature measurements, bear in mind infrared sensor cleanliness. The infrared sensor has a small opening. Dirt, grease or oil may enter the opening and cause inaccurate temperature measurements. If necessary, clean the opening using alcohol and cotton buds.

## Using the QuickCollect or ProCollect Apps

### ProCollect App

---

The QuickCollect sensor can be used with the SKF QuickCollect, DataCollect or ProCollect apps. The operation of the QuickCollect app is described below, for details and guidance regarding the use of the ProCollect app, refer to the SKF ProCollect User Manual (15V-090-00089-100).

### Downloading, Installing and Launching the QuickCollect App

---

The QuickCollect app is compatible with iOS 9.0 or later and can be downloaded from the Apple App Store or Google Play.

#### To launch QuickCollect for the first time:

- Tap the SKF **QuickCollect** icon on the device. The welcome screen will appear.



Figure 4 – 1.  
QuickCollect app welcome screen.

- Tap **Configure thresholds** to jump directly to the Settings table and configure the measurement danger and alert alarm thresholds or tap **Skip** to navigate to the app's home screen.

Tap to select **Stop reminding me** to skip this welcome screen when launching the app in the future.

## Preparing to Take Measurements

### To configure alarm thresholds:

- Navigate to the **Settings** table, either from the welcome screen as described above or by tapping the settings icon in the top right of the app's home screen.

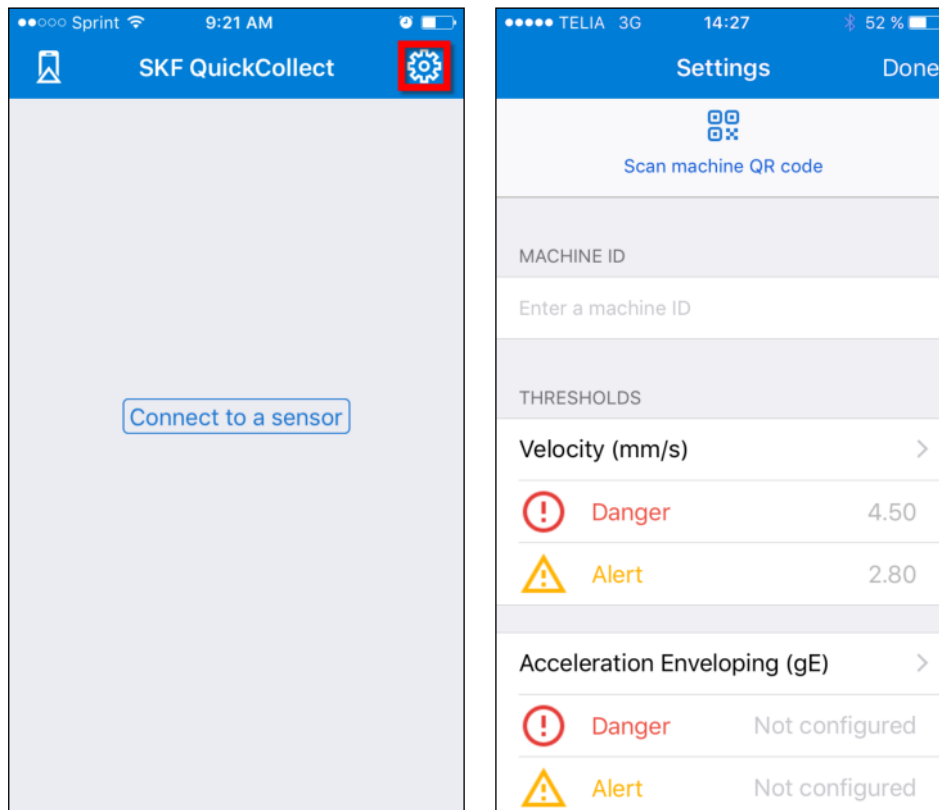


Figure 4 – 2.  
Navigating to the Settings table from the home screen.

- Tap the QR icon to scan a machine's QR code in order to automatically collect information and values for thresholds for the machine.

OR

- Tap within the **MACHINE ID** text box to bring up a keyboard and enter unique identifying information for the machine (a machine ID or tag reference).

- Tap the **THRESHOLDS: Velocity** field to navigate to the **Velocity** table.

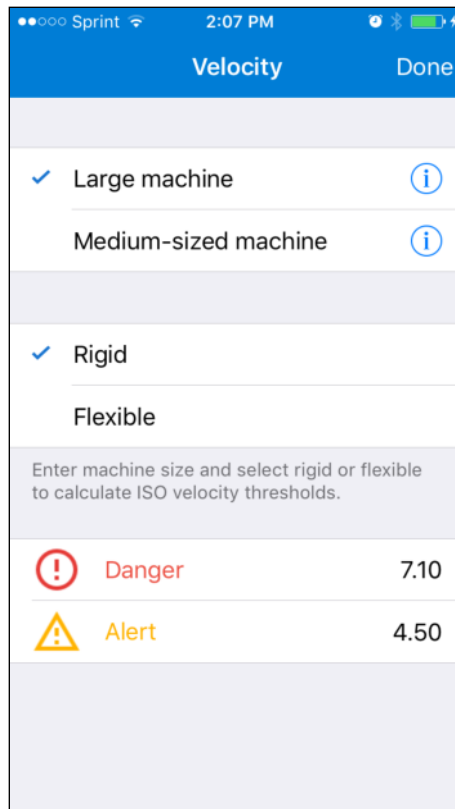


Figure 4 – 3.  
Velocity table.

- Make selections and/or enter values for **Velocity** measurement thresholds:
  - Select whether the machine being measured is a **Large machine** or a **Medium-sized machine** and whether it is **Rigid** or **Flexible**. The app will then automatically calculate appropriate ISO velocity thresholds for the class of machine.
    - Tap either information icon to learn what constitutes a **Large machine** as opposed to a **Medium-sized machine**.
  - Alternatively, tap within the **Danger** and/or the **Alert** field to bring up a keyboard and enter a threshold value. User-defined levels may be entered.
- Tap **Done** to set all configurations and return to the **Settings** table.

- Tap the **THRESHOLDS: Acceleration Enveloping** field to navigate to the **Acceleration Enveloping** table.

Acceleration Enveloping		Done
BEARING BORE SIZE (MM)		
100		
ROTATIONAL SPEED (RPM)		
300		
!	Danger	1.66
⚠	Alert	0.55
Enter bearing bore size and rotational speed to calculate Acceleration Enveloping thresholds.		
BEARING DESIGNATION		
Bearing designation (part number)		
This information will be included in any email reports.		

Figure 4 – 4.  
Acceleration Enveloping table.

- Make selections and/or enter values for **Acceleration Enveloping** measurement thresholds and other information:
  - Tap within the **BEARING BORE SIZE** text box to bring up a keyboard and enter the bore size of the bearing in the units currently designated (mm or inches, indicated next to field label).
  - Tap within the **ROTATIONAL SPEED** text box to bring up a keyboard and enter the shaft rotational speed, in RPM, for the measurement point.
  - The app automatically calculates the acceleration enveloping thresholds for the bearing at the shaft speed indicated.
  - Tap within the **BEARING DESIGNATION** text box to bring up a keyboard and enter the bearing’s part number for reference purposes.
- Tap **Done** to set all configurations and return to the **Settings** table.

- Tap the **THRESHOLDS: Temperature** field to navigate to the **Temperature** table.



Temperature		Done
°C		
	Danger	82.0
	Alert	72.0

Figure 4 – 5.  
Temperature table.

- Enter values for the **Temperature** measurement thresholds:
  - Tap within the **Danger** and/or the **Alert** field to bring up a keyboard and enter a threshold value in the units currently designated (degrees Celsius or degrees Fahrenheit, indicated above these fields).
- Tap **Done** to set all configurations and return to the **Settings** table.

- Below the **THRESHOLDS** field, tap to select the measurement units for all measurements: **Metric** or **Imperial**.

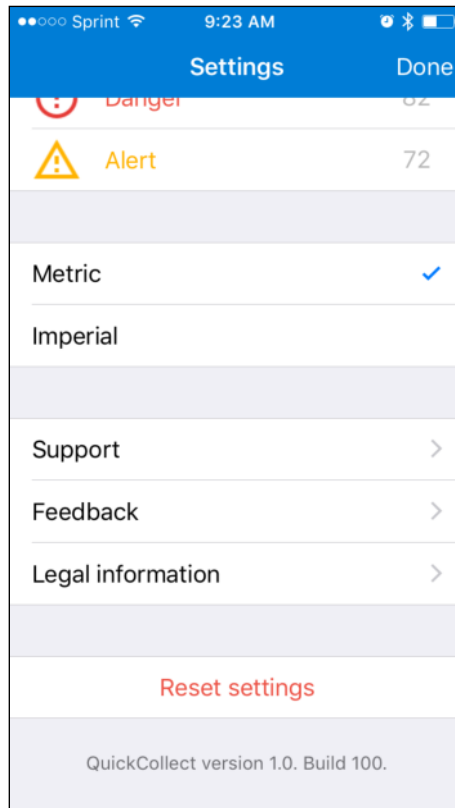


Figure 4 – 6.  
Settings table, scrolled to bottom.

- Tap the **Support** field to start an email requesting support for an application (app) issue.
- Tap the **Feedback** field to start an email providing application (app) feedback.
- Tap the **Legal information** field to review QuickCollect terms and conditions (including warranty disclaimer and limitation of liability, copyright, trademarks and patents), privacy policy, ownership information and more.
- Tap **Reset settings** to reset all **Settings** configurations to their defaults.
- Tap **Done** to return to the home screen.



## Taking Measurements

To connect to a sensor and obtain measurement data:

**IMPORTANT! The phone's Bluetooth function must be on to communicate with a QuickCollect sensor.**

Navigate to the **Devices** table by tapping **Connect to a sensor** in the middle of the home screen or the devices icon in the top left of the screen.

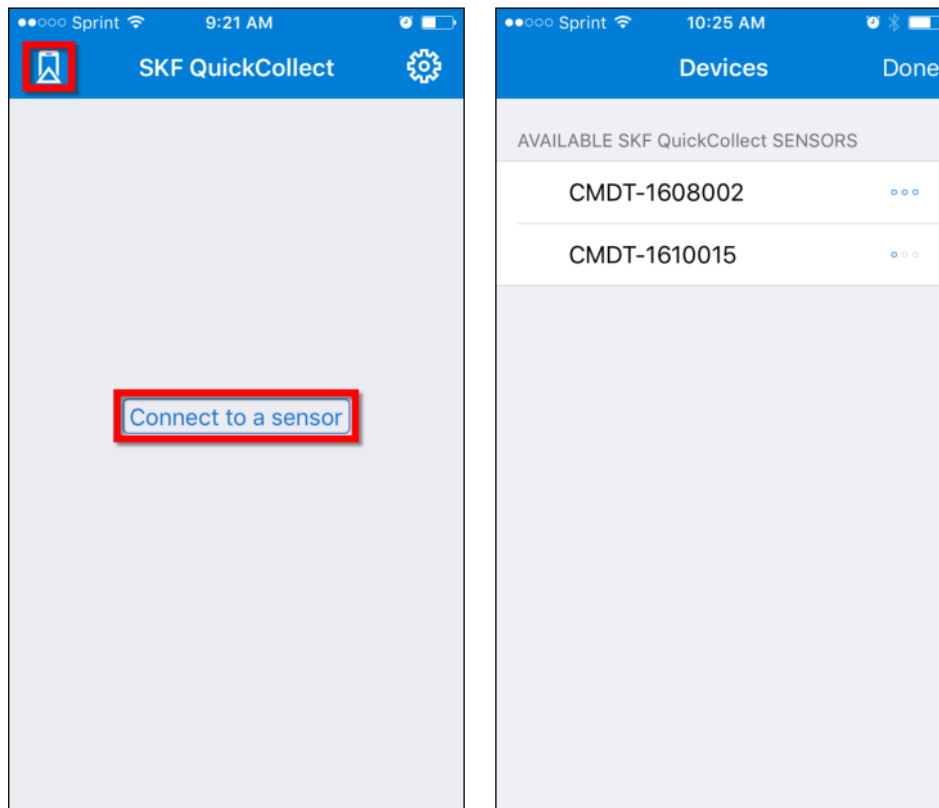


Figure 4 – 7.

Navigating to the Devices table from the home screen.

The names of the available QuickCollect sensors will appear in the **Devices** table with their signal strengths indicated to the right.

- Tap to select the desired sensor.
  - If the device's Bluetooth feature is not on, there will be a prompt to turn it on. Tap **Settings** to navigate to the device's Settings area and enable Bluetooth.

Once the app has successfully connected to the sensor, a checkmark and an information icon will display next to that sensor.

- To view details about the sensor, tap on the information icon.

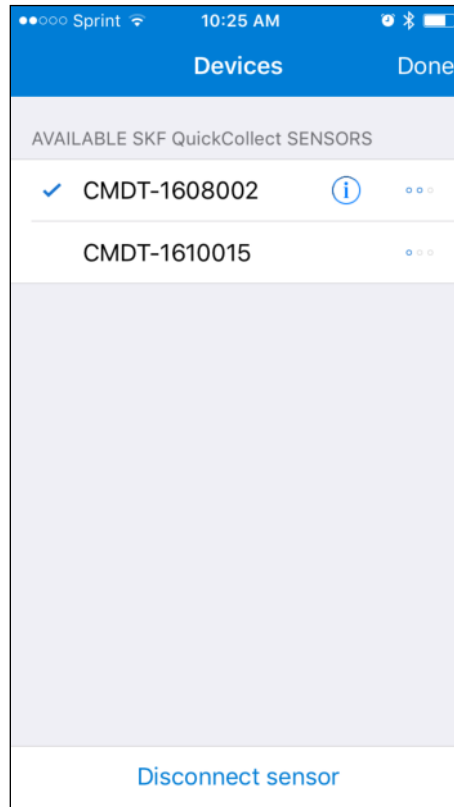


Figure 4 – 8.  
Devices table with connected sensor.

- To disconnect from the connected sensor, tap Disconnect sensor or tap to select a different sensor.

- When ready to continue with the selected sensor, tap **Done** at the top of the **Devices** table. The home screen will then be displayed with Live Readings.

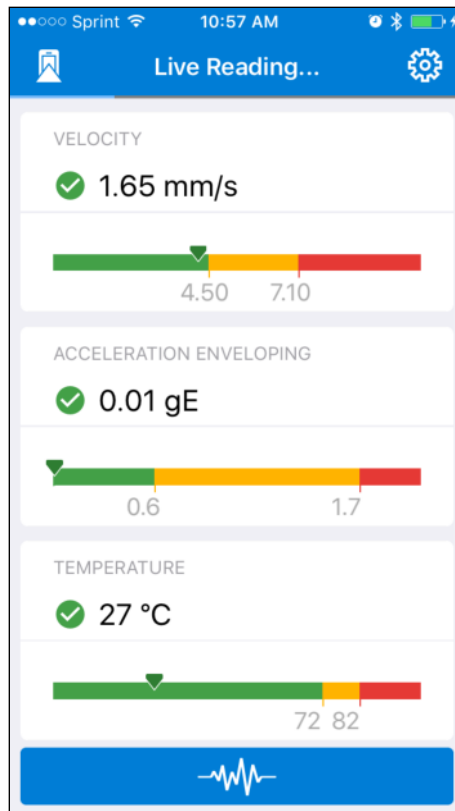


Figure 4 – 9.  
Home screen with live readings.

Each reading displays a current overall measurement, including alarm status and alert and danger thresholds.

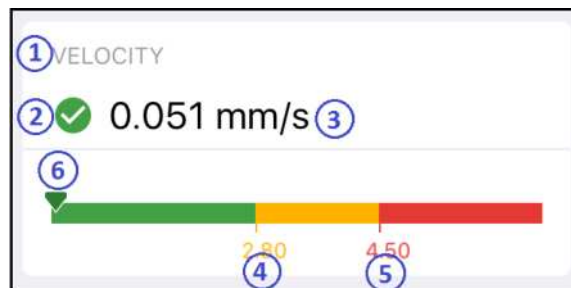


Figure 4 – 10.  
Live reading detail.

- |                     |                     |
|---------------------|---------------------|
| 1. Reading category | 4. Alert threshold  |
| 2. Alarm status     | 5. Danger threshold |
| 3. Overall value    | 6. Current reading  |

## Over-the-Air Firmware Updates (OTA)

---

### To update the firmware:

- Tap the information icon next to the sensor.
  - **Firmware updates (OTA)** will be visible only if there is more recent firmware available than that already installed and if the battery percentage is over 50%.



Figure 4 – 11.  
Over-the-air firmware updates available.

- After tapping **Firmware updates**, the **Firmware** screen will display current versions of and available updates for the Core and Bluetooth firmware.
- Tap **Update Firmware** to download updates.
  - If there are updates available for both Core and Bluetooth, both will be downloaded.
  - The time for downloading varies between 2 and 15 minutes.
  - When downloading, the sensor should be left on and be disconnected from the charger.



Figure 4 – 12.  
Firmware screen

When downloading, progress will be displayed as a percentage.

- If an error occurs or if downloading stops, an error message will be displayed.

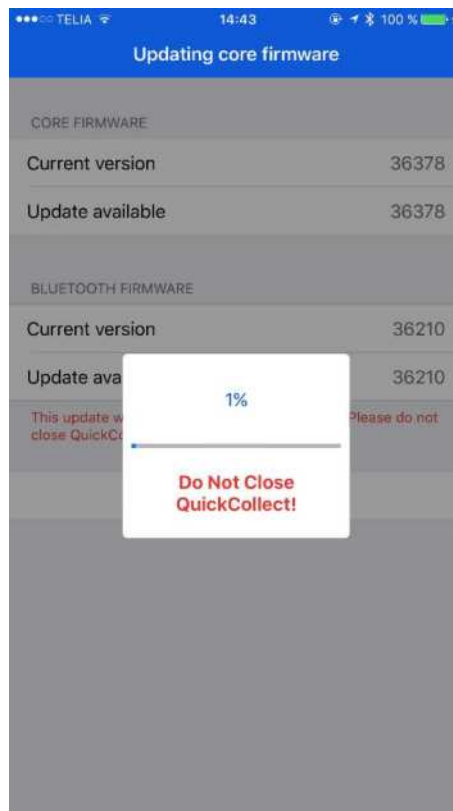


Figure 4 – 13.  
Download view.

When the download is complete, the process status will be displayed as “Update Succeeded!”

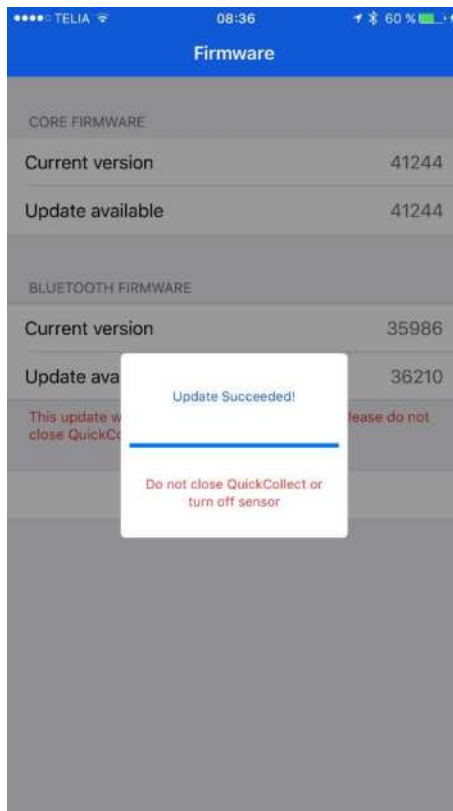


Figure 4 – 14.  
Download view.

## Viewing Graphical Measurement Results

---

### To view measurement data plots:

Tap the generate plot button at the bottom of the home screen.



Figure 4 – 15.  
Generate plot button.

QuickCollect collects data and then processes this data to calculate velocity and acceleration envelope. The **Measurement Results** screen will appear with two **View Spectrum** options.

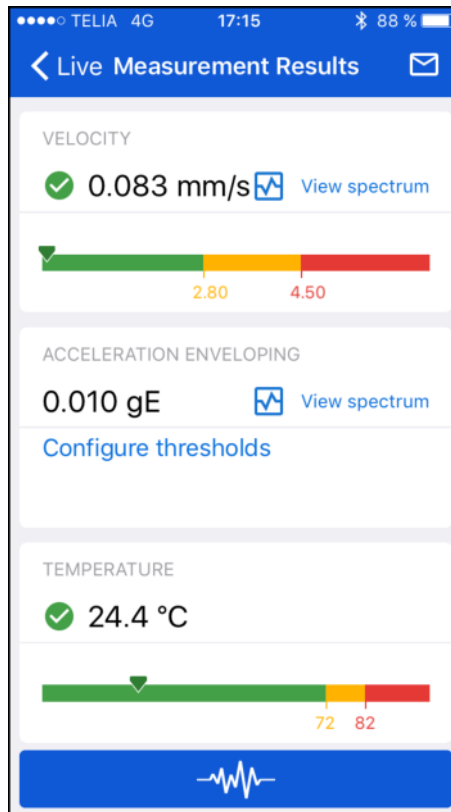


Figure 4 – 16.  
Measurement results screen with view spectrum options.



Tap the appropriate **View Spectrum** button. A plot screen will appear.

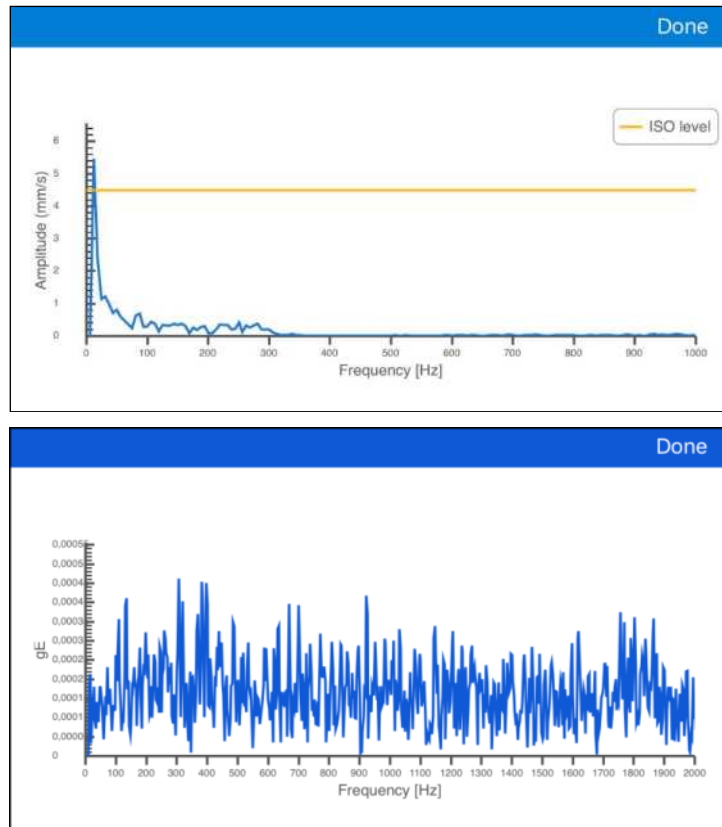


Figure 4 – 17.

Top: velocity spectrum. Bottom: acceleration enveloping spectrum.

Review the plot data and tap **Done** to return to the **Measurement Results** screen.

**To return to Live Reading mode:**

Tap **Live Reading** at the top of the Measurement Results screen. The home screen will reload in **Live Reading...** mode.

Repeat all the above steps as necessary to configure, record and report velocity, acceleration enveloping and temperature measurements.

## Reporting Measurement Results

---

### To send an email report of the measurement results:

Tap the email icon at the top right of the **Measurement Results** screen. QuickCollect will generate and populate an email with the current measurement's results via the device's email application.

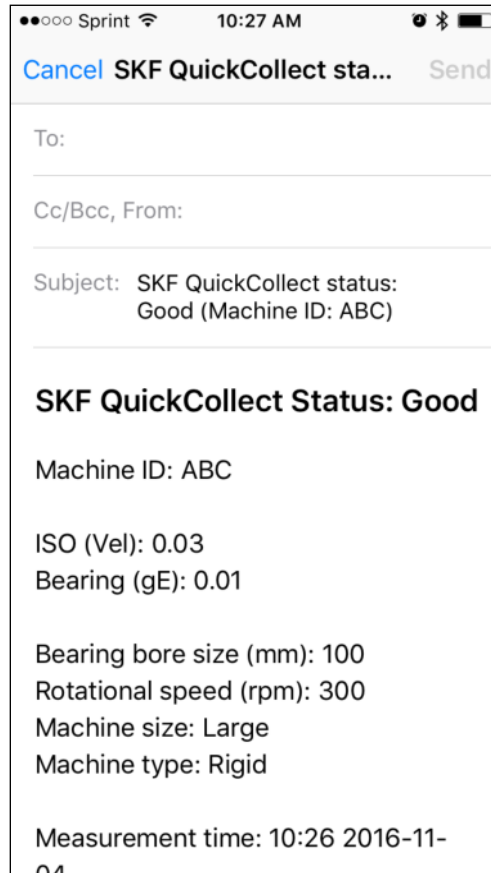


Figure 4 – 18.  
Measurement results email.

Tap within the **'To:'** field to bring up a keyboard and enter recipient email addresses.

Tap **Send** to send the report and return to the Measurement Results screen.

# Index i

## A

alarm status, 2-2

## B

battery charging, 3-1

battery LED, 2-4

Bluetooth®, 2-2

## C

calibration, repair, disposal, 2-7

## D

DataCollect app, 2-2

## I

inactivity timer, 2-4

## O

overall vibration, 2-2

## P

power button, 2-3

process overview, 2-1

ProCollect app, 2-2, 4-1

## Q

QuickCollect app, 2-2

download, 4-1

install, 4-1

launch, 4-1

## S

specifications, 2-2

support, technical, 1-3

system overview, 2-1

## T

technical support, 1-3

temperature, 2-2

## V

velocity, 2-2