NFC-LogLink User Guide.

This guide is intended for use with the Status Instruments NFC-LogLink Android App.
Products covered by this guide:
DM650 range (DM650XTM in part only *[1]).
DM670 range.
SEM710 (HM, PM, TM).

NFC-LogLink is a software package that can be used on your NFC enabled Android device to extract logged data from the above products.

Table of contents.

SECTION 1.0 General Information.

Operating System (O/S) compatibility mode. This is a setting applied to Status Instruments' logging products. The Android compatibility mode selected will decide if logging is to be done using an Android device or a Windows PC.

Android O/S version 12 onward is required for the NFC-LogLInk app.

WINDOWS O/S mode (Windows logging only). Status Instruments' logging products in this mode will not communicate with Android devices.
This mode is used when logging is to be done using the USB-LogLink software on a Windows PC.
This mode allows for a larger maximum log size for some products (refer to the relevant product datasheets for details).

ANDROID O/S mode (Windows and Android logging). Status Instruments' logging products in this mode will communicate with NFC-enabled Android devices running Android version 12 onwards.
This mode is used when logging is to be done using the NFC-LogLink software on an NFC-enabled Android device. This mode will have a smaller maximum log size for some products (refer to the relevant product datasheets for details).
In this mode, logs can still be taken using a Windows PC*[1] and USBLogLink software.

*[1] Note: The DM650XTM has no PC connectivity. Please refer to DM650XTM datasheet for Android compatibility details.

SECTION 2.0 Selecting the O/S compatibility mode.

To select between the two O/S compatibility modes, the product must first be connected to Status Instruments' Windows PC configuration or datalogging software.

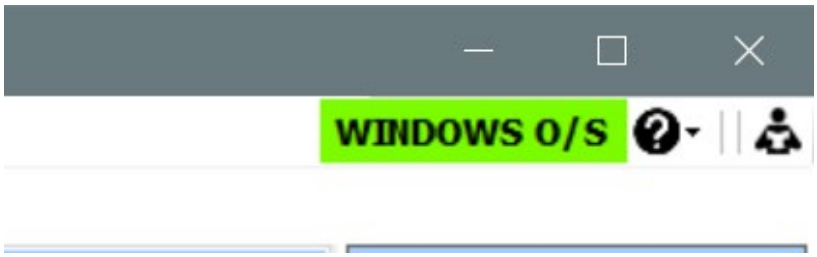
Two programmes are available: either USB-SpeedLink or USB-LogLink. Please refer to https://www.status.co.uk/product-software/ for information and downloads.

If the Windows software is not used to select which O/S compatibility mode is required, the product will operate in its default setting (refer to the relevant products datasheet for details).

It is recommended that the O/S compatibility mode is set in the Windows software prior to use, to avoid issues with compatibility.
The O/S compatibility mode can be factory set as required.

2.1 USBSpeedLink. This software may already be necessary as it is used to configure the product for any situation other than a default set-up on a factory-specification product.

Connect the Status Instruments logging product (via a USB A to Mini-B lead) to a Windows PC running USB-SpeedLink.
The software will offer a toggle option between the two O/S compatibility modes (see below).



USB-SpeedLink: WINDOWS O/S compatibility product setting for use with a Windows PC.

USB-SpeedLink: ANDROID O/S compatibility product setting for use with an Android device.

The USB-SpeedLink software is used to configure compatible products for specific applications.
For some Status Instruments logging products, USB-SpeedLink software also has the options of:

- Entering Tag, Contact and Location information.
- Clearing and starting an existing log event (but not downloading log data).
- Synchronising the Date and Time from the PC to the logging product.

Refer to the relevant product datasheets for details.

2.2 USB-LogLink. This software may already be installed as it is used for datalogging with the product via a Windows PC.
It is **recommended** this software is installed as a back-up means of recovering log data from Status Instruments' logging products, in the event of problems using the NFC protocol.

Connect the Status Instruments logging product (via a USB A to Mini-B lead) to a Windows PC running USB-LogLink.
The software will offer a toggle option between the two O/S compatibility modes (see below).

USB-LogLink: WINDOWS O/S compatibility product setting for use with a Windows PC.

USB-LogLink: ANDROID O/S compatibility product setting for use with an Android device.

As well as full logging functions, the USB-LogLink software has options for:

- Entering Tag, Contact and Location information.
- Viewing live process values.

Refer to the relevant product datasheets for details.

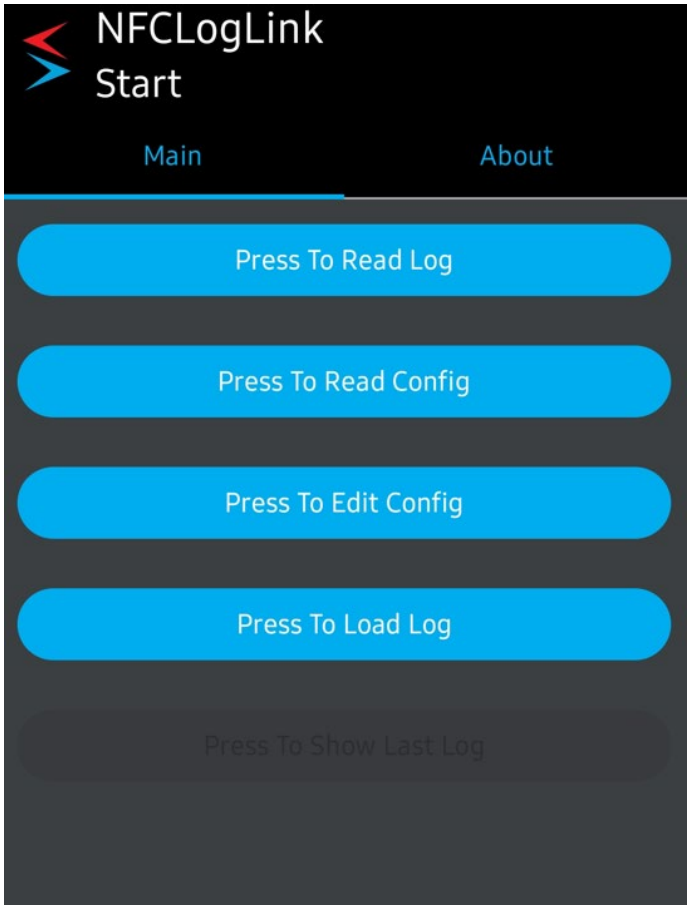
Section 3.0 Installing NFC-LogLink on an Android device.

The Status Instruments NFC-LogLink app is available from the “Google Play Store”.
Follow your Android device’s normal procedure for app installation.

Launch icon for NFC-LogLink.

SECTION 4.0 Running NFC-LogLink on an Android device.

When installed, run the NFC-LogLink app. The home screen is shown below.



NFC-LogLink running on an Android device.

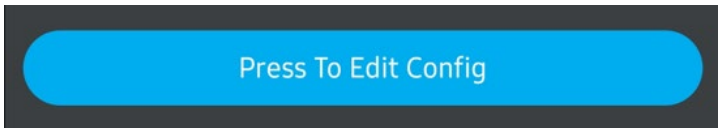
SECTION 5.0 Using NFC-LogLink

Before using the NFC-LogLink app, it is recommended the O/S compatibility mode is set on the Status Instruments logging product using one of the Windows PC software tools, either USB-SpeedLink or USB-LogLink.

It is recommended that before running a “live” application specific log, some trial/demo logs are run to familiarise the user with the NFC-LogLink logging software and procedures.

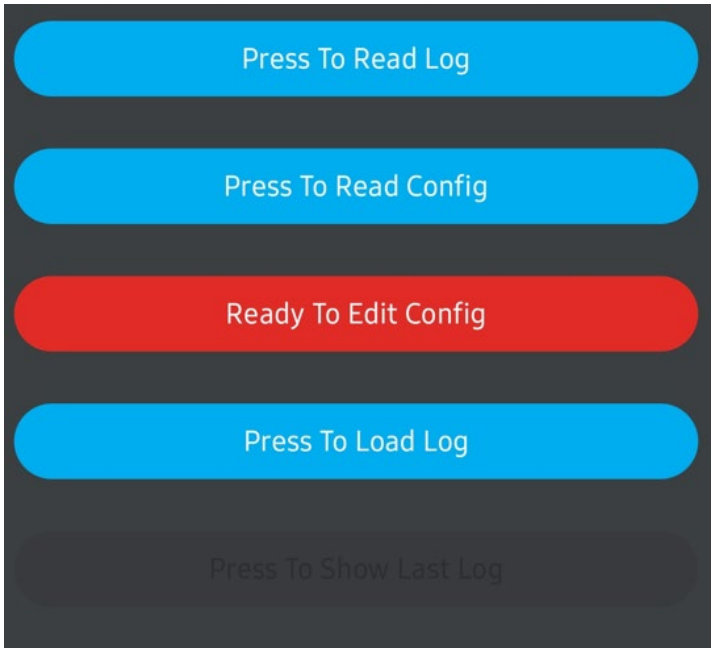
Note: Log events can also be set using USB-LogLink and read using the NFC-LogLink app.

5.1. Setting up a log event.



Select the “Press To Edit Config” button from the main menu.

The button will turn red.



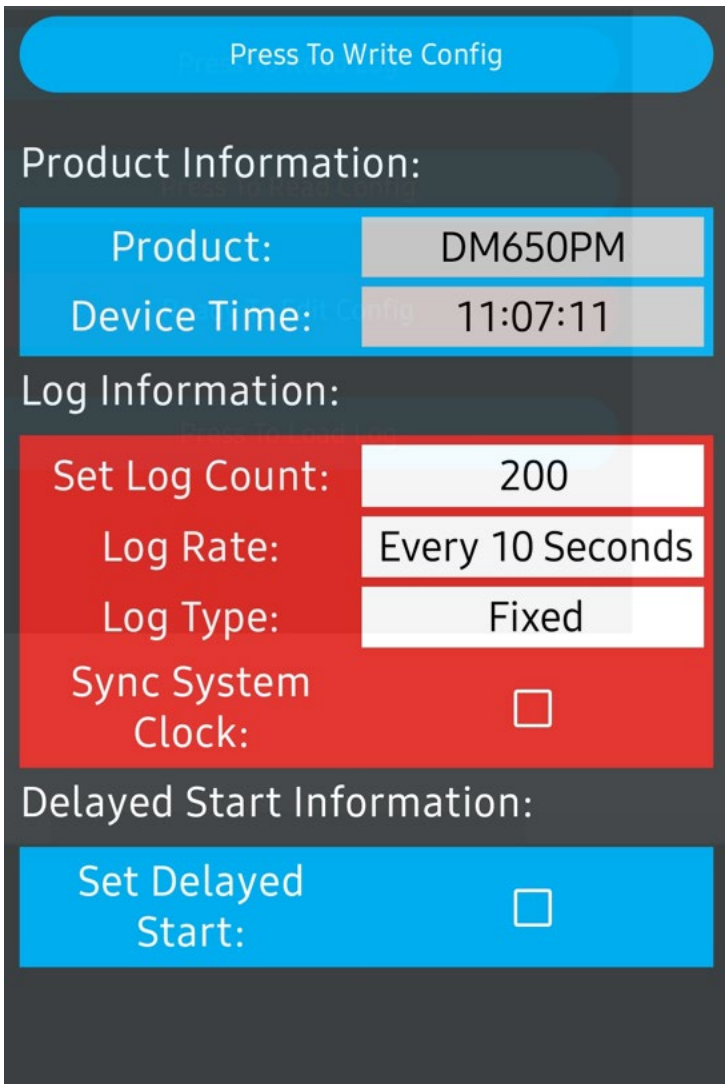
Place the Android device onto the display or on top of the logging product to read the current (if any) logging configuration.

The Android device should beep (depending on its system settings) and read the logging product configuration.

Refer to Section 6.0 **NFC Connection Performance** later in this guide if the Android device does not respond.

5.2 Log event configuration.

The Android device will now show the configuration options screen (see below).
This screen can be edited for the required logging event.



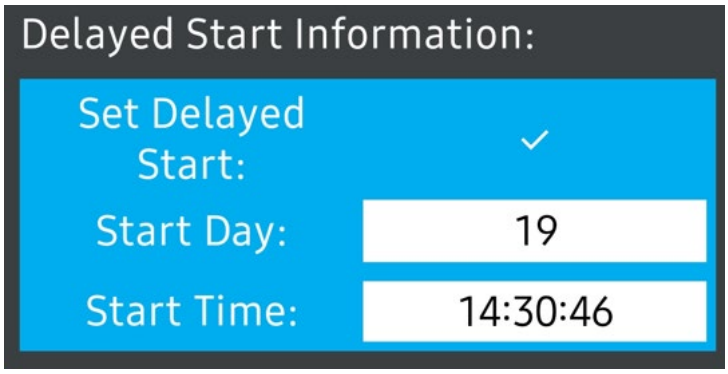
Set Log Count. Numeric field.
Enter the required number of log points required.
Note: the maximum number available will depend on the logging product and O/S compatibility mode. (Refer to the relevant product datasheet for details).

Log Rate. List.
Log data frequency. If logging is not required, set to "Off".

Log Type. List.
Rolling, Once the maximum number of logs has been reached the "oldest" log will be discarded to allow the next log to be saved. This process will repeat indefinitely.
Fixed, Once the maximum number of logs has been reached, the logging will stop.

Sync Clock with System Time. Check box.
If selected the time and date on will be set to match the time and date on the Android device.
Note: the logging product has no automatic GMT "daylight saving adjustment". This should be considered where relevant.

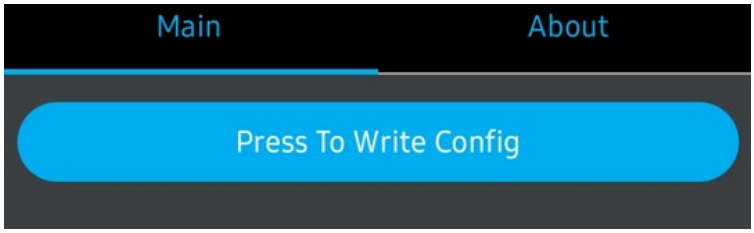
Reset Min/Max. Check box.
Some logging products can display, or record, the maximum and minimum process values since the last reset.



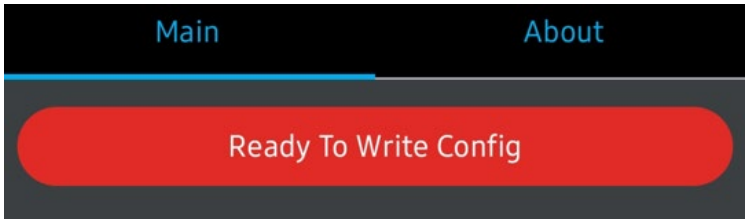
Set Delayed Start. Check box.
Use to delay the start of the log event by up to one month.
If selected, this will open a tool to enter the date and time for the log event to start.

If not selected logging will start once the log event is sent.

Step 5.3 Send the log event configuration.
Once the log event configuration has been entered, select the blue “Press to Write Config” towards the top off the screen.



Select.



The button will turn red.

Place the Android device onto the display or on top of the logging product to send the new log event configuration.

The Android device should beep (depending on its system settings) and the screen will return to the NFC-LogLink main menu.

Refer to Section 6.0 **NFC Connection Performance** later in this guide if the Android device does not respond.

The logging product will now be recording according to the configuration sent.
If the Delay Log Start option has been used, the logging product will wait for the pre-set date/time to start.

Some Status Instruments logging products will show a triangular fill bar on them to reflect the progress of the logging event (refer to the relevant product user guide for details).

It is recommended the log event configuration is checked using the “Press to Read Config” button (see Section 5.4).

It is recommended that some test log events are trialled, for familiarization with the system before “live” application logs are taken.

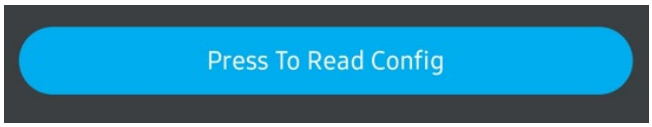
IMPORTANT NOTE: PROCESSING DELAY ON LOGGING START.
When an NFC communication is detected by the logging product, it will go into “NFC communications” mode. It will stay in this mode for a few minutes. During this period, any readings taken (for the log) will be saved to a buffer, and added to the log record after the mode has timed out. During this period, the display (if fitted) will update as normal.

The log data on the product can be read before the full log count size has been reached. However, If the log is read within the first few minutes of logging, it may need to be re-read after the buffering has settled to display all logged points correctly. This would only be an issue for logs with a fast update rate (10/20/30 s).

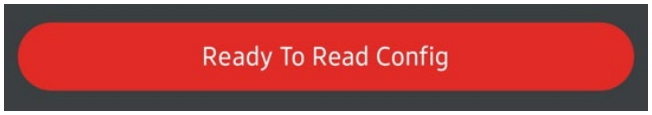
For a low count log that has a fast update rate, allow the log to finish before reading or starting a new log to avoid issues.

5.4. Read device configuration.

To read the current log event configuration without editing it.

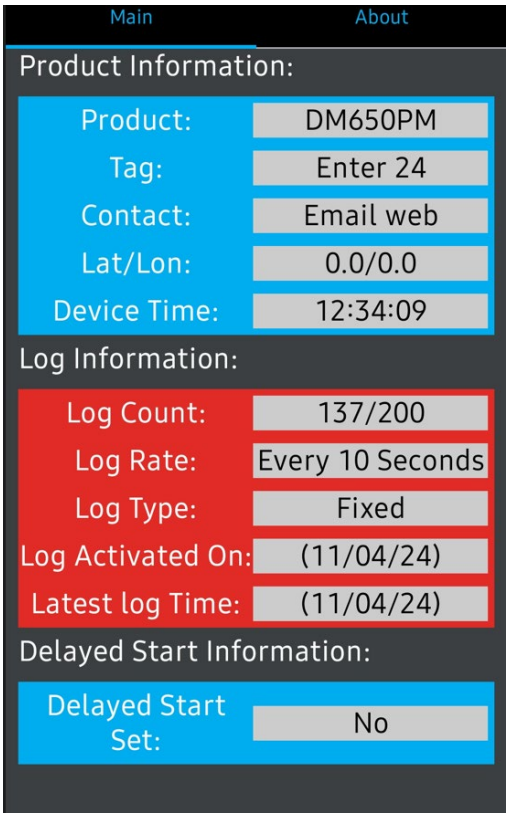


Select this option from the home screen to interrogate the logging product without downloading the log data.



The button will turn red.

Place the Android device onto the display or on top of the logging product to read the log event configuration.



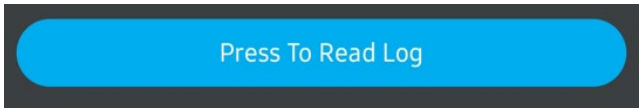
Tag and Contact are free-type information fields that can be used to enter alpha-numeric character data as required.

Location is a numeric entry field that can have a latitude/longitude location entered. This location data is added to the header on the log when it is downloaded from the logging product.
The latitude/longitude data is entered manually and is not actively updated, depending on the product’s location.

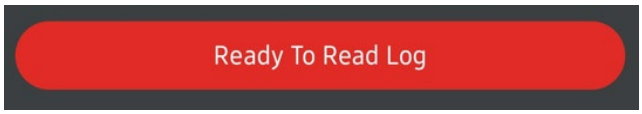
If required, Tag, Contact and Location data is entered into the logging product using the Windows PC software tools.

5.5 Read Device Log Data.
To extract the log data from the logging product onto the Android device.

Refer to Section 6.0 NFC Connection Performance later in this guide before proceeding.



Select the “Press To Read Log” button.

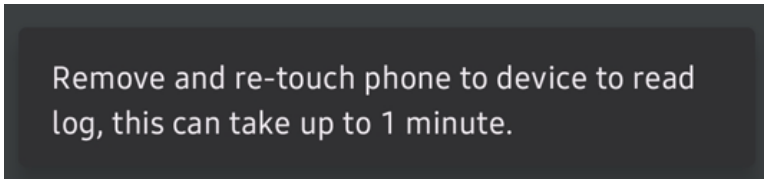


The button will turn red.

Place the Android device onto the display or on top of the logging product to read the log event configuration.

The button will turn purple.

The instruction below will be shown towards the bottom of the screen.



Move the Android device away from the logging instrument by a minimum of 200 mm then replace.

The Android device will now read the log from the instrument. Keep the Android device stable and in position during the read process: this may take up to 1 minute.

When the logged data is successfully read, the phone screen will display the logged data.

If the phone screen has not changed or updated to the one shown, or similar, on the left after 2 minutes, the download process has failed.

If the download fails, close the NFC-LogLink app and repeat from 5.5.

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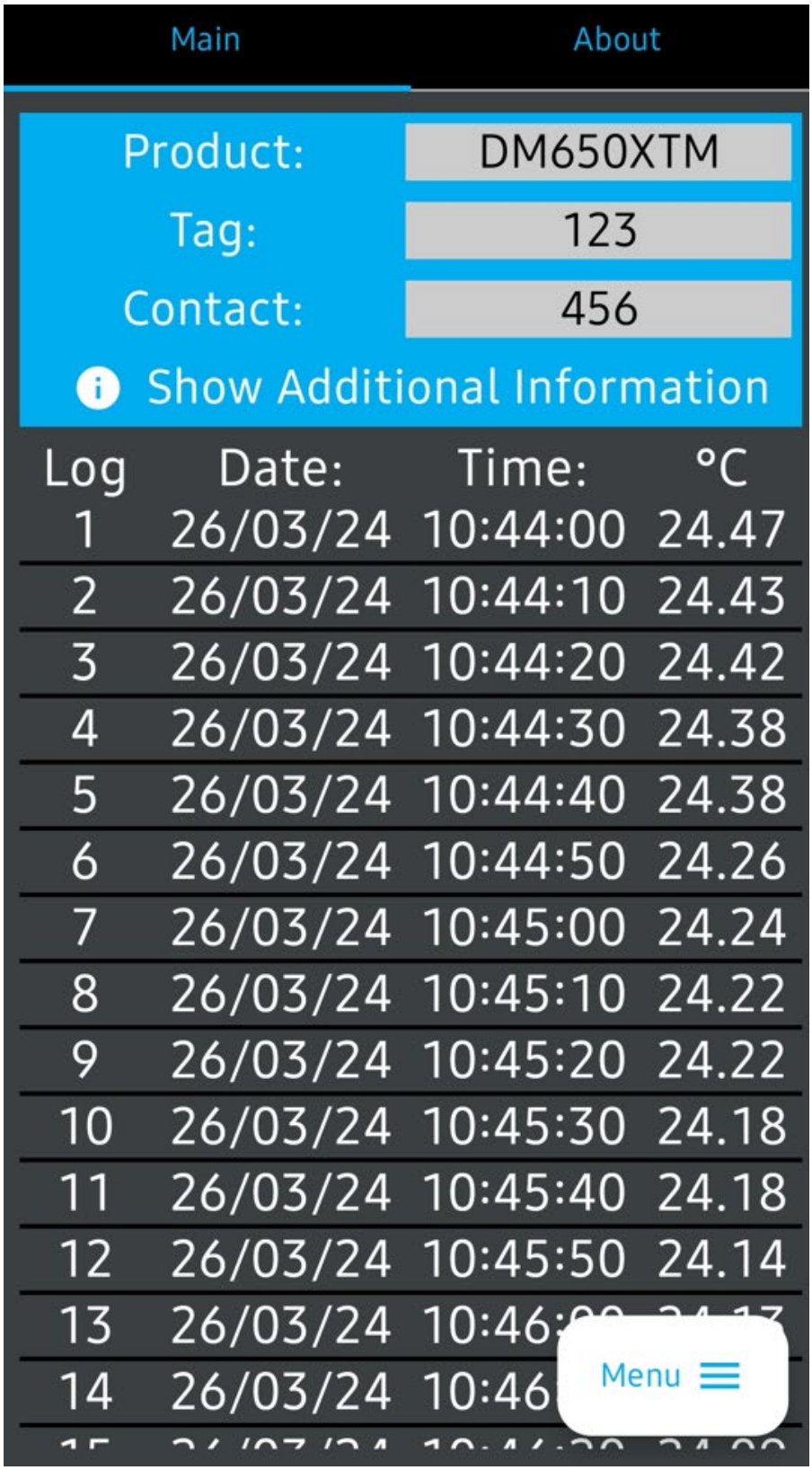
5.6 Displaying the logged data.
This screen or similar will show on downloading a log successfully to the Android device.



This section will display information about the logging device.

Press “Show Additional Information” to expand this section.

This section will display the log data and can be scrolled.

Swipe up and down on the screen to display older and newer log points.

Swipe left and right on the screen to display additional information where available on some logging products. Alternatively, rotate the Android device if “Auto rotate” is enabled.

Use the Menu icon for Graph and Save data options.

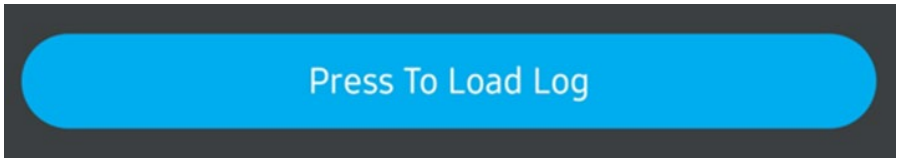
5.7 Save log data function.

Selecting the Menu icon from the logged data screen will give access to the Save icon.
This function will allow the user to save logged data as a CSV or TXT file to the Android device.
The CSV file can then be viewed (with a suitable Android app) or sent via a messaging app such as an email service.

If a suitable program is installed, it can be used to send the logged data file to recipients as an attachment in the normal way for the selected service.

Any CSV viewing or messaging apps are not part of the NFC-LogLink software.

Saving the log file in TXT format will create a file on the Android device that can be recalled and viewed using the NFC-LogLink app.



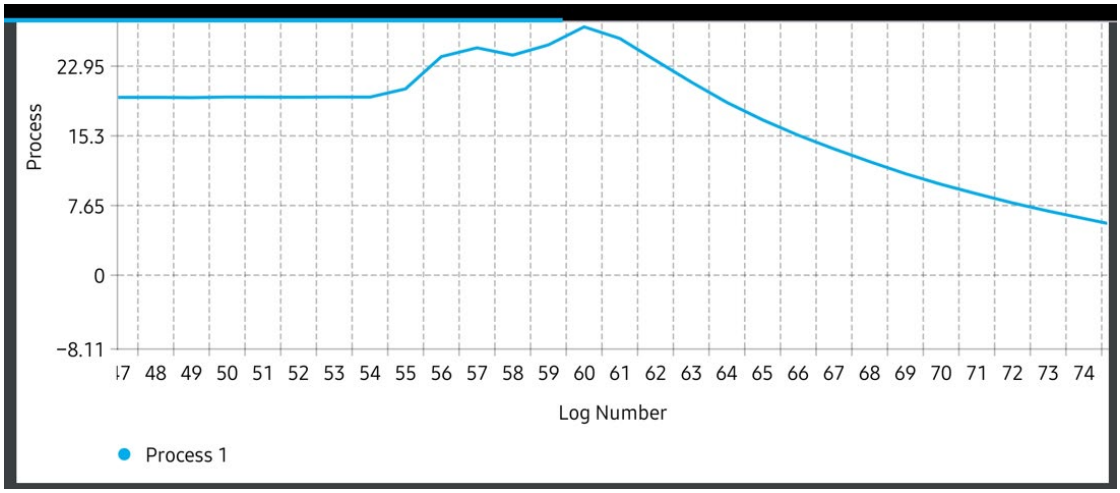
Use the “Press To Load Log” button from the main menu.

Note: The TXT file uses coded data and will not display as text in a normal text file viewer.

5.7 Graph log data function.

Selecting the Menu icon from the logged data screen will give access to the Graph icon.
Select the Graph icon to display the logged data as a graph on the android device.

Example of graph .



Tap the screen to give point data

Check this screen to see the log data. Corrupted data can show as spikes outside of the maximum possible engineering range, possibly due to a corrupted log record or download.
If such spikes are present, try and re-read the log.

SECTION 6.0 NFC connection performance.

Successful logging with Status Instruments' logging products will depend in a large part upon the NFC connection performance with the Android phone being used.

Many Android phones are used for NFC data transfer, normally in a commercial transaction at vendor stations. These transactions involve sending small packets of (encrypted) data between the phone and the vendor station.

The Status Instruments NFC logging protocol can involve sending much larger packets of data between the logging product and an Android phone. As such, the possibility for errors in transmission is increased.

A transmission between a logging product and an Android phone can take up to a minute for larger logs. If the connection is lost part way through the transfer, the entire log will be lost.
The transfer will then need to be repeated to download the logged data.

By using the following technique, reliability of transmission success can be greatly increased.

Find the best NFC alignment or "sweet spot" for NFC transmission between the phone and logging product. This is the most important requirement for good transmissions.

Android phones/tablets may have the best point for NFC reception at different physical points on them depending on model and manufacture.
The most common point is often on the back of the phone on the centre line of the phone when the phone is held in 'portrait' orientation.

To find the best NFC alignment on the Android phone in use with the Status Instruments logging product:
Run the NFC-LogLink software and open the "Read Device Configuration" screen (SECTION 5.4)

- Position the Status Instruments logging device, vertically or horizontally, such that you are looking directly at the screen.

- Hold the phone (in 'portrait' orientation) above the face of the logging product and slowly *lower* the phone so it blocks your view of the logging product, such that centreline of the phone passes close to the face of the logging product and across its centre (see diagram below).

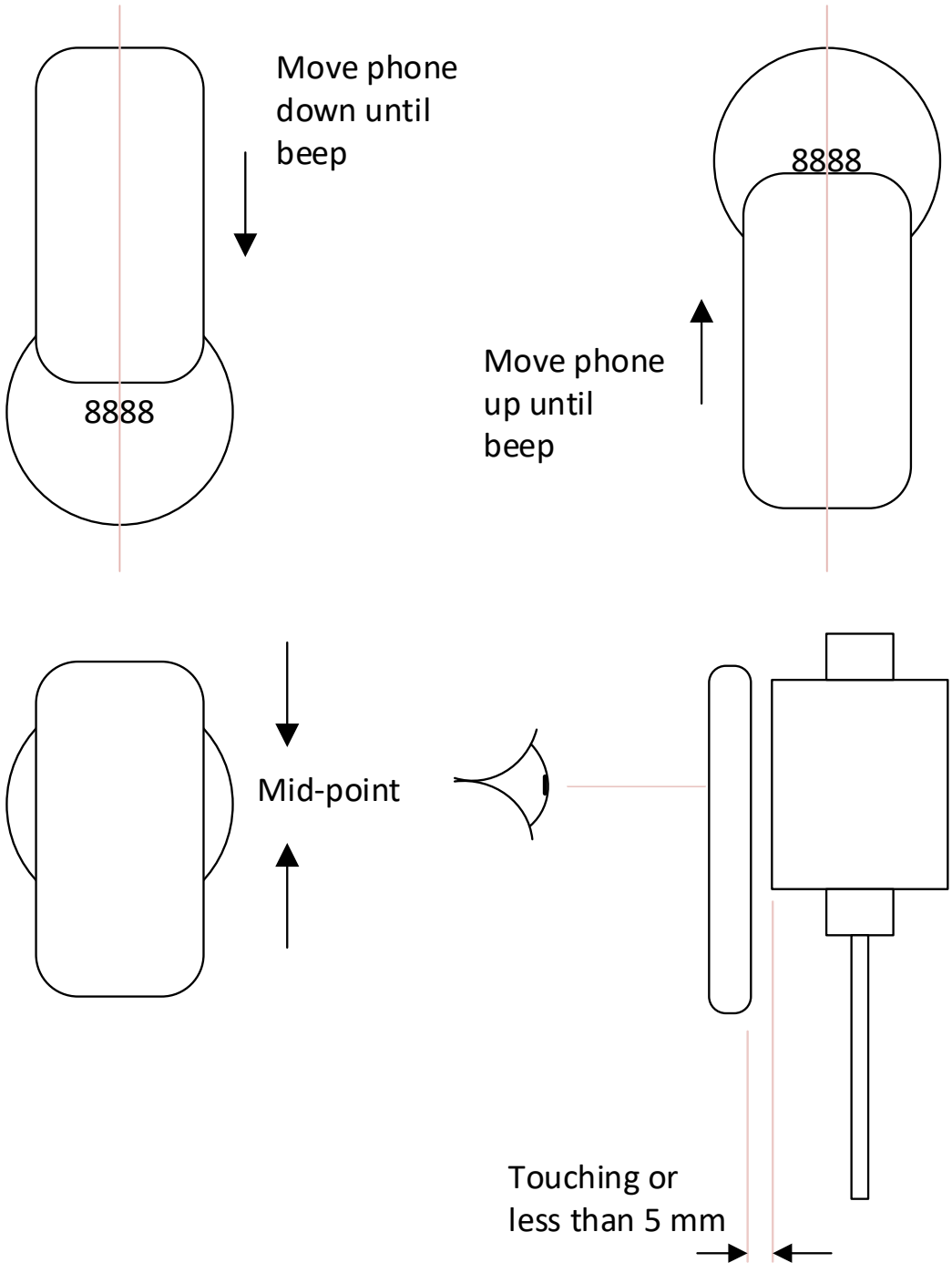
Note the point at which the phone beeps (depending on its system settings) and the screen changes.

- Return the screen to the "Read Device Configuration" screen: use the Android phone's back button.

- Hold the phone (in 'portrait' orientation) below the face of the logging product and slowly *raise* the phone so it blocks your view of the logging product, such that the centreline of the phone passes close to the face of the logging product and across its centre (see diagram below).

Note the point at which the phone beeps (depending on its system settings) and the screen changes.

- The mid-point between the two noted points at which the phone beeped and the screen changed is the “sweet spot” for data transfer between the phone and the logging product.
- Experiment with this method to find the most reliable NFC point to use.
- For data transfer the phone should be **placed onto** or **held against** the logging product.
- For best connection performance align the phone and logging product in the “sweet spot” location.



SECTION 7.0 Trouble Shooting

If any issues are encountered with downloading logs via the NFC protocol, it is recommended the Windows PC USB-LogLink software is used to download and back up any log data.

Some or all the following may help improve NFC logging reliability:

7.1 Basic

Experiment with SECTION 6.0, the NFC connection performance section of this guide.

Ensure the O/S compatibility mode for the product is suitable for use with the Android phone's O/S.

Ensure NFC on the Android device is switched ON.

Remove any phone case or cover that may be fitted to the phone to improve NFC signal reception between the logging product and the phone.

Ensure the phone is running the **latest version** of NFC-LogLink software from Status Instruments.

Try the **latest version** of NFC-LogLink software from Status Instruments on a second Android device.

7.2 Advanced

Check the NFC specification of your phone: it must be compatible with reading an NFC Tag type 4 to the full capacity of 65536 bytes.

If the phone does not meet this specification, a full log count will not read. It will still be possible to read a reduced log. Start with small logs and build up in log size/count until the maximum count for the phone can be ascertained.

Only attempt the following if you are familiar with process instrumentation equipment:

Remove the logging product from situ and take to an EMI noise-free environment.
Disconnect the product internally from the sensor if removal with the sensor is not an option: this is not possible on all logging products. Try uploading any log data again.

7.3 For further support contact support@status.co.uk

Please provide details of the logging product's full product name/serial number and the Android device's O/S version.
Please provide the full details of any issue you are having.