



User manual for the
CRTM 3000 - LPWA

ti DualInventive
Ubiquitous Rail

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1. INTRODUCTION

This manual details the correct method for installing and using the CRTM (Critical Temperature Monitor) 3000 LPWA (Low Power Wide Area). The CRTM 3000 LPWA consists of one temperature sensor. Using the LPWA technology the CRTM 3000 LPWA can communicate with MTinfo 3000. The CRTM 3000 LPWA, henceforth known as the “CRTM 3000”, measures the temperature of the rail and reports this back to the user via the MTinfo 3000 cloud. Using MTinfo 3000, users can both monitor and manage all CRTM 3000 devices in real time.

This manual is split into two parts, with Part 1 detailing the process of preparing the CRTM 3000 in MTinfo 3000 and Part 2 explaining the installation and monitoring processes.

For further information on other MTinfo 3000 features (such as creating and editing users), please see the manual “General manual MTinfo 3000 V5 – administrator”.

2. SPECIFICATIONS

a. CRTM 3000 LPWA

- The CRTM 3000 measures temperatures between -25°C and +85°C to an accuracy of 0.5°C
- The CRTM 3000 can be installed in all weather conditions
- The CRTM 3000 is connected to MTinfo 3000 using a wireless Low Power Wide Area connection



b. MTinfo 3000 minimum requirements

- Internet:
 - Broadband
- Computer:
 - Processor at least 1.5GHz
 - Internal memory at least 2048MB
 - Video card at least 512MB
 - Screen resolution of at least 1366 x 768
- Web browser:
 - Google Chrome (recommended)
 - Internet Explorer version 11 or above
- Additional software:
 - Adobe Acrobat (recommended) as PDF reader to view reports

Dual Inventive does not take responsibility for the above mentioned equipment or software being incorrect or absent.

2. CONTINUATION SPECIFICATIONS

Update frequency realtime status CRTM 3000 in “active mode”

By default, the CRTM 3000 measures the temperature every 5 minutes, but will only report this to MTinfo 3000 every hour to save power. However, if the device detects a rapid change in temperature (i.e. 2°C or more) during measurement, it will immediately report this to MTinfo 3000. The device also detects whether it is fitted to the rail or not, and will report this hourly.

Attention, this only applies when the CRTM 3000 has been activated by scanning its QR code (see chapter 10, MTinfo 3000 APP QR code). This does **not** apply when the device has not yet been activated and is still operating in the low power mode.

3. CONDITIONS AND SAFETY INSTRUCTIONS



WARNING!

Please carefully read this user manual before installing and using the CRTM 3000 to ensure you fully understand. When precautionary measures and safety instructions are not properly followed there is a risk of electrocution, fire or other dangerous situations.

- Always take care of your own safety within the track environment using the current applicable legislation
- Never perform repairs to the CRTM 3000 yourself. Please contact Dual Inventive's service department for maintenance or repairs
- Visually inspect the CRTM 3000 for damage and perform a function test
DO NOT USE the CRTM 3000 if you find any damage or defects. Please apply a label, quarantine and return to Dual Inventive for service and repairs
- Keep in mind that the magnets of the CRTM 3000 could influence pacemakers and implanted defibrillators
- Make sure that while installing the CRTM 3000 the device does not get damaged by on track plant (such as a tamping machine) or other tools in line with local regulations

4. MTINFO 3000 FEATURES

MTinfo 3000 is the web application for the monitoring and management of the CRTM 3000. In order to effectively use the CRTM 3000 devices, preparations in MTinfo 3000 need to be made. Both MTinfo 3000 and the MTinfo 3000 App can be used to assign a CRTM 3000 to a track object and/or track group.





Attention, to gain access to MTinfo 3000 a user account is required. Please consult your company's contact person if you do not possess an MTinfo 3000 user account. For more information on the standard features of MTinfo 3000, please consult the "general MTinfo 3000 V5 – administrator" and the "Mtinio 3000 V5 – user" manuals.

a. Icons and actions

MTinfo 3000 uses a set of recurring icons, actions and features. This chapter explains how to use these items.

Icon/Action	Explanation
 Cancel	With this icon you can cancel or close an item, the item will not be saved.
 Chart context menu	With this icon you can print or download the selected chart.
 Create	With this icon you can create a new item. Upon clicking on this icon a menu will be opened in which you can select the relevant items.
 Delete	With this action you can delete the selected item.
  Edit	With this icon/action you can edit the selected item.
 Monitor track group	With this icon you can monitor the selected track group.
 New	With this icon you can create a new item (e.g. track group, track object...).
 Next	With this icon you can continue to the next step.
 Previous	With this icon you can go back to the previous step.

4. CONTINUATION MTINFO 3000 FEATURES

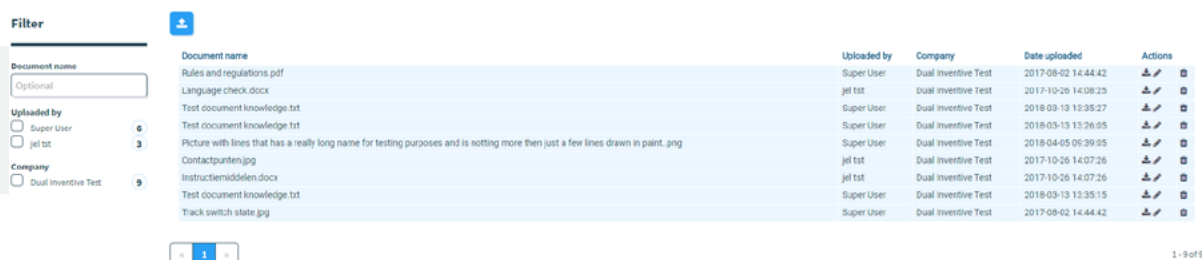
Icon/Action		Explanation
	Realtime status	With this icon you can view the realtime status of the selected device(s).
	Save	With this icon you can save an item.
	Track group	With this icon you can return to the track group overview.
	Track object	With this icon you can return to the track object overview.

b. Filter and sort

Within MTinfo 3000 you have the option to filter and/or sort items.

Filter

For an example, please see the below screenshots of the knowledgebase filter.



Filter

Document name
Optional

Uploaded by
☐ Super User
☐ jel tst

Company
☐ Dual Invenive Test

Document name	Uploaded by	Company	Date uploaded	Actions
Rules and regulations.pdf	Super User	Dual Invenive Test	2017-08-02 14:44:42	
Language check.docx	jel tst	Dual Invenive Test	2017-10-26 14:08:23	
Test document knowledge.txt	Super User	Dual Invenive Test	2018-03-13 13:35:27	
Test document knowledge.txt	Super User	Dual Invenive Test	2018-03-13 13:35:27	
Picture with lines that has a really long name for testing purposes and is notting more then just a few lines drawn in paint.png	Super User	Dual Invenive Test	2018-04-05 06:39:05	
Contactpunteen.jpg	jel tst	Dual Invenive Test	2017-10-26 14:07:26	
Instructiemiddelien.docx	jel tst	Dual Invenive Test	2017-10-26 14:07:26	
Test document knowledge.txt	Super User	Dual Invenive Test	2018-03-13 13:35:15	
Track switch state.jpg	Super User	Dual Invenive Test	2017-08-02 14:44:42	

1 - 9 of 9

On the left side of the screen is a section labelled “Filter”. This consists of a search box and some selection criteria.

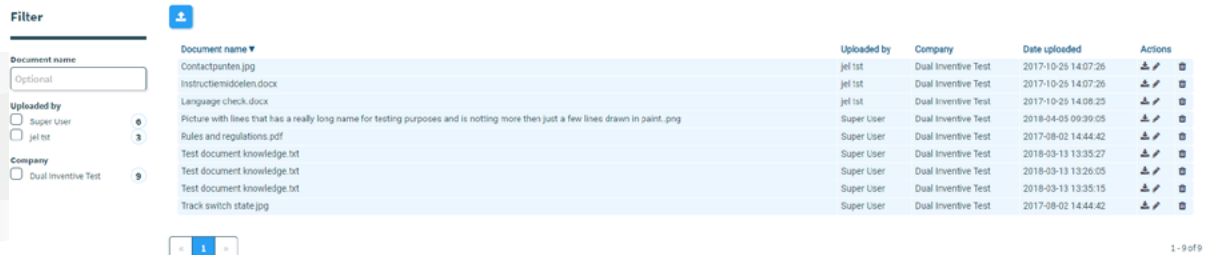
By starting to type the name of the document you are searching for, the list will automatically start to filter based upon the entered criteria. Likewise, if you select the checkboxes, the system will automatically discount any results that are no longer relevant (i.e. only displaying documents uploaded by certain users or companies in this case).

The filter option is available on many screens throughout the web app. The filter criteria will differ per list.

4. CONTINUATION MTINFO 3000 FEATURES

Sort

For an example, please see the below screenshots of the knowledgebase being sorted.



The screenshot shows a web application interface for a knowledgebase. On the left, there is a 'Filter' sidebar with sections for 'Document name' (with a search box containing 'Optional'), 'Uploaded by' (with checkboxes for 'Super User' and 'jel tst'), and 'Company' (with a checkbox for 'Dual Inventive Test'). The main area displays a table of documents. The table has columns for 'Document name', 'Uploaded by', 'Company', 'Date uploaded', and 'Actions'. The documents are sorted alphabetically by name. At the bottom right of the table, it says '1 - 9 of 9'.

Document name	Uploaded by	Company	Date uploaded	Actions
Contactpanten.jpg	jel tst	Dual Inventive Test	2017-10-25 14:07:26	✎ ✖
Instructiesidelen.docx	jel tst	Dual Inventive Test	2017-10-25 14:07:26	✎ ✖
Language check.docx	jel tst	Dual Inventive Test	2017-10-25 14:08:25	✎ ✖
Picture with lines that has a really long name for testing purposes and is nothing more then just a few lines drawn in paint.png	Super User	Dual Inventive Test	2018-04-05 09:39:05	✎ ✖
Rules and regulations.pdf	Super User	Dual Inventive Test	2017-08-02 14:44:42	✎ ✖
Test document knowledge.txt	Super User	Dual Inventive Test	2018-03-13 13:35:27	✎ ✖
Test document knowledge.txt	Super User	Dual Inventive Test	2018-03-13 13:26:05	✎ ✖
Test document knowledge.txt	Super User	Dual Inventive Test	2018-03-13 13:35:15	✎ ✖
Track switch state.jpg	Super User	Dual Inventive Test	2017-08-02 14:44:42	✎ ✖

By clicking on a column header, the list will be sorted alphabetically (either ascending or descending, dependent upon the number of times it is clicked). This will be denoted by an arrow (e.g. ▼). If clicked multiple times, the sorting will be removed.

The sorting option is available on many screens throughout the web app.

c. Logging into MTinfo 3000

- Go to www.mtinfo3000.com
- Select 'Log In' in the top right corner
- Enter your user name, company code and password
- Read the general terms & conditions and accept them
- Log in


Attention, you will only be able to log in when you have had the appropriate user rights assigned. If you require more information, please contact your company's contact person.

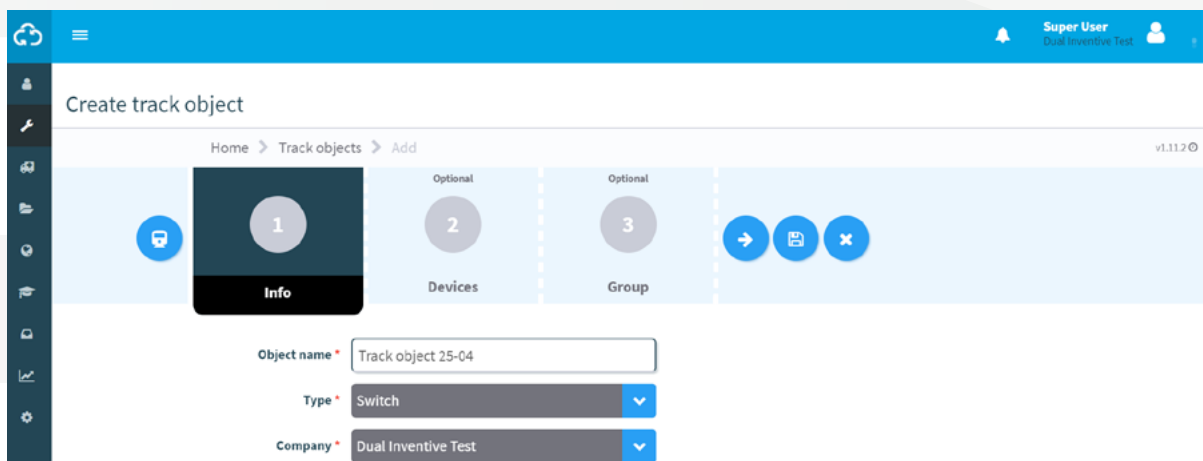
5. TRACK OBJECTS


A track object consists of a rail asset (such as a switch) and allows for devices (such as a CRTM 3000) to be assigned to these assets, thus allowing greater insight into the data being reported.

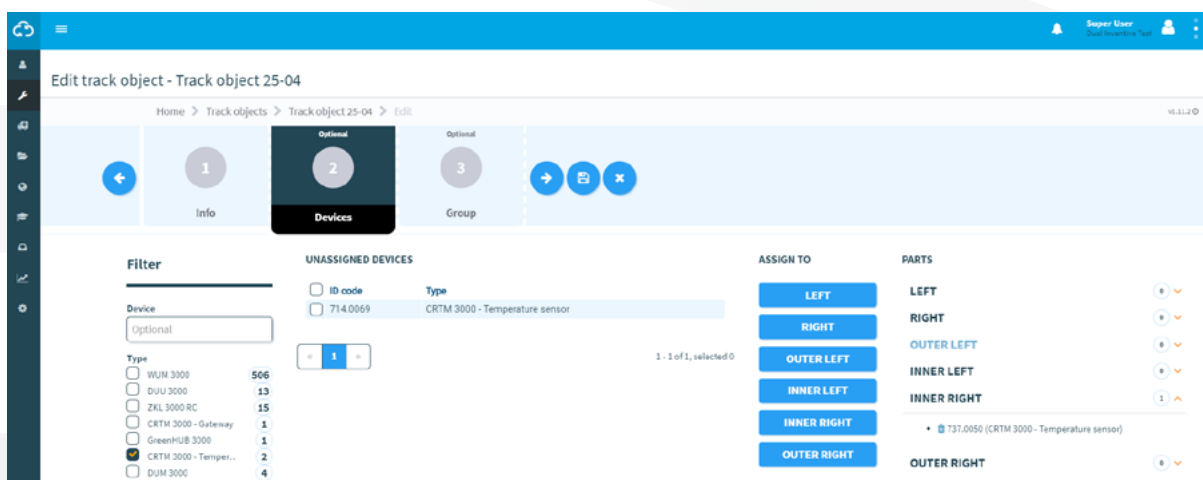
Creating a track object


A track object is created as follows:

- In MTinfo 3000, select “Asset management”
- In the column on your left, click on “Track objects”
- Click on  to create a new track object. You will see the following screen:




- Enter a name, add the type of object you are creating (switch, rail etc.) and then select the company which the track object will be assigned to and go to step 2
- Step 2 allows you to add devices to the track object (optional) and their location on the rail asset. The following positions can be selected: left, right, outer left, inner left, outer right and inner right. You can do this by first selecting the device that you want to add to the track object, and then clicking on any of the 6 locations that you wish to assign the device to. You can also select multiple devices at once, and assign them to the same location. To remove a device from its location, click on 



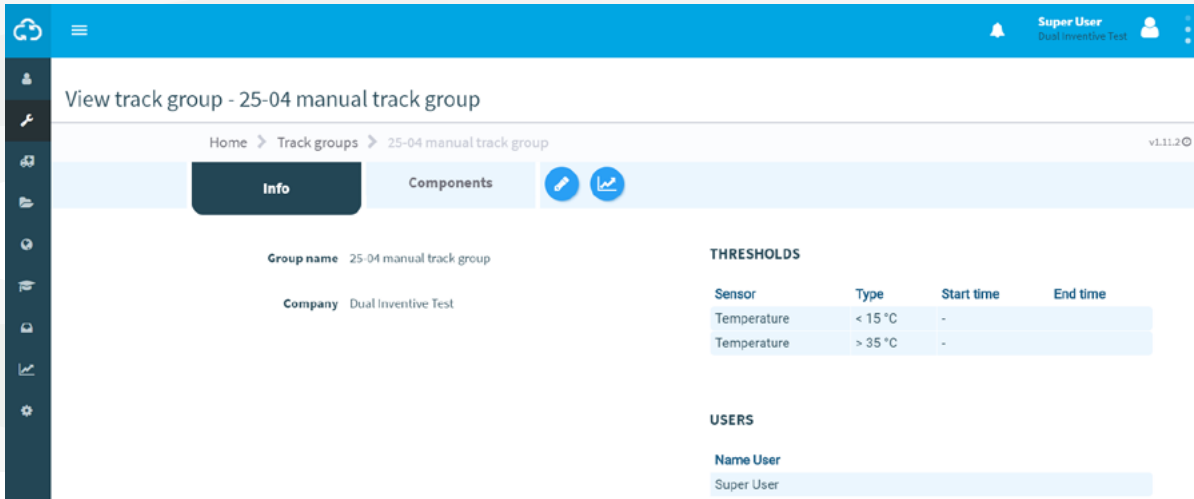
- Step 3 allows you to assign the track object to an already existing track group (optional)
- Save the track object using 

5. CONTINUATION TRACK OBJECTS

You can also cancel creating the track object, by clicking on . This will take you back to the track objects overview screen.

Viewing a track object

When clicking on a track object, its data will be shown in a screen, similar to that below.





Sensor	Type	Start time	End time
Temperature	< 15 °C	-	-
Temperature	> 35 °C	-	-


Name	User
Super User	

This screen shows an overview of the selected track object along with any devices assigned to the track object.

Editing a track object

By clicking on  (found under “actions”), you can edit the track object (your account will need the appropriate user rights for this action). You can also edit a track object by selecting it and clicking on .

Deleting a track object


By clicking on  (found under “actions”), you can delete the track object (your account will need the appropriate user rights for this action). When pressing this button, a pop-up will show up, asking you to confirm your action. Upon pressing “Ok” the track object will be deleted permanently.

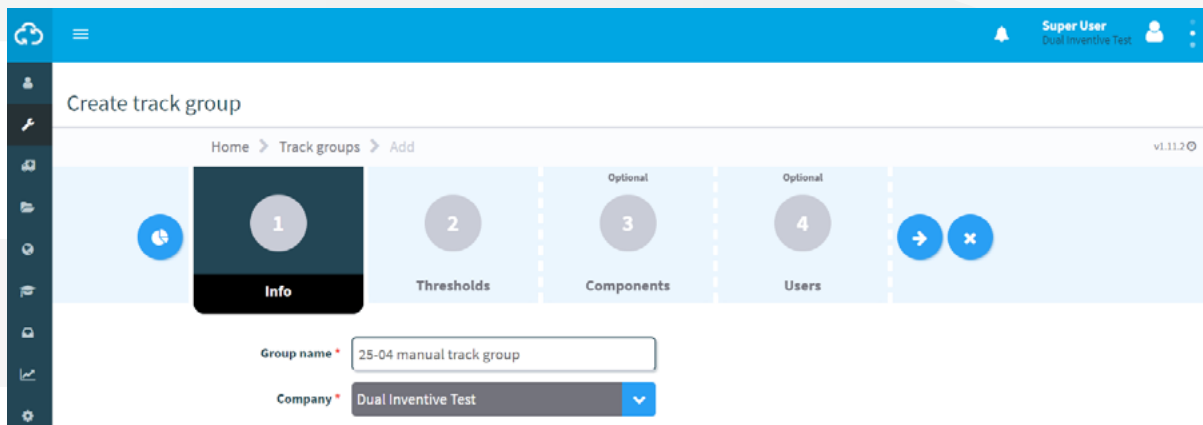
6. TRACK GROUPS


A track group is a collection of track objects, allowing users to easily manage and monitor multiple track objects at once.

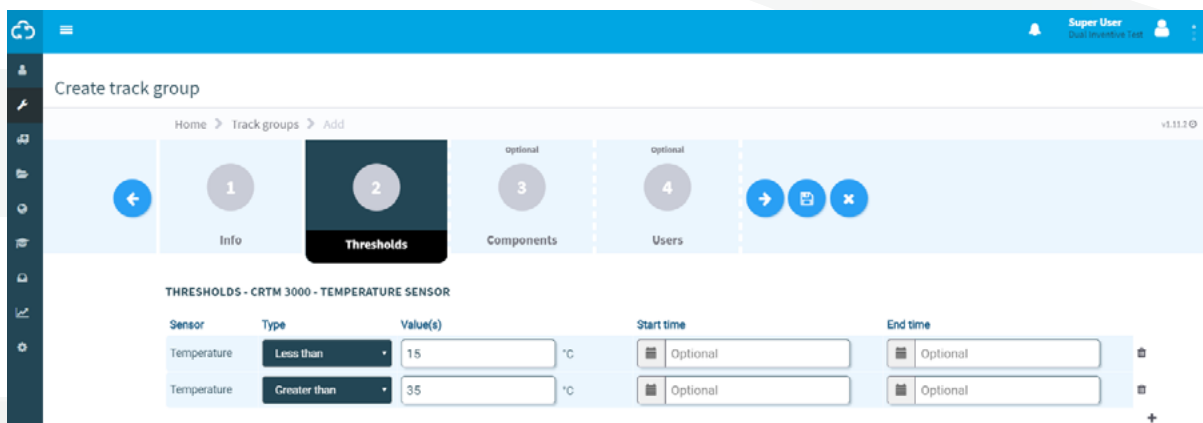
Creating a track group

A track group is created as follows:

- In MTinfo 3000, select “Asset management”
- In the left hand column, click on “Track groups”
- Click on  to create a new track group. You will see the following screen:




- First, enter a name and select the company that the group will be assigned to
- Step 2 allows thresholds to be defined (i.e. different temperature alert levels) for user notifications. When these thresholds are met users will receive a message (via SMS or the MTinfo 3000 App) on their phone. These thresholds are set by selecting the type (“Less than” or “Greater than”) and entering the temperature at which you want to set the threshold. These thresholds will apply to every CRTM 3000 that you add to the track group
- By clicking , multiple thresholds can be assigned to the group. For example, in the case below, a user will receive a message when the CRTM 3000 either measures a temperature lower than 15°C or higher than 35°C
- Start and end times can also be added to the thresholds, allowing alarm messages to be sent only during these defined times



Sensor	Type	Value(s)	Start time	End time
Temperature	Less than	15 °C	Optional	Optional
Temperature	Greater than	35 °C	Optional	Optional

- Step 3 allows you to assign existing track components to your track group, though this step is optional

6. CONTINUATION TRACK GROUPS

- Finally, step 4 allows the (optional) assignment of users to a track group
These users will receive messages on their phone whenever the previously defined thresholds conditions are met
- Ensure all changes are saved by clicking the button 

This process can also be cancelled using the  button. Please note none of the data will be saved.

Attention!

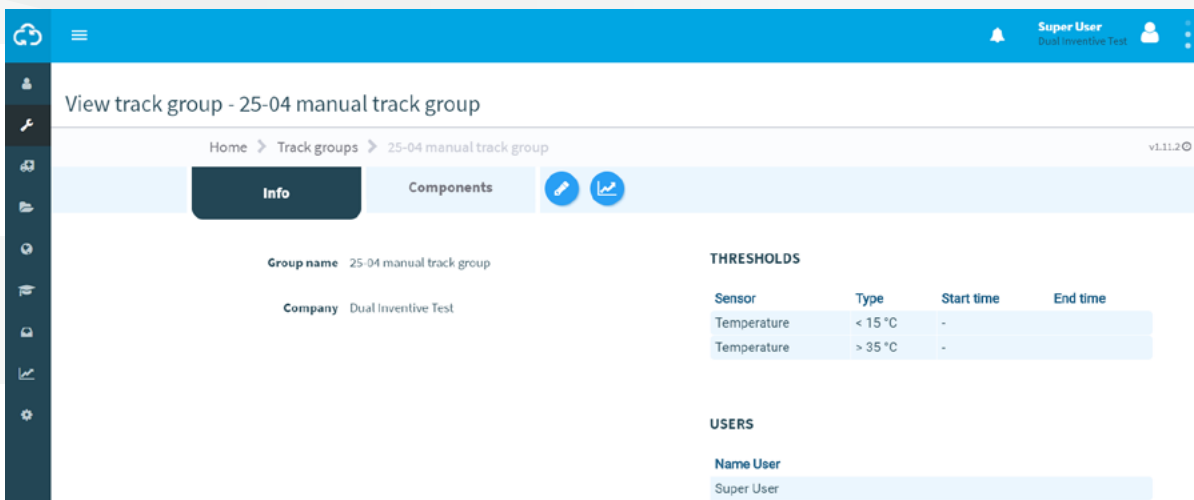
Multiple track objects with the same name can be created. However, these track objects can **not** all be assigned to the same track group. Track groups **cannot** have multiple track objects with the **same name**.

Attention!

You can only assign a track object to one track group.

Viewing a track group

When a track group is selected, its data will be displayed in an overview, as shown below.



The screenshot shows the 'View track group' page for '25-04 manual track group'. The page has a sidebar with navigation icons and a top bar with user information 'Super User' and 'Dual Inventive Test'. The main content area has a breadcrumb trail 'Home > Track groups > 25-04 manual track group' and a version indicator 'v1.11.2'. Below the breadcrumb, there are two tabs: 'Info' (selected) and 'Components'. The 'Info' tab displays the following information:

- Group name:** 25-04 manual track group
- Company:** Dual Inventive Test

Below this information, there are two sections: 'THRESHOLDS' and 'USERS'.

THRESHOLDS



Sensor	Type	Start time	End time
Temperature	< 15 °C	-	-
Temperature	> 35 °C	-	-

USERS


Name User
Super User

The overview is divided into two parts: 'Info' and 'Components'. The first, Info, shows general information about the track group (such as the users assigned and its thresholds). The second shows which track objects have been assigned to the track group (if any).

Editing a track group

By clicking on  (found under "actions"), it is possible to edit the track group (note that a user will require the appropriate rights to do this). Furthermore, a track group can also be edited by selecting it and clicking .

Deleting a track group

By clicking on , (found under "actions"), a track group can be deleted (note that a user will require the appropriate rights to do this). When pressing this button, a pop-up will show up, asking you to confirm your action. Upon pressing "Ok" the track group will be deleted permanently.

7. FUNCTION TEST CRTM 3000

Before installation of the CRTM 3000 in the track, the device should be function tested. This will ensure that the device is working correctly.

First, please place the CRTM 3000 on a metal surface.

The CRTM 3000 is delivered in “lower power mode”, where it will communicate with MTinfo 3000 once per hour. By scanning the QR code on the sensor using the MTinfo 3000 App (see [chapter 10, MTinfo 3000 APP QR code](#)), the sensor will automatically be placed into “active mode”. For more information on this, please consult [chapter 2, Specifications](#) for more info on the active mode of the CRTM 3000.

Attention! The CRTM 3000 utilises an LPWA connection and this works best when the CRTM 3000 is outdoors. Please also note that the location and data of the CRTM 3000 might be slightly less accurate when testing the device indoors.

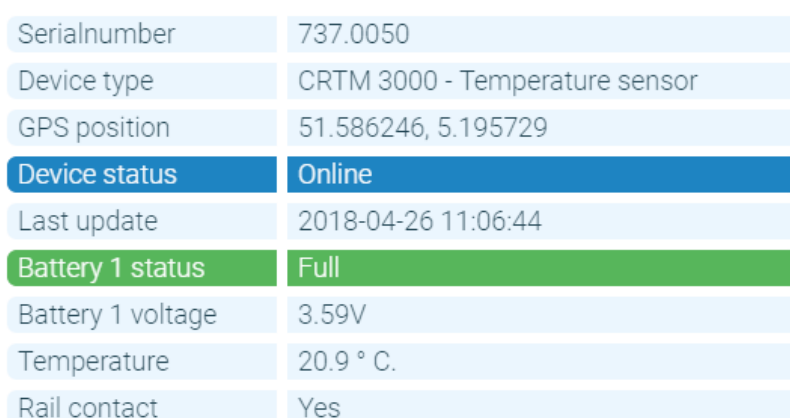
To view the status of the CRTM 3000, please open the MTinfo 3000 app and follow the steps outlined below:

Please see [chapter 10, MTinfo 3000 App QR code](#), for more information on viewing the realtime status using the MTinfo 3000 App. If you do not have access to MTinfo 3000 or the MTinfo 3000 APP, please contact your company’s contact person.

Alternatively, you can check the device using the MTinfo 3000 Web App.

The steps for this are detailed below:

- In MTinfo 3000, click on “Real Time Status”
- Select the CRTM 3000 device(s) for which you want to view the realtime status
- When you click on one of the devices, below pop-up appears:



Serialnumber	737.0050
Device type	CRTM 3000 - Temperature sensor
GPS position	51.586246, 5.195729
Device status	Online
Last update	2018-04-26 11:06:44
Battery 1 status	Full
Battery 1 voltage	3.59V
Temperature	20.9 ° C.
Rail contact	Yes

The device will be ready to be installed once the following conditions are met:

- The “Last update” shows the present date and time. Note that it can take up to 1 hour for the realtime status to update (see [chapter 2, specifications](#) for more information on the update speed of the CRTM 3000)

7. CONTINUATION TEST CRTM 3000

If the “Last update” status does not update, please try the next steps:

- If indoors, try moving the CRTM 3000 outdoors
- Check that “Battery 1” status is “Full”. If this is not the case, please consult [chapter 13, Troubleshooting](#)
- Check that “Rail contact” shows “Yes”. If this is not the case, please check the installation of the CRTM 3000 and reinstall the device if required. For more information on installing the CRTM 3000, please see [chapter 8, Install in the track](#)
- If the steps above do not solve your problem, please wait one more hour. It is possible that the data has been delayed

If your problem still persists, please see [chapter 13, Troubleshooting](#).

Please note, the CRTM 3000 will update its rail contact data (this will be shown in the realtime status and users will be updated via text messages, if set up) within 5 minutes if the rail detection status changes from “yes” to “no”. The CRTM 3000 communicates **once per hour (not through text message)** if rail detection switches from “no” to “yes”. This status will be shown (once updated) in the realtime status.

When all steps have been completed successfully, the device can now be installed in track and used to monitor temperature.

8. INSTALL IN THE TRACK

ENSURE YOUR OWN SAFETY WITHIN THE TRACK AT ALL TIMES

Please perform a function test on the CRTM 3000 before use.

See [chapter 7, function test CRTM 3000](#) for more information.

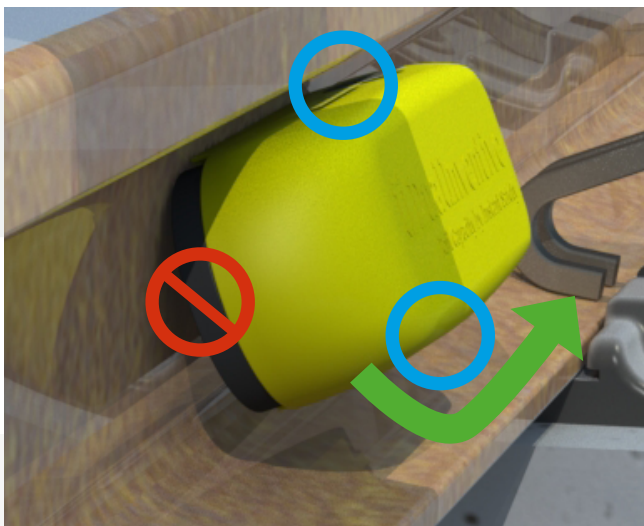
- Position the CRTM 3000 horizontally in the web of the rail
- Try to ensure that the sensor is on the shaded side of the rail to ensure the rail temperature is measured correctly. **Ensure that the ID sticker on the side of the sensor can still be read after placing**

WARNING

The sensors contain strong magnets that attach the sensor to the rail. Ensure to be careful not to trap fingers between the device and the rail during installation. Never put fingers on the magnetic side of the sensor during installation.

- The CRTM 3000 will now determine its own location. Please wait at least 15 minutes before checking the CRTM 3000 on MTinfo 3000. Verify that the CRTM 3000 returns data. If this is not the case, please see [chapter 13, Troubleshooting](#)

When a sensor needs to be removed from the track, place the palm of your hand on the top of the sensor and pull down, using the foot of the rail as grip point with your fingers and lever off (as shown in photo).




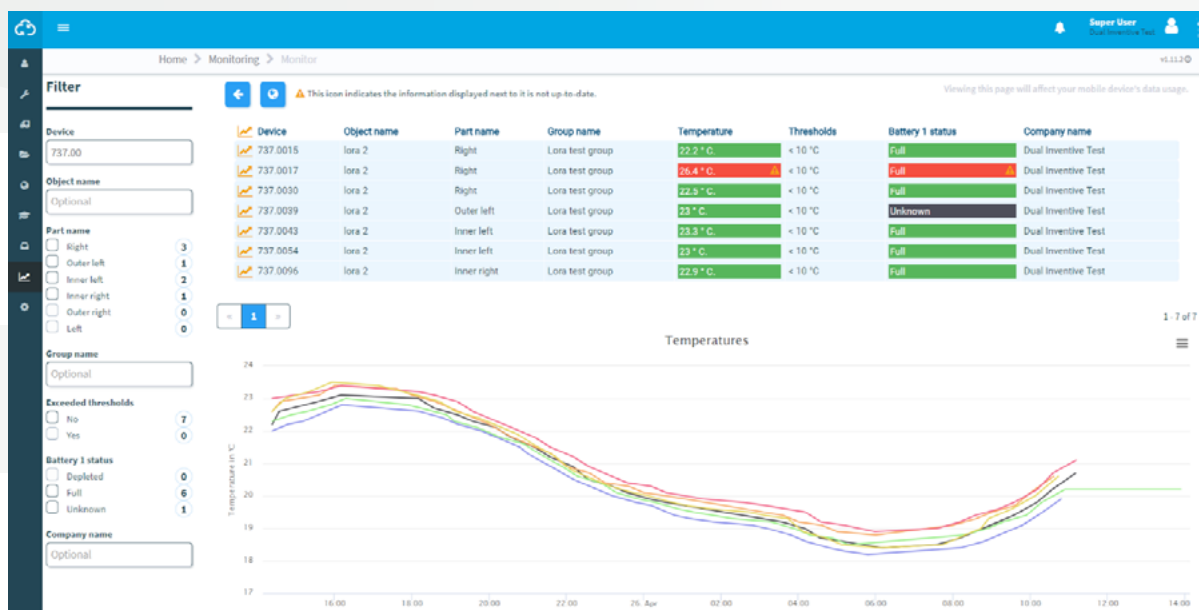
9. MONITORING



Any track objects assigned to a track group can be monitored through the monitoring screen on MTinfo 3000.

Please note, the monitoring screen constantly checks for updates in the background. If viewing the monitoring screen on a smartphone or tablet, it will use up data from your data plan if not connected to Wi-Fi.


You can use the monitoring screen by following the steps below:

- In MTinfo 3000, selecter “Monitoring”
- Select the track groups that you want to monitor and click on 
- Upon clicking on the track group, a graph will open showing the measured temperatures of the past 24 hours. Multiple track groups can be monitored at once and these will all be shown on the same graph. You can select and deselect specific CRTM 3000 devices by clicking on them. This will either add or remove its data from the graph



- By using the mouse to select time periods, it is possible to zoom in on specific parts of the graph. To revert back to the original view, click 'Reset Zoom'
- To print or download a copy of the current graph, select 
- To view the realtime status of the selected devices, select 

Attention!

You might not be able to select certain track groups during monitoring because of the following icon 

This indicates that there are no devices assigned to that specific track group.

You can also choose to generate CRTM 3000 data in an Excel, CSV or PDF file. This can be done by using the “Reports” feature in MTinfo 3000. For more information on reports, please see the manual “General MTinfo 3000 – User”, chapter “Reports”.

10. MTINFO 3000 APP QR CODE

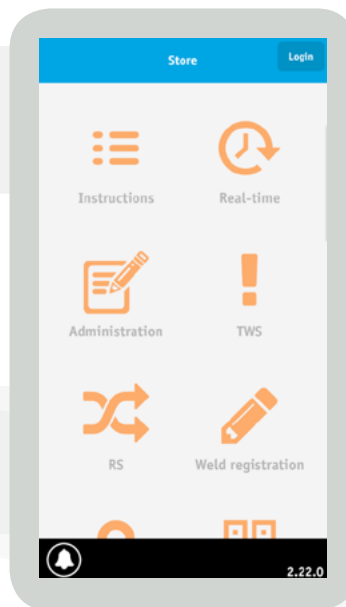
This chapter describes how to use the MTinfo 3000 App to install CRTM 3000 devices. On the CRTM 3000 you will find two QR codes, one on the back and one on the top. Both of these QR codes can be used during installation.

Installing MTinfo 3000 APP

The MTinfo 3000 App can be downloaded, free of charge, for both smartphone and tablet, on Android, iOS and Windows.

- Please visit the respective app store for your device and enter “MTinfo 3000” into the search field
- Download the MTinfo 3000 App (the device will require at least 8MB of free space)

Once installed and opened, the following screen will be displayed:



Logging in

The app can only be used by those with the correct user rights assigned to them. Should you encounter any issues, please contact your company's contact person.

- Click “Log in” in the upper right corner
- Enter your MTinfo 3000 user name, company code and password
- Read the general terms & conditions and accept them
- Tap ‘Log In’

An authorisation code will be sent to the users phone number stored on MTinfo 3000 for verification purposes. Please enter the code when requested and click “Log in” again.

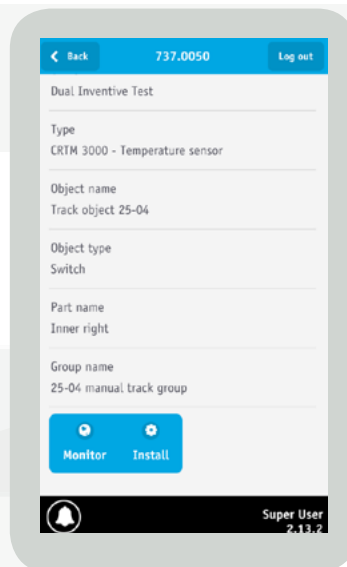
10. CONTINUATION MTINFO 3000 APP QR CODE

Scanning the QR code

- Within the MTinfo 3000 App, click on the “Scan” button
- Next, click “Scan” and aim the camera of your phone at the QR code
- The device will read the QR code and display information about the device automatically



- Two options will be presented to the user, either monitor or install



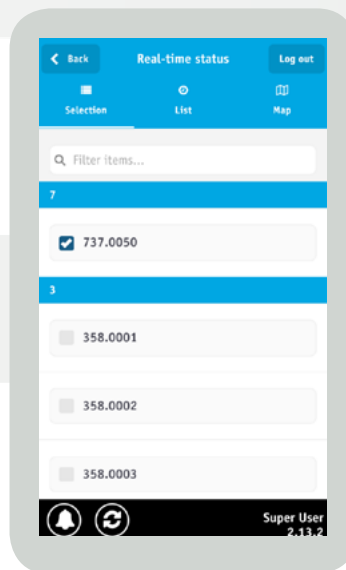
10. CONTINUATION MTINFO 3000 APP QR CODE

Monitor

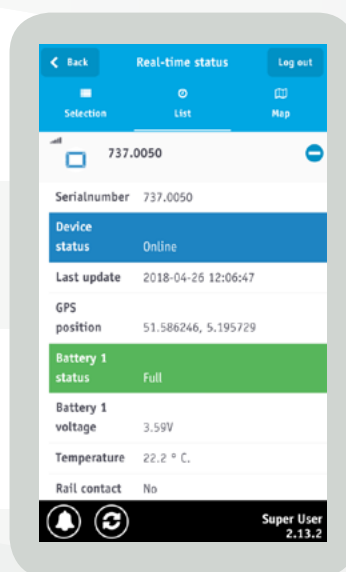
Monitor allows you to check the status of the CRTM 3000 in realtime. This can be performed on either a single device or multiple devices.

This is done by following the steps below:

- The scanned CRTM 3000 will automatically be selected (as shown) and further devices can be added by selecting them



- Once the selection has been made, proceed to the “List” tab to see live data from the devices
- To expand a device and view more information about it, simply click the plus icon. Likewise, to minimise the view, select the minus icon



- Finally, the “Map” tab shows the locations of the selected devices on a map. Tapping on a device will also display its realtime data

10. CONTINUATION MTINFO 3000 APP QR CODE

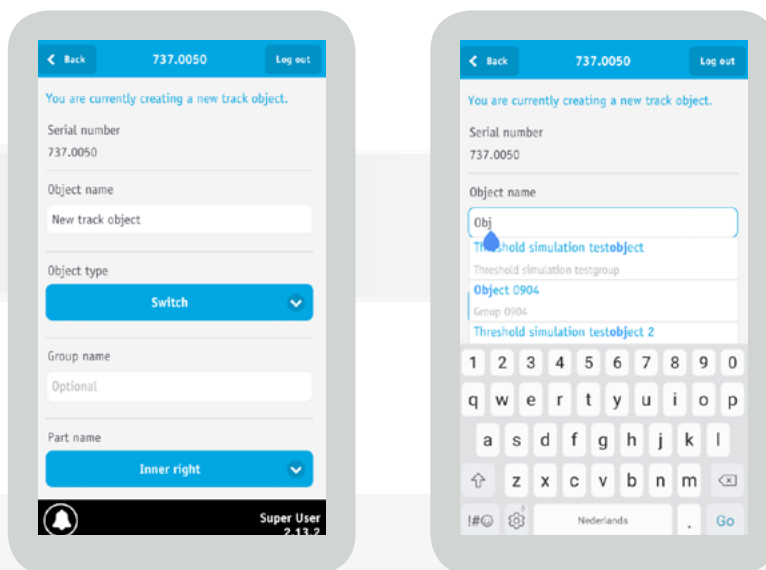
Install

If the 'Install' option is selected, the app will show the current installation data or that of any previous installations.

When using the 'install' function, if required, a new track object can be created or the device can be assigned to an existing object. This data is automatically synchronized with MTinfo 3000.

As explained above, there are two options:

1. To create a new track object, simply enter a unique object name
2. Assign the device to pre-existing track object by searching for the object



- Next, select the track object type, enter a group name (optional) and select the part (see above)
- Save the object by pressing "Submit". This will present an option to review the entered information. To confirm, select 'Yes' or 'No' to cancel

Attention!


Track Groups cannot be created or edited in the MTinfo 3000 App. This can only be done through MTinfo 3000. The MTinfo 3000 App will notify you if you assign a CRTM 3000 to a track object whilst it is still assigned to a different object. If you choose to continue, the CRTM 3000 will automatically be removed from its current track object, and assigned to the new one.

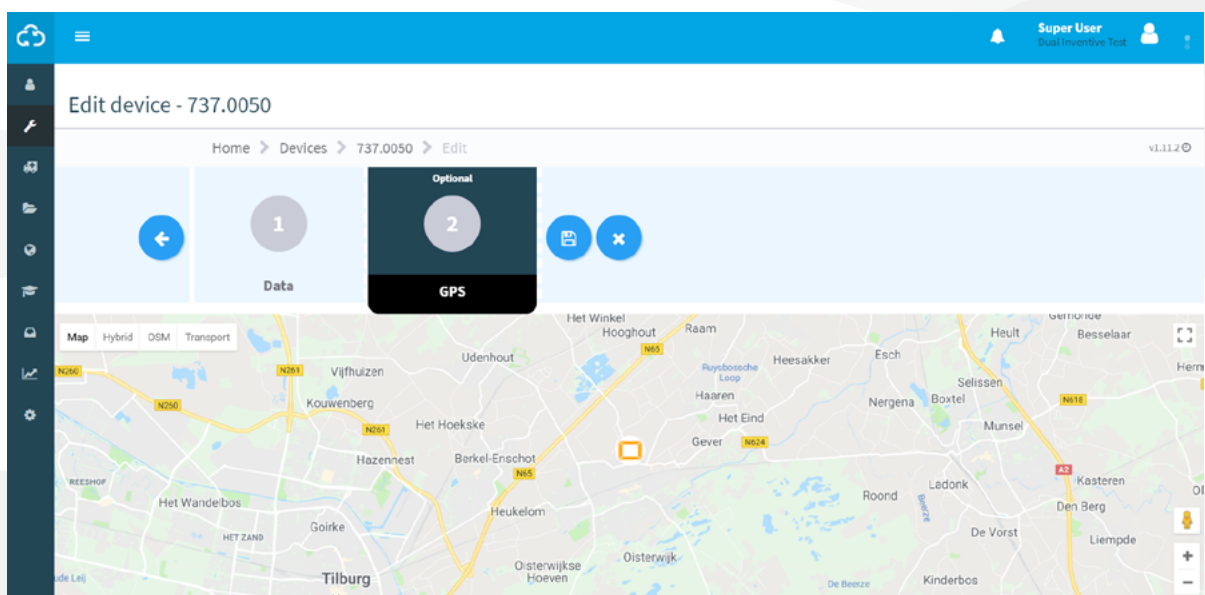
11. CONFIGURING THE LOCATION MANUALLY



The CRTM 3000 automatically updates its location and communicates this with MTinfo 3000. It is possible, however, to manually configure the location of the CRTM 3000. If required, and this can be done through either MTinfo 3000 or the MTinfo 3000 App.


a. Configuring location through MTinfo 3000

To manually configure the CRTM 3000's location through MTinfo 3000, please follow the steps below:

- Go to "Asset management"
- In the left hand column, select "Devices" and proceed to select the device you wish to change the location of
- Click on  to edit the device
- Select Step 2 'GPS' and the following screen will be displayed:



- The CRTM 3000's currently location is now shown on the map. You can zoom in using the scroll wheel on your mouse, or by using the plus and minus signs on the bottom right of the map
- Press  and hold your mouse button down to drag the icon across the map
- Upon release of the mouse button, the CRTM 3000 will be placed on its new location on the map
- You can save the new location by clicking on 

You can also cancel your action using . You will then be returned to the overview of your selected device.

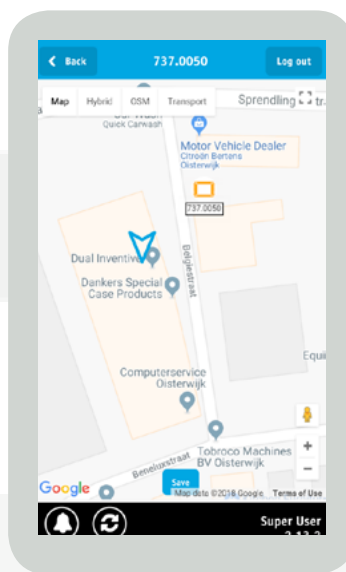
11. CONTINUATION CONFIGURING THE LOCATION MANUALLY

b. Configuring location through the MTinfo 3000 APP

In order to manually configure the CRTM 3000's location through the MTinfo 3000 App you first need to be logged in. For more information, [see chapter 10, MTinfo 3000 APP QR code](#).

- Once logged in, please select the "Location" button
- Find the device requiring the location update. Your phone's location is shown with the blue arrow whilst the equipment's current location is shown with an orange rectangle

Attention, in order to use this function, your phone's GPS function need to be turned on and the MTinfo 3000 App needs to be granted access to your phone's GPS function.



- Clicking 'Save' will set the device's location to that of your phone (i.e. the blue triangle)

12. SERVICE MESSAGES

As a user, alerts can be received via SMS (this is only applicable when your phone number has been stored in the system, see [chapter 5, Track objects](#)). The receiver of these alerts is responsible for communicating the information within their own organization and to adequately process the alert.

Alert	Remarks
CRTM 3000 sensor <idcode> * Battery of this sensor is almost empty. Please replace this battery soon.	CRTM 3000 number x detects that its battery is almost empty.
CRTM 3000 Sensor <idcode> * Battery of this sensor is empty. Please replace this battery.	CRTM 3000 number x detects that its battery is empty.
CRTM 3000 Sensor <idcode> * Rail detection alert. Please check this sensor.	CRTM 3000 number x detects that the rail detection is not optimal.
CRTM 3000 Sensor <idcode> * Temperature of this sensor has reached the <upper_treshold> degrees Celsius upper threshold.	CRTM 3000 number x detects that the temperature has reached the upper threshold.
CRTM 3000 Sensor <idcode> * Temperature of this sensor has reached the <lower_treshold> degrees Celsius lower threshold.	CRTM 3000 number x detects that the temperature has reached the lower threshold.

13. TROUBLESHOOTING

If you come across any problems while using the CRTM 3000, please contact your local Dual Inventive contact person.

14. TRANSPORT AND STORAGE

Dual Inventive advises that products should always be transported and stored in the case they were provided with.

15. MAINTENANCE AND SERVICE

The CRTM 3000 is designed to be maintenance free for 5 years.
Please contact your local Dual Inventive contact person for service and repairs.

16. ENVIRONMENT AND RECYCLING

Equipment disposal

The CRTM 3000 is not domestic waste. For more detailed information about recycling the equipment, please contact your environmental advisor or Dual Inventive.

IN CONCLUSION

If you encounter any problems when using the CRTM 3000 or are unsure of anything in this manual, please report this to us via info@dualinventive.com, or by phone. Ultimately, customer satisfaction and your safety are our top priority and therefore we take all feedback very seriously. We use this to improve the safety and design of our products. On behalf of the Dual Inventive team, we wish you all the best with the CRTM 3000.

ti DualInventive

Ubiquitous Rail

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