uGrokit

Android® User's Manual

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The basics

Included with your Grokker

Your U Grok It solution includes the hardware (the Grokker and charger), and you will need an app for your smart device. We encourage developers to create apps for the U Grok It system. To get you started, we've created *Discover Grok*, an app for discovering RFID and U Grok It. Designed to be used for a variety of situations, Discover Grok can be used as a solution for some organizations, or as a proof of concept for those that want to develop custom apps.

Downloading the Android app

The Android® version of the Discover Grok app is available in the Google Play store. (You can get to that store page directly via the link on our home page at www.ugrokit.com.)

First steps for using the Grokker

1. You should fully charge your Grokker before use. The charging port is the mini-USB port located on the bottom of the Grokker handle. Your Grokker comes with a USB charging cable and wall charger; if you're using a different USB wall adapter, for best results use an output 5V, 2 amp or greater wall charger.
2. Leave the Grokker plugged in for at least 2 hours.
3. Once the Grokker is fully charged, disconnect the charger. You're now ready to use the Grokker to scan RFID tags.
4. Place your smartphone on the Grokker with the audio port on the bottom.
5. You may optionally secure it with the smartphone restraint (aka rubber band) on the Grokker.
6. Connect the Grokker's audio cable to the smartphone's audio port. For some smartphones (like the Samsung Galaxy S), this means putting the smartphone upside down. Don't worry: we'll flip the app when you start it so everything will be right side up. If the screen doesn't flip, just hold the smartphone vertically for a second so it knows which way is up, and the screen will flip. NOTE: in order for the screen to flip, you must unlock orientation/enable rotation on your device.
7. Hold both the Grokker and your smartphone with one hand (Grokker in your palm, fingers reaching up to hold your smartphone).
8. Start the Discover Grok app.
9. When scanning for tags, move the Grokker gently while you walk around. Move your arm up and down and side to side and also turn your wrist some. This will maximize the Grokker's ability to find tags at all orientations.
10. NOTE: The Grokker has its own battery power, which means it won't run down the power on your phone. It turns on when you connect the audio jack. To improve battery life of the Grokker, simple remove the jack from the phone's audio port when you aren't using the reader.

Discover Grok app features

The original Discover Grok app was created to demonstrate the capabilities of the Grokker – with the intent that developers would integrate the features of U Grok It's Smartphone RFID into existing apps. Discover Grok was not originally designed to operate as a business app. It does have several features that you can use immediately, including:

- Creating and using a database
- Tagging Items
- Taking Inventory
- Locating tagged items
- Basic RFID

In addition, you can access settings for the Grokker from the Discover Grok app.

In the original Discover Grok app you cannot import and export data to and from the app.

The database in Discover Grok contains the data for a set of flashcards you can use to demo your Grokker. Please contact sales@ugrokit.com to purchase a set of tagged flashcards.

Creating and using a database of tagged items

You can view, edit and delete items in the database as well as view, edit, and delete sets of items.

Creating a new database

You can create a new database for your tags. The Discover Grok app uses only one database at a time, so the new database will not contain the flashcard items.

1. Tap "settings" on the Discover Grok home screen.
2. Tap "Create New Database."
3. On the confirmation message enter the name of the database you want to create, then tap "create."
4. Tap "ok" in the confirmation message.
5. The Discover Grok app will now use the new database. In order to use the Locate and Inventory functions, you'll need to add tags to the new database first. To do so, tap "back" to return to the home screen, then follow the instructions in "Adding tags to the database".

> Create New Database

Switching to a different database

If you've created one or more databases, you can switch which database is used by the app. To switch to between databases (including the default Flashcard database):

1. Tap "settings" on the Discover Grok home screen.
2. Tap "Switch Database."
3. Select the database you want to use from the selector.
4. Tap "set."
5. Tap "ok" in each of the confirmation messages.
6. Tap "back" to return to the home screen.
7. The selected database will now appear in the "locate", "inventory", and "data" screens.

> Switch Database ...

Deleting a database you've created

If you've created one or more databases, you can delete that database. Note: after you delete a database you will no longer be able to Locate or Inventory any of the tags that you put into that database, since those tag entries will be permanently deleted along with the database. **If you put tags into multiple databases they will still be available in other databases, just not from the database that you deleted, which is no longer available and not recoverable**. You cannot delete the sample Flashcards database included with the app.

To delete a database:

Delete Database

1. Tap "settings" on the Discover Grok home screen.
2. The name of the database that's currently loaded appears at the top of this screen. If that's not the database you want to delete, follow the instructions in "Switching to a different database" above, then continue with these steps:
3. Tap "Delete Database."
4. Tap "ok" in each of the confirmation messages.

Adding tags to the database

Commissioning blank tags

To add uncommissioned tags to a database:

1. In Discover Grok, select the database in which you want to include the new tag. **Warning: any tags you add to the Flashcards database will be deleted if you reinstall the app or reset that database.**
2. Place a single blank tag in front of the Grokker. Make sure no other tags are nearby. If the Grokker detects more than one tag, the notes area at the bottom of the screen will warn you to remove some until it detects only one tag.
3. Tap "tag."
4. Tap the "item" text entry field and enter a name for the item. Item name is required.
5. Tap "take photo" to take a photo of the item, or tap "choose" to select a photo that's already on your smartphone. Item photo is optional.
6. Tap the message area at the bottom of the screen when it turns green and prompts you "Tap here to create tag." (That message will be displayed when one tag is visible and you've entered a name for the item.)
7. The tag will now appear in your database.

Adding your already-commissioned tags to a database

You can add previously commissioned tags that are not yet in a database.

1. Place a single already-commissioned tag in front of the Grokker.
2. In Discover Grok, select the database in which you want to include the new tag. **Warning: any tags you add to the Flashcards database will be deleted if you reinstall the app or reset that database.**
3. Tap "tag."
4. Tap the "change" button at the bottom of the screen so the text to its left reads "Use tag's existing EPC" ("EPC" is a term sometimes used to refer to the tag number).
5. Tap the "item" text entry field and enter a name for the item. Item name is required.
6. Tap "take photo" to take a photo of the item, or tap "choose" to select a photo that's already on your smartphone. Item photo is optional.
7. Tap the message area at the bottom of the screen when it turns green and prompts you to "Tap here to create tag." (That message will be displayed when one tag is visible and you've entered a name for the item.)
8. The tag will now appear in your database.
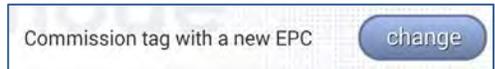
Note: you cannot add tags that are already in the database multiple times, including the tags that are attached to the flashcards.

Taking an inventory of items in a database

Taking an inventory of items

To take an inventory of all or some of the items in one of your databases:

1. Tap "inventory" on the Discover Grok home screen.
2. Start scanning. The screen will display an inventory of database items as the Grokker finds them.
3. The Grokker gives you an "all Found" set of three beeps when it's found all the database items.
4. Tap the "found" and "missing" tabs to switch the display between the list of items that have been found and the list of items that have not yet been found. When viewed in the "Missing" tab, items are removed from the list as they are found.

Creating a new set of items

A *set* is a group of items from one of your databases that you can search for at the same time. You can create a set from any items that are in your database(s). To add additional items to a set you must first add them to a database; see "Adding your already-commissioned tags to a database".

To create a set:

1. Put the items (the actual real-world, tagged items,) together in a group away from any other tagged items in the database.
2. Tap "inventory" on the Discover Grok home screen and scan the items with the Grokker.
3. Once all the items appear in the inventory list, tap "make set".
4. Enter the name of the set. Tap "make set".
5. Tap "OK" on the "make set" confirmation message.
6. Tap "back" to go to the Home screen.
7. Tap "data."
8. Tap "sets" to see the list of sets. Your new set should be in that list.
9. Tap the name of the set to see its contents.
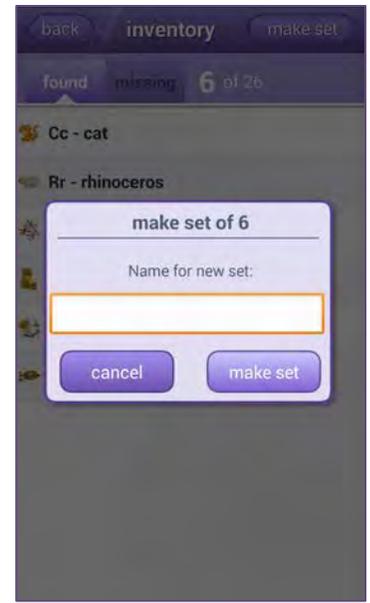
Removing items from a database

Removing a single item from a database

1. Tap "data" on the Discover Grok home screen.
2. Tap the item you want to delete.
3. Tap "delete."
4. On the confirmation message tap "delete" to delete the item, or tap "cancel" to close the message without deleting the item.

Removing a set of items from a database

You can remove a set from the database. This will only delete the set, which is a list of items. It will not delete the items themselves from the database.

1. Tap "data" on the Discover Grok home screen.
2. Tap the "sets" tab.
3. Tap the name of the set of items you want to delete.
4. Tap "delete."
5. On the confirmation message tap "delete" to delete the set, or tap "cancel" to close the message without deleting the set.

Locating items in a database

Locating a single item

To find an item in a database:

1. Tap "locate" on the Discover Grok home screen.
2. Tap one item from the scrollable list.
3. Start searching by gently waving the Grokker around while you walk. When you find the item the Grokker will beep and the screen will change to let you know you've found it. It will beep faster when you are pointing at it and slower when you are pointing away, leading you to the item.

Locating a *set* of items (that's a group of several items)

A group of several items in a database is called a *set.*
To verify whether all items from a set are present:

1. Tap "locate" on the Discover Grok home screen.
2. Tap "sets."
3. Tap the name of a set.
4. Start searching. As you find each item, the Grokker will beep and the item will disappear from the list. When all items are found, the Grokker gives you the "all found" set of three beeps and a message that says "All Items Found." Click OK to return to the sets page.
5. If one or more items from that set aren't found, they remain in the list, and you can search for them individually (see below).

Locating a single item from that set

If one or more items from the set you're searching for have not been found, you can search for them individually:

1. Tap the item in the list while you are searching.
2. Start searching for that item.
3. Tap "back" to go back to the list of items in that set.

Using the *basic RFID* features

Basic RFID provides generic UHF Gen 2 reader functionality. It allows you to scan the tag number of any UHF Gen 2 tag, commission tags with a specific tag number, vary the Grokker configuration (dBm, session, etc.) and read and edit a tag's user memory (if it has any).

Scanning Tags

To scan all UHF Gen 2 tags that are present:

1. Tap "basic RFID" on the Discover Grok home screen.
2. Tap "start" (the "start" button will change to "stop").
3. Start scanning.
4. The screen will display the number of items found, the amount of time you're scanning, the tag numbers of tags as the Grokker finds them, and (in small numbers below the tag numbers) the number of responses the Grokker gets from each tag.
5. Tap "stop" to stop scanning.

Commissioning a tag

You can commission a tag by scanning it and then assigning it a tag number. To do this:

1. Place a single tag in front of the Grokker. Make sure no other tags are within range of the Grokker.
2. Tap "basic RFID" on the Discover Grok home screen.
3. Tap "start" (the "start" button will change to "stop").
4. Scan the tag. (To save battery life on the Grokker you can tap the "stop" button once your tag appears in the inventory list.)
5. Tap the tag number when it appears in the inventory list.
6. Tap the "change EPC" button ("EPC" is a term sometimes used to refer to the tag number). The "change EPC" message box will appear.
7. Enter the tag number you'd like to use. It must be a valid tag number using the digits 0-9 and A-F. The "change" button on this message box will become usable when the code you enter uses valid digits and does not exceed the valid length of a tag number, which is normally 24 digits. If you enter too few digits, the Grokker will add the necessary number of zeros to the beginning of the tag number.
8. Tap "change". Make sure the tag is still within range of the Grokker so it can change the number on the tag.
9. Tap "ok" on the confirmation message. The tag now has the new tag number.

Reading a tag's user memory bank

The Grokker can read a tag's user memory bank in addition to its tag number. Doing so will slow down tag scanning, since it is reading more information

To read a tag's user memory bank:
1. Tap "basic RFID" on the Discover Grok home screen.
2. Tap "configure."
3. Turn "Read User Memory" to "On."
4. Tap "back" to return to the "basic RFID" screen.
5. Tap "start."
6. Start scanning. Tap the tag number of the tag when it appears in the list.
7. The "Tag Information" screen will appear, showing both the tag number and the contents of the User Memory Bank.
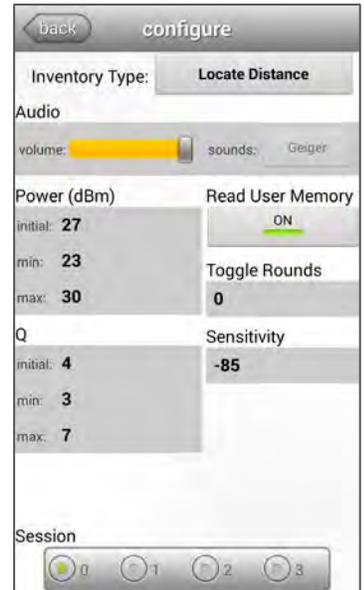
Changing a tag's user memory bank

You can change the contents of a tag's user memory bank.
To do this:
1. Follow the instructions above to read the tag's user memory bank. If the tag has user memory available, its contents will appear in the "user memory" section.
2. Tap "change user memory."
3. Modify the user memory information. It must be a valid number, of the correct length and using the digits 0-9 and A-F. The "change" button on this message box will become enabled when the code you enter is a valid number.
4. Tap "change". Make sure the tag is still within range of the Grokker so it can change the user memory number on the tag.
5. Tap "ok" on the confirmation message. The tag now has the new user memory number.
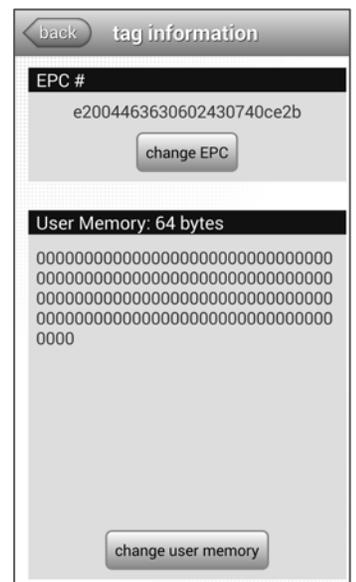
Configuring the Grokker

Using preset inventory types
Each of the Inventory Types available on the "configure" screen uses a different configuration of the reader parameters. We've created these presets to provide the best performance for different usage cases, depending on whether you're locating a small number of items or a larger inventory, and whether you're scanning at very short range, short range, or at a larger distance (the distance you'll be able to read a tag at varies because it also depends on the tag itself).

To change which Inventory Type the Grokker uses for a "basic RFID" search and inventory:
1. Tap the button to the right of "Inventory Type."
2. Select an inventory type from the selector (see below for the options).
3. Tap "set."

The options are:
- **Manual configuration**: allows you to set your own parameters. See "Configuring the inventory parameters."
- **Locate Distance**: find items at 6-20' range (depending on the tag), with Geiger-counter style sounds each time a tag responds.
- **Inventory Short Range**: find a large number of items at the range of a few feet, with only one ping when each tag is found.
- **Inventory Distance**: find a large number of items at 6-20' range, with only one ping when each tag is found.
- **Locate Short Range:** find a small number of items at the range of a few feet, with Geiger-counter style sounds each time a tag responds.
- **Locate Very Short Range:** find a small number of items at the range of a few inches, with Geiger-counter style sounds each time a tag responds.

Changing the Audio and Read User Memory parameters
You can change the Audio and Read User Memory parameters regardless of which inventory type you're using. To do so:
- **Audio:** this is the volume and type of sound the Grokker makes in response to finding a tag. The volume slider allows you to vary the volume of the sounds. The "sounds" button toggles through these three settings:
  - **None**: no sound is played.
  - **First Find**: the Grokker beeps only once, when it first finds a tag.
  - **Geiger**: the Grokker beeps continuously each time a tag responds.
- **Read User Memory**: the Grokker can read the tag's user memory bank in addition to the tag number. Turning this on will read that bank but will slow down the read rate.

Configuring the inventory parameters

In addition to using preset inventory types and changing the Audio and Read User Memory parameters (see above), you can also manually configure the remaining parameters. To do this:

1. Tap the button to the right of "Inventory Type."
2. Select "Manual Configuration" from the selector.
3. Tap "set."
4. The buttons are now available for you to change the Power, Q, Session, Toggle Rounds, and Sensitivity settings:
   - **Power (dBm)**: you can increase or decrease the transmitted power from 5 to 30 dMb. You can also set the range in which the power fluctuates.
   - **Q value**: these are the standard RFID values. We start with the initial Q value and dynamically adjust it between the minimum and the maximum based on current read conditions.
   - **Session**: these are the standard values for RFID sessions used for inventory.
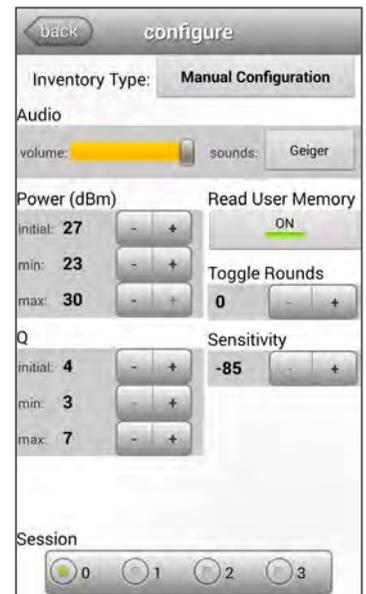
Using the U Grok It *FlashCards* database

The *FlashCards* database in Discover Grok contains the data for a set of flashcards you can use to demo your Grokker. Please contact sales@ugrokit.com to purchase a set of the flashcards themselves (which have RFID tags that match the database is Discover Grok).

Setting up the flashcards

Each flashcard has a stand attached to it. Before using them, please stand them up in any configuration you want. You can stand them all on one table, spread them out in multiple rooms, put them inside cardboard boxes – whatever best simulates how you or your clients are using RFID.

Resetting the FlashCards database

You can remove all the tags you've added to the FlashCards database and restore any Flashcards you deleted by resetting it to its original state of the 26 flashcards.
Warning: If you added tags to the FlashCards database, they are not saved anywhere, so resetting the FlashCards database means you'll have to manually re-enter each of them.
To reset the FlashCards database:

1. Tap "settings" on the Discover Grok home screen.
2. Tap "Reset Database to Default."
3. On the confirmation message, tap "ok" to reset the database or "cancel" to close the message without resetting the database.

Reset Database To Default

Working with the flashcards

To use your flashcards to create sets, locate items, and take inventory, see the respective sections earlier in this document.

Troubleshooting

The screen is upside down
On some Android devices the audio port is at the top. Place the device upside-down on the Grokker to connect the audio cable. Don't worry: Discover Grok will flip when you start it so everything will be right side up. If the screen doesn't flip: hold the device vertically for a second so it knows which way is up, and the screen will flip.

I want to explore the Discover Grok app without the Grokker attached
The Discover Grok app cannot scan or commission tags or interact with the Grokker unless the Grokker is attached; however, Discover Grok will run fine without the Grokker attached. You can see most of the screens and edit data without the Grokker attached. If you try to use a feature that requires the Grokker, Discover Grok will let you know with the dialog box, "Grokker disconnected"

The app keeps saying the Grokker is disconnected when I have plugged it into the audio port.
There can be three main issues that might keep your Grokker from connecting properly to your smartphone:
1. The Grokker battery has no/low power. If the Grokker has no power, then it cannot respond to the smart device to say it is plugged in. To check the battery power, see the section below.
2. The audio plug may not be completely inserted into your smartphone. While we are using an audio plug that is compatible with most smartphone cases, some cases can interfere with the audio plug. Try removing the case from your smartphone and inserting the Grokker audio plug to see if this is the problem.
3. Sometimes dirt or dust in your audio port can prevent a strong connection. Please clean your audio port.

How can I tell how much battery charge the Grokker has?
To check the battery power:
1. Connect your smartphone to the Grokker.
2. If your charger is connected to the Grokker, disconnect the charger.
3. Start the Discover Grok app. Your Grokker should connect. (Note: If you see a dialog box that says "Please connect your Grokker" when your Grokker is already connected, you may have no charge left. Please plug your Grokker in for at least an hour.)
4. Tap "settings."
5. Tap "Battery Level" to check the level.
6. Fully charging your Grokker takes several hours.
7. If after removing the case and charging the Grokker it still will not connect, please contact support at techsupport@ugrokit.com.

I want to make a set, but I keep getting a message that I can't make a set unless one or more items in the database are included.

You can only make a set when you've scanned at least one of the items from your database. If you haven't scanned any items from your database then this message appears when you tap "make set".

To make a set, follow the instructions in "[Creating a new set of items](#)".

I don't want to use your Flashcards; how can I delete them from the database?

You cannot remove the Flashcards database from the Discover Grok app. To use a new database without any of those Flashcard items, you must create a new database. See "[Creating a new database](#)".

I want to locate more than one item at once, but the Locate screen only lets me select one item.

Right now, you can only locate one item a time from the locate items screen. The only way to locate multiple items is to have those items in a set. To do this, you need to have the actual items you want to find available, isolate them, inventory them and tap "Make Set." See "[Creating a new set of items](#)".

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Charging your Grokker

You should fully charge your Grokker before use:

1. Plug the charger's mini-USB plug into the USB port at the bottom of the handle of your Grokker.
2. Then do one of the following:
   a. Plug the charger into a 120V outlet, or
   b. Disconnect the charger wire from the charger, and plug the charger's large USB plug into a USB port (such as one found on your laptop or desktop computer).
3. Leave the Grokker plugged in for at least 2 hours.

Once the Grokker is fully charged, disconnect the charger. You're now ready to use the Grokker to scan RFID tags.

Customer support Please call 844-UGROKIT (844-847-6548) or visit us at www.ugrokit.com/support.

User manual You can find the user manual for your Grokker at www.ugrokit.com/manuals.

Proper Use To comply with FCC RF exposure compliance requirements this unit must be operated in the hand with a minimum separation of 22cm from the body and other persons. Other operating configurations should be avoided.

Modifications Any modifications made to this device that are not approved by U Grok It, Inc. may void the authority granted to the user by the FCC to operate this equipment.

FCC Class B Notice This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Industry Canada Statement This device complies with RSS-210 of Industry Canada. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

CAUTION RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE

ATTENTION RISQUE D'EXPLOSION SI LABATTERIE EST REMPLACE PAR UN TYPE INCORRECT. Jetez les piles usagées SELON LES INSTRUCTIONS

U Grok It Limited Warranty

U Grok It, Inc. warrants that: (a) new U Grok It products ("Products") will be free from defects in material and workmanship for 1 year from the date of purchase, and (b) exchange units delivered to Customer to replace a defective Product returned to U Grok It by Customer will be free from defects in material and workmanship for the remainder of the defective and returned Product's original warranty. U Grok It's warranty shall not apply to any Products that are not operated in conformity with U Grok It's published instructions, or to any Products which have been subject to misuse, abuse, negligence, or accident, or altered or repaired by anyone other than U Grok It or U Grok It's authorized agent. In addition, this limited warranty does not cover any Product that has been damaged by causes external to the Product (including, without limitation, failure of or faulty electrical power) or that has been used in violation of U Grok It's instructions for use.

In all cases, U Grok It has sole responsibility and discretion for determining the cause and nature of a Product defect, and U Grok It's determination with regard thereto shall be final. Customer must notify U Grok It of any breach of warranty within the applicable warranty period and obtain an RMA number in accordance with U Grok It's standard RMA process. Customer's exclusive remedy and U Grot It's sole obligation for any breach of warranty shall be, at U Grok It's option, the repair of the Product or replacement of such Product with a Product of the same type, or the refund of the Purchase Price (defined below) for such Product. When notifying U Grok It of, or returning to U Grok It, any Products that fail to meet an applicable warranty, Customer shall comply with U Grok It's then-current Return Material Authorization procedure (available upon request). U Grok It will pay freight on Products returned to Customer which are covered by the warranty Customer will pay freight on Products returned to U Grok It that are not covered by warranty. U Grok It owns, and Customer hereby assigns to U Grok It ownership of, any part, component, or item removed from a Product by U Grok It under these Terms for any reason.

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Conforms to UL Std 60950-1
Certified to CSA Std C22.2 No. 60950-1