

Rev 1.0

Doro Secure 480 User Guide

This document describes the how to use the Doro Secure 480 wearable personal safety device.

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Contents

1	DORO SECURE 480 at a glance.....	5
1.1	DORO SECURE 480 overview	5
1.2	Accessories.....	6
1.3	Buttons.....	6
	1.3.1 Help request call.....	7
	1.3.2 Function buttons in the watch bezel.....	7
1.4	Speaker and microphone.....	7
1.5	Analog watch	7
1.6	Wearing the DORO SECURE 480	8
1.7	DORO SECURE 480 display status icons	8
2	Getting Started	9
2.1	Charging	9
2.2	Setting up.....	10
	2.2.1 DORO SECURE 480 ready for setup.....	10
2.3	Web service.....	10
2.4	Making Help Request calls	11
	2.4.1 Help requests call in normal mobile network conditions.....	11
	2.4.2 Help requests call when DORO SECURE 480 is not connected to a mobile network	11
2.5	Answering and reject a call	12
2.6	Home beacon placement.....	12
3	Safety, Handling and Support.....	13
3.1	Guidelines for Safe Use.....	13
	3.1.1 Recommendations for safe use of the DORO SECURE 480	13
	3.1.2 Home beacon power supply	13
	3.1.3 DORO SECURE 480 Battery	13
3.2	Charging of the DORO SECURE 480	14
3.3	Repair	14
3.4	Strap replacement	14
3.5	Export regulations.....	Error! Bookmark not defined.
3.6	End user license agreement.....	14
3.7	GPS/GLONASS, home beacon and mobile network location.....	15
3.8	Help request calls.....	15
3.9	Medical devices.....	15
3.10	Specific Absorption Rate (SAR) and Radio Frequency (RF) exposure	15
3.11	DORO SECURE 480 support information	16
3.12	Battery replacement	16

DOCUMENT HISTORY

Rev. #	Notes	Date
1.0	Initial release	2016-03-17

Complementary reading

Ref. #	Document Name
1	Doro Secure 480 web interface user guide

DORO SECURE 480 device HW and SW requirements

This document describes features of the following DORO SECURE 480 device HW and SW version.

HW version	SW version
DORO SECURE 480 HW revision D or later	DORO SECURE 480 SW version 1.5.9 or later

Instructional icons



Warning: situations that could cause injury to yourself, others or may damage a device



Note: notes, usage tips, or additional information

1 DORO SECURE 480 at a glance

1.1 DORO SECURE 480 overview

This user guide describes the use of the DORO SECURE 480 wearable personal safety wristwatch. Please refer to the Web service user guide [Ref #1] for instructions on how to configure and manage the DORO SECURE 480 wristwatch. The DORO SECURE 480 wristwatch is primarily designed for assisting persons who may require help in order to manage their day to day life. It is also well suited for lone workers.

The most commonly function of the DORO SECURE 480 wristwatch is to show the time. The safety requirements are catered for by mobile phone capabilities for making help request calls, normal calls and receiving calls as well as the mobile data communications with the Web service. DORO SECURE 480 wristwatch has an inbuilt GPS/GLONASS receiver enabling accurate location information of the DORO SECURE 480 wearer to be sent to the Web service when the wearer is outdoors. In the event that GPS/GLONASS location cannot be acquired mobile network cell location or home beacon location can be reported to the Web service.

Key features of the DORO SECURE 480 wristwatch are:



The DORO SECURE 480 also has a Bluetooth Low Energy link that can be used to detect the proximity of a home beacon and more importantly the loss of contact with the home beacon.

DORO SECURE 480 also has a vibrator to assist persons with hard of hearing or poor eye sight with the use of the DORO SECURE 480. The DORO SECURE 480 speaker is also used as part of the user interface.

1.2 Accessories

The following accessories are provided with DORO SECURE 480 (these may vary depending on model and region).

Home beacon



USB cable



USB charger



1.3 Buttons

The DORO SECURE 480 wristwatch has Three buttons and a crown. The three buttons on the watch bezel are hidden inside the watch mechanics and there are no mechanical buttons visible. Press firmly the watch bezel at number 15, 45 or 60. When the button is activated the watch gives a haptic feedback and the selected action is activated. The crown button is the only visible mechanical button.

The help request call is initiate by the crown button. The UP button is located at number 60 in the bezel. The CALL / YES button is located at number 45 in the bezel. The CANCEL / NO button is located at number 15 in the bezel. The buttons and crown are enabled or disabled depending on the profile selected.



1.3.1 Help request call

Press the Crown button and hold down to initiate a help request call. The DORO SECURE 480 vibrates shortly and the display will show SOS with background animation. This function is active in Safety alarm profile.



1.3.2 Function buttons in the watch bezel

Buttons are located at number 15 (CALL/YES), at number 45 (CANCEL/NO) and at number 60 (UP).



Please note that button functions are enabled or disabled depending on selected DORO SECURE 480 profile. In safety alarm profile the 15, 45 and 60 buttons show the battery level in the display. In Geofence and home beacon profiles none of the buttons are operational.

1.4 Speaker and microphone

DORO SECURE 480 has a powerful speaker directed towards the wearer. The microphone is located in the side of the watch body at 2 o'clock. During a phone call please keep the DORO SECURE 480 approximately 25 cm away from your mouth if possible. This is an optimum position for best sound quality for the DORO SECURE 480 speaker and microphone. The speaker volume can be easily adjusted using the Web service.

1.5 Analog watch









The DORO SECURE 480 has an analog watch function. The time shown by the DORO SECURE 480 is synchronized with the Web service. The time zone selection can be easily done with the Web service. The watch hands will move away from the display area if there is something to be shown in the display. When the display is turned off the watch hands resume their correct locations. Please note that there is a watch hand position sensor near the 9 o'clock LED in the watch face. Occasionally the DORO SECURE 480 checks the position of the watch hands by moving the hands over the sensor. The watch hand calibration may fail if a bright light impairs the sensor during calibration. The watch will recalibrate the hands later automatically. It is also possible to initiate the calibration process with the Web service if the time shown by the watch is incorrect.

1.6 Wearing the DORO SECURE 480

The DORO SECURE 480 has been built so that it can be used in everyday life without too many limitations. The wristwatch itself is splash water proof but like any wristwatch it may fog up if exposed to extreme temperature changes or submerged in water. It is not recommended that the DORO SECURE 480 is worn in sauna or other environments where similar extreme temperatures changes can occur. It is recommended that the DORO SECURE 480 is kept clean and dry. The mineral glass of the wristwatch may break if a direct impact hits the glass.

1.7 DORO SECURE 480 display status icons

The DORO SECURE 480 has a two row OLED display. The display is operational when a call is being made and when the crown has been pressed in Safety alarm profile. It is also operational for a short period of time when the DORO SECURE 480 is placed into the charging dock. The display icons are explained in the table below.

Status icon	Icon name	What it means
	Battery	Shows DORO SECURE 480 battery level or charging status.
	Home beacon	Device has a connection to a home beacon.
	GPS	When the icon is steady the DORO SECURE 480 has successfully acquired a GPS location. When this icon is blinking, it means that DORO SECURE 480 is in the process of acquiring a GPS location.
	Tracking	The icon is shown when tracking is activated.
	Call	You have an active voice call ongoing.
	Data transfer	When the icon is shown the device is uploading or downloading data.
	Mobile network	You are in range of the mobile network. DORO SECURE 480 can make and receive phone calls and it has connection to Web service. Number of the coverage bars indicates the strength of mobile network signal; more bars indicate better signal strength.
	Mobile network	If the DORO SECURE 480 is not connected to a GSM network you will see a network icon with a cross.

2 Getting Started



Warning: To avoid injury read section 2.6 Safety, handling and support before using DORO SECURE 480.

2.1 Charging

The DORO SECURE 480 has an internal battery that provides power to the device. It must be charged regularly in order for the DORO SECURE 480 to work properly.

- Connect the charger with the provided USB cable to the home beacon.
- Connect the charger to a power outlet. The blue LED on the right will be lit for couple of seconds when home beacon is first powered to indicate that the home beacon is working normally. The blue LED will turn off automatically in order not to disturb the wearer during sleep if the home beacon is placed on a night stand.
- Place the home beacon onto a steady flat surface such as a table. Please keep the home beacon dry and where possible away from direct sunlight and excess heat sources.
- Do not touch the charging contacts in the charging dock as excess force may deform them.

Prior to using the DORO SECURE 480 device for the first time it must be charged. The initial charging time is approximately one and half hours if the battery is completely empty.



- Please place the DORO SECURE 480 into the home beacon charging dock as shown in the picture above. The DORO SECURE 480 will beep when it has been properly seated in the dock. The left home beacon LED will be lit.
- When the DORO SECURE 480 is placed into the charging dock for the first time the DORO SECURE 480 display will show **SETUP**. During charging the DORO SECURE 480 YELLOW LED at 12 o'clock is lit and the battery icon will show an animated charging sequence. The left LED of the home beacon is RED when charging is taking place.
- When the battery is fully charged in the battery icon all four battery level bars are lit and the DORO SECURE 480 GREEN LED at 3 o'clock is lit. The left LED of the home beacon will turn GREEN when the DORO SECURE 480 battery is fully charged. Please note that the left LED of the home beacon may remain RED for a period of time after DORO SECURE 480 display shows **BATT FULL**.
- When the DORO SECURE 480 has been setup in the Web service the **SETUP** display will change either to **CHARGING** or to **BATT FULL**. Please note that the DORO SECURE 480 will calibrate the watch hands when leaving from the SETUP state. Please refer to section 2.2 for instructions on how to set the DORO SECURE 480 up in the Web service by using the user name and password provided in the label inside the DORO SECURE 480 delivery box lid.

- When the DORO SECURE 480 is placed in the charging dock all bezel button functions are disabled and device screen turns OFF after 10 seconds. By pressing the crown button the DORO SECURE 480 display is turned ON for 10 seconds to show the DORO SECURE 480 status, network and battery level.

2.2 Setting up

In order to use the DORO SECURE 480 it must be configured using the Web service. A new DORO SECURE 480 has been put into a **SETUP** mode at the factory and powered off for shipment. The DORO SECURE 480 will remain in **SETUP** mode until it has been configured using the Web service.

2.2.1 DORO SECURE 480 ready for setup

During the initial charging period the DORO SECURE 480 display will show **SETUP**. This indicates that DORO SECURE 480 is in a setup mode. Please note that if you remove the DORO SECURE 480 from the charging dock in **SETUP** mode the DORO SECURE 480 will turn itself off automatically. Please keep the DORO SECURE 480 in the charging dock for the duration of the configuration. Please wait until the DORO SECURE 480 mobile network icon shows at least one bar and the battery is fully charged. The fully charged state is indicated by GREEN LED on DORO SECURE 480 dial near 3 o'clock and by steady battery icon with all four bars visible. Please note that it is normal for the DORO SECURE 480 to move the watch hands during the setup period.



NOTE: Connection to a mobile network is required in order to complete the DORO SECURE 480 setup. If mobile network is not available for DORO SECURE 480 in a couple of minutes please move the DORO SECURE 480 to another location where mobile network is available.

2.3 Web service

Doro Secure 480 web service is a service that allows individual caregivers and professional care entity personnel to manage the call routing and caregiver reachability services, to manage the settings of DORO SECURE 480 devices, and to see the location of an assistee in a map view.

The Doro Secure 480 web service is hosted by Doro in a telecom grade redundant server environment. Caregivers and professional care providers can use the Doro Secure 480 web service with a web browser.

Doro Secure 480 is found here: <https://secure480.com>

Please see User manual for Doro Secure 480 web service Ref #1 for more detail information how to use the Web service.

2.4 Making Help Request calls

One of the most useful features of the DORO SECURE 480 is the ability to make help request calls by a single push of a button. A help request call can be made by pressing the crown button. Please note that Safety alarm profile is only profile supporting crown button alarms

2.4.1 Help requests call in normal mobile network conditions

Press the crown button. The DORO SECURE 480 will vibrate briefly when the button has been actuated. The display will show SOS with an animation turning the background white from left to right. When the button has been pressed for the required time the animation reaches the right side of the display and the help request call is initiated. If the button is released prior to the end of the animation the help request call is not placed. This purpose of the short delay is to avoid accidental help request calls.





When the help request call is initiated the DORO SECURE 480 will vibrate for a second to tell the wearer that the call is being made. At the same time the display will show that the SOS call initiation is in progress.

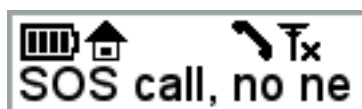


Shortly afterwards the DORO SECURE 480 speaker will play a beeping sound sequence until the dial tone is available from the mobile network. Depending on the mobile network connection time and number of caregivers that are being reached the call connection time may vary. Typical call connection time is a few seconds if the first number in the call sequence is reachable.

2.4.2 Help requests call when DORO SECURE 480 is not connected to a mobile network

In the event that the DORO SECURE 480 is outside of mobile network coverage help request calls cannot be successfully connected. The mobile network icon in the DORO SECURE 480 display will show  as shown in the picture below.

If the [ALWAYS ON-LINE](#) toggle in the Web service has been turned [OFF](#) the DORO SECURE 480 turns off its mobile network module in order to save power. This is also indicated by the  icon. When a call is initiated the DORO SECURE 480 will attempt to connect to the GSM network. If the network connection can't be achieved in 10 minutes an error message will be displayed.



If the call cannot be immediately connected it is advisable that the DORO SECURE 480 user moves to a location where mobile network coverage is available if at all possible. If the connection cannot be established during the 10 minutes period the help request call attempt will be given up and **NO NETWORK** will be shown in the DORO SECURE 480 display.



2.5 Answering and reject a call

DORO SECURE 480 can also receive calls. The DORO SECURE 480 will automatically accept the calls when geofence and home beacon profile is selected. In the Safety alarm profile the wearer has the option to either accept or reject an incoming call. The call is accepted by pressing the YES button at number 15 as shown in the picture below left. The call can be rejected by pressing NO as shown in the picture below right.



2.6 Home beacon placement

Placement of home beacon and full coverage in assistee's home is important when using home beacon alarm profile. Lack of home beacon coverage when using home beacon alarm profile will generate false alarms. When DORO SECURE 480 is in range of a home beacon, GSM and GPS is turned off, thus battery consumption is significantly decreased. The range of the home beacon in open space is up to 10 meters. Walls and other solid obstructions may significantly shorten the range of the home beacon. Additional home beacons may be needed to get full coverage of assistee's home. You can pair up to 10 home beacons with one DORO SECURE 480 device. One Home beacon can be paired by many DORO SECURE 480 devices.



Note: Make sure you have full home beacon coverage in assistee's home. This will reduce number of false home beacon alarms and increase battery usage time.

3 Safety, Handling and Support

3.1 Guidelines for Safe Use

Please follow these guidelines. Failure to do so might be a potential health risk or product malfunction. If you doubt that the DORO SECURE 480 is not functioning properly have it checked by a certified service partner prior to using or charging it.

3.1.1 Recommendations for safe use of the DORO SECURE 480



Warning: The DORO SECURE 480 may explode if exposed to fire.

Handle the DORO SECURE 480 with care and keep it clean and dust-free.

Do not use the DORO SECURE 480 in environments where relevant IP rating limitations, if applicable, are exceeded (including excess depths) or expose it to excess humidity.

Do not use the DORO SECURE 480 or the home beacon in explosive atmosphere.

For optimum performance, the DORO SECURE 480 should not be operated in temperatures below -20°C or above $+60^{\circ}\text{C}$. Do not expose the battery to temperatures above $+60^{\circ}\text{C}$.

Do not attempt to disassemble the DORO SECURE 480 or the home beacon. Only an authorized service partner is allowed to perform service operations.

Do not expose the DORO SECURE 480 or the home beacon to flames.

Do not throw or drop the DORO SECURE 480.

Avoid volume levels that may be harmful to your hearing.

Do not expose the DORO SECURE 480 or the home beacon to prolonged periods to excess heat.

Please use only mild detergents and soft tissue to clear the DORO SECURE 480.

Do not expose the home beacon to moisture.

Keep the home beacon charging dock free of any foreign objects.

Please keep the microphone and speaker grills clear of debris and other obstacles.



Warning: Broken glass may create sharp edges that can harmful.

3.1.2 Home beacon power supply

Connect the power supply to power sources as marked on the product. Do not use in damp areas or exposed to elements. Do not subject the cable to stress. Do not use a damaged cable.

3.1.3 DORO SECURE 480 Battery

Charge the DORO SECURE 480 battery in temperatures between $+0^{\circ}\text{C}$ and $+45^{\circ}\text{C}$. Do not try to open the DORO SECURE 480 nor to change the battery. Battery life depends on temperatures, signal strength, profile chosen and voice calls. Only approved service partners should replace the battery.

3.2 Charging of the DORO SECURE 480

Please charge the DORO SECURE 480 only in the home beacon charging dock. When charging the DORO SECURE 480 keep it dry, away from direct sunlight and exposure to dust. Please note that the DORO SECURE 480 can be charged in temperatures between +0°C and +45°C.

3.3 Repair

The DORO SECURE 480 is a delicate piece of electronics and micromechanics. It may only be repaired by an authorized service partner.

3.4 Strap replacement

The DORO SECURE 480 strap is a normal watch strap with a 22 mm interface. The strap may be replaced by a qualified store selling straps and providing replacement services.

Please check with Doro AB for strap options for wearers suffering from dementia or for persons with poor dexterity.

3.5 Export regulations

The end user shall comply with all national, state, and local laws and regulations governing the use of Binary in the course of the license. In the United States, these may include, but are not limited to, Department of Commerce including U.S. Export Administration regulations, Securities Exchange Commission, Environmental Protection Agency, and Department of Transportation regulations applicable to Hazardous Materials.

GOVERNMENT GPS LIMITATIONS: end user shall, in the use of the S1 shall conform to, all applicable federal, state and local orders, laws, regulations and ordinances, including specifically United States federal government regulations relating to GPS technology.

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3.6 End user license agreement

Software delivered with DORO SECURE 480 and home beacon is owned by Doro AB and/or its affiliated companies and its suppliers and licensors.

Doro AB grants the end user a non-exclusive limited license to use the software solely in conjunction with the DORO SECURE 480. Ownership of the software is not sold, transferred or otherwise conveyed. The license grant is subject to the timely and full payment of all fees payable by end user from time to time.

End user may not (i) modify, (ii) reverse engineer, or (iii) for the purpose of reverse engineering, disassemble, decompile or trace the execution of software or any portion of it.

This license grant is valid throughout the useful life of the DORO SECURE 480. It can be terminated by transferring your rights to the device to a third party in writing.

Failure to comply with any of these terms and conditions will terminate the license forthwith.

This license is governed by the laws of Sweden. When applicable, the foregoing applies to statutory consumer rights.

Doro AB and its third party suppliers and licensors retain all rights, title and interest in and to the software. To the extent that the software contains material or code of a third party, such third parties shall be beneficiaries of these terms.

3.7 GPS/GLONASS, home beacon and mobile network location

The DORO SECURE 480 features GPS/GLONASS, home beacon and mobile network location based functions. Location determining functionality is provided "As is" and "With all faults". DORO AB makes no representation or gives any warranty to the accuracy of location information.

Location-based information provided by the DORO SECURE 480 and Web service may not be always available or be error free. It also is dependent on mobile network service availability. Please note that GPS/GLONASS performance may be reduced or prevented in certain environments such as indoors and densely forested areas where GPS/GLONASS signals can't be received reliably.

The home beacon range may vary significantly depending on obstructing structures between the home beacon and the DORO SECURE 480.

The mobile networks are in constant flux of change. It may not be possible to derive a mobile network based location in all areas.

3.8 Help request calls

Connection of help request calls cannot be guaranteed under all conditions. Calls may not be possible in all areas, on all networks subject to network capacity limitations, network coverage limitations and building or other similar obstructions.

3.9 Medical devices

The DORO SECURE 480 and the home beacon are equipped with radio transmitters that may affect implanted and other medical equipment. In order to reduce risk of interference keep the DORO SECURE 480 and the home beacon a minimum distance of 15 cm away from the medical device. Do not use the DORO SECURE 480 at your ear if possible. For use in proximity to medical devices, please consult a physician and the medical device manufacturer.

3.10 Specific Absorption Rate (SAR) and Radio Frequency (RF) exposure

The DORO SECURE 480 is equipped with a Bluetooth Low Energy link and GSM mobile phone features.

The Bluetooth Low Energy link and the GSM mobile phone emit low levels of radio frequency energy. International safety guidelines have been developed for such emissions. These guidelines establish permitted levels of radio wave exposure. The guidelines include a safety margin designed to assure the safety of all persons and to account for any variations in measurements.

Specific Absorption Rate (SAR) is used to measure radio frequency energy absorbed by the body when using the DORO SECURE 480. The SAR value is determined at the highest certified power level in a laboratory. The DORO SECURE 480 uses the minimum power necessary to access the chosen network, thus actual SAR level can be well below this value.

3.11 DORO SECURE 480 support information

Please visit www.doro.com for more information.

3.12 Battery replacement

The DORO SECURE 480 internal battery can only be changed at an authorized service partner. Please check with your nearest service partner location.