



# Prism V2 Qsmart Prism Product Manual

Date	Version	Description	Author
16 <sup>th</sup> June 2021	1.0	Initial Version	Tony Underwood
8 <sup>th</sup> July 2021	1.1	Updated regulatory statements	Tony Underwood
28 <sup>th</sup> July 2021	1.2	Updated US RF Exposure warning	Tony Underwood

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28<sup>th</sup> July 2021

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## Table of Contents

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
1.1	General Information .....	1
1.2	Facilities.....	1
1.3	Applications.....	2
<b>2</b>	<b>Installation.....</b>	<b>2</b>
2.1	Location.....	2
2.2	Configuration .....	2
<b>3</b>	<b>Operation.....</b>	<b>2</b>
3.1	Switching On .....	2
3.2	Switching Off.....	2
3.3	Battery Replacement .....	3
<b>4</b>	<b>Specifications .....</b>	<b>3</b>
4.1	Dimensions.....	3
4.2	Controls and Indicators.....	3
4.3	Power Requirements .....	3
4.4	Communications .....	3
<b>5</b>	<b>Environmental Conditions.....</b>	<b>3</b>
5.1	Operating temperature.....	3
5.2	Relative Humidity.....	4
5.3	Other restrictions .....	4
<b>6</b>	<b>Repair procedures .....</b>	<b>4</b>
<b>7</b>	<b>Warranty Statement.....</b>	<b>5</b>
<b>8</b>	<b>Regulatory Statements .....</b>	<b>7</b>

# 1 Introduction

## 1.1 General Information

Accesso technology provide a Virtual Queuing System (QSmart) allowing guests to be able to make registrations for rides without the need to wait physically at the ride itself.

The Prism is a wearable device that is the customer interface to the Qsmart virtual queueing system. It is capable of communication using NFC, Bluetooth and Sub-GHz communication.

It provides a colour display using a very low power memory LCD and supports a full touch and swipe based navigation interface. It also has a vibration motor for haptic feedback for user interaction and for alerts.



Figure 1

## 1.2 Facilities

- The Prism display is a 176 x 176 pixel LCD capable of 3-bit per pixel colour images and text.
- The Vibration Motor causes the Prism to vibrate, as a feedback and alerting mechanism.
- Powered by a replaceable 3032 coin-cell battery .
- The Prism wearable device includes three radio transceivers:
  - "Short range" – Secure NFC 14443 chip (EMV, DESFIRE, MIFARE compliant)
  - "Medium range" – Bluetooth Low Energy 2.4GHz
  - "Long range" – Sub-GHz radio 868MHz (EU) & 915MHz (US)

## 1.3 Applications

The primary application of the Prism is a ride reservation device used within the Qsmart Virtual Queueing System. The device is activated by scanning the band at an accesso NFC scanner.

Guests using the system are issued with a Prism band, which enables them to make reservations for rides or shows by either tapping against registration points located in the park or by using the touch swipe interface directly on the Prism band. The band is constantly updated with the current ride information, and the display enables the guest to see what rides they have reserved on the system and when it is time for their ride. When it gets close to their ride time the Prism will alert them using the vibration motor and display.

A network of Long Range Base Stations provides the facility to remotely update the Prism in the event of changes to ride status that affect the guest's ride registrations.

Bluetooth base stations are able to track the movement of guests around the park, and provide the facility to locate Prisms at the park exit for the purposes deactivating the device, and also for simple detection for theft prevention.

## 2 Installation

### 2.1 Location

The Prism is a wearable device that requires no permanent mounting or fixing. Like any piece of wearable electronic equipment, a certain amount of care is required to avoid permanent damage to the Prism.

The Prism is designed to be waterproof under normal use to a depth of 3 metres.

### 2.2 Configuration

The exact configuration of the Prism varies from park to park and is controlled by a configuration program that is set up during the park installation. The configuration such as rides on the system, opening times etc. can also be loaded via NFC at registration time.

## 3 Operation

### 3.1 Switching On

The Prism is activated by scanning the device on an NFC reader which is controlled by the accesso Qsmart system. The Prism receives sufficient power from the NFC signal to wake up the device and start the Qsmart application. Once woken up the band will need to be activated within a short period of time or it will automatically power off to save battery power.

### 3.2 Switching Off

Deactivation may be achieved through tapping the band against an NFC reader, as with activation or remotely via Bluetooth.

### 3.3 Battery Replacement

The battery can be replaced by disassembling the Prism by an approved sub-contractor. The device has been designed to typically last one season on a single CR3032 coin cell, which equates to approximately 200 days of use.

## 4 Specifications

### 4.1 Dimensions

Width:	-	40 mm
Height:	-	240 mm
Depth:	-	13 mm
Weight:	-	grams
Wrist Size	-	35 - 60 mm diameter

### 4.2 Controls and Indicators

LCD:	-	LCD Display, 3 bit colour, Resolution 176 x 176
Vibrator motor	-	1,000 rpm

### 4.3 Power Requirements

Battery	-	CR3032 Lithium Ion coin cell
Average life	-	200 days or 2,000 hours

### 4.4 Communications

Long Range	-	868MHz & 915MHz (SubGHz) transceiver
Medium Range	-	2.4GHz BLE transceiver
Short Range	-	Secure 14443 RFID/NFC device

## 5 Environmental Conditions

### 5.1 Operating temperature

Long Term Storage:	- -	20 to + 50 °C
Operation:	-	0 to +50 °C
Waterproof	-	Depth 3 meters for 1 minute

## 5.2 Relative Humidity

Long Term Storage:	-	<50%
Operation:	-	up to 99% Non-condensing

## 5.3 Other restrictions

Avoid long-term exposure to direct sunlight.

Avoid exposure to corrosive environments, e.g. salt water.

Do not leave immersed for extended periods.

## 6 Repair procedures

There are NO user serviceable parts in the Prism.

Please contact accesso LoQueue support should any problems arise, they will be able to guide you through some initial diagnostics which may rectify the problem.

Should the problem persist you should request a Return Material Authorization (RMA) number from the accesso LoQueue Technical Services, this should be added to the Fault Report that must be completed and attached to any units for return and repair.

All faulty devices should be returned to the local accesso LoQueue office.

## 7 Warranty Statement

accesso warrants for a period of 1 year from the date for shipment that each device supplied shall be free from defects in material and workmanship. During this period, if the customer experiences any difficulties with the product and is unable to resolve by phone or e-mail with accesso Technical Support, a Return Material Authorization (RMA) number will be issued. Following receipt of a RMA the customer is responsible for returning the product to accesso, freight pre-paid. accesso upon verification of a valid warranty will, at its option, repair or replace the product in question, and return it to the customer freight pre-paid. No services are provided at the customer's site under this warranty.

accesso warrants the Firmware within the device for a period of ninety (90) days from the date of shipment, that each Firmware package shall be free from defects and operate according to the accesso specifications. Any Firmware revisions required hereunder cover supply of distribution media only and do not cover, or include any installation or upgrade of the product.

accesso shall have no obligation to make repairs or to effect replacement required through normal wear and tear arising in whole or in part by catastrophe, fault or negligence of the user, improper or unauthorized use of the product, or use of the product in such a manner for which it was not designed, or causes external to the product.

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Warranty claims must be received by accesso within the applicable warranty period. A replaced product, or part thereof, shall become the property of accesso and shall be returned to accesso at the purchaser's expense. A Return Material Authorization number assigned by accesso must accompany all returned product.



## 8 Regulatory Statements

### USA Conformity Statement

FCC ID: 2AKCM-57136

#### FCC warning statement:

- This device complies with Part 15 of the FCC Rules.  
Operation is subject to the following two conditions:  
This device may not cause harmful interference, and  
This device must accept any interference received, including interference that may cause undesired operation.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

#### RF exposure warning/ statement:

- This device complies with FCC RF radiation exposure limits for an uncontrolled environment in accordance with FCC rule part 2.1093.

### Canada Conformity Statement

IC ID: 21963-57136

#### ISED Warning Statement

##### English

"Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication."

"This device complies with Industry Canada licence-exempt RSS standard(s). 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."

RF exposure warning/ statement:

This device complies with ISED Canada RF radiation exposure limits for an uncontrolled environment in accordance with RSS-102 Issue 5 Section 2.5.1.

French

"Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada.

Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante."

"Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

Avertissement/déclaration d'exposition aux RF:

Cet appareil est conforme aux limites d'exposition aux rayonnements RF d'ISED Canada pour un environnement non contrôlé conformément à la RSS-102 Issue 5 Section 2.5.1.