



**GATEKEEPER<sup>®</sup>**  
**SYSTEMS**

**Module (N-9390)**  
**User Manual**



## **INSTRUCTION TO THE USER**

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 typical 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 on the device experiencing the interference
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which this device is connected
- Consult the dealer or experienced technician for the device experiencing the interference

In order to maintain compliance with FCC regulations, no changes can be made to this equipment without the approval of Gatekeeper Systems, Inc. The user is cautioned that any changes or modifications made to the equipment without the approval of Gatekeeper Systems, Inc. could void the user's authority to operate this equipment.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### *IC / ISED statements:*

*This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s).*

*Operation is subject to the following two conditions:*

- 1. This device may not cause interference.*
- 2. This device must accept any interference, including interference that may cause undesired operation of the device.*

*L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique 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;*
- 2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

The suggested ambient temperature is around 0°C to 40°C  
The operating frequency for N-9390 is 2400-2483.5MHz  
N-9390 is powered by two CR123A



## 1. MODULE N-9390

The Module is part of the Athena system on a shopping cart. It involves one or two wheels paired wirelessly with a Module, N-9390 and a Door Marker. The wheel(s) and module communicate wirelessly with each other.

The wheels provide:

- Wheel rotation count
- Locking mechanism to prevent cart from moving
- Detect entrance/exit doorways (Door marker)

The module provides:

- Navigation algorithm to calculate cart location
- LED and audio warning prior to locking the wheels.

## 2. MODULE DETAILS:



LEDs Warning



Audio Warning

### **3. FUNCTIONAL PROCEDURES**

1. "Door Maker" sends the message to the wheel
2. Wheel sends 'door marker' event to the module
3. On receiving 'door marker' event, module checks its calculated direction to determine if cart is moving outdoor or indoor.
4. If cart is moving outdoor, the module starts the navigation algorithm processing. It calculates the real-time position of the cart from the rotations it receives from the wheel(s) and the direction information it calculates.
5. If position of cart calculated is mapped to be outside the perimeter map it has in its memory, then the module will send lock command to the wheel after providing warning using its led and audio.

### **4. INSATALLATION**

1. Mount the Module in the Shopping Cart Handle.
2. When mounting a module to a shopping cart handle, it is typically mounted facing up at roughly 10deg angle with the horizontal ground plane.

### **Contacting Gatekeeper Systems**

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For more information about the Module and troubleshooting, to order parts or report an issue, contact the Gatekeeper Systems Inc. regional Customer Support office nearest to your location.

#### **Hong Kong**

Gatekeeper Systems (HK), Ltd.  
36/F, Tower 2, Times Square  
1 Matheson Street, Causeway Bay, Hong Kong  
HONG KONG  
(852) 2822 0132

#### **USA**

Gatekeeper Systems, Inc.  
8 Studebaker  
Irvine, CA 92618  
(888) 808-9433

#### **Canada**

Gatekeeper Systems Canada, Ltd.  
272 Galaxy Boulevard  
Etobicoke, Ontario  
Canada  
M9W 5R8  
(888) 525-3564