



# Deliver More Rides at Less Cost With the Easy-To-Use AcuFare™200

The AcuFare™200 Smart Card Reader System provides an affordable solution for your electronic fare collection needs. Flexible and easy to use, the AcuFare™200 provides automatic fare collection for small to mid-sized transit agencies that require versatility and a reduction in daily cash handling and reconciliation. It can be customized to suit your agency's specific needs, and maintenance costs will be reduced due to the system's lack of moving parts. The system can be implemented as a stand-alone setup, integrated with existing fare collection equipment, or deployed as a regional solution. The AcuFare™200 can integrate taxi and paratransit options into your program. Hosted applications, Global Positioning System (GPS) integration, and a variety of card fulfillment options are also available.

## Features & Benefits

The AcuFare™200 Smart Card Reader System makes it possible for you to deliver a secure, convenient, and fully customized smart card-based fare payment system to your passengers. Smart cards are electronic and digitally encrypted, so they can't be demagnetized or duplicated like magnetic tickets or paper passes. AcuFare™200 supports multiple secure encryption technologies as well as diverse data management, reporting, smart card management, and smart card fulfillment options; so you can select your smart cards from a variety of manufacturers. In addition, our in-house development team can add custom features to the system as you need them to ensure that all of your program's needs are met, including taxi and paratransit options.

- Improves your operations and security
- Enhances efficiency and fare collection
- Generates lower maintenance costs due to lack of moving parts
- Collects data in real time
- Provides more accountability and control of your transportation services
- Stands alone or integrates with other systems
- Offers rugged ABS, steel housing and multiple configuration options
- Includes full-color LCD display that allows for customized graphics and full-motion advertisements
- Allows full range of audio options which means agencies can use any recordable sounds for audible signals instead of just beeps and buzzes
- Enables hassle-free integration of bus, train, light rail, and paratransit into your program
- Reads various ISO 14443-compliant Type A and B cards
- Supports e-purse, trip, transfer and pass products
- Ready for Near Field Communications (NFC)
- Securely supports MIFARE®, MIFARE Plus®, AES and 3DES encryption
- Allows for custom graphics and card personalization
- Integrates with GPS and CAD/AVL systems
- Supports standard IP messaging with built-in Ethernet network; internal web server allows the agency to easily view and change configuration settings
- Works with WiFi, 3G, 4G, and Bluetooth-ready devices.
- Allows "business rules" to be encoded and updated in the firmware
- Supports USB host allowing flash drive retrieval of log files, with optional wireless data transfer
- Features clock with time stamp to record trip transactions
- Contains one gigabyte of internal memory for data
- Offers locking, waterproof Switchcraft EN3™ connectors (U.S. Coast Guard-approved) for external power source and data connections
- Includes secure, adaptable pole mount for a variety of mounting options

## Acumen Capabilities & Skills

- ✓ Acumen provides recognized experts in fare collection, smart cards and RFID implementation.
- ✓ Our team brings nearly two decades of consulting, design, and implementation expertise.
- ✓ We are at the forefront of fare collection technology – TRB studies, standards committees, Open Payment Forum, NFC Forum.
- ✓ Our product development of AcuFare and Bill-to-Bill Changer provides deep insights into transit agencies' operational issues.
- ✓ We provided AFC fare collection consulting services for 15 transit properties in 10 major urban centers across the nation.
- ✓ We designed, built, and placed into operation AFC equipment and systems across the nation.
- ✓ We designed and manufactured the industry's first multi-station Bill-to-Bill Changer.
- ✓ Our experts have extensive proficiency in cash room equipment and operations.
- ✓ We can develop scheduling and reporting tools.
- ✓ Acumen's headquarters are in Oakland, CA with offices in Washington, DC and active projects throughout the U.S.

# AcuFare™ 140

## Specifications

## Dimensions

### FEATURES

- Designed for use with an external computer to control operation
- 32-bit ARM Processor
- RS-232 communications interface
- USB 2.0 device communications interface
- 5 VDC power requirement

### SECURITY APPLICATION MODULES (SAM)

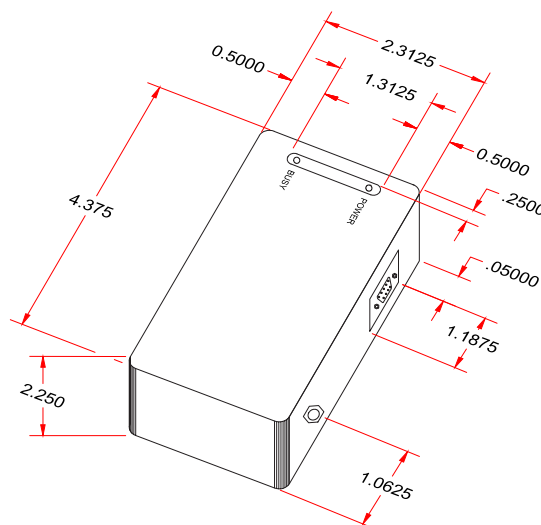
- 2 SAM (Security Application Module) slots for system security keys
- Flexible, strong security options

### Compatible Devices

- Compatible with ISO/IEC Type A and Type B contactless fare media
- Compatible with NXP Mifare products
- Compatible with NFC (Near Field Communication) devices such as NFC-enabled cell phones

### Physical Weight

- 0.328 lbs (5.25 ounces)





## Acumen's Added Value

- ✓ Participation in standards development
- ✓ Product development & implementation
- ✓ Breadth of transit experience
- ✓ Flat organization ensures quick response
- ✓ Worked with transit undercover police on fare evasion and fraud

# AcuFare™ 200

## Specifications

## Dimensions

### FEATURES

- Ethernet for network access
- Serial (RS-232) for legacy and peripheral connection
- USB read/write capability for transaction upload and configuration download

### SECURITY APPLICATION MODULES (SAM)

- Dual SAM slots standard for agency-specific and regional program capabilities
- Flexible, strong security options

### CUSTOMIZABLE GRAPHICS & AUDIO

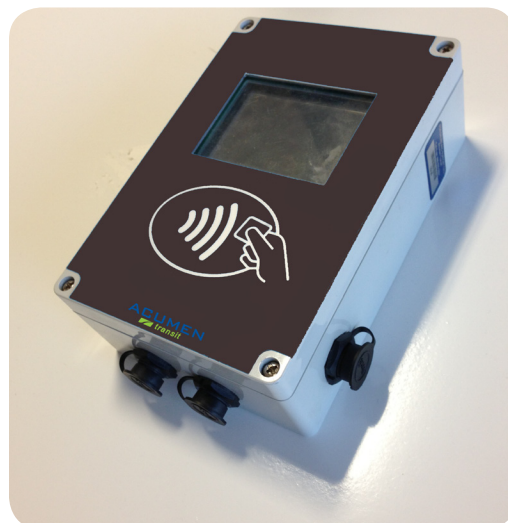
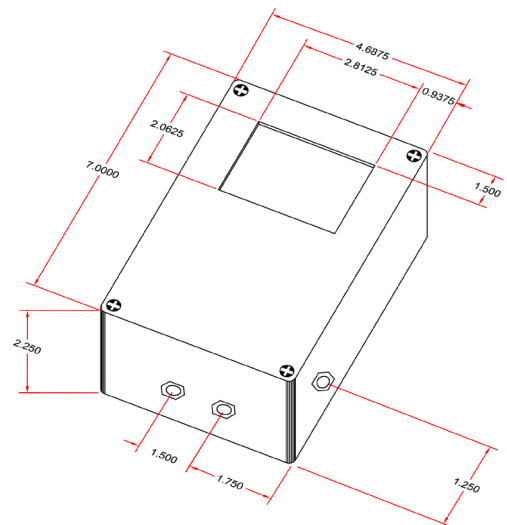
- Full-Color LCD for custom logos, custom graphics, streaming video and other visual display options
- Custom audio messages/sounds or streaming audio

### Compatible Devices

- ISO/IEC 14443 TYPE A
- ISO/IEC 14443 TYPE B
- ISO/IEC 18092 (NFC)
- NXP MiFare Products
  - DESFire and DESFire EV1
  - MiFare Classic 1K and 4K
  - MiFare Plus with AES
  - Ultralight and Ultralight C
  - SmartMX

### Physical Weight

7.225 lbs (115.6 oz)







# Frequently Asked Questions

## Is the AcuFare™200 easy to use for riders?

Yes - To board a vehicle with the prepaid smart card, a rider simply places the card near the contactless smart card reader. If the card is read successfully, there will be a visible confirmation on the full-color LCD display and a long, unbroken sound. If the card is rejected or unrecognizable, the rider and bus driver will see the display flash an error message with a series of short beeps.

## What is the process to transfer and collect data?

The data collected from smart cards are stored in the **AcuFare™200** reader's 1GB internal memory. Specific trip data can be uploaded from the reader via a USB flash drive to a PC for data aggregation. Also, new configuration information can be downloaded from a PC to the USB flash drive, and then transferred to the reader. Wireless data transfer options are also available.

## How secure is the AcuFare™200?

**AcuFare™200** supports various encryption methods such as MIFARE® Plus (and migration paths to 3DES and AES) as well as 3DES encryption to verify that the smart card and reader both use the same cryptographic keys. Reader-based encryption includes two selectable Security Access Modules that can be selected independently; the system also includes 3DES, AES key storage, and a key management configuration that is easy to replace without reprogramming.

## What type of smart cards does the AcuFare™200 read?

**AcuFare™200** works with a wide range of ISO 14443-compliant Type A and Type B contactless smart cards from manufacturers such as Giesecke and Devrient, ERG, Innovision, ASK, OTI, and others. Sony Felica ISO 18092 compliant smart cards and other Near Field Communication (NFC)-compliant devices can also be used.

## What types of fare products are available?

**AcuFare™200** recognizes a variety of fare products stored on riders' smart cards, such as:

- Stored value (e-purse)
- Trip-based fare
- Period passes (e.g. a monthly pass)
- Transfer products
- Products based on rider classes

In addition, to prevent card sharing, an anti-passback rule to prevent users from 'tailgating' through controlled areas can be set up so that a card is not valid at the same reader within a certain time frame.

## How is the agency's fare structure set up?

Acumen's in-house IT staff can program **AcuFare™200** to work with existing fare structures and policies. As rules change, new fare information can be easily uploaded onto the smart card reader via a USB flash drive and updated on the smart cards. If you want to integrate fare collection with the existing

structures of a larger, regional transportation agency, Acumen will facilitate the process.

## Does AcuFare™200 work with other devices?

Yes - it is interoperable. It can operate as a slave device to a host controller (fare gate or fare box controller, printed circuit board, PCB or station agent terminal), or as a stand-alone unit and can be encoded and updated with business rules in the **AcuFare™200** firmware. It integrates easily with global positioning system equipment to record card transaction locations.

## What kind of reporting is available?

**AcuFare™200** works with many common software applications, such as Microsoft Office. It can also be customized to deliver a variety of reports and to work with proprietary software applications. Data is stored in the **AcuOffice™200** Back-Office Software database. Multiple standard reports are included, as well as optional custom reports.

## What kind of training is available?

Acumen offers full on-site training to suit your needs:

- Rider card use
- Reader operations and maintenance
- Customer service
- Administration
- Reporting

Depending on your system options, training can be completed in hours. Full step-by-step system training manuals also are provided.

### Acumen Building Enterprise, Inc.

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