Card Access

In-Home™ Wireless Contact Switch Installation Guide

Wires Not Included™

Supported Models and Requirements

This documentation applies to the following Card Access product:

WCS10A Card Access InHome™ Wireless Contact Switch

Accessories

The following optional accessories are available for use with the Card Access InHome Wireless Contact Switch You can purchase them at *www.cardaccess-inc.com/inhome.*

NEP10A 12V 300mA North American External Low Power Supply ("wall wart")
ECM10A External Contact Magnet for Internal Reed Switch
EXT10A External Thermistor

New applications are constantly developed for the InHome Wireless Contact Switch, so please see our website for the latest in accessories by going to *www.cardaccess-inc.com/inhome/accessories.*

Important Safety Instructions

WARNING! You should install this device in accordance with all national and local electrical codes.

IMPORTANT! Improper use or installation of this device can result in LOSS OF/DAMAGE TO PROPERTY.

IMPORTANT! You must operate this device in accordance with the instructions and specifications in this *Card Access InHome™ Wireless Contact Switch Installation Guide.*

IMPORTANT! Using this product in any manner other than outlined in this document voids your warranty. Also, Card Access is NOT responsible or otherwise liable in any way for any damage resulting from the misuse of this product. See the section of this document entitled WARRANTY for details.

Features

The Card Access InHome™ Wireless Contact Switch works with your Control4® system and combines the features of a contact switch and a remote thermometer into a single battery-powered device. The product allows wireless monitoring of garage doors, gates, windows, and pool or spa covers (along with other contact switch monitoring applications you integrate or devise) in locations inside or outside
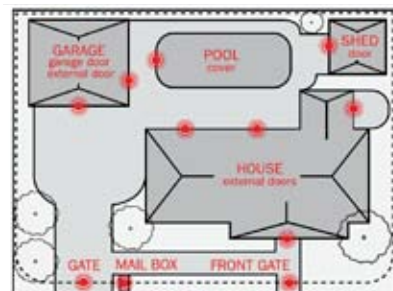
The Card Access InHome Wireless Contact Switch enables monitoring of doors, gates, windows and temperature, in locations either inside or outside the home.

---

the home. It triggers Control4's home automation functions based on the contacts' open and closed states. The InHome Wireless Contact Switch also operates as a ZigBee™ (802.15.4) router/repeater when powered by an external power supply.

The InHome Wireless Contact Switch uses advanced power management techniques to maximize battery life and performance. Under typical conditions, the product operates for one year or more on two (2) standard "AA" 1.5V alkaline batteries (two years or more on two (2) regular non-rechargeable "AA" lithium batteries).

NOTE: If the InHome Wireless Contact Switch is placed in an outdoor location or other such location with extreme temperatures or wider temperature variations and will be powered by batteries, we STRONGLY RECOMMEND use of regular non-rechargeable lithium batteries for better power performance under these conditions.

If you have an external low voltage power source (6 to 36V DC power) it can be used to eliminate the need for batteries all together.

NOTE: If you power the InHome Wireless Contact Switch from a low-voltage external power supply, it is STRONGLY RECOMMENDED that you remove the "AA" batteries from the product.

The InHome Wireless Contact Switch easily integrates into the Control4 system, working with your preferred contact switches, motion and temperature sensors. The Wireless Contact Switch also includes its own integrated magnetic reed switch and temperature sensor for 'turn-key' installation. LEDs provide you with indicators to confirm you have successfully connected the product to the Control4 system. Additional LED feedback and diagnostics are also available for confirming the alignment of an external magnet, proper ZigBee network operation and connectivity, and proper operation of externally connected contact switches.

With the InHome Wireless Contact Switch, you can extend home automation control for the most remote of locations and applications inside or outside the home, reducing the need to run contact wires over long distances (or where you can't run any wires at all). Simply run wires out from the contact switch into the InHome Wireless Contact Switch.

The InHome Wireless Contact Switch enables wireless sensing and reporting of contact switch states from other contact switches you install on:

- Garage doors
- External doors
- Shed doors and windows
- Fencing and entry gate doors
- Pool and spa covers
- Mailboxes
- And any other monitoring application you can devise and safely integrate

These functions appear in Control4 systems as contact switch and thermostat inputs in Control4's Composer software application.

The InHome Wireless Contact Switch then wirelessly communicates and reports contact status over the Control4 home automation network. This means you can actually trigger and control automated events—such as sending an e-mail, changing the color of an LED in a keypad, etc.— throughout the Control4 system based on the open or closed state of a door or window or when a particular temperature occurs in locations either inside or outside the home.

The InHome Wireless Contact Switch does this all without the wire. Or, as we say: "Wires Not Included."

What Is Included

You will find the following items inside the InHome Wireless Contact Switch package:

- Anti-static bubble bag containing one (1) InHome Wireless Contact Switch
  - Tray assembly (the part you mount to the wall or other flat surface)
  - Cover assembly and attached radio/logic board (the part you connect to the tray assembly)
- Installation Guide / Product Warranty / Product Registration document
- Wiring Insert / LED Operation Instructions Card
- Four (4) wall mounting screws
- Four (4) plastic dry wall anchors
- Two (2) "AA" 1.5V alkaline batteries

Specifications

The specifications for the Card Access InHome Wireless Contact Switch are as follows.

Recommended Wiring:	Contacts accept AWG 16-28 wiring
Power Source:	2 "AA" 1.5V alkaline batteries
	Remote/external power: 6 to 36V DC
Power Usage:	80 mA at 3V fully active
	1 year or more of battery life from two alkaline "AA" 1.5V batteries (2 years or more of battery life from two regular non-rechargeable lithium batteries) under typical usage/environmental conditions
Device Temperature Range:	Operational -20°F to 158°F (-28°C to 70°C) Humidity 5% to 95% Non-Condensing Storage -20°F to 158°F (-28°C to 70°C)
Internal Thermistor Measurement Range:	0°F to 150°F (-18°C to 65°C)
Dimensions (LxWxD):	3.1" x 2.6" x 1.05" (78.7mm x 65.7mm x 26.6mm)
Water Resistance:	Cover assembly properly connected to tray assembly is water-resistant.
	The InHome Wireless Contact Switch is NOT waterproof and must be kept out of direct contact with water. The product must NOT be immersed.
Communications:	ZigBee (IEEE 802.15.4) 2.4 GHz, 15-channel, spread spectrum radio

Installation

1 Place the InHome Wireless Contact Switch in a location which ensures the following:

- Easy access to any externally connected wires
- ZigBee mesh networking efficiency

(**NOTE:** Make sure the InHome Wireless Contact Switch gets good ZigBee wireless reception by (1) ensuring it is within 300 feet of another ZigBee device and (2) avoiding other electrical equipment that may cause interference with the ZigBee signal (such as cordless telephones that operate on the 2.4 GHz frequency).

- Avoiding unnecessary exposure to extreme environmental conditions.

IMPORTANT! Do not place the InHome Wireless Contact Switch in direct sunlight.

2 If the external thermistor is used with the InHome Wireless Contact Switch, place it away from direct sunlight, drafts, doorways, skylights, windows, and exterior walls for best accuracy.

3 Detach the tray assembly from the cover assembly by pressing the release clip in the side of the InHome Wireless Contact Switch's cover assembly while at the same time pulling the cover assembly out and away from the tray assembly.
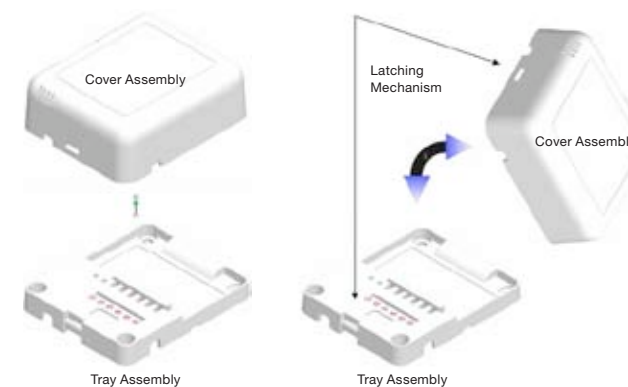
The Cover Assembly holds the radio logic board (the actual device) and connects to the Tray Assembly. The Tray Assembly is mounted to a wall or flat surface, and contains the wiring terminals for the external contact switches, thermistor, and optional external power supply.

The Cover Assembly "rocks" into contact with the Tray Assembly. To separate the units, insert a screwdriver or other flat object into the slot on the side of the Cover Assembly and "rock" it away from the Tray Assembly.
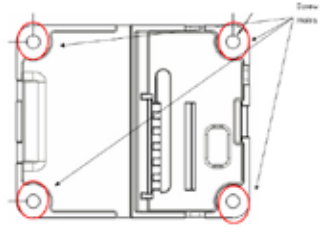
---

4 Thread external contact switch wires, external thermistor wires, and (if used) low-voltage power supply wires from the wall through the large rectangular opening in the tray assembly, and position the tray assembly against the wall or other flat installation surface, making sure it sits flush.
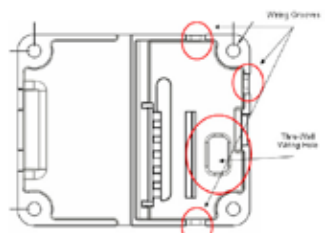
The Tray Assembly has one hole located to the side of the wiring terminals for wires coming out of the wall, and three grooves in the side of for wires running outside the wall.

5 Use a small level or visually align the tray assembly to make it level, then mark the locations of the four screw holes on the wall.

NOTE: Leveling the unit is for aesthetics. It does NOT need to be level to operate correctly.

6 If mounting the unit to sheet rock or drywall, remove the tray assembly from the wall and drill four (4) 3/16-inch-mounting holes at the four screw hole locations previously marked on the wall or surface.

The Tray Assembly has four (4) screw holes for mounting it to a wall or other flat surface.

7 Press the plastic wall anchors that were included in the product into the holes you drilled in Step 6.

8 Re-thread any external contact switch wires, external thermistor wires, and any low-voltage power supply wires from the wall through the large rectangular opening in the tray assembly of the InHome Wireless Contact Switch.

[Refer to the previously referenced tray assembly figure pointing out wire access hole.]

9 Insert the mounting screws into the wall anchors and tighten them.

NOTE: As the InHome Wireless Contact Switch weighs approximately 4 ounces with two AA batteries installed, you may choose to use robust two-sided tape to mount the tray assembly to the wall or other flat surface, as long as the tape won't prevent the back of the tray assembly from sitting flush against the mounting surface.)

10 Connect the wires to the screw terminals in the tray assembly, matching the proper wires to the target terminal locations. The wiring can differ depending upon the number of contact switches, the use of an external thermistor, and the use of an external low-voltage power supply. The pin/terminal definitions are as indicated in inset:

Pin	Definition
1	Switch 1
2	Common
3	Switch 2
4	External Thermistor
–	}
	} 6-36 VDC 100mA In
+	}

See the "Sample Wiring Configurations" section of this document for examples.

IMPORTANT! When using multiple external contact switches, or when using an external contact switch along with an external thermistor, you MUST connect each device to the Common Pin 2 in addition to the appropriate switch or thermistor pin to make a proper wiring connection.

11 If you are operating the InHome Wireless Contact Switch on batteries, install two (2) AA 1.5V alkaline or other regular non-rechargeable AA 1.5V lithium batteries into the cover assembly and attached radio/logic board according to the polarity labels (POS + and NEG -), on the battery terminal assembly.

IMPORTANT! Do not install the batteries in the wrong polarity.

IMPORTANT! For steps 12 through 18 it is assumed you have identified the InHome Wireless Contact Switch inside the Control4 Composer software and have dragged the device into the Composer project you are installing. To set up the contact switches and thermistors in the Composer project, refer to your system setup documentation.

12

You must identify the InHome Wireless Contact Switch as an authorized member of your Control4 home automation network. This is done by transmitting the product's MAC ID by pressing the small, round button on the radio/logic board inside the cover assembly.

To do this:

Click the button four times. The InHome Wireless Contact Switch LED will blink the green LED twice to confirm the ID has been sent to the Control4 system.

The button is located on the radio/logic board found inside the Cover Assembly.

13

Configure the temperature sensing capabilities. If you use the InHome Wireless Contact Switch's temperature sensing capabilities, you may need to enter temperature offset and calibration into the Control4 system in order to accommodate for variances in thermistors. (When multiple temperature sensors are located in the same room, you may notice each sensor shows a slightly different reading. This results from normal manufacturing variances in temperature sensors.) An offset/calibration/correction can be entered so the product's reported temperatures match those reported by other devices.

14

Configure the hold time and polarity settings in the product. In some installations, a particular sensor may produce lots of activity—such as a motion sensor in a busy room. The "hold time" feature allows these frequent and short pulses to be smoothed into fewer, longer pulses. (Just think of how annoying the chime on the front door of a busy entry can be!)

For example, if the input is a motion sensor and the hold time is set to two (2) minutes, when motion is first detected, the InHome Wireless Contact Switch transmits this information. The product will not transmit a "motion stopped" signal until two minutes have passed or until motion stops (whichever is longer). If motion stops and then starts again before the two minutes have expired, the two-minute timer is restarted.

The polarity setting configures which "edge" of the signal is "active." For a motion or other sensor which opens a relay/switch when activity is detected, choose "normally closed." Similarly, choose "normally open" when used with a sensor which closes the relay/circuit when activity is detected.

15

Configure the check-in interval for the Wireless Contact Switch. The InHome Wireless Contact Switch normally transmits only when an input changes state. You may also want to configure a periodic check-in, for example, when the Wireless Contact Switch is used as a temperature sensor.

When check-in interval is set to 0, the Wireless Contact Switch transmits only for state changes. Otherwise, when the interval is set to 15 seconds to 24 hours, the Wireless Contact Switch automatically transmits (TBD sec/min/etc) after the last transmission.

NOTE: Remember that more frequent check-in reduces battery life.

16

Once you have configured all of the InHome Wireless Contact Switch options you intend to use, you can access the product's diagnostics to assure proper installation. There are three diagnostic modes: *Observation Mode*, *Magnet Alignment Mode*, and *Radio Test Mode*.

To enter the mode selection, push and hold button for one-half second. Observation Mode is the default. Cycle through the selections as described below by clicking button once. Test Mode runs for approximately 5 minutes after setting a mode. To exit early remove power from the unit for at least 10 seconds. The

---

following table outlines each mode, how to access it, and how to interpret the diagnostic results:

Mode	Description of Mode	Indication You are in the Mode	Possible Outcomes in the Mode
Observation Mode	Instant visual feedback to indicate when a contact state change is detected and when the change has been successfully transmitted. Note that rapid state-changing may cause display to be difficult to understand correctly.	LED flashes green for 2 seconds	Red LED lights when an input changes state. A radio signal is immediately sent to the controller. LED will turn to green when transmission is successful, or will remain red if transmission failed. LED remains lit for 5 seconds following the event, and then goes dark to be ready for the next event.
Magnet Alignment Mode	Helps align an external magnet to the internal reed switch.	LED flashes red for 2 seconds	Solid RED LED indicates that the magnet is currently detected by the internal reed switch. LED OFF indicates no magnet detected.
Radio Test Mode	This mode can only be used after you have registered Firefly into the system. The test sends a signal to the controller and waits for a successful response, then provides indication.	LED flashes yellow for 2 seconds	LED is red: failure LED is green: success LED remains lit for 3 seconds.

17

Once you have confirmed the proper configuration of the InHome Wireless Contact Switch, you can complete the device installation by attaching the cover assembly to the tray assembly:

1. Align the faceplate with the rear plate and push the straight pins to the back of the thermostat.
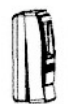
2. With the faceplate slightly above the rear plate, slide the top edge of the faceplate onto the rear plate, engaging the plastic hooks with the corresponding holes.

3. Press firmly on the bottom center edge of the faceplate to snap and lock the bottom connector in place.

Align the side of the cover assembly with the side of the tray assembly, engaging the plastic hooks with the corresponding holes. Rock the cover assembly into place, snapping it to the tray assembly.

Press firmly on the bottom center edge of the cover assembly to snap and lock it to the tray assembly.

18

Test the InHome Wireless Contact Switch to confirm that the contacts and temperature readings are working appropriately. Refer to step 16 for specific instructions on how this is done.

Troubleshooting

If the InHome Wireless Contact Switch is not working:

• Reboot the Wireless Contact Switch by removing power from it and then re-connecting power.

NOTE: Power must be removed from the product for 10 seconds to ensure a reboot.

• Check for proper wiring. [See the "Sample Wiring Configurations" section of this document for examples.]

• For help on the installation or operation of this product, email or call Card Access Product Support. Please provide your exact model number and MAC ID/Serial Number for the device. You may contact Product Support by phone (801-748-4900, x.15), by e-mail (*support@cardaccess-inc.com*) or by the internet at *www.cardaccess-inc.com/inhome/support*.

Regulatory Compliance

The Card Access InHome Wireless Contact Switch complies with standards established by the following regulatory bodies: Federal Communications Commission (FCC), Conformité Européene (CE), and Restriction of Hazardous Substances (RoHS).

FCC

FCC ID: MHIWCS10

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.

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/TV technician for help.

IMPORTANT! Changes or modifications not expressly approved by Card Access, Inc. void the user's authority to operate the equipment.

CE

[English language TBD – assume similar length to FCC language.]

Laortie consequat praestrud ex ea facipsu msandiat. Ut autem aliquate dionsenit wisis eugue velenim zzrilla orpero dolobor autpat, quis ercing el dit wisl dolutem zzriliq uatumsan vel do od et enit, volumsa ndipisi.

Na facilisisi tincil ip exeriusto odit, ver inim iusto conulput nonsed dolore diamcon ut adip ex et, qui tet, vullutpat. Ut at wisim in vullan erat acil in vero ea facilla faccum voloreet, commy nonse faccum nostie dignibh exer sumsandigna feuguerat, commy nummodolor il ero eugue mod er si.

Tio cortie moloreet prat la feuipsum illutetummod tio odiam dolenibh eugiamc onsequisisl dit adiatem ip erit vendiatum aliquis nonsectem adionsenit nummolum vel ut adipsuscin eu facidunt nos ero corer incin hent aliquis cidunt del ex enissit ipit ing eum eugue vullandit nullam diat lorpero odolor sed dolore modipit, vercin hendre dit lorer sed doloborperat adionsectem quamet pratet lor se tionulla corero od modolesto odionul landion sequat nim ad modit lutem in velit nonsed tie venim dolorper in eu facilla augiam dunt autatem quamet utatumsandre feugait alit ut lum zzriuscin vel ut iure feuipit ad moloreetuero ea facidui psummol oreetue minit nullam, senisis nis alissenit, quisi blaore modip exero odit velestis am, sumsan venismo diatueratio odio odipit at wis alit ver suscil ex ero odit accumsan vent atie faccum volessismodo euguer aliquatisl eugait nosto conullaorem adipis dolortis alit alit la commolortio dolorper sis nit vel et ilis endignisi tetum dolobore vel ent ullummy nim nos autem iureetumsan ulla faccum quatis.

RoHS

[English language TBD – assume similar length to FCC language.]

Laortie consequat praestrud ex ea facipsu msandiat. Ut autem aliquate dionsenit wisis eugue velenim zzrilla orpero dolobor autpat, quis ercing el dit wisl dolutem zzriliq uatumsan vel do od et enit, volumsa ndipisi.

Na facilisisi tincil ip exeriusto odit, ver inim iusto conulput nonsed dolore diamcon ut adip ex et, qui tet, vullutpat. Ut at wisim in vullan erat acil in vero ea facilla faccum voloreet, commy nonse faccum nostie dignibh exer sumsandigna feuguerat, commy nummodolor il ero eugue mod er si.

Tio cortie moloreet prat la feuipsum illutetummod tio odiam dolenibh eugiamc onsequisisl dit adiatem ip erit vendiatum aliquis nonsectem adionsenit nummolum

---

vel ut adipsuscin eu facidunt nos ero corer incin hent aliquis cidunt del ex enissit ipit ing eum eugue vullandit nullam diat lorpero odolor sed dolore modipit, vercin hendre dit lorer sed doloborperat adionsectem quamet pratet lor se tionulla corero od modolesto odionul landion sequat nim ad modit lutem in velit nonsed tie venim dolorper in eu facilla augiam dunt autatem quamet utatumsandre feugait alit ut lum zzriuscin vel ut iure feuipit ea facidui psummol oreetue minit nullam, senisis nis alissenit, quisi blaore modip exero odit velestis am, sumsan venismo diatueratio odio odipit at wis alit ver suscil ex ero odit accumsan vent atie faccum volessismodo euguer aliquatisl eugait nosto conullaorem adipis dolortis alit alit la commolortio dolorper sis nit vel et ilis endignisi tetum dolobore vel ent ullummy nim nos autem iureetumsan ulla faccum quatis.

[French language TBD – assume similar length to FCC language.]

Laortie consequat praestrud ex ea facipsu msandiat. Ut autem aliquate dionsenit wisis eugue velenim zzrilla orpero dolobor autpat, quis ercing el dit wisl dolutem zzriliq uatumsan vel do od et enit, volumsa ndipisi.

Na facilisisi tincil ip exeriusto odit, ver inim iusto conulput nonsed dolore diamcon ut adip ex et, qui tet, vullutpat. Ut at wisim in vullan erat acil in vero ea facilla faccum voloreet, commy nonse faccum nostie dignibh exer sumsandigna feuguerat, commy nummodolor il ero eugue mod er si.

Tio cortie moloreet prat la feuipsum illutetummod tio odiam dolenibh eugiamc onsequisisl dit adiatem ip erit vendiatum aliquis nonsectem adionsenit nummolum vel ut adipsuscin eu facidunt nos ero corer incin hent aliquis cidunt del ex enissit ipit ing eum eugue vullandit nullam diat lorpero odolor sed dolore modipit, vercin hendre dit lorer sed doloborperat adionsectem quamet pratet lor se tionulla corero od modolesto odionul landion sequat nim ad modit lutem in velit nonsed tie venim dolorper in eu facilla augiam dunt autatem quamet utatumsandre feugait alit ut lum zzriuscin vel ut iure feuipit ad moloreetuero ea facidui psummol oreetue minit nullam, senisis nis alissenit, quisi blaore modip exero odit velestis am, sumsan venismo diatueratio odio odipit at wis alit ver suscil ex ero odit accumsan vent atie faccum volessismodo euguer aliquatisl eugait nosto conullaorem adipis dolortis alit alit la commolortio dolorper sis nit vel et ilis endignisi tetum dolobore vel ent ullummy nim nos autem iureetumsan ulla faccum quatis.

Sample Wiring Configurations

THIS SECTION IS TBD – Please refer to the Powerpoint Storyboards for concepts.

One-Year Limited Warranty

This product is warranted to be free of defects in material and workmanship for one year from date of original purchase from Card Access, Inc. ("Card Access").

Card Access will, at its election and as the purchaser's or end user's sole and exclusive remedy for any breach of the limited warranty set forth above, repair or replace this product if a defect in material or workmanship is identified and communicated to Card Access within the one-year period described above. Card Access is not responsible for removal or reinstallation costs. This warranty is not valid in cases where damage to this product is the result or arises out of misuse, abuse, incorrect repair or improper wiring or installation.

To notify Card Access of any breach of the foregoing limited warranty and to obtain warranty service, contact Card Access Customer Support at 801-748-4900, extension 15 to obtain a Return Materials Authorization ("RMA") number and instructions for returning your defective product to Card Access.

IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY DISCLAIMED, EXCEPT WHERE SUCH DISCLAIMER IS PROHIBITED BY APPLICABLE LAW. CARD ACCESS AND/OR THE SELLER DISCLAIM(S) ANY AND ALL LIABILITY FOR SPECIAL, INCIDENTAL AND CONSEQUENTIAL DAMAGE IN ANY WAY ASSOCIATED WITH OR RELATED TO THE PURCHASE, INSTALLATION AND/OR USE OF THIS PRODUCT.

Some states/provinces do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of special, incidental or consequential damages, so these limitations and exclusions may not apply to you. This warranty gives you specific legal rights. You may also have other rights which vary from state/province to state/province.

This is Card Access's exclusive written warranty.

About this Document