

## SmartTOUCH™: intelligent combination of Mifare® reader and fingerprint scanner

### The versatility of Mifare®

A Mifare® card or tag is suitable for a multitude of applications. The various sectors within the chip can be used for a variety of applications such as: access control, time & attendance, vending machines, paid parking but also for the storage of biometric data. SmartTOUCH™, the combined Mifare® reader and fingerprint scanner smartly takes advantage of the versatility of the Mifare® card.

### SmartTOUCH™: double security

SmartTOUCH™ does not only verify the authorization of a Mifare® card, but it also verifies that the person who presents it is the rightful owner of the card. A scan of the fingerprint of the cardholder is stored as a template on the Mifare® card. Only when there is a perfect match between the fingerscan and the template stored on the card a go ahead is given.

### Reliable and secure

The CMOS sensor used in the SmartTOUCH™ actively transmits and receives a radio-frequency signal. The sensor determines the electromagnetic image of the subcutaneous layer (sub-surface imaging). Thanks to the link to other unique finger-specific parameters (active anti-spoofing) and the advanced pattern recognition, the SmartTOUCH™ offers an extremely high level of security. In contrast to frequently used optic sensors, the SmartTOUCH™ does not measure the visible fingerprint. This means that the reader is not affected by dirty fingers, small wounds or dirt on the surface itself. Another advantage is that the economic life of the CMOS sensor is much longer than that of optic sensors.

### Ergonomic design

Thanks to the smart design of the SmartTOUCH™ housing, the user's finger is automatically placed in the correct position. The verification algorithm caters for potential twists and shifts of the finger. The chance of an incorrect denial is therefore very slim.

### Decentralized processing and verification

It was not by chance that Integrated Engineering has chosen to store the fingerprint template on the Mifare® card itself. Many suppliers store the templates in a database within the fingerprint reader. In this case the amount of fingerprints is limited to the amount of memory available in the reader. There are also fingerprint readers who store the fingerprint template in a central database. In the method chosen by Integrated Engineering the biometric data is kept outside a database. Thus the verification takes place in a totally independent system.

### Privacy guaranteed

The privacy of the cardholders is not invaded because the fingerprint is not published publicly. Upon a valid verification only a number, which has no relation to the fingerprint, is transported to the underlying system. For this reason the Person Data Protection law is not applicable to the SmartTOUCH™ of Integrated Engineering.

### Applications

The SmartTOUCH™ will be applied in high security areas where severe demands are made on identification. Some examples are extra secure rooms and payment applications. For electronic time & attendance, the SmartTOUCH™ can also be of use: it makes buddy punching impossible.



SmartTOUCH™: double verification by card and fingerprint.

## Technical specifications

### SmartTOUCH™

Card reading principle	ISO / IEC 14443A-A / Mifare®.
Fingerprint sensor	CMOS.
Frequency range	13.56 MHz.
Data transmission	106 kBaud.
Reading distance	0 - 5 cm.
Power supply	5 Volt DC regulated.
Current	average - 500 mA, peak - 1000 mA.
Size	49 x 182 x 38 mm (W x H x D).
Housing	polyurethane, black.
Operating temperature	0 °C to 60 °C ( 32 °F to 140 °F).
Operating humidity	30 - 80% (nong-condensing).
LED's	2 green, 2 red, 1 yellow.
LED-functions	power/access, enrollment mode/access mode.

### Cable

Connection	via plug connection with screw connectors.
Type	5 x 0,35 mm <sup>2</sup> shielded.
Length	20 metres from controller.

### Proximity transponders

Type	ISO 14443A-3 / Mifare®
Data transmission	contactless.
Operating frequency	13.56 MHz.
Baudrate	106 kBaud.
Transaction time	less than 100 ms.
Read/write distance	up to 1000 mm, antenna dependent.
Data integrity	fast anti collision.
Multi-card operation	fast anti collision.
Life cycle	100.000 writing cycles, with 10-year data retention under operating temperature conditions.
Energy	no battery, contactless energy.
Chip technology	high speed CMOS EEPROM-process, single chip, one coil.
Security mechanism	fast anticollision protocol, individual access rights for each block, individual keys for each block, mutual authentication according to ISO/IEC DIS 9798-2, encrypted data, secure data protocol with CRC, unique serial number, transport key.
Memory:	1024 x 8 bit EEPROM of which 768 byte free for use divided into 16 sectors of each 4 blocks. Sector 0 reserved for manufacturer data, serial number and MAD.

### Cards

Material	PVC, default white glossy surface, suitable for Photo ID.
Dimensions	according to ISO 7810: 85,6 x 54 x 0,76 mm.
Operating temperature	-35 °C to +50 °C / -31 °F to 122 °F (90% humidity).
Magstripe (option)	HiCo 3800 ørstedt.

### Tags

Material	epoxy EP 121.
Dimensions	31,5 x 245 x .16 mm.
Operating temperature	-40 °C to +85 °C / -40 °F to +185 °F (90% humidity).
Color	black.



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