

## Smart MS Card

**Smart MS** cards combine two contact-less technologies:

- Standard MSPASS, 3.25 MHz technology, read only
- Philips Semiconductors™ Mifare®, 13.56 MHz technology, read/write, complying with ISO/IEC 14443 type A standards

Smart MS cards ensure the continued use of all access controls based on the MSPASS technology. The Mifare® chip allows migrating to new contact-less technologies. With its memory capacities, it also opens new application fields (access control, biometrics, time management...).

Smart MS cards are labelled on the reverse side, indicating that the inseting process is carried out under GUNNEBO's supervision.

They are provided with a magnetic strip.

### **International Standard**

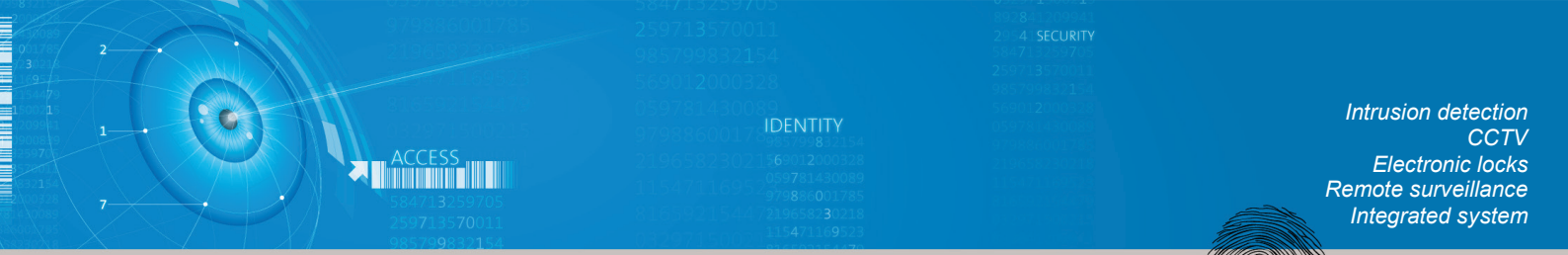
- ISO 14443-3 part A, Mifare® protocol
- ISO 10 373: electrical and mechanical tests.

### **Mifare® chip**

- Mifare® Classic 4KB EEPROM
- Security: Mifare® cryptography
- Unlimited reading
- Writing: 100,000 cycles
- Data retention: 10 years

### **MSPASS chip**

- Proprietary technology
- Unlimited read only
- Unique ID in 32 bits
- Permanent data retention (silicon engraving)



Intrusion detection  
CCTV  
Electronic locks  
Remote surveillance  
Integrated system

Access control



# Smart MS Card

Functions			
<b>Electrical customization</b>	<ul style="list-style-type: none"> <li>Smart MS cards are provided pre coded. Standard MSPASS chip code (32 bits) stored in the Mifare® 4K chip memory (sector 1).</li> <li>Free sectors are provided with the transport keys.</li> </ul>		
<b>Graphic personalization</b>	<ul style="list-style-type: none"> <li>Thermal sublimation printing.</li> <li>GUNNEBO marking on the back for monitoring batches of cards.</li> <li>Printing zone on the front and back according to our recommendations, outside chip position.</li> </ul>		
<b>Multiple applications</b>	<ul style="list-style-type: none"> <li>Smart MS cards can be used for different applications, such as identification in access control, restaurant management, Time management, etc.</li> <li>Data is secured by the use of access rights to the Mifare® 4K chip memory area (role of A and B keys for read only, read/write, write only).</li> </ul>		
<b>Options</b>	<ul style="list-style-type: none"> <li>Insetting of a contact chip: please, contact us.</li> <li>Encoding data into the memory area: please, contact us.</li> </ul>		
Technical characteristics			
<b>Dimensions</b>	Length 85.60 x width 53.98 x thickness 0.87 mm		
<b>Material</b>	White PVC with laminated coating), gloss finish		
<b>Temperature of use</b>	-10°C to 50°C		
<b>Chip</b>	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p style="text-align: center;"><b>MSPASS chip</b></p> <ul style="list-style-type: none"> <li>Contact-less</li> <li>3.25 MHz technology recognized by the TRA (*)</li> <li>Contains a unique ID in 32 bits</li> <li>Informal data flow: 50 Kbps. Manchester coding AM</li> </ul> <p style="text-align: center;">(*) <i>Telecommunications Regulatory Authority</i></p> </td> <td style="width: 50%; vertical-align: top;"> <p style="text-align: center;"><b>Mifare® 4K chip</b></p> <ul style="list-style-type: none"> <li>Contact-less ISO 14443-1,-2,-3 (part A)</li> <li>Exciting frequency: 13.56 MHz</li> <li>Informal data flow between the card and the reader: 106 Kbps</li> <li>Chip technology: ASIC (wired logic chip)</li> <li>Data memory technology: EEPROM (10 years retention)</li> <li>EEPROM memory: 4 KB arranged in:                             <ul style="list-style-type: none"> <li>16 4-block sectors (Mifare® 1K Classic compatible)</li> <li>8 16-block sectors</li> <li>Total of 210 16-bytes blocks (3.36 KB user)</li> </ul> </li> <li>User data protection via Mifare® keys                             <ul style="list-style-type: none"> <li>Security via Mifare® A&amp;B keys</li> </ul> </li> </ul> <p>Each card has a unique serial no. (Philips Mifare® manufacturer's Unique ID)</p> </td> </tr> </table>	<p style="text-align: center;"><b>MSPASS chip</b></p> <ul style="list-style-type: none"> <li>Contact-less</li> <li>3.25 MHz technology recognized by the TRA (*)</li> <li>Contains a unique ID in 32 bits</li> <li>Informal data flow: 50 Kbps. Manchester coding AM</li> </ul> <p style="text-align: center;">(*) <i>Telecommunications Regulatory Authority</i></p>	<p style="text-align: center;"><b>Mifare® 4K chip</b></p> <ul style="list-style-type: none"> <li>Contact-less ISO 14443-1,-2,-3 (part A)</li> <li>Exciting frequency: 13.56 MHz</li> <li>Informal data flow between the card and the reader: 106 Kbps</li> <li>Chip technology: ASIC (wired logic chip)</li> <li>Data memory technology: EEPROM (10 years retention)</li> <li>EEPROM memory: 4 KB arranged in:                             <ul style="list-style-type: none"> <li>16 4-block sectors (Mifare® 1K Classic compatible)</li> <li>8 16-block sectors</li> <li>Total of 210 16-bytes blocks (3.36 KB user)</li> </ul> </li> <li>User data protection via Mifare® keys                             <ul style="list-style-type: none"> <li>Security via Mifare® A&amp;B keys</li> </ul> </li> </ul> <p>Each card has a unique serial no. (Philips Mifare® manufacturer's Unique ID)</p>
<p style="text-align: center;"><b>MSPASS chip</b></p> <ul style="list-style-type: none"> <li>Contact-less</li> <li>3.25 MHz technology recognized by the TRA (*)</li> <li>Contains a unique ID in 32 bits</li> <li>Informal data flow: 50 Kbps. Manchester coding AM</li> </ul> <p style="text-align: center;">(*) <i>Telecommunications Regulatory Authority</i></p>	<p style="text-align: center;"><b>Mifare® 4K chip</b></p> <ul style="list-style-type: none"> <li>Contact-less ISO 14443-1,-2,-3 (part A)</li> <li>Exciting frequency: 13.56 MHz</li> <li>Informal data flow between the card and the reader: 106 Kbps</li> <li>Chip technology: ASIC (wired logic chip)</li> <li>Data memory technology: EEPROM (10 years retention)</li> <li>EEPROM memory: 4 KB arranged in:                             <ul style="list-style-type: none"> <li>16 4-block sectors (Mifare® 1K Classic compatible)</li> <li>8 16-block sectors</li> <li>Total of 210 16-bytes blocks (3.36 KB user)</li> </ul> </li> <li>User data protection via Mifare® keys                             <ul style="list-style-type: none"> <li>Security via Mifare® A&amp;B keys</li> </ul> </li> </ul> <p>Each card has a unique serial no. (Philips Mifare® manufacturer's Unique ID)</p>		
<b>Magnetic strip (tri-technology card)</b>	<ul style="list-style-type: none"> <li>Position of the magnetic strip: according to ISO 7811-6, reverse side.</li> <li>ISO magnetic strip (track 1, 2, 3) high coercivity (HC) (2700 Oersted according to PTB 7811/2H).</li> </ul>		
<b>Warranty</b>	6 months		
Gunnebo references			
<b>Item numbers</b>	<ul style="list-style-type: none"> <li>Tri-technology Smart MS card (with a magnetic strip): APQB02</li> </ul>		

A03033B - 07/2012 - Design and production: Gunnebo Electronic Security - Photo credits: Gunnebo Electronic Security - In the interests of its customers, Gunnebo Electronic Security reserves the right to modify the models described - This document is not contractually binding



[info@smartintrusions.com](mailto:info@smartintrusions.com)  
[www.smartintrusions.com](http://www.smartintrusions.com)

