ISO 14443 readers: Mifare®, DES*Fire* and T=CL

SmartID™ housing

OEM module

What is Mifare®?
Mifare® technology, developed by PHILIPS Electronics NV, is an interface platform for contactless smart cards and readers according to the ISO 14443A Standard. It is a well-proven secure 13.56 MHz RF communication technology for transmitting data between cards or tags and readers. Mifare® technology is the industry standard for contactless smart card transactions. Mifare® is an open platform, and the structure of the card IC's allow the cards and tags to be suitable for multiple applications on one card.

What is DESFire?
Featuring DES encryption on all data traffic, Mifare® DES*Fire* adds more security to your application. DES*Fire* is one of the first products that is CAC-compliant. The Common Access Card standard is the official standard which the American government has appointed for secured access control.

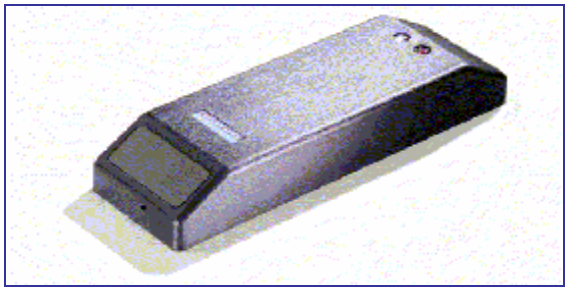
Wide range of ISO 14443 readers
Integrated Engineering offers a wide range of ISO 14443A readers, suitable for multiple applications:
- IS0 14443A-2 (Mifare®) serial number reader
- IS0 14443A-3 (Mifare®) read/write sector reader
- ISO 14443A-4 DES*Fire* reader
- ISO 14443A-4 T=CL read/write reader

Various protocols
All IS0 14443A readers mentioned above are available with interfaces for the following output protocols: ISO 7811 (ABA / Clock & Data) and Wiegand. RS232, RS422, RS485 and BPA9 are available on selected models, see opposite side of this datasheet. Customer formats are available on request. The reader parameters can be programmed with a configuration card.

The DES*Fire* reader is also available with a Stellar*pro* controller board. In that case the communication between the reader and the Stellar*pro* board is also DES encrypted, adding even more security to your system.

Transparent readers
The sector readers are also available as *transparent readers*. In transparent readers, the output format of the reader is not set in the reader parameters, but is determined by the programming of the presented pass. This feature drastically reduces the logistics of supplying and servicing readers. The cards used must of course contain the necessary code to determine the output protocol when using a transparent reader. Cards can be appropriately programmed using the Integrated Engineering ProxBurn card programming system.

Various models
All readers are available in different housings and antenna sizes, providing read/write ranges between 2 and 5 cm (depending on installation and used cards, tags or transponders).
One can choose from several housings:
- Classic housing (IE logo, no logo or your logo).
- Customer housing / Private labeling.
- OEM-module.
- SmartID™ housing.



classic housing

TECHNICAL SPECIFICATIONS

Technical specifications

	Reader type		
	ISO 14443A-2 (Mifare®) serial number reader	**ISO 14443A-3 (Mifare®) sector reader (read/write)**	**ISO 14443A-4 DES*Fire* reader**
Power supply			
voltage	5-12 V DC	5-12 V DC	5-12 V DC
current average	15 mA	130 mA	150 mA
current peak	250 mA	150 mA	150 mA
Dimensions			
classic	46 × 140 × 22 mm	46 × 140 × 22 mm	46 × 140 × 22 mm
OEM module	69 × 46.5 × 12 mm	69 × 46.5 × 12 mm	N/A
SmartID™	46,2 × 142 × 25 mm	46,2 × 142 × 25 mm	46,2 × 142 × 25 mm
Material			
classic & OEM	Polyurethane	Polyurethane	Polyurethane
SmartID™	SB TSG polymers	SB TSG polymers	SB TSG polymers
Environmental			
operating temperature	−20°C to 65°C −4°F to 149°F	−20°C to 65°C −4°F to 149°F	−20°C to 65°C −4°F to 149°F
humidity	0 – 100% non-condensing	0 – 100% non-condensing	0 – 100% non-condensing
protection class	IP 65	IP 65	IP 65
Contactless interface			
Frequency range	13.56 MHz	13.56 MHz	13.56 MHz
reading technique	contactless	contactless	contactless
reading range	2-5 cm	2-5 cm	2-5 cm
chip technology	Mifare® / ISO 14443A	Mifare® / ISO 14443A	ISO 14443A
compliance	ISO 14443A-2	14443A-3	14443A-4 (T=CL)
certifications	CE/FCC	CE/FCC	CE/FCC
Cards read			
Mifare® *classic*	serial number only	✓	
Mifare® DES*Fire*			CAC compliant
PRO*X*			
Smart*MX*			
Output protocols			
ISO 7811 (ABA / Clock & Data)	✓	✓	✓
Wiegand	✓	✓	✓
RS232	output only (optional)	read/write (3964 protocol)	✓
RS422	output only (optional)	read/write (3964 protocol)	✓
RS485		read/write (3964 protocol)	✓
BPA9		✓	
customer format		✓	
Housing options			
'Classic' PX007*	✓	✓	✓
custom housing	✓	✓	✓
OEM module	✓	✓	
SmartID™*	✓	✓	✓
optional 12 key PIN pad		✓	
Feedback to user			
LEDs	1 red, 1 green	1 red, 1 green	1 red, 1 green
buzzer	✓	✓	✓

* The 'classic' and SmartID™ housings are available with Integrated Engineering logo, without logo or with the customer's logo.

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