



Specifications

Temperature range	-20°C to +55°C
Humidity range	5-95% condensing
Dimensions	86 x 86 x 30 mm
Power	9 - 16V DC 75mA Max
Read Range (cards)	Up to 10 mm
Operating Frequency	13.56 MHz, 106kBaud
Interface	Mag-stripe (Clock & Data) Track 2 ABA Wiegand 26-bit

Product References

eXsmart Snr Black	5012-0030	Mifare P/W	2920-0180
eXsmart Sector Black	5012-0031	Mifare P/W + ISO Mag	2920-0181
eXsmart Snr Cream	5012-0032	eXsmart Clock & Data	2920-0186
eXsmart Sector Cream	5012-0033	eXsmart 26 Wiegand	2920-0187

Document reference

Important

The reader cable MUST be fed through the cylindrical ferrite core provided, and the core must be as close as possible to the reader. The cable screen MUST be connected to ground, either locally or at the ACU.

Connections to TDSi controllers

PIN	Function	S1	S2 Rdr 1	S2 Rdr 2	S4 Rdr 1	S4 Rdr 2	S4 Rdr 3	S4 Rdr 4
1	+12V DC	7	48	21	48	21	21	21
2	0V	8	47	20	47	20	109	120
3	Mag clock	13	46	19	46	19	107	118
4	Mag data	15	45	18	45	18	102	113
6	LED	14	43	16	43	16	105	116

PIN	Function	S1000 Rdr 1	S1000 Rdr 2	eXcel, eXpert, eXpander Reader 1	eXcel, eXpert, eXpander Reader 2
1	+12V DC	2	4	30	30
2	0V	1	3	29	43
3	Mag clock	17	16	25	39
4	Mag data	11	15	24	38
6	LED	19	18	27	41

Configuration of TDSi controllers

In all cases, **MAGNETIC** reading technology must be selected. S2 and S4 controllers also require Reader Technology jumpers in positions 7 & 9.

Maximum cable distances to TDSi controllers

Recommended cable: 7/0.2 screened; e.g. Belden 9730

Controller	Max cable distance
S1	40m
S2	150m
S4 readers 1 & 2	150m
S4 readers 3 & 4	40m
S1000	150m
eXcel, eXpert, eXpander	150m

Connection to non-TDSi controllers

eXsmart can be connected to equipment with a mag-stripe compatible (clock & data) interface using the connection information for TDSi controllers. The 8-digit card number is output in track 2 ABA format this number has been encoded using a unique TDSi encryption method.

eXsmart can also be connected to controllers that require a Wiegand interface. This requires the 26bit Wiegand cards be purchased from TDSi. Cards are available showing a 3-digit site code and 5-digit card number this number is output in standard 26-bit format.

Pin No.	Mag-stripe interface	Wiegand interface
1	+9 to 16V DC 75mA Max	
2	0v	
3	Mag clock	Data 0
4	Mag data	Data 1
5	Card present buzzer when connected to 0v	
6	LED	

Wiegand

The Mifare serial number can output the Mifare card number in 26 bit Wiegand format as well as Clock and Data.

The output type from the reader is selected by using one of the input lines, to the reader (connection 5). If this line is left unconnected the output from the reader will be 26 bit Wiegand (there is an internal pull up on the line). In the event that this line is connected to 0v, the output will be ISO track 2.

The reader will read the 32bit Mifare card number and output the card number in a 26 bit format.

Maximum cable distance to non-TDSi controller

The maximum cable distance to a non-TDSi controller cannot be stated here, as the controller is the determining factor.

Compliance Notices - 1



Compliance with CE regulations

The equipment is designed, tested and declared to conform to the following CE directives:

- 89/336/EEC - EMC Directive
- 93/68/EC - Low Voltage Directive
- 1999/5/EC - R&TTE Directive

Limitations on intended operating environment

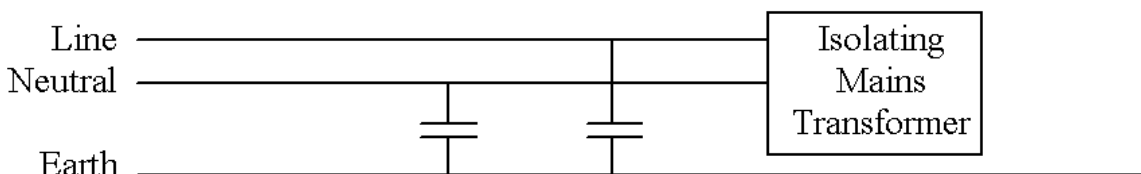
The equipment is intended for use in access control applications in a wide range of configurations. It is intended to control the use of third party equipment attached at the control interface. Such third party equipment and all cabling must be of suitable design and installation to ensure that the overall system complies with the requirements of the CE directives.

Guidance notes for the installation and use of TDSi equipment must be strictly followed. Due to the wide range of access control products TDSi cannot cover all possible type and combinations of equipment that may be assembled to form a total system. TDSi exercise due diligence to ensure that the equipment is suitable for use in the stated applications, but ultimate responsibility for the compliance of a complete system must rest with the prime contractor at a site where local conditions may require additional EMC precautions be taken.

Power supply requirements.

Note that any power supply used to drive this equipment must provide a smoothed DC voltage using a linear regulator. The power supply must NOT be of switched mode design. When used in security applications a battery backed-up power supply must be used to maintain operation during short power interruptions. Connections between the power supply and the equipment must be made using braided screen cable, of suitable power rating, with the braid screen connected to earth at the power supply.

To reduce interference TDSi recommend that the mains input to the power supply isolating transformer is fitted with 470pF, Class Y mains suppression capacitors. These should be connected from mains line to earth, and from mains neutral to earth.



Special note on multiple proximity reader installations.

To ensure compliance with CE EMC regulations, TDSi Proximity readers must be mounted at least 1m apart.

Compliance Notices - 2

FCC Regulations Notice

This device complies with Part 15, Class B, of the FCC Rules. Operation is subject to the following two conditions:-

- a) This device may not cause harmful interference.
- b) This device must accept any interference received, including interference that may cause undesired operation.

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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 manufacturer's instructions, may cause interference harmful to radio communications.

There is no guarantee, however, 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.

CSA EMC Notice

This digital apparatus does not exceed the Class B Limits for radio frequency emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicable aux appareils numeriques de la Class B prescrites dans les reglement sur le brouillage radioelectrique edicte par le Ministere des Communications du Canada.

Radio Frequency Allocation Notice

Individual countries may have specific regulations on radio frequencies used by electronic equipment and purchasers are advised that it is their responsibility to ensure that equipment meets their local regulations. TDSi cannot be held responsible for consequences of any such breach and purchasers are therefore advised to check local regulations before installation.

Safety Notice: Low Voltage 12v DC operation

Product description

The equipment should be powered from a fully approved, external, isolated, mains powered, fused, overload protected, 12v DC supply, with battery support.

Rating

The equipment is designed to operate from a 12v DC power supply and draw a maximum current of 100mA, excluding additional lock strike and sensor loads.

Safety

The equipment is designed to comply with the provisions of the international standard EN 60950 which covers safety of IT equipment.

WARNING: Disconnect the mains supply from any associated equipment before removing the covers or making connections to the equipment.

All regulations and requirements **MUST** be must strictly followed to prevent hazards to life and property both during and after installation, and during any subsequent servicing and maintenance. It is essential to comply with the local wiring regulations and to use mains cable appropriate for use in that installation. The electrical installation of the equipment must include convenient means to isolate the equipment from mains supply.

Siting and fixing of equipment.

The equipment may be installed indoors, out of doors, or in damp or exposed conditions provided it is carefully installed and sealed to the manufacturer's instructions. To ensure mechanical stability the equipment must be secured using appropriate fasteners or brackets to a wall, pillar or other part of the building structure, or to associated stable equipment. The equipment must not be sited near to sources of excessive heat. It is designed for use in ambient temperatures ranging from -20°C to +55°C (degrees Centigrade).

Connecting a low voltage DC supply to the equipment.

Always use a fully approved mains power supply to provide the 12V DC supply to the equipment. Install the power supply in accordance to the manufacturer's instructions. The 12V DC supply must be connected to the equipment using screened cable with the braid earthed correctly at both ends. Fit TDSi recommended suppression capacitors to the mains supply input of the PSU.

Connecting signal wiring to associated equipment.

When the equipment is powered from an external low voltage 12V DC power supply it must be connected to other equipment forming part of an overall control system using supply and signal wiring connections made with screened cable with the screen securely connected to an earth point at the system power supply and at appropriate earth points within the system. Where individual remote equipment is locally earthed it is permissible to disconnect the cable screen earth connection at one end of the cable.

Internal fuse rating.

There are no replaceable fuses fitted with the equipment. Any mains driven power supply to which the unit is connected should be suitably fused for the application according to the supplier's instructions.