



For fully-detailed installation instructions, please refer to the Installation Manual on the accompanying CD.

## Reader Connections

eXprox Proximity readers (5002-0350, 5002-0352, 0357)

Digital IR reader (5002-0372)

Mag-stripe reader (5002-0360)

eXcel terminal	Reader connection	Colour
14	Reader 1 MAG-DATA	Yellow
15	Reader 1 MAG-CLK	White
16	Reader 1 LED	Blue
12	Reader 1 5V	Green
18	Reader 1 0V	Black
17	Reader 1 12V	Red
28	Reader 2 12V	Red
25	Reader 2 MAG-DATA	Yellow
26	Reader 2 MAG-CLK	White
27	Reader 2 LED	Blue
39	Reader 2 5V	Green
29	Reader 2 0V	Black
28	Reader 3 12V	Red
30	Reader 3 MAG-DATA	Yellow
31	Reader 3 MAG-CLK	White
32	Reader 3 LED	Blue
39	Reader 3 5V	Green
29	Reader 3 0V	Black
44	Reader 4 12V	Red
41	Reader 4 MAG-DATA	Yellow
42	Reader 4 MAG-CLK	White
43	Reader 4 LED	Blue
40	Reader 4 5V	Green
45	Reader 4 0V	Black

Indala Proximity Reader (5002-0133)

eXcel terminal	Reader connection	Colour
14	Reader 1 Wiegand 0	Green
15	Reader 1 Wiegand 1	White
16	Reader 1 LED	Brown
18	Reader 1 0V	Black
17	Reader 1 12V	Red
28	Reader 2 12V	Red
25	Reader 2 Wiegand 0	Green
26	Reader 2 Wiegand 1	White
27	Reader 2 LED	Brown
29	Reader 2 0V	Black
28	Reader 3 12V	Red
30	Reader 3 Wiegand 0	Green
31	Reader 3 Wiegand 1	White
32	Reader 3 LED	Brown
29	Reader 3 0V	Black
44	Reader 4 12V	Red
41	Reader 4 Wiegand 0	Green
42	Reader 4 Wiegand 1	White
43	Reader 4 LED	Brown
45	Reader 4 0V	Black

## Door Connections

Fail-locked

eXcel terminal	Lock connection
20	Door 1 Lock relay pole
21	Door 1 Lock relay n/o
34	Door 2 Lock relay pole
35	Door 2 Lock relay n/o
47	Door 3 Lock relay pole
48	Door 3 Lock relay n/o
53	Door 4 Lock relay pole
54	Door 4 Lock relay n/o

Fail-open

eXcel terminal	Lock connection
19	Door 1 Lock relay n/c
20	Door 1 Lock relay pole
33	Door 2 Lock relay n/c
34	Door 2 Lock relay pole
46	Door 3 Lock relay n/c
47	Door 3 Lock relay pole
52	Door 4 Lock relay n/c
53	Door 4 Lock relay pole

Power supply for locks

eXcel terminal	Lock connection
P3	Lock supply +12V DC 1A max
P4	0V
P5	Lock supply +12V DC 1A max
P6	0V

Door sensors

eXcel terminal	Function
22	Door 1 Door sense input
23	Door 1 Door sense 0V
36	Door 2 Door sense
37	Door 2 Door sense 0V
49	Door 3 Door sense input
50	Door 3 Door sense 0V
55	Door 4 Door sense
56	Door 4 Door sense 0V

Egress buttons

eXcel terminal	Function
23	Door 1 Egress 0V
24	Door 1 Egress input
37	Door 2 Egress 0V
38	Door 2 Egress input
50	Door 3 Egress 0V
51	Door 3 Egress input
56	Door 4 Egress 0V
57	Door 4 Egress input

## Direct Communications

### Single ACU over RS232

PC 9-way	PC 25-way	eXcel terminal	Function
2	3	7	Receive
3	2	6	Transmit
5	7	5	Ground

### One or more units over RS485

PC to MA-45					
PC 9-way	PC 25-way	MA-45 25-way	Function		
2	3	3	Receive		
3	2	2	Transmit		
5	7	7	Ground		
MA-45 to eXcel 2					
MA-45 5-way	eXcel terminal	Function			
1	2	RS485 Rx A			
2	1	RS485 Rx B			
3	4	RS485 Tx A			
4	3	RS485 Tx B			
5	ACU chassis	Protective screen			
MA-45 S3 settings			MA-45 S2 settings		
1	ON	Terminated 4-Wire	1	ON	Baud rate
2	ON		2	ON	
3	ON		3	OFF	
4	ON		4	ON	No of bits
			5	OFF	
			6	OFF	No RTS
			7	OFF	
			8	n/a	not used

## Ethernet Communications

If you are connecting the eXcel<sup>4</sup> to an existing network, contact the network administrator to be allocated a suitable IP address.

Before connecting the Ethernet port to anything, re-position the 5 dip-switches to the ON position (up). These switches enable the port, and provide RS485 end-of-line termination.

Connect the eXcel<sup>4</sup> to the network or computer. If there is more than one eXcel<sup>4</sup>, they can all be connected at this stage – but make a note of the UID number of each unit and its location to help you identify which unit is which during setup. If required, to confirm that the network is connected correctly, you can observe the light inside the Ethernet port: an amber light means a connection at 10Mb/s; a green light means a connection at 100Mb/s

Install and run the Lantronix XPort Installer software (in the Extras folder on the Documentation CD supplied with the eXcel<sup>4</sup>, and on the eXguard CD).

Click the Search button - this will detect all eXcel<sup>4</sup> units in the system and display their automatically-assigned IP addresses.

**Note:** this process may require several attempts. If you do not see all of the expected units, keep pressing the Search button and dismissing any error messages.

At this stage you will not be able to tell which one is which.

For each unit that has been detected:

- Select the unit in the list
- Observe the UID number of the unit in the list on the right (under e-mail notification – unit name)
- Click the Assign IP button
- Enter a suitable IP address (If this is a dedicated network, start at 10.0.0.1, then 10.0.0.2, and so on)
- Click on the OK button and wait for the Xport to re-boot, and for the new IP address to appear in the list.

Close the Lantronix Xport Installer. Install and run eXguard software and add the eXcel<sup>4</sup> units into the database using the IP addresses assigned in step 4.

# 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

The equipment has been tested and found to comply to the following EMC & Safety standards:-

Electromagnetic emission	EN 55022:1994
Electromagnetic emission	EN 50081-1:1992
Electromagnetic immunity	EN 50082:1995
Electromagnetic immunity	EN 50130-4:1995
Safety of IT Equipment	EN 60950

## Limitations on the intended operating environment.

The equipment is intended for use in access control applications in a wide range of configurations. It is intended for use with third party equipment attached at the power supply input, the reader inputs, various control outputs and the data communications ports. 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 EC EMC directive.

The equipment in OEM Module form complies with the RFI emission and immunity, and electrical transient immunity regulations. Compliance with the ESD regulations will be the responsibility of any installer that mounts the OEM module in an alternative outer case.

Guidance notes for the installation and use of TDSi equipment must be strictly followed. Due to the wide range of access control products TDSi notes 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 its 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 to be taken.

## 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.

# Safety Notices

## Product description

These notes apply to TDSi eXcel<sup>4</sup> Access Control Units with an internal ACU PSU mains power supply fitted. A 230v, 50 Hz AC mains supply must be connected to the equipment by a permanently connected wiring installation as described below.

## Rating

The TDSi eXcel<sup>4</sup> Access Control Units with an internal AC PSU mains power supply fitted are powered from a 230v, 50Hz mains supply & draw a maximum supply current of 0.4A.

## Safety

**WARNING: Disconnect the mains supply 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.

## Positioning and fixing of equipment

The equipment must not be installed out of doors or in damp or exposed conditions.

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 heat. It is designed for use in ambient temperatures ranging from 0 to 40 degrees C.

Connecting a permanently wired mains supply to the equipment.

Ensure that the mains supply is SWITCHED OFF before starting any wiring.

Wiring should be in accordance with the current I.E.E. regulations, or the appropriate standards in your country, and should be performed by a properly qualified electrician.

For permanently connected equipment a readily accessible disconnect device shall be incorporated in the fixed wiring.

Wiring should be via a switched, fused spur with a 3A fuse (UK) rating, and should use approved 3 core mains cable of minimum cross section area 0.75 sq mm. The installation MUST be provided with a double pole isolator switch with a contact separation of at least 3mm. The Earth wire into the terminal block should be left longer than the L & N wires so that it is pulled out last if the cable is strained.

## Connecting signal wiring to associated equipment.

The TDSi eXcel<sup>4</sup> Access Control Units with an internal AC PSU mains power supply fitted must be connected to other equipment forming part of an overall control system using signal wiring connections made with screened cable with the screen securely connected to an earth point at the controlled equipment end and at earth points within the eXcel<sup>4</sup> equipment. 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

The low voltage DC Regulator PCB in eXcel<sup>4</sup> is fitted with fuse protection marked FUSE. In case of failure FUSE should be replaced with a 3A (T) Slow-blow 20mm Fuse (TDSi part number 2021-0034 ).

The Reader Connect PCB is fitted with fuse protection marked F1. In case of failure F1 should be replaced with a 1.6A (T) Slow-blow 20mm Fuse (TDSi part number 2021-0036).

## Lithium battery

The Lithium battery is only fitted to the eXcel<sup>4</sup> board. For this to be operational jumper J4 needs to be connected. The battery will support eXcel<sup>4</sup> memory for a maximum of 10 years in normal environmental conditions.

The clock chip mounted on eXcel<sup>4</sup> board has it only internal battery, which will retain memory to the clock chip for a maximum of 10 years under normal operating conditions.