Q2la™

Installation Manual

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XPR

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1 Introduction

XPR is pleased to introduce the *O2LA (On /Off Line Access) Controller,* an intelligent two-door access controller**.** Expansion is modular, and by way of extension units (EW units) it can monitor up to 64 doors in an RS485 network. *The PRO Access Management software enables e*asy *&* user-friendly programming, real-time monitoring and reporting.

O2LA can manage up to 1,000 users who can be conveniently placed in different User Groups, with each of these groups given different time restrictions and allotted access to a particular door or doors, for achieving a higher level of security. *A Personal Identification Number (PIN) or proximity card can uniquely identify each user.* The data-logging feature maintains an audit trail of up to 7,500 events in a buffer memory.

2 O2LA Features

- Flexible system that can be used in online (PC) or offline (standalone) modes.
- Two-door controller in standalone mode.
- Expandable to 64 doors via a network of up to 31 Extension units.
- Programming is either via a 15-key keypad and **a** 2 x 16 LCD display, or PC.
- 16-bit micro-controller with flash for the future upgrade of embedded software
- 7,500-event memory buffer.
- High current (10A) relays, with programmable ON times for direct operation of gates and door locks.
- Low current (2A) relay, with programmable ON times for other applications such as an auto-dialer, siren, flash, etc
- Two different transistor outputs for High and Low Priority alarms
- Sirens, auto-dialer, or flasher, etc can be connected.
- Each controller supports two 26-bit Wiegand readers.
- 5 inputs (2 request-to-exit, 2 door monitoring contacts, 1 free input).
- 5 outputs: 2 relays x 10A & 1 relay x 2A (Contact Voltage: 24V DC/120V AC). 2 transistors (0.25A, Open collector).
- Tamper protection against either the removal of the cover or the entire unit.
- Mantrap and Anti-Pass back (real & timed) features.
- 10 priority codes.
- 10 duress codes**.**
- On-board lithium battery ensures no data loss in case of power failure.
- 100 User groups, 32 Reader groups, 16 Time Zones and 64 Holidays.

- RS232 interface for PC, Modem or Serial Printer connection.
- Remote programming via Modem.
- Real-time access monitoring via the PRO software.
- Two-tier rights - Administrator (all rights) & Engineer (operational).
- For single door control, O2lA itself can also be used as a reader.

3   System Concept and Operation

O2LA is defined using the following elements:

3.1   Reader Groups

Readers represent doors, access to which is to be controlled. Reader Groups represent groups of doors to which a user or group of users can be given access (e.g. Main door, R&D Lab door, etc.). See also Section 14.7

Tip: The same Reader can be assigned to more than one Reader Group.

3.2   Time Zones

Time Zones are like time schedules. Each user is associated with a Time Zone and is only given access during specific pre-defined periods on each day of the week, including weekends and holidays (e.g. 0900 – 1300, 1400 – 1800, Mon – Fri). See also Section 14.9.

Tip: Time Zones can overlap one another.

3.3   User Groups

User Groups are groups of users having common access rights in terms of Reader Groups, Time Zones and Anti-Pass back features. See also Section 14.6.

Caution: Each User Group can be defined in terms of only one Reader Group and one Time Zone.

3.4   Users

Programming individual Users then becomes a simple matter of placing them in the appropriate User Group, as shown in the diagram below:

```
                        ┌──────────┐
                        │   User   │
                        └────┬─────┘
                             ▼
                      ┌─────────────┐
                      │ User Group  │
                      └──┬───┬───┬──┘
            ┌────────────┘   │   └────────────┐
            ▼                ▼                ▼
   ┌──────────────┐  ┌──────────────┐  ┌──────────────┐
   │ Reader Group │  │  Time Zone   │  │Anti-Pass Back│
   └──────────────┘  └──────────────┘  └──────────────┘
```
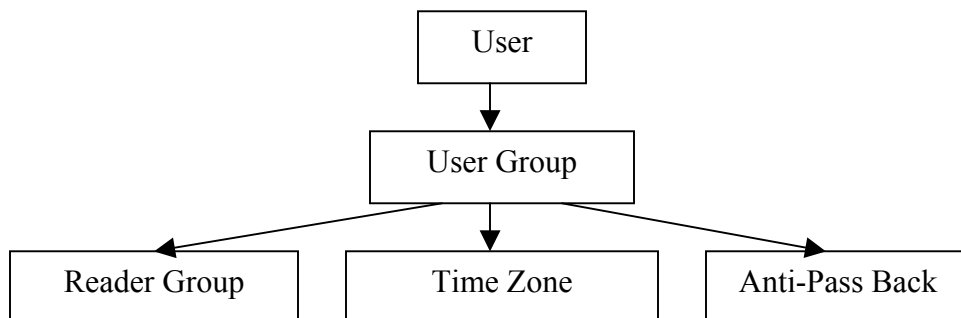
Tip:

When making an installation, the installer should first fully understand the access control requirements of the user.

The installer should then define the Reader Groups, Time Zones and User Groups (in this order) so that the user's access control requirements are fully addressed. Advanced features like Anti-Pass back, Free Access, etc. can also be invoked as needed.

Finally, after these parameters are established users can be placed in their appropriate User Groups**.**

4   Functions

4.1   Access Control

At its most basic level, *access is authorized to those users who possess valid identification codes or tags* after verifying when and where they can use the system.

O2LA has provision for connecting two readers for identification. Reader1 activates Output1 (Relay 10A) and Reader2 activates Output2 (Relay10A). O2LA supports readers having Wiegand 26 protocol.

Relays can be wired to operate electro-magnetic locks, electric door strikes, boom barriers, etc. Relay operating time can be set in either:
1. Latch Mode: Alternate presentation of code or card switches ON and OFF
2. Pulse Mode: Programmable from 1 to 240 seconds

Tip: When using the O2LA controller in standalone or offline mode, it is possible to directly enter codes on the O2LA keypad to provide access via the Output2 relay.

4.2   Free Input

O2LA has an *auxiliary input for integrating with other security systems.* O2LA monitors this input and, when triggered, will activate Output3 (2A relay).

Tip: As an example, a smoke detector can be connected to the free input and an auto-dialer to Output3. When the smoke detector is activated, O2LA could then trigger the auto-dialer to respond and call the fire authorities.

4.3   Door Monitoring

Sensing the position of a door (whether closed or not) is termed Door Monitoring. O2LA supports two door contact/sensor connections that enable the following features:

4.3.1 Forced door

'Forced door' results when a door is opened using physical force. It always results when a door is opened without permission from O2LA, because no valid code or tag is used or the exit button was not pressed. Transistor output T4 is triggered when this event occurs.

4.3.2 Door open too long

The "Door Open Too Long" output is activated if the door remains open for longer than 15 seconds (this time delay is the default and cannot be changed)
If the "Door Open Too Long" feature is activated then:
Output T5 will be triggered when such an event occurs inside Time Zone 02. *(also refer Section 16.11 for Low priority alarm connection)*
Output T4 will be triggered when such an event occurs outside Time Zone 02. *(also refer Section16.10 for High priority alarm connection)*
Please see Section 4.5 for details on conditions under which Outputs 4 and 5 are activated.

4.4 Tamper event

A tamper event is a switch that automatically assumes an *ON* position when an attempt is made to either remove the top cover or wrench the O2LA unit from its installed position. With the O2LA powered ON, tampering activates Output4, which can be connected to an alarm or siren. *(also refer Section 16.1 to view the Tamper switch).*

4.5 Prioritized Alarm

The O2LA system has two alarm outputs T4 and T5. Which of these outputs is triggered depends upon the event and the time. Events are prioritised into High and Low so that a device like a Siren, Buzzer or an Auto-dialer can be connected to alarm outputs, which will be triggered according to their priority.
Transistor outputs will be triggered as per the following table of events:

Transistor	ON	OFF
T4	"Tamper" event "Forced Door" event "Door open too long" event outside Time Zone 02 Use of Duress Code	Depends on the output time set by the user (Pulse or Latch). In Pulse mode, output is switched to OFF after a certain time. In both Pulse and Latch mode it can be set to OFF by entering the master code in O2LA (offline) or by using the "Disable Alarm" tab on the Main Menu in the PRO software (online)
T5	"Door open too long" within Time Zone 02	When a "door closed" event occurs

Note:
  1. *When a "Door open too long" event is triggered, O2LA, by default, will check for time settings in Time Zone 02 and take appropriate action.*

As an example, Time Zone 02 may be set from 9:30 am to 6:30 pm. If, within this time-period, a "Door open too long" event occurs, Transistor T5 output is triggered which can be connected to a Flash or a Voice Messenger.
If the "Door open too long" event occurs outside this time-period, Transistor T4 output will be triggered which can be connected to a siren.

2. *Time Zone 02 is user definable.*
3. *The T4 operating time can be programmed in*
    - *Latch Mode: ON / OFF*
    - *Pulse Mode: Programmable from 1 to 240 seconds*
4. *The T5 operating time cannot be programmed. Therefore T5 will be triggered as long as the Door is open.*

4.6   Anti–Pass back

This function prevents a user from *"passing back" a card to an unauthorized person attempting to gain access without a valid card.* There are two types of Anti-Pass back available with O2LA as follows:

4.6.1   Real Anti-Pass back

Requires two readers (controlling one door or two separate doors), one for entry (IN) and another for exit (OUT). After a card has been granted access at the IN reader, access will be refused on that reader until the same card has been used at the OUT reader.

4.6.2   Timed Anti-Pass back

Does not allow a second access until a specified time-period has elapsed after entry.

Tip: With Timed Anti-Pass back, a second exit reader is optional.

Tip: Anti-Pass back need not be limited to a single door. It can be defined in terms of a group of doors giving access to a secure area, provided all the doors have both Anti-Pass back enabled and have exit readers.

4.7   Mantrap

Two doors need to be paired for this function. Like as in an air-lock situation, this is a special configuration where one door will not open before the other door is closed.

Caution: The two doors paired for a Mantrap function need to be connected to the same O2LA controller or the same Extension Unit (EW).

4.8   Free Access

This function allocates an access point (door, gate, etc.) for free access for a user-defined time period. This function may be useful, for example, to keep a parking-lot boom barrier open at the start and close of office hours, when there is a maximum amount of traffic.

Free Access is linked to Time Zone 3. This feature will operate at the access point to which it is connected and for the times preset in Time Zone 3. Time Zone 3 has settings for three different periods per day and for each day of the week including weekends and special holiday periods.

Caution: *This is a sensitive feature, and care has to be exercised when using it because by it's very nature, security levels are much lower.*

         Only one door can be configured for Free Access in the O2LA / EW network.

         Free Access should not be allocated for doors configured for Mantrap.

4.9   Data Logging

The internal buffer memory can store up to 7,500 events, thus providing an audit trail. These events give details of when, where and at which door users have accessed the system. It shows alarm events and other information to strengthen access monitoring.

4.10   Code length

Wiegand technology permits 5 digit codes. For security reasons, user code/tags "0" and "65535" are disabled, allowing only digits from *"1" to "65534" as valid*.
The Master code length has to have 5 digits i.e. any number from "00000" to "65535".

4.11   Duress Codes

Duress codes are intended for use in situations where, for example a *user is forcefully and unlawfully compelled by an aggressor to open a door*. In such a situation, a user can use a duress code instead of their personal code to activate a warning.
Unknown to the aggressor, use of the duress code activates two Outputs:
1. Relay 1 or Relay 2 (to open Door 1 or Door 2)
2. Output T4, which can be connected to a silent alarm **(**e.g. an auto-dialer).

Note: *Duress codes are programmed in memory locations 980 to 989.*

Tip: *Doors protected by duress codes should, for obvious reasons, have keypads rather than readers, though tags/cards will also function.*

Caution: *Output T4 will be triggered not only by duress codes, but also by any tamper switch activation in the system (O2LA + EW extension units) e.g. Forced Door (O2LA) or Door Open Too Long (O2LA) conditions. T4 should therefore be connected to an appropriate alarm, bearing in mind this multiplicity of use.*

5   Typical Applications of O2LA in Standalone mode

### 5.1   Standalone, one door and one reader

This is the simplest of applications but one that provides the user with comprehensive access control. Some examples of such applications would include entrances to buildings, small offices, apartments, shops & establishments **or** storerooms, etc.

Single door Access control application
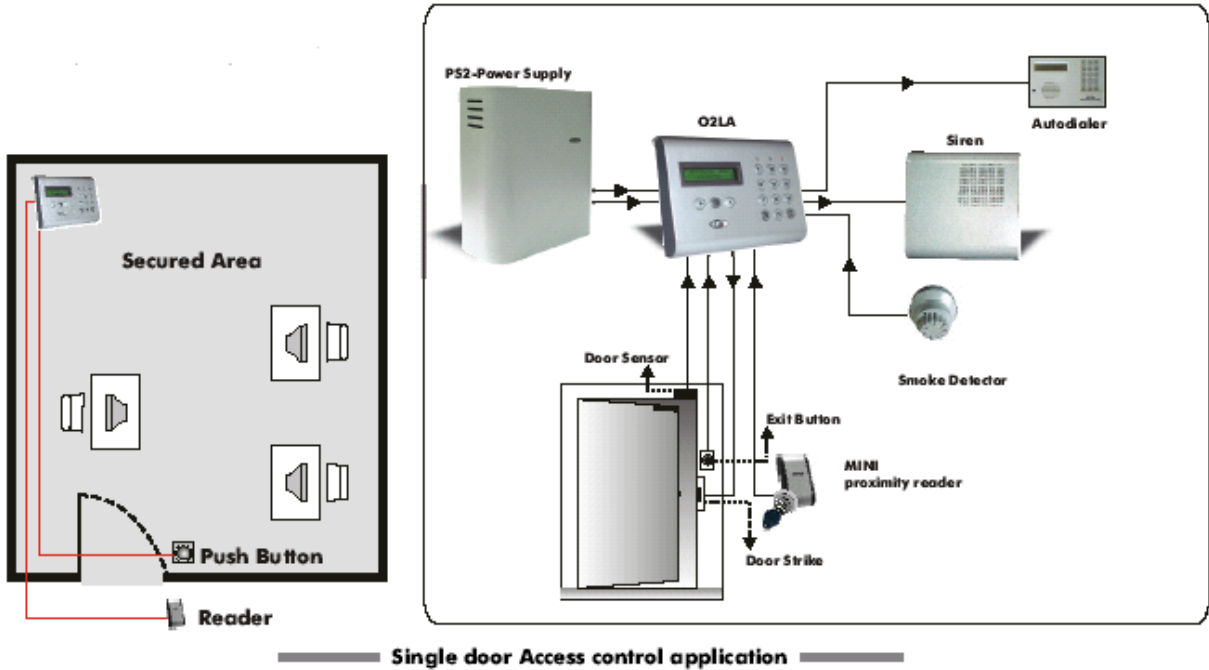
Note: For Wiring Instructions follow the Wiring diagrams in Section 16 .

5.2   Standalone, 2 Doors with 2 Readers

This is a slightly more complex installation than the one in Section 5.1. In this two doors are controlled independently. Some examples of applications could include a house with a gate and a front door, a house with both front and back doors, medium size offices, a shop or a small clinic, etc.
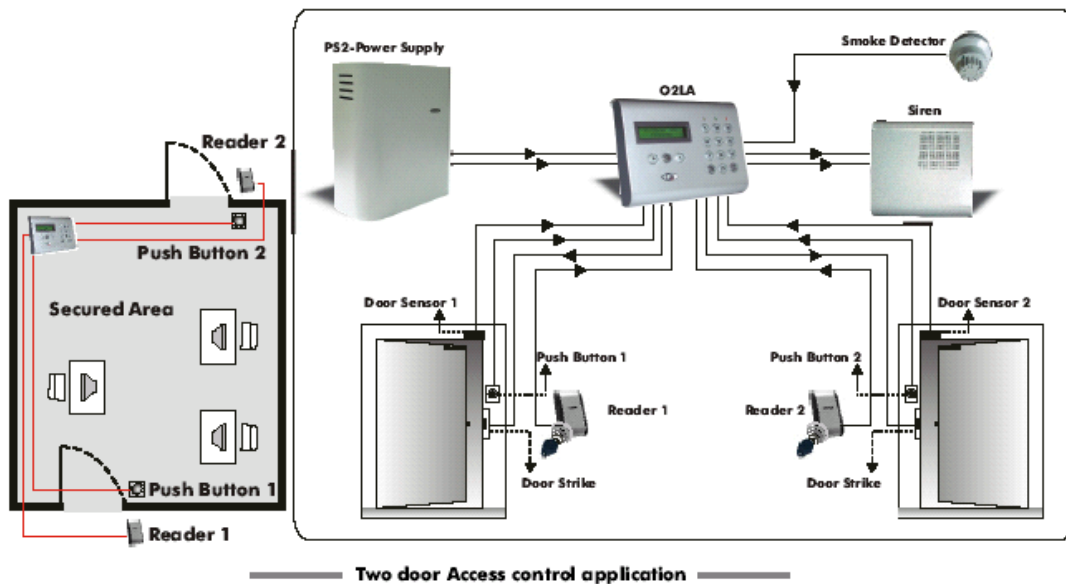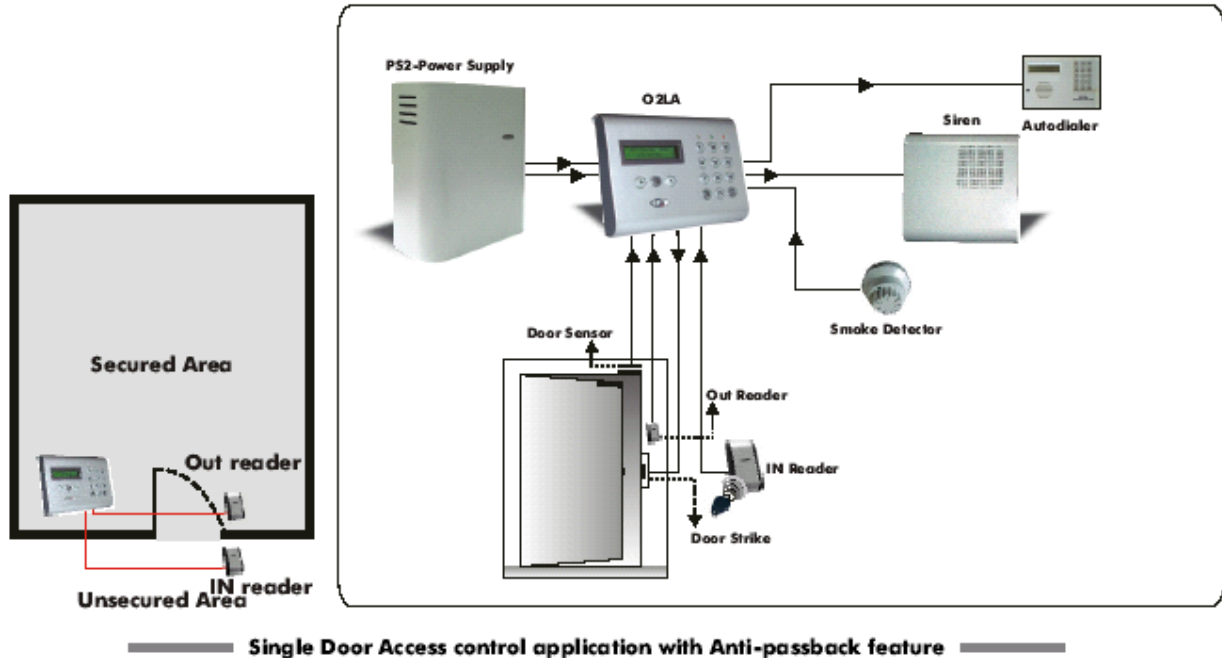

Two door Access control application

Note: For Wiring Instructions follow the Wiring diagrams in Section 16.
Caution: The distance between two MINI proximity readers should be at least 50cm.

5.3   Standalone, 1 Door with 2 Readers (Anti-pass back)

This is a more advanced application. Examples of such could include; access to high-security buildings, bank vaults, jewellers, etc. A major difference from the application in Section 5.1 is that there is a *higher level of security possible using the Anti-Pass back function* (See Section 4.6) This function prevents cards/tags from being "passed back" to an unauthorized user and an audit trail is generated.

Single Door Access control application with Anti-passback feature

Note: For Wiring Instructions follow the Wiring diagrams in Section 16 .

Caution: The distance between two MINI proximity readers should be at least 50cm.

5.4   Standalone, 2 Doors with 2 Readers (Anti-Pass back)

In Anti-Pass back mode the same door does not need to be used as an IN and an OUT door. In the following application, two doors are controlled independently; *one door is used for entry and the other to exit.* Some examples of applications would include premises with different entry and exit doors. In such a configuration, with Anti-Pass back enabled, a user entering at the IN door will be refused permission to re-enter again until the OUT reader has been used.

Two door Access control application with Antipassback feature
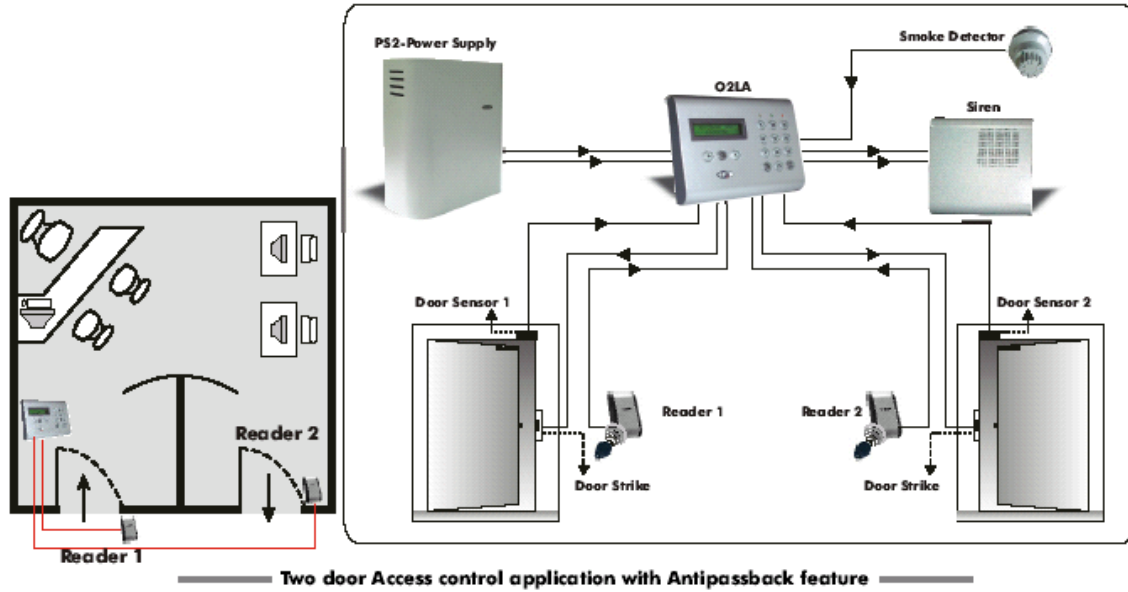
Caution: The distance between two MINI proximity readers should be at least 50cm.

5.5   Some important aspects of O2LA installations

- The O2LA Controller has to be placed in a secure location.
- The user interface is by way of slave units e.g. XPR Multix range proximity and keypad readers**.**
- Access will be denied if the unit has been sabotaged.
- The installation has an independent power supply with a battery backup (PS2).
- An Exit button can be connected**.**
- In Standalone mode a door with an exit button installed does not generate an event trail.
- Two access points are operated entirely independently, (In Standalone mode, 2 doors with 2 readers connected).
- In Standalone mode, 1 door with 2 readers connected, the door has readers for both entry and exit. For timed Anti-Pass back the exit reader is optional (see Section 4.6.2)
- Fire detectors and sirens can be added for a complete and secure installation**.**

5.6   Advanced Features of O2LA installations

- Appropriate access rights for different users (e.g. managers, staff, cleaners, etc.)
- Different access rights for different access points.
- A 'Door Open Too Long' signal.
- A 'Forced Door' alarm.
- Free Access for one door at certain fixed times.
- Audit Trail of events occurring at each door.

5.7   Components required for O2LA Installation

A.   Recommended

i)   An O2LA controller
ii) XPR Multix readers
iii) PS2 Power supply
iv) Electric Strike (or an electromagnetic lock).
v)   Exit button.
vi) Door Contacts

B.   Optional

i)   Fire detector
ii) Siren
iii) Auto-dialer

6   O2LA in Networking mode

6.1   System extension

An O2LA system can be **expanded** to control up to 64 doors, in a modular fashion,, 2 doors at a time, using extension units (EW).
EW unit Inputs and Outputs are similar to those of O2LA.
O2LA to EW communication is through the RS485 bus.
Maximum cable length of 1 Km is possible with the RS485 bus.
Maximum of 31 EW extension units can be connected to one O2LA Network.

Note: System expansion can be done modularly i.e. EW extension units can be added as and when needed.

Tip: Through O2LA's Plug-and-Play feature, EW extension units can be pre-programmed for connection at a later date. When connected they will become functional within a maximum of 3 minutes.
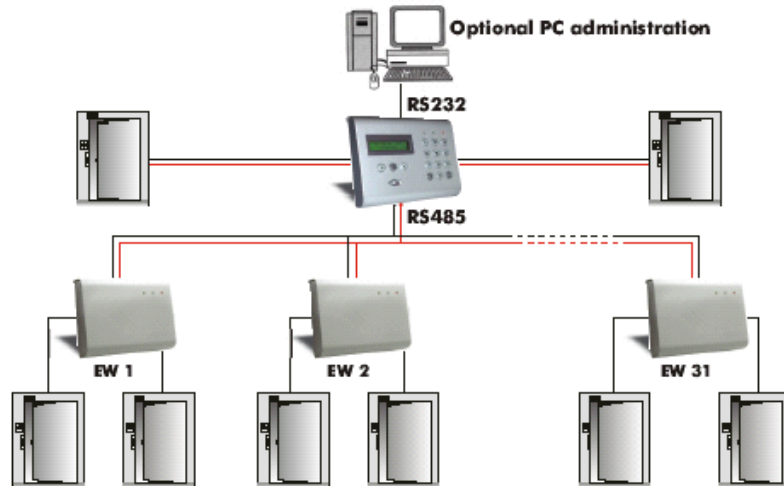
6.2   Typical application of O2LA in Networking mode
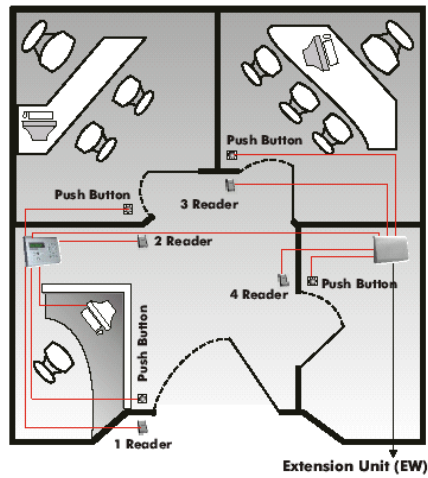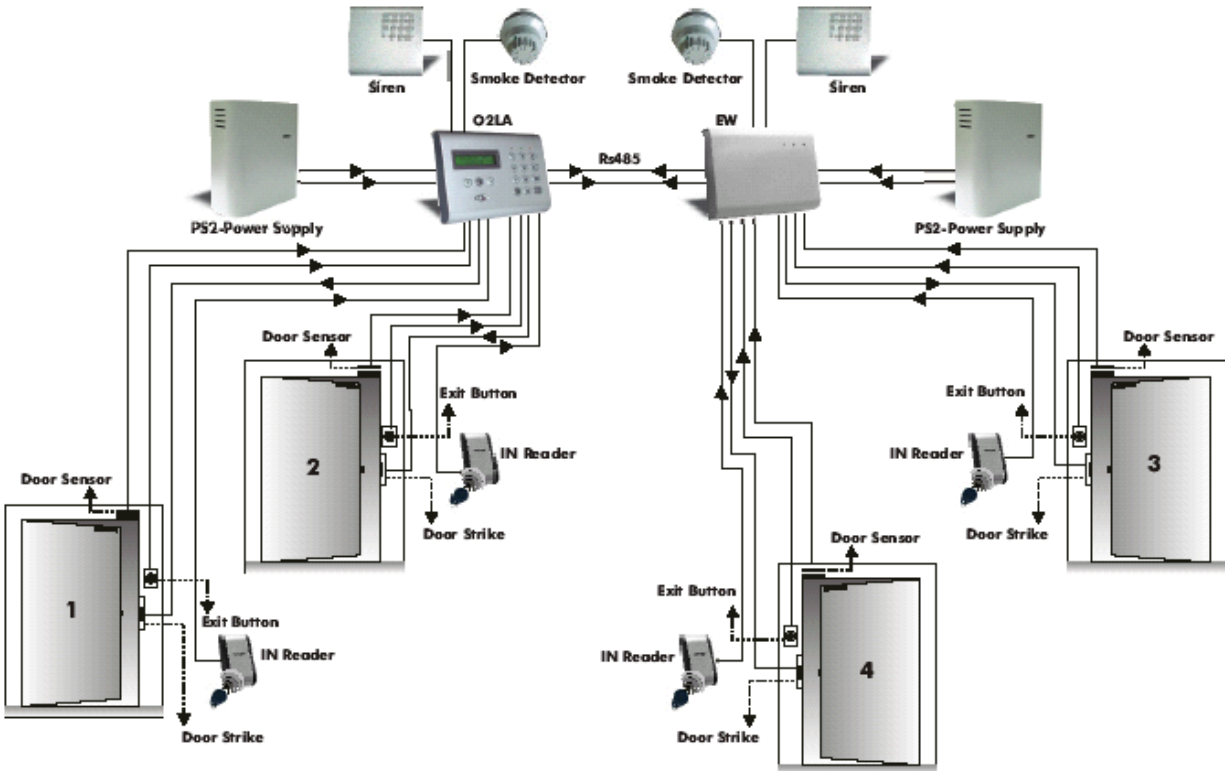
6.3   Priority codes or cards

EW 2-door extension units allow access to a maximum of 10 priority codes or cards in case of disrupted RS485 functioning or the disabling of the O2LA controller. These codes are stored in memory positions 990 to 999 and are transmitted from O2LA to all EW units on the network. When *these codes or cards are used at individual doors, access is granted automatically with validation done locally by the EW* without authorisation from the O2LA controller. They can be used in emergency situations such as:

1. Ruptured RS485 cable on the network
2. O2LA communication failure
3. System failure or power supply interruption to O2LA

Priority codes or cards have "FULL" access and over-ride all settings. These priority codes or cards are for intended used by Security & Maintenance personnel, the Administrator and / or Installer.

Tip: *It is strongly recommended that those users given priority codes/cards should also be issued with normal codes/cards for daily use.*

Caution: *The programmed settings of Anti-Pass back and Mantrap for O2LA and EW are disabled for these codes or cards.*

7   O2LA in Online mode

7.1   PRO Access Management Software

The Microsoft® Windows™ based PRO Software has three main features - Easy & user-friendly Programming, Real-time Monitoring and Reporting. By using normal Windows techniques such as dialogue boxes, drop-down menus, etc. programming has been made so user-friendly that it is expected that novices should be able to program the O2LA-EW system very quickly.

A *PRO software CD is given free with every O2LA individual unit or O2LA kit*. O2LA and the PRO, in this situation, function independently and both can be programmed separately. However, *data transfer between O2LA and the PRO software is only possible* by using *a PRO Registration key*. The PRO Registration key can be purchased at any time by filling in an application form accompanying the O2LA unit.

7.2   Remote Programming

Remote programming is possible from the PRO software to the O2LA Controller via local and remote modems. Data is transmitted through the telephone network. *For details see the PRO software manual.*

Tip: *Different complexities of communication channels are possible between PRO software and the O2LA Controller, as shown below:*

PRO⇄ O2LA

PRO⇄ Modem⇄ PBX ⇄ Modem ⇄ O2LA

PRO⇄ Modem⇄PBX⇄ PSTN⇄PBX ⇄Modem⇄ O2LA

7.3   Export

When using the PRO Software, data has to be "exported" to the Controller in order that its settings be effective.

Note: *The O2LA keypad is disabled when the PRO is online.*

7.4   Modem

The modem should be *"Hayes compatible" and capable of at least 56 kbps with a DB9 serial connector*. The O2LA controller is configured using PRO software either through a direct computer connection or via the telephone network (using a modem). PRO software can be configured to dial a remote modem through a local modem.

7.5   Serial Printer

Serial Printers (e.g. Kyoline, Epson, etc) can be connected to O2LA to print events in an 80 characters-per-line format. Physically connect the printer to the controller (*refer **to** Section 16.7 for PC and Serial Printer connection*) and set the printer serial port settings (COM1) to the following:

Bits per second: 9600 (Baud rate)

Data bits: 8
Parity: None
Stop bits: 1
Mode: IBM 320 dots/line

List of compatible Serial Printers with O2LA

1. KYOLINE – MTP641
2. EPSON LX 300
3. WIPRO LX 800 DX
4. TVS MSP 250 XC

8 Installation Tips

8.1 Location
- O2LA should be installed in a secure area, ideally in proximity to the Administrator.
- Sufficient all round clearance must be provided for technicians to work on the unit during installation and maintenance.

8.2 Physical Environment
The O2LA unit works optimally under the following environmental conditions:
- Operating temperature range: -15°C to +50°C
- Humidity range: 0 to 95% (non-condensing).

8.3 Electrical Environment

Do not install the unit near electrical generators and motors, high-voltage power lines, television receivers, etc, or any appliance that emits strong electrical / magnetic fields or radio frequency radiation, all of which can adversely affect the O2LA and its communications.

Caution: Electrical & magnetic disturbances can also affect the functionality of the system through cables installed in direct proximity. Wiring should be correctly carried out throughout the system, observing normal precautions, to avoid such disturbances.

Note: O2LA has a 500 mA cartridge fuse on the PCB, which will protect the circuit if a wrong voltage is connected. The fuse will blow immediately if (a) a beyond rated voltage (12 –15 V DC) is connected or (b) if an AC voltage is connected

Tip: 2 spare fuses are provided in the installation hardware kit.

8.4 Earthing

Several layers of protection are provided against transient voltages from static discharge, lightning and power supply spikes. For protection to be fully effective, earthing of the housing should be done properly

Use 16 AWG or heavier cable and keep the cable length as short as possible.

9   Communication

The O2LA system network uses two types of communication:

RS232:   The O2LA unit communicates with a PC, Serial Printer and a modem through the RS232 serial port.

RS485:   The O2LA unit communicates with its extension units, (EW) through the RS485 bus.

Caution: *Under no circumstances should communication cables be laid near mains power cables. Cables should be shielded and properly earthed.*

Cable requirements/ specifications:

Unit	Type of cable	Max Length
O2LA to PC	RJ12-RS-232 Serial D-type 9-pin female (*)	15 metres
O2LA to Serial Printer	RJ12-RS232-Serial D-type 9-pin female (*)	15 metres
O2LA to Modem	RJ12-RS232-Serial D-type 9-pin male (*)	15 metres
2-wire RS485	2 Core Twisted shielded wire AWG 18/20	1 km
O2LA to Reader	8 Core Cable shielded wire AWG 18/20	50 metres

(*) Cable supplied with the O2LA

10   Power Supply Requirement

The current consumption of O2LA standalone is 250 mA (maximum). Care must be taken when using a single power supply for an installation comprising of O2LA and its accessories (Readers, Locks, Siren, etc.). Select the power supply with sufficient capacity to meet the peak load, allowing for a comfortable safety margin.

Power consumption for a typical installation comprising of O2LA and its accessories (Readers, Locks, Siren etc) can vary depending upon the accessories used. Examples of such power consumptions are given below:.

1. An O2LA *Controller with 2 readers and 2 electric strikes (Fail close type)* will draw current of 170mA when non operational and 800mA in operation.

   Total backup power required is 970mA.
   Back up power time = (Battery capacity (7.2 Ah)*0.8)/(Stand by current + Maximum current (mA))

   = 5 hour and 18 minutes.

2. **An O2LA** *Controller with 2 readers and 2 Magnetic locks (fail open type)* will draw current of 100mA when **non operational and 1300mA in operation**.

   Total backup power required is **1400mA**

Back up power time = (Battery capacity (7.2 Ah)*0.8)/(Stand by current + Maximum current (mA))

= 3 hours and 57 minutes.

Note:

It is recommended to use the power supply PS2, which has been specifically designed for these types of applications. It is a Switched Mode Power Supply that gives a steady output in spite of variation in input voltage.

A separate power supply is to be used for O2LA installation using 2 magnetic locks, each drawing current equal to or more than 700mA.

Caution:

If the power supply capacity at an installation is insufficient, O2LA voltage can momentarily dip during operation causing the system to malfunction.

Poor communication over the RS485 cable can manifest itself as a system malfunction, e.g. the necessity to present cards more than once in order for doors to open; events not registering in buffer memory, etc.

10.1 On-board battery

A lithium battery is supplied together with the O2LA unit and will *ensure no data loss (Real Time Clock and events) in case of power failure.* Once an installation is complete, and when power has been switched "ON" to the O2LA unit, *but before starting programming*, place this battery in the battery holder on the O2LA PCB such that the polarity is as shown on the sticker in the holder.

Note: *The lithium battery used in the O2LA is part number CR2032, with specifications as* **follows.**

Voltage: 3V
Diameter: 20mm
Nominal Capacity: 230(mAh).
Suggested manufacturers of batteries are Panasonic, Maxell, Duracell, Varta, Yuasa etc.

10.1.1 Replacing the Battery

The life of the lithium battery depends upon usage. If the O2LA does not experience frequent power failure, the lithium battery will last for 7 years. However it is recommended to replace it after every 3 years.
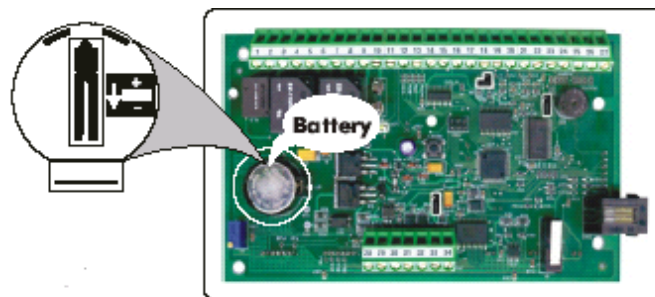
To replace the battery:

Press the clip in the battery holder and remove the discharged battery. Place the new battery into the holder such that the polarity is as shown on the sticker in the holder.

Caution: *Power should be "ON" when replacing the Lithium battery, otherwise Date and time settings are lost and will need to be reset for O2LA to function correctly.*

Other settings, together with events in the buffer memory, will be lost if the power is disconnected.

Tip: *If the main power fails in an O2LA installation when using XPR's PS2 Power Supply the 7.2Ah battery supplies the necessary power. Only if both the mains power and the PS2 battery fail simultaneously will the Lithium battery be required to supply power for the Controller memory.*

11 Indicators

LEDs:

LED COLOUR	EVENTS
Yellow	1. Indicates any key operation 2. Invalid code/card presented at reader/keypad 3. End of event(s) displayed
Green	1. Indicates status of Relays 1 and 2. 2. Event(s) being displayed
Red	1. Triggered alarm

Buzzer**:** Works in parallel with the yellow LED.

```
EMERGENCY 00
   10:10:10
```
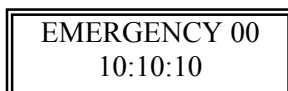
Emergency Unit Code: If any unit in the network has been tampered with, a message is displayed on the LCD and the red LED flashes. The sample message above indicates that the unit '00' (i.e. O2LA) has been tampered with.

12 Jumper Settings

O2LA has two jumpers that need to be set for customisation.
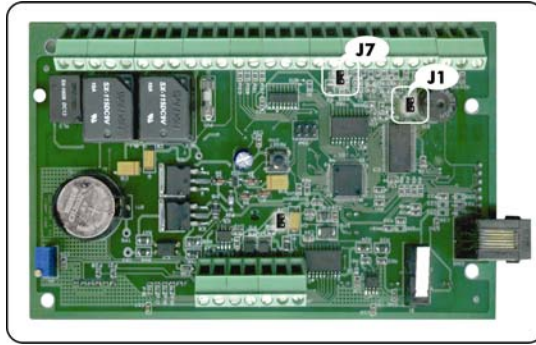
Jumper J1: is normally open. By closing the jumper and pressing the reset switch, the system will revert to the default Administrator Master code *(see also Section 14.4)*

Jumper J7: is to be closed when 2 readers are connected to the same door as an IN (Reader 1) and an OUT (Reader 2) <u>during Anti-Pass back</u>. In this case, Door Sensor 2 (DP2) input must be shorted and Door Sensor 1 (DP1) only is to be used for door monitoring *(See also the Caution about J7 below).*

Caution:

1. *In most applications, O2LA is used to independently operate 2 doors (each having their own door sensors), with 2 separate readers. In Anti-Pass back mode, two readers are used to operate the same door. This requires that the second door sensor be de-activated. This is done by shorting Jumper J7, which in turn shorts DP2 to ground.*

2. *If the second door sensor is not de-activated, then, in Anti-Pass back mode, when Door 2 is used (the OUT operation) Door 1 sensor will "see" a forced door and raise an alarm.*

13 Factory default settings

Administrator Master code = "12345"
Engineering Master code = "00000"
User Groups: '00' (Nowhere) and '01' (Everywhere)
Reader Groups: '00' (No access) and '01' (Full access)
Time Zones: 'TZ0' (Never), 'TZ1' (Always), 'TZ2' (Priority alarm) and 'TZ3' (Free access)
The unit number for O2LA is always '00'
European-style date format (Date / Month / Year)
All outputs in Pulse mode (2 seconds)
Anti-Pass back and Mantrap features disabled

Caution: User Group '01' (Everywhere) should be used carefully as it overrides Anti-Pass back.

14 O2LA Programming

14.1 Programming Tips

Careful planning of an access control system is essential before programming can start. Appropriate steps include:

✓ Grouping access points into convenient Reader Groups.

✓ Defining Time Zones and Holidays.

✓ Defining User Groups into which users can be conveniently placed.

✓ Assigning Reader Groups and Time Zones to each defined User Group.

✓ Defining any actions, which the system is required to carry out.

Ensure that this data is available before programming and follow the steps below:

✓ Check for default Jumper settings.

✓ Select the working language from the *Setup* Menu.

✓ Enter the current date and time in the *Setup* Menu.

✓ Enter time zone data in the *Time Zone* Menu.

✓ Enter reader group data in the *Reader Group* Menu.

✓ Enter user group data in the *User Group* Menu.

✓ Assign the cards/codes and *User Groups* in the User Menu.

✓ Set the relay and transistor timings in the *Unit* Menu.

14.2 To enter Programming Mode

There are two ways to enter programming mode: either by using the ***Administrator Master Code or the Engineering Master Code.*** The Administrator Code provides full access to all menus whilst the Engineering Code gives access only to some menus. The different levels of rights for the two codes are shown in the following table:
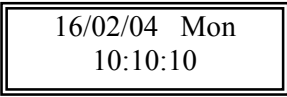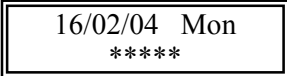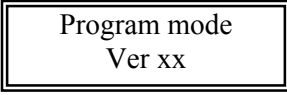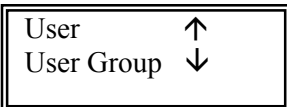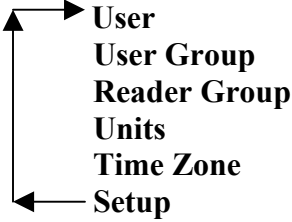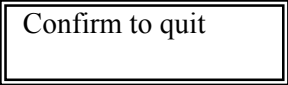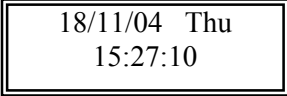
MENU		ADMINISTRATOR	ENGINEERING
User Menu	- Add	YES	YES
	- Modify	YES	YES
	- Delete	YES	YES
	- Delete All	YES	NO
User Group	- Add/Mod	YES	NO
Reader Group		YES	NO
Time Zone		YES	NO
Units		YES	NO
Setup	-Date/Time	YES	YES
	-Events	YES	YES
	-Misc-Lang	YES	YES
	RS232	YES	YES
	Holiday	YES	YES
	Code change – Master	YES	NO
	Engg	YES	NO

Default factory codes: *Administrator Master code*   = "12345"

                        Engineering Master code   = "00000"

The Administrator Master Code is intended for use when completely configuring the system. The Engineering Master Code is intended for use in day-to-day operation.

Caution: *These rights are pre-defined and cannot be changed.*

14.3 Actual Programming

LCD Display	Description
16/02/04 Mon 10:10:10	On initial power-up, the LCD will display the default date and time as shown
16/02/04 Mon *****	Enter the 5-digit Master Code and Press 'P'
Program mode Ver xx	The "programming mode" and "version number" will be displayed for 2 seconds

User   ↑
User Group   ↓
	Six programming menus will appear as follows;
	      User
	      User Group
	      Reader Group
	      Units
	      Time Zone
	      Setup
	Press ↑ or ↓ to scroll to the required menu and Press 'E' to enter a particular menu
	Press 'P' to quit

Confirm to quit	Press 'P' to confirm
18/11/04 Thu 15:27:10	If date and time has been modified, the new date and time will be displayed.

Note: *Engineering and Administrator Master codes are always "codes" and never "cards"*

Tips: *Using PRO software gives much greater flexibility. The Administrator can allocate different levels of rights for up to 10 persons or "Operators".*

Caution: *It is strongly recommended that the Master code be changed regularly (refer to Section 14.10.4) and a record be kept in a secure place.*

14.4 Revert to Factory settings

If the Master code is lost or forgotten it is possible to reset the code to the default setting by using the jumper J1 on the PCB. Follow the procedure below:

1. When power is connected open the O2LA housing and place jumper J1 in the closed position (see diagram below).
2. Reset the device by momentarily pressing the reset switch.
3. The yellow LED glows ON and the buzzer beeps.

4. Place the jumper back in its original (i.e. opened) position.
5. Close the O2LA housing.

| Jumper open | → | Jumper closed | → | | → | Jumper open |
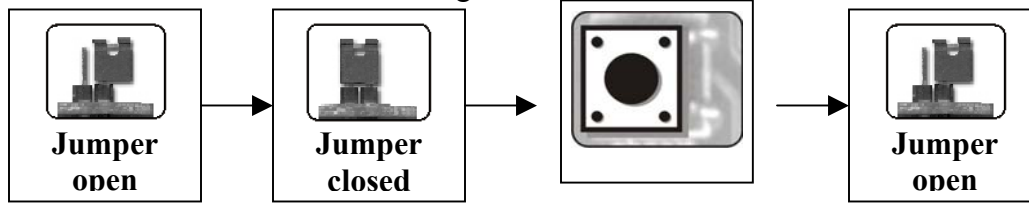
Note: Power must be switched ON during this process.

Due to voltage variations the O2LA system might hang. In such circumstances remove the front housing and press the reset switch to reset the O2LA micro controller.

Date and Time will be reset to default values and all events will be lost.

14.5 User Menu

From the User Menu we can add a new User, Modify an existing user information, Delete one or Delete All existing users. *The Modify command is the only one where several user details can be changed at the same time i.e. the User Group, the Card Validity Date or the Card/Tag number.*
A user number has 3 digits ranging from 000 to 999 totalling a maximum of 1,000 users.
Essentially the user number refers to the memory position in O2LA where user details are stored.

Note: Memory positions from 000 to 979 are for normal access codes.
Memory positions from 980 to 989 are reserved for Duress Codes
Memory positions from 990 to 999 are reserved for Priority Codes.

User Groups are identified by a 2-digit number from 00 to 99.

Note: Two User Groups are pre-defined in O2LA
User Group 00 gives access 'nowhere'
User Group 01 gives access 'everywhere'
These are default groups and cannot be modified.
To define a User Group refer to Section 14.6.
Enter programming mode and select User Menu to obtain the following LCD display:

LCDDisplay	Description
Add Mod Del Del All	Press ↑ or ↓ to scroll to the required menu Press 'E' to select
Add New User	
User No: ### User Gr: ##	To add a **new user** select Add in the User menu and press 'E'. Enter the 3-digit new User number and the 2-digit User Group number

Denied	The LCD displays "Denied" if the User number already exists
Valid up to DD/MM/YY ↓	Enter the validity date for the user or skip this step by scrolling ↓ **Note**: If the user number >= 990, the validity date is ignored moving directly to the Code or Tag menu
Code　　Tag	Select Code to enter Code/PIN or select Tag to assign a card. Press 'E' to confirm
Code #####	If Code is selected, enter a 5 digit number + 'E' to confirm, e.g. "34567" + 'E'
Tag ####	If Tag is selected present the card to any reader + E to confirm
Denied	If a Code or Tag already exists 'Denied' is displayed
User Stored	Confirms that the user information is saved. Entering any key other than 'E' will revert to the main User Menu
Add　Mod Del　Del All	Press ↑ or ↓ to scroll to the required menu Press 'E' to select. To change an existing **user** details select Mod in the User menu and press 'E'.

Modify existing user information

User No: ### User Gr: ##	Enter the 3-digit number of the user to be modified. Add a 2-digit number for the User Group
Denied	"Denied" is displayed if the user number is not assigned.
Valid up to DD/MM/YY ↓	Enter the validity date for the user or skip this step by scrolling ↓ *Note: If the user number >= 990, the validity date is ignored moving directly to the Code or Tag menu*
Code　　Tag	Select Code to enter Code/PIN or select Tag to assign a card. Press 'E' to confirm.
Code #####	IF code is selected, enter a 5-digit number + 'E' e.g. "34567" + 'E' to confirm

Tag ####	IF Tag is selected, enter a 4-digit number + 'E' e.g. "3456" + 'P' or present the card to the reader*
Denied	LCD will display this message if the Card or Code already exists.
User Stored	Confirms that User modifications are stored
Add Mod Del Del All	Press ↑ or ↓ to scroll to the required menu Press 'E' to select. To delete an existing user details select Del in the User menu and press 'E'

Delete an existing user

User No: ###	Enter the user number and press 'E',
Delete Y / N	Confirm deletion by selecting 'Y ' and press 'E'
User Deleted	Confirms the deletion
Add Mod Del Del All	Press any key to return to the "User Menu" again

Delete All Users

Delete All ? Y / N	To delete **all** existing users, select Del All. Confirm deletion by selecting 'Y ' and press 'E'
ARE YOU SURE? Y / N	Reconfirm deletion by selecting 'Y ' and press 'E'
Users deleted	Confirms deletion of all users
Add Mod Del Del All	Press any key to go to back to "User Menu"

Caution: *Priority Codes or Cards over-ride all programmed settings of Anti-Pass back and Mantrap for O2LA and EW extension units.*

14.6 User Group Menu

In this menu different User Groups can be created according to access control requirements.
For O2LA, 99 User Groups can be defined, of which 2 are pre-defined ("00" and "01").
User Group **00** is for 'Nowhere' i.e. no access to the system
User Group **01** is for 'Everywhere' i.e. full access to the entire system
The Administrator can define User Groups 02 to 99.
Enter programming mode and select the User Group menu as follows;

LCD Display	Description
User Gr: ## Rd Gr: ## TZ: ##	Enter a 2-digit User Group number Enter a 2-digit Reader Group number already defined. *(To define a Reader Group refer **to** Section14.7)* Enter a 2-digit Time Zone number already defined. *(To define a Time Zone refer **to** Section 14.9)*
APB: # APB Time: ## User Group Stored	The Anti-Pass back feature is enabled by entering '1' and disabled by entering '0'. If enabled, enter APB time "00" for the real Anti-Pass Back feature. For Timed Anti-Pass back enter values from "01" to "30", which indicates the time <u>in minutes</u>. Timed Anti- Pass back is active for this time period only. Press E to store the settings A message confirms the User Group is stored.
User Gr: ## Rd Gr: ## TZ: ##	Press any key to go back to User group menu.

14.7 Reader Group Menu

The Reader Group Menu enables one or more readers in the system to be grouped together. Reader Groups are identified by a two-digit number from 00 to 31. O2LA supports up to 32 Reader Groups, of which 2 are pre-defined ("00" and "01").

Reader Group "00" represents No doors
Reader Group "01" represents All doors

These Reader Groups are the default values and cannot be modified.

The EW units are to be placed into Reader Groups. Each EW unit is identified by a two-digit number (or address) from "01" to "31". These addresses are set on each EW (see EW manual). The unit number "00" is by default the O2LA controller and cannot be changed.

Caution: *Care should be taken not to get confused between numbers identifying Reader Groups and Units (O2LA & EW), as both are two-digit numbers between "00" and "31".*

Note: *O2LA works on the "Plug-and-Play" principle. It is possible to pre-program EW units that are <u>not</u> connected to the system. When connected, at a later date, programming takes effect within 1 minute without need for any further intervention.*

Tip: *The "plug-and-play" feature makes it possible to program the O2LA on the test bench, before installing on-site. In this way the system can be operational after about 1 minute of connection.*

Enter programming mode and select Reader Group Menu as shown

LCD Display	Description
Reader Gr: ## Unit No ## : #	Enter a 2-digit Reader Group number: Enter a 2 digit Unit Number ('00' for the O2LA controller) *Enter the third digit: '0' to Disable both readers* '1' to Enable reader 1 '2' to Enable reader 2 '3' to Enable both readers
Reader Gr: ## Unit No ## : # ↓	Press "↓" to enter next unit *Press 'E' to store*
Reader Group Stored	Confirms Reader Group is stored
Reader Gr: ## Unit No ## : #	Press any key to go back to Reader Group Menu.

14.8 Unit Menu

The Unit Menu gives the option of *configuring two settings* on the unit.

14.8.1 Set

This defines the output mode settings and enables the Anti-Pass back and Mantrap features.

Enter programming mode and select the Unit Menu as follows;

LCD Display	Description

LCD Display	Description
Set Free	Select the Set option by pressing 'E'
Unit No: ## Output1: ### ↓	Enter the Unit number *(00 for O2LA, 01–31 for EW)* Enter the 3-digit time period in seconds for each output: "000" for Latch Mode "001" to "240" seconds maximum time
Unit No: ## Output2: ### ↓	Press "↓" to enter next output
Unit No: ## Output3: ### ↓	Repeat each step for all the outputs
Unit No: ## Output4: ### ↓	
Unit No: ## APB: # M-Trap:#	Set Anti-Pass back and Mantrap for this particular unit by entering '0' to disable and '1' to enable followed by the Unit Number. Press 'E' to store the settings
Unit Stored	Confirms the setting of each unit

14.8.2 Free

The *outputs of a unit can be set to free (Free Access) for the time-periods defined in Time Zone 03.*
For more information on Free access refer to Section 4.8.

*Caution: Free Access should not be configured for doors **used with** Mantrap.*
Only one door can be configured for Free Access in the O2LA / EW network

Enter programming mode and select the Unit Menu as follows;

LCD Display	Description
Set Free	Select the Free option by pressing 'E'
Unit: ## Rel: #	Enter the 2-digit unit number Enter the relay number as follows; '1' to select reader 1 '2' to select reader 2 Enter 'E' to store the Free Access setting
Free Access Stored	Free Access is confirmed. Press any key to return to Unit Menu.

14.9 Time Zone Menu

Particular times can be defined here, depending upon secure access area requirements. A total of 16 different Time Zones can be defined in O2LA, of which 2 are pre-defined and cannot be changed.

Time Zone "00" is Never
Time Zone "01" is Always. 00:00:00 to 23:59:59 (seconds are not displayed).

In addition to the above pre-defined time zones, *Time Zones 02 and 03 have special functions. Time Zone 02 is linked to Priority alarms (refer to Section 4.5), and Time Zone 03 is linked to Free Access (refer to Section 4.8).*

Caution: Free Access can be defined for only one access point in the system and its timings are set by Time Zone 03.

Options for defining Time Zones "02" to "15" are as follows:

- Up to 3 time periods can be defined per day
- Time-periods can be defined independently for each day of the week and for holidays.

Note: Time is entered in the 24-hour format (HH:MM).

Caution: It is impossible to define Time Zones over two days in one Time Zone period. For example, a shift starting at 8 pm on Day 1 and finishing at 4 am on Day 2 cannot be set in one day. It has to be set over two days, in two Time Zones as follows; Day 1 20:00 to 24:00 and Day 2 00:00 to 04:00.

Enter programming mode and select Time Zone Menu as follows;

LCD Display	**Description**
Zone No: ##	Enter Zone No. as a two-digit number from 02 to 15.
Mon Tue Wed Thu ↑ Fri Sat Sun Hol ↓ Del Del All ↓	Press ↑ or ↓ to scroll /move to the required Day Press 'E' when day is selected.

Zone No:## Day P1: ##:## - ##:##↓	The Zone number and the selected Day will be displayed Enter first time period P1 in 24-hour format (HH:MM) Press '↓' to move to the next time period
Zone No:## Day P2: ##:## - ##:##↓	Enter second time period P2 Press '↓' to move to the next time period
Zone No:## Day P3: ##:## - ##:##	Enter third time period P3 Press "E" to store the Time Zone setting
Time zone Stored	Confirms storing of Time Zone
Zone No: ##	Press any key to return to Time Zone menu.

14.10 Setup Menu

The following system parameters can be configured:

14.10.1 Date

The O2LA system date can be set to *European or US formats*.
The factory default date setting format is *EUR, European (DD / MM/ YY)*.
Select US to change to American date format *(MM / DD/ YY)*.

14.10.2 Time

O2LA system time can be entered and Daylight Savings Time can be selected.

14.10.3 Events

Events stored in system buffer memory can be viewed in the following format:

Date/Month	Time	User	Unit/Door	Event
29/05	19:08:52	0011	04	01

Note: Non identified cards are identified by a 4 digit number (1001).

O2LA generates code numbers, which correspond to the following events:

Code	Event
00	Access denied
01	Access granted
02	Access denied (Invalid User Code)
03	Access denied (Man Trap Mode)
04	Access denied (Anti – Pass back Mode)
11	Access granted at In Door
12	Access granted at Out Door
13	Access granted at First Door
14	Access granted at Second Door
20	Door open too long
21	Forced door
22	Unit has been tampered with
23	Door closed
40	Accessed via the Engineering Master Code
41	Accessed via the Administrator Master Code
42	Reset Master Code
43	Quit Programming Mode
50	Output 3 activated

14.10.4 Miscellaneous

In the Misc. Menu the following can be defined:
- **Language**:   This option will display all the programming menus in the selected language
- **RS232:**   Allows the connection of a Printer or a Modem to O2LA. The default connection is PC i.e. PRO software. RS232 permits only one setting for PC, Printer or Modem. Enter 0 to disable or 1 to enable these settings.
- **Master codes:** The Administrator and Engineering Master codes can be changed.
- **Holiday:**   The system allows for the programming of up to 64 holiday days.

Note: *In the O2LA, menus can be displayed in one of two languages at any given time. The languages available will depend upon the firmware version loaded into the micro controller. Firmware versions with different combinations of languages are also available.*

Caution: *Once a holiday date is entered, the same date will automatically apply for each consecutive year. It is therefore strongly advised to re-program holiday days each year.*

Holiday days must be programmed day-by-day and cannot be programmed as one single holiday period.

Enter programming mode and select the Setup Menu as follows:

LCD Display	Function
Date Time ↑ Events Misc ↓	*Press ↑ or ↓ to scroll /move to the Date menu* Press 'E' to select
Date Setting	
EUR US	Select EUR for European date format or US for American date format and Press 'E'
DD / MM / YY	Enter the current "Date / Month / Year" and Press "E" to store the date
Date Stored	Date is confirmed
Date Time ↑ Events Misc ↓	*Press any key to return to Setup Menu.*
Time setting	
Date Time ↑ Events Misc ↓	*Press ↑ or ↓ to scroll /move to the Time Menu* Press 'E' to select
##:##:## DST: **Y/N**	Enter the timing in HH: MM:SS format Example: 10:45:26 Select 'Y' to enable Daylight Savings Time if required Press 'E' to store the setting
Time Stored	Time is confirmed
Date Time ↑ Events Misc ↓	Press any key to return to Setup Menu.
Events Setting	

Date Time ↑ Events Misc ↓ DD/MM HH:MM:SS User Ut/Dr Act ↓ *Eg* 29/05 19:08:52 011 04 41 ↓	Select the Events option from the Setup Menu for the following display; Press "↑" "↓" to scroll the events Press 'C' to escape

Other Miscellaneous setting	
Lang RS232 MC Hol	*Select the Misc option from the Setup Menu for the following display*

To select the Language	
   EN FR Language Stored	Select Lang from the Misc Menu by pressing "E" Press ↑ or ↓ to scroll /move to the required option Select EN for English Language FR for French (Note: Other language choices will also be made available) Press 'E' to store the language setting *The language is confirmed* *Press any key to return to Misc Menu*

RS232 settings	
Lang RS232 MC Hol Printer: # Modem: # RS232 Stored Lang RS232 MC Hol	Select RS232 from the Misc Menu by pressing "E" Enter '0' for disable and '1' for Enable When Printer is enabled Modem is disabled When Modem is enabled Printer is disabled. The RS232 settings are confirmed *Press any key to return to Misc Menu* Select MC from the Misc Menu by pressing "E"

Setting of the Master code	
Adm Engg	*Select Administrator or Engineering Master code with the "↓" key and press 'E'*
Old Adm: ##### New Adm: #####	If Adm is selected enter the Old Adm Master code followed by the new code (New Adm).

Denied	If the old Administrator code entered is incorrect, "Denied" is displayed. *When the new Administrator Master code is entered* press 'E' to store.
Old Engg: ##### New Engg: #####	If Engg is selected enter the Old Engg Master code followed by the new code (New Engg)
Denied	If the old Engineering code entered is incorrect, "Denied" is displayed *When the new Engineering Master code is entered* press 'E' to store
Master code Stored	*The Master code is confirmed* Press 'C' to escape

Lang RS232 MC Hol	*Press any key to return to Misc Menu* Select Hol from the Misc Menu by pressing "E"

Setting of Holiday days	
Hol No: ## Date: DD/MM	Enter the Holiday number Enter date and month from the Holiday list. Press 'E' to store the holiday
Holidays Stored	*The Holiday date is confirmed* Press 'C' to escape

15   Mounting Instructions.

1. Identify a suitable flat and even place for wall mounting.

2. Remove the front cover.

3. Using the base as a template, mark the mounting screw hole positions and drill the holes.

4. Fix the base housing to the wall using the 6 mm diameter wall plugs and 3 wall-fixing screws (4 x 30 CSK Philips) provided.

5. Hook the slot at the bottom of the front cover into the angled bend of the base. This will aid hands-free installation.

6. Connect the wires to the PCB. (Refer to the wiring diagrams in Section 16).
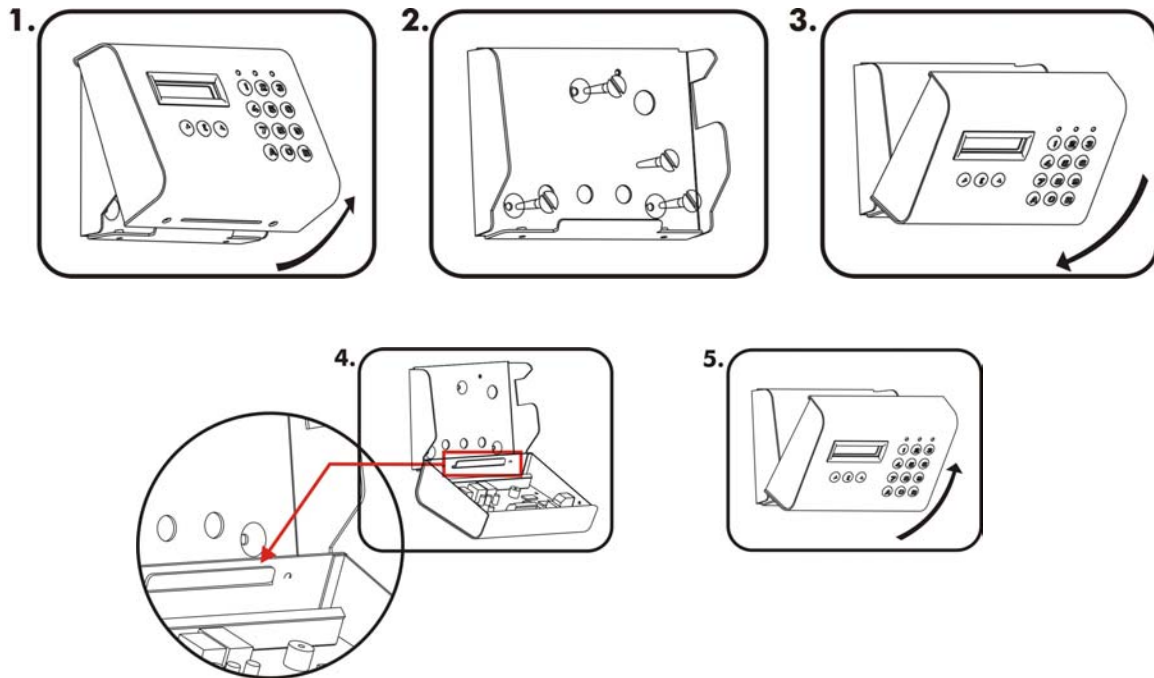
7. Unhook the front cover ► insert the top L-bend of the front-cover into the base housing and slide it down slowly, making sure that the side plates of the base are aligned with the side plates of the front cover.

8. Ensure that the front-cover is completely flush with the housing and fix it firmly with two screws (M3 x 8mm CSK Philips) using the security screwdriver provided.
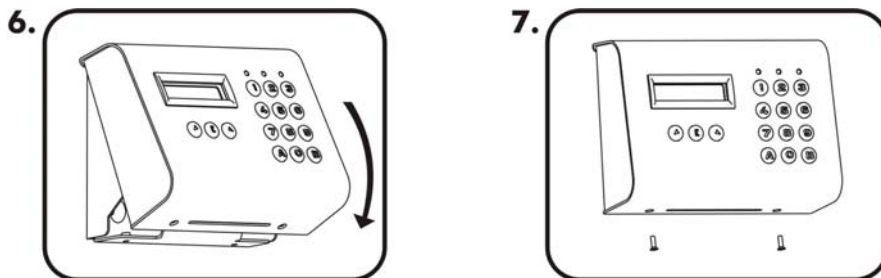

16   Wiring Diagrams

16.1 View of Terminal blocks
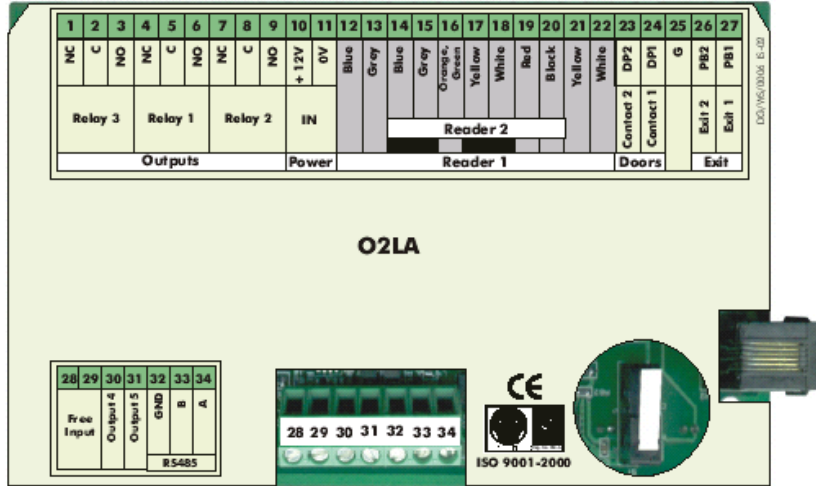
Note:

A cover has been placed over the PCB so that, when flipped open, it reveals the lithium battery, reset button and the jumpers.

Wires-connected to the terminal blocks (28 – 34) should be of sufficient length (approx 200 mm) so that they can be moved freely when the PCB cover has to be opened.
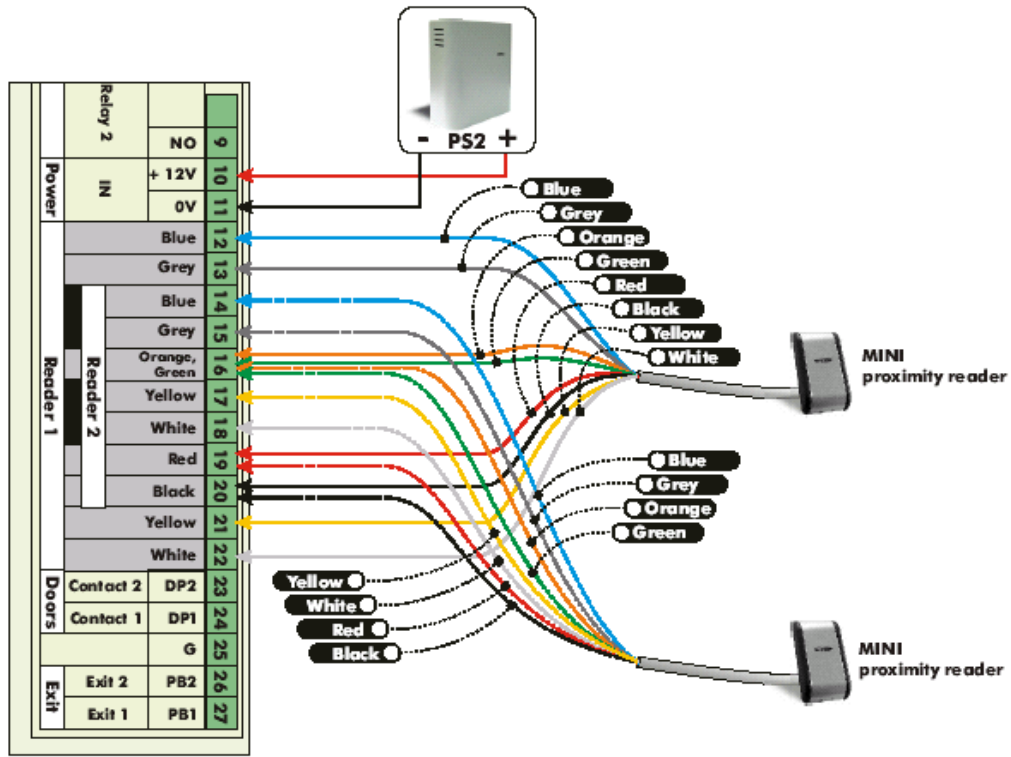
16.2 Power Supply and Peripheral Connection
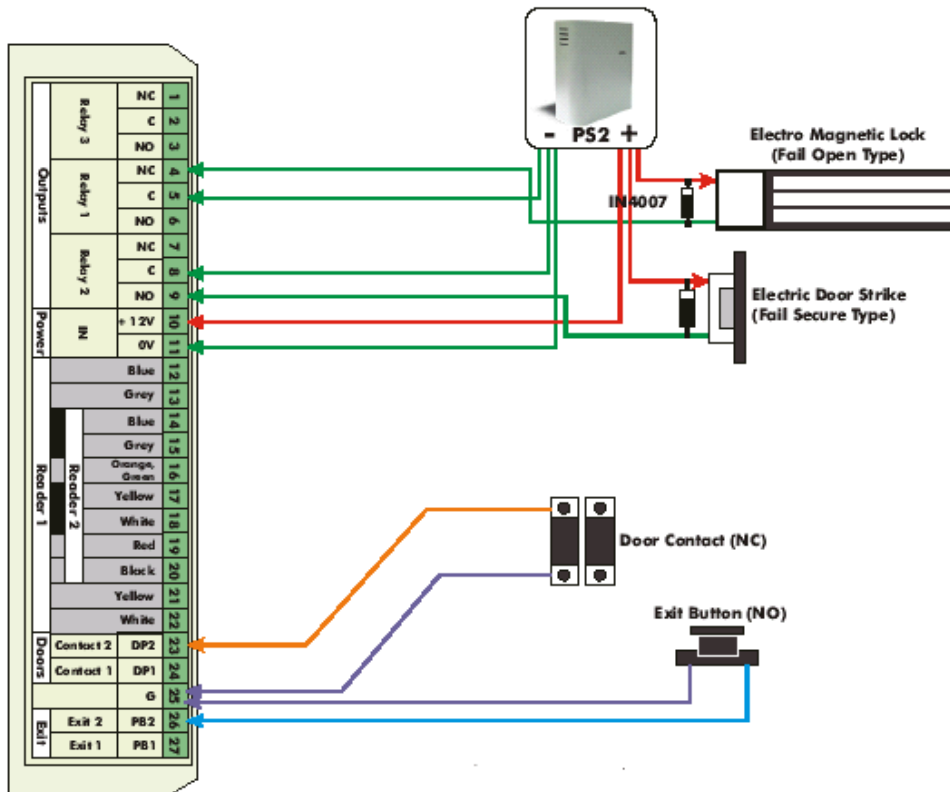
Note: For inductive or capacitive loads, inrush or collapsing currents can be as much as 10 times normal operating current. A fly back diode must be inserted.

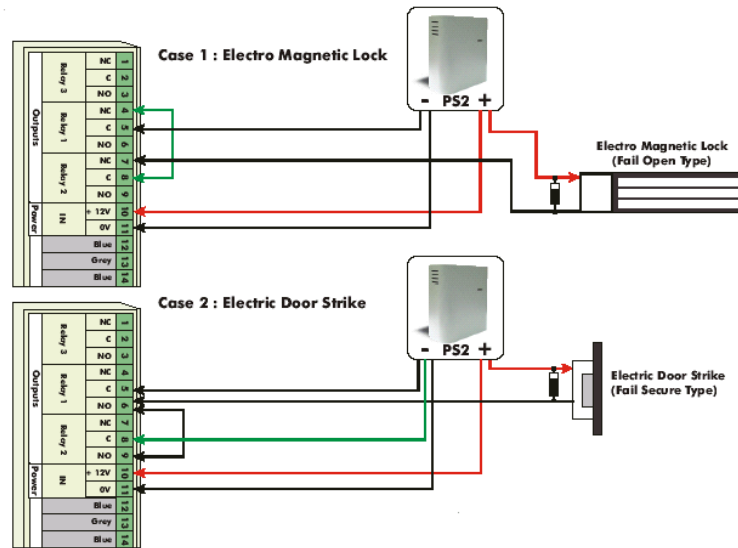## 16.3 One Door Connection
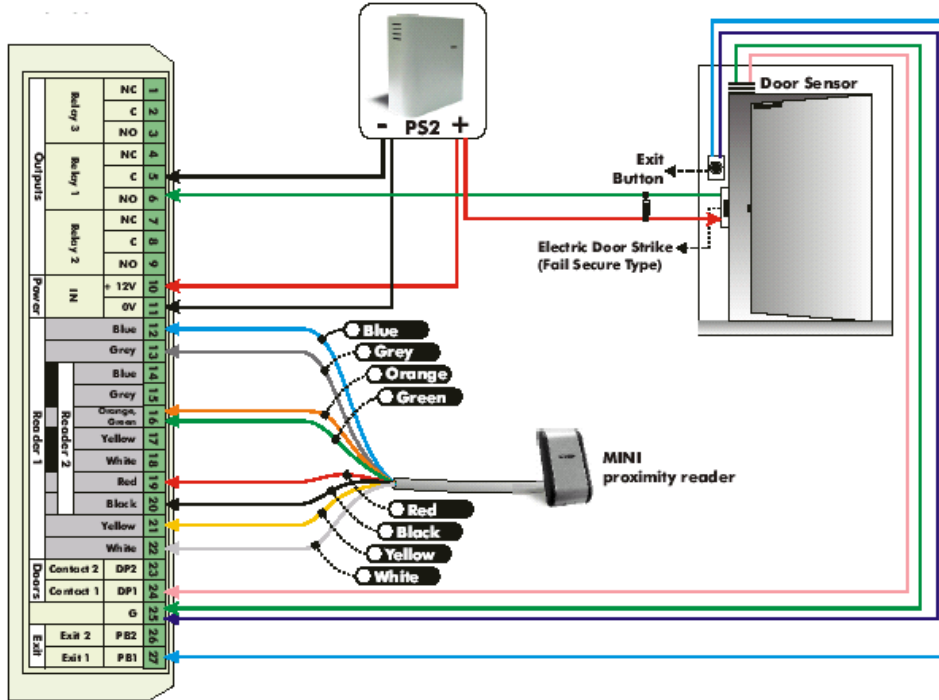
16.4 Two Readers Connection
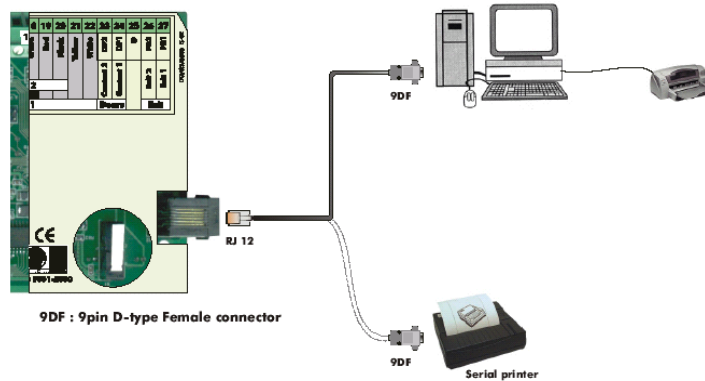

16.5 One Door Connection for Anti-Pass back
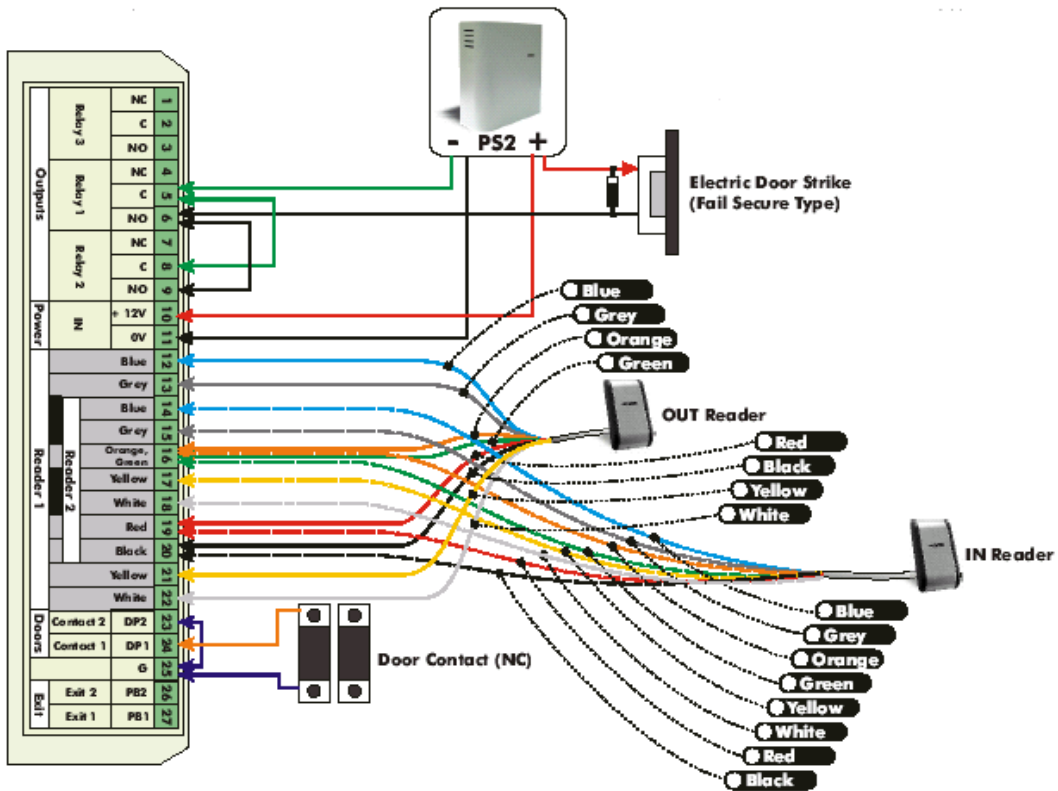
Note: 1. Door Contact 2 (DP2) should be grounded (Refer to Section 12 Jumper J7)
2. Jumper J7 should be closed (Refer to Section12)

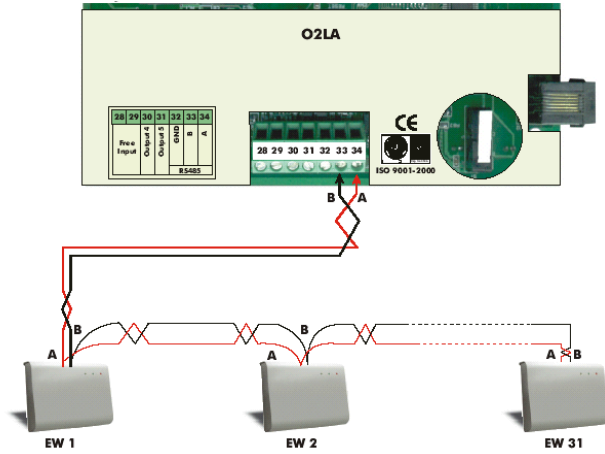## 16.6 Lock connections for Anti-Pass back

Note: The diode used across the EM lock and strike are standard diodes like 1N4007 or similar.

16.7 PC and Serial Printer Connection
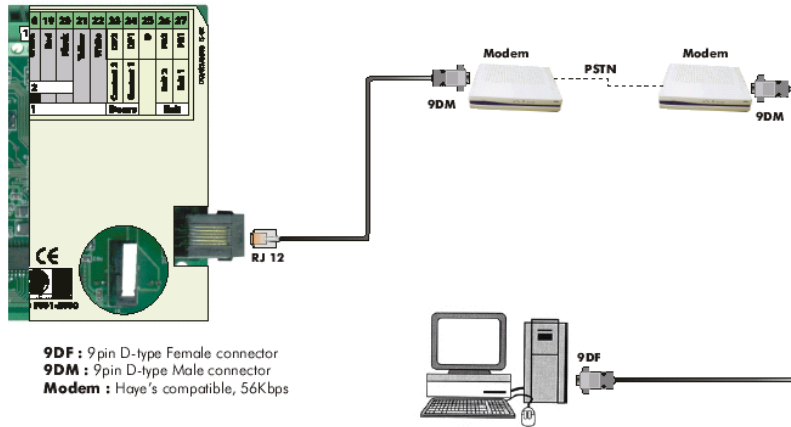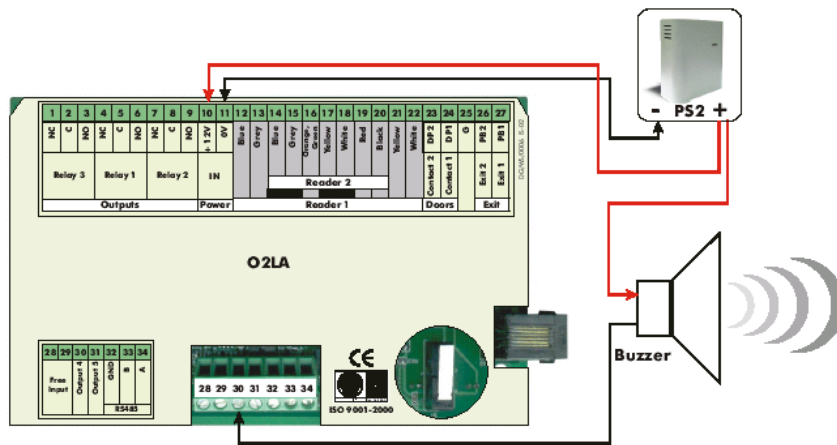

16.8 RS 485 Networking

16.9 Modem Connection
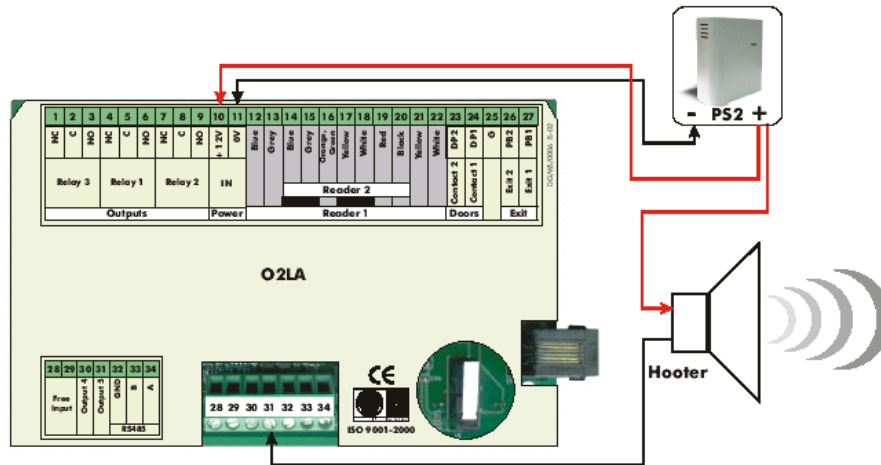

9DF : 9pin D-type Female connector
9DM : 9pin D-type Male connector
Modem : Haye's compatible, 56Kbps

16.10 High Priority Alarm connection

Caution: *Output 4 ► Transistor Output is a solid stage switch (Open Collector to ground capable of sinking 250mA).*

16.11 Low Priority Alarm connection

Caution: *Output 5 ► Transistor Output is a solid stage switch (Open Collector to ground capable of sinking 250mA).*

Output 5 will be triggered when a "Door open too long" event occurs within Time Zone 02.

Appendix A: Glossary

Access Control System

An access control system has *input devices (keypads or proximity readers)* for user identification, electronics (a controller) for validating and decision-making and *output devices (locks, barriers etc.)* for operating access point hardware. The system is programmable to enable the required degree of control.

Anti-Pass back (Real and Timed)
A feature that prevents a user from giving his or her code/tag for use by another. With this immediate re-use is prevented in one of two ways:

Real Anti-Pass back requires that a code/tag is be first used to exit before being re-used again on entry. This feature requires one dedicated reader for entry and a second dedicated reader to exit.

Timed Anti-Pass back prevents a code/tag from being used again until a pre-set time period has elapsed.

Baud Rate

The speed at which serial data is transmitted. With *O2LA it is 9600 bps (bits per second).*

Card

A *plastic identification card with an embedded integrated circuit (IC)* that has a unique encoded number and antenna. Cards function with different protocols and have to be compatible with the readers used together with O2LA or EW.

Code

A sequence of *digits that are keyed in by the user* on a keypad and are read by the system

Door open too long

A condition when a *door remains open for longer than its programmed time* after a valid entry.

DST: Daylight Savings Time

Real time clock and time control software can be programmed to automatically set the clock one hour ahead on the 1st Sunday of April and set the clock one hour back on the 4th Sunday in October. Daylight savings time is disabled by default. To enable this option refer to the Setup Menu .

EEPROM

Electrically Erasable Programmable Read Only Memory. A memory chip used in the O2LA System that retains information even in the event of power failure.

Priority security codes or cards

Upto10 codes or cards allow emergency access in case of disrupted RS 485 functioning or disabling of the Controller. Each is programmed and stored in all connected EW extension units on the network and code validation is not required from the O2LA controller.

Exit button (i.e. REX)

The REX (Request to Exit) push button installed within a secure area, when pressed, allows the user to exit without need for validation. It can be used, for example, by the receptionist to allow visitors to enter a building.

Extension units

Extension units are employed to expand the system and each unit has 2-door control.

Forced door

A condition when a door is forced open without a valid user code or tag.

Free Access

A special feature to enable only 1 door in the system to remain open for a time set in Time Zone 03 without need for card/tag validation. As an example, it can be used to keep a parking lot gate open during the start and close of office hours.

LCD

Liquid Crystal Display. The O2LA controller has a 2 lines of 16 characters.

LED

Light Emitting Diode is a semiconductor device that emits light. O2LA has three LED's: Red, Yellow and Green as indicators.

Man-trap

Prevents a door opening while another door is still open i.e. a special configuration where one door must be closed before another door can open, as in an air-lock situation.

Master code

A specific code, for entering into programming mode. O2LA Master Codes are 5-digits in length i.e. from 0 to 65535. Enter the code and press "B" to validate. A Master code can never be a card or a tag.

Modem
Sends and receives digital data via a telephone line. These are rated by their speed or Baud rate.

Readers

Readers are slave units that operate with the controller. They can be a keypad, proximity reader, biometric reader or a radio transmitter etc. Proximity readers from XPR are compatible with EM4002 formatted cards.

Reader Group

A Reader Group is a group to which specific units (00 to 31) are assigned with 'rights' for the readers connected to those units.

RS232

A common type of computer interface for serial data transmission over distances of upto15 metres, or 50 feet. Employs a standard 9-pin D-type connector. The O2LA system uses the RS232 interface to connect to a computer, printer or modem.

RS485

RS485 is a widely used international standard for multi-point data communications. It enables up to 32 nodes to be connected through a simple twisted-pair cable with a length of up to 1 Km or 4000 feet.

Tag

Tag, in the form of a Card or Key fob with embedded IC encoded with a number and antenna is sensed by a reader. Proximity readers from XPR are compatible with EM4002 formatted cards.

Tamper event

An event indicating that the controller has been unlawfully interfered with. If the output associated with the tamper event is connected to a siren, it can then be activated.

Time Zones

Scheduling, with time restrictions, for day or days of the week from Sunday to Monday and Holidays. Each time zone has 3 periods, or shifts, that can be programmed.

Unit

The Unit Menu allows settings definition for each unit (output operating time, Mantrap or Anti-Pass back features and Free access for special programming for 2 outputs).

User Group

Users, or those using the system, must belong to a User Group.

The User Group determines where and when a user's card or code will be valid (to a group of doors with a time schedule) with or without Anti-Pass back.

Wiegand
Industry standard protocol applicable to keypads or readers. O2LA accepts Wiegand 26-bit protocol readers.

Appendix B: EW Features

- Up to 31 EW units can be connected to O2LA, via a RS485 bus for 64-door control
- Supports 2 Wiegand 26-bit readers
- Built-in intelligence recognizes 10 codes/ cards for use during RS485 malfunction or system failure

Appendix C: PRO Features

- MS Window based, user-friendly software.
- Menu driven operation, via dialogue boxes and drop -down menus
- Online Monitoring and Programming
- Reporting
- Data transmission from remote extension units and a control unit.
- Diagnostics on status of extension units
- Archive and online help files.

Appendix D: Troubleshooting

Observations	Actions
O2LA Fuse blows	- Check proper Polarity - Check if the Input Voltage is between 12 –15 V DC. - Contact Manufacturer.
O2LA is not working. a) Green LED on the PCB is not lit and no LCD display. b) Green LED on the PCB is lit but no LCD display.	- Check the power supply connection. - Check the fuse in the O2LA unit. - Contact the installer.
Abnormal display.	- Press the reset button on the O2LA unit. - Refer to the Installer Manual for more details.
The Date and Time in the LCD display	Check the Lithium battery in the O2LA

is showing the default value, even after it is set /stored	unit.
The Master code is lost	Close jumper J1 and press the RESET button in the O2LA unit. *(Refer to Section 14.4)*
The entering of codes through the keypad or via O2LA programming is not possible.	- System is in Online mode, hence keypad is disabled. - In the PRO software main screen, click the *Go offline button* to enable programming via the controller.

a) Readers are not working.
b) Readers working but only intermittent sensing of cards.
	Check the Reader connection – D0, D1. + , - etc.
	
	At the point of installation avoid the following:
	    Metal surfaces
	    High power electric cables.
	    Interference with other RF sources.
	    Interference with other proximity readers;
	minimum 1 metre distance should be maintained between two readers.

RS 232 (PC) communication is not established.	Check the programming / settings in O2LA for RS232 communication. Ensure proper connection of the RS 232 cable Ensure the port setting in the PC and the global setting parameter in the PRO Software. Registration / Serial Key are correct
Modem communication is not established.	Type of modem used should be a Haye's compatible. Check the programming / settings in O2LA for Modem communication. Ensure proper connection of the RS 232 cable. Only the cable provided with the product should be used.
Serial Printer.	Refer to *Section 7.5* for a list of compatible serial printers Check the programming / settings in O2LA for Printer communication. Ensure the proper connection of the RS 232 cable. Only the cable provided with the product should be used. .
RS 485 communication is not	Check the following;

established (between O2LA and the EW unit(s))	a. The power supply to the *EW* unit and EW *Red LED is ON*.
	b. The wiring between O2LA and the EW unit(s)
	c. Wiring should be done in daisy chain format i.e., an O2LA terminal should be connected to terminal A of an EW unit. Similarly for the B terminal.
	d. The shield of the cable should be grounded at both ends.
	e. Dipswitch address:
	  • Set the dipswitch address before powering up the EW
	  • All EW units should have unique addresses.
	  • (The address of O2LA is 00).
	  • The sixth dipswitch should always be 0 (OFF)

RS 485 communication is not stable	The total network cabling should not exceed 1 Km in length. Termination resistor of appropriate value should be added at end units of network *(Refer EW manual for more details).*

<mark>Index</mark>

17   Electrical specifications

Input Voltage	:	12 – 15 V DC (Regulated)
Current Consumption	:	130mA (Standby)
		250mA (Maximum)
Display:		2 x 16 character backlit LCD
Keys:		12 + 3 alphanumeric
Inputs:		2 request-to-exit (NO)
		2 door-monitoring contacts (NC)
		1 Free input (Opto isolated)

Outputs:

Ouput1	RELAY	10A
Ouput2	RELAY	10A
Ouput3	RELAY	2A
Ouput4	TRANSISTOR	250mA, Open Collector
Ouput5	TRANSISTOR	250mA, Open Collector

Fuse:	500mA Cartridge Fuse
Lithium Battery:	3V, 230 (mAh) Nominal capacity, part number CR2032
RS232 (RJ12):	PC or Modem (TX, RX, RTS, CTS, GND), 15 metres (50 feet) distance.
RS485:	Connects up to 31 EW extension units at 1 km maximum distance.

18   Mechanical Specifications

Dimensions (mm): 180(L) x 129(W) x 53(H).
Housing: Silver painted metal housing.
Poly carbonate Keys
IP Factor: IP31 (International Protection rating)

Annexure A: PRO-Access Management software (Quick Guide)

The O2LA[TM] PRO software provided with this kit will expand the user-friendliness by leaps and bounds. It will help you manage your O2LA unit and the information stored within **it** in a far more convenient manner. This Microsoft® Windows [TM] based software has **three** basic functions; easy & user-friendly programming, real-time monitoring and reporting. Using normal GUI techniques (dialog boxes, drop-down menus, etc.), even novices can use the on-line O2LA system within a few minutes. Moreover, you could choose the language of your choice among English, French or Italian.

The PRO tree structure helps to conveniently define the User groups, Time zones, Holidays, Reader groups and Users. Some of the other features in the O2LA Pro Software that make working with it easier are:

Configuration: This menu helps to customise the report layout for your company. This helps to edit the header and footer for reporting by adding the company logo, name, etc.


Sequential Tags: Allows the quick creation of a log of sequential tag/card numbers that can later be assigned to different users.

Global system parameters: Allows the setting up of parameters for various functions like O2LA to PC communication, data backup, controllers, synchronization and the O2LA-PRO operating language.
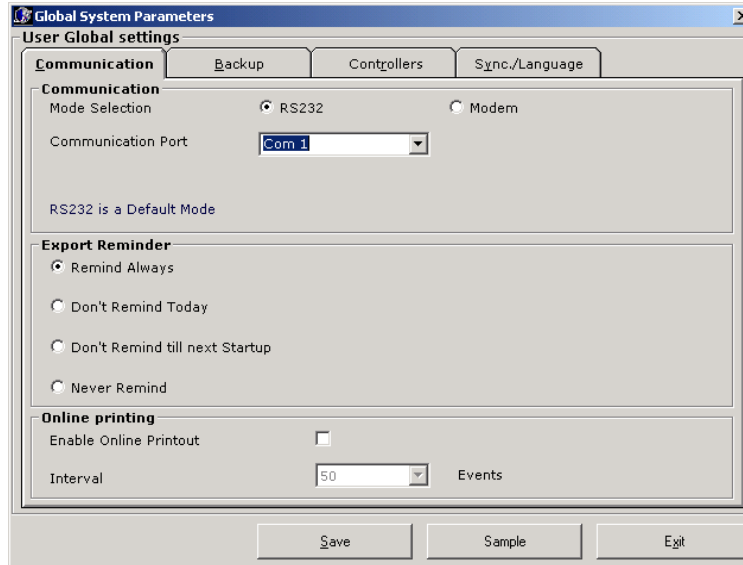

Search: Allows a details search to be performed for any user or group of users with common parameters.
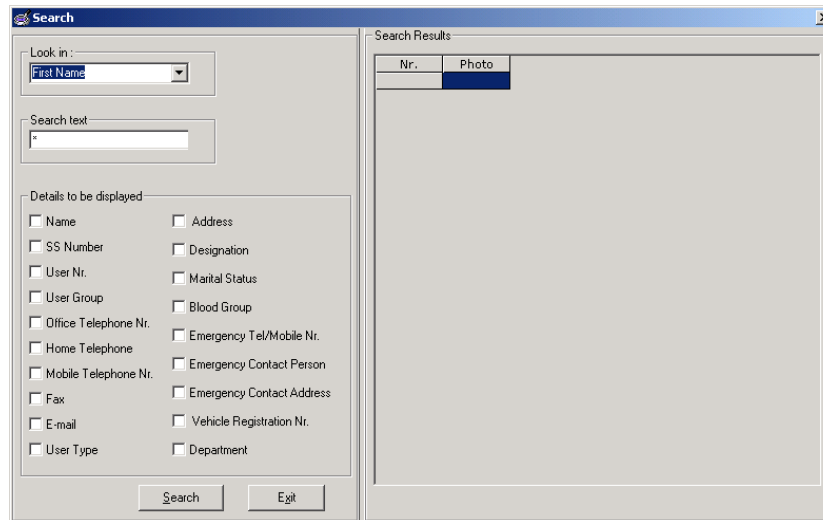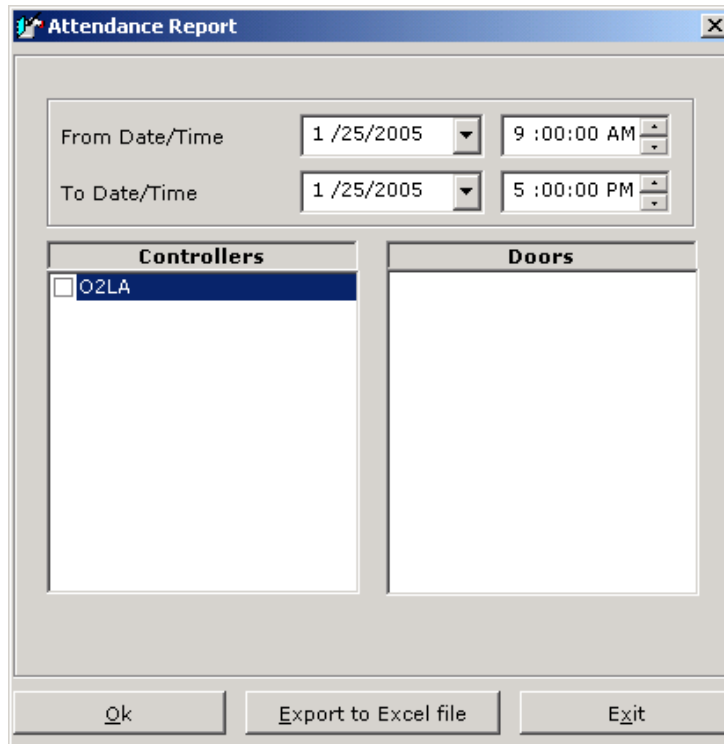

Report: Helps to retrieve stored information in a customized way i.e. by presenting only that information desired. These reports could also be exported to MS Office applications to facilitate further analysis. They can equally be used for maintaining time-and-attendance records.
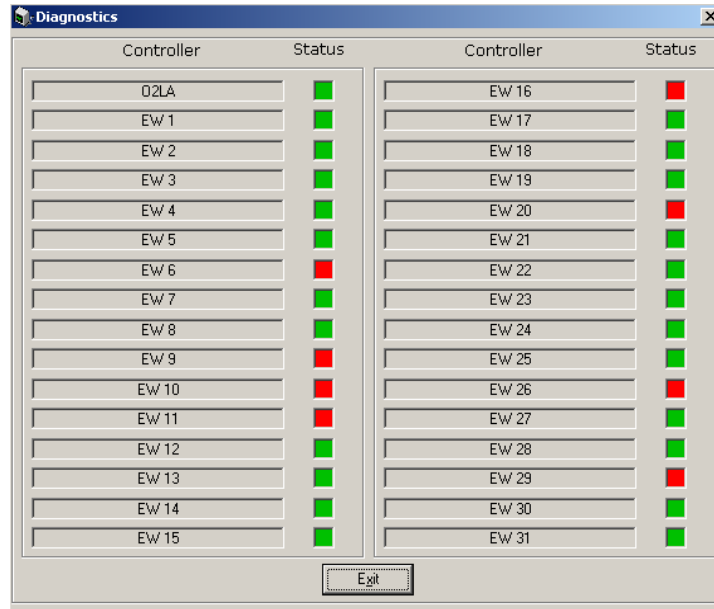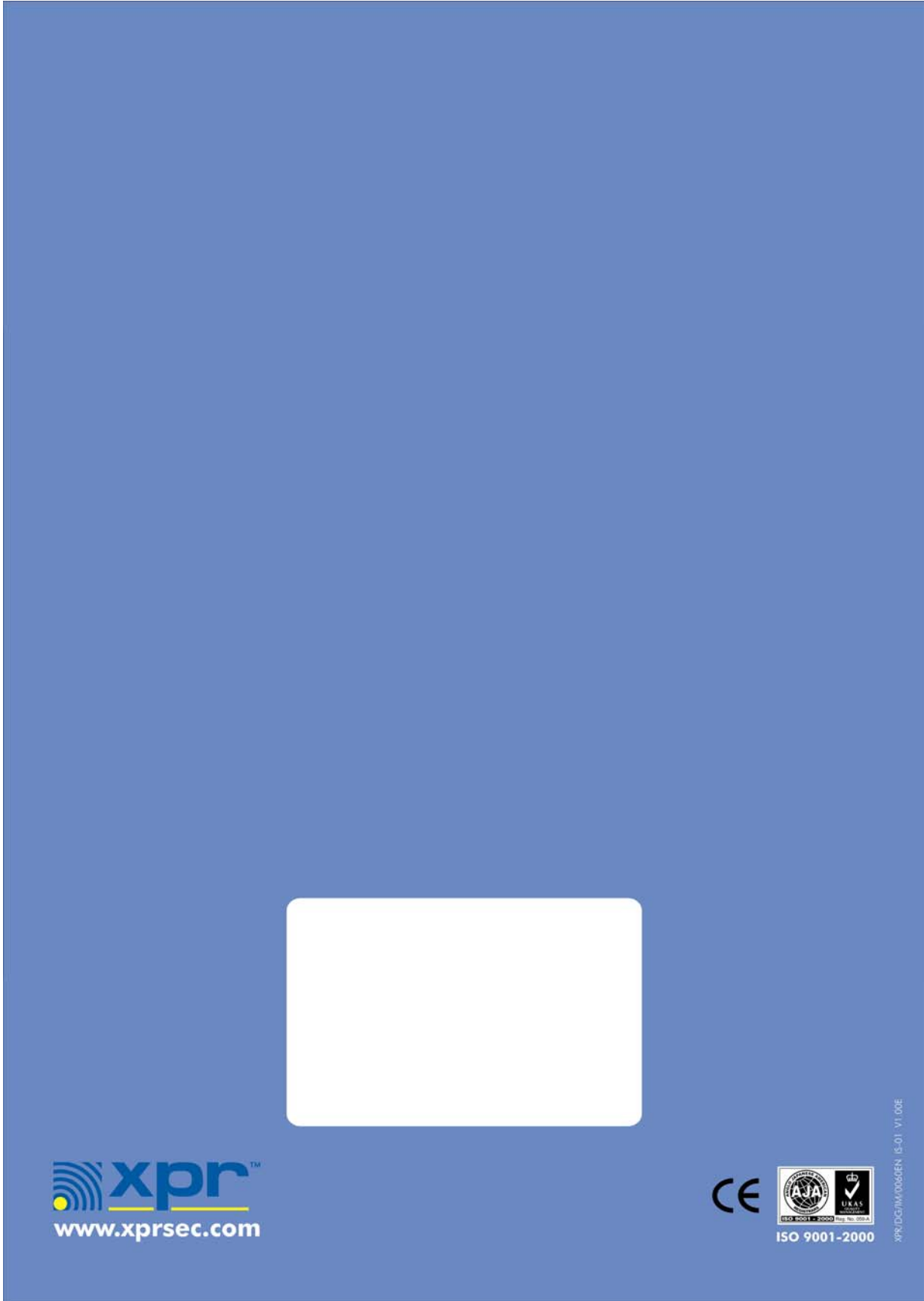
Events Report
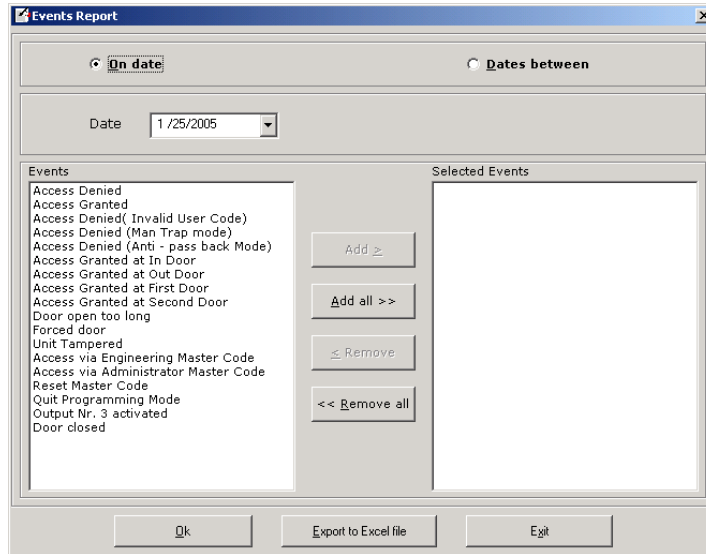
Attendance Report

Diagnostics: This is an on-line monitoring option to keep track of all the extension units connected to the O2LA in networking mode. This helps to check from a central location whether all the networked units are functioning correctly.

For more details on the PRO Access Management Software, install the software on a compatible PC and refer to the help file provided in the PRO software.

ISO 9001-2000