

Digital Door Entry System
AQUARIUS
Specification

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The company reserves the right at all times to amend
Specifications without prior notification***

Technical Support

For all technical enquiries relating to any information within this specification for the Aquarius system and accessories,

Please telephone: **01268-548248**

Or fax your enquiry to us on: **01268-548257**

Alternatively, Email your enquiry to us on: **info@planit-security.co.uk**

Please note: Enquiries can only be dealt with during normal working hours.

You may write to us at:

Planit Security Contracts Limited
23 Saffron Court
Southfields
Laindon
Essex
SS15 6SS

SYSTEM OVERVIEW

The equipment within this specification shall consist of an integrated microprocessor security system providing audio door entry control, other options shall include full concierge control plus a management database, and networking facilities to other systems in the OptimR range. Communication between systems shall utilise Stat-bus technology and protocol to provide greater reliability and lower installation costs.

The system shall be designed to operate as a comprehensive stand-alone system or when networked linking up to 24 buildings with central or local touch screen operated control stations. Touch screen presentation shall be via icons and graphics, the latter being individual to suit site requirements.

The system architecture shall incorporate a network of 16 way hub units, each unit incorporating plug in 16 way PCB's for ease of installation and maintenance. The concept of plug in PCB's shall ensure system isolation in the event of a fault or user abuse and that replacement of system parts shall not necessitate the disconnection of local wiring. Isolation and communications protocols shall be designed so that is both wires in the apartment are short-circuited together, or connected in either orientation, there would not be an adverse effect on the operation of the remainder of the system. Solely fused type isolation will not be acceptable.

The standard system shall operate with keyboard or individual push button entrance panels having the capacity to serve up to 512 dwellings.

The system shall have a minimum of four simultaneous audio channels, one channel always to be used by the control stations and three for panel to flat calls.

All power supply units shall be electronically protected against short circuits by roll over technology which disconnect the system until the fault is cleared, thereafter, reinstating the normal supply voltage.

The security system shall self-monitor all devices connected and a LCD diagnostic display shall be incorporated in each hub. Where a concierge forms part of the system design, system faults shall be reported to the operators touch screen and logged to database and printer.

To assist subscribers with hearing difficulties timed strobe lambs; replacement inductive ear-pieces and extension buzzers can be fitted to the handset.

The system shall have a minimum of the following:

1. 2 wire bipolar line powered phones and panels (voice and data over power)
2. 4 simultaneous audio channels
3. Digital and function panel configurations
4. Built-in panel call barring
5. 512 phone and panel capacity
6. 16 way phone / panel hub controllers
7. Full phone and panel to system isolation
8. Vandal resistant design
9. Built-in hub battery charger
10. LCD display to monitor system functions

SYSTEM OPERATION

To call an occupier the visitor selects and depresses the appropriate buttons on the digital entrance panel. The number called shall be indicated on the display. Any incorrect numbers can be cancelled by depressing the cancel button on the entrance panel.

When the call button is depressed an electronic call tone shall sound within the apartment telephone handset called, whilst maintaining a reassurance tone at the panel. When the occupier lifts the handset two-way private, conversation can commence.

Because of the simultaneous multiple audio channels, the system will provide a busy indication when the number of panel in use exceeds three.

If the occupier wishes to admit the visitor, upon operation of the door release switch on the apartment telephone handset, the entrance panel display reads door open to signify to the visitor the door is released while a corresponding red LED flashes on the handset, advising the occupier that the door is actually released. Only the person called can release the door.

When the occupier wishes privacy the depressing of the privacy switch on the telephone will illuminate the green LED and stop all calls for the pre-set period (8 hours) extinguishing when the timer circuit switches off.

1. Entrance Panel

- 1.1 The entrance panel fascia is to be manufactured from 3mm (12 Gauge) BS316 stainless steel plate with a straight grained finish. Entrance panels shall be front fixed with six triangular headed vandal resistant screws.
- 1.2 The entrance panel back box shall be constructed from galvanised sheet steel having welded corners with six front and four rear fixing positions. To provide protection for the entrance panel fascia the back box shall incorporate a welded stainless steel mitred bezel. Back boxes shall be a minimum 75mm in depth.
- 1.3 The push buttons within the entrance panel fascia are to be of stainless steel construction at a minimum size of 20mm. All buttons shall be round and flush fitted with an internal shoulder to prevent "knock through" as well as the ingress of any moisture. The push button contacts shall be of microswitch type sealed to IP67. The buttons must be individually fixed by studs welded directly to the stainless steel fascia; secondary fixing plates are not acceptable.
- 1.4 All digital entrance panel engraving is to be highlighted by black stove enamel showing the call numbers 0 through to 9 plus three separate function buttons marked as **"CALL"** **"TRADES"** and **"CANCEL"**.
- 1.5 As an addition to the standard button configuration a **'CONCIERGE'** button can be added to enable panel communication with a concierge station if the system is being networked.
- 1.6 All functional entrance panel engraving is to be highlighted by black stove enamel showing the flats, which each panel serves plus a button, marked as **"TRADES"**.
- 1.7 The digital entrance panel shall incorporate a backlit LCD graphics display located behind a 6mm-lexon-window aperture. The lexon shall be of mar resistant grade and fixed in such a manner as to be highly resistant to impact.

2. Entrance Panel Location

- 2.1 The bottom of the panel shall be 1350mm above FFL, final heights and location to be confirmed with the engineer prior to fixing. The entrance panel location shall be carefully selected so as not to be subjected to the extremes of weather.
- 2.2 The entrance panel location shall also take into consideration adverse ambient noise levels i.e. road and traffic conditions.

3. Microphone Amplifier Unit

- 3.1 The amplifier unit shall operate efficiently over a wide frequency range with sufficient sensitivity to maintain speech clarity over normal ambient noise levels without distortion. Level adjustment for the voice-operated audio (VOX) shall be in both directions through an integrated circuit with a common control for the adjustment of microphone and speaker levels.
- 3.2 The amplifier shall be securely fixed behind a grille area in the panel fascia and shall be further protected by an offset slotted plate to restrict the entry of sharp objects. The amplifier shall be fixed via studs to the

entrance panel fascia.

4. Mechanical Lock Release

- 4.1 The lock release shall have an extended wrap around faceplate, which must be capable of withstanding a total loading of 1300kg, and still operate under a side pressure of 15kg. The lock release shall also contain a microswitch for door open monitoring. Each lock release shall be fixed by triangular vandal resistant screws.
- 4.2 As a backup to the lock microswitch a set of changeover contacts shall be fitted in the top of the doorjamb and wired in series with the lock microswitch.

5. Magnetic Lock Release

- 5.1 The magnetic release shall be housed in satin stainless steel cases, with cadmium plating on all ferrous surfaces. The magnalock shall be of a direct pull type, fitted with reed switch outputs for door open monitoring.
- 5.2 As a backup to the magnalock reed switch a set of changeover contacts shall be fitted in the top of the doorjamb and wired in series with the lock reed switch.

6. Emergency Services Switch

- 6.1 The Emergency Services switch fascia is to be manufactured from 3mm (12 Gauge) BS316 stainless steel plate with a straight grained finish. Emergency switches shall be front fixed with four triangular headed vandal resistant screws.
- 6.2 The Emergency Services switch back box shall be constructed from galvanised sheet steel having welded corners with four front and four rear fixing positions. To provide protection for the Emergency Services switch fascia the back box shall incorporate a welded stainless steel mitred bezel. Back boxes shall be a minimum 70mm in depth.
- 6.3 The Emergency Services switch shall only be activated by a special drop key, made to the Emergency Services specification.
- 6.4 The Emergency Services switch is to contact rated at 28V DC 15A, with a temperature range of -55°C to +85°C. Cable connections are to be via screw and cup washers.
- 6.5 All Emergency Services switch engraving is to be highlighted by red stove enamel with the text
- a) **"EMERGENCY SERVICES"** (FS5 model)
 - b) **"FIRE CONTROL"** (FS4 model)
- Clearly displayed above the keyhole.

7. Emergency Services Switch Location

- 7.1 The Emergency Services switch shall be fixed above the main entrance panel, final heights and location to be confirmed with the engineer prior to fixing. The Emergency Services switch location shall be carefully selected so not to be subjected to the extremes of weather.

8. Hub Distribution Unit

- 8.1** The Hub controller unit shall be housed within a control box, which shall be IP rated to conform to final installation location.
- 8.2** The Hub motherboard shall be capable of retaining 1 x 16-way high power interface board, which shall contain isolating circuitry to prevent system interference via cable or phone faults.
- 8.3** The Hub controller shall contain a non volatile RAM to protect the tenant data and configuration information in the event of system or component failure
- 8.4** The hub controller shall have 4 simultaneous audio channels
- a) Channel 1 firmware dedicated to the concierge.
 - b) Channels 2 – 4 firmware dedicated to panel to flat calls.
- 8.5** Each hub unit shall include the following features:
- a) Call isolation circuit (it shall not be possible to interconnect two dwellings by pressing two buttons simultaneously)
 - b) System busy circuit
 - c) System active timer
 - d) Internal trades clock with 3 On-off time settings
 - e) Power input circuits electronically protected against short circuit
 - f) The terminal strips shall contain wire protection leaves and captive screws
 - g) Provide subscriber to subscriber speech isolation
 - h) Incorporate discrete lock release circuit
 - i) Privacy timer (8 hour)
 - j) An LCD display to monitor system functions
 - k) Programmable system function (trades, time,date,)

9. Main System Power Supply

- 9.1** The power supply shall be housed in a control box IP rated to conform to the final installation location. The control box shall have space for a minimum of two 12 volt 24ah sealed lead acid batteries.
- 9.2** The power supply unit shall be rated to enable the powering of the system under full load (+24v to +40v DC at 5amps) whilst maintaining the standby batteries.

10. System Battery Backup

- 10.1** The system shall use sealed lead acid batteries to provide the backup supply voltage in case of mains failure
- 10.2** The battery output shall be calculated in amp/hr sufficient to maintain the system for a minimum period of four hours.
- 10.3** The battery backup system shall also have protection against deep battery discharge.

11. Audio Apartment Telephones

- 11.1** The telephone shall be constructed from A.B.S. impact resistant toughened plastic, and be suitable for wall mounting.
- 11.2** The telephone door open and privacy LED's shall be labelled by "hotstamping" adhesive type labels are not acceptable.
- 11.3** The telephone shall also include the following features:
- a) Duplex speech (voice operated audio (VOX) to entrance panels)
 - b) DC sounder and ringing tones
 - c) Facilities to accept up to 2 definable alarm inputs
 - d) Self monitoring to local hub controller display
 - e) Operate on 2 wires (bipolar)
 - f) Lock release
 - g) Permanent function indication
 - h) Optional door open LED (red)
 - i) Optional privacy LED (green)
 - j) Optional concierge LED (orange)
 - k) Call concierge button
 - l) Privacy on/off switch (timed by the hub units)
 - m) Lock release confidence flashing LED

12. System Cabling

- 12.1** All low voltage (ELV) cabling shall use BT CW1308 telephone multipair cable to the manufacturer's specification and drawings.
- 12.2** All cables shall carry spare conductors above the actual number of conductors required.
- 12.3** All power cables shall be rated and sized as per the manufacturer's specification and drawings.
- 12.4** All cables shall be identified with cable markers clearly showing the purpose or dwelling it serves.

13. Installation And Commissioning

- 13.1** The installer shall obtain from the manufacturers a full set of clear equipment connection diagrams, showing all cables and equipment connection diagrams.
- 13.2** The commissioning and installation procedures shall be executed strictly in accordance with the manufacturer recommendations and current I.E.E regulations.