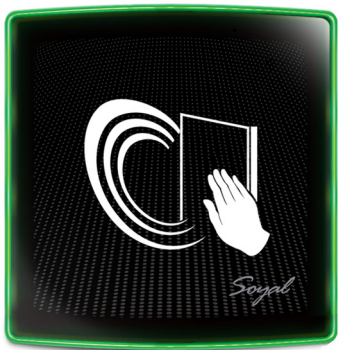
AR-888 Series

Technical Manual



AR-888PBI Request to Exit.

AR-888H Controller with keypad and reader

AR-888U Reader

March 2022

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SYSTEM OVERVIEW

AR-888 Series Controllers, Readers & Exit Buttons

The AR-888 Series family of devices consist of a Controller with built in touch keypad and reader, a reader and a capacitive Exit button. Each device has on outer illuminated rim which will illuminate Red or Green depending on connections and function.

All units are designed to be mounted on a flush single socket outlet back box (47mm depth)

Key Features: AR-888H Controller

- **Built-in Proximity reader and Keypad**
- **Reading range 5– 10 cm**
- **10-24V DC**
- **Door relay contacts 1 x N/O, 1 x N/C form C, 24V 1A DC rated (Non Inductive)**
- **3,000 User card capacity**
- **External Wiegand reader input**
- **32 floor lift control (with additional equipment)**
- **Door Monitoring**
- **Code in/Code out (with additional Wiegand Keypad)**
- **Input for Egress Button**
- **Network capability**
- **Duress Code**
- **Optional Lock Output - Timed 0.1 to 600 seconds, Latched On/Latched Off**
- **Alarm function for Tamper, Forced Entry, Duress and Door Open**
- **Add tokens/cards using built in reader**
- **Buffer for up to 1,500 Transactions**
- **Real Time Clock**
- **2x Auto Open Time Zones in Stand-Alone mode, can be programmed via software**
- **IP55 rated**
- **Audible and visual indication of token / code**
- **Housing material ABS / PC panel**

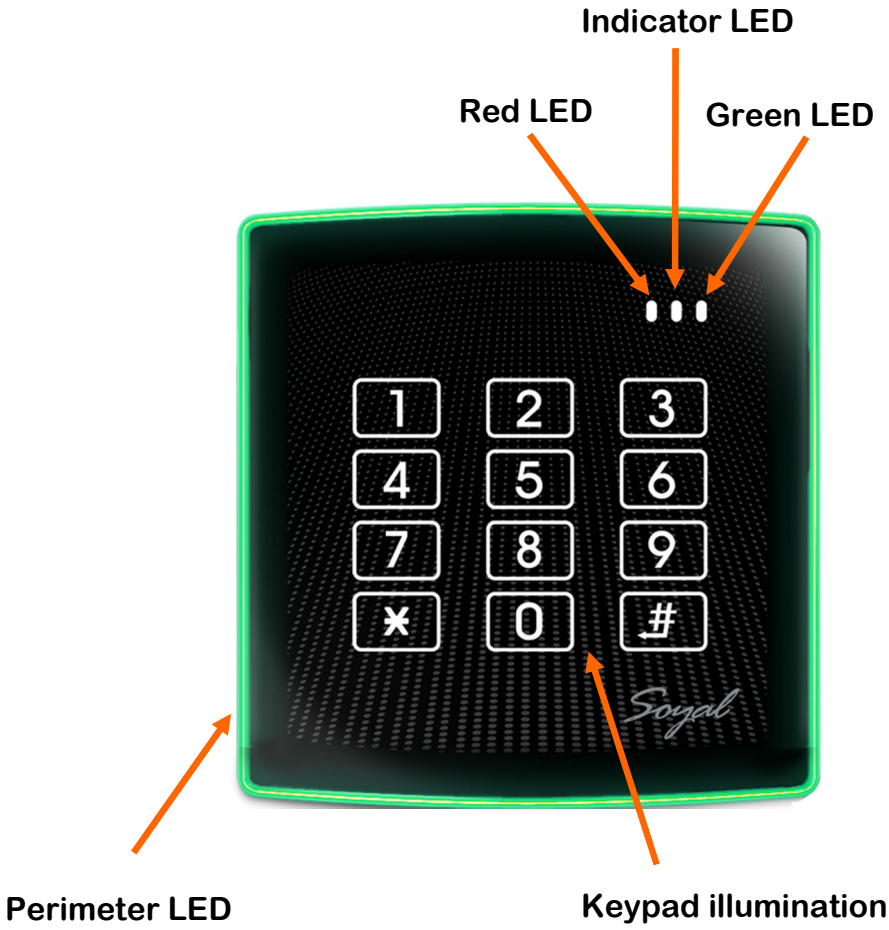
Key Features: AR-888 U or K Reader / Keypad

- **Proximity Reader and/or Keypad**
- **Reading range 5-10 cm**
- **10-15V DC**
- **Communication Interface Wiegand WG34**
- **Baud rate 9600 bps**
- **Audible and visual indication of token / code**
- **IP55 rated**
- **Housing material ABS / PC panel**

Key Features: AR-888PBI Capacitive Request to Exit Touch less button

- **Detection range 5-20 cm**
- **10-15V DC**
- **Output contacts 1 x N/O, 1 x N/C form C, 24V 1A DC rated**
- **Power Consumption 12V DC 65mA max activated, 35mA standby**
- **Visual indication of operation**
- **IP55 rated**
- **Outer edge colour selected via jumper (Red or Green)**

DEVICE INDICATORS



For controllers, keypads and readers the above indicators apply.

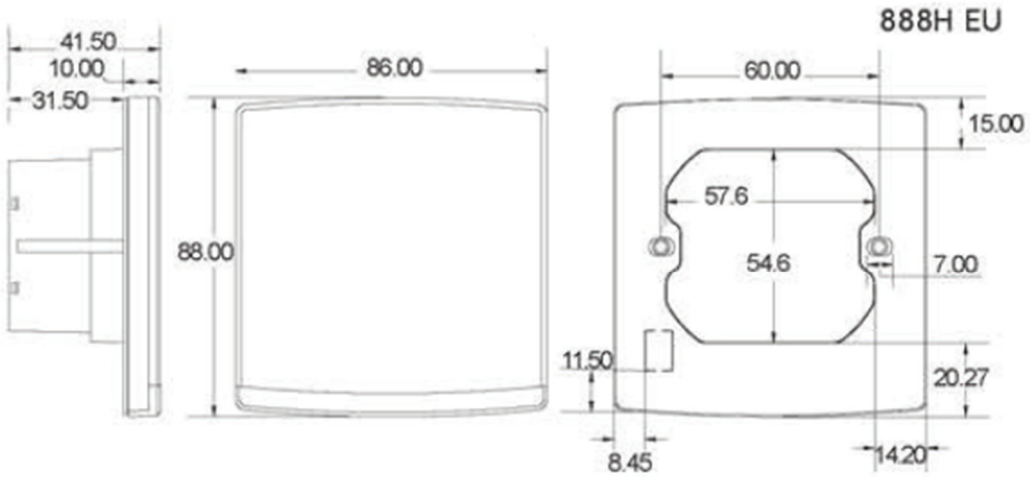
The perimeter LED will pulse Red for rejected token or keycode.
The perimeter LED will pulse Green for accepted token or keycode.
The Perimeter LED will Flash Red if an alarm condition is detected.

Keypad illumination is low when the device is in standby, keypad illumination is high when the device is active.

The Indicator LED will pulse slowly when the device is in standby mode. The Indicator LED will pulse rapidly when the controller is active.

The Red and Green LED's can be switched on and off via separate external inputs if required (CN9)

DIMENSIONS AND INDICATIONS



Fixing centres suit a standard 'MK' single gang back box, if the controller is being fitted to a flush back box a 47mm deep back box is recommended. An optional 10mm spacer MPLA888 can be used between the controller/reader and the back box to improve clearance for connections in the back box.

Audio Indications

The system will beep for every key press. When entering programming 4-8 beeps will identify the operating mode

Visual Indications

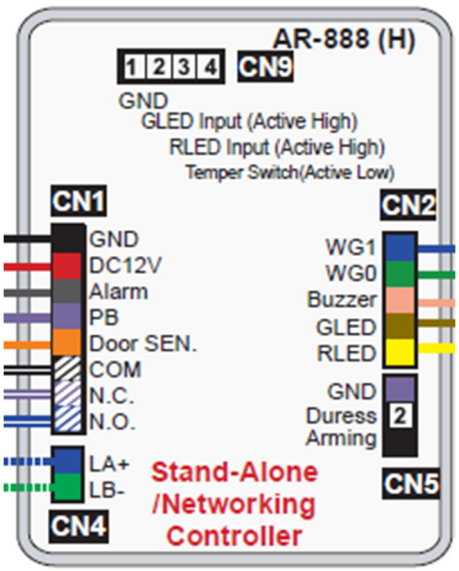
In standby the White LED is pulsing slowly. The Keypad is illuminated at a low level.

In programming mode the white LED is pulsing rapidly, the Keypad is fully illuminated .

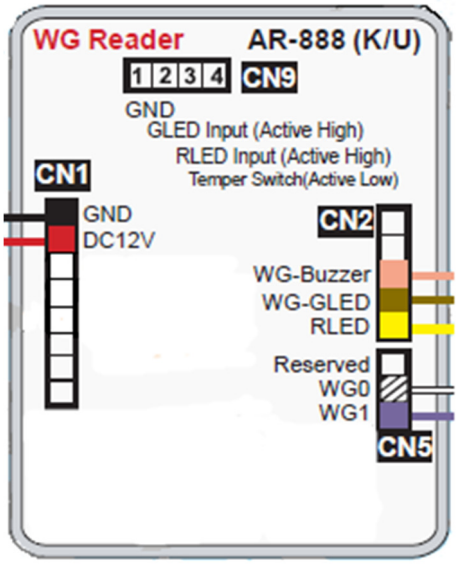
An accepted outcome is indicated by a Green perimeter (+ one beep)
A declined outcome is indicated by a Red perimeter (+ two beeps)

Code entry or presentation of a Tag will result in a Green perimeter for OK and a Red perimeter for rejected.

CONNECTIONS



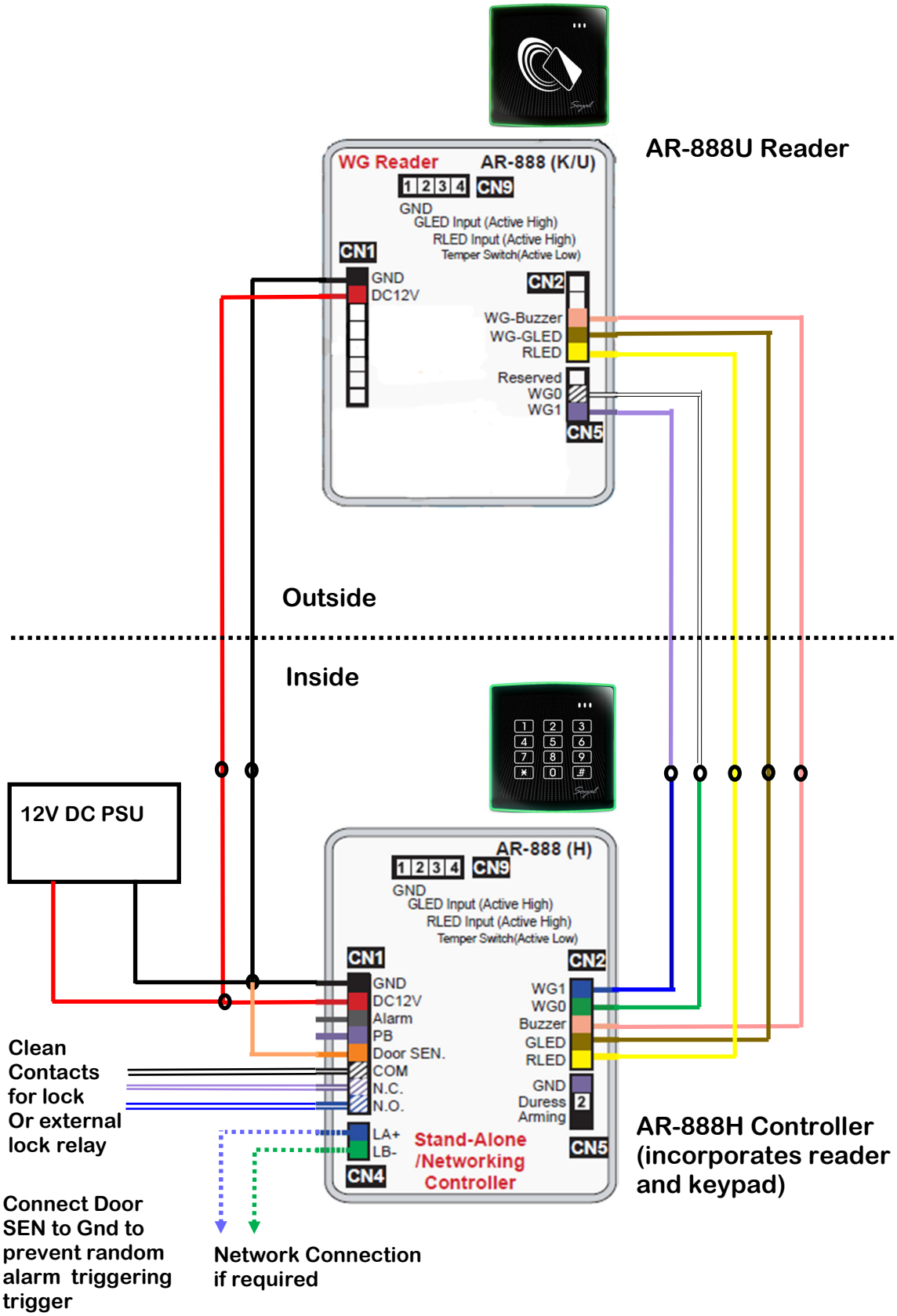
AR-888H Controller with Keypad and Reader



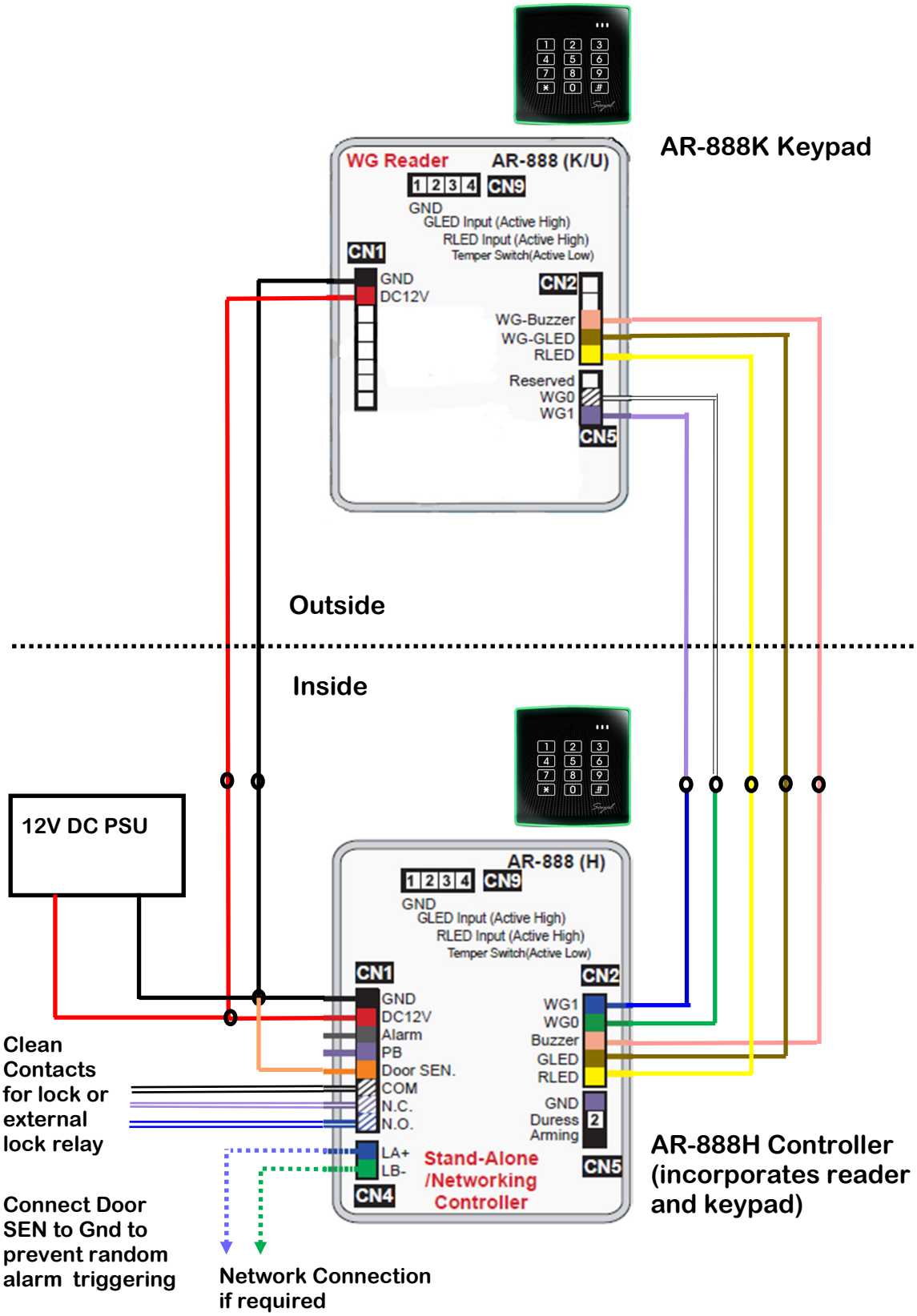
AR-888K or AR-888U Reader / Keypad

AR-888PBI
Request to Exit Push Button
Note: A/B Jumper selects Border colour

BASIC CONFIGURATION CONTROLLER INSIDE AND READER OUTSIDE

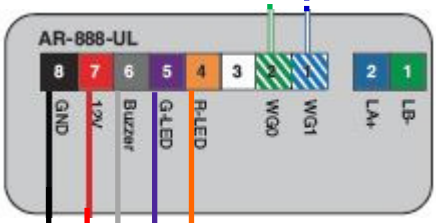


BASIC CONFIGURATION CONTROLLER INSIDE AND KEYPAD OUTSIDE



BASIC CONFIGURATION CONTROLLER INSIDE AND QR READER OUTSIDE

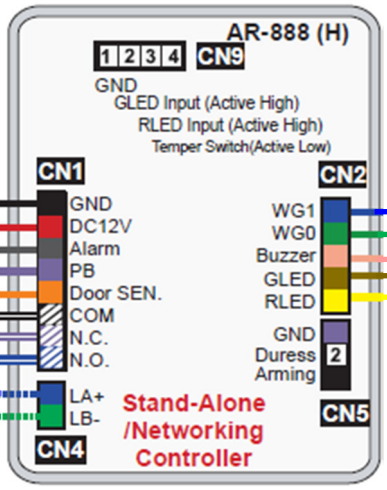
AR-888UL QR Code Reader



Outside

Inside

12V DC PSU



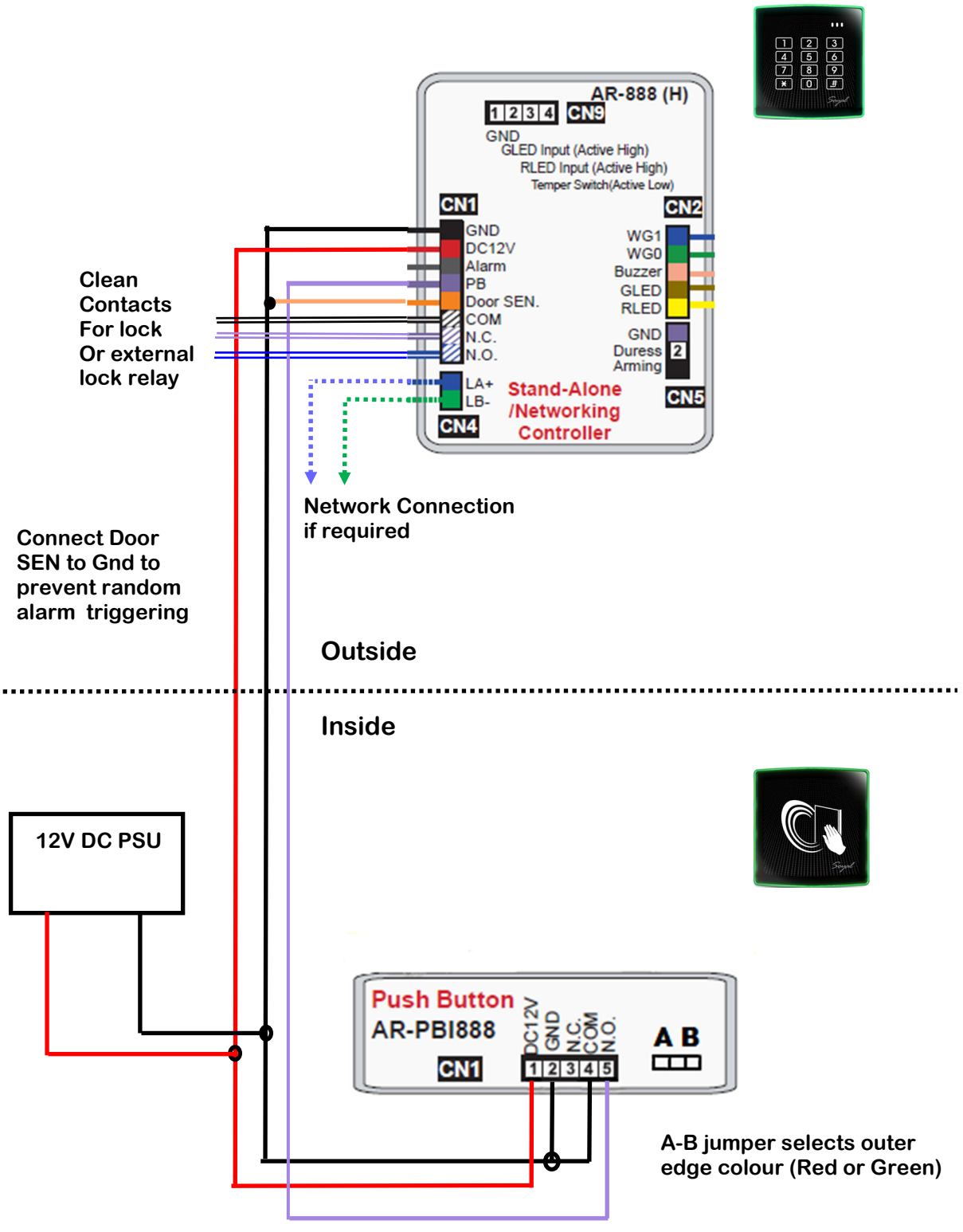
Clean Contacts for lock or external lock relay

Connect Door SEN to Gnd to prevent random alarm triggering

Network Connection if required

AR-888H Controller (incorporates reader and keypad)

BASIC CONFIGURATION CONTROLLER OUTSIDE AND REQUEST TO EXIT BUTTON INSIDE



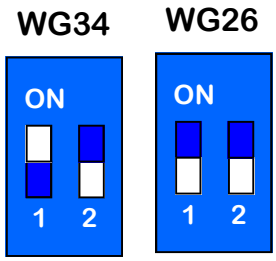
If a traditional Exit button is required (Normally Open contacts, closing to trigger an exit command) connect the exit button between the Purple PB connection and the Black Gnd (0v) connection.

READER WIEGAND SETTINGS AND RECORDS

Optional AR-737HB-RAY Reader DIP Switch Settings

If this reader is to be used with a AR-888H it must be set to WG34

SW1	SW2	OUTPUT
ON	OFF	WG34
OFF	OFF	WG26



NOTICE

WG Mode will only change after powering the reader off and on again.

Keeping Records

A table of users is included at the end of this documentation. It is crucial that accurate records are kept of User numbers and any Card or PIN data stored for the user. Without these records it will be impossible to know where users can be added or at what location specific user data is stored. The only way to access the user data without these records is by software and a USB/RS485 interface, this will only extract card data and PIN data it will not relate this data to users.

BASIC PROGRAMMING

Entering and Exiting Programming Mode

To Enter Programming Mode → ✶ MASTER CODE # (✶123456# = Default)

The default Master Code is 123456

To Exit Programming Mode ——————————→ ✶#

The controller will also exit programming mode if no button is pressed for 30 Secs

Changing Master Code

Warning : If the 6 Digit Master Code is changed and then mislaid it is only possible to reset the keypad to the default Master Code by using additional hardware and software.

To change the Master Code enter ——→ ✶ OLD MASTER CODE #

Then enter ——→ 09✶New Master Code Twice#

For example : ——→ 09✶654321654321#

Where 654321 is the new Master Code

Changing Lock Time

To change the Lock Time enter ——→ ✶ CURRENT MASTER CODE #

Then Enter 3 Digits i.e 005=5 Secs ——→ 02✶Lock Time in Seconds#

The lock time typically is set to Minimum 001, Maximum 600 Seconds
The Lock Time can be set to 000 with this setting the Lock Relay will Toggle i.e. each time a lock output is triggered the relay contacts will change state.

Access Options

The following Access options can be configured on the controller:

Single common PIN for all users.

Token/Card only

Individual PIN only

Token/Card or Individual PIN

Token/Card and Individual PIN

Please Note: tokens and/or cards should be Soyal product to ensure correct functionality. PIN is a 4 digit user code.

Adding a single PIN for all Users

To Add a single common PIN for all Users

Enter Programming Mode → *** CURRENT MASTER CODE #**

Then enter → **15 * COMMON PIN #**

When finished Exit Programming Mode → *** #**

Adding Tokens or Cards

Adding Tokens or Cards

To Add a Batch of sequentially numbered tokens/cards by presenting the lowest numbered token/card only.

Enter Programming Mode → * CURRENT MASTER CODE #

Then enter → 19 * Start User Address * Token/Card Quantity #

Present the lowest numbered token/card of the batch to the controller. Recognition of the token/card will be via one beep and a Green halo.

The user address can be 00001 to 03000 and the token/card quantity can be from 00001 to 03000.

For example: To add 40 tokens/cards from user address 152 enter: →

→ 19 * 00152 * 00040 #

It is also possible to add randomly numbered tokens/cards one at a time as follows:

Enter Programming Mode → * CURRENT MASTER CODE #

Then enter → 19 * Start User Address * 00001#

Present the first token/card, the controller will increment the user number automatically, then present the second token/card, continue presenting tokens/cards until they have all been added.

When finished Exit Programming Mode → * #

**** It is important that accurate records are kept of the user addresses used and the token identities allocated to the user addresses. This will enable additional tokens to be added at a later date without accidentally overwriting existing users****

Modifying Card data for a User

User card data can be modified as long as the User Address is known.

Enter Programming Mode → *** CURRENT MASTER CODE #**

Then enter → **16*UUUUU* SSSSSCCCCC #**

Where UUUUU is the 5 digit User address, SSSSS is the 5 digit site code and CCCCC is the 5 digit card code.

Setting Card or Individual Pin Access

Users can have access via Card <u>or</u> Pin. A private (unique) PIN can be added to a User address with or without card data.

Enter Programming Mode → *** CURRENT MASTER CODE #**

Then enter → **12*UUUUU* PPPP#**

Where UUUUU is the 5 digit User address and PPPP is the 4 digit PIN allocated to the user.

Setting Card and Individual Pin Access

Users can have access via Card <u>and</u> Pin. A private (unique) PIN can be added to a User address but this must be in conjunction with Card data.

Enter Programming Mode → *** CURRENT MASTER CODE #**

Then Enter → **13*UUUUU* PPPP#**

Where UUUUU is the 5 Digit User address and PPPP is the 4 digit PIN allocated to the user.

Setting Time clock

Enter Programming Mode → *** CURRENT MASTER CODE #**

Then Enter → **25* YYMMDDHHmmss#**

Where YY = Current year i.e. 17 for 2017, MM = Current month,
DD = Current day, mm = minutes, ss = seconds

Deleting all cards

Enter Programming Mode → *** CURRENT MASTER CODE #**

Then Enter → **29* 29 *#**

Further Programming

Please refer to the command list and additional parameter programming information on pages 16 and 17.

Command List

Function	Command	Mode
Entering Programming Mode	★123456# or ★Master Code# (If Already Changed)	4/6/8
Exiting Programming Mode	★#	4/6/8
Exiting Programming Mode and Enabling Arming Status	★★#	4/8
Node ID Setting - Connected to 716E For More Than 254 Units	00★NNN# (NNN = Node ID: 001 – 254)	4/8
Node ID Setting - Connected to PC For Up to 254 Units	00★NNN★VVV★nnn# (NNN = Node ID of AR-321H, VVV = Virtual 716E Node ID, nnn = Door Number)	4/8
Lock Relay Time Setting	02★TTT# (TTT = Lock Relay Time)000 = Toggle, 001 – 600 = 1 – 600 Sec, 601 – 609 = 0.1 – 0.9 Sec	4/6/8
Arming Relay Time Setting	03★TTT# (TTT = Door Relay Time)000 = Toggle, 001 – 600 = 1 – 600 Sec	4/6/8
Control Mode Setting	04★N# (N = Mode 4/6/8) Default is Mode 8	4/6/8
Arming Delay Time Setting	05★TTT# (TTT = Arming Delay Time) 001 – 600 = 1 – 600 Sec	4/6/8
Alarm Delay Time Setting	06★TTT# (TTT = Arming Delay Time) 001 – 600 = 1 – 600 Sec	4/6/8
Master Card Setting	07★SSSSS★EEEEE# (SSSSS = Start Address, EEEEE = End Address)	4/8
Auto-Open Zone Setting	08★N★HHMMHHMM★1111111# (N = 2 Sets of Auto Open Zone, 0 or 1) HHMMHHMM = Start Time to End Time 1111111 = Days S/M/T/W/T/F/S - 0 = Disable, 1 = Enable	4/6/8
Master Code Setting	09★PPPPPPRRRRRR# (PPPPPP = Master code, RRRRRR = Repeat Master Code)	4/6/8
Suspending Tokens	10★SSSSS★EEEEE# (SSSSS = Start Address, EEEEE = End Address)	4/6/8
Deleting Tokens	10★SSSSS9EEEEE# (SSSSS = Start Address, EEEEE = End Address)	4/6/8
Setting Card & PIN Sequentially	11★SSSSS★EEEEE# (SSSSS = Start Address, EEEEE = End Address)	6
Reactivate Suspended Tokens	11★SSSSS★EEEEE# (SSSSS = Start Address, EEEEE = End Address)	4/8
Setting PWD/PIN	12★UUUUU★PPPP# (UUUUU = User Address, PPPP = 4 – Digit User Code)	4/8
Setting Card & PIN by Address	13★UUUUU★PPPP# (UUUUU = User Address, PPPP = 4 – Digit User Code)	4/8
Arming Output Time Setting	14★TTT# (TTT = Arming Output Time) 001 – 250 = 1 – 250 Sec	4/8
Duress Code Setting (M4/M8) Common Code Setting (M6)	15★PPPP# (PPPP = 4 Digit Duress Code) 15★PPPP# (PPPP = 4 – Digit Common Code - Set to 0000 to disable)	4/8 6
Card Number Modification	16★UUUUU★SSSSSCCCCC# (UUUUU = User Address, SSSSS = Site Code, CCCCC = Card Code)	4/8
Arming Code Setting (M4/M8) Common Code Setting (M6)	17★PPPP# (PPPP = 4 Digit Arming Code) 17★PPPP# (PPPP = 4 – Digit Common Code - Set to 0000 to disable)	4/8 6
Door Close Time	18★TTT# (TTT = Door Close Time) 001 – 600 = 1 – 600 Sec, Default = 15 Sec	4/6/8
Adding Tokens	19★UUUUU★QQQQQ# (UUUUU = User Address, QQQQQ = Token Qty)	4/8
Reader Additional Setting	20★DDD# (DDD – Refer to Chart A 20*DDD# on Page 13 for Details)	4/6/8
Lift Control Setting: Multi Doors	21★UUUUU★S★FFFFFFFF# (UUUUU = User Address, S = Set of Floors, FFFFFFFF = Floor Number - See page 18 for Details)	4/8
Add/Delete Token	22★N# (N – 0 = Delete Token, 1 = Add Token)	6
Lift Control Relay Time Setting	23★NNN★TTT# (NNN = Node ID, TTT = Relay Time) 001 – 600 = 1 – 600 Sec	4/8
Controller Parameter Setting	24★DDD# (DDD – Refer to Chart B 24*DDD# on Page 13 for Details)	4/6/8
Real Time Clock Setting (Stand-Alone)	25★YYMMDDHHmmss# (YYMMDDHHmmss = Year/Month/Day/Hour/Minute/Second)	4/6/8
Anti-Passback (Enable User)	26★SSSSS★EEEEE★N# (SSSSS = Start Address, EEEEE = End Address, N - 0 = Enable, 1 = Disable, 2 = Initial)	4/8
Lift Control Setting Single Door	27★UUUUU★FF# (UUUUU = User Address, FF = Floor Number 01 – 32)	4/8
Force Open Alarm Setting	28★NNN# (NNN – Refer to Chart C 28*NNN# on Page 13 For Details)	4/6/8
Delete All Users	29★29★# followed by ★#	4/6/8
Enable the Security Trigger Signal (with AR-721RB)	34★128# (AR-321H, AR-721H, AR-725H, AR-757H)(changes the "Arming" in P5 to the security trigger signal. 34★064# (AR-331H) 34★000# (Disable)	4/8/6

A. 20*DDD#

Function	Option		Value	Application
Attendance	0: Yes†	1: No	001	Networking
Auto Re-Lock	0: Disable†	1: Enable	002	Networking/ Stand-Alone
Auto Open	0: Disable†	1: Enable	004	Networking/ Stand-Alone
Egress Button Input	0: Disable	1: Enable†	016	Networking/ Stand-Alone
Master Controller of Network	0: Slave†	1: Master	032	Networking
Access/Exit	0: Exit†	1: Access	064	Networking
Anti-Passback	0: Disable†	1: Enable	128	Networking

†=Default Setting

B. 24*DDD#

Function	Option		Value	Application
Auto open door without Cards at Auto Open Zone	0: Disable †	1: enable	001	Networking/ Stand-Alone
Lift Control	0: Disable †	1: Lift Control	002	Networking/ Stand-Alone
Stop Alarm by Door Close or by Push Button	0: None	1: Yes †	064	Networking/ Stand-Alone

†=Default Setting

C. 28*DDD#

Function	Option		Value	Application
Force Open Alarm Output		Enable	064	Networking/ Stand-Alone
Force Open Alarm Output	Disable†		128	Networking/ Stand-Alone

†=Default Setting

Programming via 701 Server and Client

This controller also has the ability to be networked using a RS485 network configuration. Up to 254 controllers can be present on a network. Using the software all aspects of an installation can be monitored and changes can be made to:

User details

Door groups

Time Zones

Token details

PIN numbers

Once these changes have been made within the database the changes can be downloaded to all controllers so that changes take immediate effect.

See "701 Client Server Software Manual Installer Version" for details of networking this controller.

If a controller is to be Networked it must be given a unique Node ID between 1 and 254.

To set the Node ID proceed as follows:

1. Enter Programming Mode

To Enter Programming Mode ➔ *** MASTER CODE #**

2. Set the Node ID

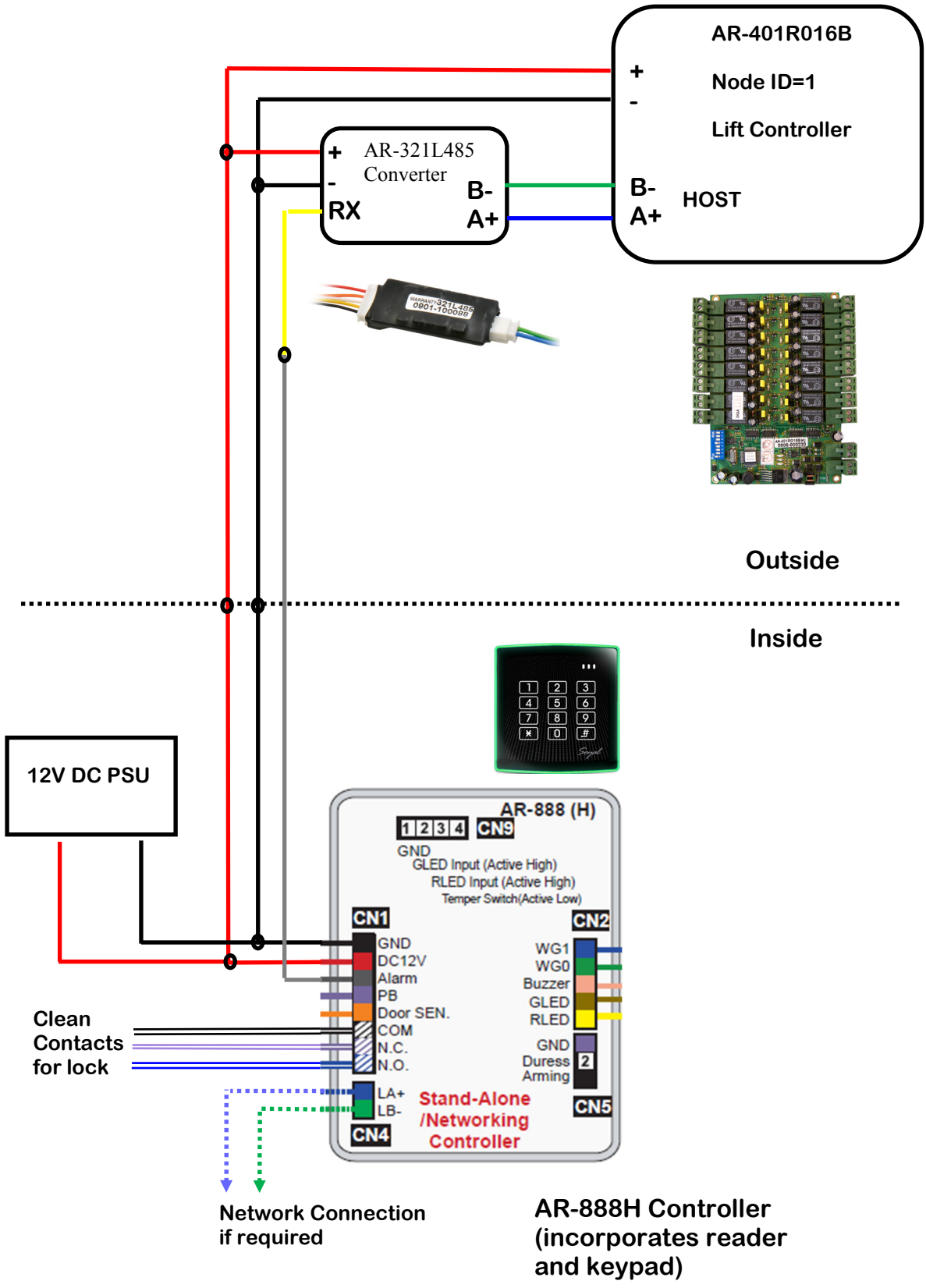
To set the Node ID ➔ **00* NNN* VVV* nnn #**

Where NNN is the Node ID required, VVV is the virtual Node ID (we would recommend setting this the same as the Node ID) and nnn is the Door Number (we would recommend setting this to 001)

For example to set a Node ID of 22 enter ➔ **00* 022* 022* 001 #**

3. Exiting Programming Mode *** #**

AR-888H LIFT CONTROL



LIFT CONTROL PROGRAMMING

The AR-888H controller in conjunction with the AR-401R016B Lift Controller(s) can control access to 32 floors for 3,000 users.
Each AR-401R016B Lift Controller can control 16 Floors via relay contacts.
Only 2 x AR401R016B can be used with this controller (16 + 16 = 32 Floors)

To enable Lift Control

1. Enter Programming Mode

To Enter Programming Mode ➔ `* CURRENT MASTER CODE #`

2. Enable Lift Control

To Enable Lift Control ➔ `24 * 002 #`

There are 2 options for User Floor Access as identified below and on the next page.

To Enable Users for Single Floors

This means that when a user is granted access via a token or a PIN only one floor button will be enabled within the lift.

To enable a user to access a Single Floor Only ➔ `27* User Address* Floor#`

Where Floor is the Floor Output on the AR-401R016B
(1-16 on AR-401R016B Node ID=1)
(17-32 on AR-401R016B Node ID=2)

For Example:

27*00001*01# Will allow User 1 to access floor 1 only, on AR-401R016B set to Node 1

Or

27*00001*12# Will allow User 1 to access floor 12 only, on AR-401R016B set to Node 1

Or

27*00001*22# Will allow User 1 to access floor 22 only, on AR-401R016B set to Node 2

For multiple Floor Access see the next page

LIFT CONTROL PROGRAMMING

To Enable Users for Multiple Floors

This means that when a user is granted access via a token or a PIN more than one floor button will be enabled within the lift.

To enable a user to access Multiple Floors➔ 21★ User Address★ S★FFFFFFFF#

Where S =FLOOR SET which can be 0 to 3 as shown below and identifies available floors. The sequence FFFFFFFF is entered as 1 to enable a floor and 0 to disable a floor.

See table and examples below:

SET	Floor								
S	F	F	F	F	F	F	F	F	
0	8	7	6	5	4	3	2	1	Node ID = 1
1	16	15	14	13	12	11	10	9	
2	24	23	22	21	20	19	18	17	Node ID = 2
3	32	31	30	29	28	27	26	25	

On AR401R016B with Node ID = 1 Only Floor Set 0 and Floor Set 1 will apply
On AR401R106B with Node ID = 2 Only Floor Set 2 and Floor Set 3 will apply

For Example:

Entering 21 ★ 00001★2★00101100#
Will allow User 1 to Access Floor Set 2, Floors 19,20, 22

If a user is to have access to multiple floors which are in different Floor Sets each Floor Set will need to be programmed separately as per the example below.

To enable User 22 to access Floors 3, 5 ,7 , 10, 12, 16, 18, 21, 24, 28, 30 the following programming will be required:

21 ★ 00022★0★01010100# = User 22, Floor Set 0, Floors 7, 5, 3
Then
21 ★ 00022★1★10001010# = User 22, Floor Set 1, Floors 16, 12, 10
Then
21 ★ 00022★2★10010010# = User 22, Floor Set 2, Floors 24, 21,18
Then
21 ★ 00022★3★00100100# = User 22, Floor Set 3, Floors 30, 28

TABLE OF USERS

Name of On-Site Programmer(s):..

Installation Company:..

DEFAULT MASTER CODE:- *123456#

Tel:..

Date:..

USER MASTER CODE:..

Lock Time:..

Lock Type:..

User Address	Users Name	Card ID	User Code	Date
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We recommend this page should be filled in and regularly updated and kept in a safe and secure location by the person responsible for the upkeep of the system.

BASIC CONFIGURATION CONTROLLER INSIDE AND CONTROLLER OUTSIDE