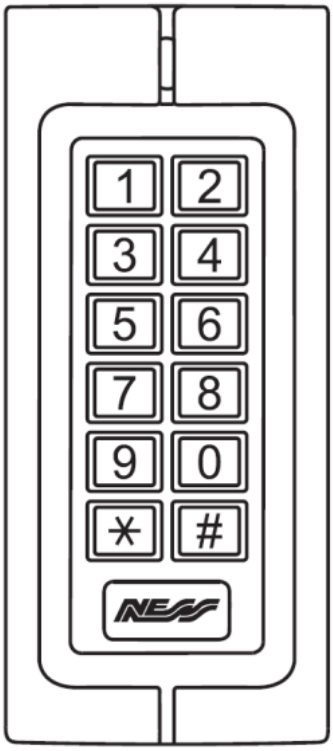
CORPORATION

S2

Metal Waterproof Access Control Unit

Installation and User Manual



(Ness Part No. 101-082)

Introduction

Ness S2 is an advanced, waterproof (IP65 rated) proximity and PIN Access Controller. S2 can support 2500 users utilizing three access modes; Card only - Card plus PIN - Card or PIN

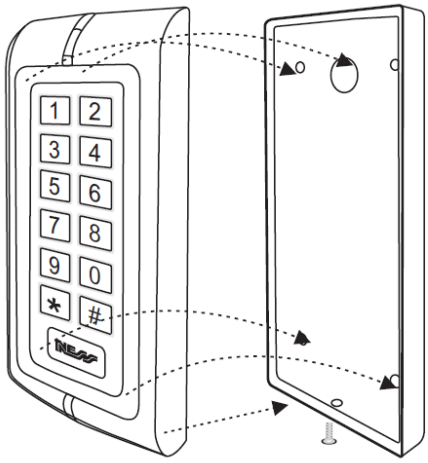
S2 can operate in standalone mode, with its internal relay activating when an authorized user is granted access or can interface to 3rd party products via its 26 Bit Wiegand output

Installation

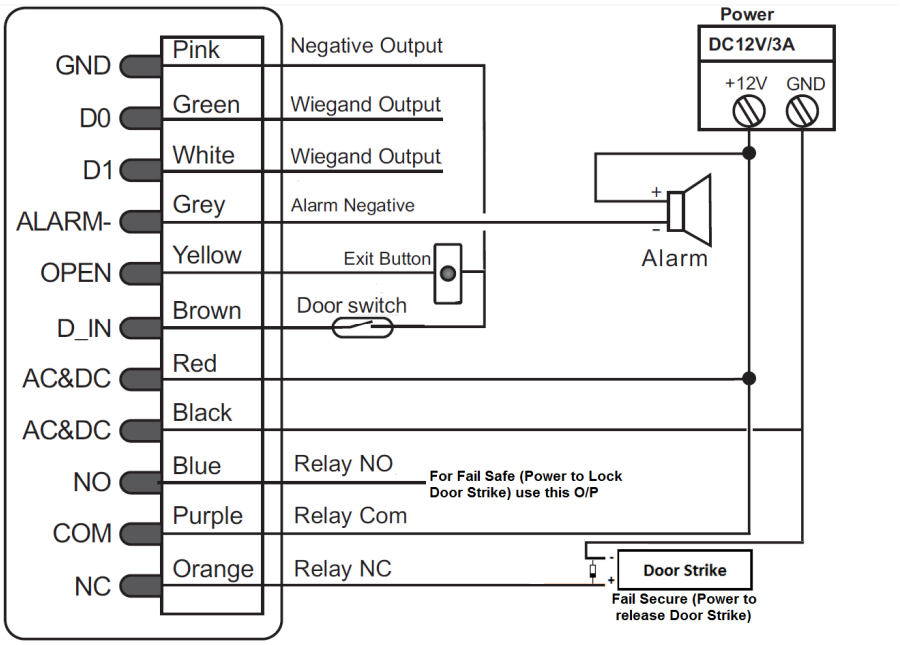
Drill a hole in the wall to match the location of the cable at the rear of the S2 or mount a suitable wall mount junction box

Thread the cable through cable hole and connect related cables. Take care to insulate the unused cables to prevent shorting

Fix the back cover to the wall or distribution box with screws and secure the controller to the back casing



Connection Diagram



Programming

0 - Resetting to Factory Defaults

To reset to factory defaults, power off then press and hold the ***** key while powering up. S2 will beep twice and the LED will glow orange. Release the ***** key and the S2 will be ready for one of the following options:

1) Presenting the "Add User Master Card" to S2's Reader to add a new user
2) Presenting the "Delete User Master Card" to delete a current user
3) Presenting a blank EM card to replace an "Add User Master Card" or "Delete User Master Card". In this case the first blank card presented will become the new "Add User Master Card" and the second blank card presented will become the new "Delete User Master Card". The LED will flash Red confirming that S2 has been reset to factory defaults and new Master Cards added. If the new Master Cards are not presented within 10 seconds S2 will resume User Operating Mode and the LED will glow steady Red

ⓘ When resetting to factory defaults the user's information is still retained

1 - Entering Programming Mode (Default Master Code = 888888)

Press * then enter the **Master Code** followed by **#** (e.g. * 888888 #)
S2 will enter Program Mode, the LED will flash Green for one second and then glow steady Red while S2 awaits Program Option Commands. To Exit Program Mode press *****. If no keys are pressed for 60 seconds S2 will automatically exit Program Mode and resume Operation Mode

The following options can be accessed and programmed in Program Mode

2 - Changing the Master Code (Master Code must be 6 digits long) (Can only be done in Master Programming Mode)

Press 0 - The LED will glow Orange. Enter a **New Code** followed by **#** then re-enter the same **New Code** followed by **#** . The LED will flash Green if successful

Press 0	New Code	#	Confirm New Code	#

3 - Adding Users (Can only be done in Master Programming Mode)

Up to 2500 user cards can be added. The first two options are available in Program Mode only and the third is also available in Operation Mode

3.1 Adding Card Users Automatically in Program Mode (Not recommended)

Press 1 - The LED will glow Orange. **Present a blank card** to the Reader. S2 will automatically assign the first card as User Card 1. When successful the LED will flash Green. Repeat this process for all new cards and then press **#**

Press 1	Present Card 1	Present Card 2	Present Card 3	...	#

ⓘ This method is not recommended because S2 will automatically allocate added cards to the next available empty card slot. This makes it difficult to delete a card as its allocated card slot (ID number) will not be known

3.2 Adding Card Users Manually (Recommended method)

Press 1 - The LED will glow Orange. Enter the **ID Number** (Memory slot number 1 -> 2500 of the card you wish to add) followed by **#**. Present the new card to the Reader. When successful the LED will flash Green. If more cards are to be added repeat the process. Press **#** to end

Press 1	Enter ID No.1	#	Present Card 1	#	Enter ID No.2	Present Card 2	#	…

ⓘ S2 will auto assign PIN "1234" (Factory Default) to programmed cards. If the system is set for 'Card AND PIN' for access you must go to "User Settings" and assign an individual PIN to each card

This is the recommended method of adding Card Users as the ID Number of all cards programmed will be known making it easy to select any individual card you may wish to delete

3.3 Adding "PIN Only" Users (No card)

Press 1 - The LED will glow Orange. Enter the **ID Number** (Memory slot number 1 -> 2500 of the User) followed by **#.** Enter a **PIN** for that User. When successfully added the LED will flash Green. **Press #** to end**.** If more Users are to be added repeat the process for each User

Press 1	Enter ID No.1	#	Enter PIN 1	#	Enter ID No. 2	Enter PIN 2	#	…

ⓘ All PIN numbers must be 4 Digits of any number combination, however they must not be 1234

3.4 Adding Card Users Sequentially

Multiple Users can be added sequentially as either a Card or Pin

Press 1	Present Card 1 to the Reader	Enter ID No.1	Present Card 2 to the Reader	Enter ID No. 2	…		Enter PIN 3	#	Enter ID No. 3	#	…

3.5 Adding Users with the "Add User Master Card"

User Cards can be added anytime without entering Program Mode by using the "Add User Master Card" that comes with the unit (or card that you have programmed)

Present "Add User Master Card" to the Reader - The LED will glow Orange. **Present the Card to be added**. When successfully added the LED will flash Green. **Present any additional cards to be added in sequence**. When complete **Present "Add User Master Card"** again. The LED will flash Red

Present 'Add User Master Card' to the reader	Present each Card to be added to the reader in sequence	Present 'Add User Master Card' to the reader to exit

ⓘ If the card being added is already in the system S2 will respond with 3 beeps

4 - Deleting Users (Can only be done in Master Programming Mode)

4.1 Deleting Users Automatically

Press 2 -The LED will glow Orange. **Present each Card to be Deleted** to the reader in sequence. As each card is successfully deleted the LED will then flash Green. Press **#** to exit

Press 2	Present Card 1 to be deleted	Present Card 2 to be deleted	Present Card 3 to be deleted	…	#

4.2 Deleting Users Manually

If the card to be deleted is lost or unavailable the ID Number of the User (Memory Slot the User is programmed into) must be used to identify the User

Press 2 - The LED will glow Orange**. Enter the ID number of the User to be deleted** then press **#**. When successfully deleted the LED will flash Green. Repeat this process for any more Users to be deleted

Press 2	Enter ID Number of the User to be deleted	#	Enter ID Number of the next User to be deleted	…	#

4.3 Deleting ALL users

Press 2 - The LED will glow Orange. **Press 0000** followed by the **#** button. The LED will then flash Green confirming that all Users have been deleted

Press 2	0000	#

4.4 Deleting Users using the "Delete User Master Card"

Cards may be deleted anytime without entering Programming mode using the "Delete User Master Card" that comes with the S2 (or other programmed card)

Present "Delete User Master Card" to the Reader - The LED will glow Orange. **Present the Card to be Deleted**. When successfully Deleted the LED will flash Green. **Present any additional Cards to be Deleted in sequence**. **Present the "Delete User Master Card"** to the reader again to complete. The LED will flash Red

Present the 'Delete User Master Card' to the Reader	Present each Card to be added to the Reader in sequence	Present the 'Delete User Master Card' to the Reader

ⓘ If the card being deleted is not in the system the S2 will respond with 3 beeps

6 – Door Access Control Settings (Can only be done in Master Programming Mode)

Three programming options for Door Access Control are provided; Card Only, Card AND PIN or Card OR PIN

6.1 Grant Access by Card Only — **Press 30 #**

6.2 Grant Access by Card AND PIN — **Press 31 #**

6.3 Grant Access by Card OR PIN — **Press 32 #** (Factory Default)

7 – Door Relay Time Setting (Unlock Time) –> Default = 5 Seconds
(Can only be done in Master Programming Mode)

This option sets the activation time of the Relay when Access is granted by Card or PIN

Press 4 **Enter Activation time (0->99 Seconds)** **#**

8 – Door Open Detection Settings (Can only be done in Master Programming Mode)

These options are used to Enable / Disable the "D_In" (Door Switch Input).

Press 60 # **Disables the Door Open Detection Input** (Factory Default)
Press 61 # **Enables the Door Open Detection Input**

When enabled:

If the door is opened normally but not closed within 1 minute the buzzer will sound for 1 minute
If the door is forced open (opened by an unauthorized user) the buzzer and alarm output will be activated

9 – Security Mode Settings for Invalid Access Attempts (Can only be done in Master Programming Mode)

Three options are provided for programming Keypad Lockout / Alarm Output in the event that multiple invalid Access attempts are made. Programming any option will override all previous settings

Press 70 # **Normal Status (No Alarm Output or Keypad Lockout)** (Factory Default)

When enabled, the number of keypad entries is unrestricted (no Alarm Output or Keypad lockout regardless of the number of invalid code entries)

Press 71 # **Keypad Lockout**

When enabled, the Keypad will lockout for 10 minutes if there are 10 successive invalid card presentations or 10 successive incorrect PIN numbers entered within a 10 minute period

Press 72 # **Alarm Output**

When enabled, the S2 Buzzer will sound and the Alarm Output will be activated if there are 10 successive invalid Card presentations or 10 successive incorrect PIN numbers entered within a 10 minute period

10 – Site Code Setting (for Wiegand Output) (Can only be done in Master Programming Mode)

When a valid User Code is entered the Wiegand Output will transmit the Site Code along with the 4 Digit PIN number entered as the Wiegand Card Number

Example - If the PIN used is 8888 and the Site Code is 029 then the full 8 digit, 26 Bit Wiegand number transmitted on the Wiegand Output is 029 08888

The default Site Code is 029 however an alternative Site Code may be programmed

Press **81** **Enter Required Site Code (0->255)** **#**

ⓘ Site Code must be between 0 and 255

11 – Setting the Address of the Reader (Default 0) (Can only be done in Master Programming Mode)

When using S2 with security equipment that supports addressable readers such as Ness D8XD / 16XD Panels, Ness 6DA controllers etc it may be necessary to set the address of the reader

When programmed to Address 0 (Default) the Wiegand Output uses standard 26 Bit Wiegand protocol.

When set to address 1, 2 or 3 the Wiegand Output appends Ness encrypted protocols to S2's address

0 - S2 Address 0 (Default)
1 - S2 Address 1
2 - S2 Address 2
3 - S2 Address 3

Press **82** **Enter Address (0->3)** **#** (Factory Default is **0** - Standard 26 Bit Wiegand output)

12 – Alarm Output Time (Default 1 Minute) (Can only be done in Master Programming Mode)

This option sets the Alarm Output Time (duration) of S2's Alarm Output

Press **9** **Enter Alarm Time in Minutes (1->3)** **#** (Factory Default is **1** - 1 Minute)

USER SETTINGS
(User Settings can be programmed by the User at any time without entering Program Mode)

Assigning a PIN to a CARD

If the system is programmed for access is to be granted with "Card and PIN" (Programming Option 32 set) a PIN for each Card must be assigned using this option. (The Factory Default when cards are first programmed into the system is PIN 1234)

Press	*	Present the Card to the Reader	Enter Old PIN (Default 1234)	#	Enter NEW PIN	#	Repeat the NEW PIN	#

Assigning a PIN to a ID Number

This option also assigns a PIN to a Card, but if the card is unavailable you can assign it to the User's ID Number (Memory slot Number)

Press	*	Enter the ID Number the PIN will be assigned to	#	Enter Old PIN	#	Enter New PIN	#	Repeat the NEW PIN	#

OPERATION

Unlocking the Door By Card OR PIN

If the Door Access Control Setting (Section 6) is programmed to "Card or PIN", access will be granted by presenting a valid Card to the Reader or by entering a valid PIN

Either **Present Card to Reader** OR **Enter 4 Digit PIN followed by #**

If successful, the LED will flash Green and the Relay will activate for the Unlock time

ⓘ If unsuccessful, the S2 will sound 3 Beeps and the likely cause will be a non valid Card (unprogrammed or incorrectly programmed) or incorrect PIN entry (refer to Programming Section 3, "Adding Users")

If a Card is presented and the LED glows steady S2 is waiting for a PIN to be entered. If this is not intended refer to Programming Section 6 "Door Access Control Settings" and select the correct Access Setting

Unlocking the Door By Card AND PIN

If Door Access Control is set to “Card” (Section 6), access will be granted by presenting a valid Card to the Reader. The LED will glow RED upon the presentation of the valid Card in readiness for a PIN entry within 5 seconds.

If the Card and PIN combination are both valid the LED will flash Green for the unlock time and the Relay will activate for the unlock period.

If no PIN is entered within 5 seconds S2 will time out and the LED will return to its normal red Flashing mode.

Present Card to Reader AND **Enter 4 Digit PIN followed by #**

ⓘ S2 will sound 3 beeps if the entered PIN is invalid or incorrect

Resetting / Restoring an Alarm

If an Alarm occurs for any reason e.g. Door Forced Open or Open Too Long it can be reset by presenting A valid card to the Reader or by entering the Master Code

Present a Valid Card to Reader OR **Enter Master Code followed by #**

Indicators / Warnings (LED and Buzzer)

Operation Status	Red Light	Green Light	Buzzer
Stand by	Slow flash	Off	–
Press keypad	–	–	Short Ring
Operation successful	Off	Bright	Ring...
Operation failed	–	–	3 Short Rings
Enter into programming mode	Bright	Off	Ring...
In the programming mode	Bright	Bright	–
Exit from the programming mode	Slow flash	Off	Ring...
Open the door	Off	Bright	Ring...
Alarm	Quick flash	Off	Alarm

Specifications

Features	Description
Appearance	Metal case, anti-explosion and anti-tamper
Waterproof	IP65
Input voltage	DC: 12-24V AC: 12-18V
Users(max)	2500
PIN	4 digits
Master Card	Add/Delete User
Proximity Reader (RFID)	Supports Wiegand 26bits, PIN/Wiegand output is a virtual number, Site Code / Reader Address is set within the S2 Controller
Connect External reader	Can Connect any External EM/HID/IC readers with Wiegand 26 bit Output
Connect High Power Alarm	External Current of the Alarm <=3A
Dimensions	135mm x 57mm x 25mm
Operating Voltage	DC:12~24V AC: 12~18V
Current	Idle – 35mA / Active <80mA
Card Reading Distance	3~6 cm
Operating Temperature	-40~60 Deg C
Lock Output Load	2A Max

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