P2V4 Controller Manual (Bitesize)

For the full version of this manual:

SAFETY NOTES

- Please read this manual carefully before attempting to install, program or operate the Progeny Access Control equipment.
- This equipment must be installed in line with all relevant regulations and standards.
- Make sure that wiring is rated according to fuses and current limits of relevant power supplies.
- Apart from the mains supply all connections to this unit must be SELV level. (Safety Extra Low Voltage, BS EN 60950 1992)
- No users should access the inside of the control box. The control box contains hazardous voltages and access is limited to qualified personnel only. All user-programming for the controller is either done at one of the keyboards or at the PC.
- Every effort is made to ensure that this manual is complete and free from errors. However we reserve the right to make changes to these products and this manual without notice.
- No liability is accepted for loss damage or injury as a consequence of using these products or instructions.

MOUNTING

The optimum location for the controller depends on the application. As a general Guide:

- Always mount the control equipment on the secure side of the door.
- Mount as close as possible to the door(s) to be controlled (less than 100m).

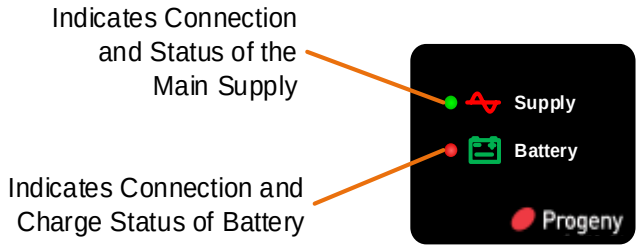
Offer the opened back of the enclosure up to the wall where the unit is to be mounted and mark the location of the fixing dimples on the wall. Drill and plug the wall. Bring in mains supply and other cables that are to enter via the rear cable access holes. Screw the controller to the wall.

WARNING: Extreme caution must be used when opening the controller housing. DO NOT touch any connections or components other than the reset button. Avoid touching any of the terminations with a metal object such as a wristwatch or jewellery.

POWER

The Progeny CRYSTAL controller should be connected to a 24 Hour 220/240V mains supply. Ideally a fused spur should be used for this purpose. The cable used to connect the mains supply should be 0.75 to 2mm^2. A fused terminal block is provided for mains. Observe the polarity when making these connections.

When designing an access control system it is important to make sure that the power supply is not overloaded. The built in power supply of the Progeny CRYSTAL controller is capable of providing power for most standard applications. However, there may be situations where additional power supplies are required. These notes are intended to help you determine when this is the case.



Each enclosure can house one or two door controllers. The 5A PSU in the enclosure supplies 2A at 12V (13.8V) to each controller channel.

IMPORTANT: If a battery is to be fitted then it must be of the correct type. The power supply is designed to charge sealed lead acid batteries. Do not connect NiCad or Dry Cell batteries or any other chemistry.

- Power up sequence should be: Mains first then Battery
- Power down sequence should be: Battery first then Mains

The current drawn from the power supply falls into three main categories:

- Supply current for internal electronics and charging batteries. For Crystal controllers this is reserved as 1.25A. For Crystal .net this is reserved as 1.5A.
- Lock Loads (Magnets, Strikes etc.)
- Auxiliary loads. (Readers, Keyboards, Indicators & Sounders)

CONNECTING 24V LOCKS

To operate a 24V lock a customer supplied 24V PSU will be required. Either the lock output can be used to drive the coil of a clean contact relay which in turn can be used to switch a 24V supply or, **if not being used for another function**, Relay B of the CRYSTAL controller can be used to switch the 24V supply. If following the latter, it is important to ensure that Relay B is set to follow the Lock relay (factory default setting).

INDICATORS

Status LEDs can be found on the front panel of the controller and repeated at the keyboard and card readers. These indicators have the following meanings:

Keypad Status LED	Meaning
Off	Normal
On	Lock released
Flashing	Programming Mode

READER "A" & "B" LED's	Meaning
Off	Normal
On	Lock released
2 Flashes	Anti-pass back
3 Flashes	Unknown Card / Fob
4 Flashes	Invalid card
5 Flashes	Card out of valid period
6 Flashes	Access level OTL
7 Flashes	Reader Error

SOUND

Sound is used to give the user additional feedback on the status of the controller and progress during Programming.

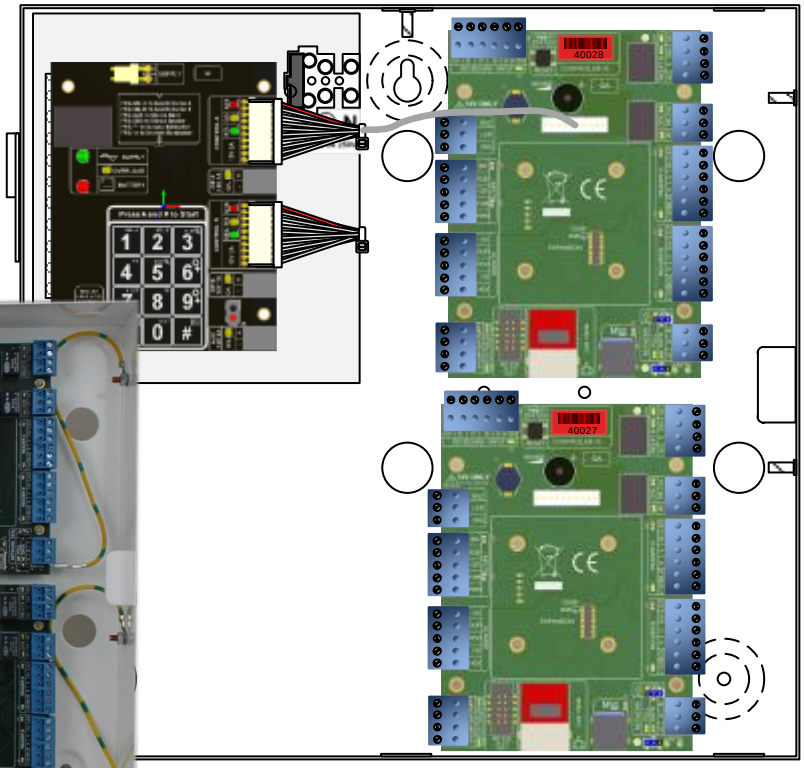
Sound	Meaning
Continuous Two Tone, High Volume	Failed to Close (PDO) Alarm
Four Notes "Low – High – Low – High"	Programming Mode
Two Notes "Low – High"	Confirm Programming Change
Two Notes "High – Low "	Programming Error
Single Short Note "High"	Keyboard Key Push
3 long Beeps	Card not Registered (No Card Pack)
4 short	Card Registered but not enabled.
Tic Tic Tic	Memory Programming in progress

Note: The sounds from the keyboard controller can be annoying if located in earshot. To mute the on-board sounder, press # & **5** together. However the sounder will re activate when the * key is pressed.

CONTROLLERS

TWO DOOR VERSION

The "two door" version simply contains two access controllers in one enclosure. Both controllers can be programmed from the keyboard but first the user needs to choose which controller to programme.

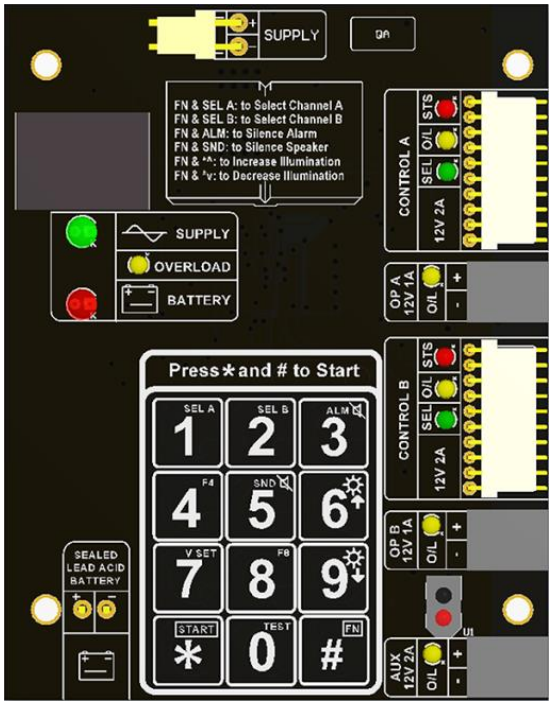


To select control panel A (or door 1) press the [#] and [1] key together. The controller will beep and the ‘Door ‘A’ green selected’ LED will illuminate.

To select control panel B (or door 2) press the [#] and [2] key together. The controller will beep and the ‘Door ‘B’ green selected’ LED will illuminate.

ONE DOOR VERSION

The single door version contains only one controller and therefore, the indicators for Door B are not needed. These indicators are included in case the unit is ever up-graded to two doors. Before programming, make sure that the ‘SELECTED’ indicator for Door A is illuminated. If not press [#] and [1] keys together. The controller will beep and the ‘Door ‘A’ selected’ LED will illuminate.



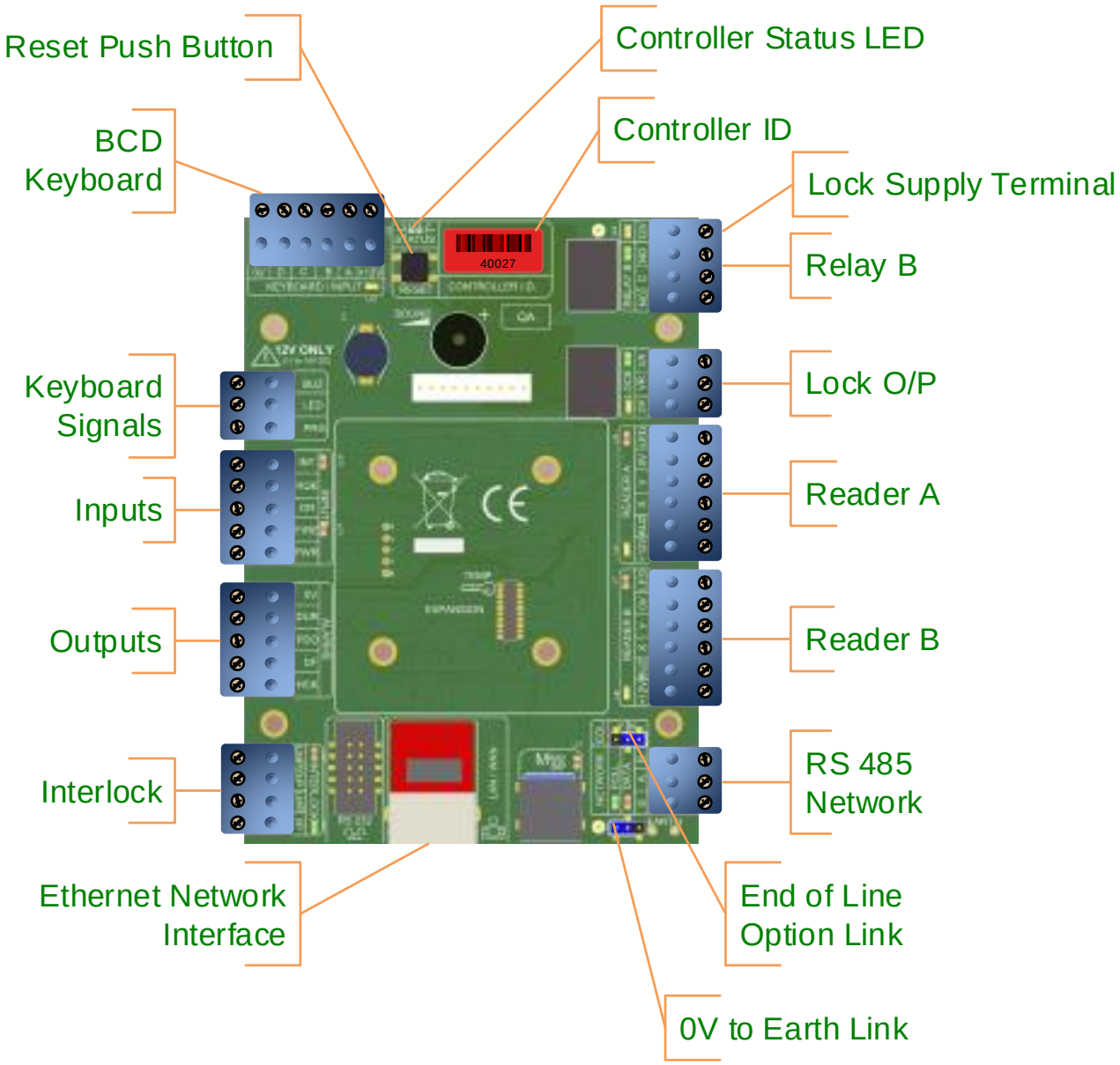
UNLOCKING THE KEYBOARD

To unlock the keyboard for programming first press * and #. The keyboard will not accept any input until it is enabled.

PROGRAMMING

Programming is achieved by entering a password at the keyboard followed by a menu selection code. There are two programming menus, one for the USER and one for the ENGINEER. Each menu has a separate six-digit password. Depending on the menu option selected, configuration data can then be entered at the keyboard.

P2V4 CONTROLLER



USER MENU

The User Menu is access by entering * followed by the User Password. The default for this is 654321.

Users Menu #	Description	Default Value
* 00	User Password	6 5 4 3 2 1
* 01	Access Code	None
* 02	Discover Presented Cards	-
* 03	Forget Presented Cards	-
* 04	Add Card by Number	-
* 05	Remove Card by number	-

USER PASSWORD

Passwords are the means by which the systems operator gains access to the Programming functions. This is a 6-digit number and can be changed by using the following procedure.

Changing the user password

This example shows the password changed to 234567.

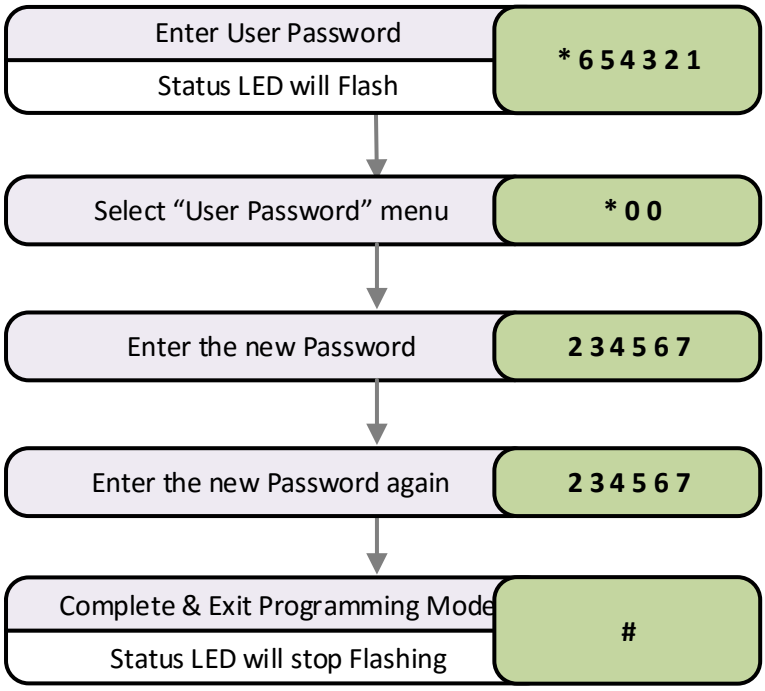
Default Value:

- 654321

The factory default can be restored by a "Full Reset" or by connecting the PWR input to 0V for 4 seconds.

Related Engineers Menus:

- 00 "Engineers Password"



ACCESS CODE FUNCTIONS

The CRYSTAL controller has a single access code that can be programmed. The access code can be any number of digits from 1 to 8. The access code is only active when the keyboard is in:

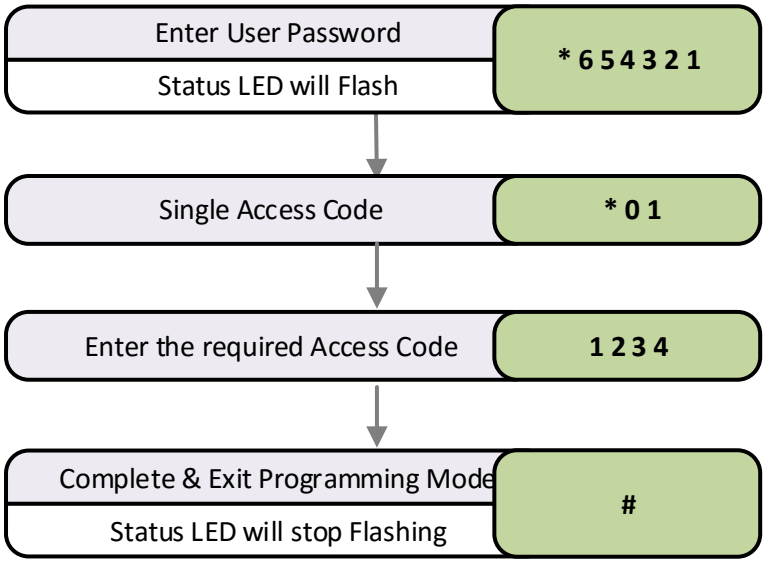
- Normal Keyboard Mode
- Card & Code Mode

See Engineers Function 20 for more details

If more than one access code is needed see "Virtual Card" modes for the keyboard.

REMOVING ACCESS CODES

Engineers' function 98 will erase the access code.



ADDING CARDS by PRESENTATION (DISCOVER)

User function 02

Make sure you have the correct reader technology selected for the readers that are connected before using this function.

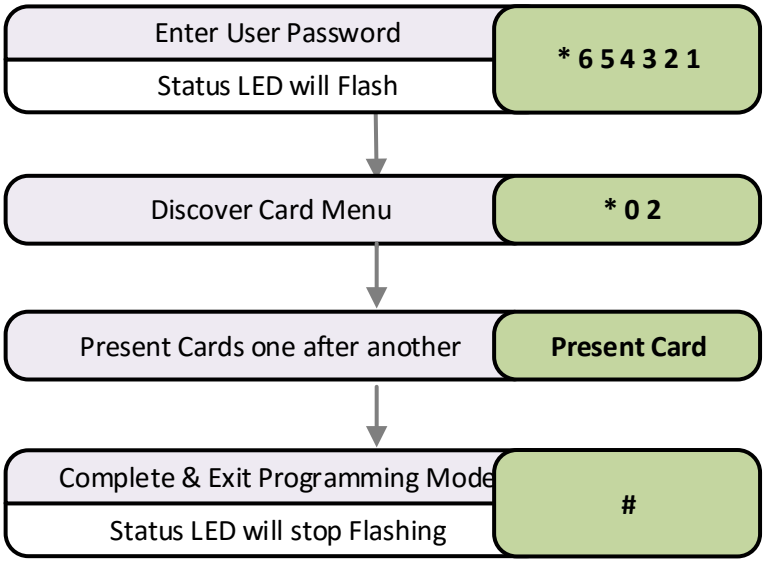
All cards presented to the reader will be remembered and given access.

Related User Menus:

- 03 “Forget Cards”
- 04 “Add Card”
- 05 “Disable Card”

Related Engineers Menus:

- 04 “Reader A Technology”
- 05 “Reader B Technology”
- 20 “Keyboard Mode”
- 11 “Random Search
- 20 “Keyboard Mode”
- 31 to 36 “Feedback Volume Control”

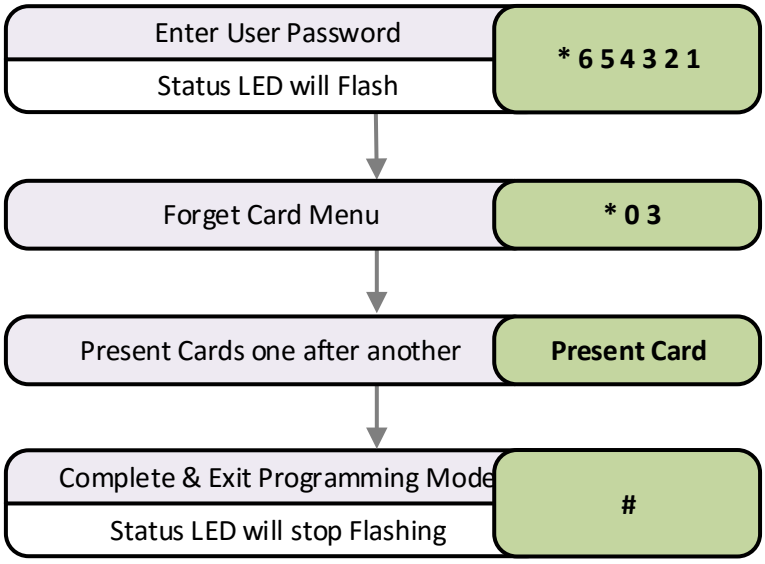


REMOVING CARDS by PRESENTATION (FORGET)

User function 03

This is the reverse of the Discovery Mode. The cards presented to the reader will be removed from memory and will report as “Unknown Card” if access is attempted.

If you simply need to disable a card use menu function 5.



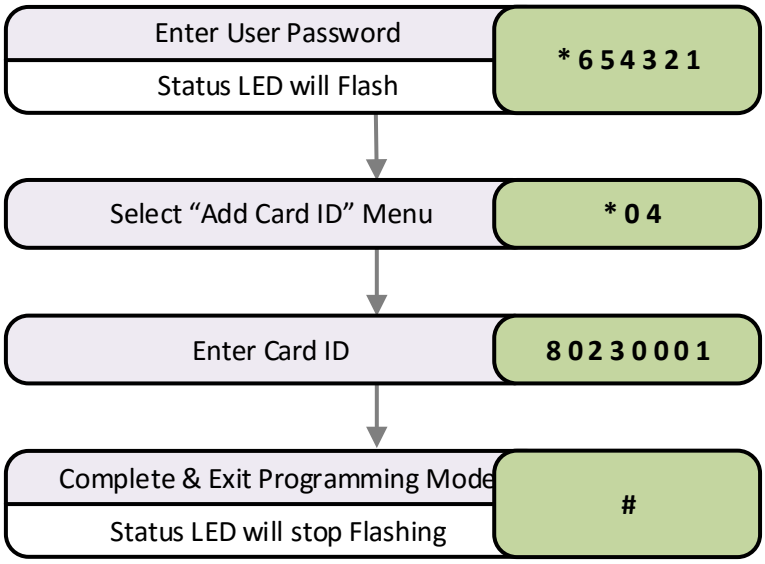
ADDING CARDS by NUMBER

Adding or enabling credentials by entering can be useful when the credentials themselves are not available or if a large number of credentials need to be added.

Single card:

Note that some cards have a serial number printed on them. This should be used with the cross-reference list, provided with cards, to determine the actual card number.

This example will enable a single card numbered 80230001.



Block of cards

The quickest way to enable a whole group of cards is to use the block add method shown in this flow diagram.

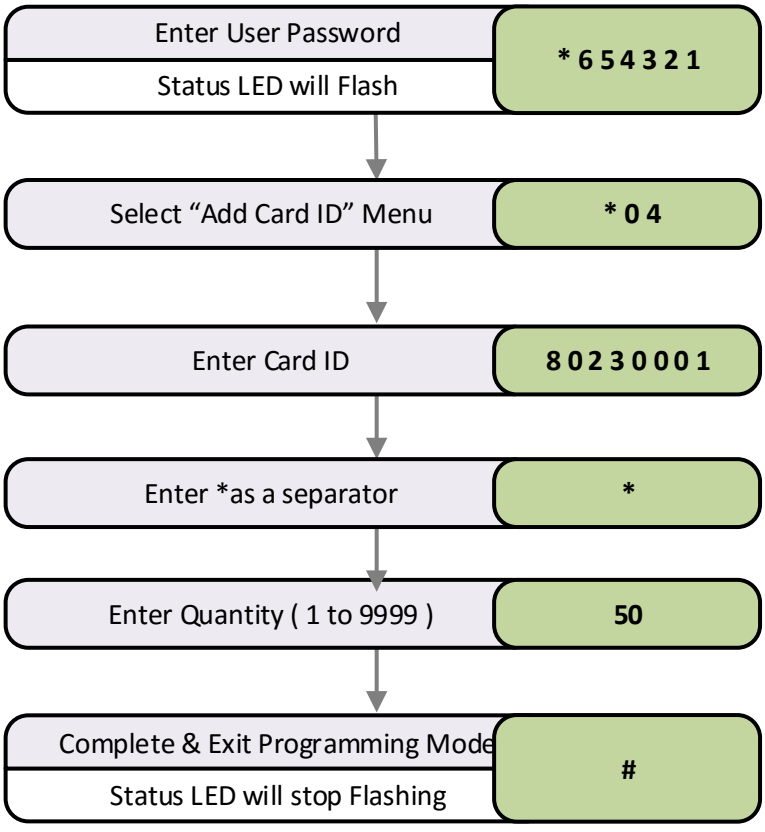
This example will enable 50 cards, Site code 8023 from card 0001 to 0050.

Related User Menus:

- 02 "Discover Cards"
- 03 "Forget Cards"
- 05 "Remove Card"

Related Engineers Menus:

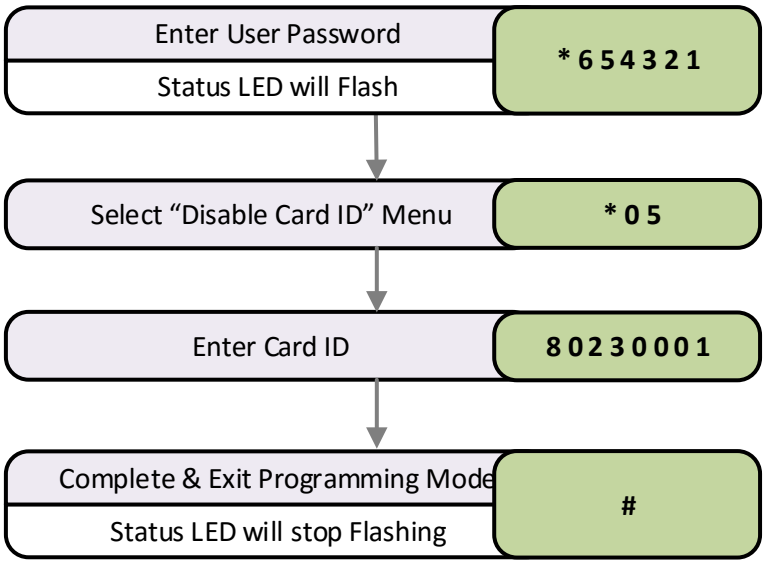
- 04 "Reader A Technology"
- 05 "Reader B Technology"
- 11 "Random Search
- 20 "Keyboard Mode"
- 31 to 36 "Feedback Volume Control"



DISABLING CARDS by NUMBER

Single card

If a card is reported lost or stolen, the card can be disabled to remove the security risk without affecting any other card users.



Block of cards

The quickest way to disable a whole group of cards is to use the "block add" method shown in this flow diagram.

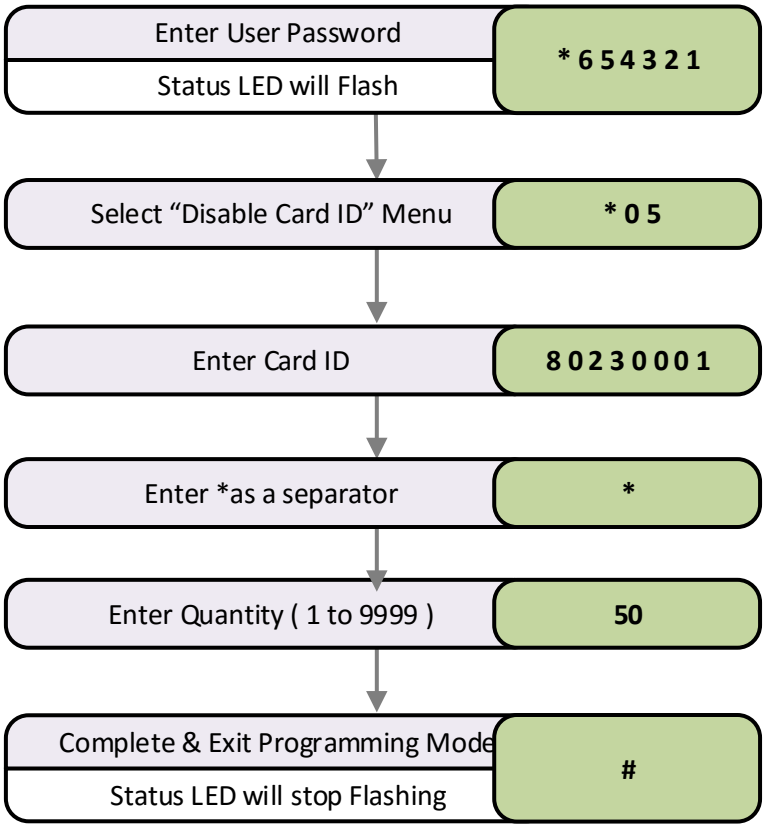
This example will disable 50 cards, Site code 8023 from card 0001 to 0050.

Related User Menus:

- 02 "Discover Cards"
- 03 "Forget Cards"
- 04 "Add Card"

Related Engineers Menus:

- 04 "Reader A Technology"
- 05 "Reader B Technology"
- 20 "Keyboard Mode"
- 11 "Random Search"
- 20 "Keyboard Mode"
- 31 to 36 "Feedback Volume Control"



Progeny
Access Control

ENGINEERS' MENU

Engineers Menu #	Description	Range	Default Value
*** 00**	Password	000000 to 999999	1 2 3 4 5 6
*** 01**	Delay to Lock Release	0 to 99 Sec	0
*** 02**	Lock Release Duration	0 to 99 Sec	3
*** 03**	PDO Time	0 to 99 Sec	0 = Off
*** 04**	Reader A technology	0 to 99	0 (Crystal 4 Wire)
*** 05**	Reader B technology	0 to 99	0 (Crystal 4 Wire)
*** 06**	Duress	1= On, 0 =Off	Off
*** 07**	Relay "B" mode	0 to 12	0 (follow relay A)
*** 08**	Timer for "B" relay	0 to 99 Sec	3
*** 09**	Penalty Time	0 to 99 Sec	0
*** 10**	Hacker Count	0 to 99	5
*** 11**	Random Search Rate	0 to 99	0 (Off)
*** 12**	Unlock Time Zone	0 to 64 (250)	65
*** 14**	Lock Drive Mode	0 to 4	0 (Relay Only)
*** 15**	Auto Relock on Door Close	1= On, 0 =Off	0 (Off)
*** 16**	Clear Event Log	749162	-
*** 17**	Clear Card Data	749162	-
*** 18**	Network Security	0 to 1	0 (DE V7.01.x)
*** 19**	External keyboard * mode	0 to 1	1 (Enter Prog)
*** 20**	Keyboard Mode	0 to 8	0 (Access Code)
*** 25**	Reader A APB Configuration	0 to 3	0
*** 26**	Reader B APB Configuration	0 to 3	0
*** 27**	Relay B Time Zone	0 to 64 (250)	65
*** 28**	2nd Stage Delay	0	0
*** 29**	Network Transmit Delay	0 to 99	10
*** 30**	Controller Mode	1 to 4	3 (P3 Legacy)
*** 31**	Alarm Sound Volume Controller	0 to 15	15
*** 32**	Feedback Volume Controller	0 to 15	8
*** 33**	Alarm Volume Reader A	0 to 15	15
*** 34**	Feedback Volume Reader A	0 to 15	8
*** 35**	Alarm Volume Reader B	0 to 15	15
*** 36**	Feedback Volume Reader B	0 to 15	8
*** 40 to 54**	Custom Reader Template A	-	-
*** 60 to 74**	Custom Reader Template B	-	-
*** 56**	Prefix code for reader A	0000 to 9999	0000
*** 76**	Prefix code for reader B	0000 to 9999	0000
*** 80**	IP Address	0.0.0.0 to 255.255.255.255	0.0.0.0
*** 81**	Gateway IP address	0.0.0.0 to 255.255.255.255	0.0.0.0
*** 82**	Sub Net mask	0.0.0.0 to 255.255.255.254	255.255.255.0
*** 84**	Server IP Address	0.0.0.0 to 255.255.255.254	0.0.0.0
*** 97**	Factory Reset IP Settings	-	192.6.32.200
*** 98**	Clear Access Code	-	-
*** 99**	Reset User Password	-	654321

For a detailed description of all these functions see the full version of this manual.

READER A & B TECHNOLOGY

The reader technology code allows different types of card readers and cards to be used. Each card reader input can have its own technology setting.

Code	Template	Notes
0	Crystal Reader	Native Crystal Bidirectional 4 wire Interface
1	ISO 15693	ISO 15693 (Tagit 64) (Firmware V4.30+)
2	Progeny Prox	Standard Progeny HID format for Prox & iCLASS
3	Biometric	Connects to most Biometric Readers
4	Progeny 26 bit	Progeny Extended 26 bit Wiegand
5	MIFARE A	MIFARE CSN 8 + 16
6	MIFARE B	MIFARE CSN 16 + 16
7	Corporate 1000	Use Eng 56 & 76 to set the ID for Reader A & B
8	Tech 8	Not Used by Crystal Controllers
9	Progeny Magstripe	For use with Progeny Scrambled Magstripe Cards Only
10	Royal Mail	
11	8 Digit C & D	Legacy Crystal connection and general clock & data
12	Lobby Entry	Uses the Most Significant 4 Digits as the Card ID

Programming Reader technology A

Crystal readers

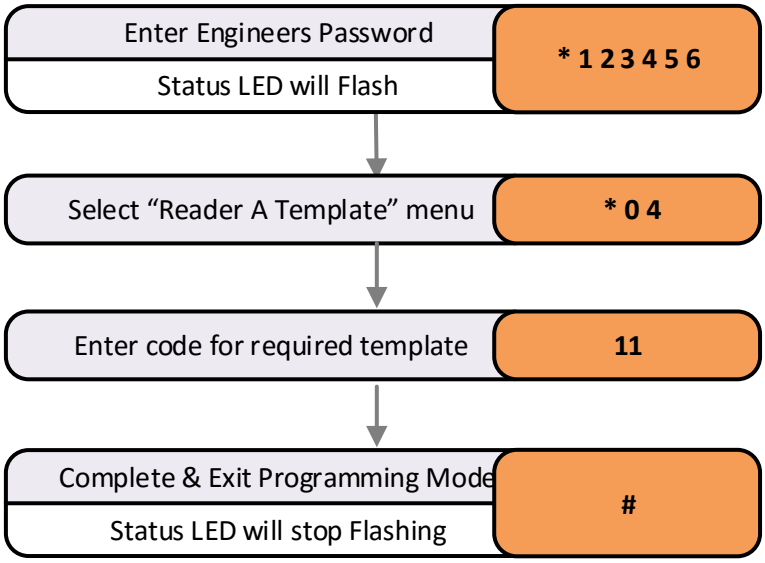
These can be connected in two ways. If the classic crystal reader 4 wire method is used select Template 0. If using the 6 wire method use template 11.

Progeny iCLASS readers

Most commonly uses Template 2 “Progeny Prox”

Progeny HID Pox readers

Most commonly uses Template 2 “Progeny Prox”



Programming Reader technology B

Crystal readers

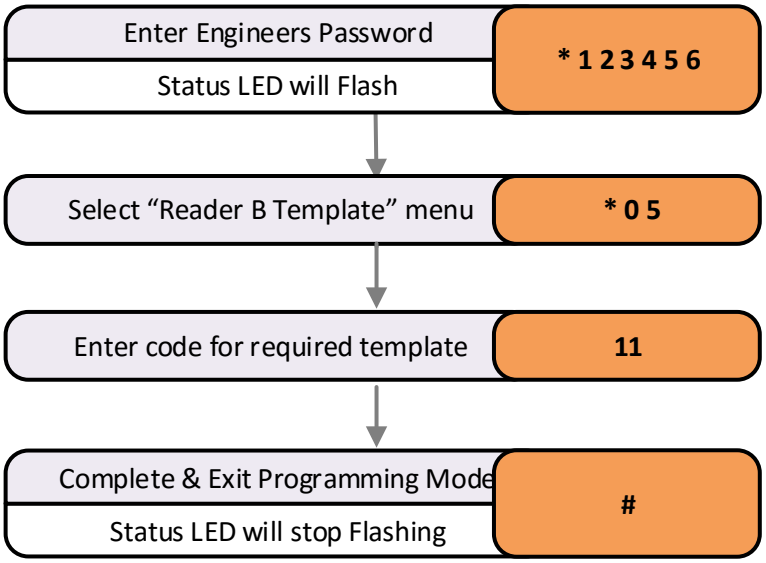
Can be connected in two ways. If the classic crystal reader 4 wire method is used select Template 0. If using the 6 wire method use template 11.

Progeny iCLASS readers

Most commonly uses Template 2 “Progeny Prox”

Progeny HID Pox readers

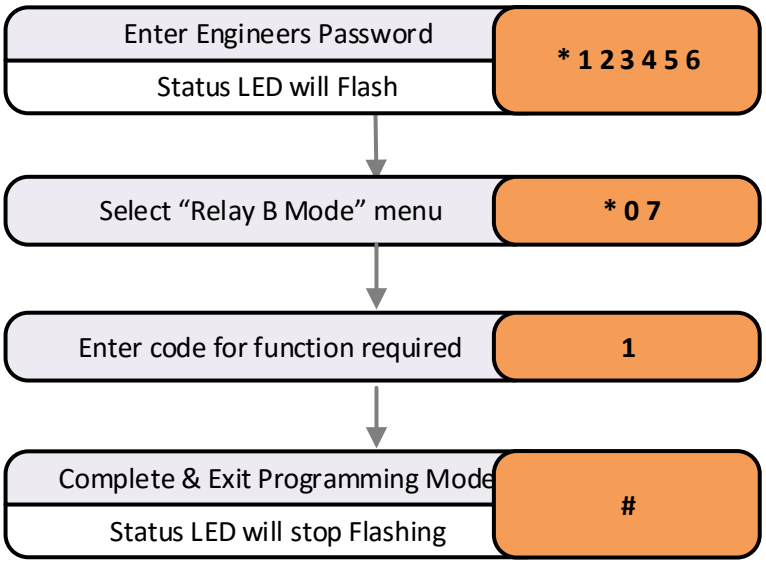
Most commonly uses Template 2 “Progeny Prox”



RELAY B MODE

Relay B can be configured to perform a number of different roles. By default the relay simply mimics the lock relay and allows loads to be driven or provide voltage free contacts for other equipment such as Barriers, Turnstiles etc.

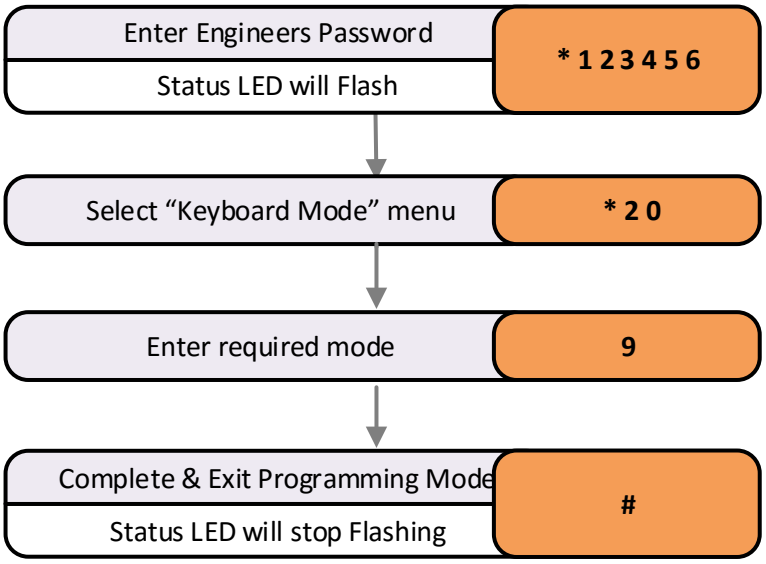
Code	Behaviour
0	Follow Lock Output
1	Future Use
2	Follow Door Forced
3	Follow Duress
4	Follow Hacker
5	Follow PDO
6	Random Search
7	Follow Fire Input
8	Follow Intruder Input
9	PC Controlled
10	Follow Time Zone
11	Two Stage Lock Release
12	Turnstile Mode



KEYBOARD MODE

By default the keyboards work as simple access code input. However they can be used in number of different modes for access control.

Code	Behaviour
0	Normal Keyboard
1	Card & PIN (A only)
2	Card & PIN (B only)
3	Card & PIN (A & B)
4	Virtual Card (4 Digits)
5	Virtual Card (5 Digits)
6	Virtual Card (6 Digits)
7	Virtual Card (7 Digits)
8	Virtual Card (8 Digits)
9	Card & Code



Related User Menus:

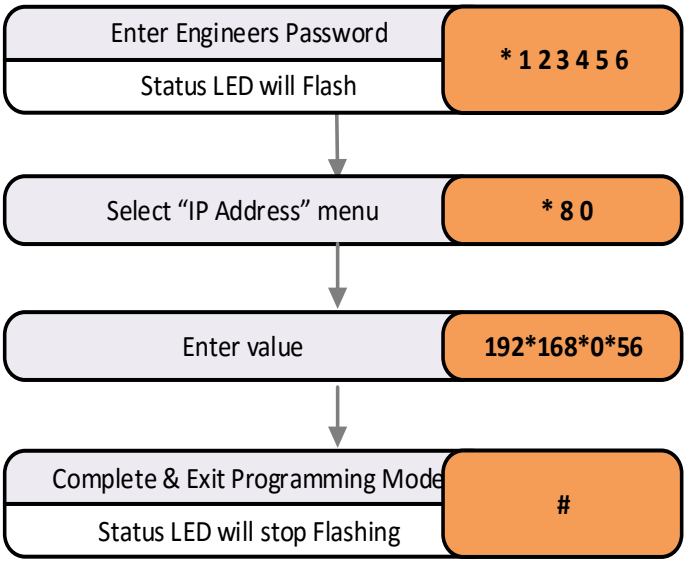
- 01 "Access Code"

Related Engineers Menus:

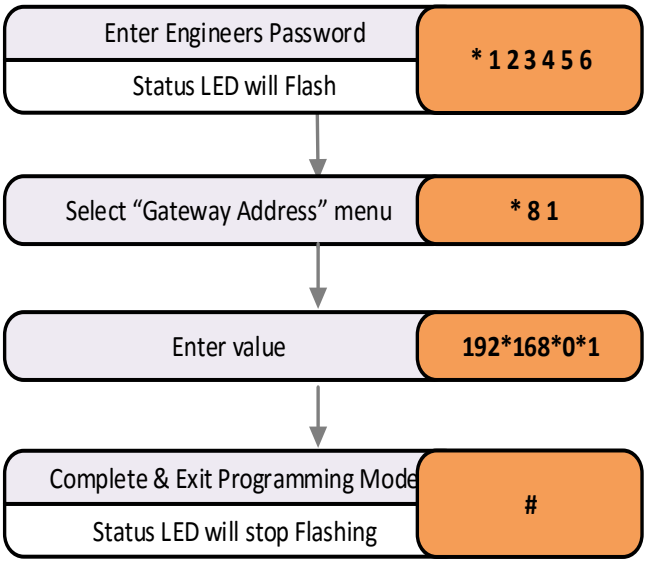
- 19 External keyboard * mode
- 98 Clear Access Code

IP ADDRESS & GATEWAY ADDRESS

Programming the IP ADDRESS

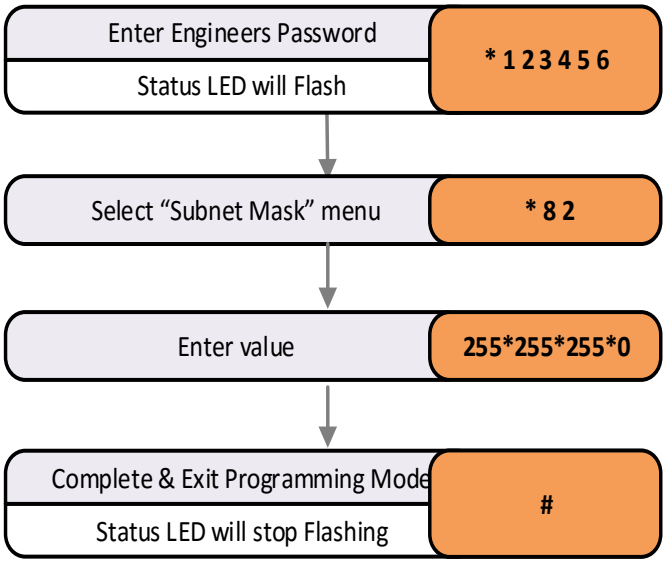


Programming the GATEWAY ADDRESS



NETMASK

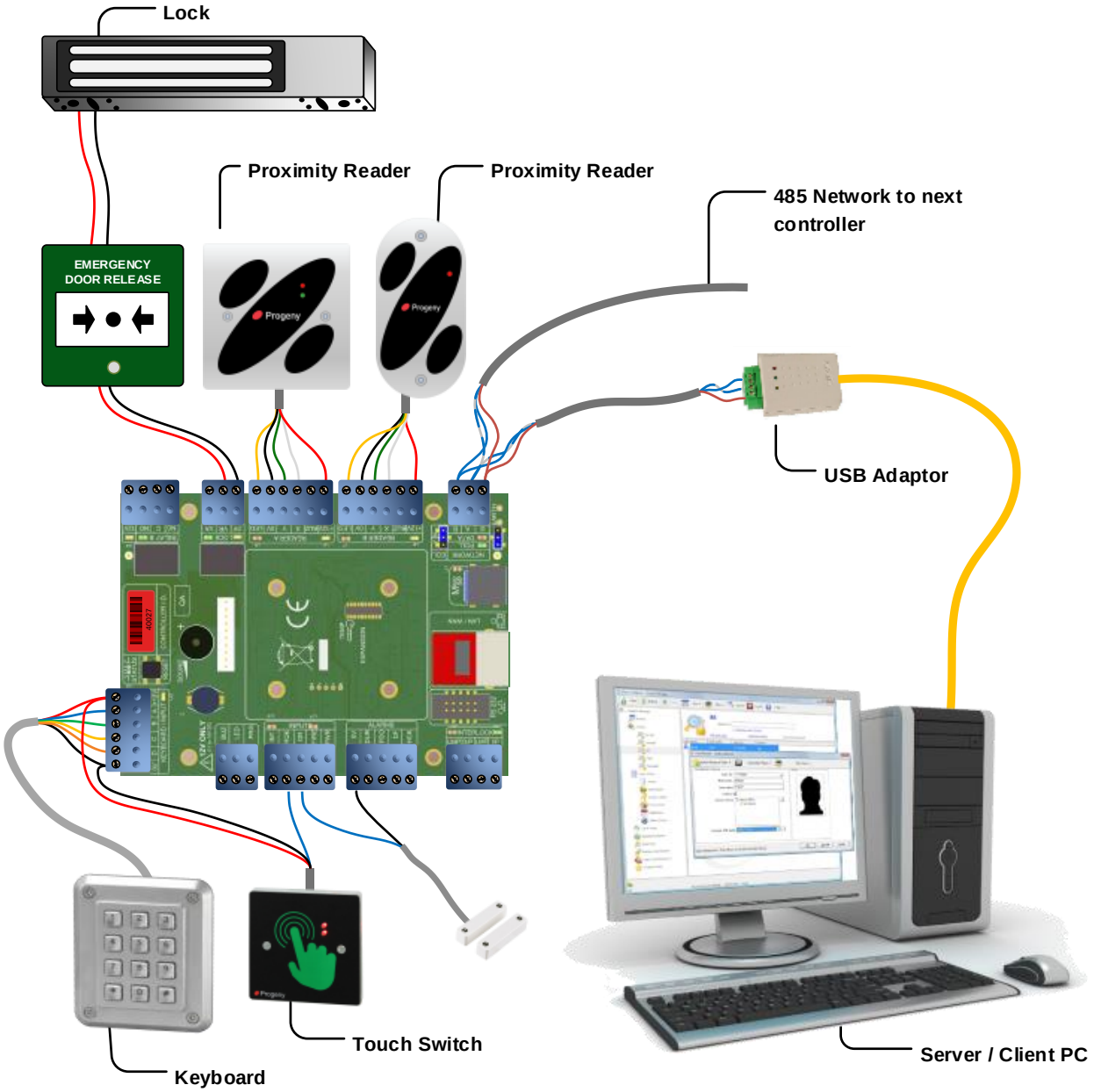
Programming the NETMASK



Only certain values are valid for a Subnet Mask. The value being used or supplied by the network manager should be one of the following:

Class	Net-mask	Host Bits
C	255.255.255.254	1
C	255.255.255.252	2
C	255.255.255.248	3
C	255.255.255.240	4
C	255.255.255.224	5
C	255.255.255.192	6
C	255.255.255.128	7
C	255.255.255.0	8
B	255.255.254.0	9
B	255.255.252.0	10
B	255.255.248.0	11
B	255.255.240.0	12
B	255.255.224.0	13
B	255.255.192.0	14
B	255.255.128.0	15
B	255.255.0.0	16
A	255.254.0.0	17
A	255.252.0.0	18
A	255.248.0.0	19
A	255.240.0.0	20
A	255.224.0.0	21
A	255.192.0.0	22
A	255.128.0.0	23
A	255.0.0.0	24

CRYSTAL CONTROLLER USING USB ADAPTER



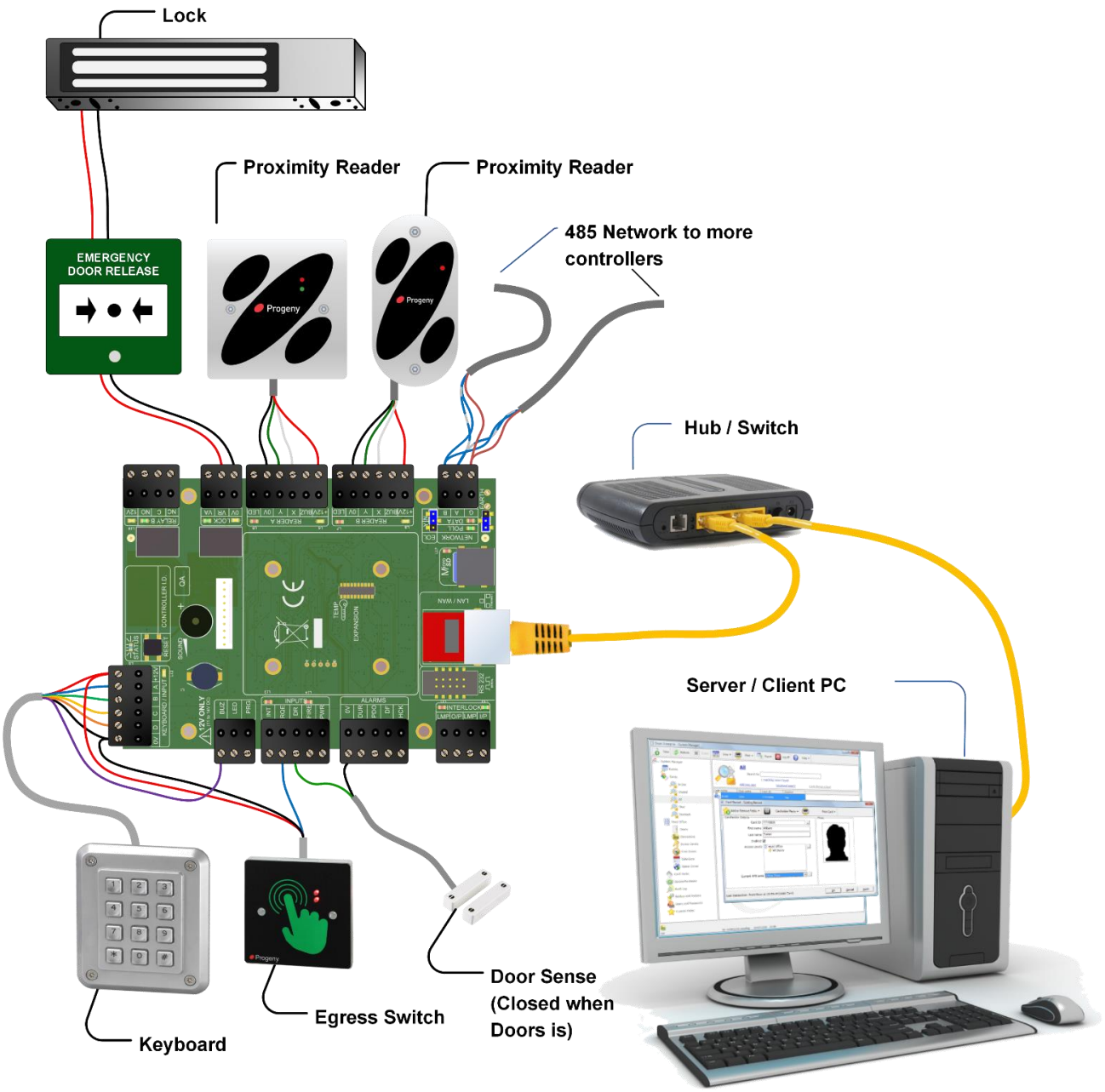
LOCK DEVICE BACK E.M.F SUPPRESSION

It is important to check that the locking device is suppressed. Any electromagnetic device will produce a back E.M.F when power is removed. This can interfere with and even damage other electronic equipment. Most good locking devices will already have suppression fitted. If not, you should fit an appropriate suppression device across the coil.

In the case of solenoid operated locks, a flywheel diode will do. Connect the cathode (Bar End) to the positive and the anode to the negative terminal of the coil. The diode will need to be rated at the full operating current of the coil.

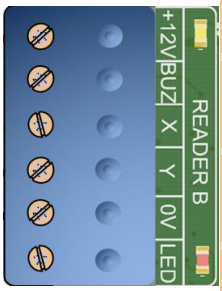
Do not use a diode for a mag-lock, as this will cause an excessive delay to the release of the door. A MOV or VDR is a far better choice. Polarity is not critical, but make sure the rated voltage is greater than the normal operating voltage of the lock.

CRYSTAL.NET CONTROLLER USING ETHERNET



Cables:

Cable Function	Cores	Screened	Twisted Pair	Strands per Core	Core Strand Thickness	Conductor Area	Resistance per 100m
Readers	6	Yes	No	7	0.2mm	0.22mm²	9.2Ω
Keyboards	8	Yes	No	7	0.2mm	0.22mm²	9.2Ω
Network	4	Yes	Yes	7	0.2mm	0.22mm²	9.2Ω
Locks	2	No	No	16	0.2mm	0.50mm²	4Ω



Crystal Controller	Progeny HID Prox	Progeny iCLASS	Crystal 4 Wire
Template:	2: Progeny Prox	2: Progeny Prox	0: Crystal (Default)
+12V	Red (+12V)	Red (+12V)	+12V
BUZ	Yellow (BUZ)	Yellow (BUZ)	
X	White (D1)	White (D1)	X
Y	Green (D0)	Green (D0)	Y
0V	Black (0V)	Black (0V)	0V
LED	Orange (LED)	Orange (LED)	
Earth Stud	Screen	Screen	Screen

Document Number:	MAN0029
Date:	16-10-2014
Firmware Version Number:	4.82 and Later
CE	
EMC & LV Certificate Number	WEEE Certificate Number
17851	WEE/JG2915VS