

FORTESSA

CONTROLLED ACCESS BY DESIGN

HARDWARE MANUAL

SAFETY NOTES

- Please read this manual carefully before attempting to install or operate the 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.
- All connections to this unit must be SELV level. (Safety Extra Low Voltage, BS EN 60950 1992)
- 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.
- These products are not designed for use in life support or safety critical appliances or systems where malfunction of these products can reasonably be expected to result in personal injury. Customers using or selling these products for use in such applications do so at their own risk



EMC, LV and
RTTE



Certificate Number 17851

FORTESSA

CONTROLLED ACCESS BY DESIGN

Document Number: 3802-I01 Issue 05

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System Overview

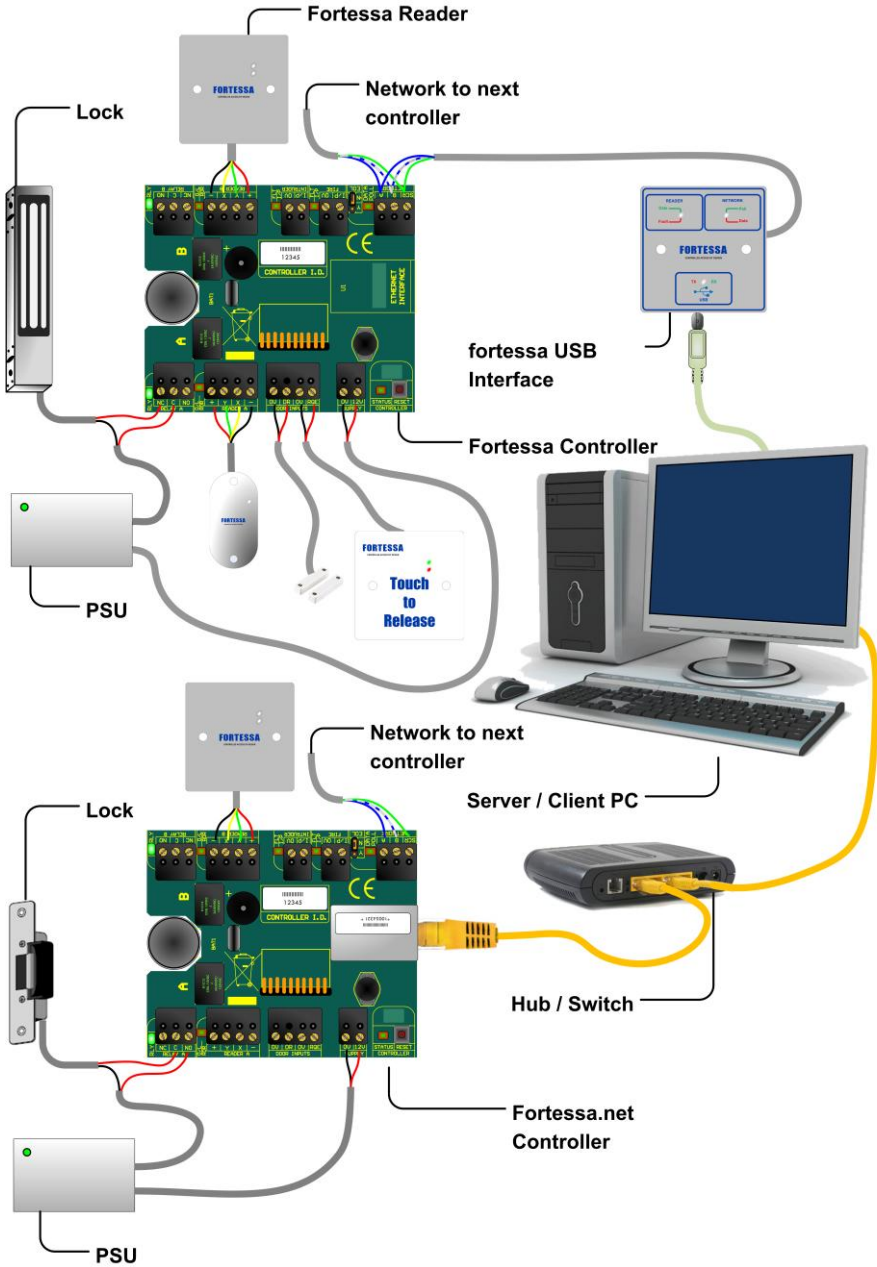


Figure 1

FORTESSA Controller

Description

The FORTESSA and FORTESSA.net Controllers are single door controllers for use with the FORTESSA access control range. FORTESSA uses a revolutionary reader interface that allows most door functions to be handled over a single 4 core unscreened cable. The controller is completely programmed from a PC using the Doors Express software.

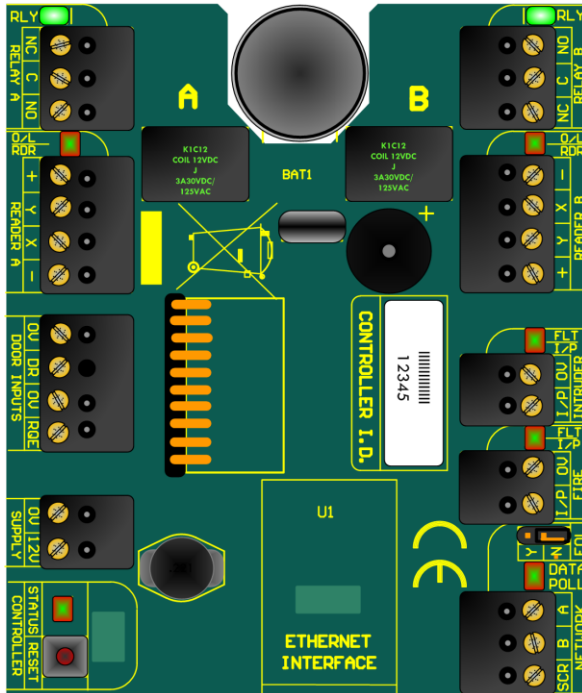


Figure 2

Box Contents

- 1 x FORTESSA Controller or FORTESSA.net Controller mounted in a 165mm x 145mm steel enclosure (black)
- 1 x Hardware Manual

Mounting

The FORTESSA Controller and its power supply should be mounted in a secure location or on the secure side of the door. This should ideally be as close to the door as possible (Max 100m cable run) to avoid volt drops.

Lock Drive

There are two voltage free relays (A & B) on the FORTESSA Controller for operating locking devices.

Readers

The controller has 2 proximity reader channels for use with FORTESSA readers only. Reader A is designated out and Reader B is designated in.

Inputs

The FORTESSA Controller has four input terminal blocks for external devices:

- a door sensor input (DR),
- a Request to Exit input (RQE),
- an Intruder input for connecting to an alarm panel and,
- a Fire input for connecting to a fire panel.

Resetting to Factory Defaults

The controller can be reset to factory defaults by pressing and holding the reset button located at the bottom right of the board for 7 seconds.

Supply

The FORTESSA Controllers require a 12V DC PSU (not supplied). The actual operating range is between 10V DC and 14V DC.

Network

Figure 1 shows both USB and Ethernet connectivity options to the FORTESSA controller from a host PC. The upper part of Figure 1 shows the 3801 FORTESSA Controller using the 3803 FORTESSA USB Interface

The lower part of Figure 1 shows connectivity to the 3802 FORTESSA.net Controller using a LAN or WAN.

Additional 3801 FORTESSA Controllers can be added to the system by linking them together in a daisy chain using the FORTESSA Network. Doors Express will support a maximum of 16 controllers per system.

The End of Line Resistor jumper is set to N as default. This should be changed to Y if the FORTESSA Controller is the first or last controller on the daisy chain network.

Cable

Network

Two core twisted pair cable is to be used to wire the FORTESSA Network (a screened cable can be used to offer better protection).

If the optional screened cable is used then the incoming and outgoing screen can be fitted to SCR on the Network terminal block. It is important to remember that the screen needs to be earthed to ground at one end of the network.

Reader

The FORTESSA Readers are connected to the FORTESSA Controller using a standard 4 core cable (alarm cable is suitable).

LEDs

Status

The status LED next to the reset button indicates whether the board has power or not.

Reader (A & B)

The readers LEDs indicate whether the reader circuit is in overload (red) or if there is activity from the reader itself (green).

Network LEDS

The green LED signifies that data has been received by the controller and the red LED indicates that there is traffic on the FORTESSA Network.

Relay

The green LEDs illuminate when the relays have been activated.

Fire

The red LED is on when there is a short on the Fire circuit and the green LED is on when it is in a state of alarm.

Intruder

The red LED is on when there is a short on the Intruder circuit and the green LED is on when it is in a state of alarm.

Notes on the Fire and Intruder Short Circuit Detector LEDs

The controller comes fitted with resistors between the I/P and 0V terminal blocks on both the Fire and Intruder inputs. To enable the board to detect a short on either circuit when fitting to a fire or alarm panel the resistor should be moved to the fire or alarm panel terminal block output.

FORTESSA Reader (Switch Plate Style)

Front View of FORTESSA Reader



Figure 3

Box Contents

- 1 x FORTESSA Reader
- 1 x stainless steel fascia
- 1 x UK standard surface mount single gang back box
- 2 x security screws
- 1 x driver bit for security screws

Description

The FORTESSA Reader is a passive RFID (Radio Frequency Identification) proximity reader for use with the FORTESSA system. The FORTESSA Reader is weather protected to IP66 and suitable for both indoor and outdoor use.

Power

The FORTESSA Reader uses 12V DC and power is taken from the positive and negative connections of the Reader terminal block on the FORTESSA Controller board.

Mounting

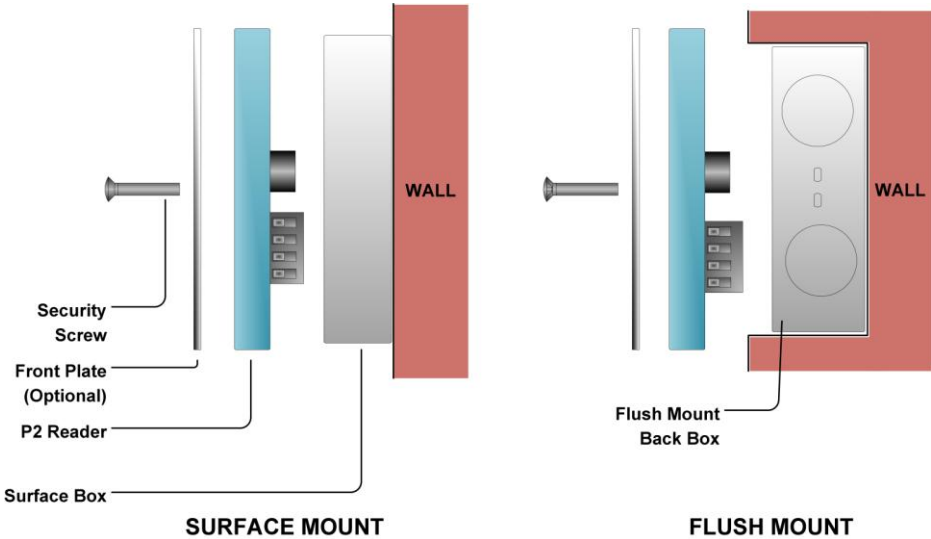


Figure 4

Connections

The FORTRESSA Reader should be connected to the FORTRESSA Controller using a four core cable. The cable run should be no more than 100 metres. Data is transferred between the FORTRESSA Reader and FORTRESSA Controller through the respective X and Y terminal blocks and should be linked X to X and Y to Y.

Inputs

Door Sensor

A door contact sensor can be fitted to DR on the Door terminal block and the negative terminal should be wired in to the negative connection on the Reader terminal block.

Request to Exit

A normally open connection, or “push to make” connection, Request to Exit button may also be fitted to the FORTRESSA Reader. The positive of the RQE should be wired in to RQE on the Door terminal block and the negative should be wired in to the negative of the Reader terminal block. The FORTRESSA reader must be fitted to Reader A on the FORTRESSA Controller and the RQE feature enabled in Doors Express for this configuration to work

Locking Device

A small strike lock can also be fitted to the reader with a rating of no more than 100mA by wiring in to the positive and negative Lock terminal block on the FORTRESSA Reader.

LEDs

There are two bi-colour LEDs on the reader. The lower LED flashes red until a credential is present when it will stay red and hold until the proximity credential is removed. The upper LED will turn green when a valid card is presented to the reader and red when the card is invalid.

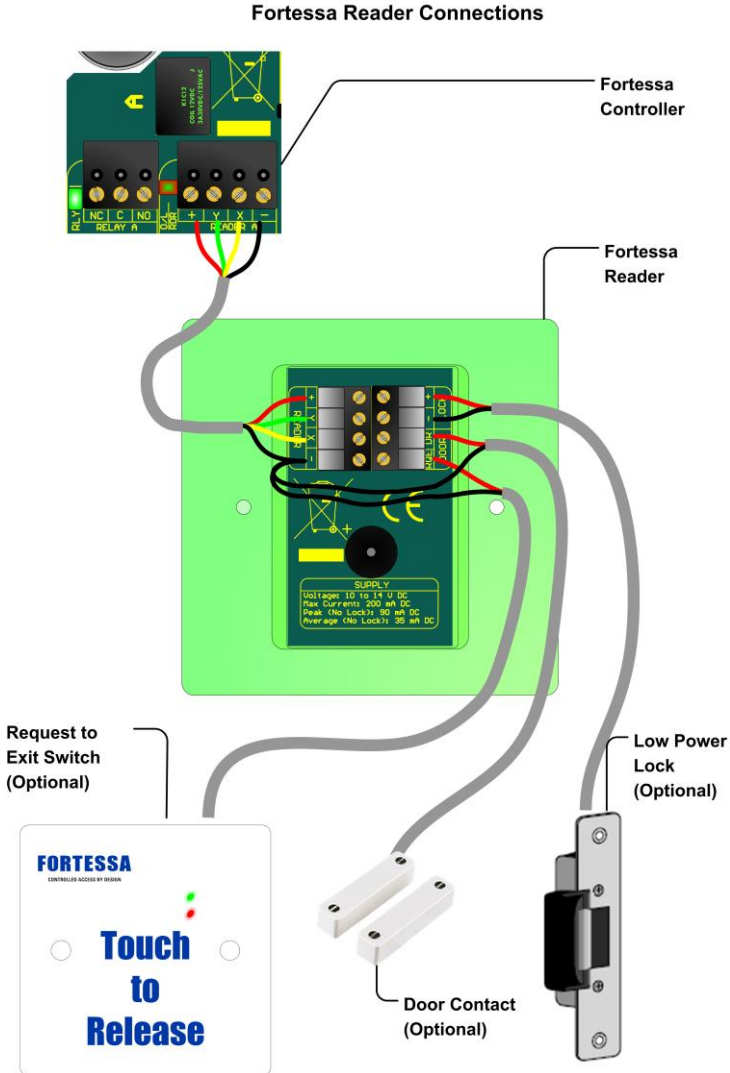
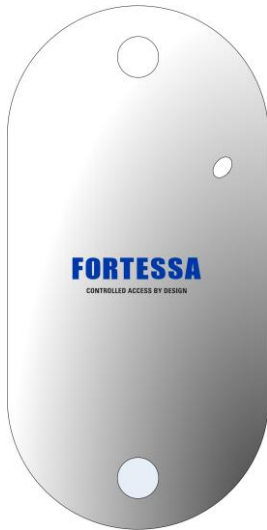


Figure 5

FORTESSA Reader (Mullion Style)

Front View of FORTESSA Reader



Cable Colour	Connection
Red	+
Yellow	Y
Green	X
Black	-
Orange	LOCK +
Violet	LOCK -
Blue	DR
Brown	RQE

Box Contents

- 1 x FORTESSA Reader
- 1 x stainless steel facia
- 2 x security screws
- 1 x driver bit for security screws

Description

The FORTESSA Reader is a passive RFID (Radio Frequency Identification) proximity reader for use with the FORTESSA system. The FORTESSA Reader is weather protected to IP66 and suitable for both indoor and outdoor use.

Mounting

Drill a 6mm hole at the centre point of the mounting position for the cable. The two mounting holes are on a 80mm pitch vertically from that point. Drill and plug the wall for a Number 6 screw. Feed the cable through the 6mm hole and secure the reader / front-plate with the screws provided.

FORTESSA Touch Switch

Description

The FORTESSA Touch Switch is capable of detecting near-proximity or touch. It projects a touch proximity field through the dielectric of the enclosure. The patented spread-spectrum charge-transfer technology, coupled with its ability to self-calibrate, makes this an entirely new concept.

It is designed specifically for “Request to Exit” or “Request to Enter Call” applications. The fully sealed IP66 enclosure makes it suitable for internal or external use.



Figure 6

Box Contents

- 1 x FORTESSA Touch Switch
- 1 x UK standard surface mount single gang back box
- 2 x screws

Power

The FORTESSA Touch Switch uses 12V DC and power is taken from the positive and negative connections of the Reader terminal block on the FORTESSA Controller board. The supply may also be tapped from a nearby FORTESSA reader.

Mounting

The touch switch may be mounted using the surface box provided or for better aesthetic appearance use a flush back box.

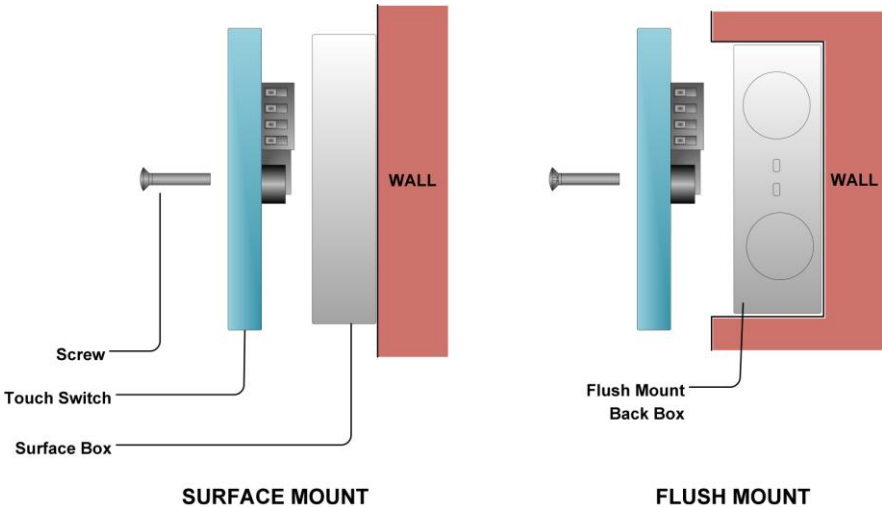


Figure 7

Connections

The touch switch may be connected to the system in one of two ways:

- Directly to the FORTESSA controller
- To a nearby proximity reader (Piggy Backed)

The piggy back option should only be used where the hacker attack is not a concern. For security reasons never use this option with external readers.

A four core unscreened cable should be sufficient for either wiring method. Wiring diagrams for the two methods are shown on the following pages. The cable run should be no more than 100 metres.

LED

This input will light the top Green LED when it is connected to 0V.

BUZ

When this input is shorted to 0V the inbuilt sounder will beep.

CONTACT

The relay contact of the switch provides C, NC and NO connections. The relay contacts changeover when the surface of the switch is touched. This change over is timed so that it will not hold even if the triggering object is not removed from the surface.

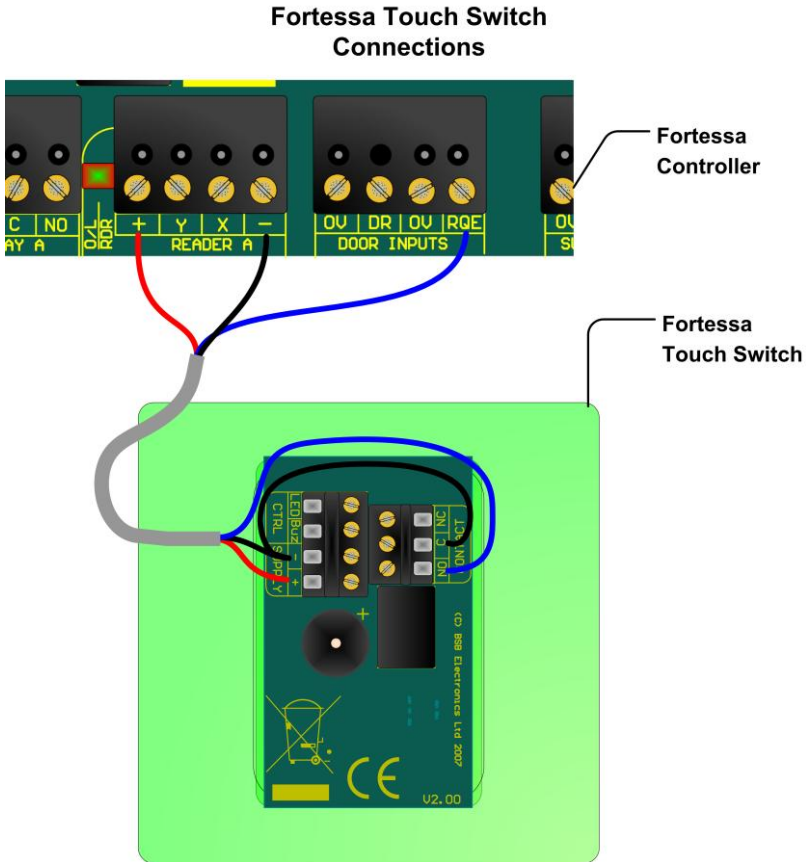


Figure 8

LED's

There are two bi-colour LED's on the reader. The lower LED flashes red until the front surface of the switch is touched. The LED will then stay green until the hand or finger is removed. The upper LED is controlled from the LED input.

Fortessa Touch Switch Piggy Back Connections

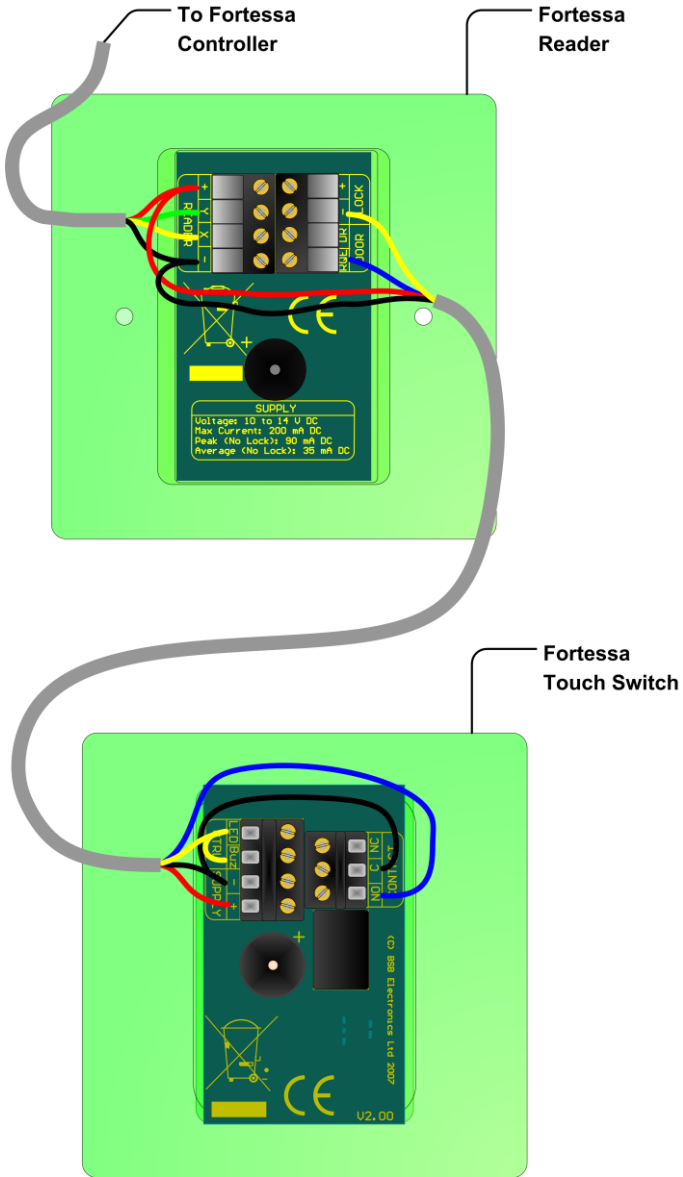


Figure 9

FORTESSA USB Interface

Description

The FORTESSA USB Interface allows data to be transferred from a host PC to the FORTESSA controllers.

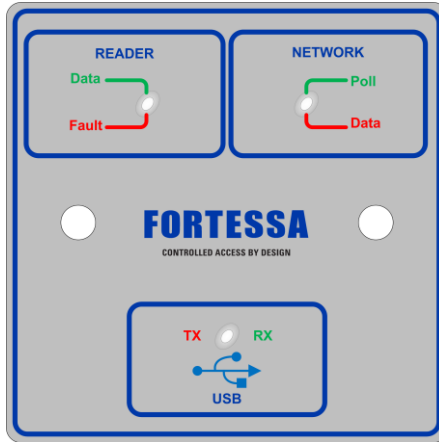


Figure 10

Box Contents

- 1 x FORTESSA USB Interface
- 1 x UK standard surface mount single back box
- 1 x 3 metre USB lead
- 2 x screws

Mounting

The USB Interface cannot be fitted on a flush mounted back box and should be mounted on the special surface mount back box which is provided.

Connections

The USB cable is connected from the host PC using the USB socket at the bottom of the FORTESSA USB Interface (before connecting the device for the first time it is important to start Doors Express first which will complete the driver installation).

The FORTESSA USB Interface is powered through a USB cable from the PC and does not require a separate power supply. The green flashing LED on the PCB on the rear of the FORTESSA USB Interface gives an indication as to whether the board is receiving power.

The FORTESSA USB Interface should be connected to a FORTESSA Controller by linking the Network A and B terminal block on the FORTESSA USB Interface to the Network A and B terminal block on the FORTESSA Controller.

End of Line Resistor

The End of Line resistor should be set to Y on the jumper setting (see figure 11).

Cables

Two core twisted pair cable is to be used to wire the FORTESSA Network (a screened cable can be used to offer better protection). FORTESSA Controllers can be further linked together in a “daisy chain”, to a maximum of 16 on the whole network, by wiring A to A and B to B using the Network terminal blocks of the FORTESSA Controllers.

If the optional screened cable is used then the incoming and outgoing screen can be fitted to SCR on the Network terminal block. It is important to remember that the screen needs to be earthed to ground at one end of the network.

A screened cable has advantages over a standard twisted pair cable. Whilst not a complete guarantee, a correctly fitted screened cable will help protect against induction from fluorescent lighting, power surges or lightning strikes by safely discharging the current to earth instead of the circuit board which could lead to damage.

Desktop Reader

The USB Interface can also support a connection to a FORTESSA Desktop Reader which is connected via the Reader terminal block. The positive and negative terminals from the FORTESSA Desktop Reader should be wired to the positive and negative connections on the USB Interface Reader terminal block and the X and Y data connections from the FORTESSA Desktop Reader should be wired to the USB Interface Reader terminal block by linking X to X and Y to Y.

Figure 7 below shows the layout of the USB Interface including the network connections and desktop reader ancillary.

LED Indicators

The Reader LEDs

The LEDs inform on the status of the optional FORTESSA Desktop Reader. A red LED indicates that there is a short circuit and a green LED indicates that there is data from the desktop reader.

The USB LEDs

TX (red) and RX (green), advise on whether the PC is transmitting to the USB Interface (TX) or receiving information from the USB Interface (RX).

The FORTESSA Network LEDs

The green Poll LED signifies that the USB Interface is receiving data from the PC and the red Data LED signifies that there is data on the FORTESSA network.

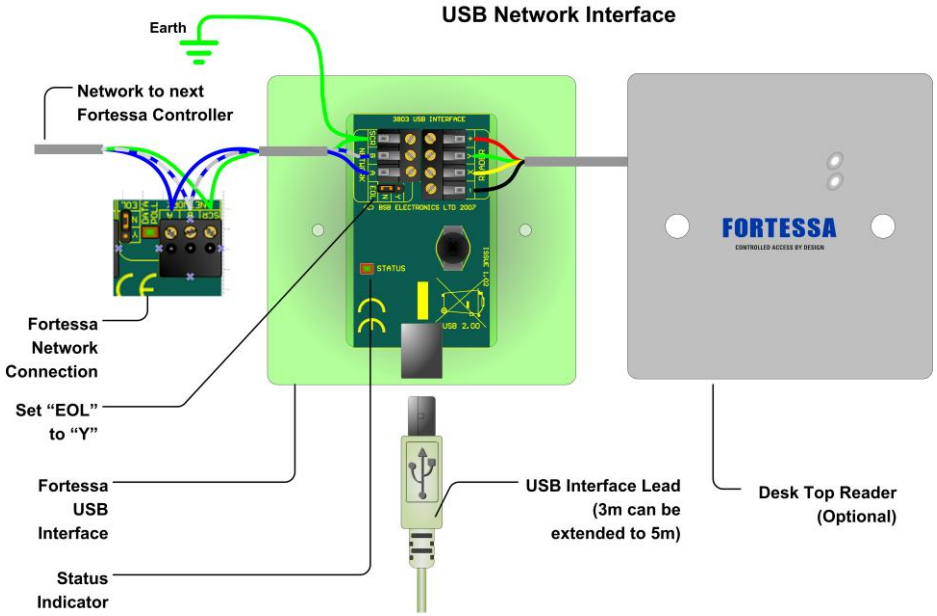


Figure 11

FORTESSA Credentials

Proximity Card

The FORTESSA Proximity Card is a passive RFID ISO proximity card for use with FORTESSA systems only. The card is credit card size and thickness and can be comfortably stored in a wallet or purse. The ISO proximity card is suitable for card printing enabling the card to also serve as an identity card.

Proximity Key Fob

The FORTESSA Proximity Key fob is a passive RFID proximity credential which conveniently fits on a key ring which is ideal for people who forget their cards, wallets or purses but remember their car and house keys! The FORTESSA Key Fob is for use with FORTESSA systems only.

Proximity Sticky Dot

The FORTESSA Proximity Sticky Dot is a passive RFID proximity credential which can be attached to the rear of mobile phones or other hand held devices. The dots are ideal if you wish to use existing identity cards as credentials for access, simply attach a dot to the rear of the identity card. The FORTESSA Proximity Sticky Dots are for use with FORTESSA systems only.

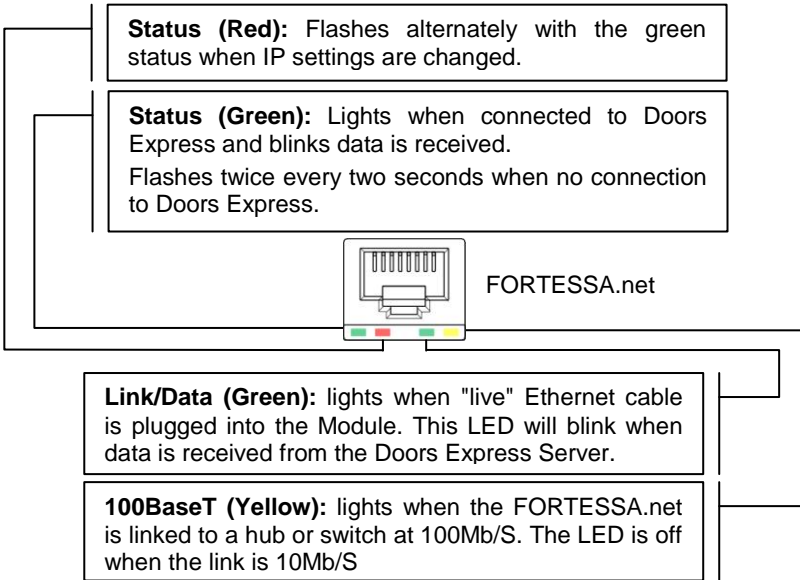
FORTESSA Product Codes

3800-FT	FORTESSA Reader
3801-FT	FORTESSA Controller
3802-FT	FORTESSA.net Controller
3803-FT	FORTESSA USB Interface
3804-10	FORTESSA ISO Proximity Card (10 Pack)
3804-100	FORTESSA ISO Proximity Card (100 Pack)
3805-10	FORTESSA Proximity Key fob (10 Pack)
3805-100	FORTESSA Proximity Key fob (100 Pack)
3806-10	FORTESSA Proximity Sticky Dot (10 Pack)
3806-100	FORTESSA Proximity Sticky Dot (100 Pack)
3808-FT	Doors FORTESSA Software
3809-FT	Doors FORTESSA Pro Software
3068-FT	FORTESSA Touch Switch
3811-FT	FORTESSA Demo Case (USB)
3812-FT	FORTESSA Demo Case (.net)

FORTESSA.net

FORTESSA.net provides a 10 / 100 Base T Ethernet connection via an RJ45 socket. This makes the FORTESSA system or parts of it "IP Addressable". The FORTESSA.net can be used by itself or in conjunction with the FORTESSA USB interface and or additional FORTESSA.net controllers. The only restriction is that the total number of door controllers is 16 or less.

FORTESSA.net controllers may be located on the same local area network or on a remote wide area network on different subnet.



Programming

Keyboard

The FORTESSA.net programming keyboard is located under the lid of the controller. Remove the two screws and lid to access the keyboard



All programmed functions are accessed by entering * # * <FUNCTION NUMBER>. For example to set the IP address enter “* # * 1”, a confirming tone will be heard from the controller and the new address can then be entered.

Functions

Two programming functions are provided with the FORTESSA.net:

- Set FORTESSA.net IP Address (Required)
- Set Server IP Address Filter (Optional)

The only required setting is the IP address. Note that if the FORTESSA.net is connected to the same subnet as the Server PC; then the FORTESSA.net IP address can be set from the software. The keyboard is primarily used to set the address when the FORTESSA.net is on the other side of a router on a different subnet.

In addition, the FORTESSA.net communications with the server PC can be locked down by specifying the server address.

Set FORTESSA.net IP Address

The FORTESSA.net IP address is the address used by Doors Express to communicate with the FORTESSA.net and attached controllers. This needs to be a fixed IP address. If connected to the end users LAN, a suitable address must be provided by the network supervisor from the fixed IP address range. The factory set value for this is 192.6.32.200.

To set the IP address to: 192.168.0.27 enter the following sequence.

* # * 1 192 * 168 * 0 * 27 #

Set Server IP Address Filter (Optional)

This function is entirely optional and not required for the operation of the FORTESSA.net with Doors Express. Its purpose is to filter which IP address that the FORTESSA.net will accept data from. This, in effect “locks” the FORTESSA.net to work with one server only, preventing any possible hacking. The down side to this is that if the servers IP address changes this value will have to be updated in the FORTESSA.net. The factory set value for this is 0.0.0.0 (Disabled)

To set the IP address to: 192.168.0.5 enter the following sequence.

* # * 2 192 * 168 * 0 * 5 #

Controller / Door Name Table

On the following page is a table for the door controller ID label to be located during installation. Simply attach the sticker to the table and enter a brief description of the location of the door controller. This list can then be checked during setup to confirm that all doors are on the system and labelled correctly.

Controller ID Label	Door Name	Notes

