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**APPENDIX L
OF
TEST REPORT T60821_F**

USER MANUALS FOR THE BQT AND PAC

FCC ID: QVL-MIP9
Manufacturer: BQT Solutions (Australia) Pty Ltd
Test Sample: Contactless Smart Card Reader
Model: MiP9 and 900-PAC
Serial Number: None

Date: 29th August 2006



miPASS)))



9

series
INSTALLATION GUIDE

Version 2.8

Introduction

Thank you for purchasing a miPASS 9 Series Mifare Contactless Smart Card Reader. Available in 4 different models catering for all security requirements large or small, whether your projects are price or functionality driven. The 9 Series reader models are:

DF900 - DESFire

BT900- Mifare (standard)

miP9 - BQT SPEK

CSN9 - Card Serial Number

The 9 Series reader is used in security applications and interfaces into Wiegand applications.

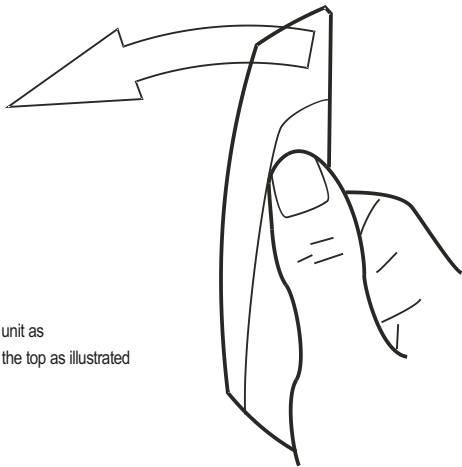
The 9 Series reader is preset with specific 'Keys'. Valid smart cards are issued with the same 'Keys'. This ensures that the system cannot be compromised. (No 'Keys' used for CSN9 model)

The reader incorporates a LED and Buzzer to provide feedback to a person wishing to enter. The control of these is shared by the reader and security controller.

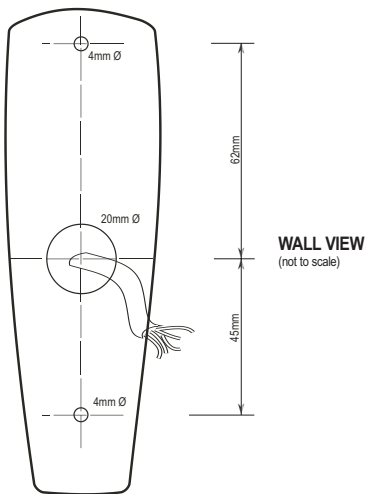
The 9 Series reader is low-profile and can be installed in new installations or as an upgraded reader in existing proximity access control systems.

Installation

Remove the cover by holding the unit as shown and pulling the cover from the top as illustrated



If necessary, drill holes for the mounting screws in the wall or mounting box on which the reader unit will be placed. (Use the Drilling Template provided).



1. Place the controller and power supply cable through the Grommit hole.
2. Drill the holes as indicated by the arrows.

Note: Make sure that you don't drill through the cable.

Check your circuit diagram for the colour coding of the circuit wiring. The reader can be damaged beyond repair if the wiring is connected incorrectly.



If the reader has the same power supply as the door latch relay, make sure that the relay is protected by a fast Schottky diode. If the relay is not protected reader operation will be affected.

NOTE: Power to the unit is provided from the Listed control unit or from a separately supplied UL Listed 12 Vdc power-limited, access control power source.

Wiring methods shall be in accordance with the National Electrical Code, ANSI/NFPA 70.

1. Connect the 0V wire to the Power 0V line.

NOTE: The 0V line of all power supplies **MUST** be connected to a common 0V reference point.

2. Connect the Wiegand signal cables.

3. Connect the Buzzer and the LED cables.

4. Attach the 12Vdc wire last.

5. Place the reader on the wall (Make sure the wires are not crushed)

6. Insert and hand tighten the screws.

7. Check that the reader is level before tightening the screws.

NOTE: Excessive tightening of screws may deform the casing, resulting in a damaged unit. This will void the warranty.

8. Replace the cover.

9. Power up the reader.

NOTE: The unit needs up to 15 seconds to set up before it can respond to a valid smart card.

External Use

- Mount the reader on a suitable external single gang surface mount box.
- **USA ONLY** - BQT mounting plate adaptor is available for mounting to a US single gang box.
- Make sure that the wire bundle to the 9 Series reader has an IP rating of at least IP67.
- Use warming pads if the temperature of the reader is expected to fall below -10°C (14°F).

Handling

- Handle the 9 Series reader with care. Do not damage/drop unit before installation.
- The reader unit will not be waterproof if the casing is damaged. Replace the reader if the casing is damaged.

Maintenance

- Once installed the 9 Series reader requires no maintenance.

Troubleshooting

- If the reader doesn't respond when a valid smart card is presented, check the following.

Symptom	Possible Cause	Check
LED is not lit	No power to the reader	Check the power supply to the reader.
LED is Orange or Buzzer sounds low	Voltage to the reader is below 10V	Check the power supply to the reader
Reader doesn't respond	Invalid card or card is faulty	Check reader with another valid smart card
Reader beeps but lock doesn't open	Wiring to the controller may be faulty.	Check the wiring to the controller

NOTE: If reader beeps when a valid smart card is presented then the reader is functioning.

If the problem still persists then please contact your distributor for technical support and to obtain an RMA if required.

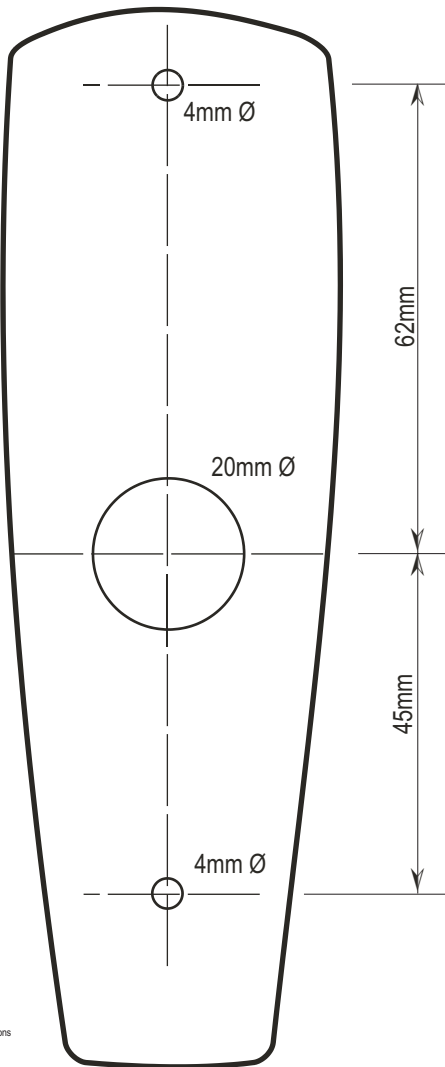
Warranty

The 9 Series reader comes with a 5 year warranty from the date of dispatch from BQT Solutions. The warranty is void if the instructions contained within this manual have not been adhered to.

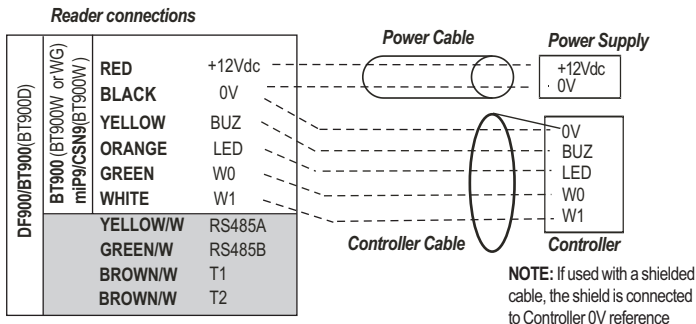
Drilling Template

For all 9 Series readers

- 20mm (0.79") diameter hole for wire entry
- 2 x 4 mm (0.16") diameter holes for mounting screws
- Minimum reader dimensions are 140mm x 45 mm (5.51" x 1.77")



Wiring Schematic



- NOTE:**
- The 0V reference cable shall be included within the controller cable.
 - The 12Vdc power cable shall NOT be included in the controller Cable.
 - Only ONE power source is connected from the reader at any one time.
 - **RS485 - OPTIONAL USE**
 - **TAMPER SWITCH AVAILABLE ON REQUEST**

Regulatory Information

CE Mark

The 9 Series has passed all relevant tests and obtained CE approval.

C Tick

The 9 Series has passed all relevant requirements for application of C Tick.

FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help



Any changes or modifications not expressly approved by BQT Solutions could void the user's authority to operate this equipment.

Specifications

Output protocols	Wiegand 26-199 bit, RS485 or custom configurations (model dependent)
Power requirements	12Vdc
Current consumption	
Normal	120mA
Activated	140mA
Read range	20 - 60mm (0.8" – 2.4")(typically)
Operating temperature	-25°C to +65°C (-13°F to 149°F)
Relative humidity	90% max, operating non-condensing
Reader dimensions	140mm (L) x 45mm (W) x 32mm (D) (5.51" x 1.77" x 1.26")
Status LED's	Green & Red
Audible tone	Internal or external buzzer control
Colour	Two toned – Silver & Charcoal
IP rating	IP 67
miPASS 9 Series Mifare reader models	DF900 - DESFire BT900 - Mifare miP9 - SPEK CSN9 - Card Serial Number

Information contained in this document is subject to change without notice.

For further technical information visit our website at www.bqtsolutions.com
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Smart Mullion Reader Installation Guide

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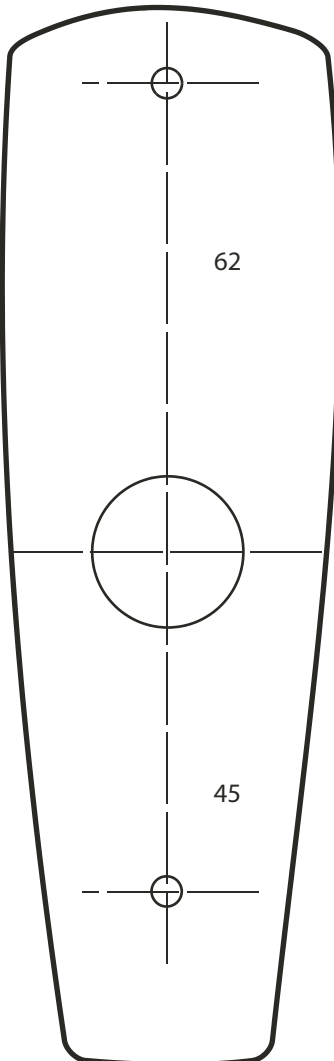
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Smart Standard Mullion Drilling Template

- 20mm (0.79") hole for wire entry
- 2 x 4 mm (0.08" x 0.16") holes for mounting screws
- Minimum outer dimension is 140 mm x 45 mm (5.51" x 1.77") so as not to interfere with any other components



Reader Specifications

Reader Output	PAC proximity format
Power requirements	12Vdc
Current Consumption (+/- 5%)	
Normal	120mA
Activated	140mA
Read range	20 - 60mm (0.8" - 2.4")(typically)
Cable distances	
0.22mm ² cable	100m max
0.33mm ² cable	250m max
Operating temperature	-10°C to +55°C (14°F to 131°F)
Relative humidity	90% max, operating non-condensing
Reader dimensions	140mm x 45mm x 32mm (5.51" x 1.77" x 0.79")
Status LED's	Green/Red controlled by access controller
Audible tone	Controlled by access controller
Colour	Two toned - Silver & Charcoal
IP rating	IP 67

Regulatory Information

CE Mark

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C Tick

The reader has passed all relevant requirements for application of C Tick.

FCC

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Note

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- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help



Any changes or modifications to this product not expressly approved in this document could void the user's authority to operate this equipment.

Introduction



Smart Mullion Reader



Optional Back Box

The reader outputs a PAC format suitable for PAC 202/512 access controllers. They are used in security applications and can be installed in new installations or as an upgraded reader in existing proximity access control systems. Each reader incorporates a LED which is controlled by the security system and provides feedback to a person wishing to enter.

External Use

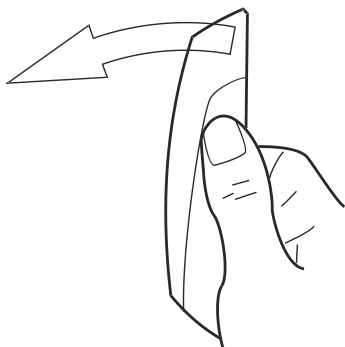
Mount the reader on a suitable external single gang surface mount box. Make sure that the wire bundle to the reader has an IP rating of at least IP67. Use warning pads if the temperature of the reader is expected to fall below -10°C (14°F).

Handling

Handle the reader with care. Do not damage/drop unit before installation.

Smart Mullion Reader Installation

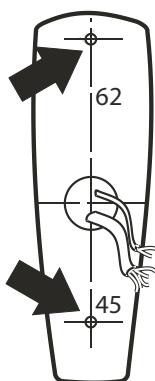
1. Remove the cover by holding the unit as shown and pulling the cover from the top as illustrated.



2. If necessary, drill holes for the mounting screws in the wall or mounting box on which the reader unit will be placed. Use the template provided. Alternately a back box can be used.
3. Place the controller and power supply cable through the grommit hole.
4. Drill the holes in the wall as indicated by the arrows.



Make sure that you don't drill through the cable.



Wiring

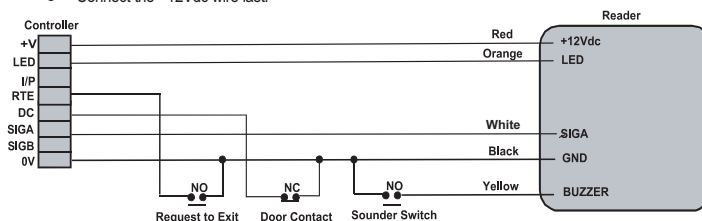


1. Read the instructions before wiring.
2. The request to exit and door contact can be wired for 4-state if required.

Note

Using two readers, for in and out, on one door channel will require one reader to be powered separately. See Technical Bulletin TB151 "How to Connect High-Current Readers to PAC Access Controllers"

1. Connect the wiring as indicated in the diagram to the socket. Check your circuit diagram for the colour coding of the circuit wiring.
 - Connect the 0V reference and 0V (if provided in the power supply) to the ground (GND) Wire.
 - Connect the signal and optional wires.
 - Connect the LED wire.
 - Connect the +12Vdc wire last.



2. Place the reader on the wall. Make sure the wires are not crushed.
3. Insert and hand tighten the screws.
4. Check that the reader is level before tightening the screws.



Excessive tightening of screws may deform the casing, resulting in a damaged unit. THIS WILL VOID THE WARRANTY.

5. Replace the cover.
6. Power up the reader.

Note

The unit needs approximately 13 seconds to set up before it can respond to a valid smart card.

Maintenance

Once installed the reader requires no maintenance

Troubleshooting

If the reader doesn't respond when a valid smart card is presented, check the following:

Symptom	Possible Cause	Check
LED is not lit	No power to the reader	Check the power supply to the reader.
LED is orange/indeterminate or buzzer sounds low	Voltage to the reader is below minimum required level	Check the power supply to the reader
Reader doesn't respond	Invalid card or card is faulty or Wiring to the controller is faulty.	Check reader with another valid smart card; if problem persists check wiring

If the problem still exists, uninstall the reader and send it back to the PAC. If the reader is within the warranty period then another will be sent free of charge.

Warranty

Each reader comes with a 3-year warranty from the date of dispatch. The warranty is void if the instructions contained within this document have not been adhered to.