



Summary

BlueLock automatically detects known Bluetooth devices within range. If it detects a device it recognizes, it energizes the relay.

Applications

- Door lock / access control
- Automated lighting control
- Invisible remote control activates automatically in the presence of the cellphone

Features

- Up to 128 Bluetooth device IDs may be stored
- Range settable from 1.6m to 50m
- FCC / CE certified Class I Bluetooth radio
- Integral antenna
- External push button release connection
- External light/LED indicator connection
- LED indicator of Bluetooth status
- 12V DC supply
- Easy installation via screw terminals
- Easy 'learn' new cellphones process

Operation

BlueLock can be configured to trigger in one of three operating modes:

- **Auto Mode:** Relay triggers whenever a recognized device is in range. To operate in this mode, connect the jumper SIL1 across pins a and b.
- **Arrival-Only Auto Mode:** Relay triggers whenever a recognized device comes into range. To operate in this mode, connect the jumper SIL1 across pins b and c. In addition, it will trigger if a recognized device is present and then the external pushbutton is pressed.
- **Semi-Auto mode:** Relay triggers whenever a recognized device is present and then the external pushbutton is pressed. To operate in this mode, disconnect the jumper on SIL1.

The time delay for which the relay operates may be set between 1 and 255 seconds.

During normal operation, LED D5 will light when a recognized device is present. If an external indicator is connected, it will also light. LED D4 will flash briefly every 10 seconds to indicate correct operation.

Care must be taken if this product is used to switch mains voltages. High voltages must NOT be present unless the case is shut.

Various settings may be adjusted using jumper switches inside the unit. When not in use, the jumpers may be 'parked' by placing them over one pin only, so no connection is made.

Ordering Information

Table 1. Ordering information	
Part No	Description
BLUELOCK	Bluelock Access Controller

Manufactured to ISO9001:2000



BlueLock Installation

Install BlueLock in an area where you would expect good radio reception, e.g. at least 1 meter above the ground and not in a metal enclosure, and also where it is secure against tampering.

12V should be applied to the 12V connector on screw terminal TB5. Refer to figures 2 and 3.

The trigger relay is Relay 2. Connect as required. Relay 2 activates according to the trigger mode previously described. *Relays are not to be used for mains isolation purposes – the power supply input must be isolated.*

Relay 1 and D5 act as 'recognized device detected' indicators. D5 will light when whenever a recognized device is present. If an external indication is required, it can be connected to Relay 1.

Some trigger modes use an external pushbutton. If this is required it should be connected to the screw terminals marked TB6. The on-board pushbutton closes the same circuit.

Note: If a Bluetooth device is constantly located near BlueLock, for example on a desk within range, the battery will run down a bit faster quicker than normal. In this case one option is to set their phone to non-discoverable mode. Then it will not respond to scans from BlueLock.

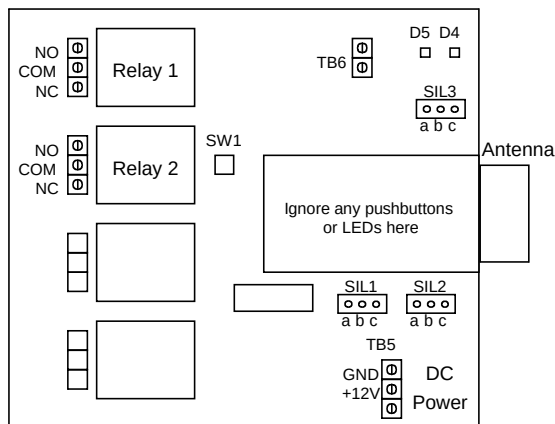


Figure 2 – BlueLock connections
(Not all components shown may be present)

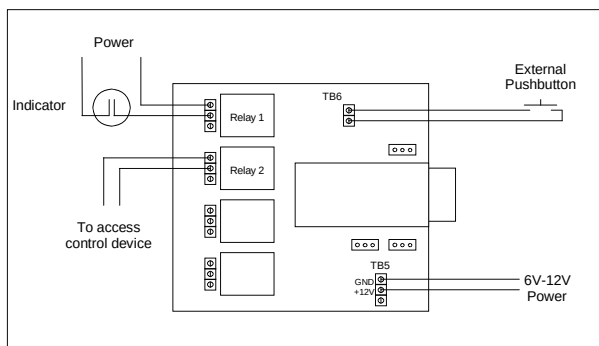


Figure 3 – Typical application setup

Learning and Erasing Bluetooth devices

BlueLock can learn to recognize up to 128 Bluetooth devices (i.e. mobile phones). These devices must be equipped with a Bluetooth radio which is set to discoverable mode. Note that some Motorola phones can not be set permanently in a discoverable state.

Learning a new BT device:

1. Ensure the device to be learned is the only Bluetooth device within range.
2. Connect the jumper SIL2 across pins *a* and *b*.
3. BlueLock will scan for devices for 10 seconds. Each time it detects a Bluetooth device, LED D4 will extinguish briefly. (Note: If D4 flashes rapidly, all 128 storage locations are full.)

At the end of the 10 seconds:

- If no devices were detected, step 3 repeats.
- If one device was detected, it will be added to the list of recognized devices and D4 will go out. Proceed to step 4.
- If more than one device was detected, step 3 repeats.

4. Remove the jumper from SIL2.

Erase all devices from the BlueLock Memory:

1. Connect a jumper across SIL3 pins *b* and *c*. LED D4 will light.
2. Press and hold pushbutton SW1. LED D4 will go out. Hold for at least five seconds.
3. LED D4 will flash slowly indicating that all recognized devices have been deleted.
4. Remove the jumper link across SIL3.

Setting the Relay Time

The Relay 2 operating time may be set between 1 and 255 seconds. The factory setting is 1 second. In *Auto Mode*, this is the time Relay 2 continues to operate for once recognized devices can no longer be detected. In *Arrival-Only Mode*, it is the time since the Relay 2 started operating. In *Semi-Auto Mode*, it is the time since the button was released.

To set the timed action delay:

1. Connect a jumper across SIL3 pins *b* and *c*. LED D4 will light.
2. Briefly press pushbutton SW1. (Do not hold it down – that erases all devices!)
3. The LED will flash quickly.
4. Wait for the duration that the output is to operate for, then press pushbutton SW1 again.
5. The LED will stay lit to indicate the operation is complete.
6. Remove the jumper link across SIL3.

Setting the Detection Range

The detection range may be set to any one of the following settings:

Table 2. Detection Range Settings	
Setting	Range†
1	1.5 m / 5 ft
2	3 m / 10ft
3	5 m / 15 ft
4	9 m / 30 ft
5‡	15 m / 50 ft
6*	30 m / 90 ft
7*	50 m / 160 ft
†Ranges are approximate and depend on actual operating environment.	
*If device to be detected is Class II	
The range may be limited to 10m-20m.	
‡ Factory setting	

To set the detection range:

1. Press and hold down pushbutton SW1.
2. Connect a jumper across SIL3 pins *b* and *c*. D5 will light until step 7.
3. Release SW1.
4. LED D4 will repeatedly show a series of flashes: one flash indicates the current range setting is 1, two flashes indicates setting 2, etc.
5. Press pushbutton SW1 as many times as the setting you want. For example, for setting 3, press 3 times.
6. LED D4 will repeatedly flash to show the new setting.
7. Remove the jumper link across SIL3.

Note that the detection range feature was added to BlueLock in August 2007. If D5 does not light, the device was manufactured prior to that date. Such devices may be reprogrammed on request to enable range setting. Contact FlexiPanel technical support for details.

Technical Specifications

Physical

Max operating temperature	- 20°C to +75 °C
Max storage temperature	- 30°C to +85 °C
Dimensions L × W × H	110 mm × 85 mm × 35 mm

Electrical

Supply Voltage (unregulated)	12V
Typical current	60 mA
Additional current per energized relay	55 mA
Relay rating (note 1,2)	10A / 250V AC 15A / 28V DC

1. High voltages must NOT be present unless the case is shut.
2. Relays are not to be used for mains isolation purposes – the power supply input must be isolated.

Radio

Max RF output power	Class II = 1mW = +0dBm
RF frequency range	2402MHz to 2480MHz
RF channels	79
Frequency hopping	1600 Hz
Range	100m nominal

Bluetooth, FCC, CE approval

The radio has been pre-qualified and is listed in the Bluetooth Qualified Products as B00524. The radio has 'modular approval' for USA and certain European countries, provided the existing integral antenna is used. The CE mark on the module indicates that it does not require further R&TTE certification.

Ordering Contact

BlueLock is manufactured and distributed by:



R F Solutions Ltd
Unit 21, Cliffe Industrial Estate,
Lewes, E. Sussex, BN8 6JL, United Kingdom
email : sales@rfsolutions.co.uk
www.rfsolutions.co.uk
Tel: +44 (0)1273 898 000, Fax: +44 (0)1273 480 661

Technical Information

BlueLock is owned and designed by:



FlexiPanel Ltd
2 Marshall St, 3rd Floor
London W1F 9BB, United Kingdom
www.flexipanel.com
email: support@flexipanel.com