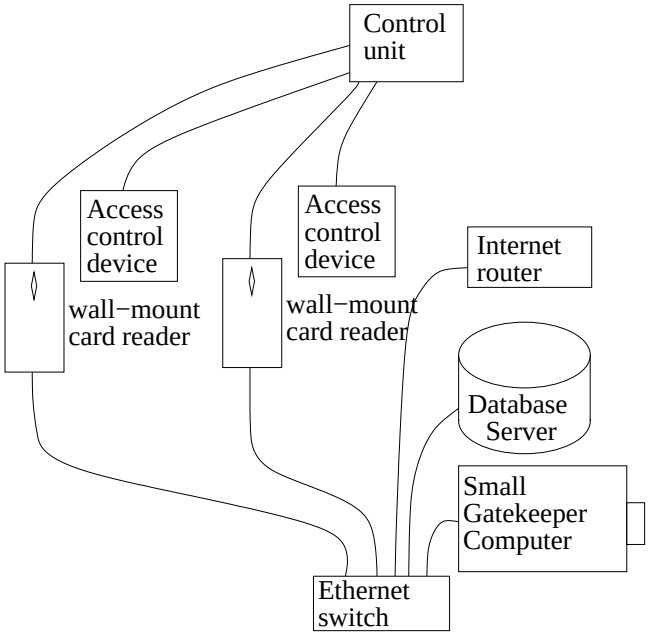
Installation Instructions for Network Readers

LAN Based Readers



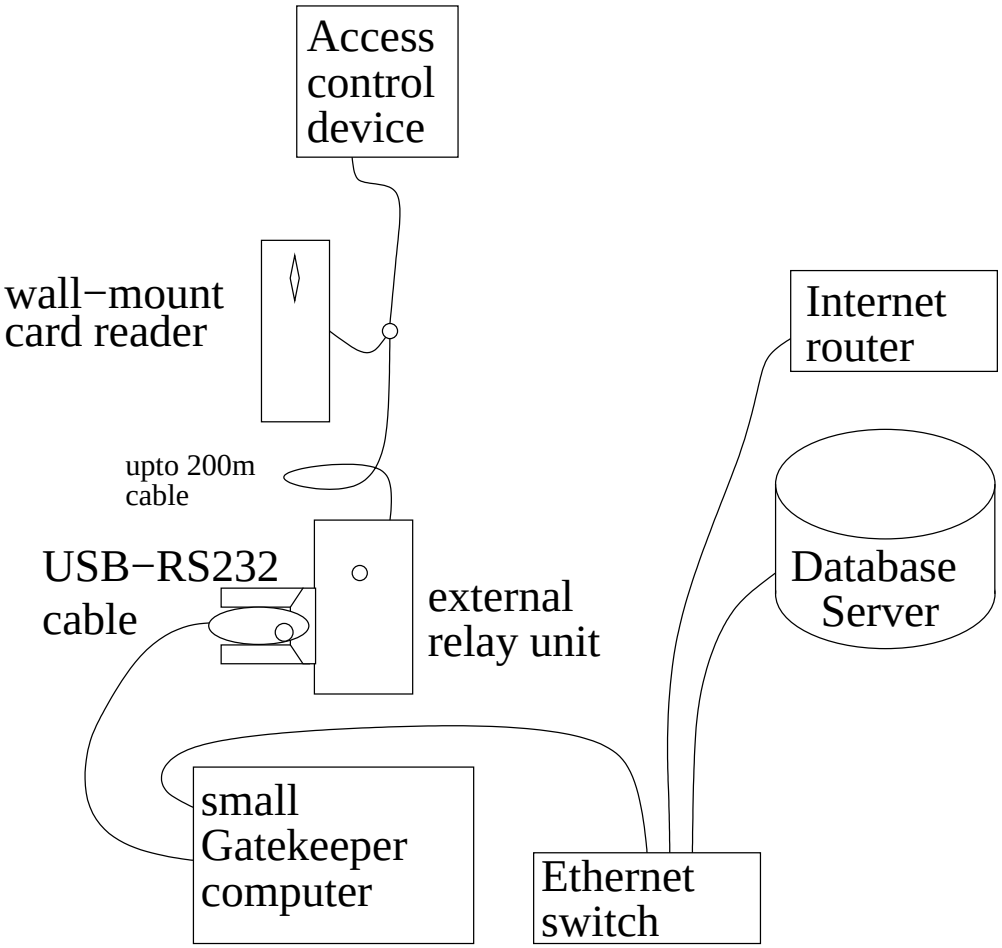
These RFID readers connect via ethernet LAN cables to a network switch instead of connecting directly to the server.

The readers contain a relay which is used to signal the door release circuit. Two readers are shown but we can support up to 10 per Gatekeeper. If more are needed, a dedicated database and access control server is recommended instead.

The Control unit in thie picture provides power for the readers, switches the power for the the access control hardware. and handles exit delays etc.

Do not connect Access control hardwarwe directly to the RFID reader relay contacts, always use a door controller, connecting readers directly to access hardware may lead to the reader shutting down or losing its configuration. the bare minimum is a external 12V relay switched by readers relay.

RS232 Readers On Gatekeeper



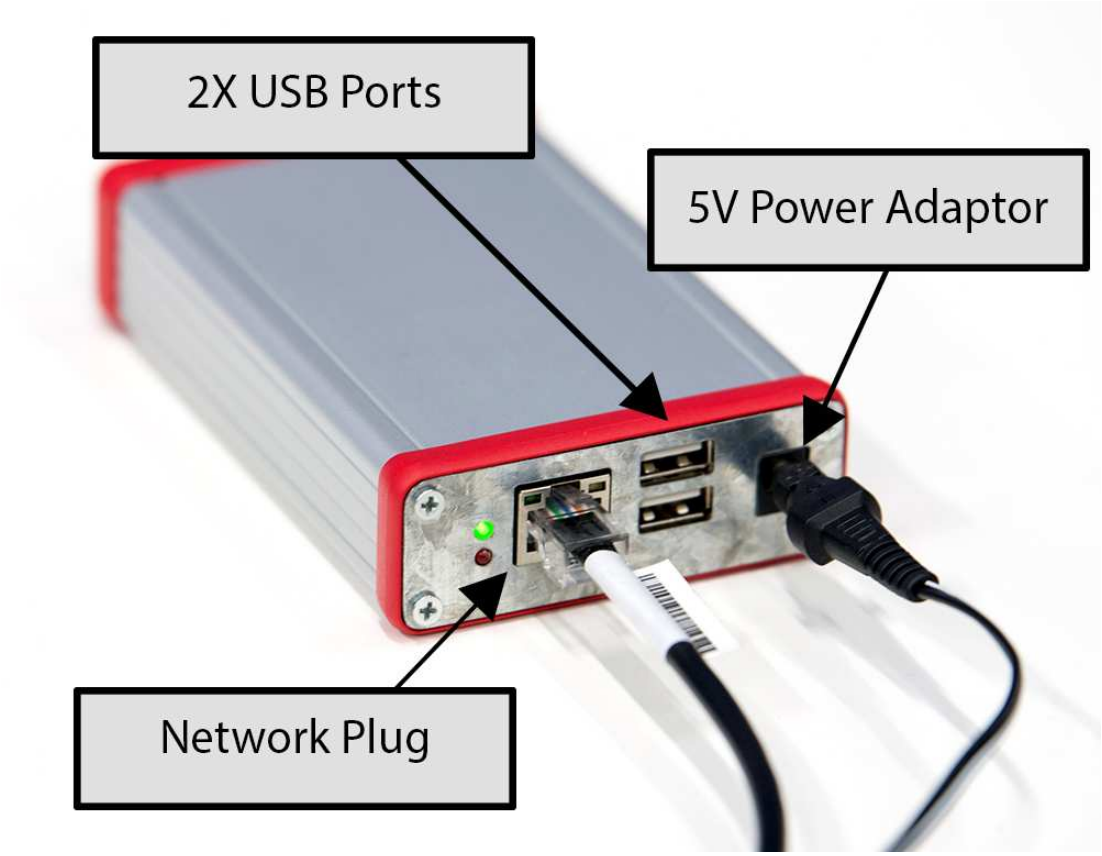
These RFID readers do not contain a relay to activate the access control, or connect to the LAN. Instead an external relay unit is used which connects to the gatekeeper using a USB to RS232 cable and also passes the RS232 signals through to communicate with the reader. Only one reader is shown, but several can be connected, i.e. by using multi-end cables or USB hubs.

Wiring for this system is discussed in a different document.

The Gatekeeper Computer

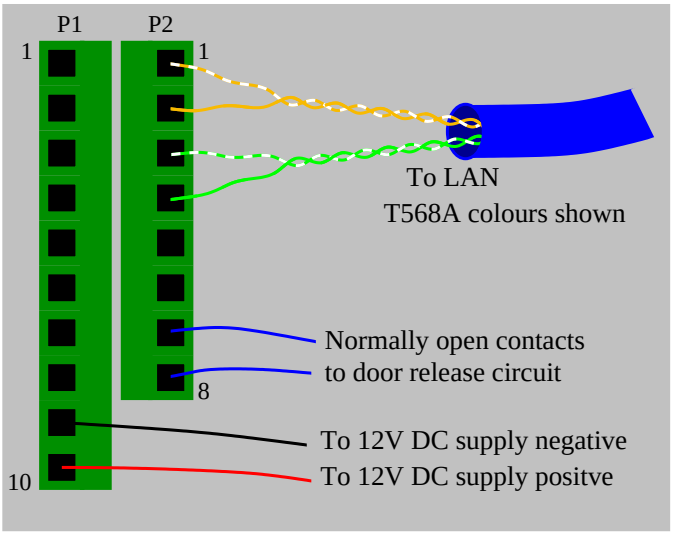
This is a tiny computer that monitors the RFID readers and interfaces them with the GymMaster database. It remembers who it has let in so that during any database outage, it can still operate the doors.

We provide a battery backed supply that can operate it for short power cuts. Alternatively, the vehicle cigarette socket plug can be fitted and it can be powered from your door lock battery instead.



The RFID Reader

The RFID reader connects to your ethernet LAN to communicate with the Gatekeeper and to the Lock the circuit for power and to unlock the door.

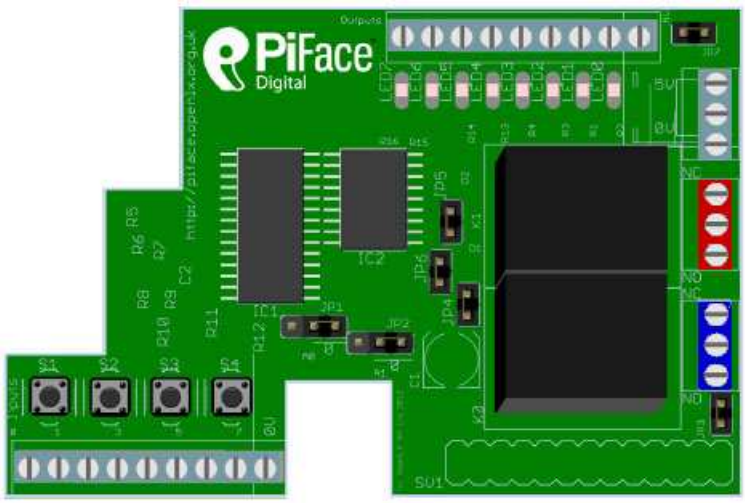


This image shows the connectors on the rear of the reader connect the LAN and the door circuit as shown.
T568B transposes the orange and green pairs.

rfid reader		purpose	
P2	1	RJ45 pin 3	
	2	RJ45 pin 6	
	3	RJ45 pin 1	
	4	RJ45 pin 2	
	5	(unused)	
	6	relay N.C.	1
	7	relay Com	
	8	relay N.O	2
P1	9	DC12V -ve	
	10	DC12V +ve	

Gatekeeper Relay

Some gatekeeper units that are sent out have an onboard relay. When the gatekeeper casing is removed, the relay on top of the device should look like the following:



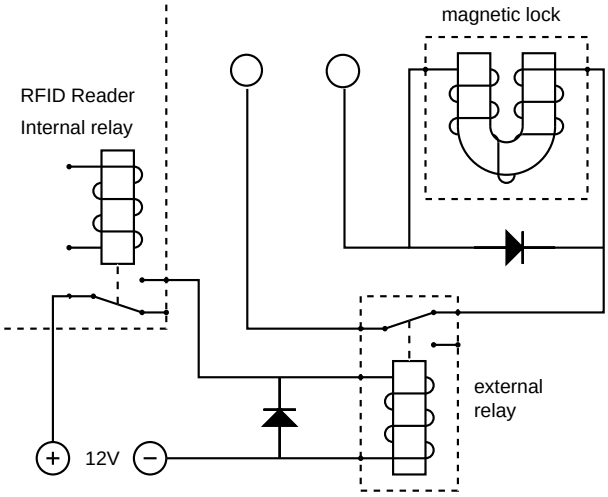
When wiring up the lock to the device, the default switch to use is the bottom one (blue in the diagram). Note that the top screw for the switch (relative to the orientation of the above image) is NC (normally closed), where as the bottom screw is NO (normally open).

If you're required to setup the configuration file, the "gatekeeper_relay" variable to use is 200 for the bottom relay (blue), and 201 for the second relay (red).

Recommended wiring

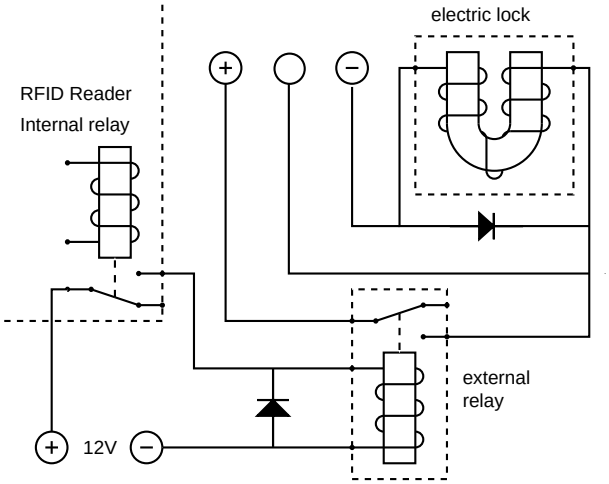
Correct connection to the door release circuit is critical to reliable operation of the reader. The readers internal relay is not suited to directly switching the current used to perate the lock. instead an external relay should be used to boost the drive capability and offer some isolation. In addition diodes should be installed to redirect the voltage surge associated with opening the circuit,

For "fail-safe"



For locks that require power to lock you can stwitch locking current by putting a relay in series with the lock. Remember to fit diodes, failure to do so may lead to the RFID reader quitting.

For Fail secure



For locks that require power to unlock the external relay contacts should be wired parallel to the other unlocking switches Remember to fit diodes, failure to do so may lead to the RFID reader quitting.

Reccomended installation procedure

1. Read all the instructions.
2. Check you have all the neccessary components.
3. Connect the Gatekeeper to LAN and power supply.
4. Call GymMaster Support to configure it to communicate with your GymMaster database. We can access it remotely. Before the Gatekeeper is configured to communicate with your database, it will only recognise the included RFID tag. Once the database connection is established, that tag will be rejected by the reader and only tags registered with GymMaster will be recognised.
5. Confirm that the door release is working correctly in isolation. Check request to exit (if present).
6. Connect the reader to a power supply and to a short LAN cable, connect to the LAN, confirm that the network switch is seeing the RFID reader, and confirm proper operation using a continuity tester on the relay terminals.
7. Re-locate the reader to the desired location and test as-above in-situ. before connecting it to the door release circuit

Troubleshooting

0.1 Relay/Door Lock

The Relay should switch states whenever the green light on the door reader is active.

- You can test the relay is wired correctly to the NO/NC contacts by manually setting the door to be open/unlocked in GymMaster (From Settings, GymMaster Preferences). By Default, the door will be set to "Active" which sets the door as locked until a valid tag with access to the door is seen. When set to "Locked", the door is always locked regardless of tag validitity. When set to "Unlocked" The door is always unlocked regardless of tag validitity.
- Diodes should be wired into the relay circuitry to protect the reader from power surges associated with opening the door lock.
- If the reader flashes green when a tag is swiped over the reader but does not fire the relay, then the Door controller software is not currently talking to the door reader. Check that the GateKeeper is currently on and working.

0.2 Door Reader

The network door reader should read tags even when the controller software is not running. When a tag is read a reader should beep at least once, and if access is granted the light should go green for around 3 seconds (or briefly flash green if the controller software isn't running). If access is denied, the red light should disappear for around 3 seconds before coming back.

0.2.1 No Light On Reader

If an active red light is not displaying on the reader then the reader either isn't getting power, or has hung due to a power surge/brown out.

- If the reader has hung, cycle the power to the device (i.e. unplug the power, wait a few seconds then plug it back in). The most common cause of this issue is power surges or brown-outs on the power supply, or interference from the door lock circuitry. In the case of the former, we recommend UPS's be used to supply consistant power to the reader and for the latter we recommend diodes and an intermediary relay (see "Recommended Wiring") be used to protect the reader from power surges associated with opening the door lock.
- The reader requires 12V DC power. Check that the voltage at the reader matches this requirement. If using our wiring and power supply note that the polarity of the power plug can be changed by removing the tip and rotating it 180 degrees about its long axis.

0.2.2 Continious Beep

There are two causes of a long continous beep on the reader, the anti-tamper switch or the reader has hung. For the latter, see the instructions in 0.2.1.

- If the anti-tamper switch is triggered the reader will sound a long continious beep. The anti-tamper switch is on the back of the reader, and triggers when it's state changes while powered on. For example, taking the back off the reader (or putting the back on the reader) while it's currently powered will cause the anti-tamper switch to trigger. To Disable, cycle the power to the reader or contact our support to have it disabled remotely.

0.3 Gatekeeper

The Gatekeeper requires a power supply and network connection. It should have two lights on the network socket to indicate activity, as well as two other lights on the device itself. Of these other lights, one should be red or green to indicate the device has power.

- If their is not a red or green light going on the device then check the power cable is providing 5V DC power at the gatekeeper, and the power contacts are correctly contacting.
- If there is a red light going on the device but none on the network adapter atleast a minute after the device has been powered on, then check that the network cable and network socket on the router/switch works.
- To test this, try swapping to a different network socket on the router/switch, and then unplugging the cable from the gatekeeper, and then plugging it back in (this is required for the gatekeeper to try the connection again). Also try swapping the network cable with one that is known to work.
- If the SD/micro-SD is visible at one end of the gatekeeper, you can try swapping this over with the spare SD card that was sent with your device (normally this is taped to the bottom of the gatekeeper).
- If a minute after rebooting the Gatekeeper it's still not working, try contacting our support staff for help diagnosing the issue.