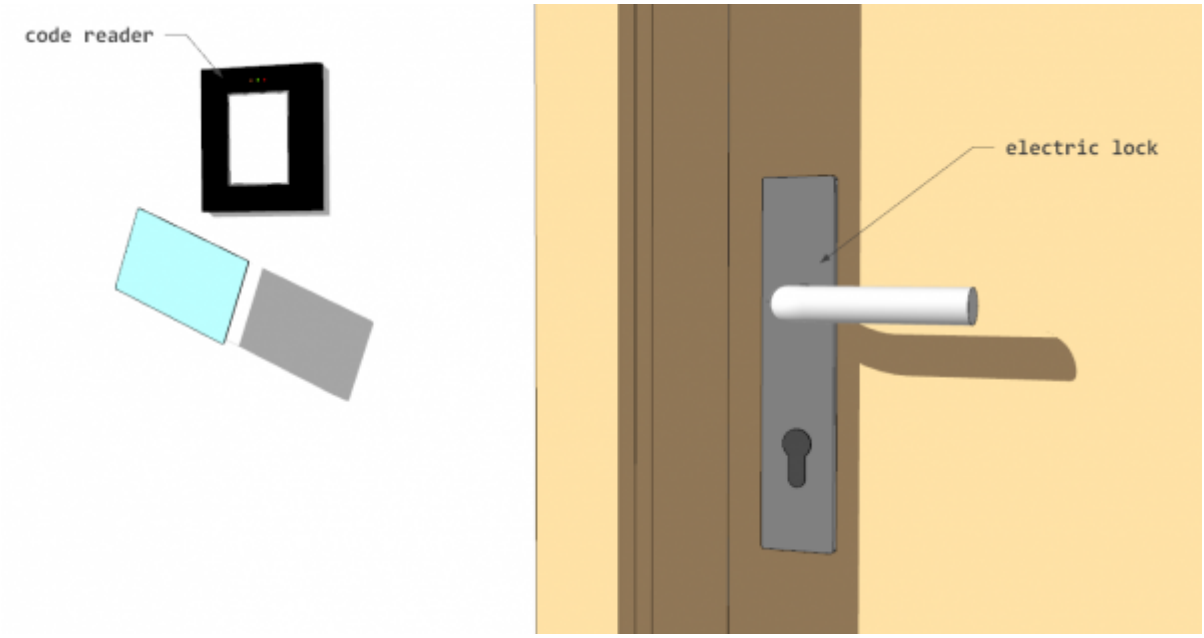
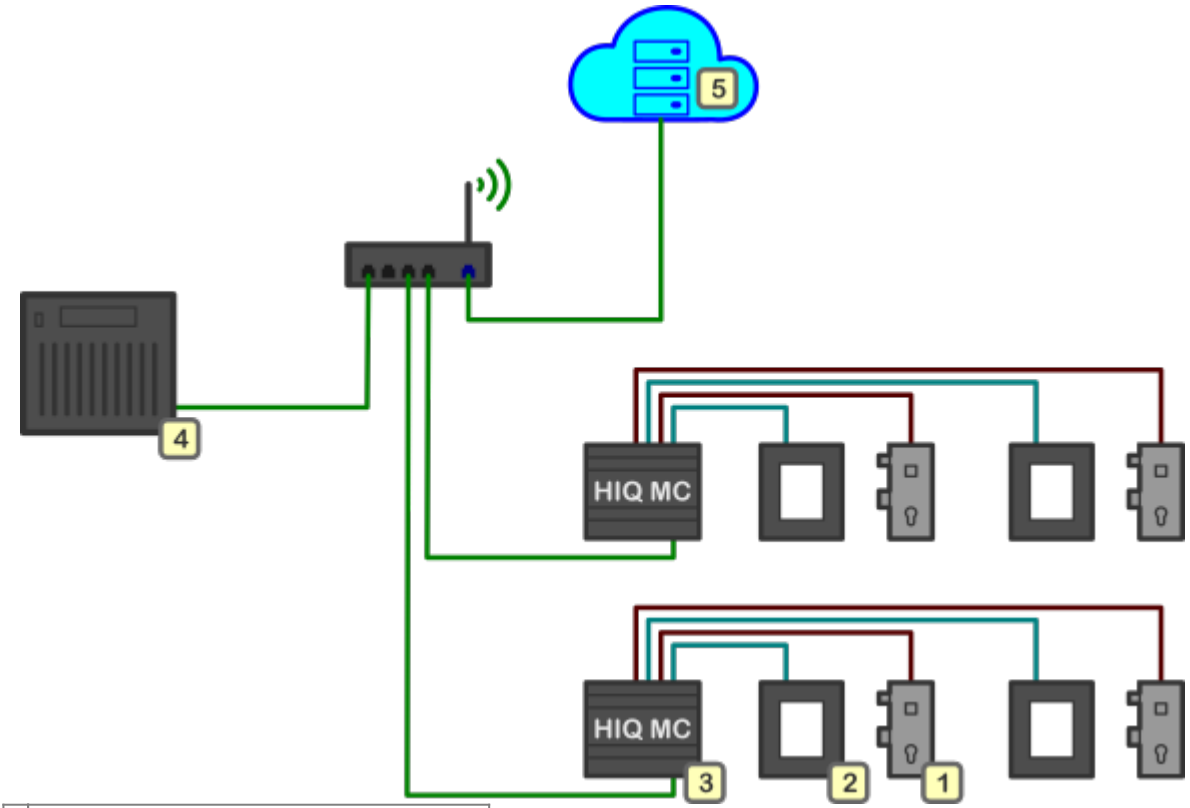
HIQ Access components

The most obvious elements of access control are the **code reader** and the **electric lock**. The reader and the electric lock form an **access point**.



Both are connected to an **access controller** that can operate independently, in conjunction with other controllers in local network, or in conjunction with an **advanced access control application** which can be installed on a local server or as a cloud service on **HIQ Universe**.



1	Electric lock

2	Code reader
3	Access controller
4	Local access application server
5	HIQ Universe access cloud service

Code readers

The access code can be in the form of:

- QR Codes: which is a matrix barcode that can be printed or displayed directly on a mobile phone screen.
- RFID Codes: stored on a RFID tag (wireless card, key fob, bracelet, ...).
- PIN codes which are entered on keypads.

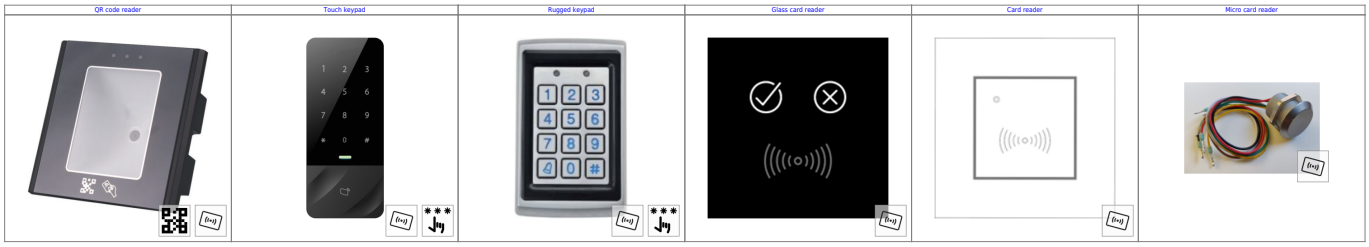
The PIN code is the least secure and is therefore only used when other codes are inappropriate for any reason.

In principle, RFID and QR codes offer the same level of security and reliability.

RFID is media-bound (card, stick) and therefore harder to duplicate, but media distribution is often a limitation.

QR codes offer the simplest distribution, as they can be easily sent. There is also no media cost and they make it easy to scan the code.

Most code readers are combined so we can enter multiple types of code.



Wiring

MC-230-3W	CR-W2-IQ	Notes
+12V	+12V	Code reader power supply
GND	GND	
D0	D0-0+1	Wiegand data 0 for reader 0 and 1
D1-0	D1-0	Wiegand data 0 for reader 0
D1-1	D1-1	Wiegand data 0 for reader 1
GN-0	GN-0	Green LED indicator for reader 0
GN-1	GN-1	Green LED indicator for reader 1
RD-0	RD-0	Red LED indicator for reader 0
RD-1	RD-1	Red LED indicator for reader 1

For specific reader wiring see reader page.

Electric locks

Depending on the type of door and preference, several types of electric locks can be used

Electric strike	Electric mortise lock
	

Practically all locks that are unlocked with a 12 or 24 V DC signal are supported. It is recommended that the lock has a door open signal.

The electric mortise lock is mounted on the door leaf and therefore the wiring is movable. This can be problematic over time so we recommend wiring with wireless power and signal connection module.

Wiring

MC-230-3W	CR-W2-IQ	Notes
Relay outputs		
C0	C1	Common - Lock power supply
QX0	QX0	Lock 0
QX1	QX1	Lock 1
Digital inputs		
C5	C0	Inputs common
IX0	IW0	Door 0 state REED relay (0=opened, 1=closed)
IX1	IW1	Door 0 exit push-button
IX2	IW2	Door 1 state REED relay (0=opened, 1=closed)
IX3	IW3	Door 1 exit push-button

Access controllers

The HIQ Access application is compatible with all Master controllers:

- MC-230
- MC-230-3W

Each Master Controller supports up to **10 code readers**. The system supports an unlimited number of access controllers in the local network, but the **total number of access points** (readers and locks) is limited to **100**.

The MC-230-3W is designed for direct connection of two code readers. Additional readers can be connected to the Master Controller via the CR-W2-IQ interface (2 readers per interface).

HIQ Access application can be installed to a dedicated controller or or it can be embedded in other HIQ applications (HIQ Home, HIQ GRMS ...).

Operation principle

The list of access codes is stored in the HIQ Access controller. **Each controller** supports up to **100 access codes**. Each code may have a limited validity period and a limited number of passages through each access point.

After scanning the code on the reader access verification is done in several steps. It is first checked in the local access controller code list. If there is no permission in the local list, a local network query is sent. The query can be answered by any controller within the network to allow access. Web server access can also be provided, if enabled. If access to the scanned code is granted, the lock is unlocked. The lock automatically locks again after the preset time has elapsed or when the door is open. For easy unlocking from the outside, an exit button can be installed.

Management of access codes can be:

- through the PC application (LAN only),
- through the web application (LAN or WAN) or
- through the cloud service.

A description of the code management applications is on the page: applications.

In case any of the ways to manage the access codes is not possible (network / internet is not working, the computer is defective, ...), simplified management is also possible using the “master code”. Depending on the access point settings, you can use the “master code” to add and delete codes for each access point, or to allow passage with any code (for gateways such as corridors, staircases and the like).

Master code management

Depending on the settings, the master code can be used to add and delete access codes or to allow

all codes (intended for transitional access points as corridors, staircases in hotels).

Adding cards

- Scan the master code ⇒ LED flashes at 1Hz
- Scan the codes
- Scan the master code ⇒ LED stop flashes

All scanned codes will be added for an unlimited time and an unlimited number of passages for an access point controlled by the code reader.

Deleting cards

- Scan the master code ⇒ LED flashes at 1Hz
- Scan the master code ⇒ LED stop flashes

All codes access rights for an access point controlled by the code reader will be deleted. Rights for other access points are not changed.

Allow all codes

- Scan the master code ⇒ LED flashes at 10Hz for 1s

All codes will have access through the access control where the master code was scanned.