

1) Models covered under the scope

The Vecos Wireless Lock model is named “Vecos W1” and is currently the only lock in its series. Like the V3 series lock, it’s controlled by an LBC 3 terminal, just now with a Wireless Vecos W1 HUB.

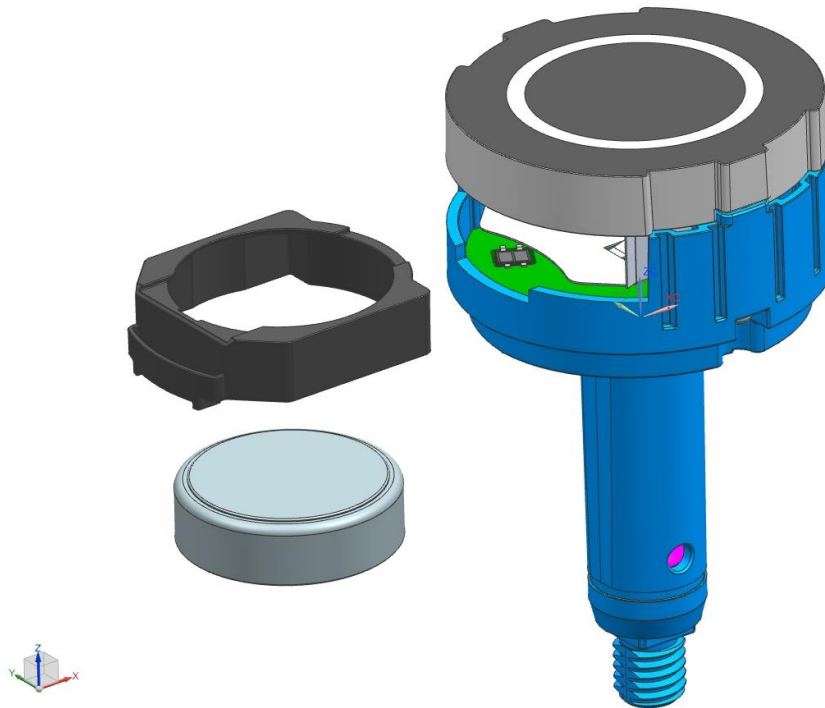
2) Product description

The product is an electronic control system for (un)locking cabinets in locker rooms.

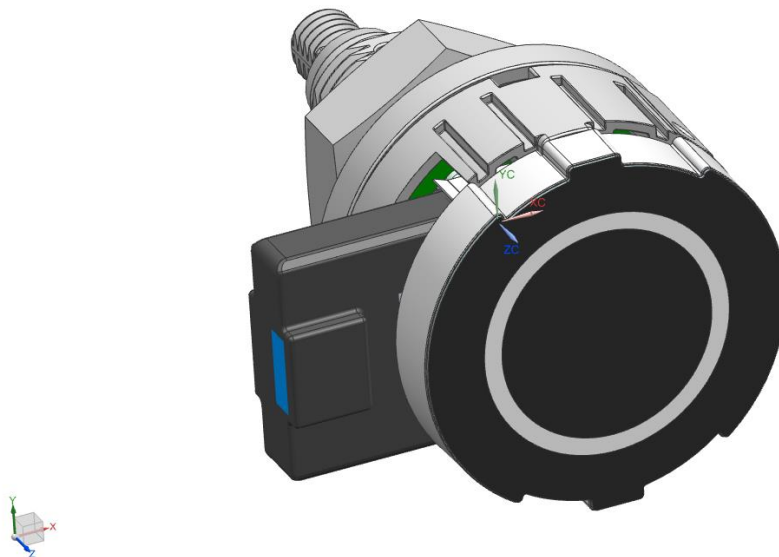
The Vecos W1 is an innovative new type of lock that fully integrates in the Vecos Releezme ecosystem. It enables easy retrofit installation in existing lockers to replace standard key locks without the need for any cables.



The wireless Locker Lock connects to a central Hub via Bluetooth. The Lock is battery powered and has one RGB LED for user feedback. The lock has no buttons or other means for user input, this also means the lock cannot be configured in an interactive way. Under normal operating conditions, all configuration and also firmware updates are deployed via the Hub. In case of failure to connect to the Hub, a different way of interacting with the lock is needed and for that the Vecos W1 Service Tool has been created.



The Wireless Locker Lock includes a provision for a sliding contact via the battery replacement compartment. This contact provide access to the controllers communication and programming port. Via this port, diagnostics can be performed, configuration can be done and firmware updates can be executed.



The Vecos W1 Service Tool could be inserted in the battery port of the lock, as shown above.

The Vecos W1 Service Tool will power the lock (because no battery is present) and contacts to the lock via the sliding contacts. The Vecos W1 Service Tool can be connected to a PC via USB-C. On the PC.

Vecos W1 Service tool:



Vecos W1 HUB:



The system consists of following modules (also see the wiring diagram in the next chapter of this document).

- Power supply unit: 27V / 6.85A (185W) power supply.
- Power Connection Box: This box contains just connectors for easy wiring and has 1 filter inside for better EMC measurements.
- Terminal (max. 1 provided in a system):
Functions as user interface and to control the system.
The terminal is provided with:
 - A touch screen as user interface.
 - A connector for connection to a LAN.
 - A RS485 data connector for connection to a HUB.
 - A 27Vdc power supply connector.
 - A USB connector (service port) for service purposes only and not accessible for ordinary users.
 - Programmable logic circuits, mounted on a power board.
 - An optional external RFID reader, that can be connected to the terminal through a DB-15 connector.
- W1 HUB: The Vecos W1 HUB is the interface between the terminal and the wireless W1 locks and is using BLE to communicate to the locks.
Vecos W1 HUBs are provided with:

- 2 loop through 27Vdc power supply connectors.
 - 2 data connectors for connection to other hubs and/or the terminal. The data connectors are provided with contacts for data and contacts for an analogue unblock signal. The unblock signal can be used to open multiple lockers at once.
 - SMA connector for an external (optional) BLE antenna
 - Set of 4 dipswitches for configuration
- W1 Lock: The lock is battery powered and standard at sleep. Locks are provided with:
 - Touch sensor to wake up once touched
 - An electrical operated motor to operate a latch. The motor is energized only short to open or lock the latch.
 - An internal CR2477 battery, can be accessed/replaced after removal of the knob
 - A RGB LED to indicate the status of the lock
 - W1 Service Tool: This tool can be put in the Lock instead of the battery, it's then possible to connect the lock by the Service Tool to a computer so it can be powered, updated, opened, ...

A locker system with 1 operating terminal can have multiple HUBs.

The maximum number of HUBs connected to 1 terminal is 255.

The maximum number of locks that can be connected to 1 HUB is currently 128 but might later become 256.

The terminal can control maximum 256 W1 locks.

The DC supply connection from the power supply to the hubs and between the hubs shall be made using 16AWG cable or higher. A maximum of 25 HUBs shall be supplied using a loop through supply connection (a HUB only uses 10mA).

3) Wiring diagram

W1 HUB:

- Dip switch 1 of the HUB selects between the internal (OFF) and external (ON) antenna
- Dip switch 2 of the HUB selects the unblock signal on/off for block 1 section for all connected locks of this HUB
- Dip switch 3 of the hub selects the unblock signal on/off for block 2 section for all connected locks of this HUB
- Dip switch 4 is the termination of the RS485 communication bus and should be set to ON only on the last HUB

NOTE

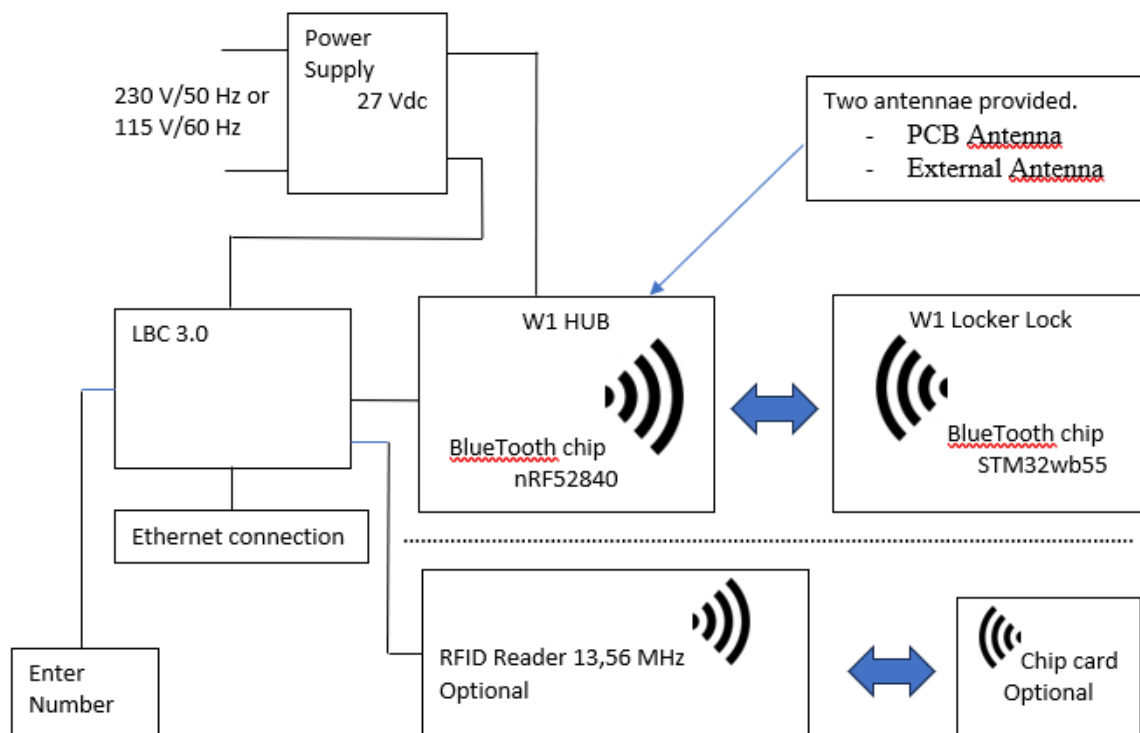
- If both dip switches 2 & 3 are ON the connected locks are unblocked for block 1 as well as block 2
- The External BLE / HF antenna is optional and not part of the system.

LBC3 Terminal:

- Power inlet is a separate connector and not shared with data cable from terminal to hub
- USB connection (service port).

W1 Locks:

- There can be 128 (later 256) Locks paired to 1 HUB, but only 8 can have an active BLE connection at the same time.



A person enters the number of the relevant Locker at the terminal and the door is opened, when touching the W1 locker lock.

Optional and not part of the system as delivered and tested. One presents a chipcard to the 13,56 MHz RFID and the right door is opened when touching the W1 locker lock

4) Installation tools



From left to right:

- T8 screwdriver to take the cover off the Lock
- 13mm (M8) to mount the CAM on the lock
- 27mm (M18) Torque wrench set to 10Nm to mount the Lock
- 24/27mm to dismount old lock or Wireless lock (do not use to mount it!)
- Baco to hold the CAM while fixating the 13mm so the force is not put on the Lock when tightening the CAM screw.

5) How it works

To use the system, you can scan a badge or enter a pincode on the terminal.

The terminal will then send the open command to the wireless HUB.

Once the Lock is touched, it will wakeup and check the HUB if there are any actions, like open, firmware update, configuration, ...

If the Open is replied, the Lock will blink green so the user knows it can turn the knob of the lock to open the door, if Denied the lock will blink red to indicate access was not granted.