

Service manual

Invoq Essence

6-1/1 GN

10-1/1 GN

20-1/1 GN

Electric

EN - English

Online manuals



Original English document

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General information

Target group

This document is aimed at service technicians who have been trained in installing and servicing the oven. The oven must only be installed and serviced by qualified service technicians.

Technical changes

This document is subject to changes without notice.

More documentation

You find more documentation about the oven at <https://invoqoven.com/en/login/>.

Warranty

You find more information about our warranty conditions at our website. For more information, see the back page.

Permissions

Log in as "Technician" to have the necessary rights to be able to change the oven setup, use the test functions, update software, etc. See section "Accessing the settings menu".

Screen dumps

The screen dumps in this manual are based on an Invoq Essence 10-1/1 GN oven with core probe.

Symbols used in this document



DANGER

Dangerous situation which will, if not avoided, result in death or serious personal injury.



WARNING

Dangerous situation which may, if not avoided, result in death or serious personal injury.



CAUTION

Dangerous situation which will, if not avoided, result in minor or moderate personal injury.



SIGNAL WORD

Description of the hazard
Action to avoid the hazard.

IMPORTANT!

If these instructions are not observed, it may result in malfunction or damage to the oven.



Tips and advice that makes the work easier.



A red or grey circle with a diagonal bar indicates that an action must not be taken or must be stopped.



A blue or grey circle with a white graphical symbol indicates that an action must be taken.

Safety information



Read this document before using, installing or servicing the product.

Retain this document for future reference.



Installation and operation must comply with local regulations and accepted codes of good practice.



Installation, maintenance and repair must be carried out by qualified installation and service technicians only. Installation and/or service by anyone other than a qualified technician may result in injury to the operator and/or damage to the oven.

IMPORTANT!

The oven is an atmospheric appliance and, therefore, it does not fall under any pressure equipment, regulation or directive.

General safety instructions



The oven must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility to avoid a hazard due to inadvertent resetting of the thermal cut-out.



DANGER

Risk of fire or explosion

- Do not store flammable liquids or gases close to the oven.



DANGER

Risk of injury

- Follow the instructions in this manual carefully.
- Make sure this manual is freely available to everyone working with the oven and for later reference.

Safety instructions before use



DANGER

Electric shock

- Install an approved plug or safety switch close to the oven to ensure that the oven can be disconnected during installation and repair.
- The safety switch must be compliant with applicable national and local requirements.
- In case of Stackit arrangements, install a safety switch on each oven.



WARNING

Risk of squeezing

- Always install a 20-1/1 GN oven on a level flat floor.
- Always use the parking brake on roll-in trolleys.



DANGER

Risk of electric shock

- Pay attention to the color coding of the wiring: Yellow/green is the earth connection and blue is neutral.



DANGER

Risk of electric shock

- Provide the oven with additional electrical protection in accordance with applicable rules and regulations.
- Use a type F or type B RCD 30 mA.



DANGER

Risk of drawing-in or trapping

- Always make sure no humans or animals are unintentionally in the cavity before starting the oven.



DANGER

Risk of squeezing

- Never lift the oven from the left-hand side.

Safety instructions during use



WARNING

Risk of crushing

- Always close the door with one hand on the handle to avoid crushing your fingers.



WARNING

Risk of slipping

- Be careful when you remove the used HydroShield water filter as it is heavy and filled with water.



WARNING

Risk of chemical burns

- Never use the oven during automatic cleaning.



WARNING

Risk of scalding

- Open the door carefully to avoid being hit by steam and warmth.



CAUTION

Risk of crushing

- Never stick your fingers into the air inlet when the oven is running.

Safety instructions during maintenance and service



DANGER

Risk of electric shock

- Disconnect the oven from the power source during service and when replacing spare parts.
- Make sure that the service technician can see that the power plug is disconnected at all times during maintenance and repair.



DANGER

Risk of electric shock

- After maintenance and service, perform an electrical inspection in compliance with local and national rules and regulations.

**WARNING**

Risk of cutting or severing

- Be very careful if you need to remove the baffle plate in front of the fan wheel during service or maintenance.

**WARNING**

Risk of burn injury

- Cool down the oven before servicing or maintaining the oven.
- Use personal protective gloves if you perform maintenance or repair in a hot cavity.

**WARNING**

Risk of electric shock

- Disconnect the Invoq Hoodini or condensation hood from the power source during service and maintenance.
- Only install the Invoq Hoodini or condensation hood on Invoq ovens.

**CAUTION**

Risk of burn injury

- Cool down the Invoq Hoodini or condensation hood before servicing or maintaining the unit.
- Use personal protective gloves if you perform maintenance or repair in on a hot Invoq Hoodini or condensation hood

**CAUTION**

Risk of crushing

- Remove the front plate from the Invoq Hoodini or condensation hood before replacing the filter.

**DANGER**

Risk of electric shock

- The oven, when installed, must be electrically grounded in accordance with European harmonised standard HD 60364-4-41:2017/A11:2017.

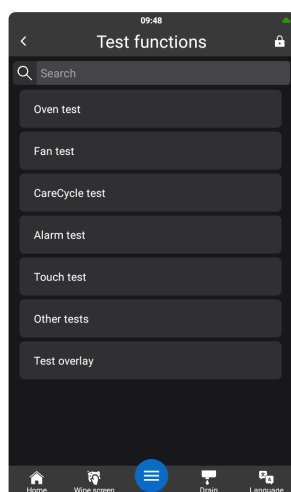
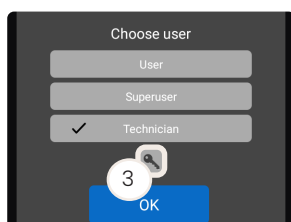
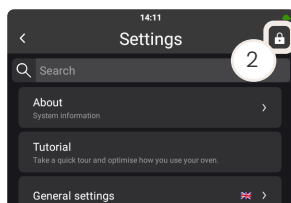
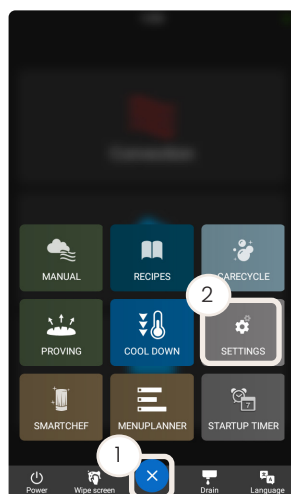
Personal protective equipment



CAUTION

Risk of burn injury

- Use personal protective gloves if you perform maintenance or repair in a hot cavity.



Setting the oven

Accessing the settings menu

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch the locked icon.
4. Touch the key icon.
5. Enter the code for the access rights needed.

User role	Permissions	Code
"User"	Access to the user menu.	–
"Superuser"	Access to the user and superuser menu.	876412
"Technician"	Access to the user, superuser and technician menu.	576021

Table 1

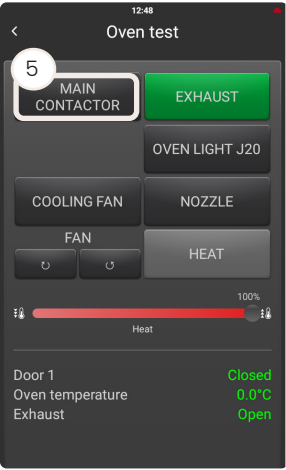
Log in as "Technician" to have the necessary rights to be able to change the oven setup, use the test functions, etc. When you have finished using the "Technician" permissions, restart the oven to reset the access level to "Superuser".

Using the test functions

The test functions are useful for faultfinding. You can test the below-mentioned functions.

- Oven
- Fan
- CareCycle
- Alarm
- Touch
- Other
- Test overlay

Remember to activate the main contactor to be able to test the functions.



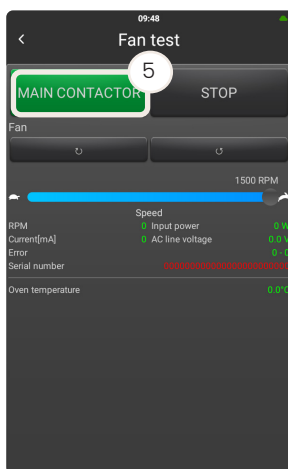
Testing the oven

On Invoq Essence, only one LED light is present, which must be connected to J20.

- 1. Touch the blue icon in the home screen menu.
- 2. Touch "Settings".
- 3. Touch "Oven setup".
- 4. Touch "Test functions".
- 5. Touch "Oven test".
- 6. Touch "Main contactor".
- 7. Touch the buttons with the name of the function you want to test.

Value	Description
"Door 1"	Displays whether the door is open or closed.
"Oven temperature"	Displays the current temperature in the oven.
"Exhaust"	Displays whether the exhaust is open or closed.

Table 2

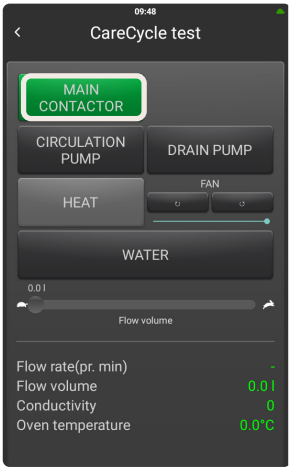


Testing the fan function

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "Oven setup".
4. Touch "Test functions".
5. Touch "Fan test".
6. Touch "Main contactor".
7. Touch the buttons with the name of the function you want to test.

Value	Description
"RPM 1"	Displays the rpm of the upper fan.
"RPM2"	Displays the rpm of the lower fan.
"Current [mA]"	The current used by the fan.
"Error"	Displays if there is an error on the upper or lower fan.
"Serial number"	The fan's serial number.
"Input power"	The power used by the fan.
"AC line voltage"	Displays the voltage on the main fan on the oven when the communication with the fan is established.
"Oven temperature"	The current oven temperature.

Table 3

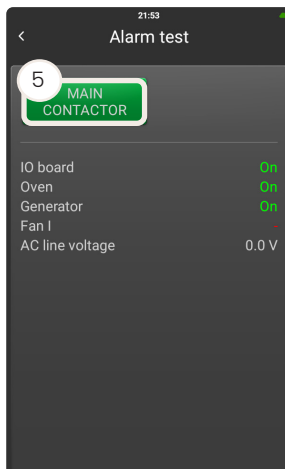


Testing the CareCycle functions

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "Oven setup".
4. Touch "Test functions".
5. Touch "Water test".
6. Touch "Main contactor".
7. Touch the buttons with the name of the function you want to test.

Value	Description
"Flow rate (pr. min)"	The volume of water entering the oven per minute.
"Flow volume"	The volume of water that is led into the oven during a CareCycle wash.
"Conductivity"	The conductivity of the water used for washing.
"Oven temperature"	The current oven temperature.

Table 4

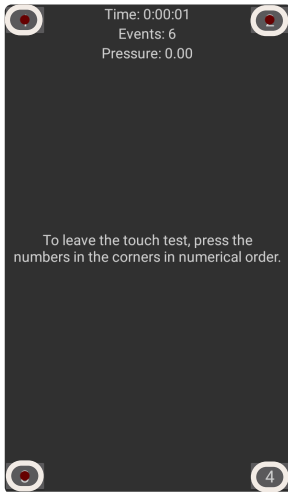


Testing the alarm functions

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "Oven setup".
4. Touch "Test functions".
5. Touch "Alarm test".
6. Touch "Main contactor".
7. Touch the buttons with the name of the function you want to test.

Value	Description
"IO board"	Displays whether the alarm is on or off. If it is off, check the bus.
"Oven"	Displays whether the alarm is on or off. If it is off, check the thermo switch in the oven.
"FanI"	Displays whether the alarm is on or off. If it is off, check the thermo switch on the fan motor.
"FanII"	Displays whether the alarm is on or off. If it is off, check the thermo switch on the fan motor.
"AC line voltage"	Displays the voltage on the main fan on the oven when the communication with the fan is established.

Table 5



Testing the touch display function

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "Oven setup".
4. Touch "Test functions".
5. Touch "Touch test".
6. Press a finger to the screen and drag it in any direction.



If there are any dead spots in the touch display, you will see a delay or markings that are not related to the markings made by your finger.

7. To leave the touch test, press the numbers in the corners in numerical order.



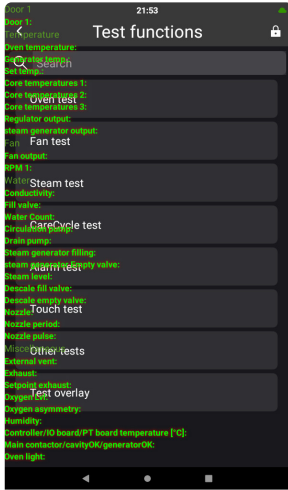
Testing the “Other test” function

1. Touch the blue icon in the home screen menu.
2. Touch “Settings”.
3. Touch “Oven setup”.
4. Touch “Test functions”.
5. Touch “Other test”.

Value	Description
“Core temperatures”	Display the temperature of each of the three core probe sensors.
“IO temp.”	Displays the temperature of the IO board. The temperature increases if the cooling fan is broken, or the filter is blocked.
“CPU temp.”	Displays the temperature of the controller. The temperature increases if the cooling fan is broken, or the filter is blocked.
“Pressure”	Displays the pressure which is used to calculate the humidity.
“Oxygen”*	Displays the oxygen level in the oven in relation to the humidity.
“Oxygen asymmetry”*	A value that indicates if the oxygen sensor is degrading and needs to be changed.
“Oxygen sensor state”*	A value from 0-3 that indicates the state of the oxygen sensor. The sensor can be 0 = off, 1 = on, 2 = pump of and 3 = off.
“Oxygen sensitivity”*	Value that can be read after calibration.

Table 6

* These functions are only available if the corresponding upgrade package is installed.

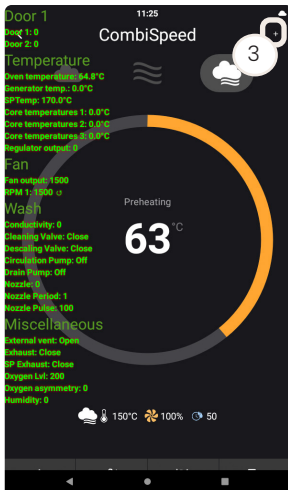


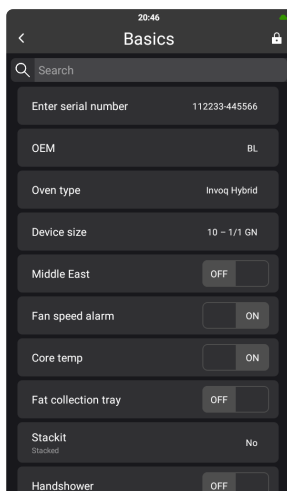
Displaying the test overlay function

The test overlay function gives you an overview of the current values of the oven.

You can also view the test overlay function from the “Manual” menu.

1. Log in as “Technician” with the code 576021.
2. Touch “Manual” in the home screen menu.
3. Touch “+” to view the test overlay function.
4. Touch “+” again to remove the view.





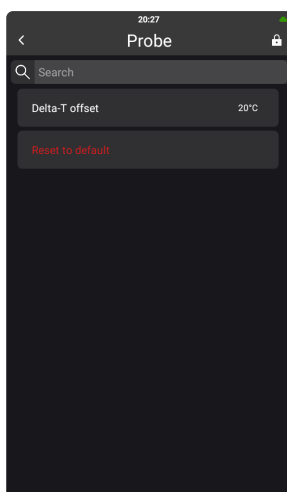
Setting the oven setup

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "Oven setup".
4. Touch "Basics".

Value	Description
"Enter serial number"	Enter the serial number of the oven, which you find on the rating plate on the oven.
"OEM"	Select between the different private label customers.
"Oven type"	Select between the different oven types.
"Device size"	Select between the different oven sizes.
"Middle East"	If the value is set to "ON", you only have access to recipes without pork.
"Fan speed alarm"	If the value is set to "OFF", you do not receive any alarms if the fan is faulty.
"Core temp."*	Set the value to "ON" if you use a core probe.

Table 7

* This function is only available if the corresponding upgrade package is installed.



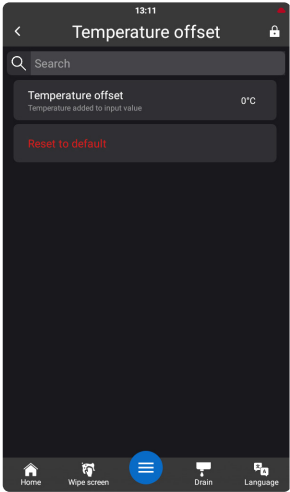
Adjusting the temperatures

This function is only available if the corresponding upgrade package is installed.

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "Cooking settings".
4. Touch "Temperature offset".
5. Touch "Probe".
6. Touch "Delta-T offset".
7. Select the preferred offset.



Touch "Reset to default" to restore the factory settings on this page.



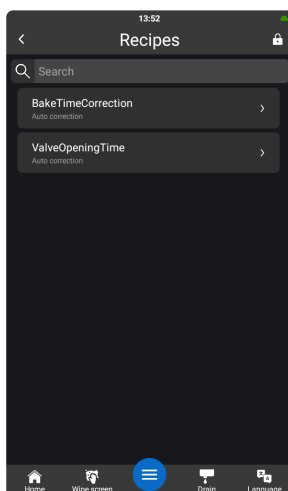
Changing the temperature offsets

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "Cooking settings".
4. Touch "Temperature offsets".
5. Make the relevant changes.

Value	Description
"Temperature offset"	Set the temperature, which is added to the input value.
"Core temp offset"*	Set the temperature, which is added to the input value. If the temperature is showing a temperature at 98°C, but is actually 100°C, you should set the offset to "2".
"Probe"*	Set the Delta-T offset.

Table 8

*This function is only available if the corresponding upgrade package is installed.

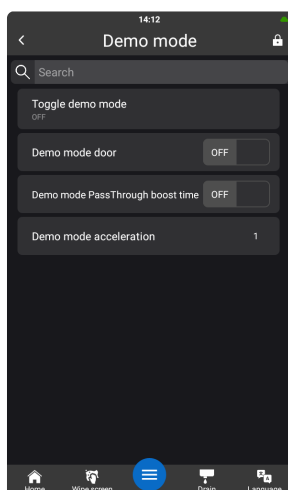


Changing the recipes cooking settings

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "Cooking settings".
4. Touch "Recipes".
5. Make the relevant changes.

Value	Description
"CookTimeCorrection" (CTC)	In this menu, you can do the following: • Toggle the CookTimeCorrection on/off. • Set the temperature delta before activation (CTC tolerance). • Set the outside tolerance adjustment percentage (CTC tolerance).
"ValveOpeningTime" (VOT)	You can toggle the ValveOpeningTime on/off.

Table 10



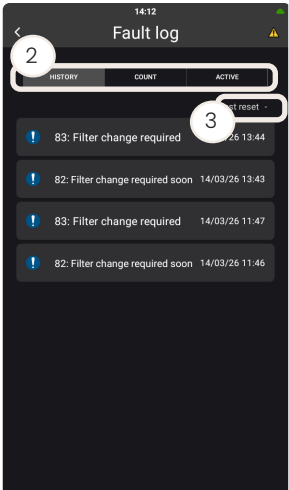
Enabling the "Demo mode" function

Use the demo mode function for demonstration purposes. In demo mode, the heating elements and the steam generator will not be switched on when the oven is running.

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "Oven setup".
4. Touch "Demo mode".

Value	Description
"Toggle demo mode"	Toggle the demo mode function on and off.
"Demo mode door"	Toggle the demo mode door on and off.
"Demo mode acceleration"	This function speeds up the time in demo mode. 1 = time x 1 (1 second = 1 second). 5 = time x 5 (1 second = 0.2 seconds).

Table 9



Resetting the fault log

You can reset the fault log in case there is an active error, which is the case, if there is a warning icon in the upper right-hand side of the user interface.

1. Touch the warning icon the home screen menu.
2. Select either "History", "Count" or "Active".
3. Touch "Reset" to reset the fault log counter, if necessary.

Value	Description
"History"	A chronological overview of the fault logs on the oven.
"Count"	A summary of the faults that have been on the oven.
"Active"	Displays any active faults on the oven.

Table 11

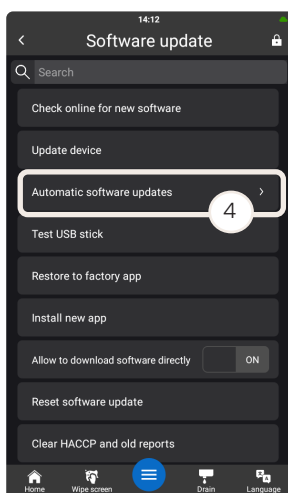
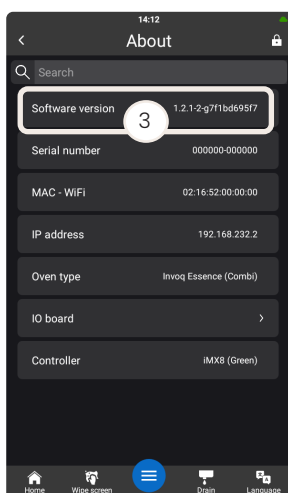
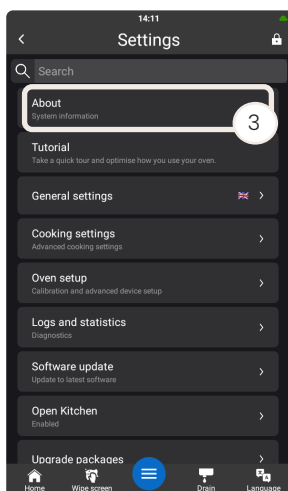


For more information about the error types, see the faultfinding manual.

Updating software

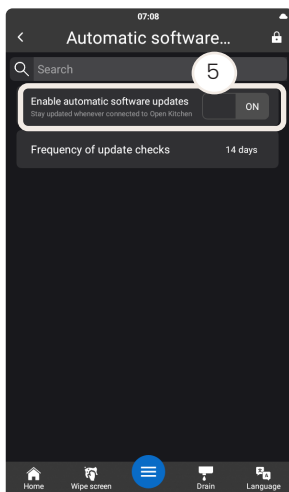
Check the software version

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "About".

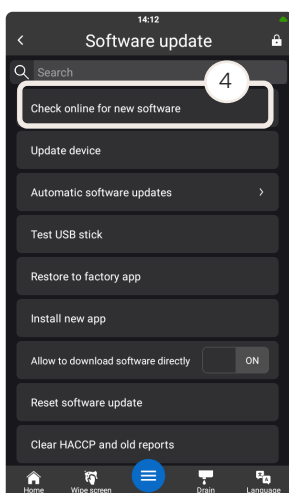


If the oven is connected to Open Kitchen and software version 1.1.5 is installed:

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "Software update".
4. Touch "Automatic software update".

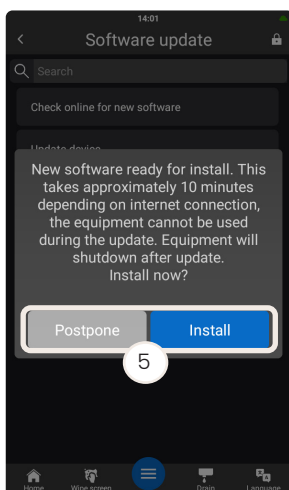


5. Touch "Enable automatic software updates".



If the oven is online and software version 0.7.59 or later is installed

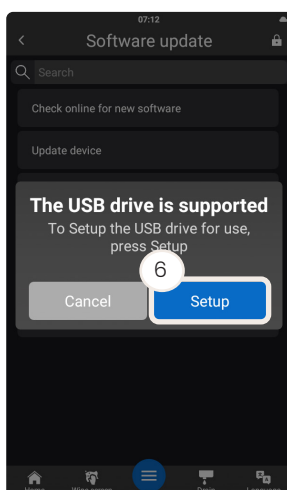
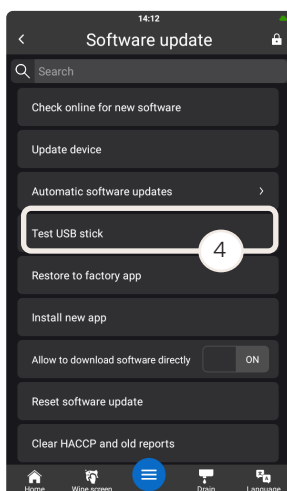
1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "Software update".
4. Touch "Check online for new software".



5. Touch "Yes" to install the latest software or "Postpone" if you what to postpone the installation.



This is possible in both "Superuser" and "Technician" mode.



If the oven is offline and a software version earlier than 0.7.59 is installed

The latest software version is available in the Invoq Asset Library. To update the software, you need a USB stick.

Verifying the USB stick

Before you download the latest software to the USB stick, make sure that the oven recognises the USB stick.

1. Touch the blue icon in the home screen menu.
2. Touch "Settings".
3. Touch "Software update".
4. Touch "Test USB stick".
5. Touch "Setup" to add two folders on the USB stick - "Invoq" and "LOST DIR".
6. If the USB stick is supported, you will be asked if all folders on the USB stick should be set up.

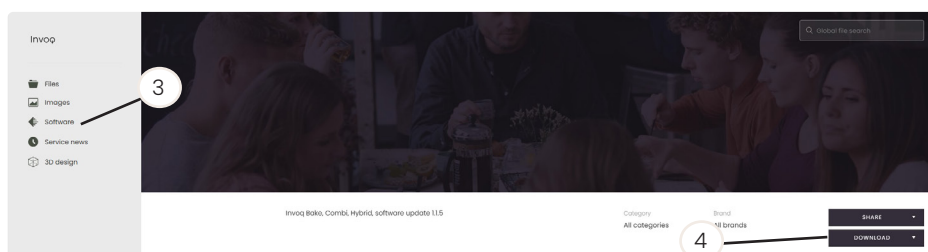
Downloading the software

1. Verify the USB stick. See section "Verifying the USB stick".
2. Go to the Invoq Asset Library on <https://invoqoven.com/en/login/>.



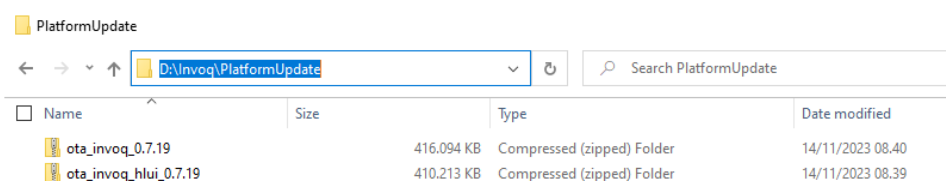
If it is the first time you access the Asset Library, you need to create a user account.

3. Select the "Software" menu.

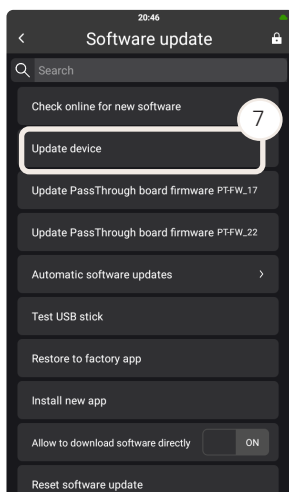


4. Select download and wait until the download is complete.
5. Download both .zip files below.
6. Save the files in \Invoq\PlatformUpdate\ on the USB stick.

IMPORTANT! Do not unzip the .zip files.



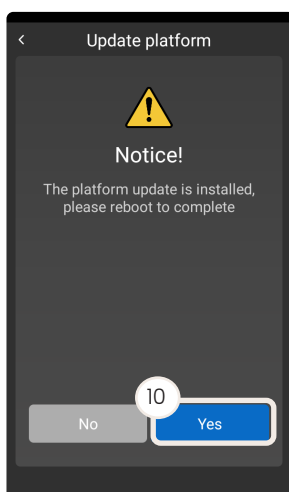
Example of USB stick with version 0.7.19. In this case the USB stick is assigned D: - this might be different on other PCs.



Updating software with USB stick

1. Follow the instructions in "Verifying the USB stick" and "Downloading the software".
2. Insert a USB stick on the right-hand side of the oven.
3. Touch "Settings" in the home screen menu.
4. Log in as "Technician". The password is 576021.
5. Touch "Settings".
6. Touch "Software update".
7. Touch "Update device".
8. Confirm that it is the correct software that will be installed.
9. The update starts.

IMPORTANT! Do not interrupt the update procedure. The update will take approximately 10 minutes.

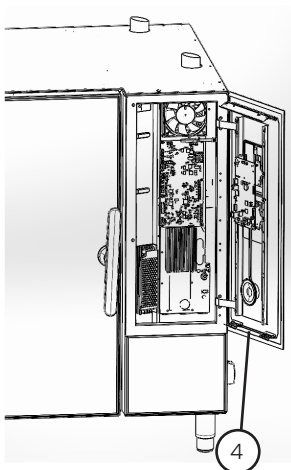
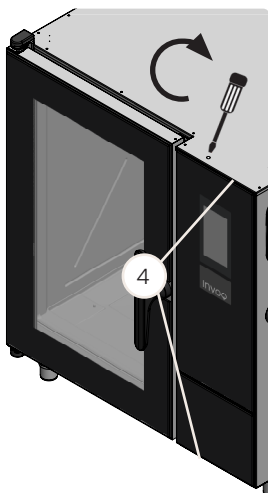
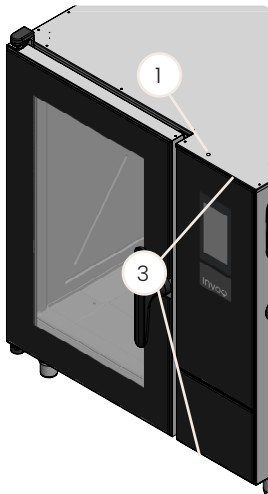


10. When the update is completed, the display prompts that the update is successful.

Before service and maintenance

Follow the instructions below before servicing or maintaining the oven.

1. Cool down the oven. Use personal protective gloves if you perform maintenance or repair in a hot oven.
2. Make sure the oven cavity is empty.
3. Disconnect the water supply hose if it is too short.
4. Disconnect the oven from the power source.
5. Disconnect the oven from drain
6. After service and maintenance, make sure that the following has been connected correctly:
 - water supply
 - power cable
 - drain
7. After service and maintenance, perform an electrical inspection in compliance with local and national rules and regulations.



Opening the service accesses



DANGER

Risk of electric shock

- Disconnect the oven from the power source during service and when replacing spare parts.
- Make sure that the service technician can see that the power plug is disconnected at all times during maintenance and repair.



CAUTION

Risk of burn injury

- Cool down the oven before servicing or maintaining the oven.
- Use personal protective gloves if you perform maintenance or repair in a hot cavity.



DANGER

Risk of electric shock

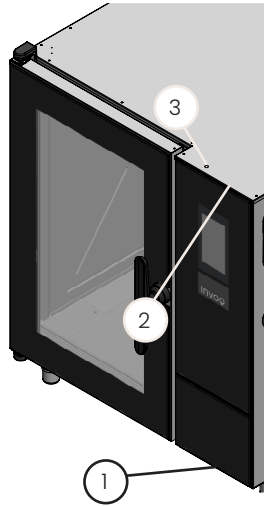
- After maintenance and service, perform an electrical inspection in compliance with local and national rules and regulations.

Opening the front panel

1. Remove the silicone protection plug from the hole in the top of the front panel.
2. Place the screw driver in the hole.
3. Twist the screw driver towards the back of the oven to release the spring.
4. Grab the front panel with both hands at the top and bottom.
5. Pull out the front panel.
6. Reinsert the silicone protection plug.

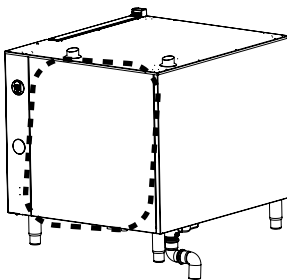
IMPORTANT!

Always reinsert the silicone protection plug. Otherwise, the oven is not compliant with IPX5.



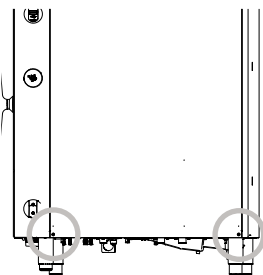
Closing the front panel

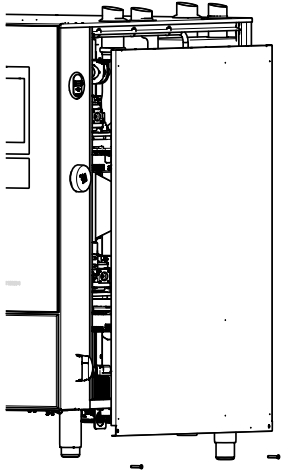
1. Lift the bottom of the front panel and place it.
2. Hold the bottom of the front panel while pushing the top of the front panel in place.
3. Check that the silicone protection plug is in place. Otherwise, insert a new one.



Dismounting the side panel

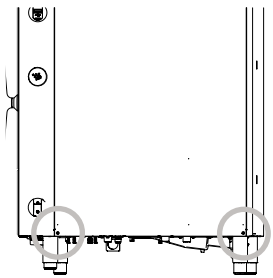
1. Loosen the two screws on the side of the side panel.
2. Pull out the side panel.





Mounting the side panel

1. Position the side panel.
2. Fasten the two screws on the side.



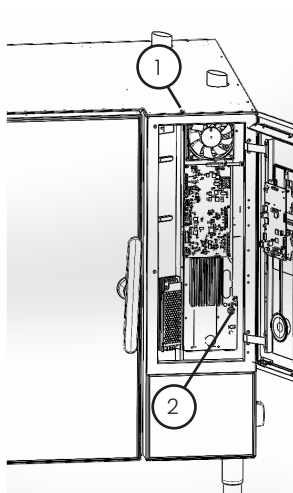
Replacing parts



DANGER

Risk of electric shock

- Disconnect the oven from the power source during service and when replacing spare parts.
- Make sure that the service technician can see that the power plug is disconnected at all times during maintenance and repair.



CAUTION

Risk of burn injury

- Cool down the oven before servicing or maintaining the oven.
- Use personal protective gloves if you perform maintenance or repair in a hot cavity.



DANGER

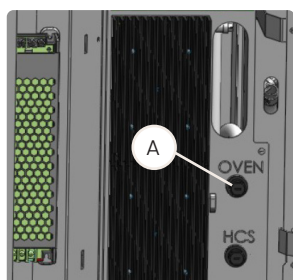
Risk of electric shock

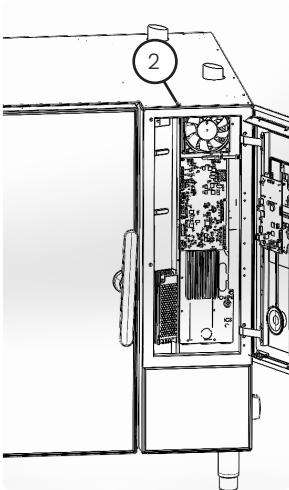
- After maintenance and service, perform an electrical inspection in compliance with local and national rules and regulations.



Resetting the thermo switch for the oven cavity

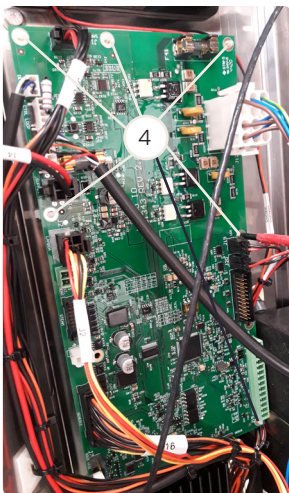
1. Open the front panel. See section "Opening the front panel".
2. Remove the plastic cover with a flatheaded screwdriver.
3. Push the button (A) with a screwdriver until it clicks to reset the thermo switch.
4. Refit the plastic cover.
5. Close the front panel. See section "Closing the front panel"



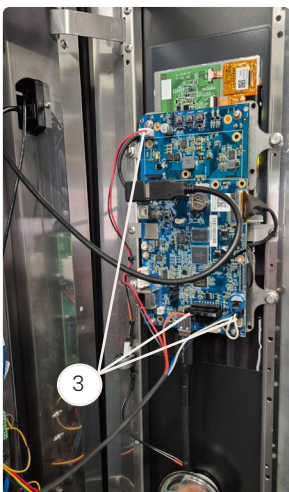


Replacing the IO board

1. Turn of the power to the oven.
2. Open the front panel. See section "Opening the front panel".

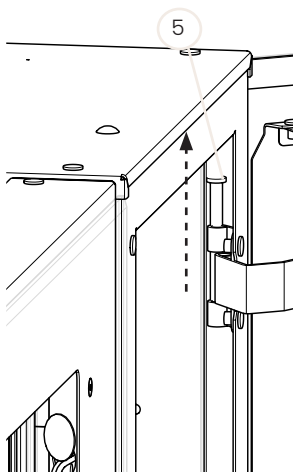


3. Dismount all cables.
4. Dismount the six clips and the screw.
5. Replace the IO board.
6. Follow the procedure in reverse order

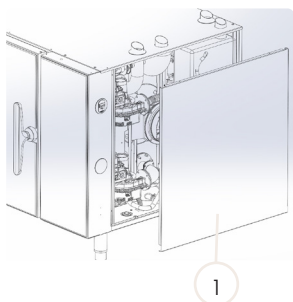


Replacing the front panel

1. Turn off the power to the oven.
2. Open the front panel. See section "Opening the front panel".
3. Dismount the cables from the controller.



4. Pull out the pins.
5. Refit the front panel.
6. Follow the procedure in reverse order.

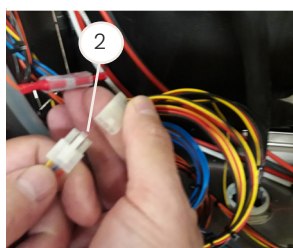


Replacing the door sensor

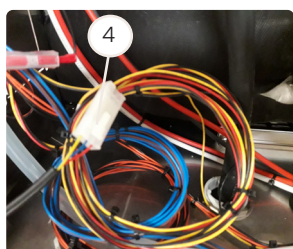
1. Dismount the side panel. See section "Dismounting the side panel".
2. Disconnect the door sensor.
3. Pull out and replace the door sensor.

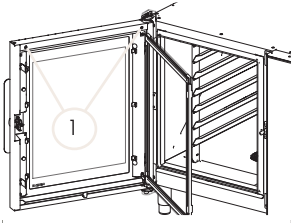


Tie a cord to the old door sensor cable and use it to drag in the new door sensor.



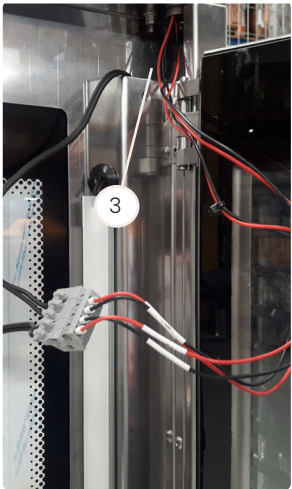
4. Connect the door sensor.
5. Mount the side panel. See section "Mounting the side panel".
6. Calibrate the door sensor. See section "Calibrating the door sensor" in the user manual.



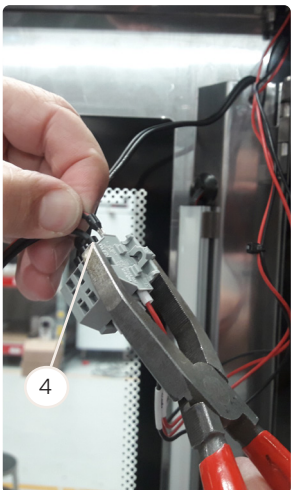


Replacing the LED fixture

1. Open the oven door.
2. Remove the two screws.



3. Remove the metal bracket.



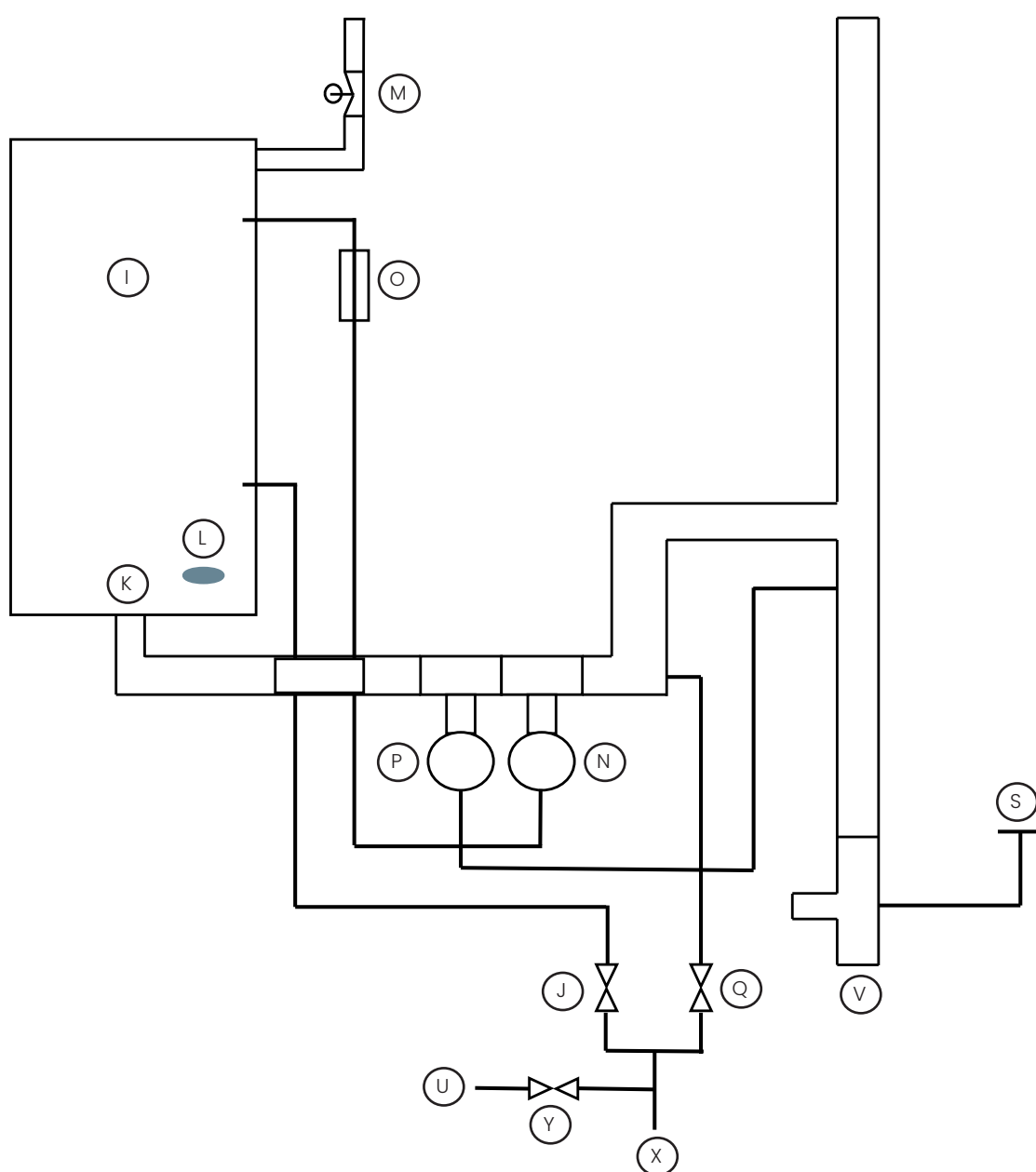
4. Pull out the cable.



5. Dismount the cable.
6. Dismount the LED fixture.
7. Replace the LED fixture and cable.
8. Follow the procedure in reverse order.

Technical data

Water layout



Position	Description	
I	Oven cavity	
J	Valve	Water to injection steam
K	Drain	
L	CareCycle Clean and CareCycle Descale	
M	Valve	Steam out of oven cavity
N	Pump	Washing of the oven cavity
O	Indicator	Water from washing pump
P	Pump	Emptying of drain
Q	Valve	Water to washing cycle
S	Door	
U	Hand shower*	
V	Drain outlet	
X	Water inlet	
Y	Ball valve*	Valve mounted on hand shower

Table 12

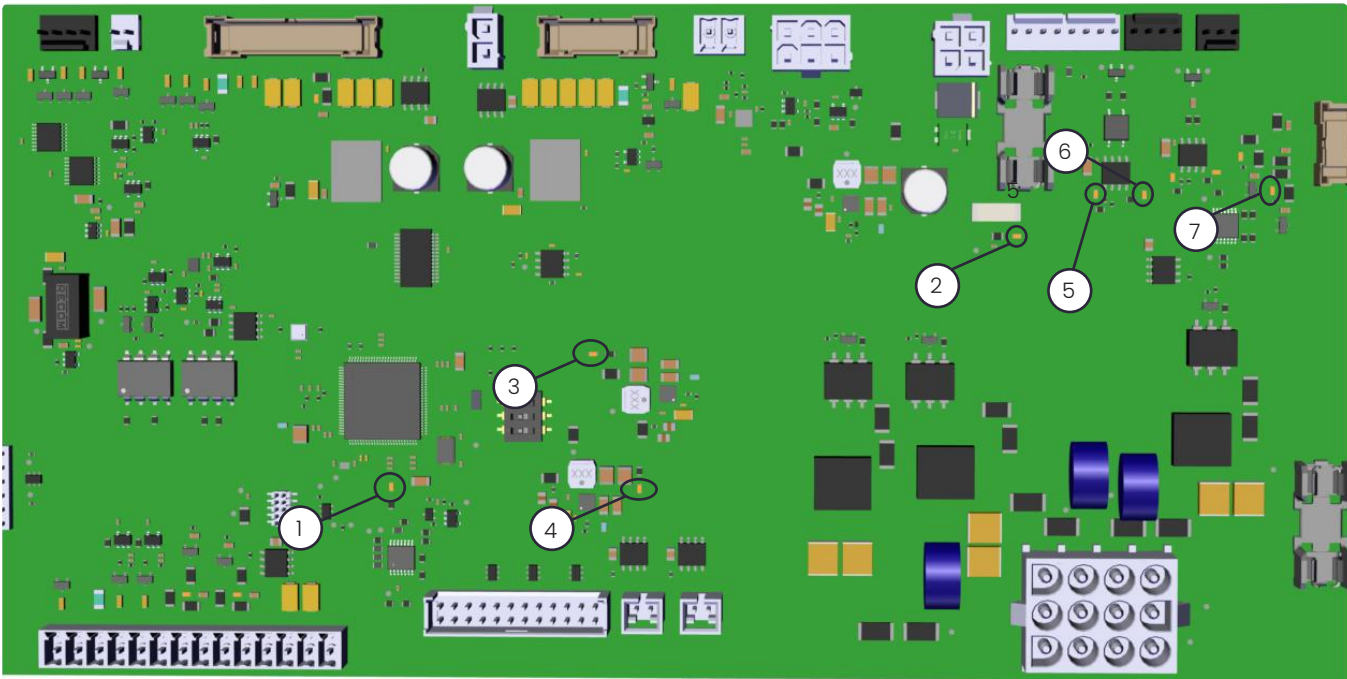
*This function is only available if the corresponding upgrade package is installed.

IO board LEDs

Description and connection of the LEDs on the IO board, which gives an overview of the LEDs and their function.

Pos.	No.	Description
1	D15	Power
2	D20	24V
3	D22	3.3 V
4	D25	5.0 V
5	D37	RS485 RX
6	D38	RS485 TX
7	D41	Cavity safety OK

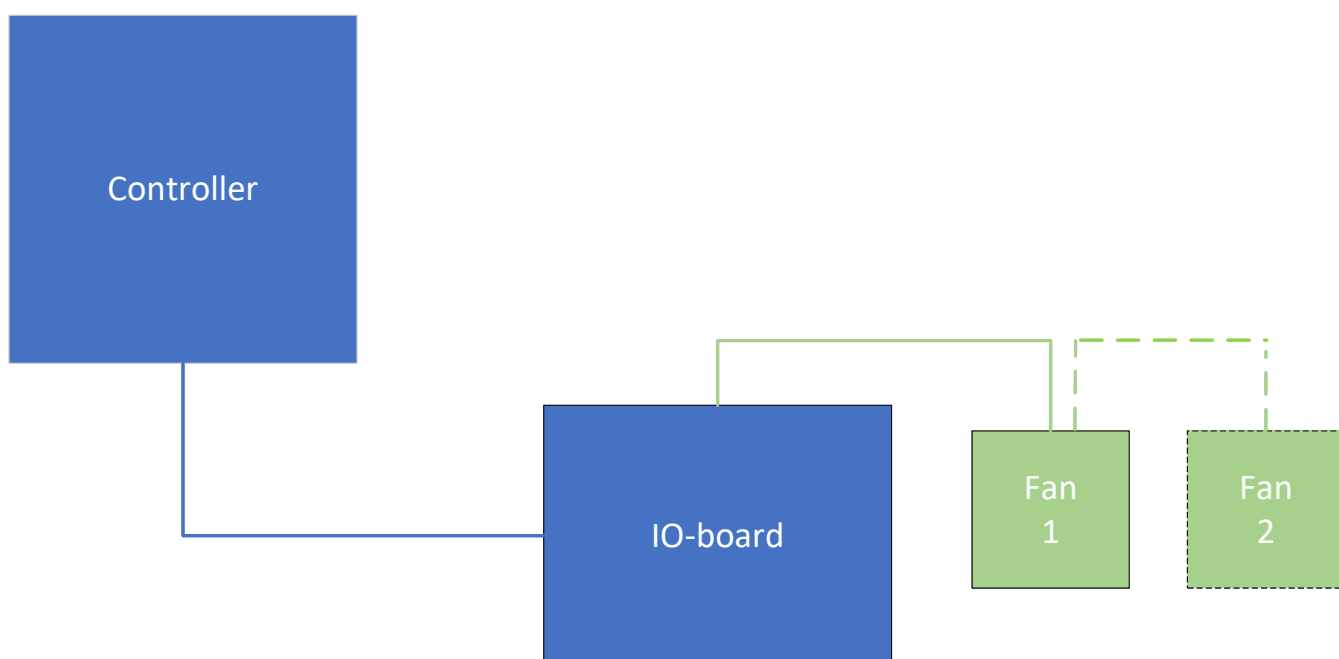
Table 13



BUS connections in the oven

Below is an overview of the BUS connections in the oven. There are two Modbus busses. Some components are optional and only present in particular oven models – these are depicted with dashes.

For more information concerning the wiring of a particular oven model, please refer to the wiring diagram, which you find in the Asset Library at <https://invogoven.com/en/login/>.



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