



VAN GENT MF CLOCK 2021 FULL MANUAL

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1 Safety Instructions and General Warnings

Carefully read, understand and follow all the warnings and instructions provided by Van Gent in order to safely use our products. These warnings and instructions are found on the equipment, in manuals, in brochures, on our website, or by contacting us. The selection and application of Van Gent products remain the responsibility of the equipment installer or end user. Van Gent accepts no responsibility for the way its products are incorporated. All Van Gent products must be supplied to the end user with appropriate warnings and instructions as to safe use and operation. Van Gent assumes no liability for any personal injury, property damage, losses, or claims arising from misapplication of its products.

1.1 General Warnings

WARNING

- **Read and understand all the warnings and instructions provided by Van Gent before installing, operating or servicing any of our products.**
- **All work must only be performed by qualified personnel.**
- **The product must only be set up, used or stored in places that are not accessible to children.**
- **Handle the product with care; impacts, shock or fall even from low heights will damage it.**
- **Do not expose the product to direct sun irradiation, strong heat or cold.**
- **After installation, always check all settings to ensure they work correctly.**
- **Do not use running water to clean your computer. The computer is splash proof, not waterproof!**
- **It is of the utmost importance that the installation is equipped with a solid alarm system that is tested for correct operation at least once a day.**

1.2 Safety Warnings

WARNING

- **Do not wear any metal or conductive materials, such as jewelry (necklaces, bracelets, rings, etc.) during installation or service on electrical parts or components.**
- **Always shut off the power before opening the housing.**
- **Never remove components or wires from electronic boards when the unit is switched on.**
- **Do not use an improper voltage source.**
- **Make sure all terminal screws are tightened correctly.**
- **Always make use of the supplied cable glands when installing cables to the controller.**
- **After installation, unused cable glands must be sealed in order to prevent water, dust and other substances from entering the controller.**
- **If you have a reason to believe that the device can no longer be operated safely, disconnect it immediately and make sure it is not operated unintentionally.**

1.3 Wiring precautions

⚠ WARNING

- For all weak current connections, always use shielded cable.
- For all high voltage power connections, always use shielded cable.
- For communication connections, always use twisted pair shielded cable.
- Do not connect the shielding of weak current connections to the ground block (PE).
- Do not connect the shielding of communication connections to the ground block (PE).
- The maximum communication connection length must not exceed 1200 meters.
- Separate high voltage power connections from weak current connections and/ or communication connections to avoid voltage distortion.
- If inductive loads are connected to the equipment, Van Gent advises to suppress these loads by installing an RC filter (100ohm + 100nF) parallel on them.

1.4 Disposal



Electronic devices are recyclable and should not be disposed of in household waste. Dispose of the product according to the applicable statutory provisions at the end of its service life.



2 Control description

The controller controls the position of the closure panels of the laying nests. Based on an opening time and a closing time (both once a day), the closure panel is opened or closed in an on-off manner. This on-off control will make the chickens move out of the laying nests. The on and off times can be set.

Opening or closing the panel is done with use of adjustable maximum open- and close run times.

In automatic mode, there is also an option to control opening and closing using an external signal (digital in). Instead of using the opening and closing time, a high signal (open panel) or low signal (close panel) is used.

The controller can be connected to limit switches to indicate the fully open and closed positions. With this information, an alarm can be generated if the limit switch is not operated in time, with respect to the set maximum opening and closing times.

The controller can operate both in automatic or in manual mode. Automatic mode is as described above. If manual mode is selected, the closure panel can be operated by hand by pressing the open or close button in the menu. The alarm functionality is inactive in this situation. Once automatic mode is selected again, the controller returns to its position determined by the automatic control.

Multiple motors can be controlled by the controller simultaneously, this also means there can be more than 2 limit switches. In that case all limit switches for the closed position and all limit switches for the open position are connected in series.

The user can also choose to operate the controller externally using a 5 position switch (close – 0 – auto – 0 – open). This is the hardware override mode. In this case, a knob will be visible on screen indicating it is controlled externally by hand. Only in auto position, the controller will operate using the parameters set in the menu. In off state the controller effectively does nothing. The controller knows it is in off state (- 0 - position) and will not take any action on its part. In open or close state, the motor will continuously run in the corresponding direction. Again, the controller knows it is controlled by hand in this case and will not take any action.

2.1 Display overview

The display is divided into two sections: the status section on the left side and the settings section on the right side.

The status of the laying nest control is shown below the divider line. Two placeholders are used, one for the operating mode on the left and one for the state on the right.

Left placeholder (mode)	
	Controller is operating in automatic mode. Either the start and stop time or the external open/close signal (if it's activated) will cause the closure panel to open or close. Controller is in auto mode if manual mode has not been selected in the menu and the external 5 position switch is in auto mode.
	Controller is operating in manual mode. If manual mode is activated in the menu, this icon will be visible. Icon will be flashing to warn the controller is not in auto mode.
	Controller is operating in manual mode, by using the external 5 position switch. This is the case if the switch is not in auto position. Operating in this mode has priority over the above mentioned modes. Icon will be flashing to warn the controller is not in auto mode.
Right placeholder (state)	
	Not flashing: laying nest is open. Flashing: laying nest is opening.
	Not flashing: laying nest is closed. Flashing: laying nest is closing.
	Position of closure panel in the laying nest is unknown. This is the case if in a situation where the position is known (after a full automatic open or close) the controller is operated in any manual way (via menu or external 5 position switch).

2.2 Alarm display

The status of all alarms is displayed in the top right corner. The only possible alarm is when limit switches are used and the limit switches are not operated in time when opening or closing the panel.

- With no alarm active, the alarm bell is displayed as grayed-out
- With the alarm active, the alarm bell is displayed with a flashing red background. Pressing on the alarm display icon will reset the alarm. Only on the next complete automatic open or close action, the alarm condition will be checked again.

2.3 Time

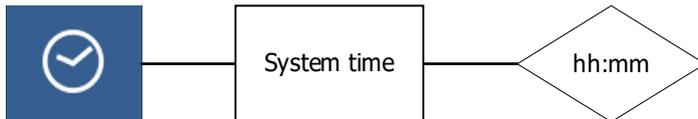
Above the divider line the actual time is displayed.

3 Home screen: user menu

In this chapter all settings visible in the user menu are discussed. The user menu is directly accessible from the home screen.

Remark: Icons followed by “————” are always visible. Icons followed by “-----” are visible depending on the chosen settings.

3.1 System time

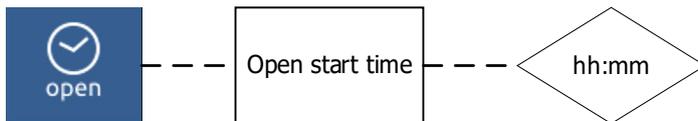


Function ID: 1

Input range: hours – minutes

System time, needed to start closing or opening the closure panel at given times.

3.2 Open start time



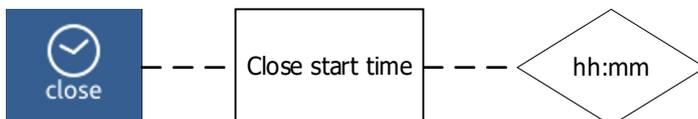
Function ID: 2

Input range: hours – minutes

Time at which the closure panel will be opened.

Remark: Only visible if external control is disabled in the installer menu.

3.3 Close start time

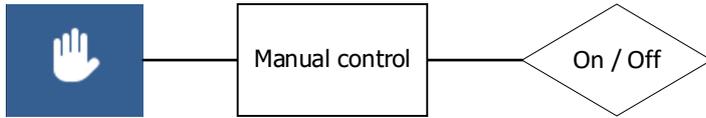


Function ID: 3

Input range: hours – minutes

Remark: Only visible if external control is disabled in the installer menu.

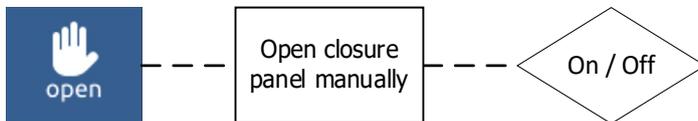
3.4 Manual control



Function ID: 4
Input range: On – Off

The controller can operate automatically or manually. In automatic mode the controller will open and close the closure panels at set times and with given speeds. In manual mode the operator can open and close the closure panels by pressing the open and close buttons in this menu.

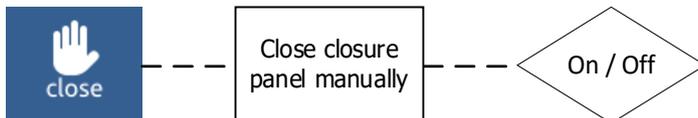
3.5 Open closure panel manually



Function ID: 5
Input range: On – Off

When operated, the closure panel keeps opening until operated again. This option is only visible if manual control is enabled.

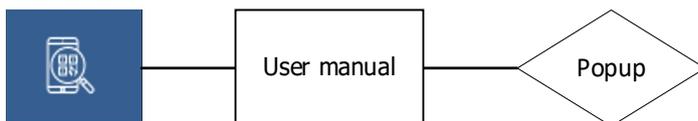
3.6 Close closure panel manually



Function ID: 6
Input range: On – Off

When operated, the closure panel keeps closing until operated again. This option is only visible if manual control is enabled.

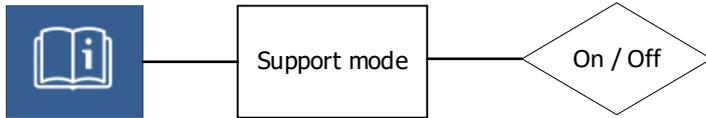
3.7 User manual



Function ID: 7

Opens a QR code that contains a hyperlink to the user manual for the device. The code can be scanned with any mobile device.

3.8 Support mode

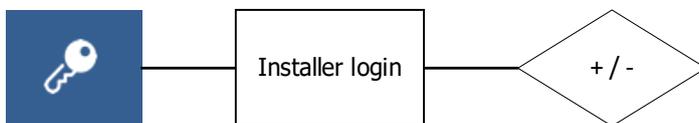


Function ID: 8

Input range: On – Off

When enabled support numbers are shown next to each function. This is used for easy identification of functions in case of (remote) support.

3.9 Installer login



Function ID: 9

Input range: + / -

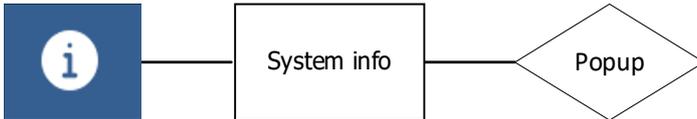
Input to enter the installer menu. The default PIN combination is + / - / - / +

4 Installer menu



WARNING: Changing settings in the installer menu should only be done by persons who are knowledgeable about the installation and setup of the VAN GENT NEST.

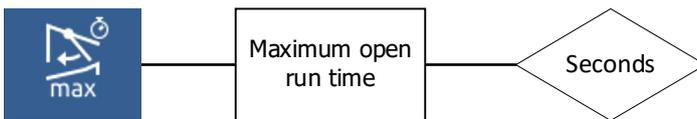
4.1 System info



Function ID: 10

Opens a popup containing the system info. Version is displayed as Vxx.yy.zz where xx.yy is the major release number and zz is the revision number.

4.2 Maximum open run time

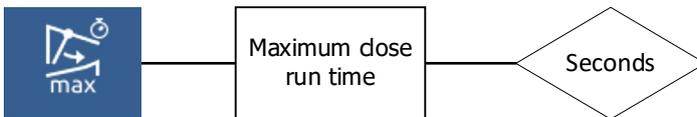


Function ID: 11

Input range: Seconds [Min: 5s Max: 900s Default: 60s]

Determines the time it takes for the motor to control from closed to open position.

4.3 Maximum close run time

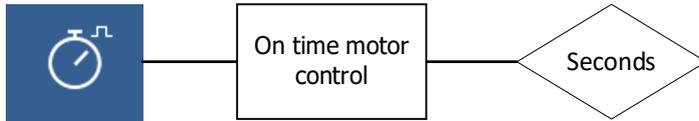


Function ID: 12

Input range: Seconds [Min: 5s Max: 900s Default: 60s]

Determines the time it takes for the motor to move from open to closed position.

4.4 On time motor control

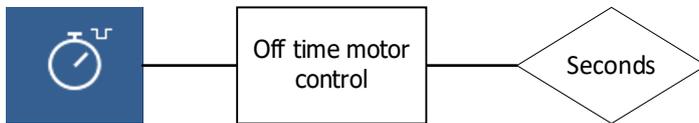


Function ID: 13

Input range: Seconds [Min: 2s Max: 250s Default: 3s]

The motor control opens and closes in an on-off manner (pulse-pause). This setting indicates the on time (pulse).

4.5 Off time motor control

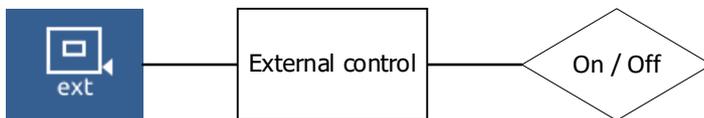


Function ID: 14

Input range: Seconds [Min: 2s Max: 250s Default: 3s]

The motor control opens and closes in an on-off manner (pulse-pause). This setting indicates the off time (pause).

4.6 External control

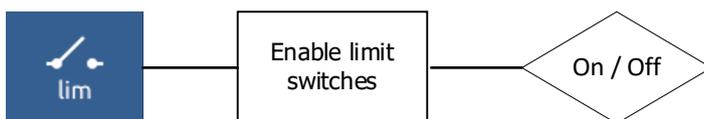


Function ID: 15

Input range: On – Off

Instead of the set opening and closing times, an external signal (digital input) controls the opening and closing of the closing panel. A high signal will cause the panel to open, a low signal will cause the panel to close.

4.7 Enable limit switches



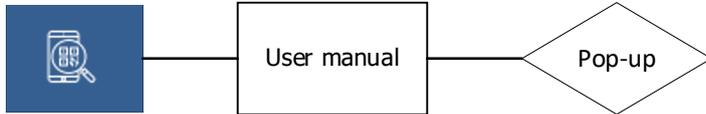
Function ID: 16

Input range: On – Off

If switched on, this option allows an alarm to be generated if the motor control does not reach open or close position within time in regard to the set open or close time. In case multiple motors are connected, these limit switches should be connected in series. If one motor does not reach its end position an alarm is given.

Remark: This function does not stop motor control based on limit switches.

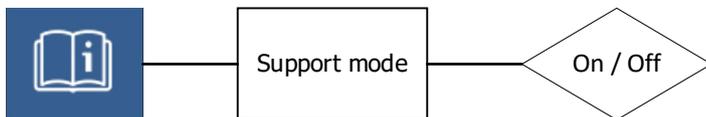
4.8 User manual



Function ID: 17

Opens a QR code that contains a hyperlink to the user manual for the device. The code can be scanned by phone.

4.9 Support mode

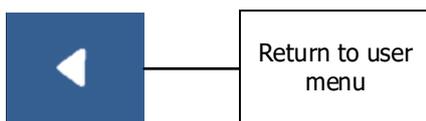


Function ID: 18

Input range: On – Off

Here you can set the pressure control maximum alarm level. When the pressure reaches this level, an alarm is activated.

4.10 Return to user menu



Function ID: 19

5 Alarm overview

In this chapter the alarms that the VAN GENT NEST can display are discussed.

No alarms active

If no alarms are active, the alarm bel icon is grayed out.

alarm active

With the alarms active, the alarm bel icon flashes with a red background.

Solve or silence an alarm

If you wish to deactivate an alarm, simply press the alarm icon visible in the home screen

	No alarm No alarms are currently active.
	Warning alarm One or more alarms are active, but they have been silenced for 5 minutes
	Alarm: One or more alarms are active and the alarm relay has been triggered.
	IO alarm Communication between the front and the IO board has been disrupted.
 lim	Motor control alarm In case the controller is using limit switches and one of the limit switches (for opened and closed positions) is not operated in time, this alarm will be generated.

6 Update, back-up and restore

Remark: Files must not be placed in a sub folder but must be placed into the root.

Remark: The microSD card must have a capacity between 1GB – 32GB and must be formatted FAT32.

Remark: Ensure no other files are present on the microSD card other than the required file for a specific procedure. If a backup file is present while performing an update, the settings of this backup file are restored instead! No update is performed, and no new backup file is created.

Remark: After the settings of a backup file have been restored, the file extension is changed. The extension is changed from “.bck” to “.used”.

Remark: The VAN GENT NEST should never lose power when performing an update procedure!

6.1 Updating

The VAN GENT NEST software can be updated with a microSD card. Follow instructions below:

1. Ensure no files are present on the microSD card.
2. Put the update file on the microSD card.
3. Put the microSD card in the microSD card slot located on the front board.
4. Briefly press the SW1 key located on the front board.
5. The VAN GENT NEST now makes a backup of all settings and starts the update. After updating all settings are restored automatically.
6. When the RUN LED located on the front board is flashing in a steady 1 second rhythm the update procedure is completed.

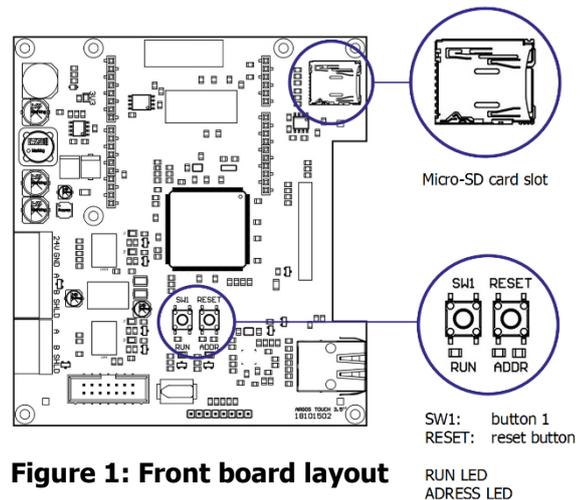


Figure 1: Front board layout

6.2 Back-up settings

1. Ensure no files are present on the microSD card.
2. Put the microSD card in the microSD card slot located on the front board.
3. Briefly press the SW1 key located on the front board.
4. The VAN GENT NEST now makes a backup of all settings.
5. When the RUN LED is flashing in a steady 1 second rhythm the backup procedure is completed.
6. The microSD card can now be removed.

6.3 Restore settings

1. Ensure no files are present on the microSD card.
2. Put the backup file on the microSD card, this file has a “.bck” extension.
3. Put the microSD card in the microSD card slot located on the front board.
4. Briefly press the SW1 key located on the front board.
5. The VAN GENT NEST now restores all settings from the backup.
6. When the RUN LED is flashing in a steady 1 second rhythm the restore procedure is completed.
7. The microSD card can now be removed.

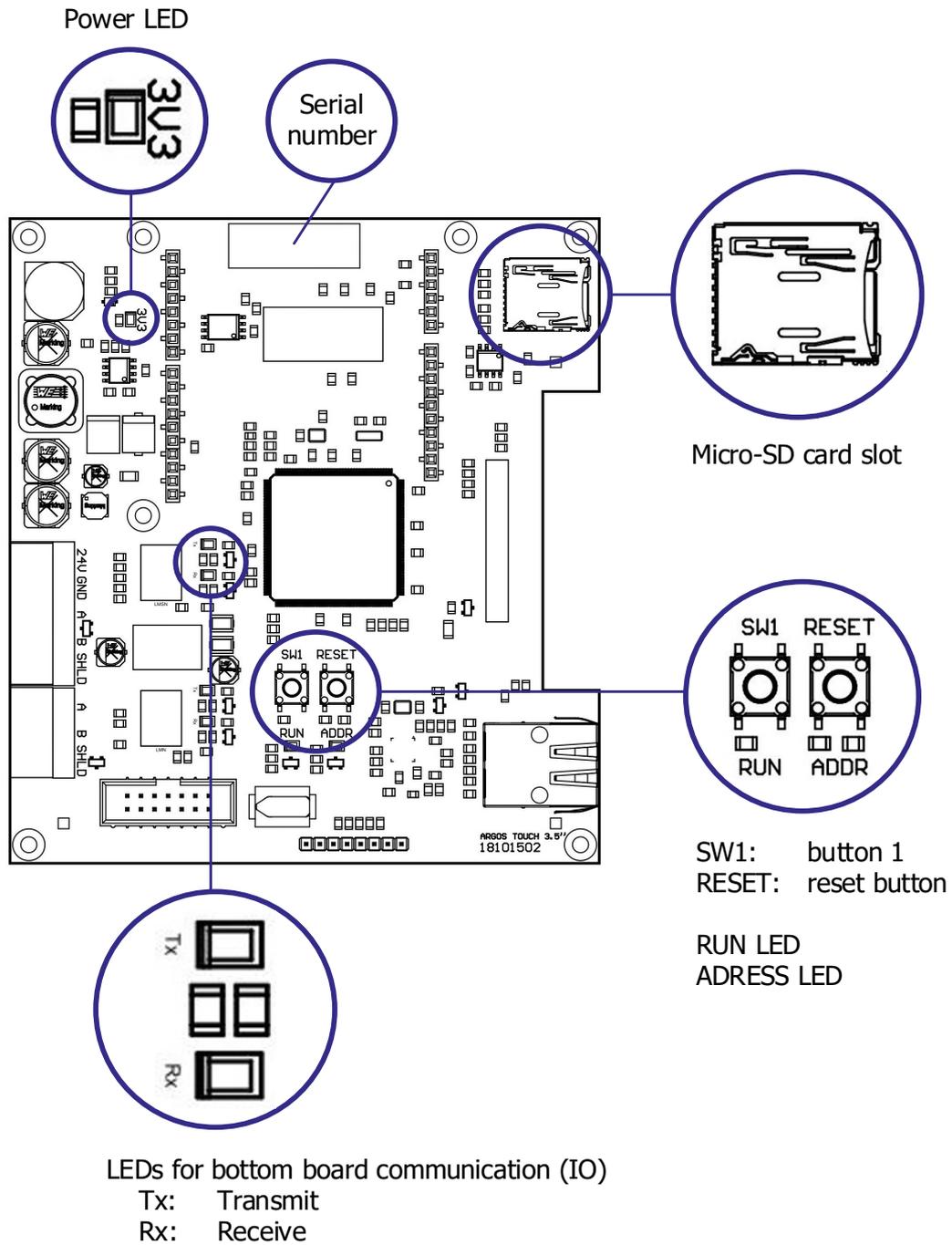
6.4 Factory reset

A hard reset can be performed to restore the VAN GENT NEST to its factory default settings:

1. Press down the SW1 key and keep this key pressed.
2. Briefly press the Reset key.
3. Keep the SW1 key pressed until the VAN GENT NEST has completely restarted, this takes about 20 seconds.
4. The factory reset is now complete.

7 PCB schematics and wiring diagrams

7.1 Front panel PCB



Remark: The LEDs for bottom board communication (IO) indicate the communication between the front panel PCB and the bottom PCB.

7.2 Bottom board PCB

SW1 button
Reset button

Front board communication LED's:

RX: Communication receive LED

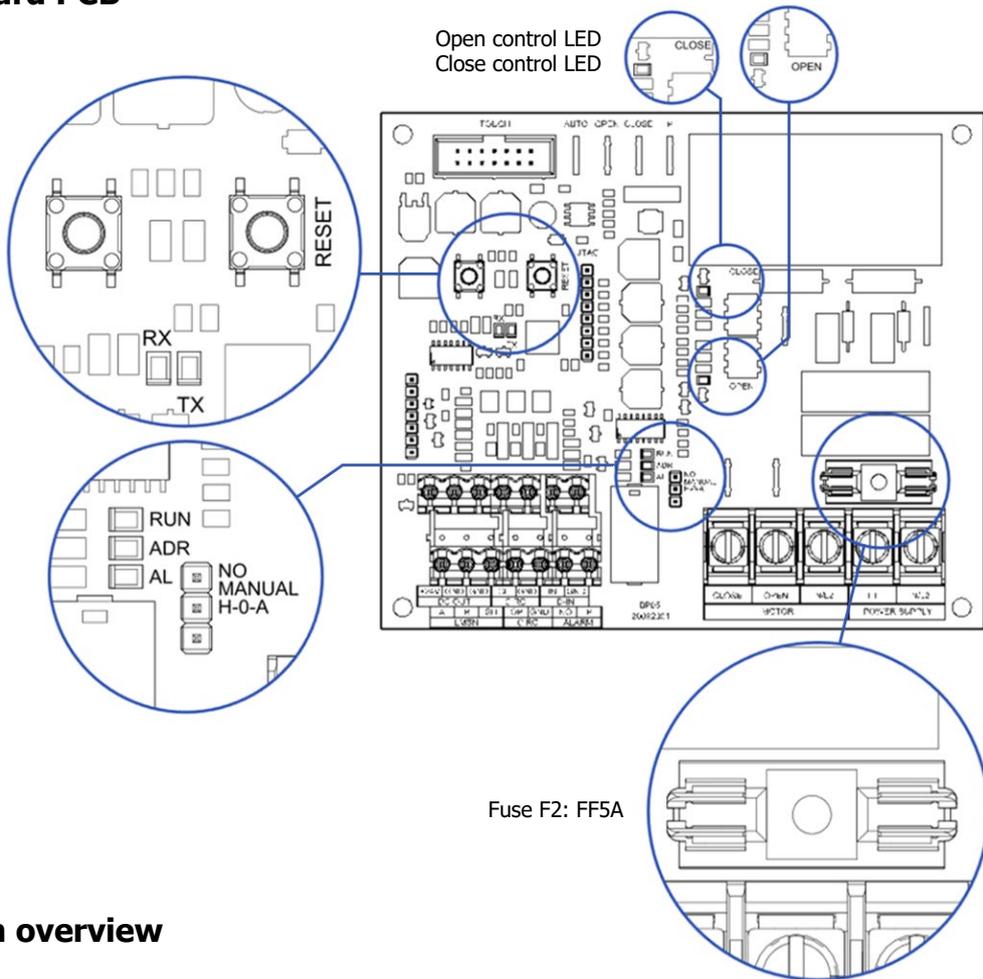
TX: Communication transmit LED

24V LEDs:

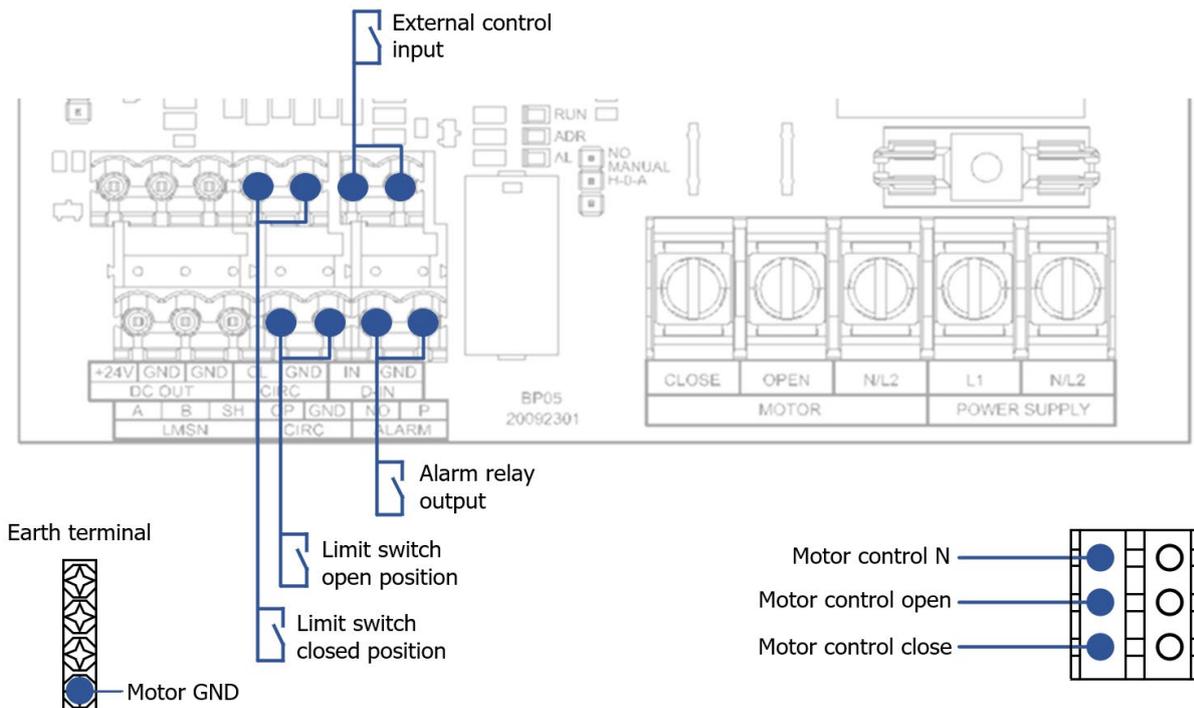
Run LED
Address LED
Alarm LED

Jumper:

Determines version with or without manual control switch



7.3 Connection overview



Remark: for safety reasons it is advised to measure 0V between N/L2 and GND. If this is not the case, re-plug power cord in other orientation.

8 Technical specifications

General

Dimensions (external)	: 204x229x116mm (depth x width x height)
Dimensions (circuit board)	: 108x125 (depth x width)
Housing	: Plastic IP54
Connections	: Via klamps and terminal strip
Environmental temperature	: 0 – 45°C no direct sunlight or radiation from heat source
Power supply voltage	: 110 – 240Vac
Mains frequency	: 50/60Hz
Power consumption	: Max. 20 Watt
Primary fuse:	: FF20A
Secondary fuse (F2):	: FF5A