

MR220

Industrial Door Control Unit User Manual



roboDor

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HW 5.0

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1 Safety Information

IMPORTANT SAFETY INSTRUCTIONS For your safety, it is crucial to follow these instructions. Failure to comply may result in personal injury or damage to the control unit.

- **Qualified Personnel Requirement:** Setup, operation, and maintenance should only be performed by qualified personnel trained in handling the control unit. Unauthorized personnel should not operate or handle the unit.
- **Power Isolation Before Maintenance:** Ensure that the Control Box (CB) is disconnected from the power supply before opening it. Never open or operate the CB with the cover removed.
- **Damaged Cable Handling:** If the CB cable is damaged or unsealed, it should only be replaced by the manufacturer, an authorized service company, or qualified personnel.
- **Residual Voltage Warning:** DC capacitors in the CB may retain a high voltage even after the power is turned off. Wait at least 1–2 minutes for the voltage to drop below 10 V. During this period, avoid any contact with CB components as they could still be dangerous.
- **Grounding Requirement:** Ensure the CB is properly grounded at all times. Operating without proper grounding can cause severe electrical damage and pose a shock hazard.
- **Moisture and Water Exposure:** The CB must never be exposed to water or operated in a humid environment. Exposure to water may cause malfunction or damage to the CB components.
- **Temperature Limits:** Do not operate the CB outside of the specified temperature range. If the operating environment is too cold, a heater may be required to maintain optimal temperatures.
- **Keypad Usage Warning:** The CB should not be used if the keypad or display is damaged. Damaged components must be replaced. Only use fingers to operate the keypad; avoid using sharp objects that might damage it.
- **Cable Connection Verification:** Before the first use, check all electrical connections and portable modules connected to the CB. Incorrect connections can damage the CB.
- **Manual Mode Safety:** In manual mode, operate the door only with an operator present. This mode disables the safety edge and light curtain, so it is crucial to ensure there is no hazard nearby.
- **Parameter Verification:** Verify all parameter settings and safety gear adjustments in the CB before operation. Only qualified personnel should modify these settings.
- **Hazard of Non-Compliance:** Not adhering to these safety instructions may lead to severe harm to the user and potential damage to the control unit.

Warning: Failure to follow safety instructions may result in harm or damage to the CB.

2 Technical Specifications

The table below summarises the electrical and mechanical characteristics of the MR220 control unit. Verify these ratings against the motor nameplate and the door installation before commissioning, and observe all limits during operation.

Product identification. This control unit is the **MR220**. Production units carry a serial number that begins with the prefix **F220** — for example, F220-2026-06-001. A unit whose serial number starts with F220 is an MR220 control unit; the F220 serial prefix and the MR220 product code refer to the same product.

MR220 Control Unit Specifications	
Parameter	Specification
Housing Dimensions (W × H × D)	310 × 230 × 130 mm
External Supply Voltage (Rated Input)	220 VAC, 1N~, ±10%, 8 A, 50/60 Hz (single phase)
Protection Class	Class I — protective earth (PE) connection required
Fuses	1 × 4 A cap type, 1 × 1 A glass type
Control Voltage	24 V DC regulated, max. 1.2 A at 40 °C
Controller Inputs (electrical)	24 VDC / typ. 15 mA, max. 26 VDC / 20 mA
Internal Power Consumption	7 W at standby
Limit switch / feedback types supported	• Robodor RARE absolute encoder • Kostal absolute encoder • GFA absolute encoder • Mechanical limit switches
Number of Control Inputs	11
Safety Inputs	2 (Photocell for Safety 1, OSE for Safety 2)
Safety Sensor types supported	• Off • NC24V contact • OSE optical safety edge (square-wave)
Programmable Relay Outputs	3
Brake Relay rating	230 VAC / 5 A, 30 VDC / 3 A
Max Motor Rating	1.5 kW max., 10 A
Motor Type	Induction motor
Inverter Output	0–230 V 3~, max. 10 A, 0–100 Hz
Rated Torque	300 Nm
Compatible Door Types	Industrial vertical and horizontal
Duty	100 cycles/h

MR220 Control Unit Specifications (continued)	
Parameter	Specification
Operating Temperature	-20 to +50 °C
Storage Temperature	-20 to +70 °C
Relative Humidity	up to 95% non-condensing
Enclosure Rating	IP54
Weight	2.0 kg
Installation Orientation	Vertical
Not: SN:F220-2026-06-001 is valid for the MR220 model.	

3 Installing the Control Unit

CAUTION: Follow all instructions carefully; improper installation may lead to serious damage.

- Ensure the control system is not connected to mains during installation.
- Check the control unit for damage before installation.
- Avoid touching electronic components, especially processor components, to prevent electrostatic discharge damage.

Installation Location:

- Install the unit in a location that is free from direct sunlight, high humidity, dust, and extreme temperatures.
- Choose a wall that is stable and vibration-free to prevent any operational issues.

Height and Clearance:

- Ensure a minimum height of 1300 mm from the ground to the base of the control unit.
- Maintain a minimum clearance of 100 mm above and below the unit for proper ventilation.

Mounting Position:

- Mount the unit vertically, avoiding any horizontal installation.
- Ensure it is mounted securely on a flat surface.

Safety Precautions:

- Use insulated gloves and appropriate tools to prevent electric shock.
- Ground the unit properly to protect against static electricity.

Electrical Connections:

- Use the correct voltage and current values for the connection. The main input voltage must be single-phase 220 V (rated input 220 VAC, 8 A, 50/60 Hz), and connections should be made to phase (L), neutral (N), and ground (PE).
- Install fuses and circuit breakers for additional safety.

4 First Installation

This section is a practical, step-by-step guide to bringing an MR220 controller into service for the first time. It assumes the mechanical mounting and all electrical wiring have already been completed as described in the Installation and Connections sections. Work through the pre-energization checklist, power the unit on, and then follow the commissioning steps in order. Every menu name used below is the exact wording shown on the controller's display. A full description of every menu item is given in the Menu Reference section.

4.1 Pre-energization checklist

Before applying power for the first time, confirm each of the following. Do not energize the controller until every item has been checked.

- **Verify all wiring is correct AND the terminal screws are tight.** Loose terminals are a common cause of intermittent faults, arcing and overheating, so check every screw terminal by hand.
- The protective earth (PE / ground) conductor is connected to the controller's earth terminal and to the motor.
- The three motor phases are connected to the motor output terminals (the drive supplies a three-phase 230 V AC output to the motor).
- All safety devices are wired to their inputs — the photocell and/or optical safety edge on the safety inputs, and the emergency-stop / safety-chain circuit — and are mechanically in place.
- The incoming supply matches the controller's rating: single-phase 230 V AC ($\pm 10\%$), 50–60 Hz. Confirm the supply voltage and phase before switching on.

4.2 Powering on

When power is applied, the welcome screen appears for about a second, showing the product name and firmware version (MR220 V:5.05). The controller then switches to its main screen and displays the door's current state — for example “DOOR IS CLOSED” if the door is at its closed end position.

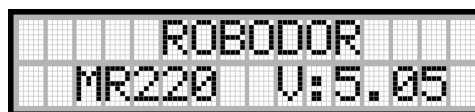


Figure 1: Power-on welcome screen showing the model and firmware version.

4.2.1 Entering the setup menu

To open the configuration menu, press and hold the **Stop** and **Open** buttons together for about 3 seconds. The display briefly shows “MENU ACCESSED” and the main menu opens. If a password has been set on the controller, a password prompt follows first — where a password is required, contact the manufacturer.

Once inside the menu, use the **Open** and **Close** buttons to scroll through the list and to adjust a value or option. Press and hold to save your selection; a short press cancels without saving. The **Stop** button always halts door movement and takes priority over an open or close command.

4.3 Commissioning order

Carry out the following steps in order. Each step names the exact menu path, what to set, and why it matters.

1. Enter the motor nameplate data (**MOTOR INFO CONFIG**).
2. Select the position feedback (**ENCODER TYPE** and **ENCODER DIRECTION**).
3. Learn the door travel (**DOOR LIMIT LEARNING**).
4. Choose the operation mode (**OPERATION MODE**).
5. Set auto-close and the safety inputs (**AUTO CLOSE TIME**, **SUB SAFETY**, **SAFETY BLIND SPOT**).

4.3.1 Enter the motor nameplate data

From the main menu, open **MOTOR INFO CONFIG**. Enter each value from the motor's rating plate; the drive uses this data to build its V/f control curve and to protect the motor.

- **MOTOR VOLTAGE** — the motor's rated (base) voltage, used as the top of the V/f curve so output voltage scales correctly with frequency.
- **MOTOR HERTZ** — the motor's rated (base) frequency, the corner point of the V/f curve at which full motor voltage is reached.
- **MOTOR CURRENT** — the motor's rated working current; the drive uses it as its current limit to protect the motor from overload.
- **POWER FACTOR** — the motor power factor; used to trim slip compensation for more accurate speed and torque under load.
- **CONTROL MODE** — opens the motor control-strategy selector; choose **SCALAR** (plain open-loop V/f) or **SCALAR + SLIP** (V/f with slip compensation, which holds shaft speed more constant under load).

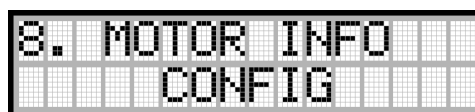


Figure 2: MOTOR INFO CONFIG — enter the motor's nameplate values here.

4.3.2 Select the position feedback

Tell the controller how it reads the door's position. From the main menu open **SYSTEM MENU** (main menu item "SYSTEM MENU"), then **ENCODER TYPE**, and choose the device actually fitted to the door:

- **ROBODOR RARE** — Robodor's RARE absolute encoder provides position and limits.
- **KOSTAL** — a Kostal absolute encoder provides position feedback.
- **GFA** — a GFA absolute encoder provides position feedback.
- **MECHANICAL LIMIT** — traditional mechanical limit switches are used instead of an encoder (inputs 6–9 are then reserved for the limit switches).

Then set **ENCODER DIRECTION** (main menu item) so the feedback counts in the same direction the motor is commanded to turn. If the feedback counts the wrong way the controller reports an encoder direction error; reverse the encoder direction here (or swap the motor phases) so movement and feedback agree, then re-learn the door travel.

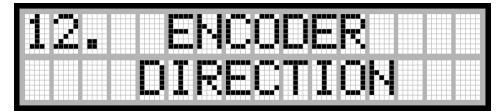
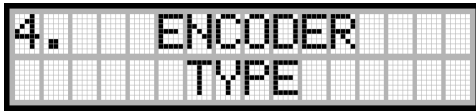


Figure 3: Left: ENCODER TYPE selector (SYSTEM MENU). Right: ENCODER DIRECTION.

4.3.3 Learn the door travel

With the feedback set, teach the controller the open and closed end positions. From the main menu open **DOOR LIMIT LEARNING**. The screen asks for a Yes / No confirmation: scroll to Yes and press and hold to confirm. The door then runs an automatic open and close cycle to find its end positions; while this runs, the main screen shows “AUTO TUNE ACTIVE” on the lower line. Keep the doorway clear and be ready to press **Stop** if anything is wrong. When the cycle finishes, the learned limits are stored automatically.

Note: **DOOR LIMIT LEARNING** is not available when **ENCODER TYPE** is set to **MECHANICAL LIMIT** — with mechanical limit switches the end positions are set by the switches themselves, and the controller shows a not-available message instead of running the learning cycle.

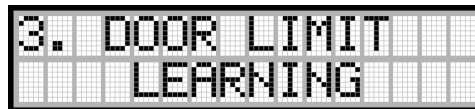


Figure 4: DOOR LIMIT LEARNING — confirm Yes to run the automatic learning cycle.

4.3.4 Choose the operation mode

From the main menu open **OPERATION MODE** and select how the door is driven. Scroll to the mode you want and press and hold to save it.

- **MANUAL** — hold-to-run (dead-man): the door moves only while the open or close command is held and stops the instant it is released.
- **AUTOMATIC** — the door runs fully automatically between its learned limits and, when an auto-close time is set, closes by itself after opening.
- **TEST** — commissioning / diagnostic mode used while setting the door up; movement is constrained for safe testing.
- **MANUAL UNLIMITED** — hold-to-run service mode that ignores the learned end limits, letting the installer drive the door past its normal stops for setup or recovery. Use with care.
- **SEMI AUTOMATIC** — the door opens automatically on command but does not auto-close; the close cycle must be commanded, keeping closing under operator control.

During commissioning it is safest to verify the door’s travel in **TEST** mode first, then switch to the final operating mode (typically **AUTOMATIC**) once everything checks out.

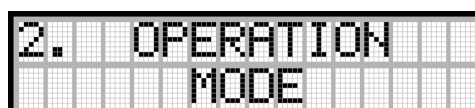


Figure 5: OPERATION MODE selector.

4.3.5 Set auto-close and the safety inputs

If the installation uses auto-close, open **AUTO CLOSE TIME** from the main menu and set the delay the door waits, fully open, before closing on its own (this only takes effect in **AUTOMATIC** mode).

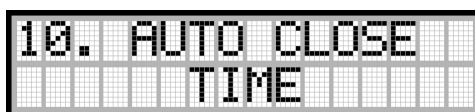


Figure 6: AUTO CLOSE TIME — the delay before the door auto-closes.

Next, configure the safety devices under **SYSTEM MENU**. Open **SUB SAFETY** and set the sensor type on each of the two safety inputs — the first entry (**PHOTOCELL**) configures safety input 1 and the second (**OSE**) configures safety input 2. For each input choose **OFF** (input disabled), **NC24V** (a normally-closed 24 V contact device such as a photocell or edge, where an open contact is read as an obstruction), or **SQUARE WAVE** (a monitored, self-testing optical safety edge).

Then open **SAFETY BLIND SPOT** and, per safety input (**PHOTOCELL BLIND SPOT** and **OSE BLIND SPOT**), set a small ignore zone near the end position so a floor-level photocell or edge does not false-trip just as the door seats.

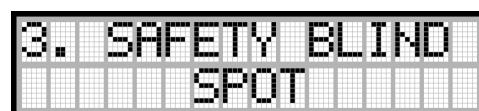
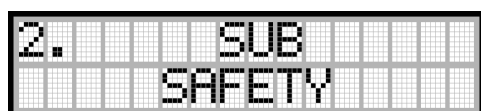


Figure 7: Left: SUB SAFETY (sensor type per safety input). Right: SAFETY BLIND SPOT.

Finally, test the complete installation: operate the door through several full open and close cycles, confirm each safety device stops or reverses the door as expected, and check that auto-close behaves correctly before handing the door over for normal use.

4.4 Setting the menu language

To set the display language, open **LANGUAGE SETTINGS** from the main menu and choose your preferred language from the picker. On this New Zealand build the display language is English.

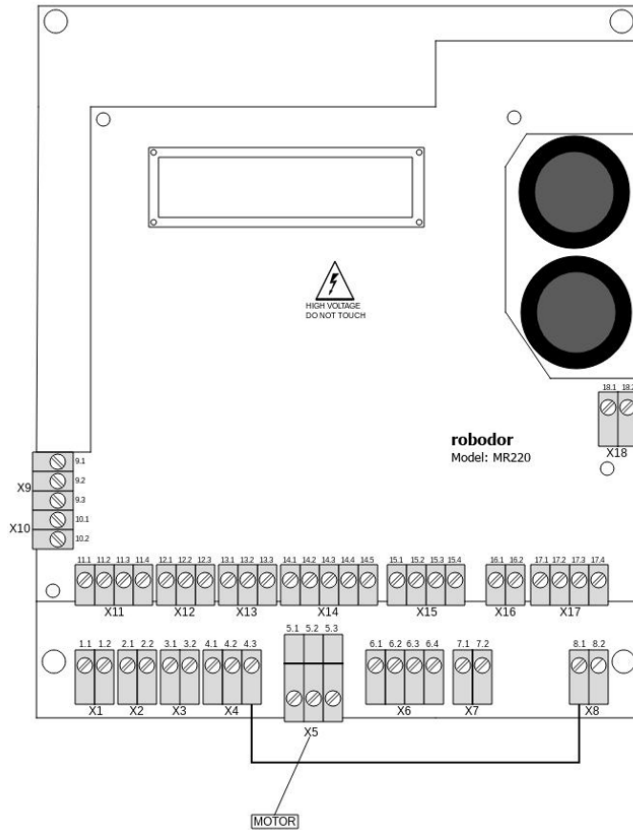


Figure 8: LANGUAGE SETTINGS — choose the display language from the picker.

5 Connections

All electrical connections must be made by a qualified installer with the controller fully isolated from the mains supply. Confirm that the incoming supply is switched off and locked out before opening the enclosure or landing any conductor. The terminals are grouped into a mains/motor power section and a low-voltage sensor and control section; the two must never be cross-wired.

The diagram below identifies the terminal blocks and connectors on the control board. Use it to locate each group referenced in the subsections that follow.

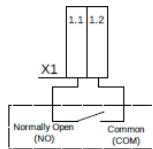


DESCRIPTION

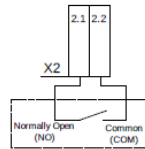
- X1 : Relay 3
- X2 : Relay 2
- X3 : Relay 1
- X4 : Brake Relay Input
- X5 : Motor Terminals
- X6 : Protective Earth (PE)
- X7 : Mains Input (Neutral (N)).
- X8 : Mains Input (Line (L)) supply and external 230V power.
- X9 : Limit Switch / Extra Inputs
 - 9.1 : 24V (COM)
 - 9.2 : Limit Up / Fire (IN10)
 - 9.3 : Limit Up Ramp / Pedestrian Open (IN9)
- X10: Limit Switch
 - 10.1 : Limit Down Ramp / Open (IN8)
 - 10.2 : Limit Down / Open (IN7)
- X11: Radar 1&2 Inputs
 - 11.1 : GND
 - 11.2 : Radar 2 (IN6)
 - 11.3 : Radar 1 (IN5)
 - 11.4 : +24V
- X12: OSE Connection
- X13: Photocell Connection
- X14: Inputs
 - 14.1 : +24V Power
 - 14.2 : OPCL (IN4)
 - 14.3 : Open (IN3)
 - 14.4 : Stop (IN2)
 - 14.5 : Close (IN1)
- X15: Encoder Connections
- X16: Tunnel Input (IN11)
- X17: Emergency Stop Input
- X18: +24V Voltage Output

5.1 Power and Motor Connections

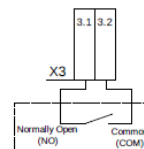
Relay 3 Connection



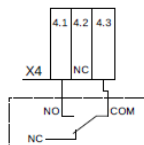
Relay 2 Connection



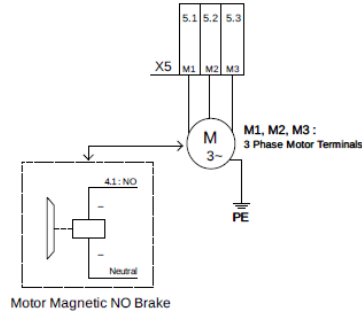
Relay 1 Connection



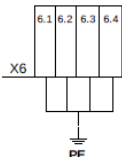
Brake Relay Connection



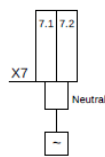
Motor Connection



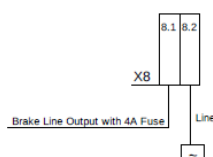
PE Connection



Mains Input (Neutral) Connection



Mains Input (Line) Connection



+24V Voltage Output Connection



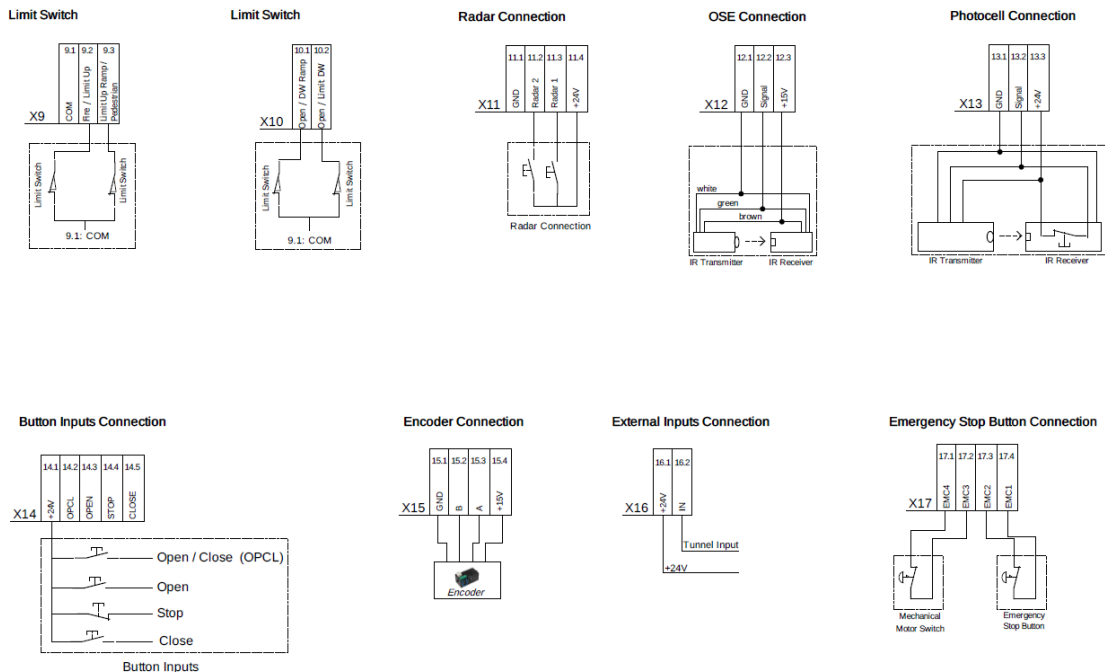
The MR220 is supplied from a single-phase mains input and delivers a three-phase output to

the door motor. Observe the following when landing the power conductors:

- **Mains supply (single-phase, 220 VAC $\pm 10\%$, 8 A, 50/60 Hz):** connect the line conductor to the phase terminal (**L**), the neutral to the neutral terminal (**N**), and the protective earth to the ground terminal (**PE**). The MR220 is a Class I appliance; a permanent protective-earth (PE) connection is mandatory before power is applied.
- **Supply protection:** the incoming supply is protected by the on-board fuses (1 $\times$ 4 A cartridge type and 1 $\times$ 1 A glass type). Replace only with fuses of the same rating and type.
- **Motor output (three-phase, 0–230 VAC, 0–100 Hz, asynchronous):** connect the three-phase induction motor to the motor output terminals. The drive develops the three-phase waveform internally from the single-phase supply, so the motor leads land on the controller's motor terminals and never on the mains input. The motor output is rated for door drives up to 1.5 kW, maximum motor rating 10 A.
- **Motor brake:** the electromechanical (holding) brake fitted to the motor is driven from the dedicated brake relay output. Wire the brake coil to this output so that the brake releases when the motor is energised and re-engages when the door stops. The brake relay contact is rated **230 VAC / 5 A** and **30 VDC / 3 A**; do not exceed this rating. Brake engage/release timing is tuned in the **MECHANICAL BRAKE** menu (see the menu reference section).

Warning. The motor terminals and mains input carry lethal voltages whenever the controller is powered. Never disconnect the protective earth, and never energise the unit with the enclosure open.

5.2 Sensor and Control Connections



The low-voltage section carries the operator commands and the safety devices. All control and safety inputs are 24 VDC signal-level terminals (24 VDC, typically 15 mA per input); do not apply mains voltage to any of them.

5.2.1 Control Inputs (IN1–IN11)

There are eleven external control inputs, labelled **IN1** through **IN11** on the board. Each input can be assigned one function through the **INPUT SETTINGS** menu, so the same terminal block can be adapted to the push-buttons, remote receivers, loop detectors and interlock signals of a particular installation. The functions that can be assigned to an input are:

- **PASSIVE** — input disabled; the terminal is ignored.
- **OPEN DOOR** — a signal on the input commands the door to open.
- **STOP DOOR** — a signal on the input stops door movement.
- **CLOSE DOOR** — a signal on the input commands the door to close.
- **PEDESTRIAN OPEN** — partial (“pedestrian”) opening to a set share of full travel; the opening amount is configured separately.
- **STEP BY STEP** — a single input that cycles the door through open, stop and close on successive activations.
- **FIRE SYSTEM** — fire-alarm input; on activation the door drives to its configured fire position (see the **FIRE DIRECTION** setting).
- **AIRLOCK** — interlock input used for airlock / sluice operation between two doors.

When the position feedback is set to mechanical limit switches, inputs **IN6–IN9** are reserved for the limit switches and are not available for the functions above.

5.2.2 Safety Inputs

Two dedicated safety inputs monitor the devices that protect the door opening. They are labelled on the board as **Photocell for Safety 1** and **OSE for Safety 2**, reflecting the sensor normally fitted to each. In the **SUB SAFETY** menu each input is assigned the type of device connected to it:

- **OFF** — the safety input is disabled.
- **NC24V** — a normally-closed 24 V contact-type safety device (such as a photocell or contact safety edge); an open contact is read as an obstruction and stops or reverses the door.
- **SQUARE WAVE** — an OSE optical safety edge with a pulsed square-wave signal, giving monitored (self-testing) edge protection.

Each safety input also has a configurable blind-spot zone near the end limit (set in **SAFETY BLIND SPOT**) so that a floor-level photocell or edge does not false-trip as the door seats.

5.2.3 Emergency-Stop and Safety-Chain Inputs

The controller monitors the emergency-stop circuits and the series safety chain continuously; these loops must be closed for the door to run.

- **Emergency-stop circuit 1** — if this input opens, the door is held stopped and the display reports **EMERGENCY ERROR**. Reset the emergency-stop device and check the circuit for an open contact or broken wire before the door will run again.
- **Emergency-stop circuit 2** — a second, independent emergency-stop input. If it opens, the door is held stopped and the display reports **EMERGENCY 2 TRIGGERED**. Reset the device on this circuit and verify its wiring.

- **Safety chain** — the series safety-chain loop links devices such as a wicket/pass-door contact, a slack-rope switch and chain emergency stops. If any device in the loop opens, the chain breaks, the door is held stopped, and the display reports **SAFETY CHAIN TRIGGERED**. The door will not run until every device in the chain is closed and continuity through the wiring is restored.

6 Main Screen and Information Displays

This section describes what the MR220 shows on its display during everyday use: the brief welcome screen shown at power-on, the main (running) screen with its door-state messages, and the six optional diagnostic information screens that can be shown while the door runs. All text shown here is the English user interface, which is the only language on this New Zealand build.

6.1 Welcome Screen

When the controller is powered on it runs a short start-up sequence and, for about one second, shows the welcome screen carrying the product name and the installed firmware version — MR220 v:5.05. The controller then starts normally and switches to the main screen.

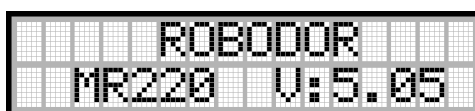


Figure 9: Power-on welcome screen showing the product name and firmware version.

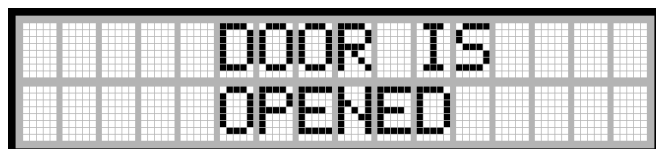
6.2 Main Screen

During normal operation — when no fault or warning is active — the main screen reports the state of the door:

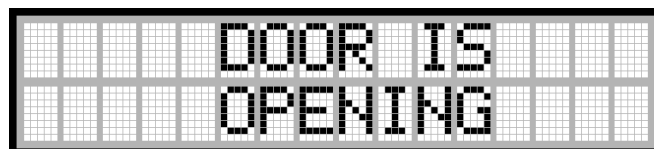
- **Line 1** always shows the current door state as one of the six messages below, and updates automatically whenever the door state changes.
- **Line 2** is used for two purposes. When automatic closing is enabled (and the door is in Automatic or Test mode) it shows the auto-close countdown, for example `TIME:10s`, where the number counts down the seconds remaining before the door closes by itself. While the end-limit auto-tune / learning routine is running, line 2 instead shows the message `AUTO TUNE ACTIVE`. At all other times line 2 is blank.

If a fault or warning becomes active it takes over the whole display; those dedicated fault and warning screens are described in Section 7.

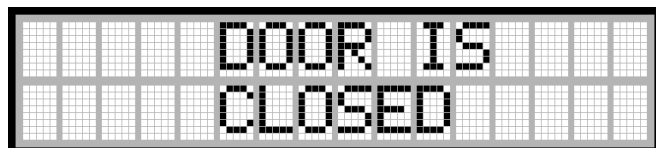
The six door-state messages that can appear on line 1 are shown below, each with the condition that produces it.



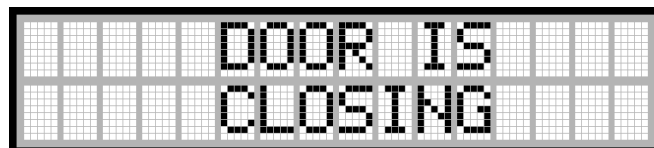
DOOR IS OPENED
door fully open, at rest



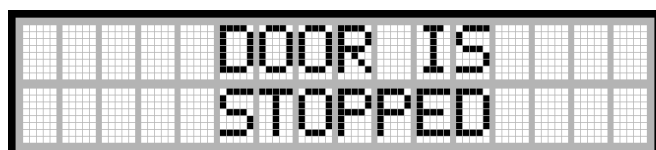
DOOR IS OPENING
door travelling in the opening direction



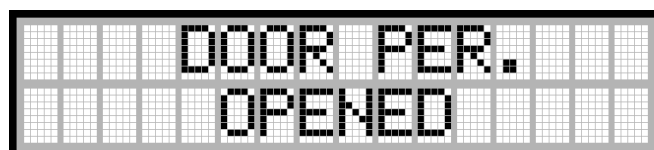
DOOR IS CLOSED
door fully closed, at rest



DOOR IS CLOSING
door travelling in the closing direction



DOOR IS STOPPED
door halted at an intermediate position



DOOR PER. OPENED
stopped at the partial pedestrian-open position

Figure 10: The six door-state messages shown on line 1 of the main screen during normal operation.

6.3 Diagnostic (Information) Screens

The main (running) screen can be set to display one of six diagnostic information screens instead of the plain door-state line. Each screen shows a live snapshot of a different part of the system — motor drive, door position, temperature, end limits, safety input, and encoder communications — and is useful for commissioning and fault-finding. Which screen is displayed is chosen in the SCREEN DEBUG MODE SETTINGS menu (see Section 8). An information screen is only shown while the door is running normally; if a fault or warning becomes active, the fault/warning display takes over.

The values printed in the following screenshots are *example (illustrative) values* used only to show the layout — the controller displays the live measured figures in their place. Each on-screen tag is explained in the field legend beneath its screen.

6.3.1 Information Screen 1 — Motor / Current

Live motor-drive telemetry: motor current, the drive's control angle, the motor output voltage, the DC-bus voltage and the output frequency.

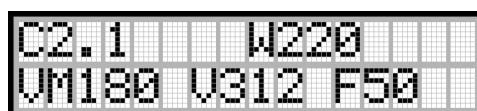


Figure 11: Information Screen 1 (motor / current) — example values shown for illustration only.

- **C** — motor RMS phase current, in amperes (A).
- **W** — the drive's V/f control angle (the electrical angle), in degrees.
- **VM** — motor output voltage, in volts (V).
- **V** — DC-bus voltage, in volts (V).
- **F** — motor output frequency, in hertz (Hz).

The single-letter **V** is the DC-bus voltage; **VM** on the lower line is the voltage the drive is feeding to the motor.

6.3.2 Information Screen 2 — Position

Encoder and door-position readings together with the encoder error count and the active feedback (limit-sensor) type.

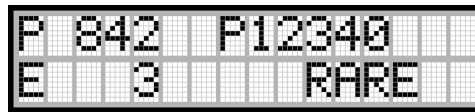


Figure 12: Information Screen 2 (position) — example values shown for illustration only.

- **P** (upper line, left) — raw encoder value, in counts.
- **P** (upper line, right) — computed door position, in counts.
- **E** — total (accumulated) encoder error count.
- **RARE** — the active feedback / limit-sensor type. It shows the type selected in ENCODER TYPE (one of ROBODOR RARE, KOSTAL, GFA or MECHANICAL LIMIT); on this MR220 build it reads RARE.

6.3.3 Information Screen 3 — Temperature / Time

Power-module temperature (both the present reading and the highest reached since power-on) plus the auto-close countdown.

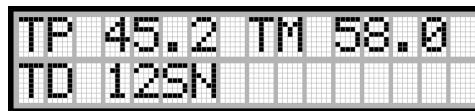


Figure 13: Information Screen 3 (temperature / time) — example values shown for illustration only.

- **TP** — power-module temperature now, in degrees Celsius.
- **TM** — the maximum power-module temperature reached since the last power-on, in degrees Celsius.
- **TD** — the auto-close countdown: the remaining time, in seconds, before the door closes automatically.

6.3.4 Information Screen 4 — Limits / End Positions

The inertia (overrun) offsets for the two end limits, the effective target open and close positions (each including any user offset that has been set), the current door position, and how far the door settled from its target at the end stop.

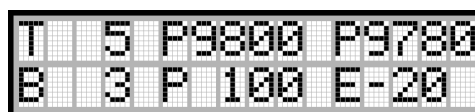


Figure 14: Information Screen 4 (limits / end positions) — example values shown for illustration only.

- **T** — open-side inertia (overrun) offset for the open end limit, in counts.
- **P** (upper line, middle) — effective target open position (the learned open limit plus the open user offset), in counts.
- **P** (upper line, right) — current door position, in counts.
- **B** — close-side inertia (overrun) offset for the closed end limit, in counts.
- **P** (lower line, middle) — effective target close position (the learned closed limit plus the close user offset), in counts.
- **E** — end-stop deviation: how far (signed) the door settled from its target end position. It is shown only when the door is fully opened or fully closed.

6.3.5 Information Screen 5 — Safety

The state of the photocell safety input and whether the door has opened past the point where that safety sensor is intentionally disregarded.

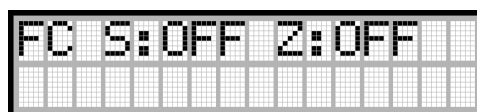


Figure 15: Information Screen 5 (safety) — example values shown for illustration only.

- **FC S** — photocell safety-input state: **ON** when the photocell is triggered (something is detected in the doorway), **OFF** when the path is clear.
- **Z** — zone flag: **ON** when the door has opened beyond the configured safety shutdown position (the blind-spot zone where the photocell is deliberately ignored), **OFF** otherwise.

6.3.6 Information Screen 6 — Encoder Communications

Diagnostic counters for the serial link to the encoder, useful for judging the health of the encoder connection. All three counters are volatile: they start at zero at each power-on.

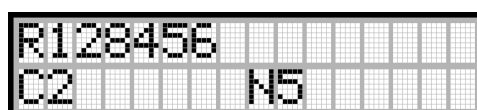


Figure 16: Information Screen 6 (encoder communications) — example values shown for illustration only.

- **R** — total number of encoder communication requests since power-on.
- **C** — encoder connection-error count since power-on.
- **N** — encoder noise-error count since power-on.

A steadily rising **C** or **N** while **R** climbs points to a wiring, shielding or cable problem on the encoder link.

Entering the Configuration Menu

The controller has three buttons: **Open**, **Close** and **Stop**. To reach the configuration menu from the main screen, press and hold **Stop** and **Open** together for about three seconds. The display briefly shows **MENU ACCESSED** and the menu opens. If the menu is protected, a password prompt appears first — where a password is required, contact the manufacturer. The full menu structure is described in Section 8.

7 Faults and Warnings

7.1 Faults

The controller continuously monitors the drive, the motor, the position-feedback device and the safety circuits. When it detects a condition that prevents safe operation it stops the door and shows a fault on the LCD: a fault code (E01–E20) together with a short description of the problem. A fault holds the door out of service — it will not run again until the cause is corrected and the fault is cleared. Earlier faults can be reviewed later under **FAULT HISTORY** in the **SYSTEM MENU**. Where the message includes a live measured value (a current, voltage or temperature), that value is shown on the screen and is referred to in words in the table below.

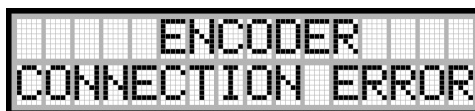


Figure 17: Example of how a fault appears on the LCD.

Code	Fault	Cause and Solution
E01	OVER CURRENT ERROR	The motor drew more current than the safe running limit. The measured current value is shown on screen. Solution: Check for a mechanical jam, binding, or an obstruction in the door track. Confirm the door is properly balanced and not overweight for the drive. Inspect motor cabling for a partial short. Clear the cause, then reset.
E02	MOTOR UNDER CURRENT	The motor is drawing far less current than expected, as if it is not really connected under load. The measured current value is shown on screen. Solution: Check the motor connections and terminals, look for a loose or broken lead or a missing motor phase, and confirm the motor is actually coupled to the door.
E03	OVER VOLTAGE FAULT	The internal DC bus voltage rose above its safe ceiling. This usually happens when a heavy door decelerating feeds braking energy back into the drive faster than it can be dissipated. The measured voltage value is shown on screen. Solution: Check the brake (dump) resistor and its wiring; a missing or faulty resistor is the most common cause. Verify the incoming supply is not over-voltage. If it recurs on stopping, reduce speed or soften the deceleration ramp.
E04	INVERTER MAX CURRENT	Instantaneous current hit the drive's absolute hardware peak limit — a hard, fast trip rather than a gradual overload. The measured current value is shown on screen. Solution: Check for a short circuit across the motor leads, a hard mechanical seizure of the door, or a faulty motor. Do not restart until the cause is found.
E05	LOW VOLTAGE FAULT	The internal DC bus / supply voltage dropped below the minimum needed to run. The measured voltage value is shown on screen. Solution: Check the incoming mains voltage and supply connections, look for a brownout or a lost/weak supply phase, and confirm the supply is adequately rated.

Code	Fault	Cause and Solution
E06	OVER SPM TEMP	The drive's power module has overheated. The measured temperature is shown on screen. Solution: Let the unit cool down. Improve ventilation and clear any blocked airflow around the controller, reduce how often the door cycles, and check that the door load is within rating. Confirm the module is properly seated against its heatsink.
E07	IPM FAIL SYSTEM ACTIVE	The drive's power module reported its own internal hardware protection fault (its built-in short-circuit / over-current / over-temperature protection fired). Solution: Power the unit off and on. If it clears, watch for a repeat under load. If it keeps returning, the power stage / control board needs service.
E08	ENCODER CONNECTION ERROR	No valid signal is coming from the position-feedback device (encoder); the controller cannot tell where the door is. Solution: Check the encoder cable and connector for a disconnection or break, confirm the encoder is powered, and verify the wiring matches the terminal assignment.
E09	ENCODER NOISE ERROR	The position-feedback signal is erratic — the controller is seeing implausible or noisy pulses. Solution: Check cable shielding and grounding, route the encoder cable away from motor / power cables, and replace a damaged or poorly terminated cable.
E10	OVER PULSE ERROR	The feedback device counted more travel than the learned door length allows — the door appears to have gone past its expected range. Solution: Re-run the door length / limit learning procedure. Check the mechanical coupling (belt, chain, coupling) for slippage, and confirm the limits were learned correctly.
E11	DOOR NOT MOVING	The motor was commanded to run but no door movement was detected. Solution: Check that the electromechanical brake is releasing, inspect the mechanical coupling between motor and door, and clear any obstruction or seizure. Confirm the motor actually turns.

Code	Fault	Cause and Solution
E12	DOOR TOO SLOW	The door is moving noticeably slower than expected for the commanded speed — the obstruction-detection logic flags this as possible binding or an object in the way. Solution: Clear any obstruction, check for increased friction or binding in the guides, confirm the door is balanced, and review the speed / torque settings for the door weight.
E13	DOOR TOO FAST	The door is moving faster than expected — the free-fall detection logic flags this as a possible loss of controlled motion, which is safety-critical. Solution: Stop using the door until inspected. Check the counterbalance springs / weights, the belt or chain, and that the brake is holding. Do not return to service until the cause is corrected.
E14	ENCODER DIRECTION ERROR	The position feedback is counting in the opposite direction to the way the motor was commanded to turn. Solution: Swap the encoder direction wiring (or the motor phases) per the commissioning procedure so feedback and motion agree, then re-learn the door travel.
E15	FIRE SYSTEM ACTIVATED	The fire input has activated the fire routine and latched the door into its fire state (driven to its preset fire position). Solution: This is normal when a fire alarm is present. It clears when the fire-alarm signal resets. If unexpected, check the fire input wiring and the alarm source.
E16	LIMIT SWITCH LIMITS EXCEEDED	In mechanical limit-switch mode, the door travelled past where a limit switch should have stopped it. Solution: Check that the limit switches are in position, actually triggering, and correctly wired. Verify the physical travel and switch mounting.
E17	EEPROM SAVE ERROR	A save to (or read from) the controller's internal settings memory failed. Solution: Retry saving the setting. If it keeps failing, the stored settings may be corrupt and may need to be re-entered; a persistent fault means the control board needs service.
E18	EMERGENCY ERROR	The emergency-stop input (emergency circuit 1) has been triggered and the door is held stopped. Solution: Release / reset the emergency-stop device and check the emergency input circuit for an open contact or broken wire.

Code	Fault	Cause and Solution
E19	EMERGENCY 2 TRIGGERED	The second emergency-stop input (emergency circuit 2) has been triggered and the door is held stopped. Solution: Release / reset the device on the second emergency circuit and check that input's wiring for an open contact or broken wire.
E20	SAFETY CHAIN TRIGGERED	The series safety-chain circuit is open — one of the safety devices wired in the chain has opened, breaking the loop. Solution: Check each device in the safety chain (e.g. wicket / pass-door contact, slack-rope switch, chain e-stops) and the continuity of the wiring between them. The door will not run until the chain is closed again.

7.2 Warnings

Warnings are advisory conditions the controller flags to draw attention to something in the environment or the wiring. Unlike a fault, a warning does not normally latch the door out of service — it typically clears on its own once the triggering condition goes away (for example, the doorway is cleared or a held button is released). Where the message includes a live value (the name of a safety device or an input number), that value is shown on the screen and is referred to in words in the table below.

Code	Warning	Cause and Solution
W01	Safety input triggered — the device name is shown	A safety input has been triggered; the name of the specific safety device is shown on screen (for example the photocell or safety-edge slot name). Something was detected in the doorway. Solution: Clear the doorway. Check the alignment and wiring of the named safety device. The warning clears once the doorway is free and the device reads clear.
W02	OPEN BUTTON LONG PRESSED	The open (up) button has been held active longer than the allowed time, suggesting it is stuck or continuously commanded. Solution: Release the button. If the warning stays, check for a jammed button or a stuck / bridged contact in the open command wiring.
W03	STOP BUTTON LONG PRESSED	The stop button has been held active longer than the allowed time, suggesting it is stuck or continuously commanded. Solution: Release the button. If the warning stays, check for a jammed button or a stuck contact in the stop command wiring.

Code	Warning	Cause and Solution
W04	CLOSE BUTTON LONG PRESSED	The close (down) button has been held active longer than the allowed time, suggesting it is stuck or continuously commanded. Solution: Release the button. If the warning stays, check for a jammed button or a stuck / bridged contact in the close command wiring.
W05	INPUT LONG PRESSED — the input number is shown	An external control input has been held active longer than the allowed time; the number of the affected input is shown on screen, indicating a likely stuck external command. Solution: Find the external device or contact on the indicated input number and clear the held / stuck signal or wiring fault.
W06	AIRLOCK TRIGGERED	The airlock (interlock) function is active — this door is being held because the paired door in the airlock has not released it yet. Solution: This is normal in airlock / interlock operation. If it persists, check the interlock signal coming from the other door and its wiring.
W07	FIRE FUNCTION TRIG- GERED	The fire function has been triggered by the fire input and the door is following its fire routine. Solution: This is normal when a fire alarm is present; it clears when the alarm resets. If unexpected, check the fire input wiring and alarm source.

8 Menus

The control unit uses a single configuration menu. From the running or idle display, entering the menu takes you straight to the Main Menu, from which every setting and the System Menu are reached.

8.1 Accessing and Navigating the Menu

Entering the menu

Press and hold the **Stop** and **Open** buttons together for about 3 seconds. The display briefly shows **MENU ACCESSED** and the Main Menu opens.

- If the menu is protected, a password entry screen appears first. Enter the access code to continue. Password values are never printed in this manual — for the factory / service code, contact the manufacturer.

Moving through the menu

All navigation uses the three front-panel buttons **Open**, **Close** and **Stop**:

- **Scroll** through menu items or option values by tapping **Open** (next) and **Close** (previous). Each tap moves one item or one option.
- **Enter / save** the highlighted item or the value you have set by **pressing and holding** the button. A held press opens a sub-menu, confirms a selection, or stores a changed value.

- **Cancel / go back** with a short tap; the change is discarded and the previous screen returns.

The way each entry screen behaves (a whole-number value, a one-decimal value, a code field, or an option list) is shown in the worked examples in Section 8.4. Settings that carry an adjustable range simply show that range on screen while you turn the value; the ranges themselves are not reproduced here.

8.2 Main Menu

The Main Menu contains fifteen items, listed below in the order they appear on screen. Items that open a sub-menu or an option list are documented together with their sub-items.

8.2.1 1. OPENING COUNT

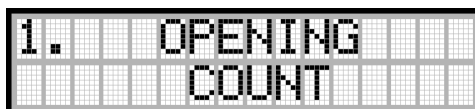


Figure 18: The cumulative door-cycle counter.

Displays the total number of door-open cycles the controller has performed. This value is intended for service and maintenance planning. Resetting the counter to zero is password-protected — to clear it, contact the manufacturer.

8.2.2 2. OPERATION MODE

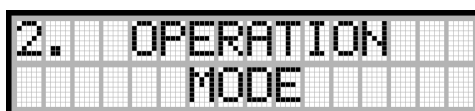


Figure 19: Choosing how the operator drives the door.

Selects how the operator drives the door. Scroll to the required mode and hold to save. The available modes are:

- **MANUAL** — Hold-to-run (dead-man) operation: the door moves only while the Open or Close command is actively held and stops the instant it is released.
- **AUTOMATIC** — The door runs fully automatically between its learned limits and, when an auto-close time is set, closes by itself after opening.
- **TEST** — Commissioning / diagnostic mode used while setting the door up; movement is constrained for safe testing.
- **MANUAL UNLIMITED** — Hold-to-run service mode that ignores the learned end limits, letting the installer drive the door past its normal stops for setup or recovery. Use with care.
- **SEMI AUTOMATIC** — The door opens automatically on command but does not auto-close; the close cycle must be commanded, keeping closing under operator control.

8.2.3 3. DOOR LIMIT LEARNING

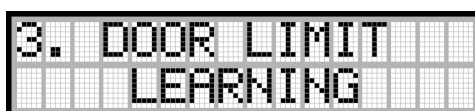


Figure 20: Starting the automatic end-position learning cycle.

Runs an automatic routine that finds and stores the door's fully-open and fully-closed end positions. Follow the flow step by step:

1. From the Main Menu, scroll to **DOOR LIMIT LEARNING** and press and hold to enter.
2. A **Yes / No** confirmation is shown. Scroll with Open / Close to **Yes** and hold to confirm (a short tap on **No** cancels and returns to the menu).
3. The controller then drives the door open and closed on its own to measure the travel. While the routine runs, the display shows **AUTO TUNE ACTIVE**.
4. When the cycle completes, the learned open and closed limits are stored automatically and the display returns to the menu.

This function is not available when the encoder / limit-sensor type is set to **MECHANICAL LIMIT** (see System Menu item 4, **ENCODER TYPE**); in that case a not-available message is shown instead, because mechanical limit switches define the end positions directly.

8.2.4 4. DOOR LIMIT FINE TUNING

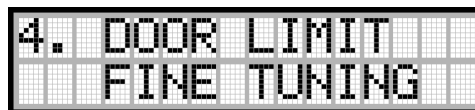


Figure 21: Fine-adjusting the learned end positions.

Lets the installer fine-adjust the open and closed end positions that were found by **DOOR LIMIT LEARNING**, using a value picker for each side. Use it to shift the exact stop point slightly — for example to seat the door a little tighter closed — without re-running a full learning cycle.

8.2.5 5. RAMP CONFIGURATIONS

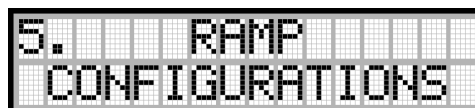


Figure 22: The acceleration and deceleration tuning menu.

Top of the acceleration / deceleration tuning tree. Each entry opens a further sub-menu that shapes how quickly the door changes speed, where it slows and stops along its travel, and how firm the adaptive stop is. Changing any of these values re-learns the door's coast so it still stops on target.

- **RAMP ACCELERATION SPEED** — Opens the accel / decel rate sub-menu, which sets how fast the door speeds up and slows down for each direction:
 - **OPENING ACCELERATION** — how quickly the door speeds up at the start of an opening move.
 - **OPENING DECELERATION** — how quickly the door slows as it approaches the open limit.
 - **CLOSING ACCELERATION** — how quickly the door speeds up at the start of a closing move.
 - **CLOSING DECELERATION** — how quickly the door slows as it approaches the closed limit.
- **RAMP POINTS** — Opens the sub-menu that sets, as a share of the door's travel, where the door drops to slow speed and where it begins its final creep-to-stop:

- **OPENING SLOW** — point during opening where the door drops from cruise to slow speed.
- **OPENING STOP** — point during opening where the door begins its final stop into the open limit.
- **CLOSING SLOW** — point during closing where the door drops from cruise to slow speed.
- **CLOSING STOP** — point during closing where the door begins its final stop into the closed limit.
- **ADAPTIVE RAMP STIFFNESS** — Opens the adaptive-braking hardness selector for the stop ramp. **ADAPTIVE RAMP OFF** disables adaptive stopping; the levels give a progressively firmer stop:
 - **ADAPTIVE RAMP OFF** — adaptive stop-ramp disabled.
 - **ADAPTIVE RAMP LEVEL 1** — softest adaptive stop profile.
 - **ADAPTIVE RAMP LEVEL 2** — adaptive stop firmness step 2.
 - **ADAPTIVE RAMP LEVEL 3** — adaptive stop firmness step 3.
 - **ADAPTIVE RAMP LEVEL 4** — adaptive stop firmness step 4.
 - **ADAPTIVE RAMP LEVEL 5** — adaptive stop firmness step 5.
 - **ADAPTIVE RAMP LEVEL 6** — firmest / hardest adaptive stop profile.

8.2.6 6. SPEED CONFIGURATIONS

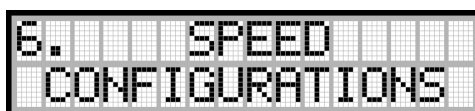


Figure 23: The door speed settings menu.

Sets the door's speed for every phase of opening and closing, plus the re-open speed after a safety trip. Each item is a speed value set with a value picker; together they shape how fast the door cruises, starts, and creeps into its limits.

- **AUTO SPEED ON OPENING** — cruise (full-run) speed while opening in automatic operation.
- **STOPPING SPEED ON OPENING** — creep speed as the door nears its open limit, for a soft, accurate stop.
- **START SPEED ON OPENING** — initial speed the door begins moving at when it starts to open.
- **MANUAL SPEED ON OPENING** — opening speed used when the door is driven in manual / hold-to-run mode.
- **AUTO SPEED ON CLOSING** — cruise speed while closing in automatic operation.
- **STOPPING SPEED ON CLOSING** — creep speed near the closed limit for a soft, accurate close.
- **START SPEED ON CLOSING** — initial speed the door begins moving at when it starts to close.
- **MANUAL SPEED ON CLOSING** — closing speed used in manual / hold-to-run mode.
- **SAFETY OPENING SPEED** — speed at which the door re-opens after a safety trip (for example an obstruction); by default it tracks the auto-open speed unless the installer deliberately lowers it.

8.2.7 7. TORQUE CONFIGURATIONS

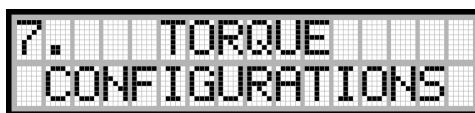


Figure 24: The motor torque (boost) settings menu.

Sets the extra motor torque (voltage boost) applied at each phase of the open and close cycle, so a heavy door gets enough grunt to start and hold without stalling. Each item uses a value picker; the final item is a stepped extra-boost level.

- **OPENING START** — extra torque applied at the moment the door starts to open (break-away).
- **DURING OPENING** — extra torque held while the door is running open.
- **OPENING STOP** — extra torque applied as the door stops at the open limit.
- **CLOSING START** — extra torque applied at the moment the door starts to close (break-away).
- **DURING CLOSING** — extra torque held while the door is running closed.
- **CLOSING STOP** — extra torque applied as the door stops at the closed limit.
- **EXTRA BOOST** — an overall stepped low-speed voltage-boost level for stubborn or heavy starts; it is applied live as it is changed.

8.2.8 8. MOTOR INFO CONFIG

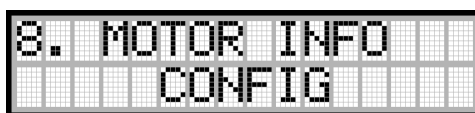


Figure 25: Entering the motor nameplate parameters.

Enters the motor nameplate data the drive needs to build its control curve and protect the motor. Each field is set from the motor's rating plate with a value picker; the last item opens a control-strategy chooser.

- **MOTOR VOLTAGE** — motor rated (base) voltage, used as the top of the voltage/frequency curve so output voltage scales correctly with frequency.
- **MOTOR HERTZ** — motor rated (base) frequency, the corner point at which full motor voltage is reached.
- **MOTOR CURRENT** — motor rated working current; the drive uses it as its current limit to protect the motor from overload.
- **POWER FACTOR** — motor power factor; the drive uses it to trim its slip-compensation gain for more accurate speed and torque under load.
- **CONTROL MODE** — opens the motor control-strategy selector. Changing it re-learns the door's coast behaviour so stopping stays accurate:
 - **SCALAR** — plain open-loop voltage/frequency control: simple and robust, but shaft speed sags somewhat under heavy load.
 - **SCALAR + SLIP** — voltage/frequency control with slip compensation: the drive raises frequency under load to hold shaft speed more constant.

8.2.9 9. SCREEN DEBUG MODE SETTINGS

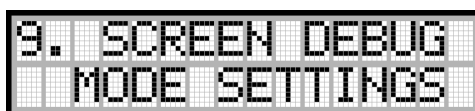


Figure 26: Choosing what the idle/run screen displays.

Selects what the running / idle screen displays. This lets the installer switch the main screen to one of the live information views (motor current, position, temperature, and the other diagnostic screens described in the Main Screen section) for commissioning and fault-finding. Scroll to the required view and hold to save.

8.2.10 10. AUTO CLOSE TIME

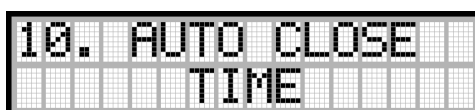


Figure 27: Setting the automatic-close delay.

Sets how long the door waits, fully open, before it closes by itself. The delay is entered in seconds with a value picker. Auto-close only takes effect in the operation modes that close automatically (see **OPERATION MODE**).

8.2.11 11. LANGUAGE SETTINGS



Figure 28: The interface-language selection.

Selects the interface language. This New Zealand build is supplied with a single language (English), so the list contains only that one entry.

8.2.12 12. ENCODER DIRECTION

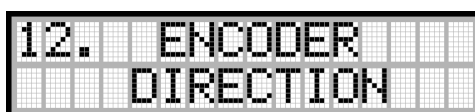


Figure 29: Setting the encoder counting direction.

Sets the direction in which the encoder counts, so the position feedback agrees with the way the motor actually drives the door. If the direction is set the wrong way round, the feedback counts against the commanded motion and the controller reports an encoder direction error. Scroll to the required direction and hold to save.

8.2.13 13. SYSTEM MENU



Figure 30: Opening the System settings menu.

Opens the System Menu, which holds the safety, encoder, input, brake and password settings. It is documented in full in Section 8.3.

8.2.14 14. RELAY SETTINGS

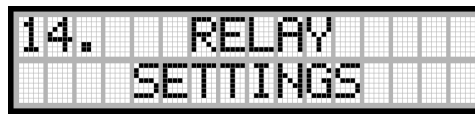


Figure 31: Selecting a relay output to configure.

Configures the three relay outputs. Relay setup is a two-step flow:

1. **Pick the relay.** On entry the screen shows **RELAY *n* SETTINGS** (where *n* is 1, 2 or 3). Scroll with Open / Close to the relay output you want and hold to open it.
2. **Pick the programming method.** The relay level-select menu then offers four options — **SINGLE STATE SET**, **MULTI STATE SET**, **SPECIAL SCENARIO** and **NO / NC SETTING** — described below.

8.2.14.1 SINGLE STATE SET

Ties the relay to *one* door condition and *one* action. First pick the door state the relay should react to, then pick the behaviour (off, steady on, or a flash rate). The door states you can choose from are:

- **DOOR OPENED** — door fully at the open limit.
- **DOOR CLOSED** — door fully at the closed limit.
- **DOOR OPENING** — door running in the open direction.
- **DOOR CLOSING** — door running in the close direction.
- **DOOR STOPPED** — door halted mid-travel.
- **ERROR STATE** — controller in a recoverable error condition.
- **CRITICAL ERROR** — controller in a critical fault condition.
- **DOOR WARNING** — controller signalling a warning (non-fault).
- **CLOSING IN 3 SEC** — auto-close pre-warning: door will close in 3 seconds.
- **CLOSING IN 5 SEC** — auto-close pre-warning: door will close in 5 seconds.
- **CLOSING IN 10SEC** — auto-close pre-warning: door will close in 10 seconds.
- **ON LIMITS** — grouped condition: door at either end limit (opened or closed).
- **DOOR MOVING** — grouped condition: door in motion (opening or closing).

The action applied to the relay for that state is one of:

- **DEACTIVE** — relay off / de-energised in this state.
- **ACTIVE (STEADY)** — relay energised continuously in this state.
- **FLASH 0.5 sec** — relay flashes on/off at a 0.5-second period.
- **FLASH 1 sec** — relay flashes at a 1-second period.
- **FLASH 1.5 sec** — relay flashes at a 1.5-second period.
- **FLASH 2 sec** — relay flashes at a 2-second period.
- **FLASH 3 sec** — relay flashes at a 3-second period.
- **FLASH 5 sec** — relay flashes at a 5-second period.

Worked example — a flashing warning light on RELAY 1: enter **RELAY SETTINGS**, scroll to **RELAY 1 SETTINGS** and hold to open it; choose **SINGLE STATE SET**; scroll to the door state

DOOR CLOSING and hold to confirm; then scroll to **FLASH 1 sec** and hold to save. Relay 1 will now flash at a one-second rate whenever the door is closing.

8.2.14.2 MULTI STATE SET

Programs the relay's action for *each* door state in turn, for outputs that must behave differently across several conditions. Each of the door states listed above is visited one after another, and for each you assign one of the actions listed above. Hold to save each choice and move to the next state.

8.2.14.3 SPECIAL SCENARIO

Applies a predefined complex behaviour to the relay instead of a simple per-state action:

- **PASSIVE** — no special scenario; the relay reverts to its normal per-state programming.
- **AIRLOCK MODE** — the relay drives the airlock (interlock) sequence used to coordinate two doors so that only one is open at a time.

8.2.14.4 NO / NC SETTING

Sets the electrical polarity of the relay contact so downstream wiring sees the expected default state:

- **NORMALLY OPEN** — the contact is open when the relay is de-energised (it closes when the relay becomes active).
- **NORMALLY CLOSE** — the contact is closed when the relay is de-energised (it opens when the relay becomes active).

8.2.15 15. FACTORY RESET

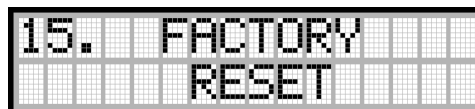


Figure 32: The password-protected factory-reset entry.

Restores all settings to their factory defaults and reboots the controller. This action is password-protected — to perform a factory reset, contact the manufacturer. After a reset the door must be re-commissioned (including re-running **DOOR LIMIT LEARNING**).

8.3 System Menu

The System Menu is reached from Main Menu item 13 (**SYSTEM MENU**) and holds the safety, feedback, input, brake and password settings. Its twelve items are listed below in on-screen order.

8.3.1 1. FAULT HISTORY

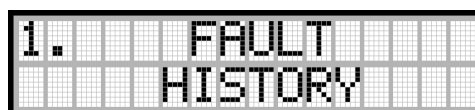


Figure 33: Reviewing the stored fault log.

Lets you scroll back through the last stored fault codes, newest first, using the Open / Close buttons. The meaning and remedy of each code are given in the Faults and Warnings section. The final entry in the list offers to clear the fault history; hold to confirm the clear.

8.3.2 2. SUB SAFETY

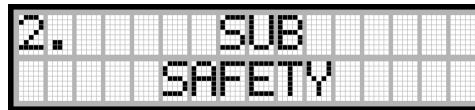


Figure 34: Assigning the two safety inputs.

Selects the type of sensor connected to each of the two safety inputs. The first entry configures safety input 1, the second safety input 2; each opens the sensor-type chooser. The entry labels reflect the sensor typically fitted to each input:

- **PHOTOCELL** — opens the sensor-type selector for safety input 1 (typically a photocell).
- **OSE** — opens the sensor-type selector for safety input 2 (typically an optical safety edge).

In either case the sensor type is chosen from:

- **OFF** — safety input disabled.
- **NC24V** — the input expects a normally-closed 24 V contact-type safety device (for example a photocell or edge); an open contact is read as an obstruction.
- **SQUARE WAVE** — the input expects an optical safety edge with a pulsed square-wave signal, giving monitored (self-testing) edge protection.

8.3.3 3. SAFETY BLIND SPOT

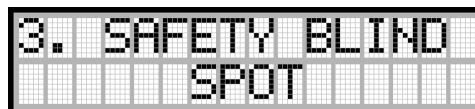


Figure 35: Setting the per-input blind-spot zones.

Sets, for each safety input, a blind-spot zone near the limit (as a share of travel) where that safety sensor is deliberately ignored — so a floor-level photocell or edge does not false-trip just as the door seats. Each zone is set with a value picker:

- **PHOTOCELL BLIND SPOT** — size of the ignore zone for safety input 1 (photocell).
- **OSE BLIND SPOT** — size of the ignore zone for safety input 2 (OSE edge).

8.3.4 4. ENCODER TYPE

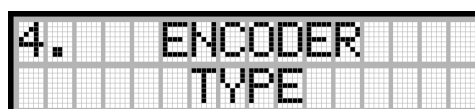


Figure 36: Choosing the position-feedback device.

Selects the position-feedback / limit device fitted to the door, which tells the controller how it reads travel and end positions:

- **ROBODOR RARE** — Robodor's RARE absolute encoder provides position and limits.

- **KOSTAL** — a Kostal absolute encoder provides position feedback.
- **GFA** — a GFA absolute encoder provides position feedback.
- **MECHANICAL LIMIT** — traditional mechanical limit switches are used instead of an encoder; inputs 6–9 are then reserved for the limit switches, and **DOOR LIMIT LEARNING** is not available.

8.3.5 5. LIMIT SWITCH

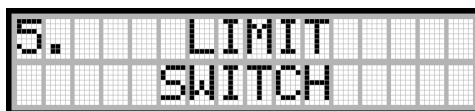


Figure 37: Run-timeout and speed-fault sensitivity.

Holds the run-protection timeout and the door-speed fault sensitivity. (The encoder type and direction are set elsewhere — **ENCODER TYPE** and **ENCODER DIRECTION** — so they are not repeated here.)

- **LIMIT SW. RUN TIMEOUT** — the maximum time the door may run before it should reach a limit. If travel exceeds it the controller faults, protecting against a jammed door or a missed / failed limit switch. Set with a value picker.
- **DOOR SPEED SENSITIVITY** — opens the obstruction (too-slow) and free-fall (too-fast) speed-fault sensitivity selector. Loosen it if motor slip or supply sag causes nuisance trips; tighten it for a faster reaction:
 - **OFF** — speed-fault detection disabled (a last resort for chronic field issues).
 - **LOOSE** — wide tolerance, fewer nuisance trips.
 - **MEDIUM** — balanced default tolerance.
 - **TIGHT** — narrow tolerance, quickest reaction to abnormal door speed.

8.3.6 6. PEDESTRIAN

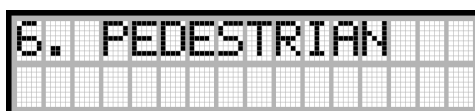


Figure 38: Enabling the pedestrian-open function.

Enables or disables the pedestrian-open function, which opens the door only part-way on a pedestrian command:

- **OFF** — pedestrian opening disabled.
- **ON** — pedestrian opening active; the door performs a partial opening to the set pedestrian limit.

When you select **ON** and save, the controller then prompts for the pedestrian opening amount (how far the door opens on a pedestrian command), entered with a value picker.

8.3.7 7. PEDESTRIAN CLOSE TIME

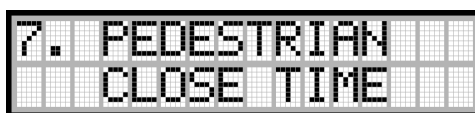


Figure 39: Setting the pedestrian auto-close delay.

Sets how long the door stays at the pedestrian (partial-open) position before it closes again. The delay is entered in seconds with a value picker.

8.3.8 8. FIRE DIRECTION

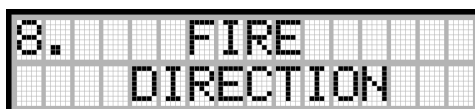


Figure 40: Choosing the door's fire-alarm behaviour.

Defines where the door drives when a fire-alarm input is triggered, so the door supports the building's fire strategy (escape route versus compartment sealing):

- **OPENS** — on a fire signal the door drives fully open.
- **CLOSES** — on a fire signal the door drives fully closed.

8.3.9 9. MECHANICAL BRAKE

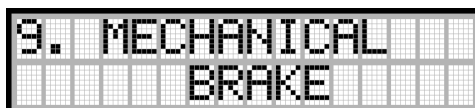


Figure 41: Tuning the holding-brake engage/release.

Tunes how the holding brake engages at stop and releases at start, so the door neither clamps while still turning nor rolls back before the motor has torque. Each item is set with a value picker:

- **BRAKE LOCK TIME** — how long the motor keeps holding at stop before the mechanical brake fully engages, so the brake does not clamp while the shaft is still turning.
- **BRAKE RELEASE SPEED** — the motor speed (frequency) at which the brake is released on start, ensuring the motor is already producing torque when the brake lifts, to prevent roll-back.

8.3.10 10. BRAKE RESISTOR DUTY

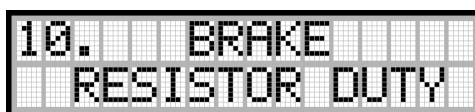


Figure 42: Limiting the brake-resistor duty.

Sets the ceiling on how hard the regenerative brake (dump) resistor is worked, as a percentage duty. The value is entered with a value picker. It protects the brake resistor from overheating while still dissipating the braking energy fed back when a heavy door decelerates.

8.3.11 11. INPUT SETTINGS

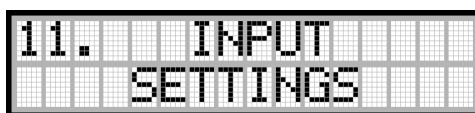


Figure 43: Enabling or disabling each control input.

Lists each of the eleven external control inputs (**INPUT 1** ... **INPUT 11**) together with the fixed function wired to it, and lets the installer turn each input **ON** (its factory function active) or **OFF** (the terminal ignored). Scroll through the inputs with Open / Close, hold to open one, then set it on or off and hold to save.

- If the input is mapped to pedestrian opening, turning it **ON** also prompts for the pedestrian opening amount.
- When the encoder type is set to **MECHANICAL LIMIT**, inputs 6–9 are reserved as limit switches and are skipped in this list.

The function shown against each input is one of:

- **PASSIVE** — input disabled; the terminal is ignored.
- **OPEN DOOR** — a signal on this input commands the door to open.
- **STOP DOOR** — a signal on this input stops door movement.
- **CLOSE DOOR** — a signal on this input commands the door to close.
- **PEDESTRIAN OPEN** — partial "pedestrian" opening to a set amount of full travel; enabling it prompts for that amount.
- **STEP BY STEP** — a single input that cycles the door open, stop, close, and so on with successive activations.
- **FIRE SYSTEM** — fire-alarm input; on activation the door drives to its configured fire position (see **FIRE DIRECTION**).
- **AIRLOCK** — interlock input used for airlock / sluice operation between two doors.

8.3.12 12. PASSWORD SETTINGS

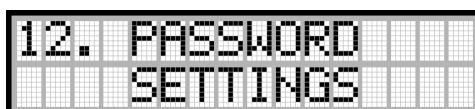


Figure 44: Setting or clearing the access password.

Sets or clears the menu-access password that protects the controller settings. Password values are never shown on screen or printed in this manual; for the factory / service code, contact the manufacturer.

- **SET PASSWORD** — define a password that must be entered to reach protected settings.
- **REMOVE PASSWORD** — clear the current password so protected settings are no longer gated.

8.4 Menu Entry Screens (Widgets)

Whenever you open a setting, one of four entry screens appears. Knowing how each behaves makes every menu item above easy to use. In each case, turn the value or move the highlight with the Open / Close buttons, hold to save or confirm, and tap to cancel.

8.4.1 Whole-number value picker

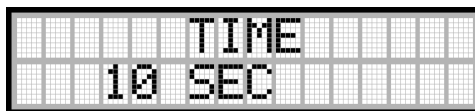


Figure 45: Integer value picker.

Edits a single whole-number value. The setting name is shown on the top line; the value with its unit is shown on the second line. Turn the value up or down with Open / Close, then press and hold to save (a short tap cancels). Used, for example, by **AUTO CLOSE TIME**.

8.4.2 One-decimal value picker

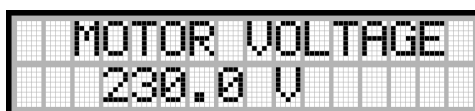


Figure 46: One-decimal value picker.

Works exactly like the whole-number picker, but the value carries one decimal place. The name is on the top line and the value with its unit on the second line. Used, for example, by **MOTOR VOLTAGE**.

8.4.3 Code-entry screen

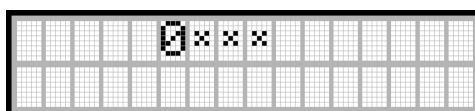


Figure 47: Code-entry screen.

Used wherever a password or access code is required. A fixed number of digit positions is shown centred on the top line: only the position being edited shows its digit, and the others are shown as asterisks. Turn to set the current digit and tap to advance to the next; the screen completes after the last digit. No code value is ever shown — for the factory / service code, contact the manufacturer.

8.4.4 Option selector

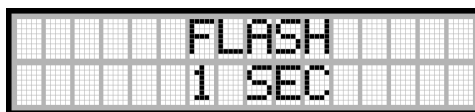


Figure 48: Option selector.

Chooses one option from a list, showing one option at a time (an option with a two-part name fills both lines). Scroll one option per step with Open / Close, hold to confirm, and tap to cancel. Used by the option lists above, such as **OPERATION MODE** and **ENCODER TYPE**.

9 Terms and Warranty

Return Policy

You may return the product within seven (7) days of delivery by providing a petition that includes the invoice and reason for return. The product must remain unused beyond trial purposes, and its originality must be intact. If the product has been altered, damaged, or used extensively, a return will not be accepted.

Inspecting for Damage Upon Delivery

At the time of delivery, inspect the package in the presence of the cargo authority for any visible damage. If damage is identified, do not accept the product, and ensure a record is made by the cargo company. Accepting the package confirms that the cargo company has met its obligations fully.

Conditions for Return Acceptance

Products that are returned must have their original packaging intact and be in the same condition as delivered. If the product or packaging shows signs of damage, deterioration, or extensive use upon inspection, a return will not be processed, and no refund will be issued.

Consulting Authorized Services

For any issues after delivery, consult the manufacturer's authorized services to address potential concerns with the product.

Warranty and Repair Periods

During the warranty period, any repair time will be added to the warranty duration. The maximum repair time is fourteen (14) working days. In case of a defect arising from manufacturing, assembly, or material faults, the repair will be carried out at no cost to the customer, covering all labor and part replacement expenses.

Warranty Exclusions

Faults due to user misuse or non-compliance with the instructions in the operating manual are not covered by the warranty. Additionally, if a device sent for service is not claimed within three (3) months from the service date, the manufacturer holds no responsibility for its delivery.

Manufacturer's Limitations

The manufacturer will not be liable for any repairs or damages caused by failure to comply with these terms or for faults outside of the warranty scope.