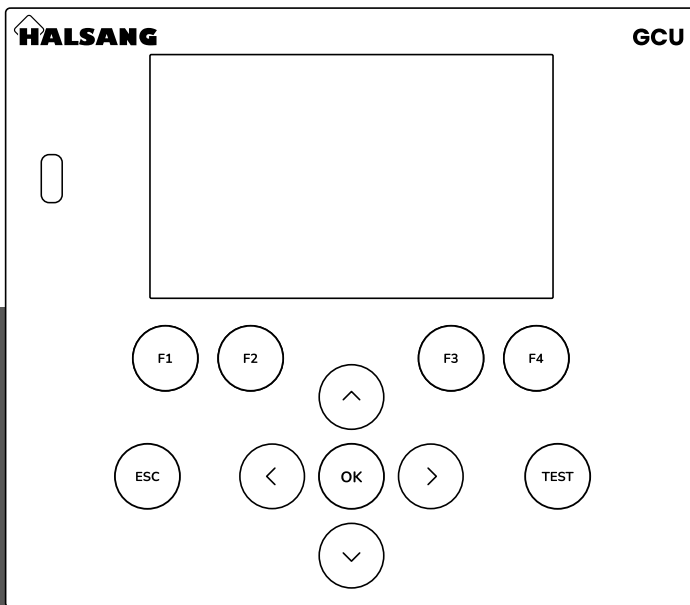


# Halsang

# Gate Control System

## Turnstile

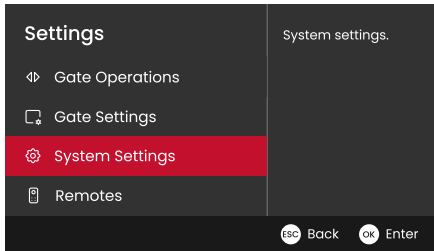


Quick start and configuration guide

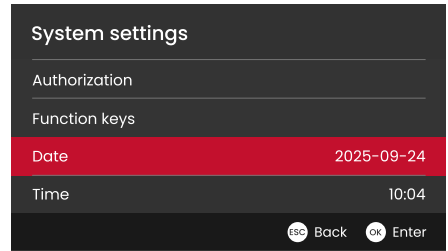
# Quick start and configuration guide

This guide will help you get started with the GCU (Generic Control Unit) quickly. It covers the basic steps to configure and use the GUI in swing and sliding gate setups with AC motors.

## 1. Configuring date & time



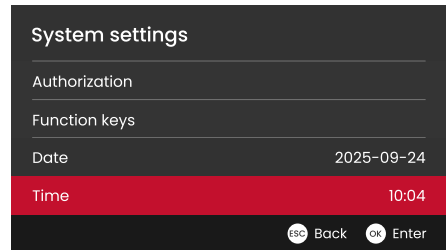
- 1 To configure the date and time press **OK** button and navigate to the **Settings** menu.



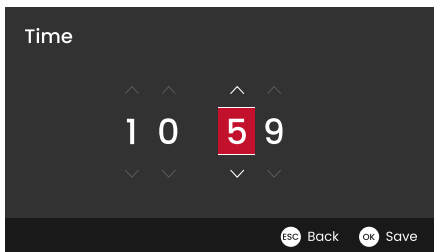
- 2 Select **Date**.



- 3 Enter the date in the YYYY-MM-DD format using arrow buttons. After entering the date, press **OK** to save the changes.

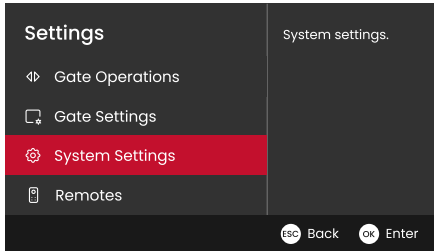


- 4 To set the time, select the **Time** option.

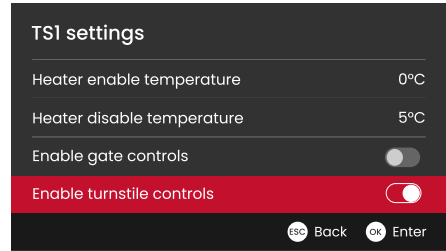


- 5 Enter the time in the HH:MM format. Press **OK** to save the changes.

## 2. Switching to Turnstile mode



- 1 To switch mode to Turnstile enter main menu and navigate to the **System Settings** menu.

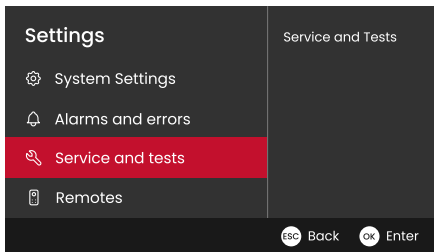


- 2 Switch **Enable turnstile controls** to **ON**.

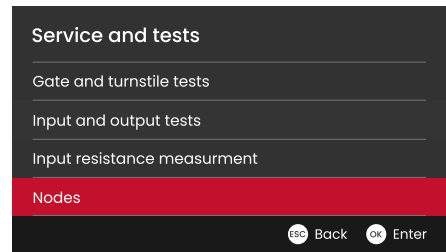
## 3. Nodes configuration

The GCU supports configuration of up to 2 turnstiles simultaneously (TS1 through TS2). Each turnstile must be assigned a unique function index (1-2) to be properly recognized and configured by the system

### 3.1. Configuring Turnstile Function Index



- 1 Press **OK** button, and navigate to the **Service and tests** menu.



- 2 In Service and tests menu select **Nodes**.

- 3 Assign the appropriate function index (1 for TS1, 2 for TS2)

- 4 Once a node is properly configured with a turnstile function and index, it will appear in the turnstile configuration menu as TSx (where x is the function index).

Only properly configured turnstiles will be visible in the configuration menu.

# 4. Turnstile configuration

This section describes the initial setup and configuration of a turnstile connected to the GCU



### Note:

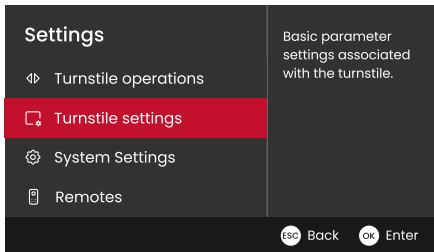
Before starting the configuration, make sure that the GCU and Turnstile boards are properly connected to power supply.

In single turnstile setups, connect the Turnstile board to either the left or right CAN port on the GCU.

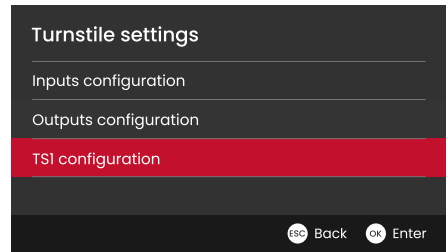
In dual turnstile setups, connect each Turnstile board to a separate CAN port in GCU or connect one Turnstile to GCU and second turnstile to CAN out connected in first turnstile.

Make sure that Can connection is working by checking leds on the Turnstile board and also in GUI under Service and tests → Nodes menu.

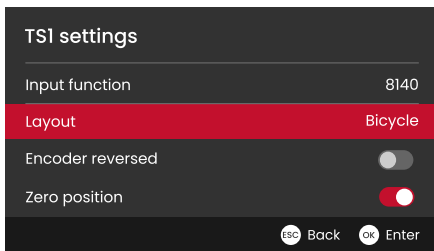
## 4.1. Configuring turnstile type



1 To configure turnstile press **OK** button, and navigate to the **Turnstile settings** menu.



2 Select **TS1 configuration**.

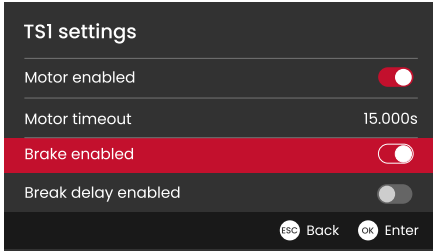


3 Locate and select the **Layout** parameter

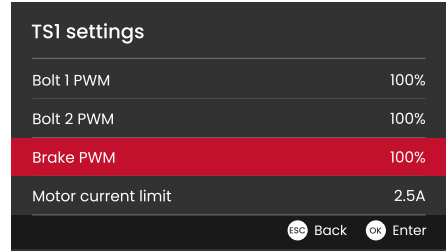
- 4 Set layout parameter according to your turnstile model:
- 3-arm: For 3-wing turnstiles (typically 120° rotation per passage)
  - 4-arm: For 4-wing turnstiles (typically 90° rotation per passage)
  - Bicycle: For bicycle/wheelchair turnstiles (typically +/- 90° rotation)

5 Repeat the same for the second turnstile if applicable (TS2 configuration)

## 4.2. Configuring the electromagnetic brake.



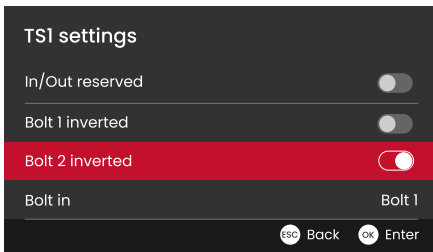
- 1 Back to **TS1 settings** and locate **Brake enabled** parameter and set it to **On** to enable the brake, **Off** to disable it
- 3 Optionally navigate and configure **Brake delay enabled** and **Brake delay time** if you need delayed brake engagement



- 2 Set **Brake PWM** to 100% initially (range 20-100%, this value may be reduced experimentally to decrease current consumption, but must ensure sufficient braking force)
- 4 Repeat the same for second turnstile if applicable (TS2 configuration)

## 4.3. Configuring electromagnetic locks

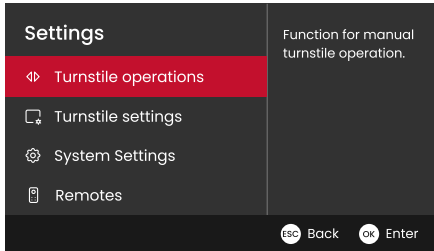
Configuring the electromagnetic locks (bolts) that secure the turnstile in locked position.



- 1 Navigate back to **TS1 settings** and locate **Bolt 1/2 inverted**, **Bolt 1/2 PWM** and **Bolt in** parameters
- 3 Typical configuration:
  - For 3-wing or 4-wing turnstiles: one lock is inverted, the other is non-inverted
  - For HHTI mode: both locks have the same inversion setting

- 2 Configure lock settings:
  - **Bolt 1 inverted:** Set to On if lock 1 is normally open (NO), Off if normally closed (NC)
  - **Bolt 2 inverted:** Set to On if lock 2 is normally open (NO), Off if normally closed (NC)
  - **Bolt 1 PWM:** Set PWM duty cycle for lock 1 (range 20-100%, typically 100%) (typically +/- 90° rotation)
  - **Bolt 2 PWM:** Set PWM duty cycle for lock 2 (range 20-100%, typically 100%)
  - **Bolt in:** Select which bolt controls the entry direction (Bolt 1 or Bolt 2)
- 4 Repeat the same for second turnstile if applicable (TS2 configuration)

## 4.4. Verifying that the locks and brake operate correctly



1 Navigate to **Turnstile operations** menu.

- 3
- Select **Lock** - the locks should engage and you should hear the electromagnetic locks engaging.
  - Select **Unlock** - the locks should release the spindle.

5 If when unlocked the turnstile does not rotate freely, go back to main menu, select **Turnstile Settings** → **TS1 configuration**, navigate to **Bolt 1 inverted** and **Bolt 2 inverted** settings and correct if necessary.



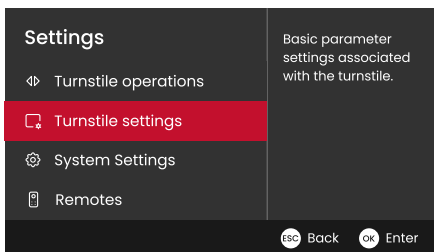
2 Select **TS1**.

4 Manually try to rotate the turnstile when locked (should be blocked) and when unlocked (should rotate freely).

6 Repeat the same for second turnstile if applicable

## 4.4. Calibrating the turnstile encoder

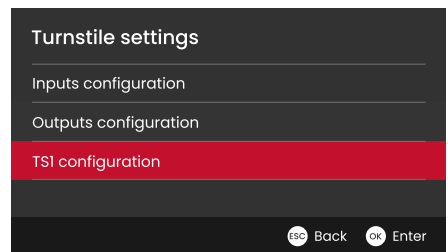
The turnstile encoder must be calibrated to establish the zero reference position.



1 Enter the main menu and navigate to the **Turnstile settings** menu.

2 Select **Set zero position** - turnstile should be unlocked and can be rotated manually.

5 The turnstile will now use this position as the reference for all movements.



2 Select **TS1 configuration**.

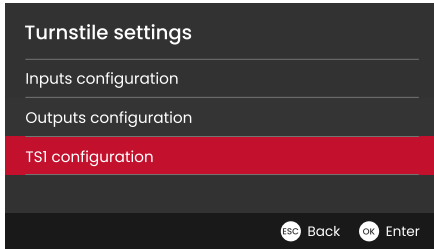
4 In 3 or 4 arm turnstiles, manually rotate the turnstile to nearest locked position. In bicycle turnstiles, set the turnstile to the center locked position.

6 Repeat the same for second turnstile if applicable (TS2 configuration)

**Note:**

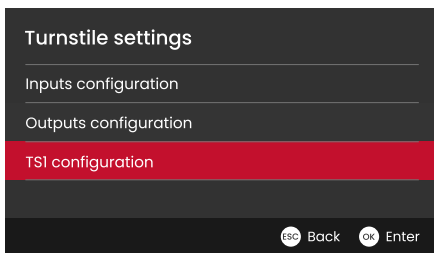
Proper calibration is critical for accurate position control.

## 4.5. Enabling the motor and configuring speed and direction parameters.



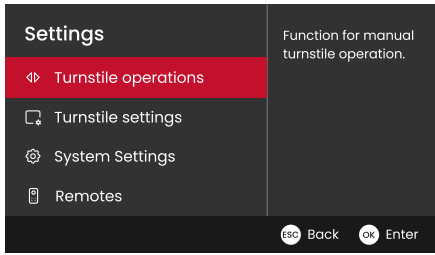
- 1 Navigate back to **Turnstile settings** menu and select **TS1 configuration**.
- 2 Configure motor speeds (range 20-100%):
  - **Speed 1 in:** Initial movement speed for entry direction (typically 40-60%)
  - **Speed 2 in:** Main passage speed for entry direction (typically 60-80%)
  - **Speed 1 out:** Initial movement speed for exit direction (typically 40-60%)
  - **Speed 2 out:** Main passage speed for exit direction (typically 60-80%)
- 3 Configure **Start angle:**  
Angle threshold to start motor assistance (range 0-2500 encoder units, where 2500 = 90 degrees).  
Typical value: 70-140 units (approximately 2.5-5 degrees).
- 4 Configure **Speed 2 angle:** Angle at which to switch from Speed 1 to Speed 2 during passage (range 0-2500 encoder units).
- 5 Set **Motor timeout** to maximum allowed motor run time (range 0-600 seconds, default ~10 seconds).
- 6 Verify Motor direction reversed setting: If the motor rotates in the wrong direction during testing, set **Motor direction reversed** to On.
- 7 Configure **In/Out reversed** if needed to swap entry/exit directions.
- 8 Repeat for second turnstile if applicable

## 4.6. Configuring timing parameters for turnstile operation.



- 1 Back to **Turnstile settings** menu and select **TS1 configuration**.
- 2 In **TS1 configuration**, set the following parameters: **Open time**, **Trans time**, etc

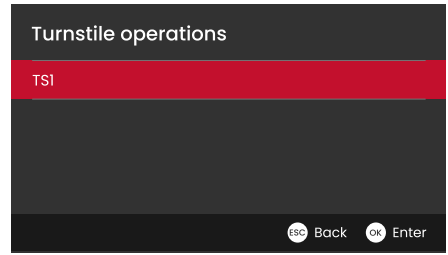
### 3.6. Testing the turnstile passage in both directions to verify motor operation and position detection



1 Navigate to **Turnstile operations** menu.

3 Select **In** (or **Out** for exit direction)

5 The turnstile should complete the programmed rotation angle (120° for 3-wing or 90° for 4-wing) and then lock.



2 Select **TS1**.

4 If start angle is set to 0, the motor should start immediately to assist the passage; otherwise manually rotate the turnstile slightly to exceed the start angle.

6 Repeat the test for exit direction using **Out**

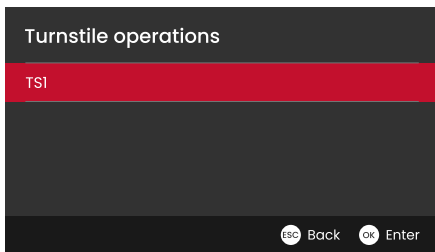


#### Note:

If motor is running in wrong direction, set **Motor direction reversed** to **On** in the **TS1 configuration**.

### 3.7. Preventing rotation in the opposite (unauthorized) direction.

The turnstile should prevent rotation in the opposite (unauthorized) direction



1 Back to Turnstile operations, select **TS1** and Unlock the turnstile for entry direction: **In**

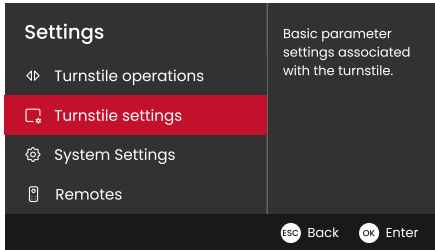
2 Try to manually rotate the turnstile in the exit direction (opposite to authorized). The turnstile should block this movement.

3 If the turnstile allows movement in the wrong direction, check the **Bolt in** setting (should be **Bolt 1** or **Bolt 2** depending on your hardware configuration)

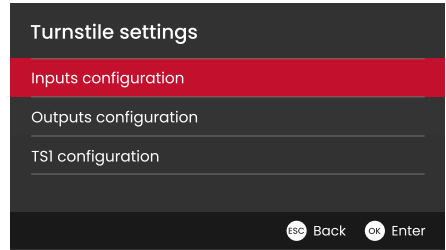
4 Configure **Reverse lock** parameter if additional locking in reverse direction is needed

# 4. Configuring inputs

Configure the inputs for sensors and authorization signals.

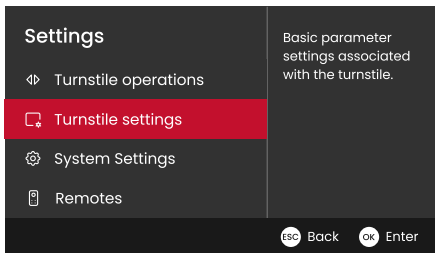


- 1 Enter the main menu and navigate to the **Turnstile settings** menu.
- 3 Assign input functions as needed:
  - **TS In / TS Out:** Authorization inputs from access control system.
  - **Sensor In / Sensor Out:** Proximity sensors for automatic motor activation.
  - **Free Pass In / Free Pass Out:** Free pass mode activation inputs
  - Other specialized inputs as required by your installation.

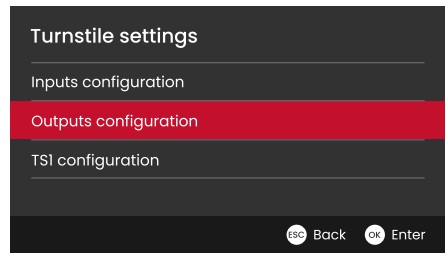


- 2 Select **Inputs configuration**.
- 4 For each input, configure:
  - **Resistor:** If present, should match the value of the resistor used in the input circuit.
  - **Polarity:** NC (Normally Closed) or NO (Normally Open) to match sensor type.

# 5. Configuring outputs



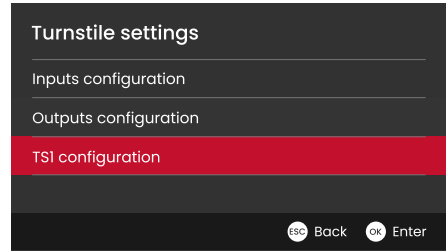
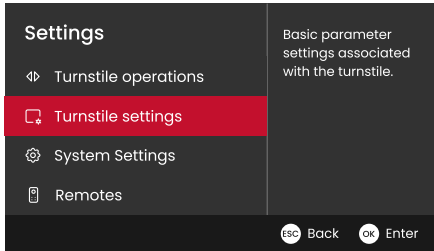
- 1 Enter the main menu and navigate to the **Turnstile settings** menu.
- 3 Select the desired output and next set appropriate **Output function**.



- 2 Select **Outputs configuration**.

# 6. Additional Turnstile configuration

Fine-tune the turnstile operation by configuring additional parameters in **TS1 configuration**



- 1 Enter the main menu and navigate to the **Turnstile settings** menu.
- 3 Queue Management:
  - **Queue enabled:** Enable/disable passage queuing (default: Off)
  - **Queue priority:** Set priority direction (**In** or **Out**) for queue processing
- 5 Motor Protection:
  - **Motor current limit:** Maximum allowed motor current (range 0-9.99 A, default ~3-5 A)
  - **Motor current limit time:** Duration before overcurrent protection triggers (range 0-600 seconds)
- 7 Environmental Control:
  - **Light sensor enabled:** Enable automatic lighting control (default: Off)
  - **Light level:** Luminance threshold for lamp activation (range 0-4000, typical ~500-1000)
  - **Fan enabled:** Enable automatic fan control (default: Off)
  - **Fan enable temperature:** Temperature to start fan (range 20.0-50.0°C)
  - **Fan disable temperature:** Temperature to stop fan (range 20.0-50.0°C)

- 2 Select **TS1 configuration**.
- 4 Free Pass Mode:
  - **Free pass enter:** Enable free pass mode for entry direction (default: Off)
  - **Free pass exit:** Enable free pass mode for exit direction (default: Off)
  - **Bicycle Go:** Enable TS2 synchronization with TS1 for bicycle passages (default: Off)
- 6 Feedback and Alerts:
  - **Feedback type:** Standard (pulse after passage) or Door (pulse during unlock)
  - **Feedback time:** Duration of feedback pulse in Standard mode (range 0-600 seconds)
  - **Buzzer time:** Warning time before automatic motor start (range 0-600 seconds)
  - **Tamper time:** Duration of tamper alarm output (range 0-600 seconds)
- 8 Timed Input Mode:
  - **Signal time:** Minimum signal duration for normal passage authorization (range 5.00-50.00 seconds)
  - **Free pass signal time:** Minimum signal duration to activate free pass mode (range 50.00-250.00 seconds)

**Note:** Refer to the Turnstile control chapter for detailed descriptions of all configuration parameters and their interactions.