



Gate

Installation and User Guide



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Both this guide, a notice in the original packaging of the product and a warning sticker on the product warn the user of the fact that improper handling of the product may cause very serious personal injuries. BlastGate.com BV cannot be held responsible if a user, despite the clear instructions, handles the product in such a way that it results in injuries of any kind.

Product warranty

BlastGate.com BV provides 1 year warranty on its products. The terms and conditions regarding warranty claims can be found in the Warranty Clause document on www.blastgate.com

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Contents

1.	Safety and handling instructions.....	1
2.	CE/ATEX requirements.....	2
3.	Gate features.....	3
3.1	Standalone usage.....	4
3.2	Fully automatic usage: Connect to a SHUTR Connect™ network.....	4
4.	Hardware overview.....	5
5.	Gate mounting instructions.....	6
6.	Installing the gate.....	7
7.	Connections.....	9
7.1	Powering the gate.....	9
7.2	Connecting the auxiliary port.....	9
8.	Operations.....	10
8.1	Pairing/reset button.....	10
8.2	Reset to default settings (erase all pairing information).....	10
8.3	Reset to factory default.....	10
9.	Maintenance.....	11
9.1	Clearing dust.....	11
9.2	Replacing the leadscrew nut.....	12
10.	LED indicator color codes.....	13
11.	Rocker switch – state table.....	14
12.	Spare parts list.....	15
13.	Specifications.....	16
14.	Diagnostics.....	18

Addendum

EC declaration of conformity

1. Safety and handling instructions

Please read these instructions carefully and follow the safety and handling directives. Not following the directives may cause serious injuries and/or damage to the gate. Warranty will be voided if the directives are not followed.

(!) Always unplug the gate from the power supply/adaptor before handling the unit. **Do not touch** the stainless-steel slide while in motion. The stainless-steel slide inside the gate has a sharp edge that may cause serious injuries.



The edges are sharp, and the gates motor is powerful enough to cut off a finger!!!

- The gate is powered by a 24V DC adapter suitable for a mains supply of 110VAC to 240VAC 50-60Hz. Ensure that the supply voltage is not outside of this range otherwise the adapter may be damaged.
- Heavy electrical equipment with inadequate surge filtering may cause high voltage spikes on the mains. Avoid connecting the gate to the same mains outlet as it may damage the adapter and/or gate or cause malfunction of the electronics of the gate.
- Avoid connecting wires to- or from the gate to be routed alongside mains supply cables for heavy electrical equipment.
- Operating temperature is -20°C to +40°C. Do not operate the gate outside of this temperature range.
- The electronics housing of the gate is dustproof to IP54 level. Do not place the unit in an environment that can cause water to ingress in the unit.
- Before operating the gate, ensure that it is properly mounted to the ducting by using appropriate lock rings. Use ducting with 6mm wide flanges. Please follow the instructions for mounting the gate in this guide. Improper mounting of the gate may lead to load/strain on the connecting flanged tubes causing malfunction of the slide.

2. CE/ATEX requirements



The SHUTR Gate complies with the CE/ATEX 114 guidelines. Use the gate only in an ATEX defined zone if the zone’s definition is in accordance with the gate’s specified zone definition:

II 2/3D Ex h tc IIIB T85°C Db/Dc X

Explanation:

II	Material group II for usage above ground
2/3D	Category 2D internal, category 3D external for non-electrical parts (slide), suitable for usage in zone 21 internal and zone 22 external
3D	Category 3D for the electrical part, suitable for usage in zone 22
Ex h	Non-electrical parts comply with mode of protection “c”, constructive safety
Ex tc	Electrical parts comply with mode of protection “tc”, protected by housing
IIIB	Dust group IIIB, suitable for usage with non-conductive particles and fibers
T85°C	Maximum surface temperature 85° Celsius
Db/Dc	Equipment Protection Level (EPL) Db internal, EPL Dc external for non-electrical parts (shutter), suitable for usage in zone 21 internal and zone 22 external
Dc	EPL Dc for electrical part, suitable for usage in zone 22
X	The electronics enclosure must be protected against high impact

Usage in the given zones is only allowed if the installation and usage comply with the following directives:

- The metal housing **must be grounded at all times** to avoid the buildup of static charge.

- Always ground the metal ducting starting from the dust collector, from a single point. Avoid ground loops.
- Only use flexible hoses with a metal spiral inside. Grounding tabs on the gate are provided to connect the gate's metal body to the metal spiral in a flexible hose. We advise to use flexible hoses made of conductive material.
- Avoid dust from entering the electronics housing:
 - Always mount the cable cover and split cable gland after installation, before usage.
 - Always use electrical cable with an outside diameter of 4mm (3.8 – 4.5mm) to allow for a dust tight installation in the cable gland and appropriate strain relief.
 - Follow the instructions in this guide for installing cables in the special cable gland to ensure a tight, dustproof fit.

3. Gate features

The SHUTR Gate is a professional, electrically driven, wireless slide damper for usage in dust collection systems. The gate connects to industry standard (6mm) flanged ducting.

Features

- The SHUTR gate can be used standalone or as part of a wireless SHUTR Connect™ network:
- The SHUTR Connect™ network supports up to 60 SHUTR devices per Controller, multiple controllers per site
- The gate is fully plug & play. Only connect 24VDC.
- A wireless sensor or remote can remotely operate the gate and activate the dust collector
- No single point of failure, each component acts independent
- Easy installation, simple and straightforward pairing process
- SHUTR Connect app: Smart app for installation & advanced settings

Mechanical highlights

- Metal housing: no static discharge
- Flanged tubes: connect to industry standard ducting with 6mm flange
- Compact design: mount in any position as well as in corners
- Sealed shutter: fully airtight when closed, no pressure loss
- Durable design: easy maintenance & replaceable parts

Safety

- The gate is compliant with the strict European CE/ATEX 114 safety directives (explosive environments) for zone 21 and 22
- Protected against a jammed slide, auto-recovery
- Minimum number of open gates to prevent a vacuum
- Encrypted network communications, no internet connection
- Configuration backup with the SHUTR Connect™ app

3.1 Standalone usage

Using the gate standalone means that the wireless capabilities are not used in any way. The gate is powered by a 24V DC 1.5 Amps power supply.

Activating the gate (i.e., opening and closing) can be done in two ways:

- By using the rocker switch on the gate
- By connecting a remote switch or relay to the auxiliary port on the gate with a 2-wire cable. Set the rocker switch on the gate to the AUTO position if the aux port is used. Open/close the gate by respectively connecting/disconnecting the two wires.

3.2 Fully automatic usage: Connect to a SHUTR Connect™ network

A SHUTR Gate can be included in a wireless SHUTR Connect network. A SHUTR Controller is needed to set up the network. The gate can be connected with a simple and straightforward pairing process using the pairing button or with the use of the SHUTR Connect app. Please refer to the Installation Guide of the SHUTR Controller for details on the manual pairing process.

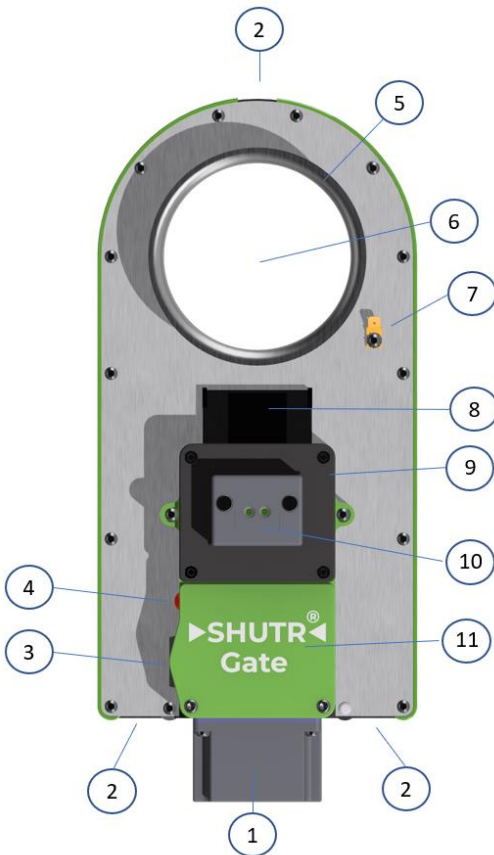
Once part of a SHUTR Connect network, the gate offers the following options:

- Several ways to activate the gate simultaneously:
 - o Manually, with the rocker switch on the gate
 - o With an external switch or relay connected to the aux port of the gate
 - o Using a wireless SHUTR Sensor
 - o Using a wireless SHUTR Remote Control
- One or more gates can be paired together to form a logical group (a “series”)
- Once a gate is activated, the controller with which it is paired, will automatically switch ON the dust collector (if the controller is configured to do so, which is the default setting)

- One or more gate(s) can default be set to OPEN when the dust collector is in-active to prevent a vacuum when the dust collector is switched ON

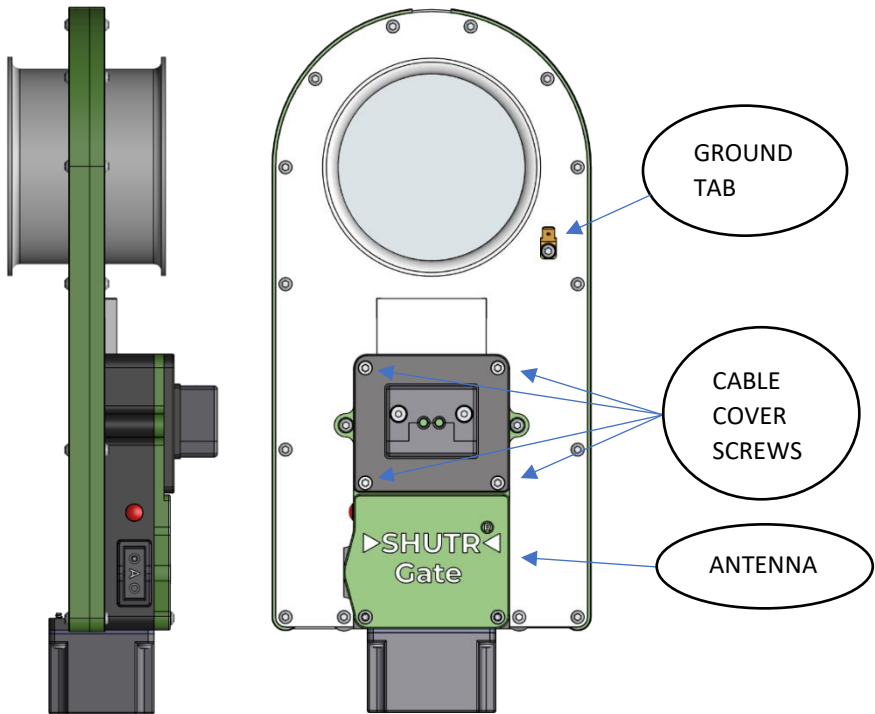
Pairing SHUTR devices (gate, sensor, remote) with a SHUTR controller can be done manually with the pairing button or with the SHUTR App available for Apple iOS and Google Android. With the SHUTR Connect app, besides pairing, one can set a large variety of parameters that define the behavior of each individual gate and the controller. Please refer to the SHUTR Controller Installation Guide for more details.

4. Hardware overview



Item	Description
1	Motor housing
2	Maintenance opening
3	Rocker switch
4	LED indicator
5	Flanged metal tube
6	Stainless steel slide
7	Ground tab
8	Leadscrew cover
9	Cable cover
10	Cable gland with grommet
11	Electronics housing

5. Gate mounting instructions



The gate has been designed to connect to industry standard ducting with flat, 6mm flanges. Use lockrings that:

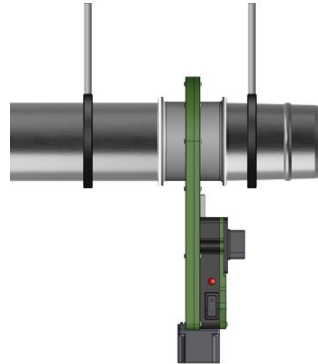
- accommodate both the thickness of the gate's tubes (1mm) and the ducting thickness, and
- will galvanically connect the gate's tubes and the ducting to ensure proper grounding without the need of additional grounding wires.

The gate may be mounted in any position. There is no specific direction of the flow of air/dust. Mount the gate in such a way that the indicator LED is visible.

The antenna is located in the upper part of the electronics housing. If the gate is used as part of a SHUTR Connect network, make sure that the antenna is not obstructed by a thick wall, nearby ducting or other metal objects. It is best to have a line of sight between the electronics housing of the gate and the controller.

Support the connecting ducting:

- It must at all times be avoided that the gate carries the heavy load of a connecting tube or flexible tube. Too much load may impact the slide mechanism of the gate.
- Always support the adjacent ducting within 50 cm on either side of the gate to prevent loads/strain on the gate itself!!!



6. Installing the gate

The SHUTR Gate has a special IP54 cable gland with a so-called split grommet. This grommet allows for cables-with-connector to be installed. This makes installations very easy and saves time.

To install cables in the cable gland, it is most efficient to stick to the following order:

1. Remove the cable cover by unscrewing the four bolts with a 3mm hex Allen key and keep the connector compartment open.

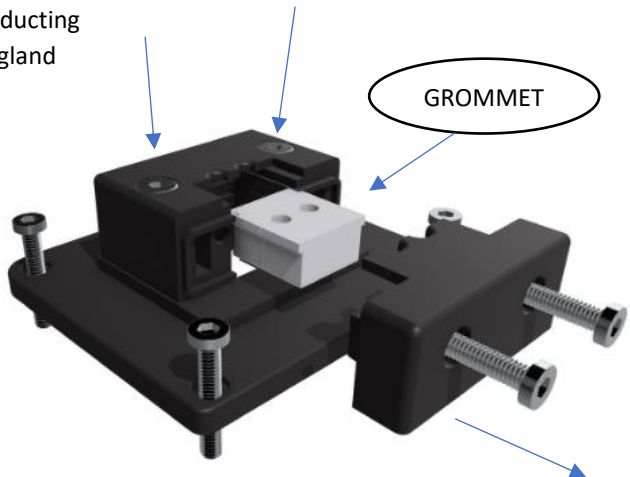


2. If you use the SHUTR Connect option you may want to do the pairing now (you can also do this once all components are installed).

Connect the gate to the 24VDC adapter.

Gather all gates, sensors, remotes and the controller on a table, power them up and do a quick manual pairing to set up the desired series or use the SHUTR Connect app

3. Install the gate in your ducting
4. Disassemble the cable gland

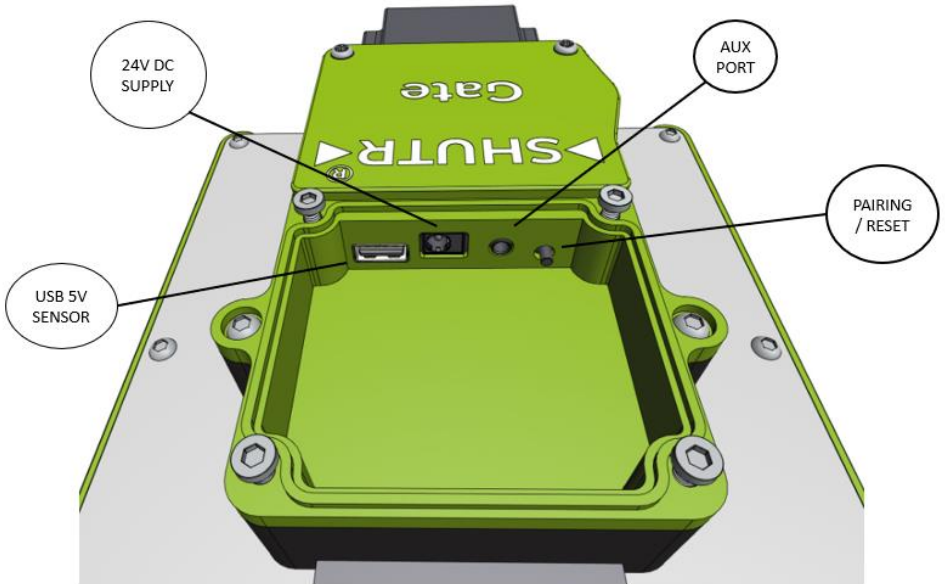


Untighten the two top screws of the cable gland – but leave them in! No need to remove the body of the cable gland.

- Unscrew the two screws on the front of the gland and remove the cap
 - Slide out the split grommet
 - A small blind stop is provided in case only one cable (the power supply cable) is installed. Otherwise, a maximum of two cables can be installed (aux cable for external switch or 5V USB-A for sensor power).
5. Lead the 24V power supply cable (and optional aux cable) through the cable gland:
 - Install the cable(s) in the grommet first and then lead the connectors through the opening of the cable cover
 - Push the grommet back in – NOTE: once the grommet sits in the gland, the flat side of the grommet is at the front
 - Leave only 4-5 cm of cable between the connector and the grommet
 - Tighten the two front screws of the gland cap
 - Lastly: tighten the two top screws of the gland body

- Close the gland. Use a dummy plug if one cable entry is unused.
6. Connect the cable(s) to the gate
 7. Mount the complete cable cover with cable gland back on the gates housing

7. Connections



7.2 Connecting the auxiliary port

The gate offers the ability to connect an external switch or relay (a potential free contact) to operate the gate. For this purpose, the gate is equipped with an auxiliary port - a 3.5mm mono jack plug receptacle - to connect the switch or relay.

It is advised to use a 3.5mm mono jack plug with screw terminals to connect the wires. The outside diameter of the 2-wire round cable can be 3.8 to 4.5mm in diameter to ensure proper sealing and strain relief in the cable gland of the gate.



8. Operations

8.1 Pairing/reset button

Stand-alone usage

If the gate is used standalone the pairing/reset button has no function except for the option to reset the gate to factory default after usage in a SHUTR Connect network.

SHUTR Connect network usage

For setting up a SHUTR Connect network, a SHUTR Controller is needed.

Pairing is the way SHUTR components are linked into series.

Use the pairing button to pair the gate to a series that may include other SHUTR devices such as sensor(s), remote(s), other gate(s) and the controller. Note that the rocker switch must be in the AUTO (A - middle) position to perform manual pairing using the pairing button.

Please refer to the SHUTR Controller Installation Guide for detailed information on pairing.

8.2 Reset to default settings (erase all pairing information)

If you reset a component, or a component that is part of a series, this component and all other components in that series will be reset. Once a component has been reset, it is available again for pairing.

To reset a **gate** or **sensor**:

- Set the rocker switch to OFF
- Press the button > 10 seconds
- After 10 seconds, the LED goes from RED to blinking YELLOW slowly
- Release the button, LED blinks YELLOW quickly
- Press the button AGAIN shortly within 5 seconds
- The component has now been reset and unpaired
- Not pressing the button again within 5 seconds will automatically cancel the reset

8.3 Reset to factory default

In addition to resetting to default settings, it is also possible to restore the originally factory installed firmware, perform the following steps to do so:

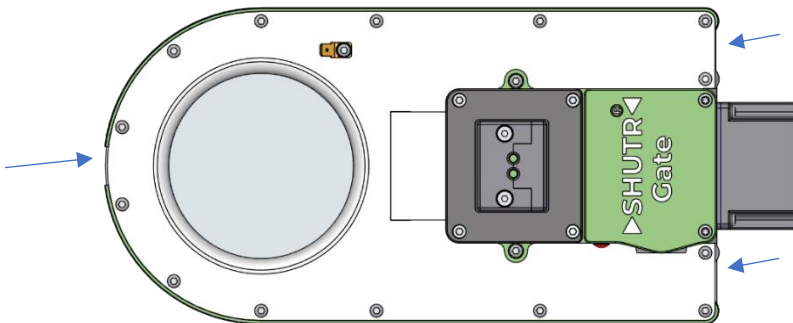
- Unplug the gate from the power supply
- Keep the pairing/reset button pressed for >15 seconds while restoring power to the gate
- Release the button when the LED turns on again (WHITE or GREEN)
- The gate now runs the original factory firmware with default settings

Use this procedure only if a fatal crash causes the gate to not work anymore. If you have updated the firmware before (using the SHUTR App), you will have to do so again in order to run the latest version of the SHUTR firmware.

9. Maintenance

9.1 Clearing dust

The gate has three openings for this purpose. Use a compressed air nozzle to clear the housing from dust.



To clear dust from the seals inside the gate:

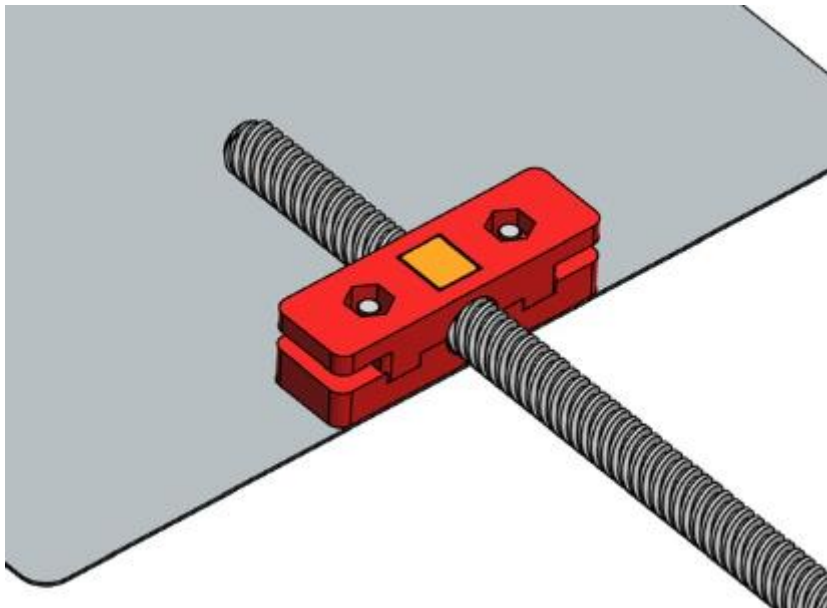
- Power up the gate first and OPEN the gate using the rocker switch
- Remove the power from the gate
- Unscrew the metal bottom cover of the gate (top cover carries the electronics housing)
- Take out the stack of silicone pressure seals and white POM seals and clear them of dust

(!) When re-installing the stack of seals, it is important to note the rounded sides of the white POM seals: they have to align in the middle as shown in the picture:



9.2 Replacing the leadscrew nut

The brass leadscrew nut is a sacrificial part. At some point the leadscrew nut will wear out after at least 30000 opening/closing actions of the gate.



BlastGate.com offers spare parts. We advise to replace the POM rings and the slide assembly with leadscrew nut attachment (items 4 and 6 in the spare part list in chapter 12).

10. LED indicator color codes

Color	Blinking/steady	Status
WHITE	steady	Closed, communications oke
GREEN	steady	Open, communications oke
WHITE	blinking	Gate closing
GREEN	blinking	Gate opening
GREEN	Flashing 1/sec	Gate open, in gate inactive delay time, may close after delay
BLUE	blinking slowly	In pairing mode, not paired yet
BLUE	steady	In pairing mode, gate is paired
BLUE	Blinking shortly	Gate has requested pairing for its current series. Confirm pairing request by pressing controller pairing button for 3 sec to start pairing for this series. or: gate is in retry determining its size during powerup
CYAN	blinking slowly	receiving new firmware from controller
CYAN	blinking fast	Installing new firmware
RED	Steady	Rocker switch CLOSED and button pressed (start of reset sequence)
RED	flashing 1x	Gate error (stuck/blocked or power <12V DC (normally 24V))
RED	flashing 2x	Component(s) missing in a series (communication error)
RED	flashing 3x	Not enough open gates to activate dust collector (safeguard against a vacuum in the ducting)
RED	flashing 4x	Firmware upgrade failed

The SHUTR Connect app has the option to turn off the component LED when inactive in automatic mode.

11. Rocker switch – state table

When using a gate in combination with a sensor and/or an external switch the following state table gives an overview what effect the rocker switch and external switch have on the state of the gate:

Sensor	Gate	
Rocker Switch	Rocker Switch	Gate action
X	OFF	Closes immediately
X	ON	Opens immediately, activate dust collector when open
ON	AUTO	Opens immediately, activate dust collector when open
OFF	AUTO	Closes after gate delay time
AUTO	AUTO	Opens when sensor detects current, activate dust collector when open

Remote Buttons	Gate	
	Rocker Switch	Gate action
X	OFF	Closes immediately
X	ON	Opens immediately, activate dust collector when open
ON	AUTO	Opens immediately, activate dust collector when open
OFF	AUTO	Closes after gate delay time

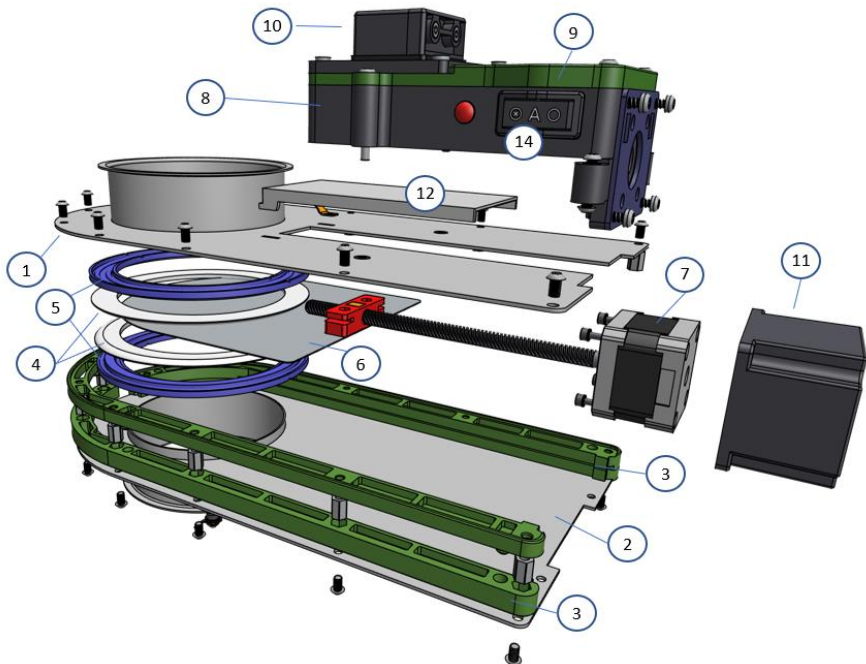
Standalone Gate	Gate	
	Rocker Switch	Gate action
	OFF	Closes immediately
	ON	Opens immediately, activate dust collector when open (if paired)
	AUTO	Closes 5 seconds after switching to AUTO

External switch*	Gate	
	Rocker Switch	Gate will
	OFF	Closes immediately
	ON	Opens immediately, activate dust collector when open (if paired)
OFF	AUTO	Closes 5 seconds after switching to AUTO
ON	AUTO	Opens immediately, activate dust collector when open (if paired)

* = actually switches between ON and AUTO

12. Spare parts list

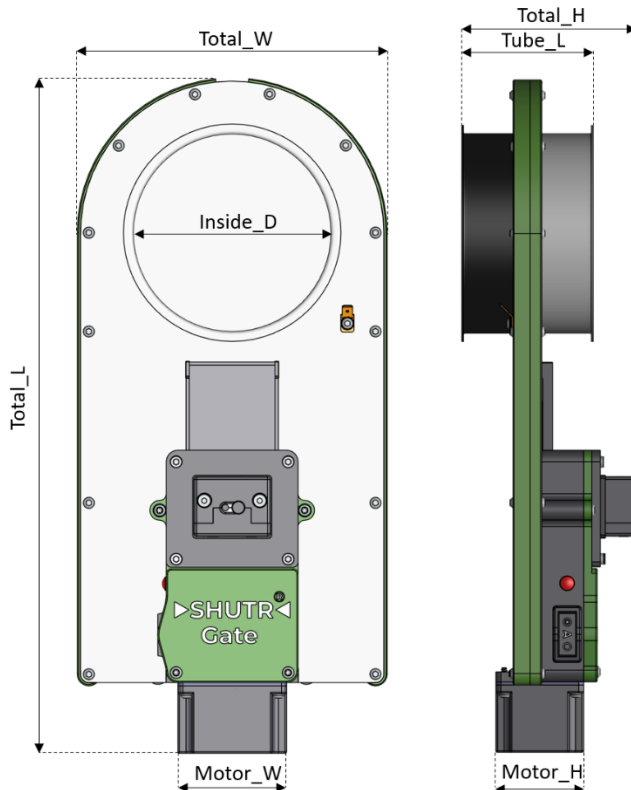
Item	Part #	Description
1	1010185XXX-050	GateXXX upper body
2	1010186XXX-050	GateXXX lower body
3	1010172XXX-050	GateXXX side assembly
4	1010411XXX-050	GateXXX POM ring
5	1010455XXX-020	GateXXX silicone pressure seal
6	1010191XXX-001	GateXXX slide assembly
7	1010201173-001	Gate100 stepper motor
	1010201193-001	Gate120 stepper motor
	1010201233-001	Gate150/160 stepper motor
8	1010110000-050	Gate electronics housing PC
9	1010120000-050	Gate housing cover PC
10	1010131000-050	Gate cable cover assembly (gland/seal/cover)
11	1010150000-050	Gate motor housing
12	1010140000-049	Leadscrew cover polycarbonate
13	1010310000-003	PCB gate rev 3
14	1010316000-001	Rocker switch assembly
15	1010327000-001	24V 1.5Amp power supply EU



13. Specifications

SHUTR Gate model	Part number	Weight (kg)
Gate 100	1010000100-050	2,08
Gate 120	1010000120-050	2,44
Gate 150	1010000150-050	3,24
Gate 160	1010000160-050	3,19

Dimensions (mm)	Gate100	Gate120	Gate150	Gate160
Inside_D	100	120	150	160
Total_L	370	410	490	490
Total_W	168	188	228	228
Total_H	106	106	106	106
Tube_L	80	80	80	80
Motor_W	66	66 </td <td>66</td> <td>66</td>	66	66
Motor_H	54	54	54	54



Power supply	110/240VAC - 24V DC 1.5A (max.) Standby power consumption 2W
Radio signal	2.412-2.462 GHz. FCC certified. Output power 19 dBm. Range 50-100 meters in open space. Built-in antenna.
Connections	<ul style="list-style-type: none"> - 24V DC power jack 5.5/2.1mm - USB-A 5V power supply for Sensor - 3.5mm mono Jack plug for optional remote switch - Tabs 6.3mm, for grounding wires (2x)
Operation	<ul style="list-style-type: none"> - Rocker switch for operating mode (OPEN/CLOSE/AUTOMATIC) - Pushbutton (PAIRING/RESET) <p>Gate can be used standalone or as part of a SHUTR Connect™ network Closing/opening time of the shutter ~ 2 sec.</p>
Tube sizes	100, 120, 150 and 160mm inside diameter. Flange width: 6mm. Tube thickness: 1.0mm. Galvanized steel.
Chassis material	Galvanized steel 1.5mm
Shutter material	Stainless steel slide, 0.5 mm. POM/ silicone seals.
Electronics housing	Polycarbonate, IP54, UV resistance F1, operating temperature -20° C to +40° C
Safety	CE / ATEX 114: II 2/3D Ex h tc IIIB T85°C Db/Dc Indication of a malfunctioning gate after 3 retries. 'Default open' gate(s) to prevent vacuum (SHUTR Connect™ network)
Conformity	Complies with EN61326-1, EN61010-1, EN300328, EN301489-1, EN301489-17, EN55011-A1-A11, EN61000-3-2, EN61000-3-3, EN62368-1, EN62311, EN63000
Warranty**	1 year
Package includes	Gate unit, cable cover, 24VDC wall mount adapter EU with 4 meter cable, Installation/User Guide.

(*) Specifications may change without prior notice.

(**) Please refer to the Warranty clause on www.blastgate.com

14. Diagnostics

Symptom	Possible cause and remedy
<p>You want to start a manual pairing session on a gate or sensor but the LED turns RED instead of WHITE</p>	<p>The rocker switch needs to be in the AUTO position first. If it is in the CLOSE position, you start a reset sequence instead, hence the RED LED</p>
<p>The LED on the controller keeps flashing RED</p>	<p>Possible causes:</p> <ul style="list-style-type: none"> - A gate or sensor was unplugged (plug back in or, if the gate or sensor was unplugged intentionally, unplug the controller from the mains and plug back in) - A gate or sensor is unable to communicate - The slide of a gate is stuck and went into fault mode - There are not enough gates open to safely start the dust collector
<p>Intermittent problems with communication</p>	<ol style="list-style-type: none"> 1. Check if the components are covered by metal or by a wall: this will negatively impact the transmission. 2. Try to have a line of sight between the electronics housing of the gate and the controller as much as possible (flip the whole gate if its housing is "behind" its own metal body). 3. For communication the SHUTR components all use Wifi frequency channel 1. This should not be a problem when there is an existing local Wifi network as they usually will switch to another channel automatically. If the problem persists, then try to manually set the Wifi channel of your local network to another channel then 1 on the router or access point. 4. DECT wireless phone sets also work on the same frequency and may sometimes interfere with the Wifi signal

Unexpected reboot of a component	<ol style="list-style-type: none"><li data-bbox="524 132 997 384">1. As the SHUTR components will most certainly be used in an industrial environment with heavy machines, it is possible that severe power spikes influence the electronics. Although filters have been installed, try to plug the wall mount adapter into a different power outlet.<li data-bbox="524 392 997 453">2. Make sure that the metal housing of the gate is always grounded.<li data-bbox="524 461 997 545">3. Avoid ground loops, ground from a single point (preferably the dust collector).
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EC declaration of conformity

Manufacturer:

BlastGate.com B.V.
Botsholsewaardsweg 2A
3646AK Waverveen
The Netherlands

Declares that the following line of products:

Product family: **SHUTR**

Model(s): **Gate100, Gate120, Gate150, Gate160 and Sensor**

Fulfill all relevant provisions of the Radio Equipment Directive (RED directive), 2014/53/EU, according to the harmonized standards:

EN 300 328 (V2.2.2) Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz band; Harmonised Standard for access to radio spectrum

Fulfill all relevant provisions of the Electromagnetic Compatibility Directive 2014/30/EU, according to the harmonized standards:

EN 301 489-1 (V2.2.3) Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements

EN 301 489-17 (V2.2.1) Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment; Part 17: Specific conditions for Broadband Data Transmission Systems

EN 61326-1 (2013) Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

EN 55011 (2016) + A1 (2017) Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement

+ A11 (2020)

EN 61000-3-2 (2014) Electromagnetic compatibility (EMC) — Part 3-2: Limits — Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)

EN 61000-3-3 (2013) Electromagnetic compatibility (EMC) — Part 3-3: Limits — Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection

Fulfills all relevant provisions of the Low voltage directive 2014/35/EU, according to the harmonized standards:

- EN 62368-1 (2014) Audio/video, information and communication technology equipment - Part 1: Safety requirements
- EN 62311 (2008) Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)

Fulfills all relevant provisions of the EC RoHS directive 2011/65/EU, according to the harmonized standards:

- EN IEC 63000 (2018) Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

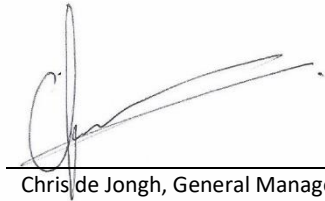
The signatory on behalf of the manufacturer:

Waverveen,
The Netherlands

20 November 2023

Place of issue

Date of issue



Chris de Jongh, General Manager

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