

DATASHEET
ELECTROMECHANICAL ACTUATOR
(electronic locking device)

Product code: 550.100.000.1272



INTRODUCTION

Electromechanical actuator (Electronic Lock) was designed for remote internal locking of doors or gates by help of BLUETOOTH wireless controller or GSM(Satellite) telematics terminal.

The device is dedicated for operation in harsh environment conditins and was created in collaboration with security and telematics service operators.

The gearmotor steel pin assembly supports the intensive use by those who make dozens of openings per day. The electronic parts are sealed by the silicone compaund,that provides an extraordinary protection against dust, humidity and low temperature also allowing the use of high pressure washers when cleaning refrigerated environments.

APPLICATION

The device is intended for remote locking /unlocking doors or gates of cargo trailers, box trucks, refregirators, containers, shelters and cabinets for various telecmmunication, electrical, control equipment and instruments.

WARRANTY DISCLAIMER

XMETRA PRODUCTS ARE INTENDED TO BE USED BY PERSONS WITH TRAINING AND EXPERIENCE. ANY OTHER USE RENDERS THE LIMITED WARRANTIES EXPRESSED HEREIN AND ALL IMPLIED WARRANTIES NULL AND VOID AND SAME ARE HEREBY EXCLUDED. ALSO EXCLUDED FROM THIS LIMITED WARRANTY ARE ANY AND ALL INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO, LOSS OF USE OR REVENUE, LOSS OF TIME, INCONVENIENCE OR ANY OTHER ECONOMIC LOSS.

Wiring legend

Wire color	Description	Connection
RED	Power supply	VCC(+)
BROWN	Power supply	GND (-)
BLUE	Control signal IN1	OUTPUT - OPEN COLLECTOR
VIOLET	Locked/Unlocked FEEDBACK	Logical input of GPS/GSM device(Low-High)
BLACK	!!! IS NOT IN USE	Must be insulated

Control signal applied to BLUE wire

VOLTAGE (POLARITY)	LOCK'S ACTION
- GND (NEGATIVE) signal (command) (permanently connected)	UNLOCKING (BOLT is RETRACTED)
NOT CONNECTED (TRISTATE) or permanently disconnected	LOCKING (bolt is moving or retracted)

Feedback signal on VIOLET wire

LOCK'S STATUS	FEEDBACK SIGNAL
LOCKED (Bolt extended)	VCC(+)
UNLOCKED (PIN IS RETRACKED OR MOVING)	GND(-)

Page 2

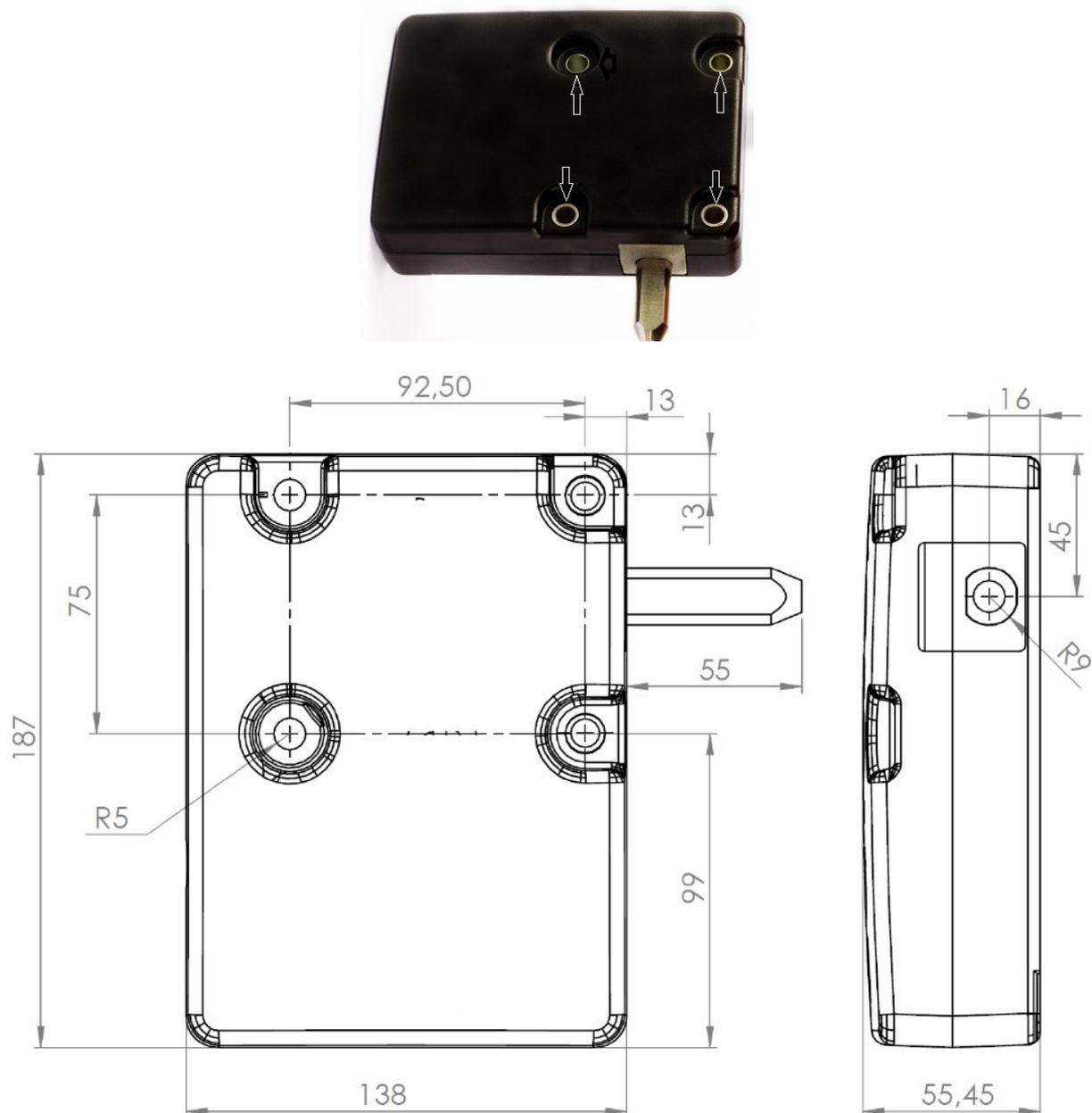
Operational mode

The Electronic Lock reacts with the control signal placed on the Signal Input (Blue wire). If the command (control signal) is changed during pin travel, the Electronic Lock has only acknowledged the new command ten seconds after the movement of the pins completed.

Specification

Parameter	Unit	Value
Power supply voltage	V DC	12-24 (10-28)
Operational temperature	°C	Minus 30_Plus 80
Minimum current for input signal level identification (VCC / GND)	mA	20
Maximum current	A	10
Current draw in idle mode	mA	50
Rated current draw in operation (pin is moving)	mA	1200 (13,8 DC)
Dimensions & weight		
Pin maximum length	mm	56
Bolt diameter	mm	18
Bolt length retracted	mm	11,3
Bolt length extended	mm	61,4
Bolt displacement	mm	50,1
Weight	kg	1,5

Mounting



A special part of the design is its locking structure. Its holes are coated in steel, and this allows:

1. Increased mechanical resistance to screw tightening during clamping.
2. Increased structural resistance against frontal, lateral impacts by load movements.
3. Possibility of using a drill directly in the holes, thus eliminating the need to use jig.

The mounting method is defined by installer in every case and the following fasteners are usually used (are not supplied in set with actuator and supplied by installer from local market):

! Use high quality grade fasteners plated by white zink or made of STAINLESS STEEL.

1. M8 screw
2. M8 screwed rivets
3. Blind rivets
4. Washers
5. Grover pucks
6. Mounting plates (steel or aluminum, if required)
7. Polymer spiral protection for electrical wire.

Recommended parts and materials for installation supplied by customer (installer)



Recommended set of fasteners for mounting

- ALUMINUM ADAPTER PLATE 300X250X2.5MM THICKNESS
- BLIND RIVETS
- NUT RIVETS M8 (COMMON STEEL /STAINLESS STEEL)
- PRESSURE WASHER (GROVER PUCKS) M8 ZINC WHITE/STAINLESS STEEL
- WASHER PLATE M8 ZINC WHITE/STAINLESS STEEL
- SCREW M8X90MM, WHITE ZINC/STAINLESS STEEL

POLYMER SPIRAL PROTECTION 19.5MM

!!!! SECURITY RECOMMENDATIONS

- The use of a gauge smaller than 2.5 mm² in the supply wires can cause failures during the movement of the bolt, particularly in systems powered by 12 V batteries. Other wires must be at least 0.75 mm²
- POLYMER SPIRAL PROTECTION D 19.5MM
- Mandatory use of a 10 A fuse in the lock power supply circuit (Positive RED cable).
- The lock Negative must be connected to the truck chassis. Its direct connection to the negative pole of the battery can cause problems in the electrical system.

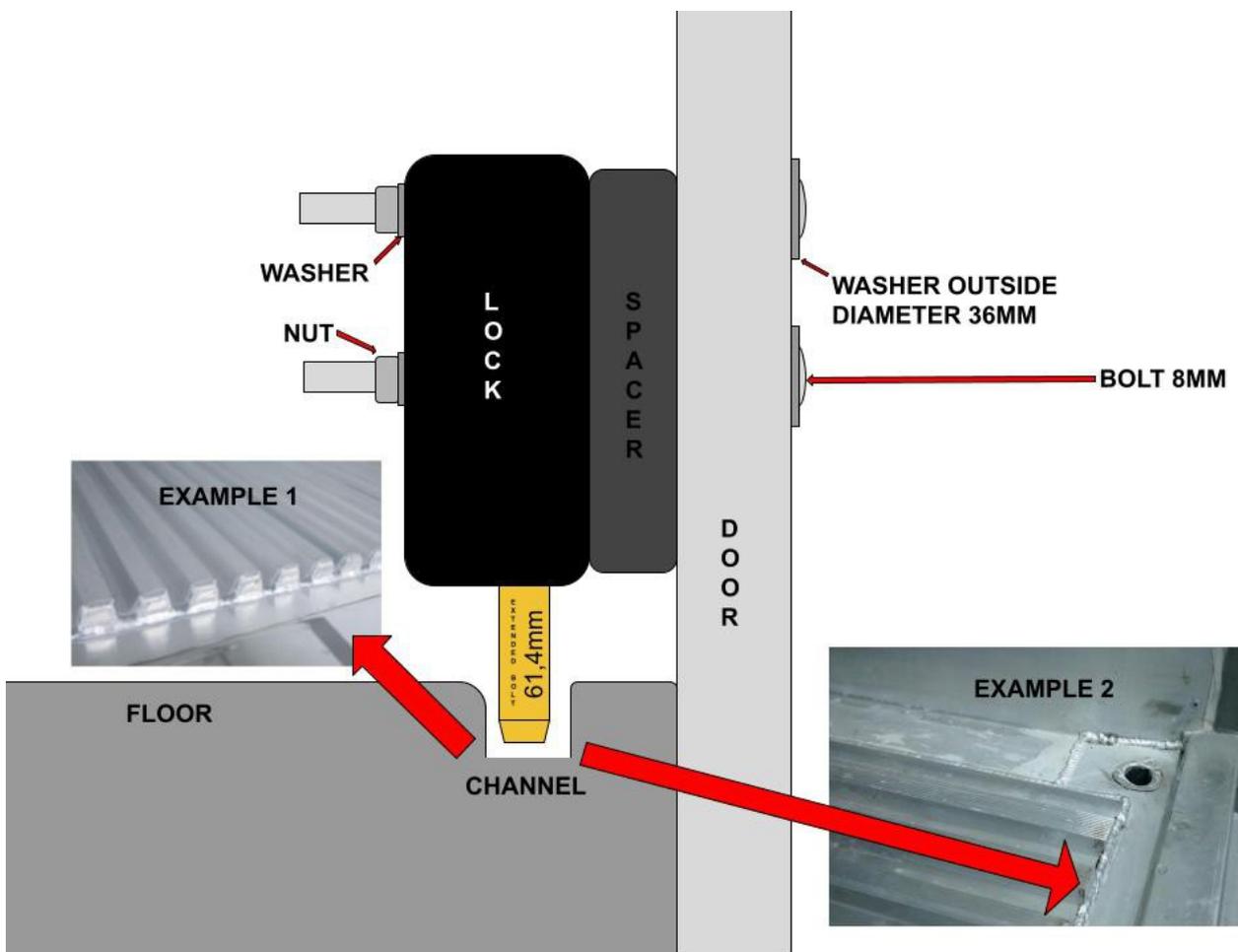
General guidance for installation on dry freight trucks:

1. Attach a metal plate with rivets to the bottom corner closest to the truck door rail.
2. With the truck door closed, mark the drilling points for fixing the lock, leaving a space of approximately 1.5 cm between the bottom of the lock and the flooring of the truck.
3. Drill the 4 points and attach the rivet nuts to the truck door.
4. Fix the lock with hexagon screws. If necessary, use a spacer to distance the lock from the door.
5. Drill a hole with a minimum diameter of 25 mm in the truck floor according to the position where the bolt will be.
6. Plug the lock wires to the cable tube with splicing terminals or with solder.
7. Fix the cable tube on the door up to the desired height and leave some excess wire for the door hinge and cover it with a cable organizer.
8. Drill the corner of the truck floor at the point where the wire should come out.
9. Pass the cable tube under the chassis, together with the truck's original electrical wiring, fixing it with clamps.
10. On the fuse panel, connect the two power wires to the battery wiring. Include a 10 A automotive fuse in the assembly.
11. Connect the input wire to the tracker cable harness.

General guidance for installation on refrigerated freight trucks:

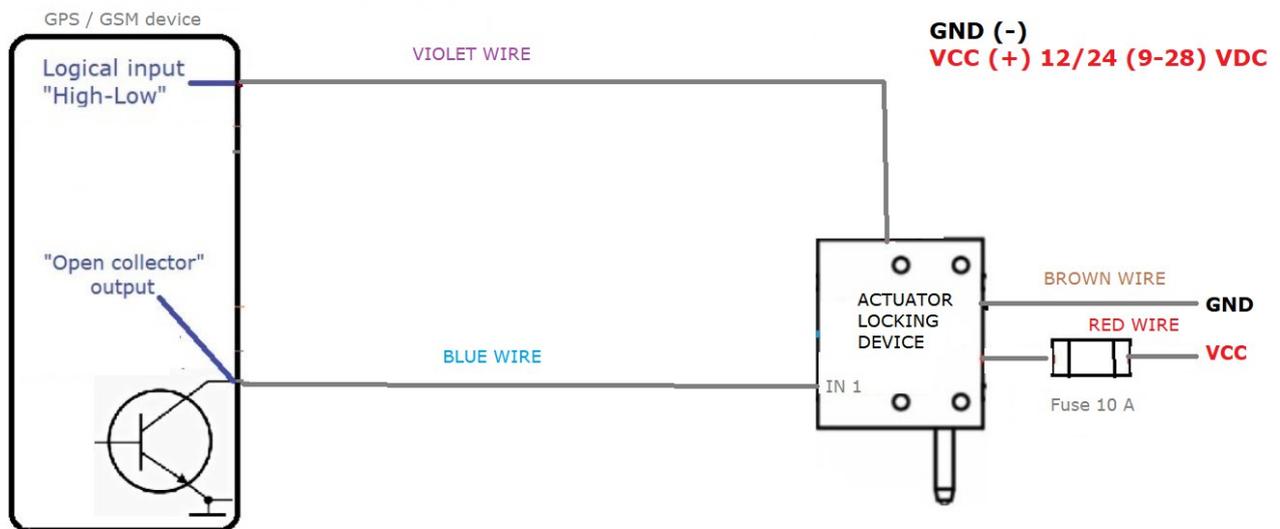
1. With the truck door closed, mark the drilling points for fixing the lock. Take into account the position of the external locking rail. Leave a space of approximately 5.5 cm between the bottom of the lock and the bottom of the truck channel.
2. Drill the through holes at the positions marked on the door.
3. On the outside, place the carriage bolts with washers of an outside diameter of at least 36 mm.
4. On the internal side of the door, fit the lock on the screws. Place flat and spring washers to complete the nut fixing. If necessary, use a spacer to

- distance the lock from the door.
5. Connect the lock wires to the cable tube with splicing terminals or with solder.
 6. Pass the cable tube through the door channel leaving some excess wire for the door hinge.
 7. Pass the cable tube through the channel that runs through the inner wall of the truck box.
 8. On the fuse panel, connect the two power wires to the battery wiring. Include a 10 A automotive fuse in the assembly.
 9. Connect the input wire to the tracker cable harness.
- IMPORTANT:** The cable harness wires to be used can be defined according to the installation need, being mandatory only the installation of Red (BAT+), Brown (GND), and only one of the inputs (Blue or Black). Other unused wires can be cut.





ELECTRICAL CONNECTION DIAGRAM



OPERATION

Operation mode: The Security Lock bolt will be extended or retracted according to the input signal on the inputs IN1 and/or IN2, being optional the use of two inputs simultaneously. The feedback signal varies depending on the bolt state. The movement of the bolt occurs 1 second after the lock receives the command.

IMPORTANT: The interval for the input change of locking and unlocking is 5 seconds. Input changes with a lower time than that will be executed only after the end of this period. Thermal Protection: If the lock performs several movements in a short period, the "Thermal Protection" will gradually increase

the interval between the movements. Icebreaker: If the lock is unable to move the bolt because it is stuck due to freezing, it will make 10 more attempts, increasing the force of the movement in each of the attempts, up to a maximum of 30 kgf.