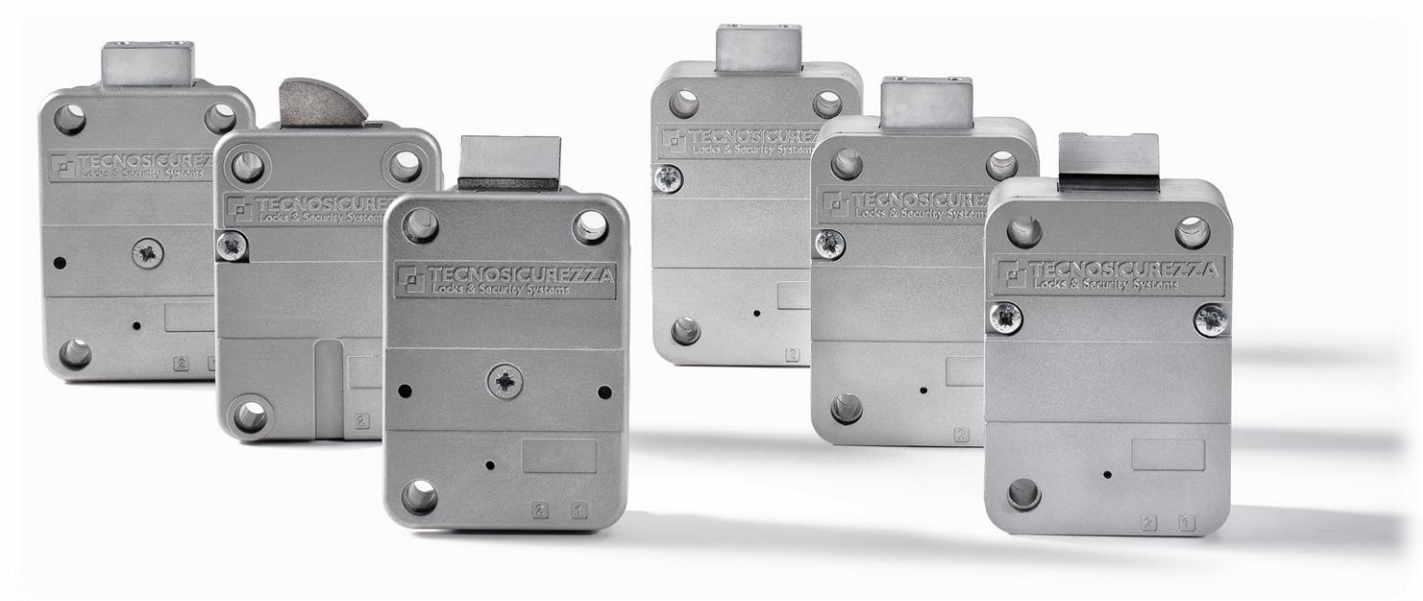
TECNOSICUREZZA
Locks & Security Systems

Electromechanical locks

Installation Instructions



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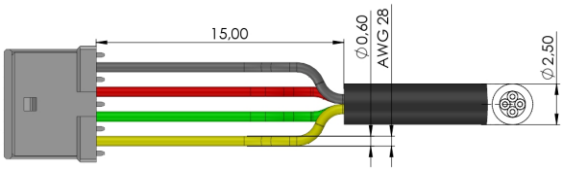
Important notes!

- Before installing this product, please read carefully the installation and operating instructions.
- Locks can be installed in all traditional safes.
- Lock has to be mounted on secure storage metal (preferred steel) units only.
- Although locks can be mounted behind the passage hole for the connection cable or the spindle, it is instead recommended to install them on the door, but away from any through holes, in order to protect the locks themselves against external attacks.
- Any electronic part must be properly protected and not easily accessible even when the door is open.
- Locks have been developed to work correctly in a temperature range from -5 ° C to + 50 ° C and in an environment with non-condensing humidity between 25% and 90%.
- The mounting dimensions are standard (magic module).
- Locks are supplied with metric (M6) mounting screws. Upon request, Imperial 1/4-20 UNC format mounting screws are available.
- The type of material and the length of the screws must, in any case, be selected so as to guarantee long life and reliability.
- Tighten the screws so that the lock is firmly fixed to the mounting surface (recommended torque between 2.5 and 4 Nm).
- The mounting surface must be perfectly flat.
- In order to prevent loosening of the screws it is recommended the use of LOCTITE® threadlocker and/or specific washers positioned under the head of the fixing screw.
- The hole must be completely cleaned of drill dust and no edge should be sharp.
- Lock must not be lubricated.
- In the locked position, the distance between the bolt and the boltwork part that is moving the lock bolt must comply with the following specifications for each type of lock.
- Any component to be fixed to the lock bolt must be previously approved by Tecnosicurezza before installation. In any case, the maximum load must not exceed 4 N for MotorLock version.
- Secure the cables away from moving parts by using cable ties and cable ties bases.

- If placed in normal domestic or office environments, the locks do not require particular maintenance; in any case, after 10,000 opening/locking cycles, it is recommended to run a test that verifies the correct and complete operation of the product.

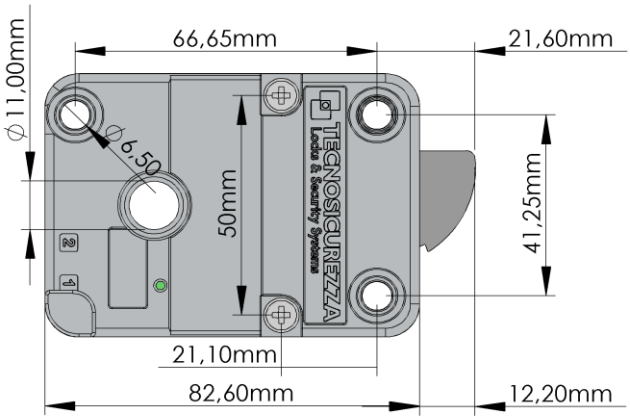
Connector model

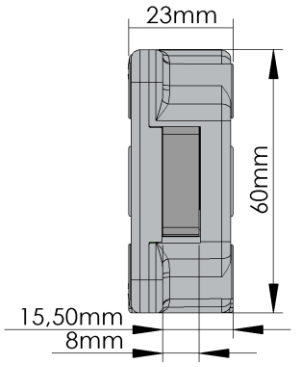
Molex 87439000



SwingBolt lock dimensions

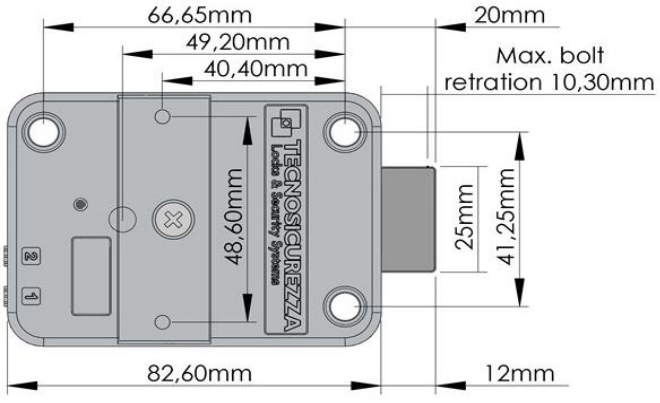
T4501

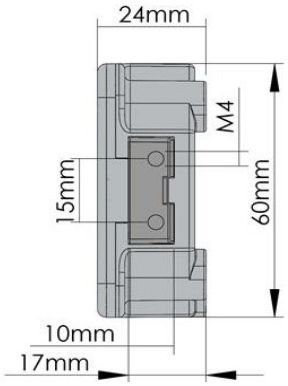




DeadBolt lock dimensions

T4501/D



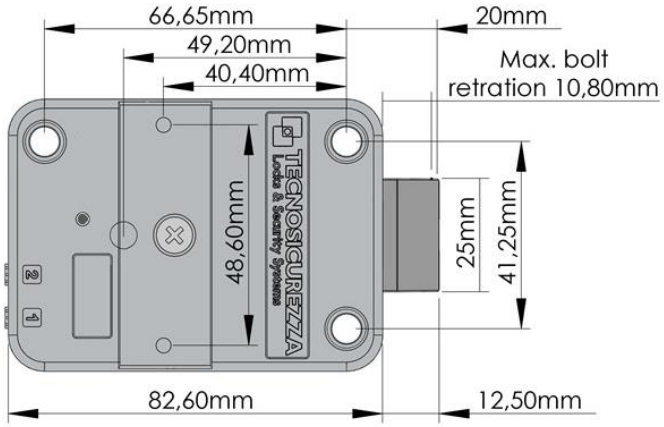


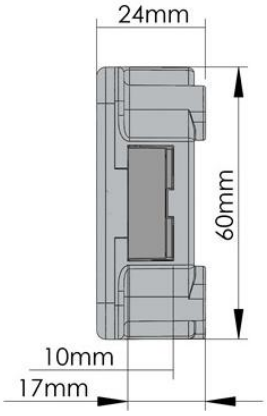
Model T4501/D2 is also available with 10/32 x 0.5” (2X) tapped dead bolt.

Electromechanical locks

LatchBolt lock dimensions

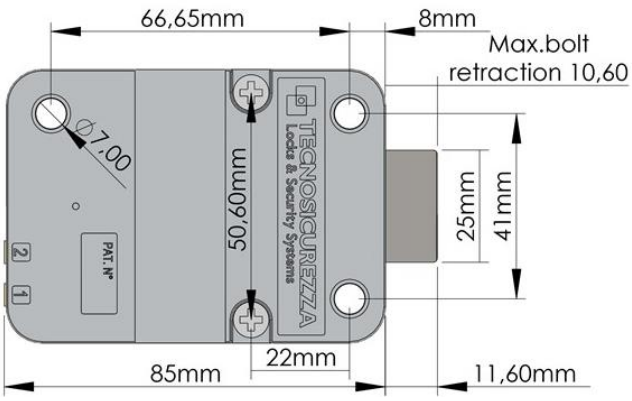
T4501/S

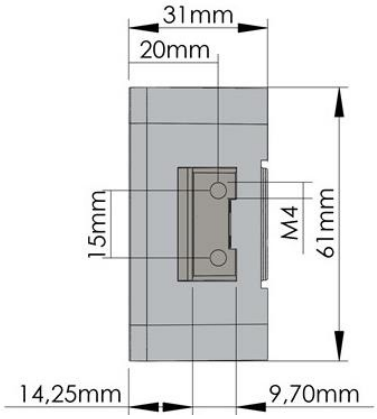




MotorLock lock dimensions

T4501/M & T4501/MP

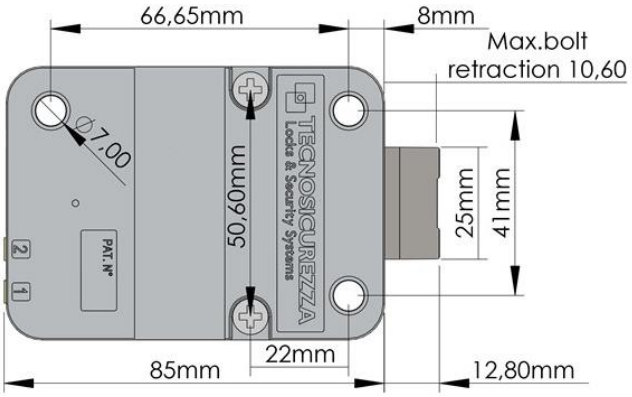


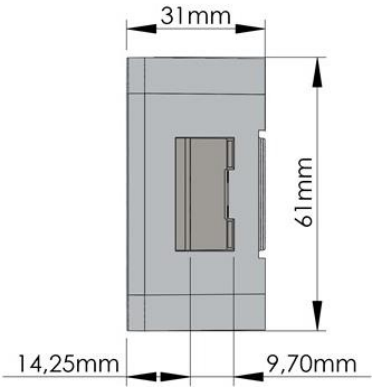


Models T4501/M2 and T4501/MP2 are also available with 10/32 x 0.5” (2X) tapped dead bolt.

Motor LatchBolt lock dimensions

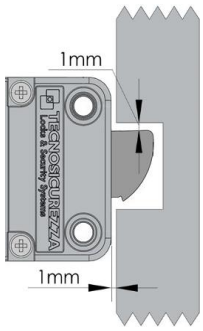
T4501/M/S





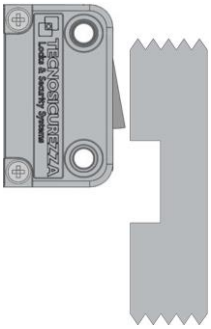
SwingBolt lock installation instructions

The SwingBolt lock is a swinging bolt lock whose block is carried out by a motor; it can be installed in all 4 directions (RH, LH, VU, VD), even upside down.
By powering the lock, the electronic removes the blocking and the boltwork can be moved into open position by pushing the bolt inside the lock case.
The bolt automatically secures when the safe handle, or the safe door mechanism, is brought to the locked position.

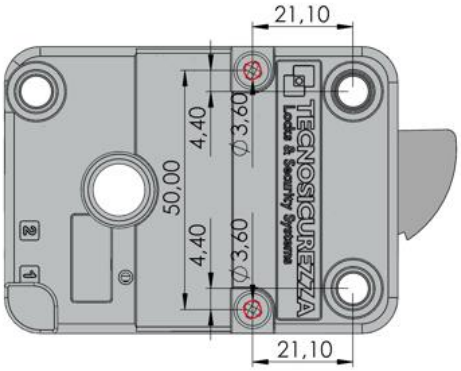


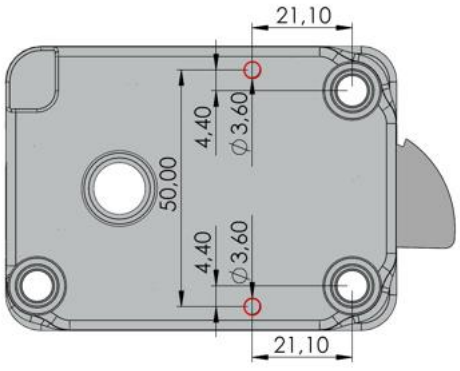
In the locked position the distance between the lock's bolt and the lock part that moves the bolt should be approximately 1 mm.

The bolt must be able to move freely without force being applied to it.



The maximum load applicable to the bolt must not exceed 1KN. Contact Tecnosicurezza in case of heavier loads.
It's possible to connect a relocker to the lock body (on upper or lower side) through the appropriate holes.





Electromechanical locks

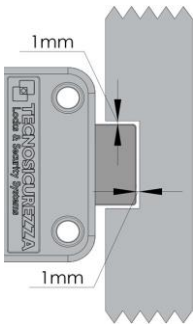
Fix the relocker plate with M4 self tapping flat head screws.
Length must be 6mm + plate thickness.

(i.e. 6mm + 2mm plate = 8mm screw)

DeadBolt and LatchBolt locks installation instructions

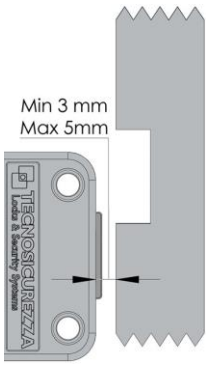
DeadBolt and LatchBolt are locks with, respectively, a dead bolt and a spring bolt, whose block is carried out by a motor.
By powering the lock, the electronic removes the blocking and the bolt can be moved into open position by turning the lock spindle. After this, the door boltwork can be moved freely.
The spindle can be connected to a knob or a handle. When the spindle is brought to the locked position, the bolt comes out ensuring the lock is locked.
NOTE: use only the spindle provided by Tecnosicurezza. Any other spindle model must be previously approved by Tecnosicurezza before installation.

The DeadBolt and LatchBolt locks can be mounted in all four mounting directions (RH, LH, VU, VD).



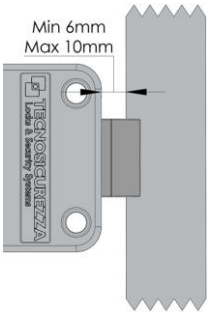
In the locked position, there should be approximately 1 mm clearance between the lock bolt and the cavity in the blocking bar of the boltwork. The bolt must be able to move freely without force being applied to it.

In open position, there should be a minimum of 3 mm and maximum of 5 mm clearance between the lock bolt and the blocking bar of the boltwork.



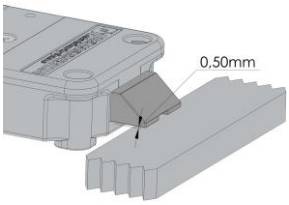
The maximum load applicable to the bolt must not exceed 1 KN. Contact Tecnosicurezza in case of heavier loads.
The LatchBolt lock is specially designed to ensure self locking when the door closes.

Electromechanical locks



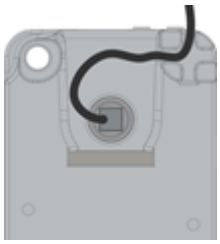
The distance between the lock and the locking edge must be between a minimum of 6 mm and a maximum of 10 mm.

When locked, there must be a 0.5 mm gap between lock bolt and locking surface.

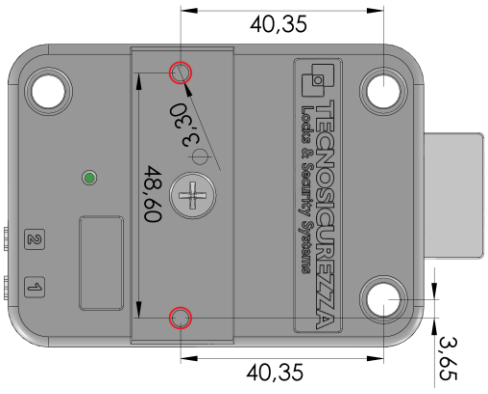


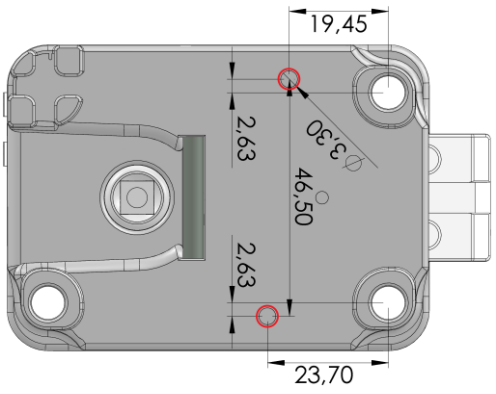
Cut the spindle to the correct length keeping in consideration the door thickness and ensuring a correct insertion of the spindle on both the lock and the knob/handle side.
Remove any cutting residues of the spindle that could damage the cable.
The spindle needs to be fully inserted inside the lock (7 mm).
If the cable comes from outside, place it in the groove of the spindle, making sure it's fully inserted and locked.

Secure the cable inside the special groove located under the lock body, ensuring that it is not stretched when turning the spindle.
Fix the lock using the appropriate mounting screws.



It's possible to connect a relocker to the lock body (on upper or lower side) through the appropriate holes.





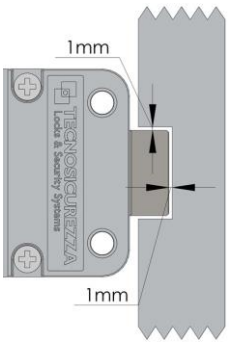
Electromechanical locks

Fix the relocker plate with M4 self tapping flat head screws.
Length must be 6mm + plate thickness.

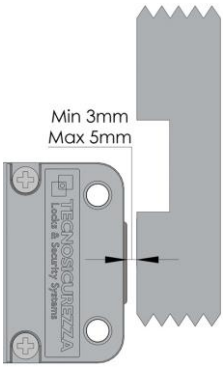
(i.e. 6mm + 2mm plate = 8mm screw)

MotorLock and Motor LatchBolt locks installation instructions

MotorLock and Motor LatchBolt locks are locks with, respectively, a motor driven dead bolt and a motor driven latch bolt, whose block is carried out by a motor.
In single input mode, the lock can be opened by providing a free contact input: the motor retracts the bolt which remains in the open position for minimum 8 seconds and until the input is removed. After this, the bolt automatically returns to the locked position when the boltwork is moved to the closing position.
In double input mode instead, a second free contact input must be provided in order to bring the motor back to the closing position. The bolt get then automatically extracted when the boltwork is moved to the closing position.
Note: in case of a Push & Pull version T4501/MP, please be sure to provide the closing input only when the boltwork is totally closed in order to avoid any forcing of the motor; for this reason we recommend to connect the closing input in series with boltwork/door switch, as described below.
All lock versions can be mounted in all four mounting directions (RH, LH, VU, VD).
Locks are supplied with metric (M6) mounting screws. Upon request, Imperial 1/4-20 UNC format mounting screws are available.



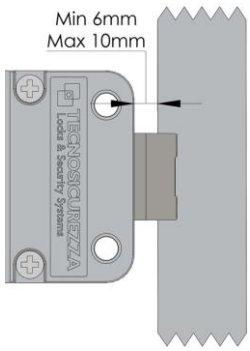
In the locked position, there should be approximately 1 mm clearance between the lock bolt and the cavity in the blocking bar of the boltwork. The bolt must be able to move freely without applying any force on it.



In open position, there should be a minimum of 3 mm and maximum of 5 mm clearance between the lock bolt and the blocking bar of the boltwork.

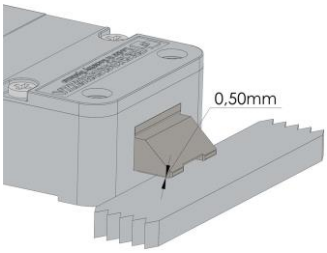
The latch version (Motor LatchBolt) is specially designed to ensure self locking when the door closes.

Electromechanical locks



In depending of the motor lock type, the distance between the lock and the locking edge must be between a minimum of 6 mm and a maximum of 10 mm.

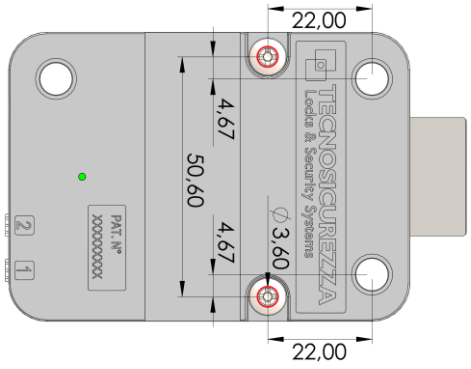
When locked, there must be a 0.50 mm gap between lock bolt and locking surface.

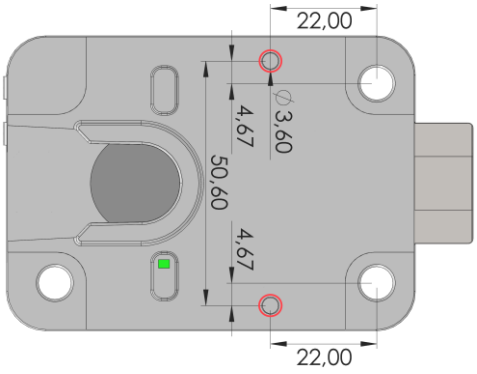


The maximum load moved by the bolt depends by the lock model and it must not exceed the limit values specified in the table below. Contact Tecnosicurezza in case of heavier loads.

Lock reference	Lock type	Maximum load pulled up by the bolt
T4501/M	MotorLock	4 N (400 gr)
T4501/MP	MotorLock Push & Pull	30 N (3000 gr)
T4501/M/S	Motor LatchBolt	-

It's possible to connect a relocker to the lock body (on upper or lower side) through the appropriate holes.





Fix the relocker plate with M4 self tapping flat head screws.
Length must be 6mm + plate thickness.

(i.e. 6mm + 2mm plate = 8mm screw)

Electromechanical locks

Model comparison

Part number	Bolt type	Bolt opening mode		Bolt closing mode			Max bolt pushing power
		Manual	Motorized	Springed	Manual	Motorized	
T4501 - SwingBolt	Swing bolt	✓		✓			-
T4501/D - DeadBolt	Dead bolt	✓			✓		-
T4501/M - Motorlock	Motorized		✓	✓			4 N (400 gr)
T4501/MP – Motorlock Push & Pull	Motorized dead bolt		✓			✓	30 N (3 Kg)
T4501/M/S – Motor LatchBolt lock	Motorized latch bolt		✓	✓			-

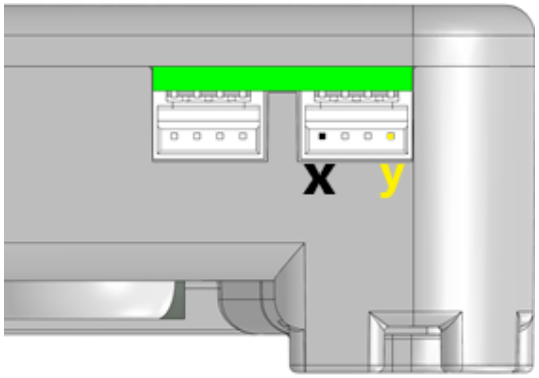
Characteristics & Cabling

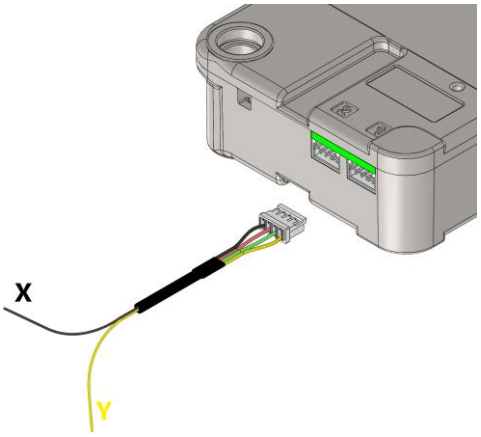
SwingBolt, DeadBolt & LatchBolt

On SwingBolt, DeadBolt and LatchBolt models the instant unlocking of the bolt is obtained by supplying the power. The bolt is then retracted manually by the turning of the external handle/knob.

Part number	Lock type	Power supply	Note
T4501	Swing bolt	V = 6 ÷ 15 Vdc I = 250 mA @ 12Vdc	Max 300 sec @ 12Vdc (do not exceed this timing)
T4501/D	Dead bolt	V = 6 ÷ 15 Vdc I = 250 mA @ 12Vdc	
T4501/S	Latch bolt	V = 6 ÷ 15 Vdc I = 250 mA @ 12Vdc	

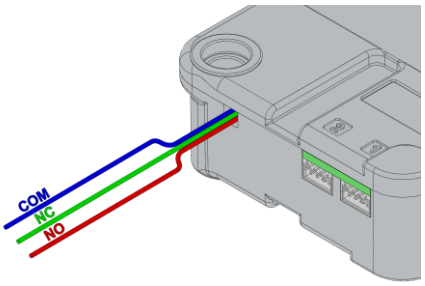
Connect the cable to the lock connector "1 ", making sure it is fully inserted and locked.
*Power must be provided to connector 1 to pins X and Y which correspond to *black* (-) and *yellow* wire (+) in case it's used a Tecnosicurezza standard cable. For power and voltage references, see the table above.



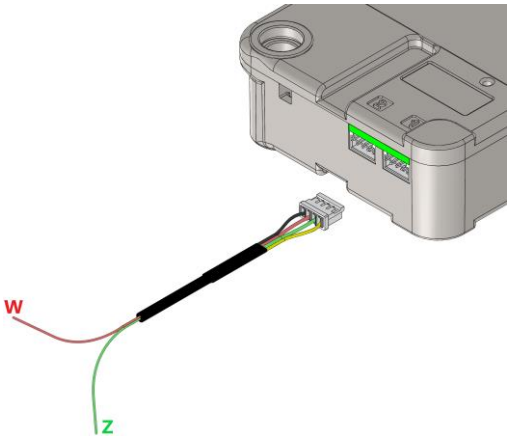


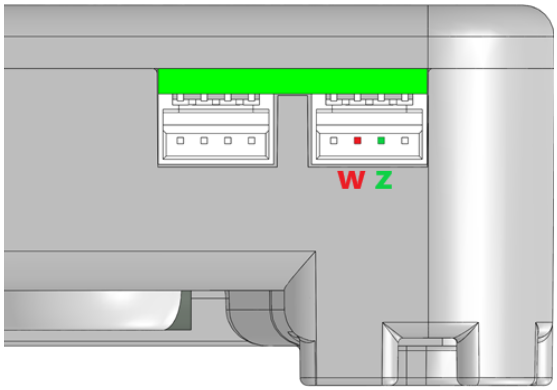
Upon request, the following options are available:

/SW/P
Option with 3 wires (Common/Normally Open/ Normally Closed) which provides the status of the bolt through an internal micro-switch.
(*) Power to be provided as indicated above.



/SW/NC (Common/Normally Closed)
/SW/NO (Common/Normally Open)
Option with 2 wires which provides the status of the bolt through an internal micro-switch.
Available only for SwingBolt locks.
Use the central pins (W, Z) of connector 1 which correspond to *red* and *green* wire in case it's used a Tecnosicurezza standard cable.
(*) Power to be provided as indicated above.





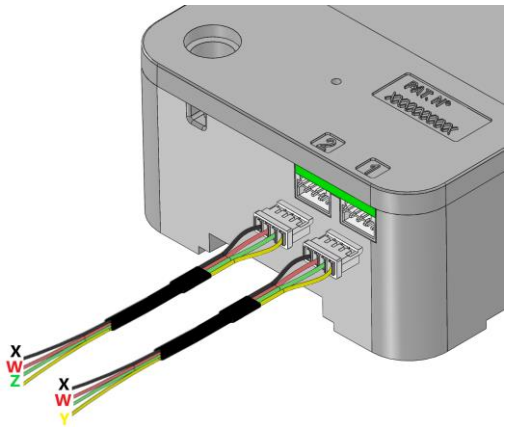
MotorLock & Motor LatchBolt

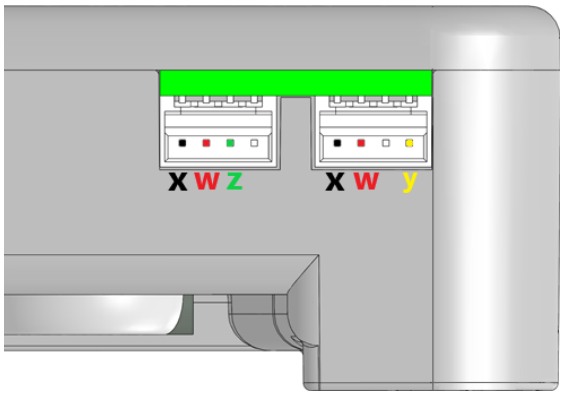
On MotorLock and Motor LatchBolt locks, the activation of the motor, which retracts the bolt, is obtained by activating the opening input, either in single input mode and in double input mode.
In single input mode, the motor maintains the bolt retracted for a time called "motor opening time" (8s by default). When this time expires the motor automatically returns to the locked position, unless the opening input is still active.
In double input mode instead, the motor maintains the bolt retracted until the closing input is not activated (and unless the opening input is still active) to bring the motor in closed position. Depending by the lock model the bolt extension is then performed by internal springs (standard version and LatchBolt version) or by the motor itself (Push & Pull version).

Electromechanical locks

Part number	Lock type	Power supply
T4501/M	MotorLock	V = 6 ÷ 14 Vdc I = 250 mA @ 12Vdc
T4501/MP	MotorLock Push & Pull	V = 6 ÷ 14 Vdc I = 250 mA @ 12Vdc
T4501/M/S	Motor LatchBolt	V = 6 ÷ 14 Vdc I = 250 mA @ 12Vdc

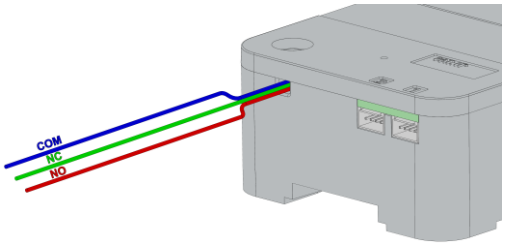
*Cabling:
connect the cable to the lock connector "1 " making sure it is fully inserted and locked.
Power must be constantly provided through the connector “1”, to pins X and Y which correspond to black (-) and yellow wire (+).
For power and voltage references, see the table above.
Pins X and W of connector “1” are used to switch between single and double input mode while pins X, W and Z of connector “2” are used for connecting the opening and closing inputs, as illustrated in the next paragraph.



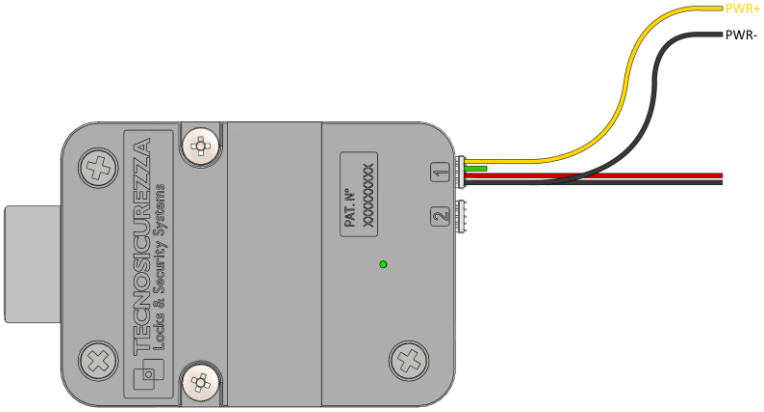


Upon request, the following option is available:

/SW/P
Option with 3 wires (Common//Normally Closed/Normally Open) which provides the status of the bolt through an internal micro-switch.
(*) Cabling on connectors “1” and “2” to be perfomed as indicated above.



How to switch between single and double input mode



Switching to single input mode:

- create a short circuit between red and black cables of connector 1;
- remove the power and restore it after 5 minutes. Repeatedly activate one of the inputs of connector 2 to reduce this time.

Switching to double input mode:

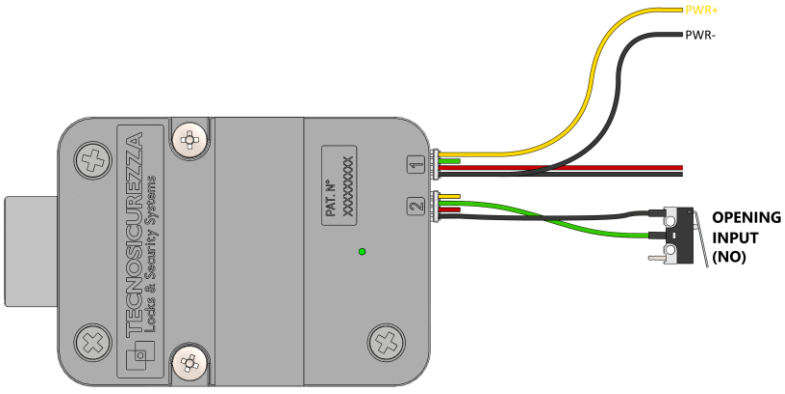
- leave red and black cables open;
- remove the power and restore it after 5 minutes. Repeatedly activate one of the inputs of connector 2 to reduce this time.

How to open the lock

Lock opening in single input mode:

- activate the opening input to retract the bolt;
- after the opening time (8 sec by default) the bolt get released and pushed out by the internal springs, unless the opening input is kept active.

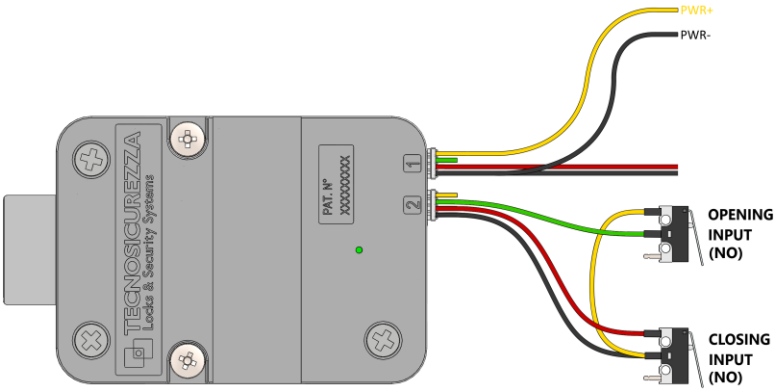
Perform the connection of the opening input as shown below (closing triggered by a contact closed):



Electromechanical locks

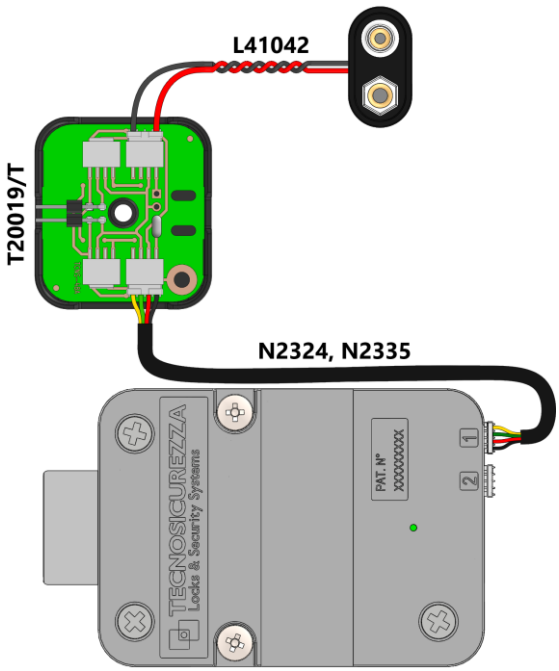
Lock opening in double input mode:
- activate the opening input to retract the bolt;
- activate the closing input: the bolt get released and pushed out by the internal springs, unless the opening input is kept active.

Perform the connection of the inputs as shown below (both opening and closing are triggered by a contact closed):



Power supply with 9V battery

If it's necessary to connect a 9V battery to the lock, we recommend to perform the connections using Tecnosicurezza accessories as shown below.

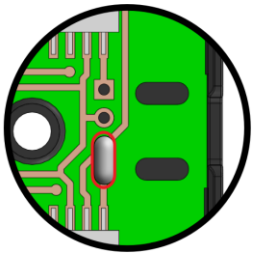


Different and customized items not provided by Tecnosicurezza, may also work provided they supply the voltage to the cables black and yellow of connector 1.

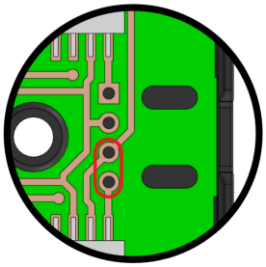
For the inputs connections, see the previous paragraphs (*How to switch between single and double input mode* and *How to open the lock*).

Electromechanical locks

Switching to single input mode, when using a Tecnosicurezza splitter on T20019/T:
- create a short circuit on T20019/T PCB between the contacts shown;
- remove the power (black and yellow wires) and restore it after 5 minutes. Repeatedly activate one of the inputs of connector 2 to reduce this time.

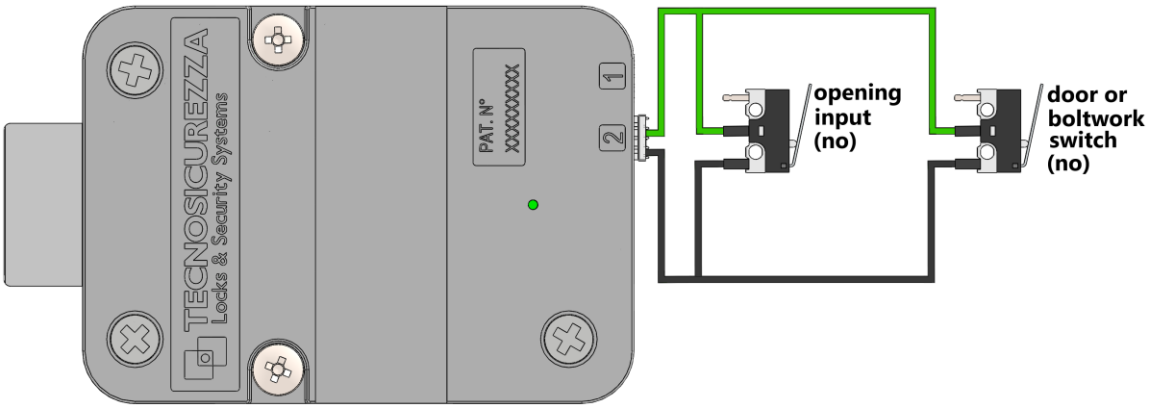


Switching to double input mode, when using a Tecnosicurezza splitter on T20019/T:
- leave open the contacts shown, of T20019/T PCB;
- remove the power (black and yellow wires) and restore it after 5 minutes. Repeatedly activate one of the inputs of connector 2 to reduce this time.



How to close the bolt only when door closed

The picture below is just for reference and it shows how to get the bolt extended only with door closed. When the door is closed, opening input and door/boltwork switch must be set as normally open (NO).
Power must be constantly provided on port 1 as already described above.



Electromechanical locks

Functional test

To be carried out with the door open.

SwingBolt, DeadBolt e LatchBolt
Provide power to the lock.
Turn boltwork handle towards OPEN position. Bolt must move freely.
Cut power to the lock.
Turn boltwork handle towards LOCKED position.

MotorLock
Provide power to the lock.
Activate the opening input. The lock will automatically open.
Turn boltwork handle towards OPEN position. Bolt must move freely.
In single input mode, after the opening time (8 sec by default) the bolt get released and pushed out by the internal springs as soon as the boltwork get moved in LOCKED position.
In two inputs mode, activate the closing input: the bolt get released and pushed out by the internal springs as soon as the boltwork get moved in LOCKED position.
Turn boltwork handle towards LOCKED position.

Motor LatchBolt
Provide power to the lock.
Activate the opening input. The lock will automatically open.
Pull the door to open.
In single input mode, after the opening time (8 sec by default) the bolt get released and pushed out by the internal springs.
In two inputs mode, activate the closing input: the bolt get released and pushed out by the internal springs.
Push the door to close.

The lock bolt must fully extend and secure.
Make sure there is an air space on all sides of the lock bolt when the safe's boltwork is fully thrown into LOCKED position.

Repeat functional test several times before locking the safe door.

Failure to follow these installation instructions or opening the lock by personnel not authorized by Tecnosicurezza will void the warranty.

NOTE

Electromechanical locks

NOTE

Correct disposal of this product:

(Waste Electrical & Electronic Equipment)

Applicable in the European Union and other European countries with separate collection systems.

This marking displayed on the product or its literature indicates that it should not be disposed with other wastes at the end of its working life.
To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Contacts

GLOBAL HEADQUARTERS

Tecnosicurezza SpA

Via Cesare Battisti, 276

37057 San Giovanni Lupatoto
Verona

Tel.+39 045 826 64 70

Fax. +39 045 826 64 69

info@tecnosicurezza.it
service@tecnosicurezza.it
infotecnosicurezza@pec.it

USA HEADQUARTERS

Tecnosicurezza Inc.

133, Trade Street- Suite 4

Lexington, KY 40511

Tel.+1 859 682 50 25

info.usa@tecnosicurezza.it

SPAIN HEADQUARTERS

Tecnosicurezza Sa

C/Menor, 4 - Nave 10
Pol. Ind La Mina
28770 Colmenar Viejo
SPAIN

Tel.+34 91 804 33 91

Fax.+34 91 804 32 63

info-es@tecnosicurezza.it