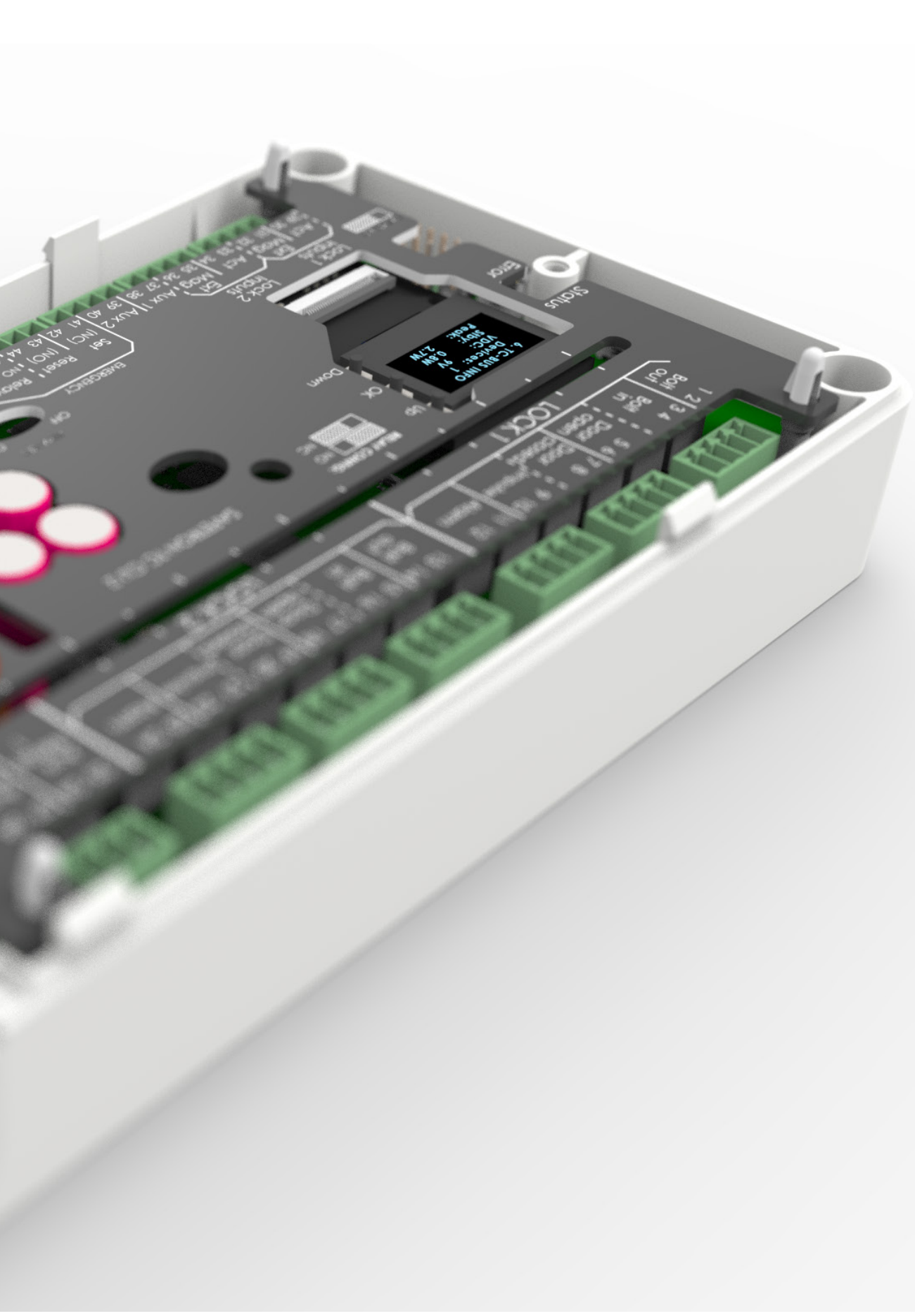
SAFE TRON
ELECTRONIC LOCKS



20211129

Instruction manual

CONTROL UNIT CU2

CONTENTS

IMPORTANT NOTICE

SAFETRON motor lock and strike plates is intended for use by the general public where there is more incentive to be careful and where there is a high risk of abuse, such as doors in public buildings. Intended for doors up to 200 kg door mass, 15 N maximum closing force.

- Before installing the lock check that the door hangs properly and that the door blade runs freely. It is not advisable to install Safetron motor lock in doors with a hollow core. Check that the door's design allows mounting of the motor lock, for example, through the control of offset hinges, that the door leaf meshing together can be opened simultaneously. The gap between door leaf and frame should be 3 mm +/- 1mm, check that no moving parts affect each other.
- SAFETRON motor lock may be installed in single or double leaf doors of wood, steel or aluminum.
- NOTE Motor lock manufactured according to EN 14846: 2008 provides a high degree of safety and reasonable security provided that they are mounted on the doors and frames in good condition.
- Care shall be taken to ensure that any seals or weather-stripping fitted to the complete door assembly does not inhibit the correct operations of the electrical operated lock or striking plate.
- Ensure that the lock and strike plate model is suitable for the intended door (see product catalog)
- Installation method does not differ between different types of doors, type, wood / metal.
- SAFETRON motor lock is not intended for use on double action doors (revolving door).
- Established fixing instructions must be followed carefully during installation. These instructions and any maintenance instructions must be passed on by the installer to the user.
- Check bolt heads and keepers so that in the withdrawn position does not prevent the door opening and closing function (see Maintenance Instructions)
- Where motor lock mounted on double doors (double doors) requires door closers are used as the door coordinator of EN 1158 (see standard) to ensure the correct closing sequence.
- All components are specified for the installation shall be fitted in order to ensure compliance with this European standard SS-EN 14846:2008.
- Fire grade in accordance with test rapport: 8P05049-2. The test was conducted with a steel single door.
- For use in fire doors Motor lock 6200 must be used with certified doors.

INSTALLATION MANUAL FOR SAFETRON MOTOR LOCK 6000

Warning!

The safety capacity of the product is vital for the compliance to EN 14846:2008. Modifications and other changes in installation/product beyond what is written in this manual is not allowed.

SAFETRON take no responsibility for product that is not installed properly due to current instruction or following of maintenanceinstructions.

SPECIFICATIONS

Safetron motorlock serie 6000 is tested and certified according to SS-EN 14846:2008, SS-EN 179:2008 and SSF 3522 class 2B, 3, 4, 5

Safetron slutbleck i 6000 serien är testade och certifierade enligt EN 12209 samt SSF 3522, klass 5.

Motorlock 6100, 6300 and 6500 meets following requirement according to SS-EN 14846:2008

1	2	3	4	5	6	7	8	9
Category of use	Durability and load on latch bolt	Door mass and closing force	Suitability for use on fire / smoke doors	Safety	Corrosion resistance and temperature	Security and drill resistance	Security electrical function	Security electrical manipulation
3	C	8	0	0	J	7	1	3

Motorlock 6200 and 6600 meets following requirement according to SS-EN

1	2	3	4	5	6	7	8	9
Category of use	Durability and load on latch bolt	Door mass and closing force	Suitability for use on fire / smoke doors	Safety	Corrosion resistance and temperature	Security and drill resistance	Security electrical function	Security electrical manipulation
3	X	8	D	0	J	7	1	3

Emergency exit device 795 and 796 meets following requirement according to SS-EN 179:2008

1	2	3	4	5	6	7	8	9
Category of use	Durability and load on latch bolt	Door mass and closing force	Suitability for use on fire / smoke doors	Safety	Corrosion resistance and temperature	Security	Projection of operating element	Type of operation
3	7	6	1	1	3	5	2	A

Strikeplate specifications

Strike plates:
106-1, 106-2, 106-3, 106-4, 106-5, 106-6,
107-1, 107-2, 107-3, 107-4, 107-5, 107-6, 107-7, 107-8

For doors up to 200 kg.
Maximum doorgap for linked function is 6 mm.
Installed with sidelong screws for maximum holding force.
Use setscrew that is intended for the doorframe.
Adjust strikeplate 1-2 times/year to maintain best funktion.

Door

Max weight: over 200 kg
Max closing force: 15 N
Max door gap: 6mm

Lock

SAFETRON 6100
SAFETRON 6200
SAFETRON 6300
SAFETRON 6500
SAFETRON 6600

RECOMMENDATIONS UPON INSTALLATION

- Read and follow the installationmanual.
- Motor lock should be used primarily electronically for best function.
- Service like tex. adjustment and lubricate shall be made by an certificated installer.

CALCULATION OF CABLE DIMENSIONS

Avoid the use of data/tele/signal cables (singel conductor) with cablearea between 0,1 - 0,2 as an powersupply for the motorlock. Safetron cannot guarantee proper function in case of not following these recommendations. Se schedule below.

Recommended minimum cable dimension between power supply and the control unit

Cable length	0-10m	11-20m	21-40m	61-80m	81-100m
12-24 VDC	0,17mm^2	0,34mm^2	0,68mm^2	1,36mm^2	1,7mm^2

NOTICE

It is important that powersupplie for the Control unit has the right cable dimention, to prevent power falure that interfear with the funktion. Installation with more then one unit such as lock/access control/ card reader/control units, the total powersupplie must be concidered in calculation of cableareas.

SSF 3522

To meet the requirements of SSF 3522 lock class 3, 4 and 5 you have to activate the SSF 3522 function in the display of control unit: Menu 20. SSF 3522 : **Enabled : YES**.

The control unit should also be installed in a minimum lock class 3 secured area.

Activation of the SSF 3522 mode implicate following adjustment of the relay output:

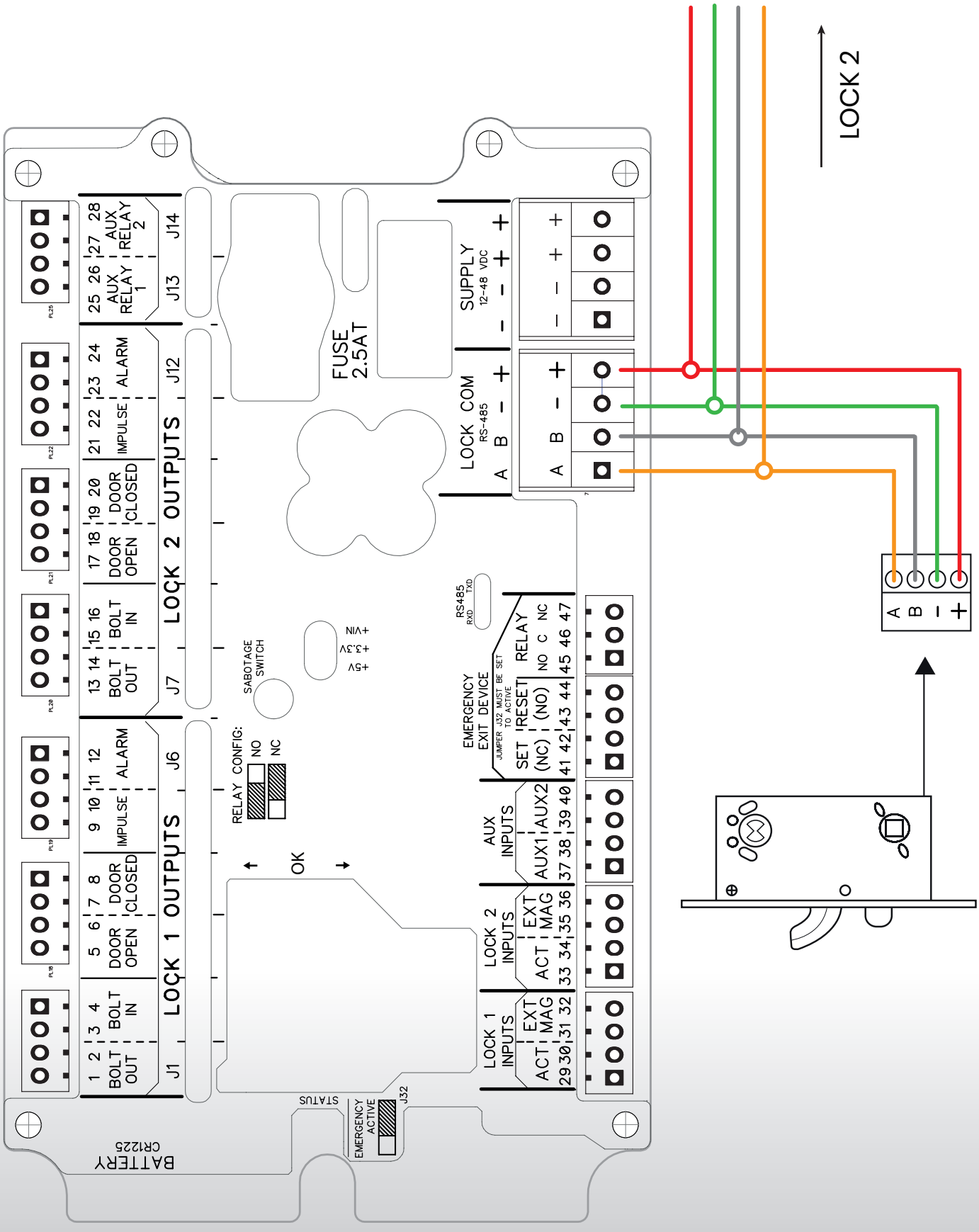
- Lockbolt out active indikating 7 sec. Default setting: 10s
- Lockbolt in (unlocked) active indicating 7 sec. Default setting: 10s
- Alarm active indikating 30 sec. Default setting: 30s
- Opening time of activation 10 sec. Default setting: 10s

Separate output for acoustic indicator that indicate if the blocking bolt or other blocking elements is prevented in the exchange between full locked position, unlocked position or not dead locked. This output should activate minimum 2 sec after the blocking bolt or other blocking elements should have been in its end position, and be activated minimum 30 sec maximum 2 min. This output will be switched of if the blocking bolt or other blocking elements reaches full locked position.

NOTICE

All components of the ”lock unit” (lockcase, strikeplate and reinforcing plate) must have the same classification according to SSF 3522.

TERMINAL LAYOUT



CONNECTING ONE MOTOR LOCK

1 **CONNECTING LOCK CASE**
Connect the lock case to the control unit via the terminal block on the back of the lock case.
The cable is then connected to terminal block **LOCK COM** on the control unit where power supply +/- and communication A and B are found. Correspond wires to the correct position on both lock case and control unit.

The terminal block on the lock case has an self-locking mechanism but can be assisted through pressing down the release button.

2 **POWER SUPPLY**
Power supply is connected to the terminal block marked **12-48V AC/DC**

3 **INITIALIZATION**
Initialization is made automatically when connecting.

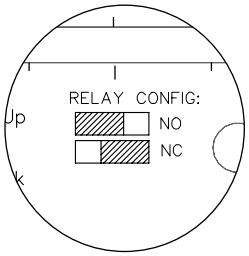
4 **ACTIVATION**
Activation through closed circuit on terminal block 29-30.

5 **RELAY OUTPUTS**

1-2	**Bolt out**	Activated when the bolt is out in the locked position
3-4	**Bolt in**	Activated when the bolt is in in the unlocked position
5-6	**Door open**	Controlled through the built-in magnetic door sensor
7-8	**Door closed**	Controlled through the built-in magnetic door sensor
9-10	**Impuls**	Closes the circuit upon activation, for e.g. electric strikes
11-12	**Alarm**	Activated when the bolt is blocked or door is open (activate in menu 4)
25-26	**AUX 1**	Programmable relay outputs, see page 11

6 **ADJUSTING RELAY NO/NC**
Relay outputs can be set in either NO or NC. Default setting is NO.

NO: move the short circuit jumper to the two most left pins
NC: move the short circuit jumper to the two most right pins

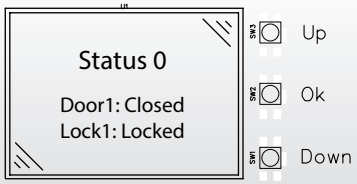


INSTALLATION OF OLDER 6000 (MFD BEFORE 2020-09)

In order to use control unit TC CU2 with older motor locks in the 6000-series the communication settings have to be altered. This is done through the motor locks display.

MOTOR LOCK 6000 WITH FIRMWARE 2.16>

1. **Meny 10** **Dev reset** **select YES**
   This shall be done if the motor lock has previously been used with another control unit and where initialization needs to be broken. New installations does not require this step.
2. **Meny 2** **COMM SET** **select Mode: OSDP**
   Switch the Com mode from TCDP to OSDP. When this is done the motor lock can be connected to TC CU2.



MOTOR LOCK 6000 WITH FIRMWARE 2.11-2.15

1. **Meny 10** **Dev reset** **select YES**
   This shall be done if the motor lock has previously been used with another control unit and where initialization needs to be broken. New installations does not require this step.
2. **Meny 2** **LOCK MODE** **select OSDP**
   Change the lock mode from TC to OSDP
3. **Meny 4** **COM SETTINGS** **select Adress 1**
   The adress will be pre-selected to 3, change to address 1. The motor lock can now be connected to TC CU2.

CONNECTING TWO MOTOR LOCKS

1 **CONNECTING LOCK CASE**
Connect the lock case to the control unit via the terminal block on the back of the lock case.
The cable is then connected to terminal block **LOCK COM** on the control unit where power supply +/- and communication A and B are found. Correspond wires to the correct position on both lock case and control unit.

Use the same cable within a single door or use two seperate cables.

The terminal block on the lock case has an self-locking mechanism but can be assisted through pressing down the release button.

2 **POWER SUPPLY**
Power supply is connected to the terminal block marked **12-48V AC/DC**

3 **MOTOR LOCK ADRESSES**
Adress the motor locks as Adress 1 and Adress 2 for the seperate motor locks. This is done in the lock case display under **menu 4: TC SETTING**. If both locks has same adress this must be changed.

The default setting is always Adress 1

4 **INITIALIZATION**
Initialization is made automatically when connecting.

5 **ACTIVATION**
Activation through closed circuit on seperate terminal blocks:

Lock 1: terminal 29-30
Lock 2: terminal 33-34

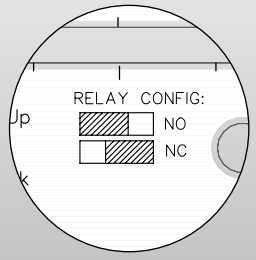
6 **RELAY OUTPUTS**
Both motor locks has each seperate relay output on their designated outputs section.

Lock 1		
1-2	**Bolt out**	Activated when the bolt is out in the locked position
3-4	**Bolt in**	Activated when the bolt is in in the unlocked position
5-6	**Door open**	Controlled through the built-in magnetic door sensor
7-8	**Door closed**	Controlled through the built-in magnetic door sensor
9-10	**Impuls**	Closes the circuit upon activation, for e.g. electric strikes
11-12	**Alarm**	Activated when the bolt is blocked or door is open (menu 4)
25-26	**AUX 1**	Programmable relay outputs, see page 11

Lock 2		
13-14	**Bolt out**	Activated when the bolt is out in the locked position
15-16	**Bolt in**	Activated when the bolt is in in the unlocked position
17-18	**Door open**	Controlled through the built-in magnetic door sensor
19-20	**Door closed**	Controlled through the built-in magnetic door sensor
21-22	**Impuls**	Closes the circuit upon activation, for e.g. electric strikes
23-24	**Alarm**	Activated when the bolt is blocked or door is open (menu 4)
27-28	**AUX 2**	Programmable relay outputs, see page 11

7 **ADJUSTING RELAY NO/NC**
Relay outputs can be set in either NO or NC. Default setting is NO.

NO: move the short circuit jumper to the two most left pins
NC: move the short circuit jumper to the two most right pins

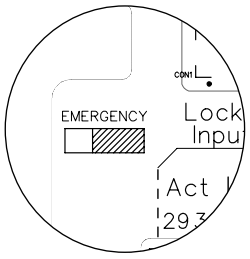


TERMINAL DESCRIPTION

Terminal	Name	Description
1-2	Bolt out	Activated when the bolt is out in the locked position
3-4	Bolt in	Activated when the bolt is in in the unlocked position
5-6	Door open	Controlled through the built-in magnetic door sensor
7-8	Door closed	Controlled through the built-in magnetic door sensor
9-10	Impuls	Closes the circuit upon activation (eg electric strikes)
11-12	Alarm	Activated when the bolt is blocked or door is open
13-14	Bolt out (lock 2)	Activated when the bolt is out in the locked position
15-16	Bolt in (lock 2)	Activated when the bolt is in in the unlocked position
17-18	Door open (lock 2)	Controlled through the built-in magnetic door sensor
19-20	Door closed (lock 2)	Controlled through the built-in magnetic door sensor
21-22	Impuls (lock 2)	Closes the circuit upon activation (eg electric strikes)
23-24	Alarm (lock 2)	Activated when the bolt is blocked or door is open
25-26	Aux relay 1	Programmable relay outputs, see page 11
27-28	Aux relay 2	Programmable relay outputs, see page 11
29-30	Activation (lock 1)	Activation through closed circuit
31-32	External magnet (lock 1)	Input for external magnet
33-34	Activation (lock 2)	Activation through closed circuit
35-36	External magnet (lock 2)	Input for external magnet
37-38	Aux relay 1	Programmable relay outputs, see page 11
39-40	Aux relay 2	Programmable relay outputs, see page 11
41-42	Re-entry	Input from emergency exit device
43-44	Reset, re-entry	Reset when re-entry is activated
45-47	Alarm (re-entry)	Alarm (NO/NC) when emergency lever is activated
48-50	RS-485	Connect the motor lock through RS-485

ACTIVATE RE-ENTRY FUNCTION

To activate the re-entry funtion the short circuit jumper labeled **'EMERGENCY'** needs to be moved to the two pins on the far right according to the figure attached.



Connect the **red and black (NC)** cables coming from the emergency exit device to the control unit on terminal block 41-24. Now the motor lock will remain unlocked if the emergency exit device has been used to open the door.

Reset is made through closed circuit on terminal block 43-44.

REPLACE UNITS

Replace lock case
In order to replace the motor lock case the old unit needs to be unpaired. This is done in the control unit display menu **3: COMM SET**. Select **Device: unpaired**. A new motor lock can now be installed.

Replace control unit
In order to replace the control unit the same procedure as above is required but in the motor lock case display. Also to counter any manipulation the bolt has to be unlocked and the door magnet has to be inactive.

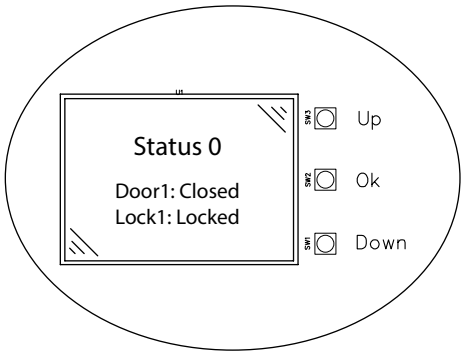
1. Bolt has to be unlocked
2. Ensure the door magnet is inactive
3. Go to menu **3: COMM SET**, select **Device:** change to '**Unpaired**'. A new control unit can now be installed with the motor lock.

MENU ITEMS CONTROL UNIT

DISPLAY

Our control units are equipped with a display that can be navigated to ease with configuration and status output.

Toggle the menu with the buttons marked **'UP'** and **'DOWN'**.
The button **'OK'** enters selected menu and also confirms any changes.



Bold text indicates factory settings.

NO	MENU	VARIABLES	DESCRIPTION
1	Status	Status: **0** | 1 Door: Open | Closed Lock: Locked | Unlocked	**Status 0 :** Unpaired BUS. No units initialized. **Status 1 :** Paired BUS. Units initialized (auto after 12h) **Door1 :** Door status on lock 1 **Lock1 :** Lock status on lock 1
2	Date / time	HH:MM DD-MM-YY	Current time and date, factory setting is GMT+1. Can be set by pressing **'OK'** and toggle time/date.
3	Com set	BUS : **Unpaired** | Paired InterF : **TC-Bus** | RS-485	**BUS :** Indicates initialization status. Perform manual initialization by pressing **'OK'** and then toggle to **'Paired'**. When replacing an unit you toggle from 'Paired' to **'Unpaired'** to allow for a new unit to be installed. **InterF :** Sets communication port. Choose between TC-BUS and RS485 which are both supported on the control unit through seperate terminal blocks.
4	Lock1 timer (lock 1)	Open Tmr : **4s** | 0-30s Bolt Dly. : **1,5s** | 0,5-5,0s ManL. Dly. : **0s** | 0-30s Door Lrm. : **0s** | 10-120s	**Open Tmr :** Open time from activation until re-lock. **Bolt Dly. :** Time delay from when the door has been closed until the bolt is locked. **M.Un.Dly. :** Time delay from when the lock is manually unlocked using key or thumb turn. **Door Lrm. :** Door alarm for open door. Factory setting is **0s** which means inactive alarm.
5	Lock2 timer (lock 2)		Same as menu 4 for lock2
6	Inputs	Act1 : **NO** | NC Ext1 : **NO** | NC Act2 : **NO** | NC Ext2 : **NO** | NC	**Act1 :** Activation lock 1. Adjustable NO / NC **Ext1 :** Input for ext. magnet for lock 1. Adjustable NO / NC **Act2 :** Activation lock 2. Adjustable NO / NC **Ext2 :** Input for ext. magnet for lock 2. Adjustable NO / NC

Continues on the next page...

MENU ITEMS CONTROL UNIT

Bold text indicates factory settings.

NO	MENU	VARIABLES	DESCRIPTION
7	AUX inputs	Aux1 : **NO** | NC Aux1 : **Disabled** | Function Aux2 : **NO** | NC Aux2 : **Disabled** | Function	**Aux1 :** AUX inputs for lock 1. Adjustable NO / NC **Aux1 :** Choose function for lock 1: • **Dayblock :** Upon closed circuit the lock is held unlocked after the first activation until this circuit has been released • **Timer :** Activates the lock. Has no open time and doesn't affect impuls relay • **ActivAll :** Synchronized activation of lock 1 and 2 • **ClrError :** Reset of all error codes upon closed circuit • **ClrWarn :** Reset of all warnings upon closed circuit **Aux2 :** AUX inputs for lock 2. Adjustable NO / NC **Aux2 :** Choose function for lock 2, same as above
8	AUX relays	Aux1 : **Disabled** | Function Aux2 : **Disabled** | Function	**Aux1 :** AUX outputs for lock 1. Adjustable NO / NC **Aux1 :** Choose function for lock 1: • **Sabotage :** Relay activates when control unit lid is opened • **Man. Unlk :** Relay is activated when the lock is manually unlocked. • **Blocked :** Relay is activated when the bolt is blocked • **Errors :** Relay is activated when there are error codes • **Warnings :** Relay is activated when there are warnings • **DoorLarm :** Relay is activated when door is held open longer than specified time in "Door Lrm." in menu 4 and 5 • **Openers :** Automatic door openers function, relay is activated upon activation and when the bolt is unlocked • **Vital C. :** Vital closed, relay is activated when door is closed and the bolt is locked • **Vital O. :** Vital open, relay is activated when door is open and the bolt is unlocked • **Service :** Relay is activated when the service interval is reached. The interval is set in menu 13 and 16 **Aux2 :** AUX outputs for lock 2. Adjustable NO / NC **Aux2 :** Choose function for lock 2, same as above
9	BUS info	VDC: Stby : Peak : Locks :	**VDC :** Voltage out on BUS. **Stby :** Power consumption in watts on BUS (standby) **Peak :** Maximum power consumption in watts on BUS **Locks :** Number of locks connected on the BUS
10	Dev reset	**No** | Yes	Reset function. Resets all settings to factory setting. The units initialized on the BUS becomes 'Unpaired'.

Fortsättning nästa sida

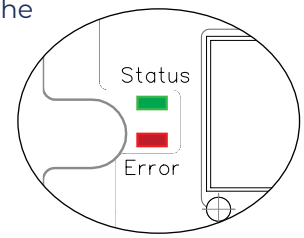
MENU ITEMS CONTROL UNIT

Bold text indicates factory settings.

NR	MENY	VARIABLER	BESKRIVNING
11	Lock1 info	S/N : F/W : H/W : M/N :	**S/N :** Serial number on lock case **F/W :** Firmware on lock case **H/W :** Hardware version on lock case **M/N :** Model number on lock case
12	Lock1 stats	VDC: Rh : C : Cycles :	**VDC :** Incoming voltage on lock 1 **Rh :** Current humidity on lock 1 **C :** Current temperature on lock 1 **Cycles :** Total number of locking cycles (bolt in/out=1 cycles)
13	Lock1 serv	Service : **NO** | Done Notify : **100000** | 10000-500000 Date : Cycles :	**Service :** Select 'Done' when service is complete, resets cycles **Notify :** Adjustable service interval. An alarm is triggered when the specified service interval is reached **Date :** Date of the last performed service **Cycles :** Number of cycles since last service
14	Lock2 info		Same as menu 11 but for lock 2
15	Lock2 stats		Same as menu 12 but for lock 2
16	Lock2 serv		Same as menu 13 but for lock 2
17	CU2 info1	S/N : F/W : H/W : M/N :	**S/N :** Serial number on the control unit **F/W :** Firmware on the control unit **H/W :** Hardware version on the control unit **M/N :** Model number on the control unit
18	CU2 info2	M/D : I/D :	**M/D :** Manufacturing date of the unit **I/D :** Installation date of the unit, auto set 12h after install
19	CU2 environ	VDC: Rh : C : Runtime :	**VDC :** Incoming voltage on the control unit **Rh :** Current humidity on the control unit **C :** Current temperature on the control unit **Runtime :** Runtime since last restart of the unit
20	SSF 3522	Enable : **NO** | YES Bolt out : **10s** | 1-15s Bolt in : **10s** | 1-15s Blocked : **30s** | 30-120s	**Enable :** Select 'YES' to activate SSF 3522 mode. **Bolt Out :** Time setting how long relay bolt out circuit is closed **Bolt in :** Time setting how long relay bolt in circuit is closed **Blocked :** Time setting how long alarm relay circuit is closed
21	Log error	Reset by pressing **'OK'**	Error log, se details on page 13
22	Log warn	Reset by pressing **'OK'**	Warning log, se details on page 13

ERROR MENU

The control unit logs all errors in menu 21 which is found in the display of the control unit.



Example

07:43:21	**32**	**1**
Time of error	Error code	ID

ERROR LOG (MENU 21)

Errors that require immediate attention. Error diod is lit when errors are present in the log

NO	ERROR	DESCRIPTION
10	PD Disconnected	Lock disconnected from the BUS
20	Overcurrent	Overcurrent on TCBUS-output. Max: 1.2A. Also could suggest short circuit
21	Low voltage	Triggered below 11V
22	High voltage	Triggered above 50V
23	Low humidity	Triggered below 4%
24	High humidity	Triggered above 90%
25	Low temperature	Triggered below -20°C
26	High temperature	Triggered above 70°C

WARNING LOG (MENU 22)

NO	ERROR	DESCRIPTION
31	Bolt blocked	Id is the adress of lock case
32	Door larm	Door open longer than set max time
33	Manipulation	Bolt manipulation. Triggered when bolt looses in/out status

ACCESSORIES

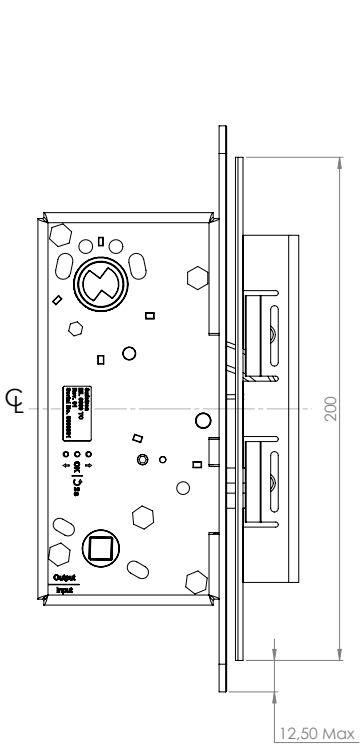
Description	Art no
Strikeplate 106-1 (12,5 mm)	202 144 753
Strikeplate 106-2 (15 mm)	202 144 754
Strikeplate 106-3 (19 mm)	202 144 755
Strikeplate 106-4 (20,5 mm)	202 144 756
Strikeplate 106-5 (Slim profile)	202 144 757
Connecting cable CO4, 10 m	202 144 710
Connecting cable CO4, 100 m	202 144 752
Emergency exit device 795H	202 144 785
Emergency exit device 795V	202 144 786
Emergency exit device 796H	202 144 778
Emergency exit device 796V	202 144 779

STRIKE PLATE OFFSET PLACEMENT

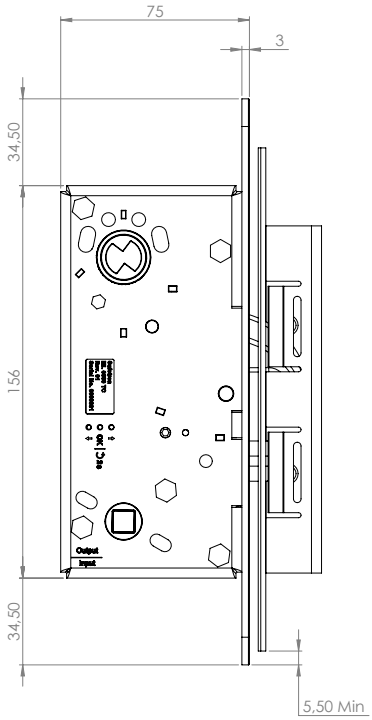
SAFETRON 6100, 6200, 6300

Recommended strike plate placement for motor locks 6100 and 6200 is measured from the under side of the lock face plate and strike plate: 7,00mm +5,5mm -2,5mm

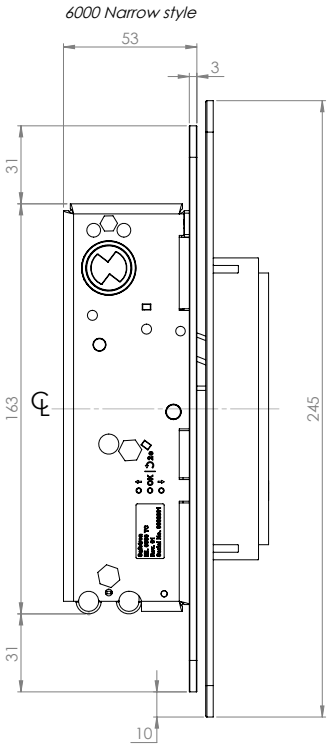
Recommended strike plate placement for motor lock 6300 is measured from the under side of the lock face plate and strike plate: 7,00mm +5,5mm -2,5mm 7mm +/- 3mm



SAFETRON 6100/6200

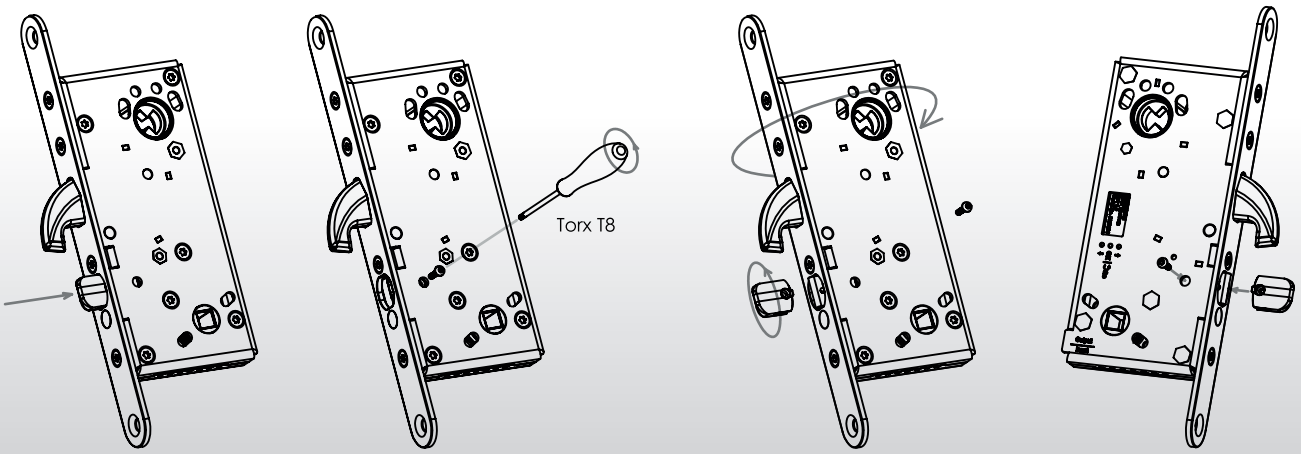


SAFETRON 6100/6200



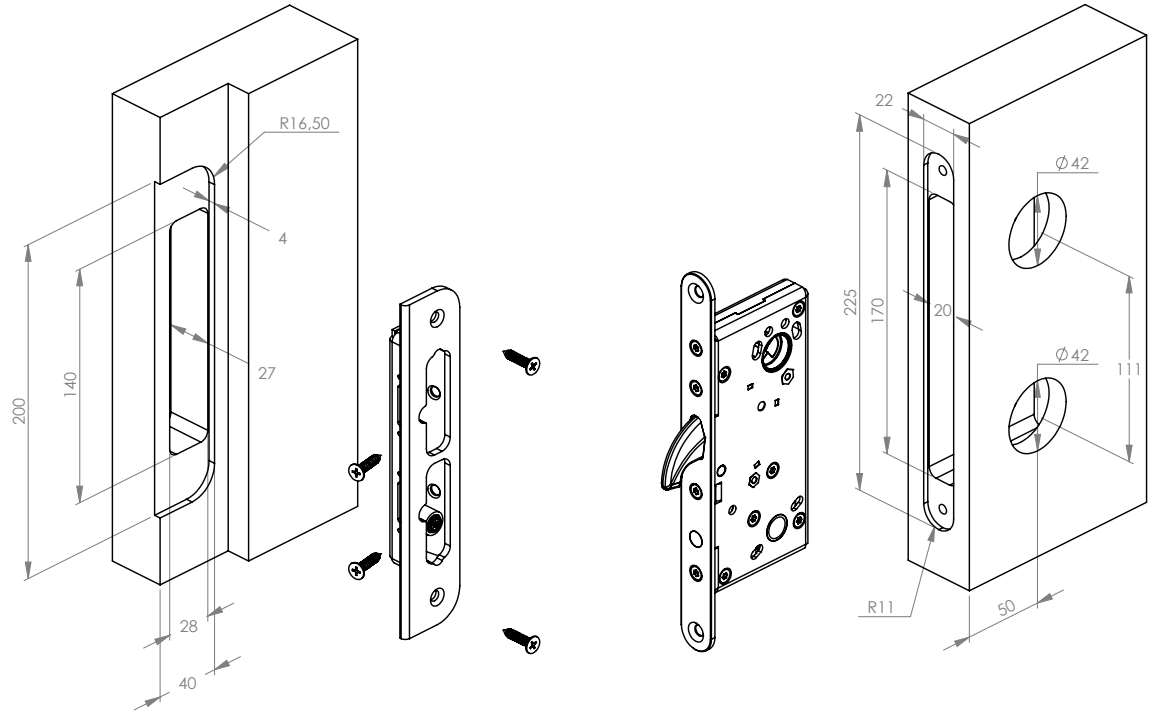
SAFETRON 6300

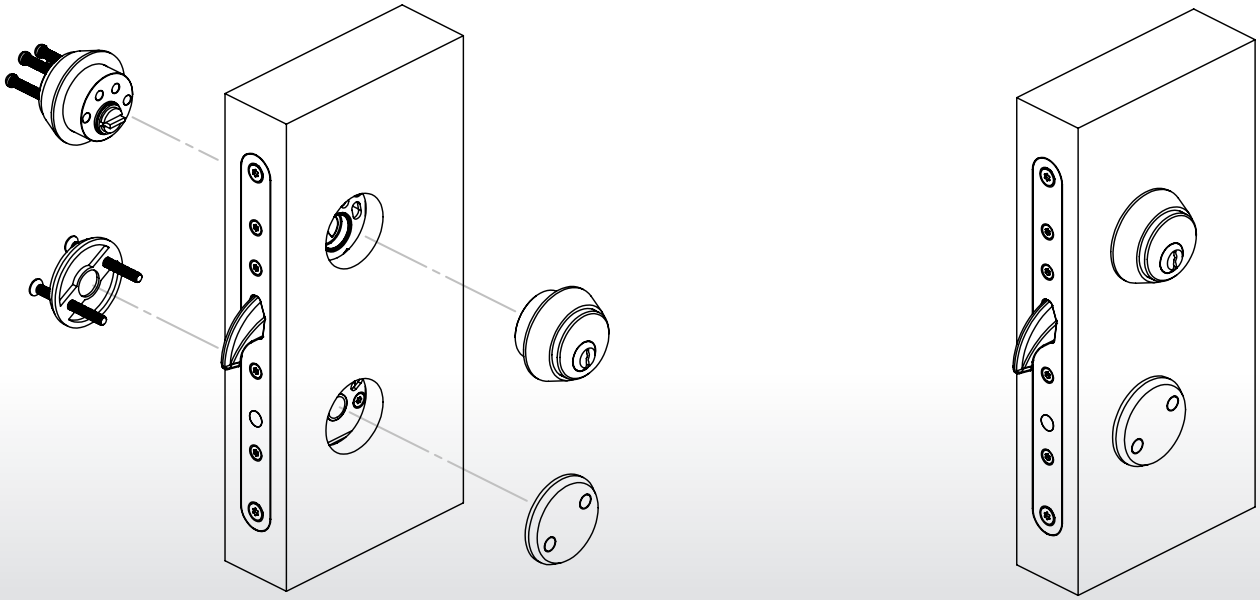
ADJUSTING LATCH BOLT (6200)



INSTALLATION OF LOCK CASE

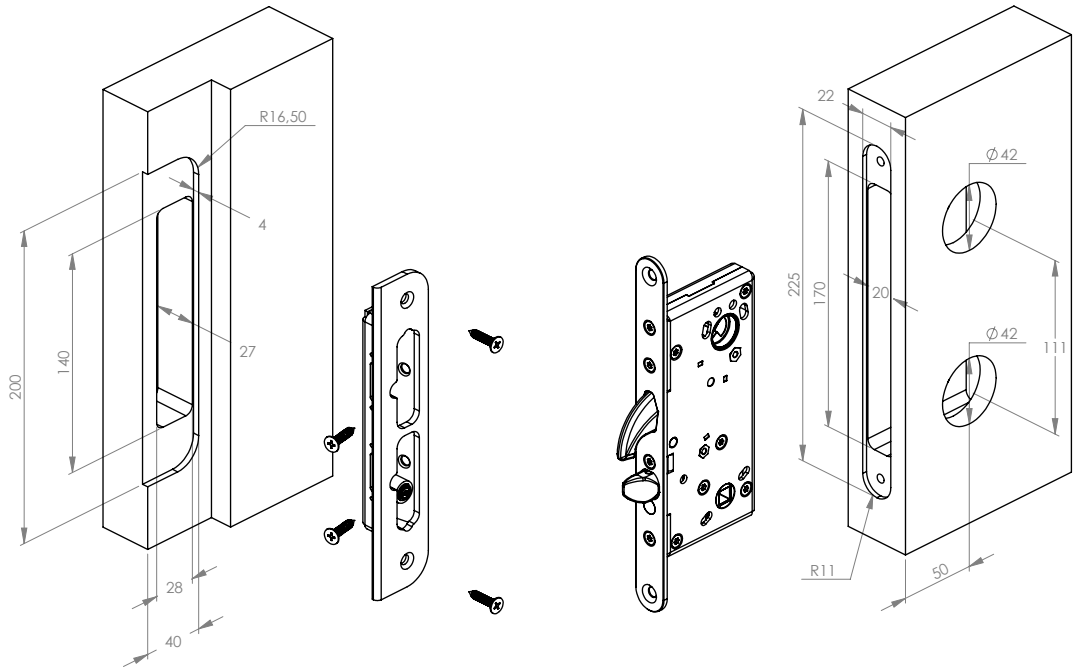
SAFETRON 6100

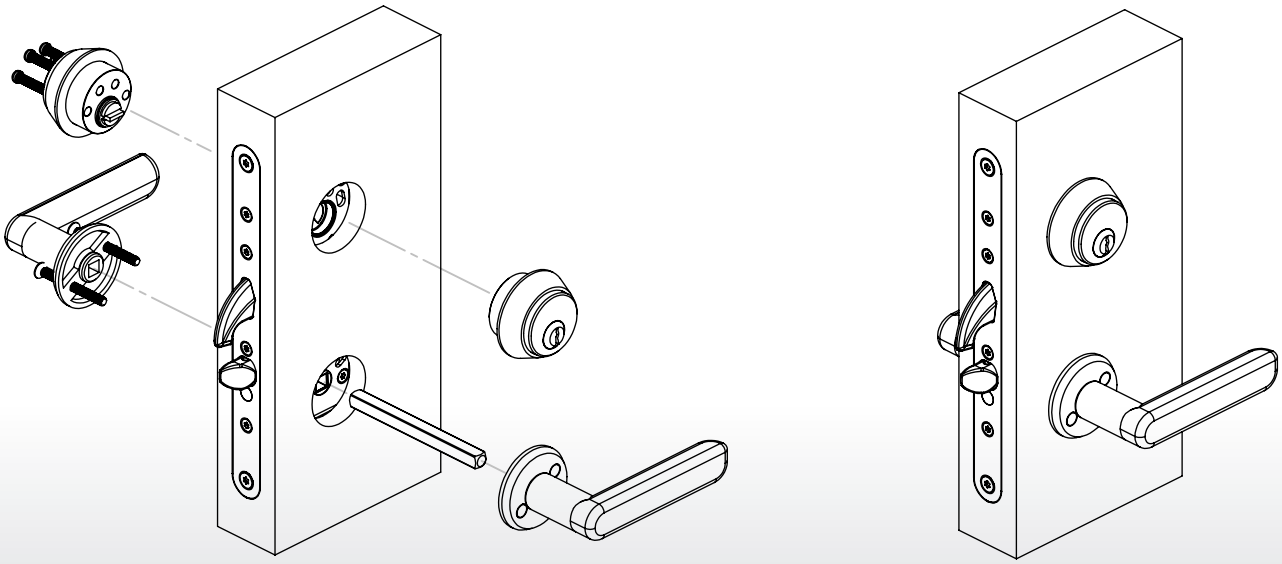




INSTALLATION OF LOCK CASE

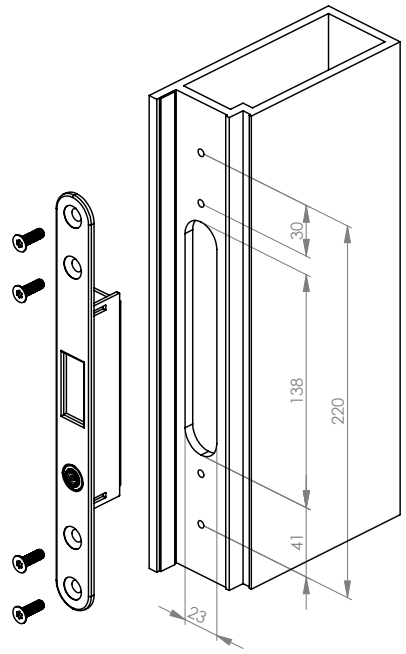
SAFETRON 6200

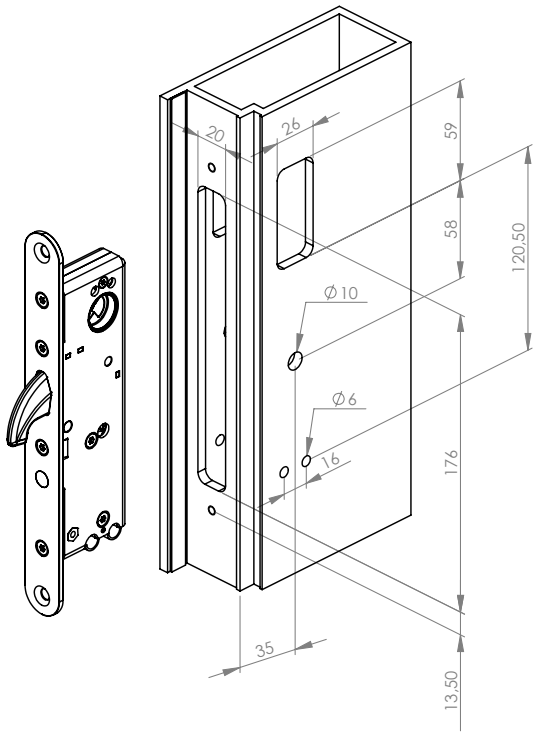


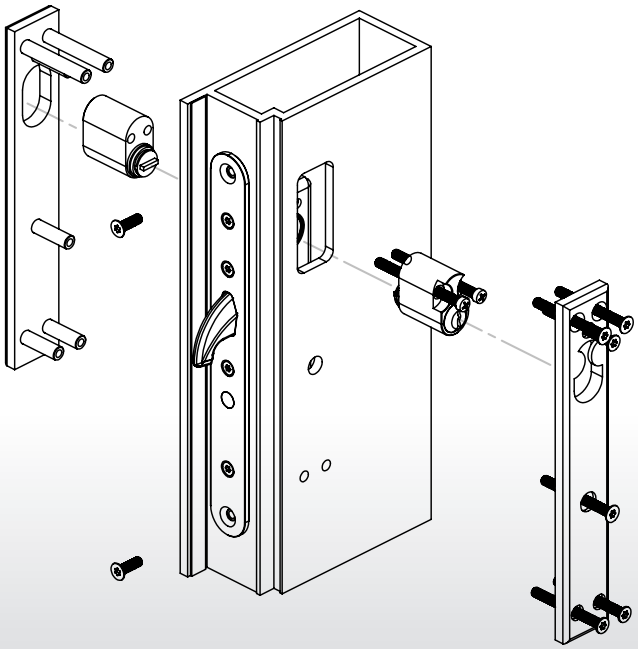


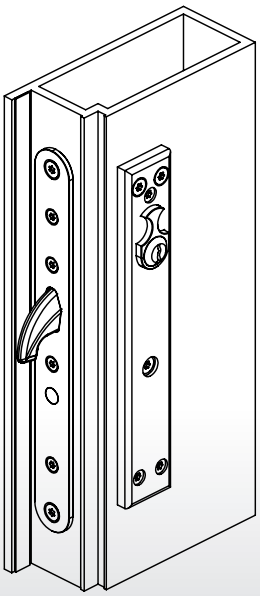
INSTALLATION OF LOCK CASE

SAFETRON 6300



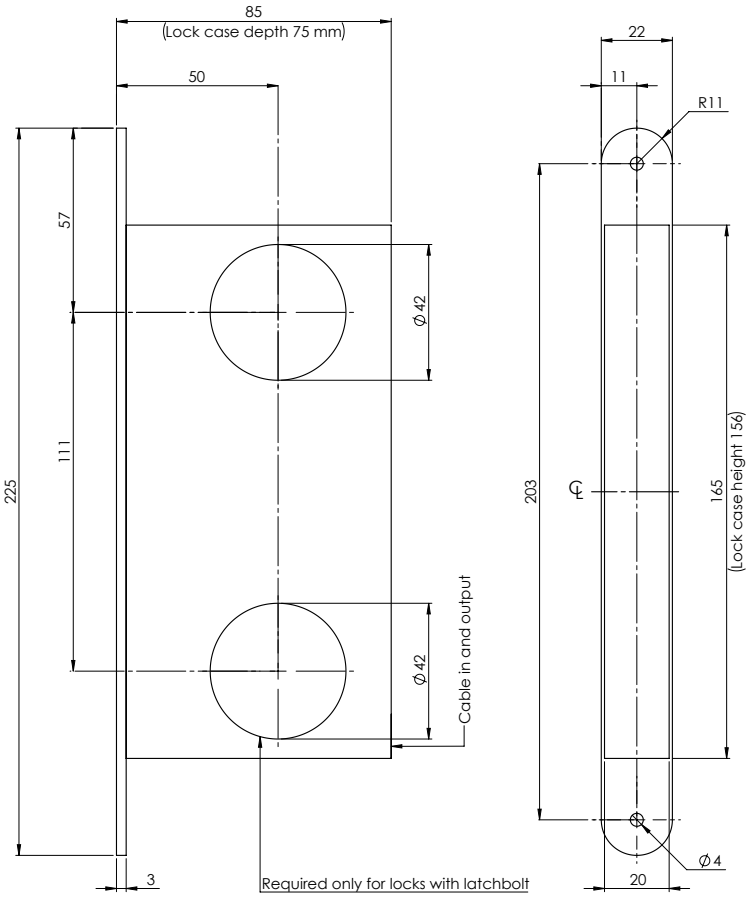




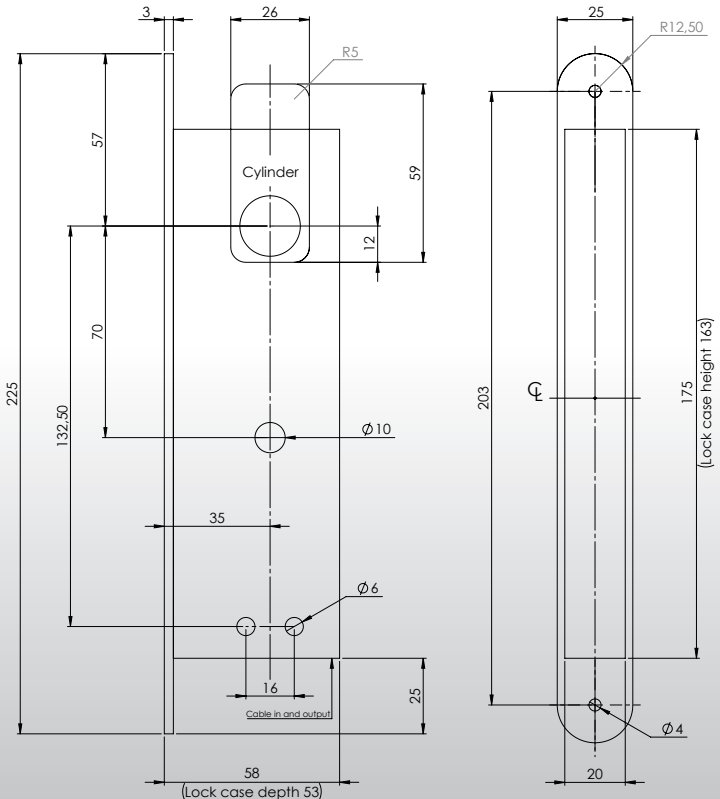


CUT OUT DRAWINGS

SAFETRON 6100 & 6200



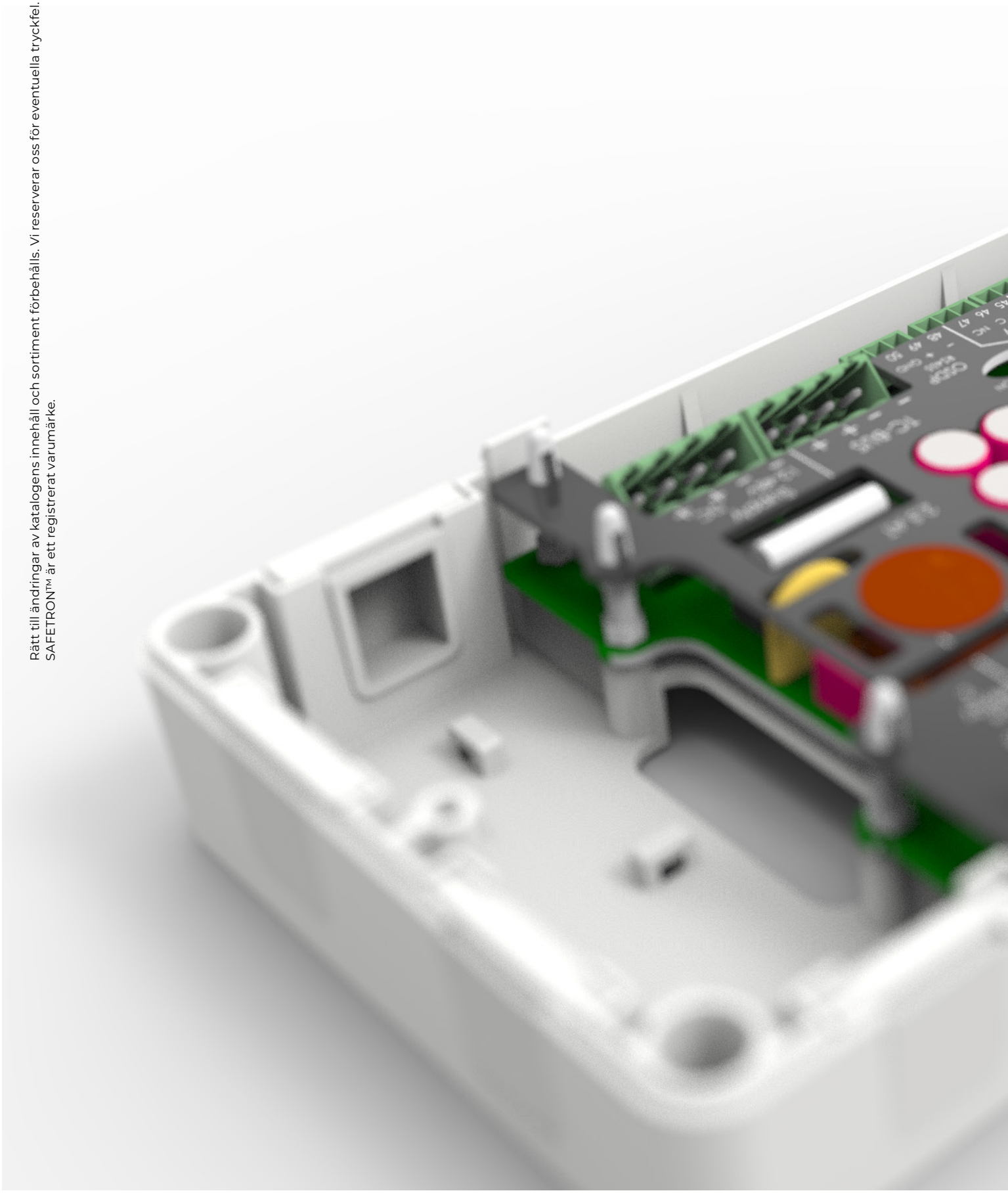
SAFETRON 6300



EN

MAINTENANCE SAFETRON MOTOR LOCK

- Maintenance should be performed by a trained professional
- Ensure that mounted knobs, handles and cylinders are working satisfactory
- Lubricate and make adjustments as necessary
- In normal use lubricate the lock housing mechanical parts once a year. Use a lubricant that does not contain graphite or solvents
- At high frequency use, lubricate mechanical parts as needed
- Lock housing electrical components are maintenance free
- Check that the door closes properly. If necessary adjust door hinges and/or door closers. A bad door function adversely affects locking



SAFETRON AB
Säterivägen 18
P.O. Box 2096
65002 Karlstad
Sweden

Tel: +46 54 19 02 45
info@safetron.com
www.safetron.com