

# SIEMENS



AR4xS-MF



AR1xS-MF

**AR10S-MF AR11S-MF AR40S-MF AR41S-MF**

## Installation and Mounting

Version 6.0

Data and design subject to change without notice. / Supply subject to availability.

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# 1 Introduction

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The AR10S-MF, AR11S-MF, AR40S-MF and AR41S-MF are a series of executive designed card readers for modern security. The encryption\*) is conducted via a protocol which ensures a high level of security, providing that the card reader and system are set to the secure mode. When the secure mode is activated, the communication from neither the reader nor the system they are connected to can be extracted. They are made of hardwearing materials and will endure most weather conditions. The readers are easy to mount and connect, and can be mounted on a flat surface or partly inside a back box. They can be cleaned with most kind of domestic detergents. All readers have a multicolour light frame. The AR40S-MF and AR41S-MF also have a keypad and a high contrast display.

*\*) Only valid for SiPass integrated MP2.65 – or later*

## 2 Technical data

	<b>AR10S-MF</b> Mifare card reader standard <b>AR11S-MF</b> Mifare card reader standard incl. UK adapter plate and extension cable	<b>AR40S-MF</b> Mifare card reader standard with keypad and display <b>AR41S-MF</b> Mifare card reader standard with keypad and display standard incl. UK adapter plate and extension cable
<b>Protocol</b>	OSDP	OSDP
<b>Interface to controller</b>	RS485	RS485
<b>Operating voltage</b>	8.5 – 30.0 VDC	8.5 – 30.0 VDC
<b>Power consumption</b>	DC 12V 43mA Peak 168mA DC 24V 26mA Peak 100mA	DC 12V 60mA Peak 220mA DC 24V 40mA Peak 125mA
<b>Tamper protection</b>	Yes	Yes
<b>Card technology</b>	Mifare	Mifare
<b>Card compatibility</b>	Mifare Classic Mifare Plus Mifare DESfire EV1	Mifare Classic Mifare Plus Mifare DESfire EV1
<b>Reading distance</b>	Up to 6 cm	Up to 6 cm
<b>Indicators</b>	3 x LED (red/yellow/green) 1 x Buzzer Multicolor light frame	3 x LED (red/yellow/green) 1 x Buzzer Multicolor light frame
<b>Keypad</b>	No	Yes
<b>Display</b>	No	Yes, graphic monochrome OLED
<b>Operating temperature</b>	- 40°C to + 55°C*	- 40°C to + 55°C*
<b>IP rating</b>	IP55**	IP55**
<b>IK class</b>	08	08
<b>Housing</b>	Zinc casted metal bezel with polycarbonate plastic front	Zinc casted metal bezel with polycarbonate plastic front
<b>Color</b>	Black, matt chrome	Black, matt chrome
<b>Dimensions (W x H x D)</b>	Surface mounted: 85 x 114 x 22 Back box mounted: 85 x 114 x 14	Surface mounted: 85 x 114 x 22 Back box mounted: 85 x 114 x 14
<b>Approvals</b>	CE according to R&TT and EMC Directives	CE according to R&TT and EMC Directives

\* Only applicable for surface mounted readers. Back box mounted readers are specified from -10°C to +55°C.

\*\* Only applicable for surface mounted readers. Back box mounted readers are specified to IP3X.

## 3 Safety regulations

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### General

- Follow all warnings and instructions marked on the device.
- Keep this document for reference purposes.
- Please take into account any additional country-specific, local laws, safety standards or regulations concerning installation, operation and disposal of the product.

### Liability claim

- Do not make any changes or modifications to the device.
- Use only spare parts and accessories that have been approved by the manufacturer.

## 3.1 Standards and guidelines

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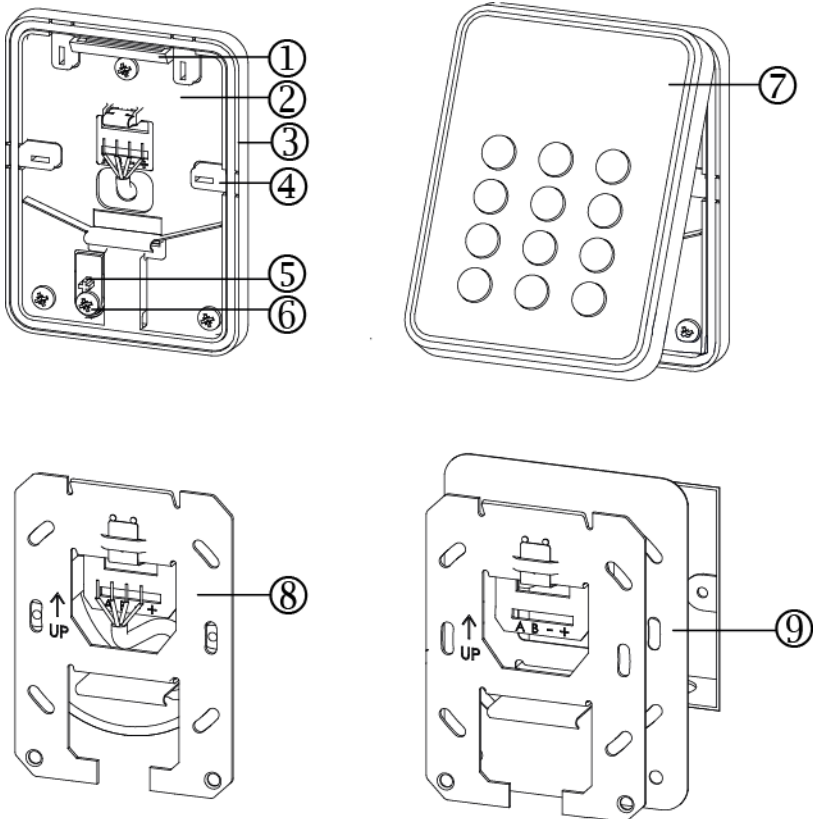
### European directives

Siemens Security Products hereby declares that this product is in compliance with the essential requirements and other relevant provisions of Directive 2004/108/EC on Electromagnetic Compatibility (EMC).

The EC Declaration of Conformity is available from your Siemens sales office or:

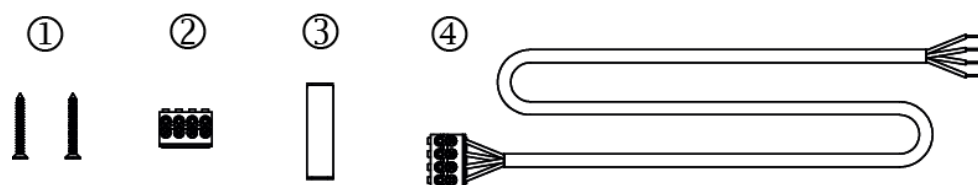
Siemens AB  
Englundavägen 7  
SE-171 24 Solna  
Sweden

# 4 Reader components



- 1. Hinge
- 2. Base
- 3. Cord gasket
- 4. Knock outs x 4
- 5. Tamper base
- 6. Screw for removal from wall tamper protection
- 7. Front
- 8. Back box plate
- 9. Adapter plate (AR11S-MF, AR41S-MF)

#### 4 Reader components



1. Screws for back box plate
2. Connector
3. Opening tool – please note that this is a symbolic depiction of the opening tool
4. Extension cable (AR11S-MF, AR41S-MF)



## 5 Mounting and connecting

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The reader enables two different mounting alternatives: surface mounted and back box mounted. Those come in two different varieties, depending on how the wires are fed or which kind of back box is used. The reader is delivered with components to support the two mounting alternatives. Please note that the alternatives only require some of the different components. Before mounting the reader, identify the parts which are needed for the appropriate alternative.

Please refer to respective page for:

- *Surface mounted reader* [ > 10]– the reader is mounted on the base, which first is fastened on a wall.
- *Surface mounted reader with cables fed from outside* [ > 11] – the reader is mounted on the base and the cables are connected via one of the knock outs.
- *Back box mounted reader* [ > 13]– the reader is partly mounted inside a back box in a wall. The two extra screws prevent the reader from rotating.
- *Back box mounted reader with adapter plate* [ > 14] – The reader is partly mounted inside a square back box and an adapter plate is used to widen the area for mounting the reader.

For connecting the cables to the reader, please refer to:

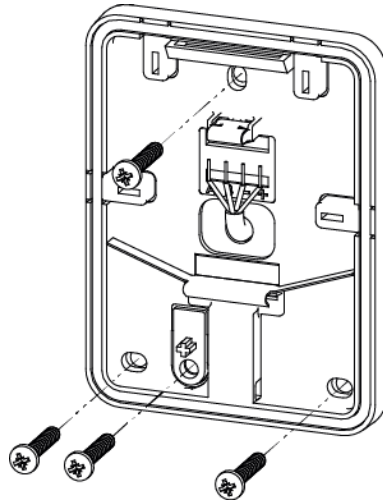
- *Connecting the cables* [ > 15].

## 5.1 Surface mounted reader

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Use drills and screws appropriate for the surface which the reader is to be mounted upon. The surface should be flat to ensure a close fit. To attach the base to the wall:

1. Make a small hole in the base gasket. The cables will be pushed through this hole.
2. Attach the base to the wall with three screws: one in the middle at the top of the base, and two in the corners at the bottom of the base.

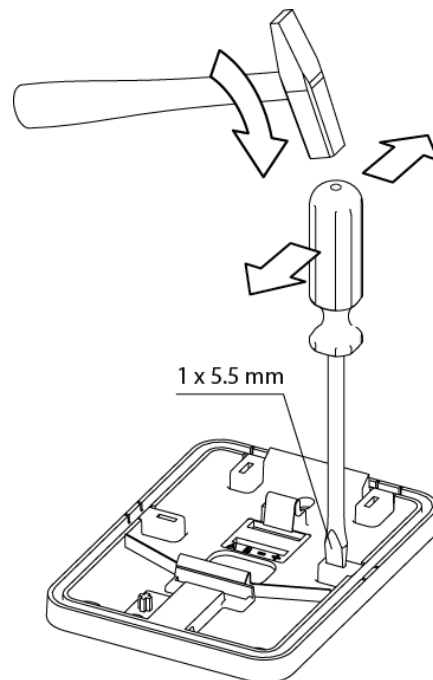


3. In case that the removal from wall tamper protection is required, fix the screw into the hole under the tamper base. Ensure to not use excessive force since this can damage the tamper base.
4. Continue to follow the instructions *Connecting the cables* [ > 15].

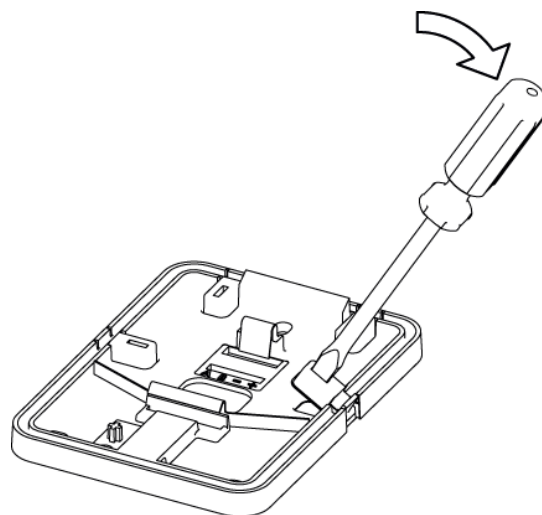
## 5.2 Surface mounted reader with cables fed from outside

Should the cables be fed from outside:

1. Remove the cord gasket from the base.
2. Identify which of the knock outs the cables should be fed through.
3. Insert the flat head screw driver in the pocket of the knock out.
4. Hammer the screw driver handle. This will create enough pressure to crack the exact area of the base which will release the knock out.
5. Tilt the knock out with the screwdriver.

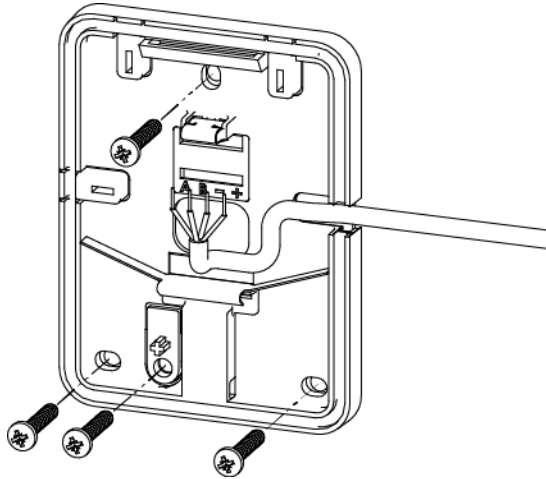


6. Pull the knock out away from the base.



## 5 Mounting and connecting

7. Attach the base to the wall with three screws: one in the middle at the top of the base and two in corners at the bottom of the base.



8. In case that the removal from wall tamper protection is required, fix the screw into the hole under the tamper base. Ensure to not use excessive force since this can damage the tamper base.
9. Feed the cables through the opening and reinsert the cord gasket. Proceed to the instructions for *Connecting the cables* [ > 15].



It is recommended to seal the gap which the knock out creates. Please note that a reader with a removed knock out is not IP 55.

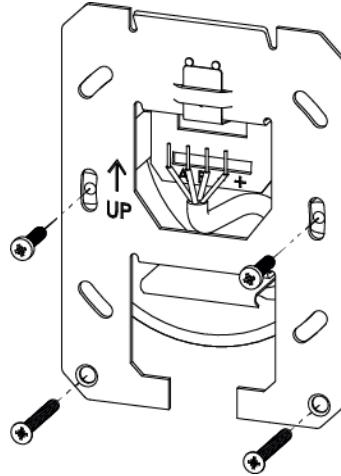
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### 5.3 Back box mounted reader

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The reader is mounted on a back box which is attached with two extra screws.

1. Mount the back box plate on to the back box.



2. Attach the extra screws at the lower part of the back box plate in order to prevent rotation.



Use only the screws included in the packet for the lower part of the base since those ensure that the reader front will fit perfectly to be securely fitted over the back box.

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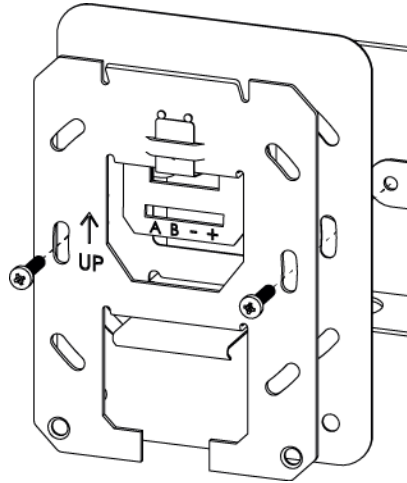
3. Continue to follow the instructions for *Connecting the cables* [ > 15]

## 5.4 Back box mounted reader with adapter plate

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For certain square back boxes, please use the adapter plate in order to widen the area for mounting:

1. Place the back box plate on top of the adapter plate.
2. Attach the base and adapter plate with two screws on the side.



3. Continue to follow the instructions for *Connecting the cables* [ > 15]



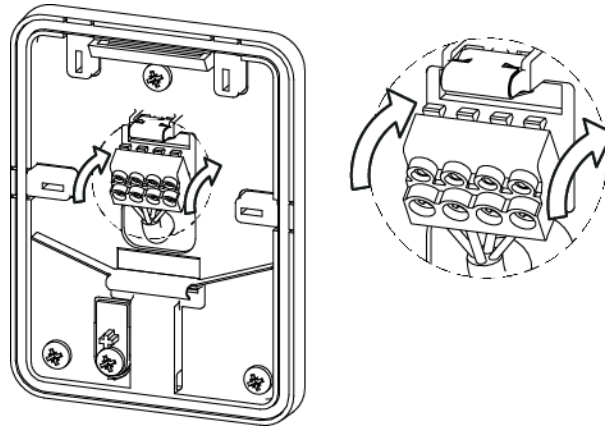
The adapter plate is to be used for square back boxes which measure 70 mm x 70 mm. The adapter plate is used for common UK square boxes.

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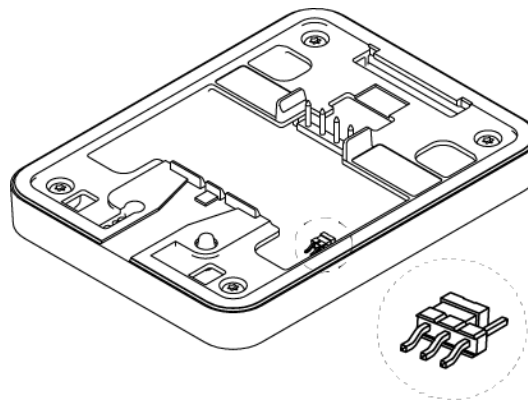
## 5.5 Connecting the cables

The cables are connected on the respective indicators. Should an extension cable be used, the cables are already attached to the connector.

1. Attach the cables according to the respective indicators on the connector and the base: **A B - +**
2. Snap the connector in place.



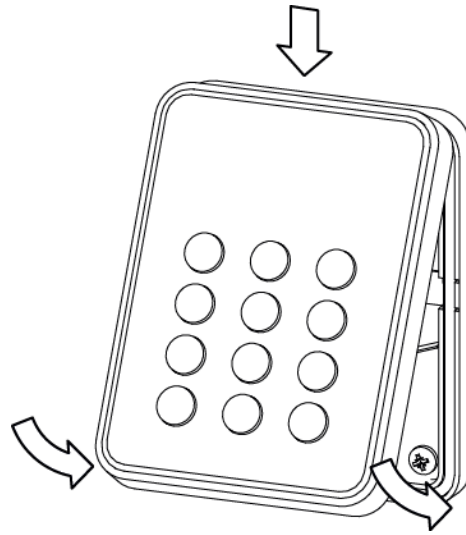
3. Push the cables back.
4. On the backside of the front there is an EOL jumper used for RS485 bus termination (see illustration). By default the reader has the termination ON and acts as the *last* reader on the bus. But if it is an *intermediate* reader on the bus, the jumper must be removed (or placed in OFF position).



5. Place the front of the reader with an angle to the hinges at the top of the base.

## 5 Mounting and connecting

6. Fold the front down until the snap lock confirms a secure attachment.



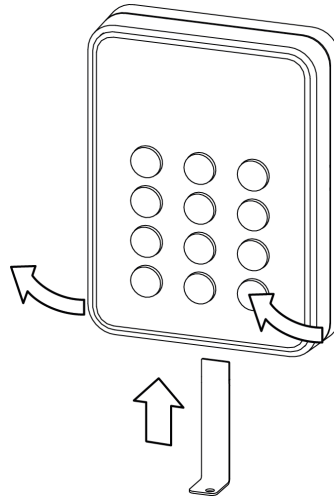


## 5.6 Disassembling the reader

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Should the reader need to be taken apart:

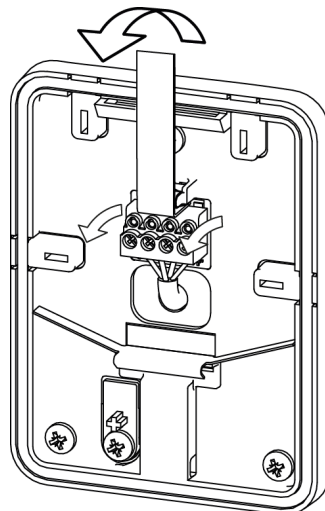
1. Carefully insert the opening tool in the slot between the base and the front.



2. Push gently and lift the front of the base.

**To remove the connector:**

1. Insert the opening tool as indicated on the picture.
2. Push down gently and tilt the connector away from the base.



## 6 Default settings

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Time-out for configuration card	3 seconds
Time-out for display messages	7 seconds
Activation time-out	30 seconds
Hold-off time for card read	100 milliseconds
Reception for card	Inactive
Character set	Windows 1252
Min background illumination	12
Max background illumination	255
Bus address	0 (Up to eight are supported)
Off-line indication	Yes
Backlight	Always active (Never and Timed activation are possible)
Buzzer volume for key press	2
Buzzer volume for card read	2
System sound	10
Light frame follows LED indicators	Red, yellow, green
Reading MIFARE Classic	UID
Reading MIFARE Plus SL1 – SL3	UID
Reading MIFARE DESFire EV1	UID

The card readers are delivered in this default mode. This mode can be altered with the Configuration Card Creation Tool (3CT), which enables for required settings to be used for the card readers. For further information, please contact the supplier of this reader.



The readers use FreeRTOS. For further information, please visit [www.freertos.org](http://www.freertos.org).

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## 7 Connecting card reader to SiPass integrated

The connection between a card reader and a Reader Interface Module (RIM) is as follows:

RIM (DRI/ERI)		ARxx-MF
12 V	↔	+
0V	↔	-
Tx/+	↔	A
Rx/-	↔	B

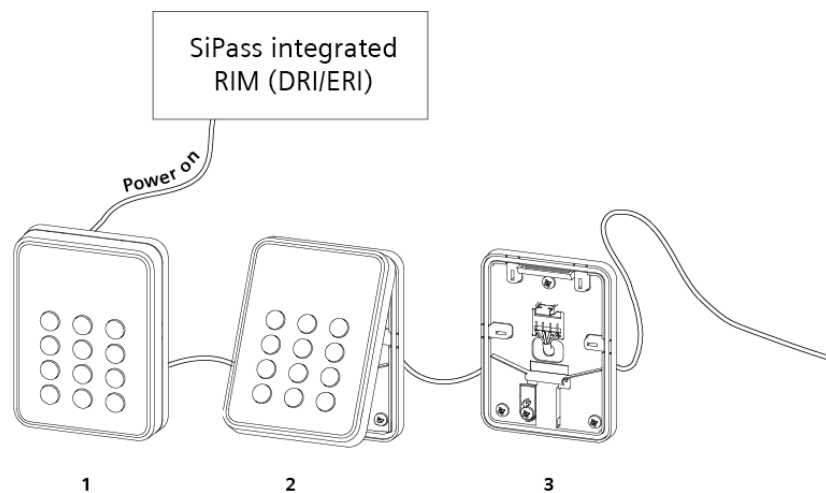
### 7.1 Setting the card reader address

The card readers are delivered in the default mode which is stated in Default settings [→ 18]. The bus address for card readers with default settings is 0. Ensure to power up the card readers one at the time – this in order to establish the bus addresses in correct order. When connecting a card reader to a RIM (DRI/ERI), the card reader and bus address is automatically configured as follows:

1. The first powered up card reader gets bus address 1.
2. The secondly powered up card reader gets bus address 2 and so forth.

When the card reader is first powered, the yellow LED flashes. The flashing lights stop when it is correctly configured to SiPass integrated. This can be tested by holding a card in close proximity. A correctly configured card reader acknowledges the card according to the SiPass integrated settings.

Please note that a new card reader will always get the next free bus address. Should a card reader with bus address 5 be removed and a new card reader be installed, the new card reader will get address 5.



## 8 Disposal

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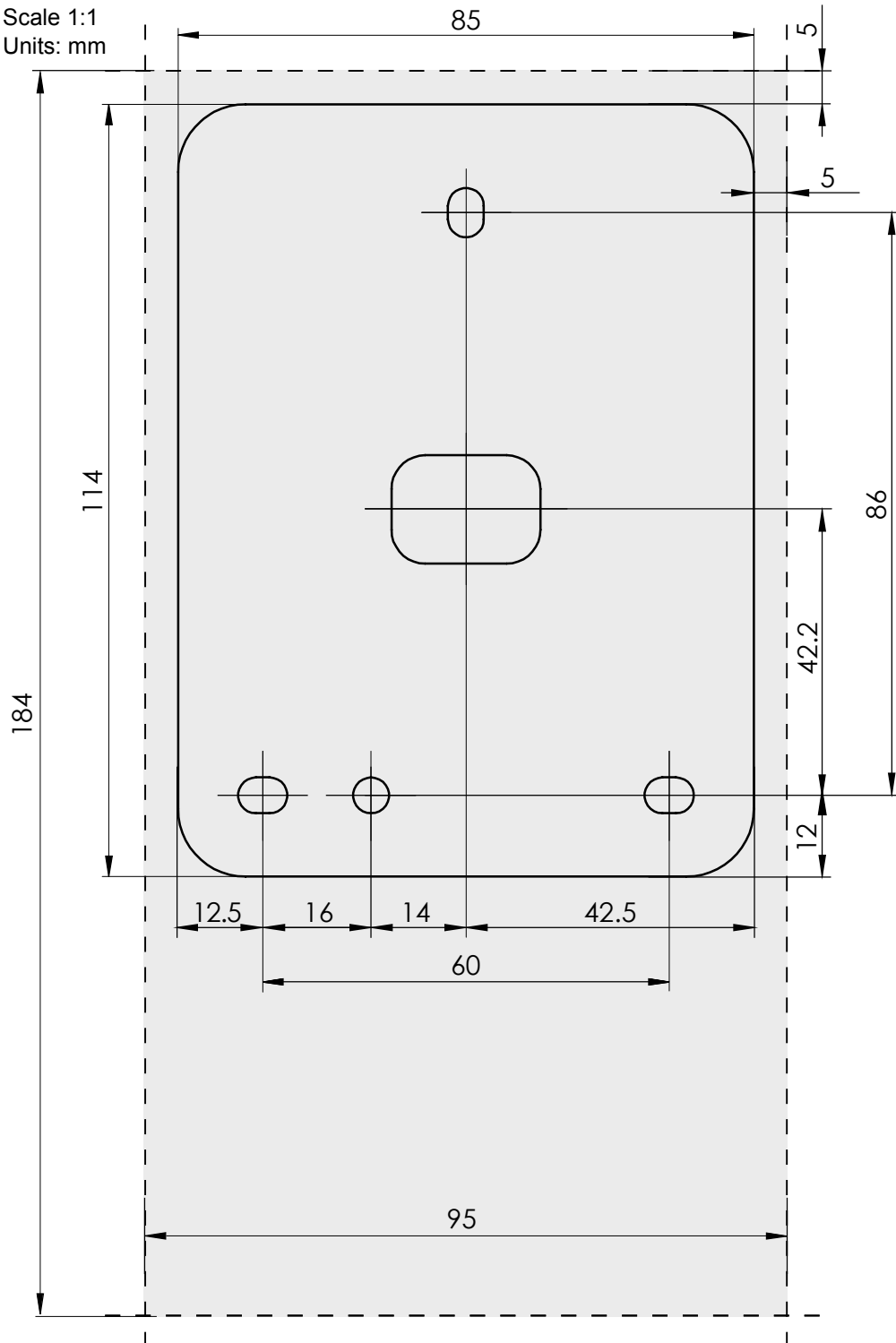


All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.

This crossed-out wheeled bin symbol on the product means the product is covered by the European Directive 2002/96/EC.

The correct disposal and separate collection of your old appliance will help prevent potential negative consequences for the environment and human health. It is a precondition for reuse and recycling of used electrical and electronic equipment. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.

Scale 1:1  
Units: mm



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