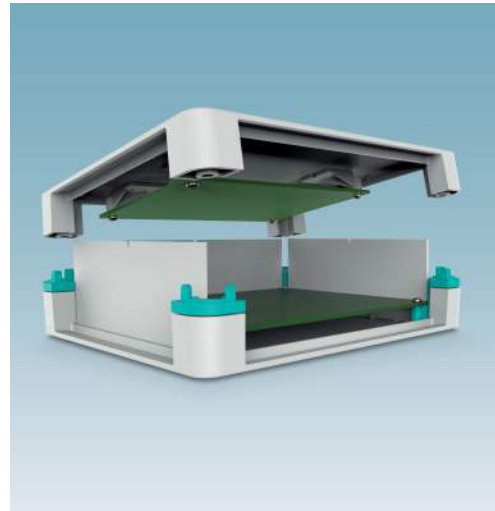


UCS

Universal electronics housings

Data sheet
107750_en_01

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1 Description

The UCS... universal electronics housings consist of two housing half-shells, which can be combined with side walls in two different heights. The housing half-shells are available in four sizes and several colors.

- Four housing sizes:
 - 125 x 87 mm
 - 145 x 125 mm
 - 195 x 145 mm
 - 237 x 195 mm
- **Two housing heights:** 47 mm or 67 mm
- **Colors:** light gray (similar to RAL 7035) or deep black (similar to RAL 9005). The fastening elements are RAL 5018 (turquoise blue)

The housings have special corner inlays, to which a PCB can be attached. It is also possible to attach the PCBs with adhesive domes. The adhesive domes are attached to the housing half-shells. The PCB is screwed onto the adhesive domes. This allows several PCBs to be added to the housings. We can also provide you with templates for positioning

the adhesive domes. The housing half-shells are also available with customer-specific adhesive domes.

Complete housings are available for certain PCBs with a form factor (e.g., ETX, ITX, DTX, EBX, EPIC). Corner inlays with domes or adhesive domes are available for attaching the PCB. In addition to the above PCB format, further PCBs can be installed in the complete housings depending on the size. The template layouts for the adhesive domes are available for download with the products.

Connection systems and display and operating elements can be installed in the housings. We would be glad to install the required openings for you.



A configurator is available for selecting the products at phoenixcontact.com, web code: #0512. You can use it to create your housing. You will then receive 3D data, order lists, and PCB layouts.



Make sure you always use the latest documentation. It can be downloaded at phoenixcontact.net/products.



This document is valid for the products listed in Section "Ordering data" from Page 4.

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2 Overview of UCS products



Figure 1 Overview

Accessories are available for setting up the housing.

- 1 **Stacking adapters** for connecting housings of the same size
- 2 **Corner guards**, anti-slip
Stand for upright housings, for the 47 mm version only
- 3 **DIN rail adapter** for the following housing sizes (instead of a side panel): 125 mm x 87 mm / 145 mm x 125 mm / 195 mm x 145 mm
- 4 Application example with prepared side panels for various connections
- 5 **Wall bracket**, special corner inlays with longitudinal hole for mounting on a wall

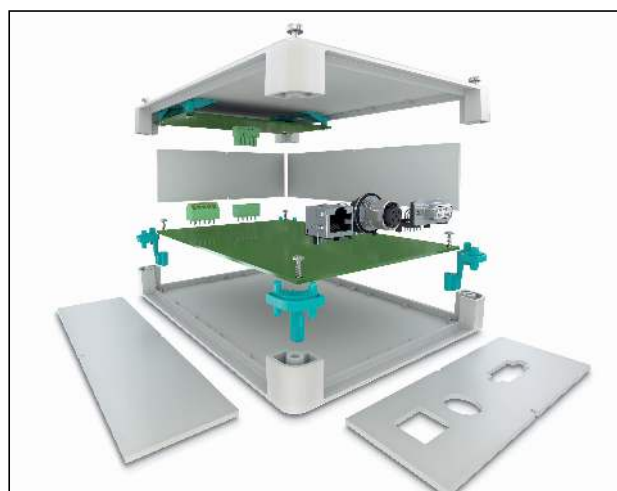


Figure 2 Housing example

3 Ordering data



A configurator is available for selecting the products at phoenixcontact.com, web code: #0512. You can use it to create your housing. You will then receive 3D data, order lists, and PCB layouts.

| | | | UCS 125 x 87... | | UCS 145 x 125... | | UCS 195 x 145 | | UCS 237 x 195... | |
|---|------------------|-----------------------|-----------------|---------|------------------|---------|---------------|---------|------------------|---------|
| | | | 47 mm | 67 mm | 47 mm | 67 mm | 47 mm | 67 mm | 47 mm | 67 mm |
| Complete housing | | | | | | | | | | |
| With PCB mounting, flexible, suitable for the following form factors* | Raspberry Pi | RAL 7035 ¹ | 2203328 | 2203331 | | | | | | |
| | ETX | | | | 2203332 | 2203334 | | | | |
| | PC/104 | | | | 2203332 | 2203334 | | | | |
| | Pico ITX | | | | 2203332 | 2203334 | | | | |
| | EPIC | | | | | | 2203336 | 2203338 | | |
| | Nano ITX | | | | | | 2203336 | 2203338 | | |
| | Mini DTX | | | | | | | | 2203341 | 2203344 |
| | Mini ITX | | | | | | | | 2203341 | 2203344 |
| | EBX | | | | | | | | 2203341 | 2203344 |
| | Raspberry Pi | RAL 9005 ¹ | 2203329 | 2203330 | | | | | | |
| | ETX | | | | 2203333 | 2203335 | | | | |
| | PC/104 | | | | 2203333 | 2203335 | | | | |
| | Pico ITX | | | | 2203333 | 2203335 | | | | |
| | EPIC | | | | | | 2203337 | 2203340 | | |
| | Nano ITX | | | | | | 2203337 | 2203340 | | |
| | Mini DTX | | | | | | | | 2203342 | 2203345 |
| | Mini ITX | | | | | | | | 2203342 | 2203345 |
| | EBX | | | | | | | | 2203342 | 2203345 |
| With PCB mounting, fixed for maximum PCB dimensions | 211.8 x 169.8 mm | RAL 7035 ¹ | | | | | | | 2203455 | 2203457 |
| | 169.8 x 120 mm | | | | | | 2203453 | 2203454 | | |
| | 120 x 100 mm | | | | 2203447 | 2203450 | | | | |
| | 100 x 62 mm | | 2203443 | 2203445 | | | | | | |
| | 211.8 x 169.8 mm | RAL 9005 ¹ | | | | | | | 2203456 | 2203458 |
| | 169.8 x 120 mm | | | | | | 2203441 | 2203442 | | |
| | 120 x 100 mm | | | | 2203448 | 2203451 | | | | |
| | 100 x 62 mm | | 2203444 | 2203446 | | | | | | |
| Wall bracket | UCS WM-B 7035 | RAL 7035 ¹ | 2203718 | 2203718 | 2203718 | 2203718 | 2203718 | 2203718 | 2203718 | 2203718 |
| | UCS WM-B 9005 | RAL 9005 ¹ | 2203719 | 2203719 | 2203719 | 2203719 | 2203719 | 2203719 | 2203719 | 2203719 |
| | UCS WM-B 5018 | RAL 5018 ¹ | 2203391 | 2203391 | 2203391 | 2203391 | 2203391 | 2203391 | 2203391 | 2203391 |
| Stand | UCS PED 7035 | RAL 7035 ¹ | 2203392 | | 2203392 | | 2203392 | | 2203392 | |
| | UCS PED 9005 | RAL 9005 ¹ | 2203393 | | 2203393 | | 2203393 | | 2203393 | |
| | UCS PED 5018 | RAL 5018 ¹ | 2203394 | | 2203394 | | 2203394 | | 2203394 | |
| Corner guards | UCS CP 7035 | RAL 7035 ¹ | 2203346 | 2203346 | 2203346 | 2203346 | 2203346 | 2203346 | 2203346 | 2203346 |
| | UCS CP 9005 | RAL 9005 ¹ | 2203347 | 2203347 | 2203347 | 2203347 | 2203347 | 2203347 | 2203347 | 2203347 |
| | UCS CP 5018 | RAL 5018 ¹ | 2203348 | 2203348 | 2203348 | 2203348 | 2203348 | 2203348 | 2203348 | 2203348 |
| Stacking adapters | UCS CS 7035 | RAL 7035 ¹ | 2203720 | 2203720 | 2203720 | 2203720 | 2203720 | 2203720 | 2203720 | 2203720 |
| | UCS CS 9005 | RAL 9005 ¹ | 2203721 | 2203721 | 2203721 | 2203721 | 2203721 | 2203721 | 2203721 | 2203721 |

¹ Color similar to the specified RAL color

| | | | | UCS HH... housing half-shells | | | | |
|---|----------|--------------------------|-------------------|-------------------------------|--------------|---------------|---------------|---------------|
| | | | | Housing size | ...125-87... | ...145-125... | ...195-145... | ...237-195... |
| | | | | RAL 7035 ¹ | 2203349 | 2203351 | 2203353 | 2203356 |
| RAL 9005 ¹ | 2203350 | 2203352 | 2203354 | 2203357 | | | | |
| Side panel | Length | Material | Product | | | | | |
| Flat (47 mm) | 87 | RAL 7035 ¹ PC | UCS SW 87-F 7035 | 2203358 | X | | | |
| | 87 | RAL 9005 ¹ PC | UCS SW 87-F 9005 | 2203359 | X | | | |
| | 87 | Aluminum | UCS SW 87-F AL | 2203360 | X | | | |
| | 125 | RAL 7035 ¹ PC | UCS SW 125-F 7035 | 2203364 | X | X | | |
| | 125 | RAL 9005 ¹ PC | UCS SW 125-F 9005 | 2203365 | X | X | | |
| | 125 | Aluminum | UCS SW 125-F AL | 2203366 | X | X | | |
| | 145 | RAL 7035 ¹ PC | UCS SW 145-F 7035 | 2203372 | | X | X | |
| | 145 | RAL 9005 ¹ PC | UCS SW 145-F 9005 | 2203373 | | X | X | |
| | 145 | Aluminum | UCS SW 145-F AL | 2203374 | | X | X | |
| | 195 | RAL 7035 ¹ PC | UCS SW 195-F 7035 | 2203378 | | | X | X |
| | 195 | RAL 9005 ¹ PC | UCS SW 195-F 9005 | 2203379 | | | X | X |
| | 195 | Aluminum | UCS SW 195-F AL | 2203380 | | | X | X |
| | 237 | RAL 7035 ¹ PC | UCS SW 237-F 7035 | 2203385 | | | | X |
| | 237 | RAL 9005 ¹ PC | UCS SW 237-F 9005 | 2203386 | | | | X |
| 237 | Aluminum | UCS SW 237-F AL | 2203387 | | | | X | |
| Tall (67 mm) | 87 | RAL 7035 ¹ PC | UCS SW 87-H 7035 | 2203361 | X | | | |
| | 87 | RAL 9005 ¹ PC | UCS SW 87-H 9005 | 2203362 | X | | | |
| | 87 | Aluminum | UCS SW 87-H AL | 2203363 | X | | | |
| | 125 | RAL 7035 ¹ PC | UCS SW 125-H 7035 | 2203367 | X | X | | |
| | 125 | RAL 9005 ¹ PC | UCS SW 125-H 9005 | 2203369 | X | X | | |
| | 125 | Aluminum | UCS SW 125-H AL | 2203370 | X | X | | |
| | 145 | RAL 7035 ¹ PC | UCS SW 145-H 7035 | 2203375 | | X | X | |
| | 145 | RAL 9005 ¹ PC | UCS SW 145-H 9005 | 2203376 | | X | X | |
| | 145 | Aluminum | UCS SW 145-H AL | 2203377 | | X | X | |
| | 195 | RAL 7035 ¹ PC | UCS SW 195-H 7035 | 2203381 | | | X | X |
| | 195 | RAL 9005 ¹ PC | UCS SW 195-H 9005 | 2203382 | | | X | X |
| | 195 | Aluminum | UCS SW 195-H AL | 2203383 | | | X | X |
| | 237 | RAL 7035 ¹ PC | UCS SW 237-H 7035 | 2203388 | | | | X |
| | 237 | RAL 9005 ¹ PC | UCS SW 237-H 9005 | 2203389 | | | | X |
| 237 | Aluminum | UCS SW 237-H AL | 2203390 | | | | X | |
| Height adapter , required in conjunction with tall side panels, four pieces incl. four longer screws | | | | | | | | |
| | | RAL 7035 ¹ | UCS HAC 7035 | 2203399 | X | X | X | X |
| | | RAL 9005 ¹ | UCS HAC 9005 | 2203400 | X | X | X | X |
| Corner inlay , 4 pieces in PE bag | | | | | | | | |
| | | RAL 7035 ¹ | UCS CC 7035 | 2203395 | X | X | X | X |
| | | RAL 9005 ¹ | UCS CC 9005 | 2203396 | X | X | X | X |
| | | RAL 5018 ¹ | UCS CC 5018 | 2203398 | X | X | X | X |
| Corner inlay , with domes incl. four screws for PCB mounting, 4 pieces | | | | | | | | |
| | | RAL 7035 ¹ | UCS CCD 7035 | 2203479 | X | X | X | X |
| | | RAL 9005 ¹ | UCS CCD 9005 | 2203477 | X | X | X | X |
| | | RAL 5018 ¹ | UCS CCD 5018 | 2203404 | X | X | X | X |
| Screw set , for housing half-shells, 4 pieces | | | | | | | | |
| Flat (47 mm) | | | UCS SF 3,5X20 | 2203402 | X | X | X | X |
| Tall (67 mm) | | | UCS SH 3,5X40 | 2203403 | X | X | X | X |
| Adhesive dome , incl. screws for PCB mounting, 4 pieces | | | | | | | | |
| | | | UCS GD | 2203401 | X | X | X | X |

¹ Color similar to the specified RAL color

4 Technical data

Housing design

| | |
|---|--|
| Insulation material | PC (polycarbonate) |
| Flammability rating UL 94 | V0 |
| Colors | Similar to RAL 7035, light gray Similar to RAL 9005, deep black Similar to RAL 5018, turquoise blue Customer-specific colors possible |
| Temperature range | -40°C ... +85°C |
| Temperature range when attaching the adhesive domes | +18°C ... +25°C |
| Tool for screwing the PCBs into the housing | Torque screwdriver with T7 bit |
| Power dissipation | |
| UCS 125-87-F... | 9 W |
| UCS 145-125-F... | 11 W |
| UCS 195-145-F... | 20 W |
| UCS 237-195-F... | 30 W |
| PCB surface, maximum | See "PCB dimensions" on page 10 |
| Degree of protection according to DIN EN 60259 | IP40 |
| Recommended screws for wall fastening | S5 dowel, ø 4.0 |

5 Housing dimensions

5.1 Outer and inner dimensions

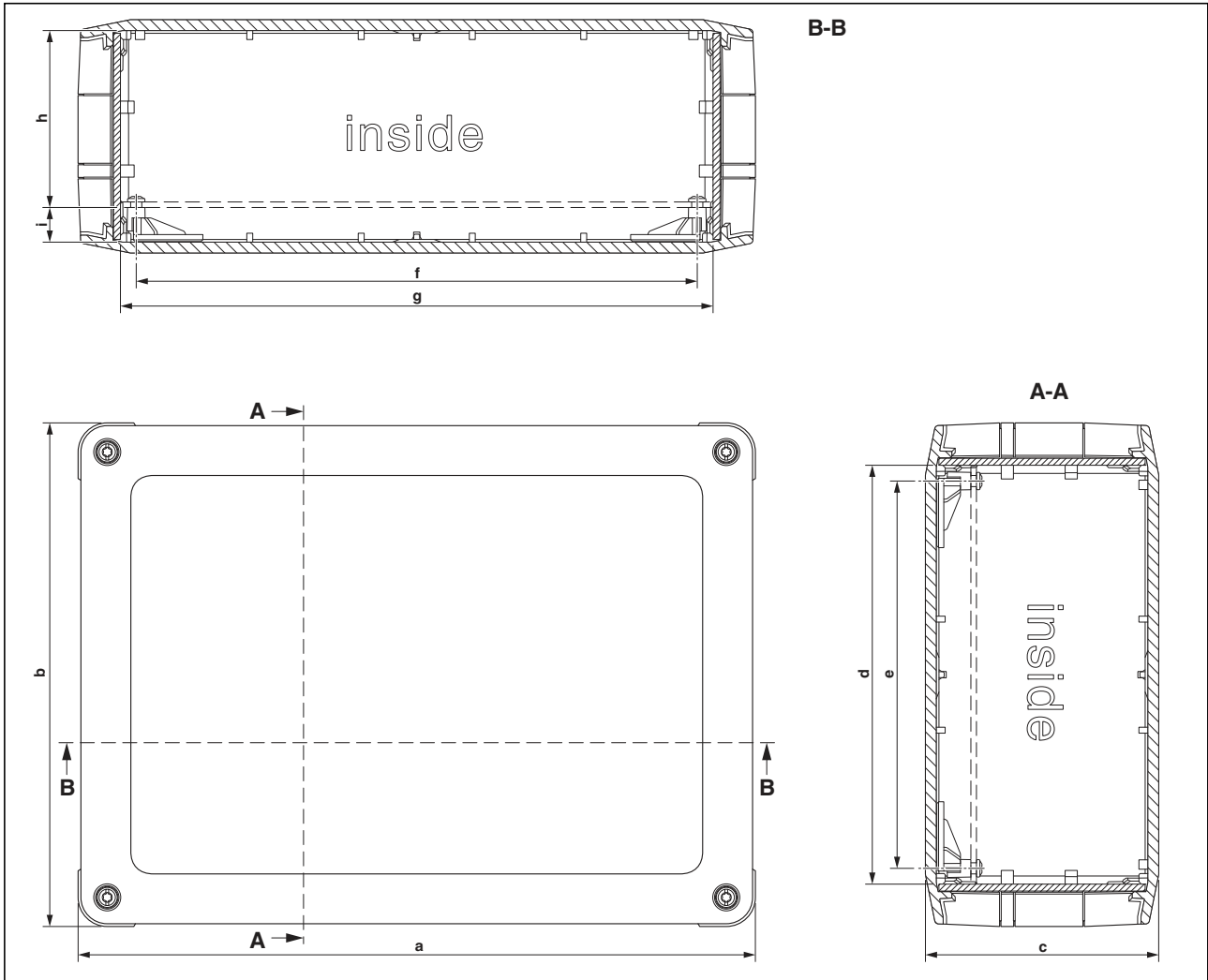


Figure 3 Housing dimensions

| Outer dimensions | | | Inner dimensions, narrow side | | Inner dimensions, wide side | | Inner dimensions, height | |
|------------------|--------|-------|-------------------------------|------------|-----------------------------|----------|--------------------------|-------|
| a | b | c | d | e | f | g | h | i |
| 125 mm | 87 mm | 47 mm | 62.7 mm | ≤ 57 mm | ≤ 95 mm | 100.7 mm | 31 mm | 10 mm |
| 125 mm | 87 mm | 67 mm | 62.7 mm | ≤ 57 mm | ≤ 95 mm | 100.7 mm | 51 mm | 10 mm |
| 145 mm | 125 mm | 47 mm | 100.7 mm | ≤ 95 mm | ≤ 115 mm | 120.7 mm | 31 mm | 10 mm |
| 145 mm | 125 mm | 67 mm | 100.7 mm | ≤ 95 mm | ≤ 115 mm | 120.7 mm | 51 mm | 10 mm |
| 195 mm | 145 mm | 47 mm | 120.7 mm | ≤ 115 mm | ≤ 165 mm | 81.65 mm | 31 mm | 10 mm |
| 195 mm | 145 mm | 67 mm | 120.7 mm | ≤ 115 mm | ≤ 165 mm | 81.65 mm | 51 mm | 10 mm |
| 237 mm | 195 mm | 47 mm | 170.7 mm | ≤ 163.2 mm | ≤ 205 mm | 212.7 mm | 31 mm | 10 mm |
| 237 mm | 195 mm | 67 mm | 170.7 mm | ≤ 163.2 mm | ≤ 205 mm | 212.7 mm | 51 mm | 10 mm |

5.2 Space for printing

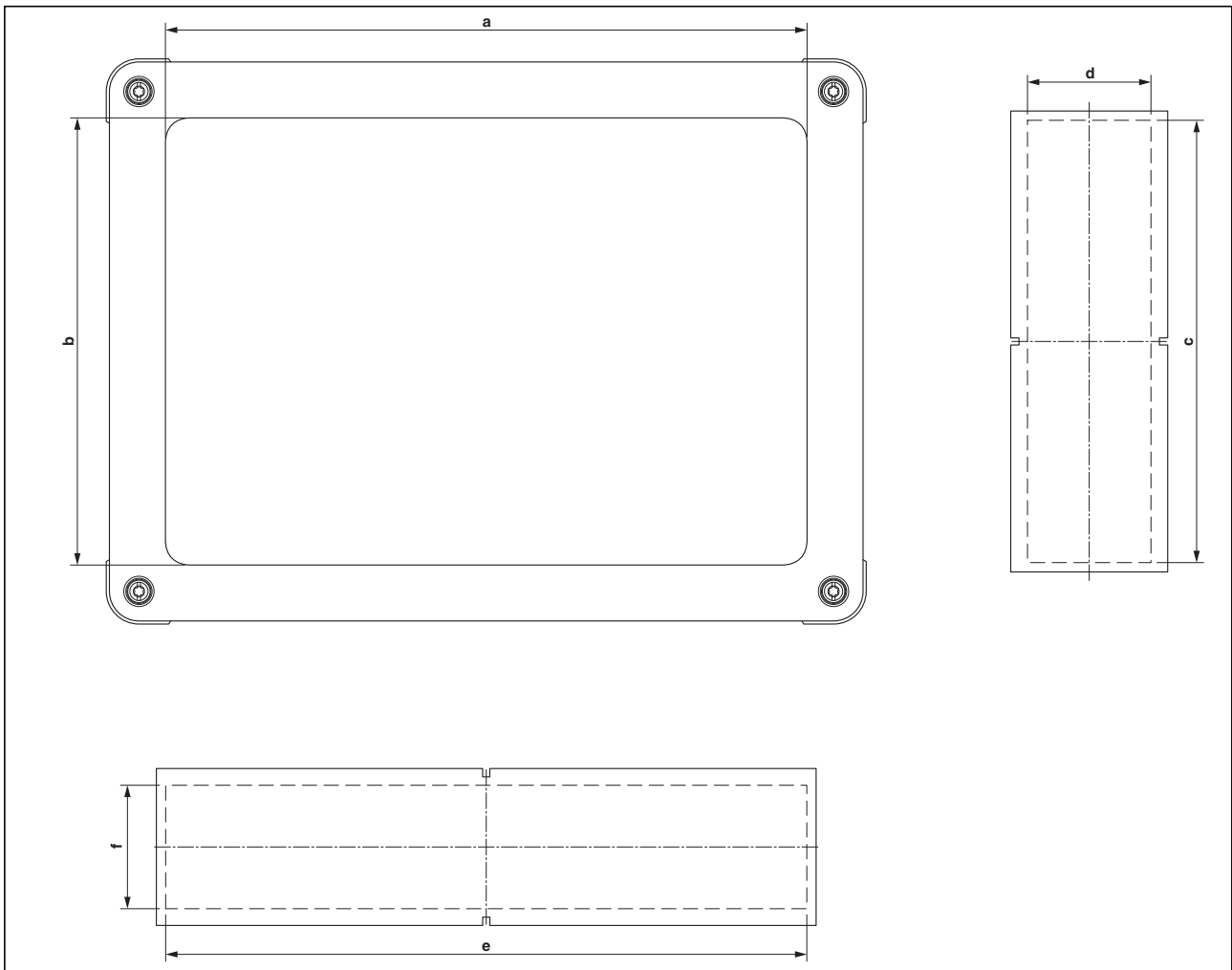


Figure 4 Maximum space for printing

The specified space is available for printing.

| Outer dimensions | | | Space for printing | | | | | |
|------------------|--------|-------|--------------------|----------|-------------|---------|-----------|---------|
| | | | Top | | Narrow side | | Wide side | |
| | | | a | b | c | d | e | f |
| 125 mm | 87 mm | 47 mm | 94.8 mm | 56.8 mm | 53.3 mm | 31.1 mm | 91.3 mm | 31.1 mm |
| 125 mm | 87 mm | 67 mm | 94.8 mm | 56.8 mm | 53.3 mm | 50.6 mm | 91.3 mm | 50.6 mm |
| 145 mm | 125 mm | 47 mm | 114.8 mm | 94.8 mm | 91.3 mm | 31.1 mm | 111.3 mm | 31.1 mm |
| 145 mm | 125 mm | 67 mm | 114.8 mm | 94.8 mm | 91.3 mm | 50.6 mm | 111.3 mm | 50.6 mm |
| 195 mm | 145 mm | 47 mm | 164.8 mm | 114.8 mm | 111.3 mm | 31.1 mm | 161.3 mm | 31.1 mm |
| 195 mm | 145 mm | 67 mm | 164.8 mm | 114.8 mm | 111.3 mm | 50.6 mm | 161.3 mm | 50.6 mm |
| 237 mm | 195 mm | 47 mm | 206.8 mm | 164.8 mm | 161.3 mm | 31.1 mm | 202.4 mm | 31.1 mm |
| 237 mm | 195 mm | 67 mm | 206.8 mm | 164.8 mm | 161.3 mm | 50.6 mm | 202.4 mm | 50.6 mm |

5.3 Space for cutouts

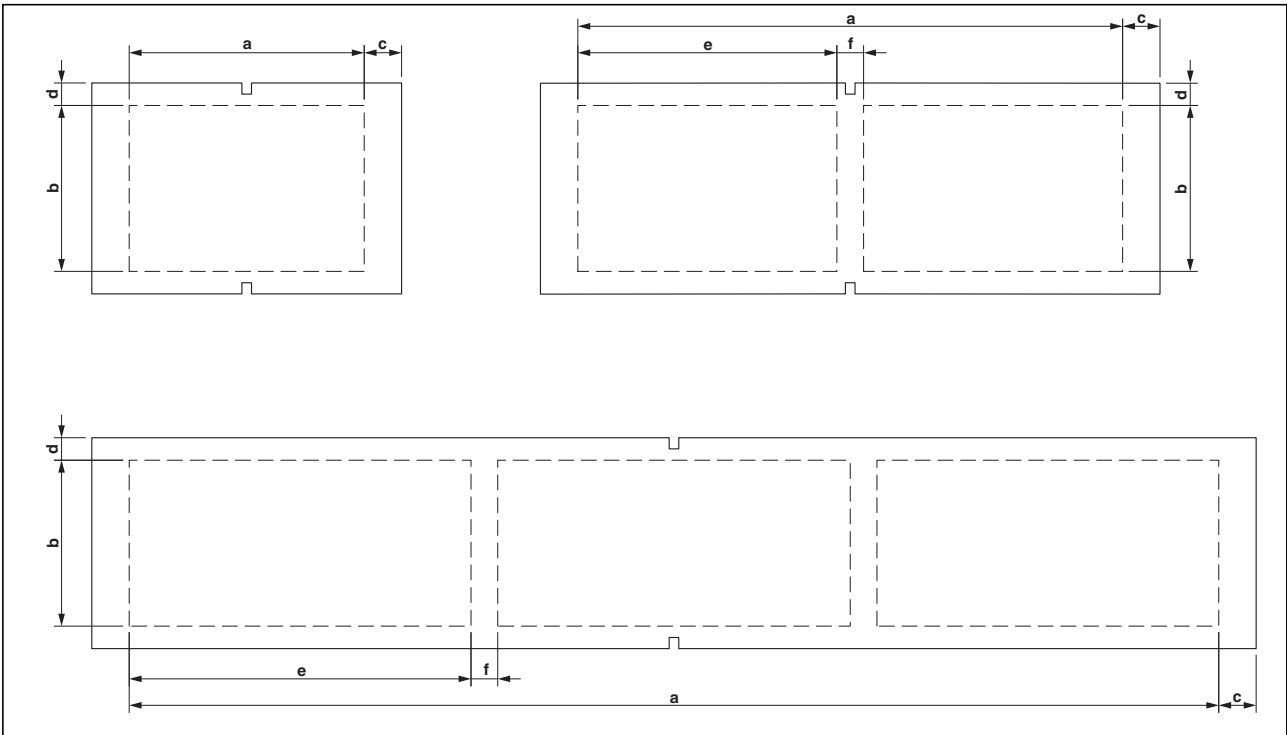


Figure 5 Maximum space for cutouts

In order to absorb the forces produced during milling, segments must be provided for cutouts. By significantly reduc-

ing the cutout length, the outer and middle segments can be made thinner.

| Housing side dimensions | | Space for recesses | | Minimum width of outer segment | | Maximum length of cutout | Minimum width of middle segment | Number of middle segments |
|-------------------------|-------|--------------------|---------|--------------------------------|--------|--------------------------|---------------------------------|---------------------------|
| | | a | b | c | d | | | |
| 87 mm | 47 mm | 44 mm | 31.1 mm | 7 mm | 4.2 mm | - | - | - |
| 125 mm | 47 mm | 82 mm | 31.1 mm | 7 mm | 4.2 mm | - | - | - |
| 145 mm | 47 mm | 102 mm | 31.1 mm | 7 mm | 4.2 mm | 70 mm | 5 mm | 1 |
| 195 mm | 47 mm | 152 mm | 31.1 mm | 7 mm | 4.2 mm | 73.5 mm | 5 mm | 1 |
| 237 mm | 47 mm | 194 mm | 31.1 mm | 7 mm | 4.2 mm | 70 mm | 5 mm | 2 |
| 87 mm | 67 mm | 38 mm | 39.4 mm | 10 mm | 10 mm | - | - | - |
| 125 mm | 67 mm | 76 mm | 39.4 mm | 10 mm | 10 mm | - | - | - |
| 145 mm | 67 mm | 96 mm | 39.4 mm | 10 mm | 10 mm | 70 mm | 10 mm | 1 |
| 195 mm | 67 mm | 146 mm | 39.4 mm | 10 mm | 10 mm | 70 mm | 10 mm | 1 |
| 237 mm | 67 mm | 188 mm | 39.4 mm | 10 mm | 10 mm | 70 mm | 10 mm | 2 |

5.4 PCB dimensions

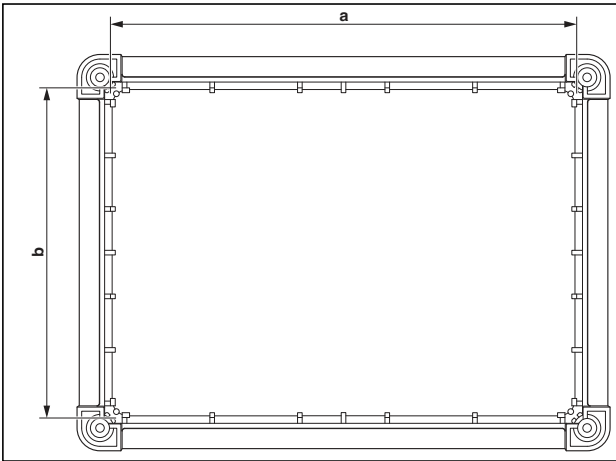


Figure 6 Maximum assembly area

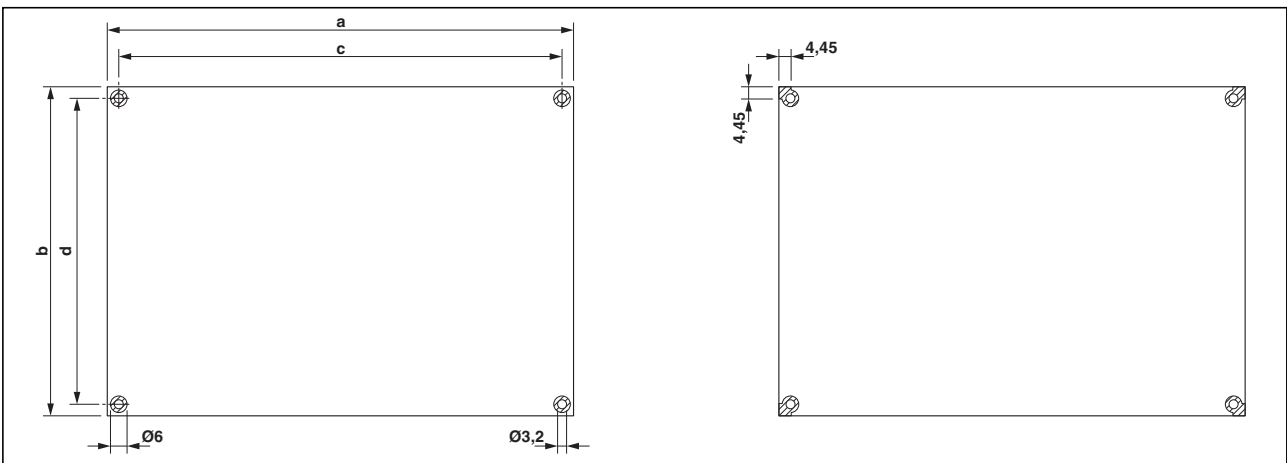


Figure 7 Maximum PCB dimensions

| For housing | | Maximum assembly area | | Distance between fixing holes | | PCB thickness |
|-------------|-----|-----------------------|-----|-------------------------------|-------|-----------------|
| | | a | b | c | d | |
| 125 | 87 | 100 | 62 | 91.6 | 53.6 | 0.8 mm ... 3 mm |
| 145 | 125 | 120 | 100 | 111.6 | 91.6 | 0.8 mm ... 3 mm |
| 195 | 145 | 170 | 120 | 161.6 | 111.6 | 0.8 mm ... 3 mm |
| 237 | 195 | 212 | 170 | 203.6 | 161.6 | 0.8 mm ... 3 mm |



Keep-out zone, no components at these positions

6 Mounting the housing

6.1 Mounting PCBs

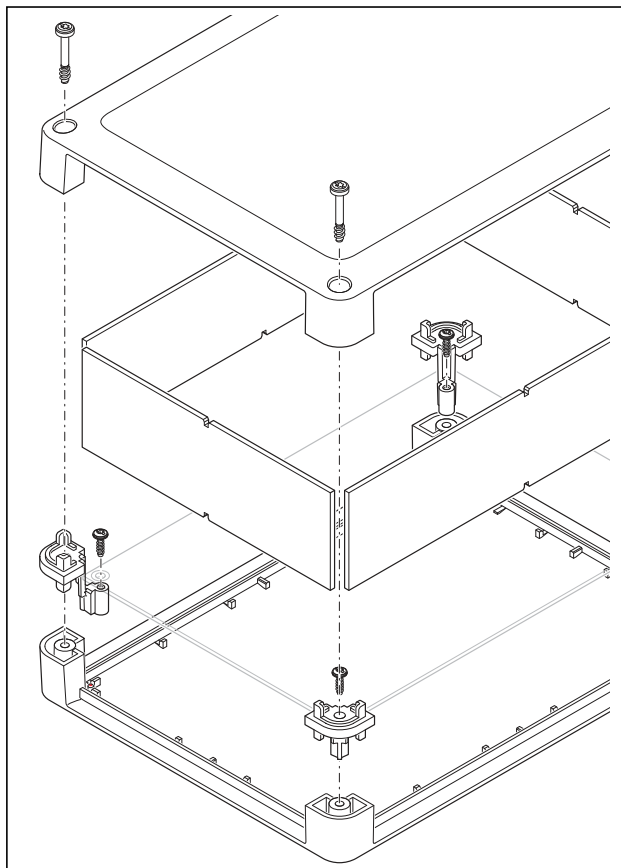


Figure 8 Mounting the housing (with UCS CCD...)

- Insert the four corner inlays into the lower part of the housing half-shells.
 - Corner inlay with domes for PCB mounting (UCS CCD...)
 - Corner inlay without domes for PCB mounting (UCS CC...)
- Insert the side panels and the PCBs. The sequence depends on how the connections are routed outwards. The inside of the side panels is marked with “Inside”.
- Screw the PCBs into the UCS CCD... corner inlays or the UCS GD adhesive domes with 0.4 Nm ... 0.5 Nm. Only use the T7 Torx screws provided for this. We recommend a torque screwdriver with a T7 bit (500 rpm).

6.2 Screw on the housing

Use the self-tapping T10 Torx screws provided to attach the housing. We recommend a torque screwdriver with a T10 bit (500 rpm).

The screws are designed in such a way that they cannot be lost when the cover is released.



NOTE: The housing can be opened a maximum of 10 times.

- Screw down the upper housing half-shell with 1.2 Nm ... 1.4 Nm.

6.3 Inserting a height adapter

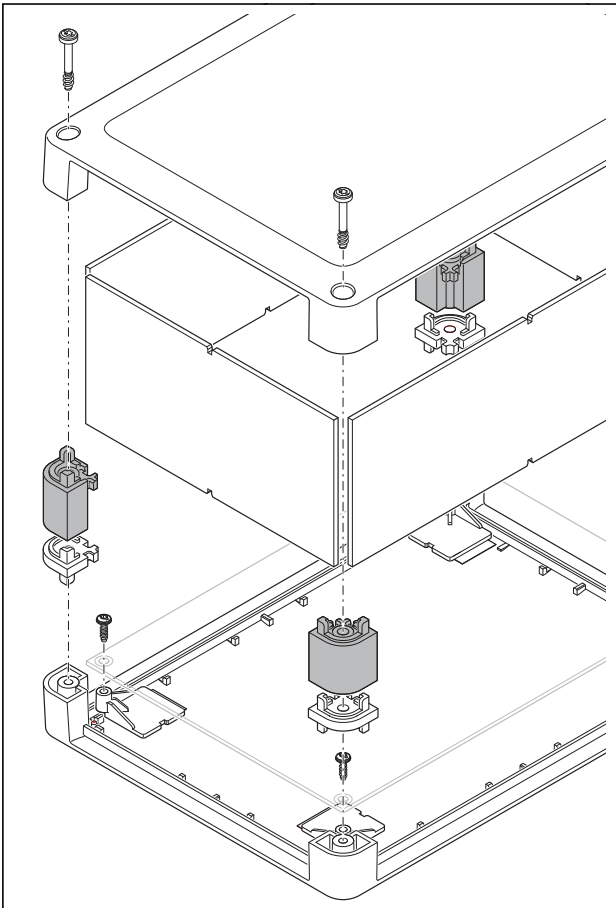


Figure 9 UCS HAC... height adapter

- When using tall housings, insert the UCS HAC height adapter in the correct direction.
The pins must point upwards.

6.4 Attaching adhesive domes

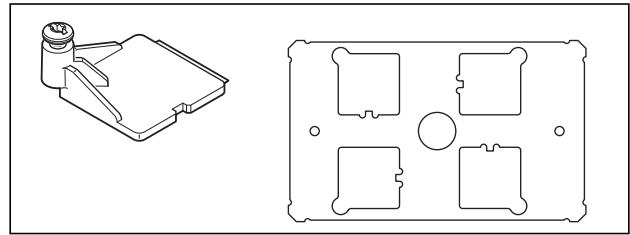


Figure 10 UCS GD adhesive dome with adhesive template

- Make sure that the surface of the housing is clean, dry, and free from grease.
Temperature range: +18°C ... +25°C
- Attach the UCS GD adhesive domes to the housing half-shell using the appropriate template.

- Pressing force: 60 N
- Pressing time: 3 s

We can produce adhesive templates for you on request.

Adhesive templates for PCBs with form factor can be found at phoenixcontact.net/products.

6.5 Mounting the housing on a wall

The UCS WM-B... wall bracket is available for wall mounting

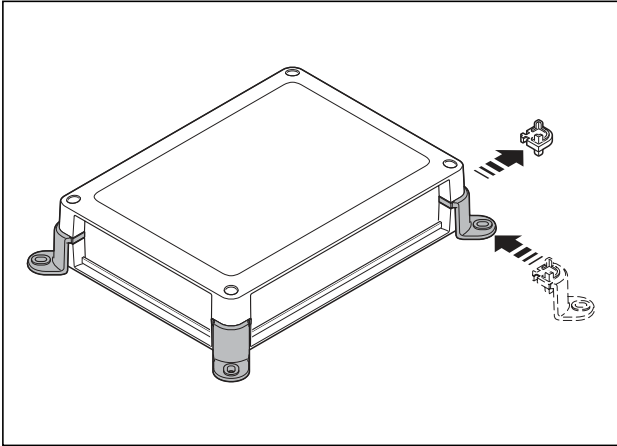


Figure 11 UCS WM-B... wall bracket

- Replace the corner inlays with corner inlays with longitudinal holes.
Recommended screws for wall fastening:
S5 dowel, \varnothing 4.0

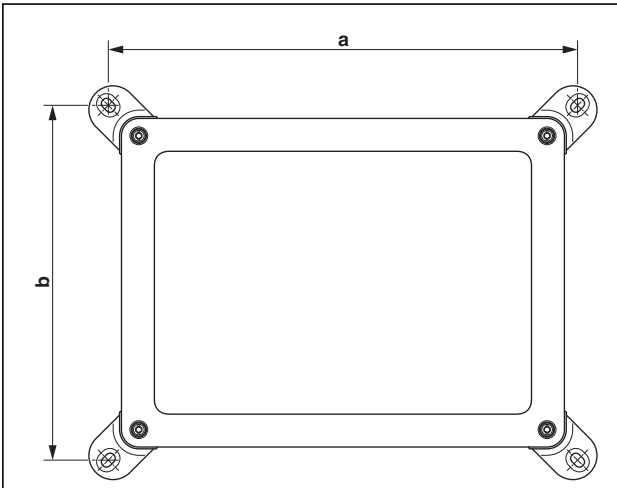


Figure 12 UCS WM-B... wall bracket, drilling diagram

| For housing | | Drill hole spacing | |
|-------------|-----|--------------------|-----|
| | | a | b |
| 125 | 87 | 135 | 97 |
| 145 | 125 | 155 | 135 |
| 195 | 145 | 205 | 155 |
| 237 | 195 | 247 | 205 |

6.6 Snapping on the stand

The UCS PED... stand is available for the secure attachment of the flat housing (47 mm)

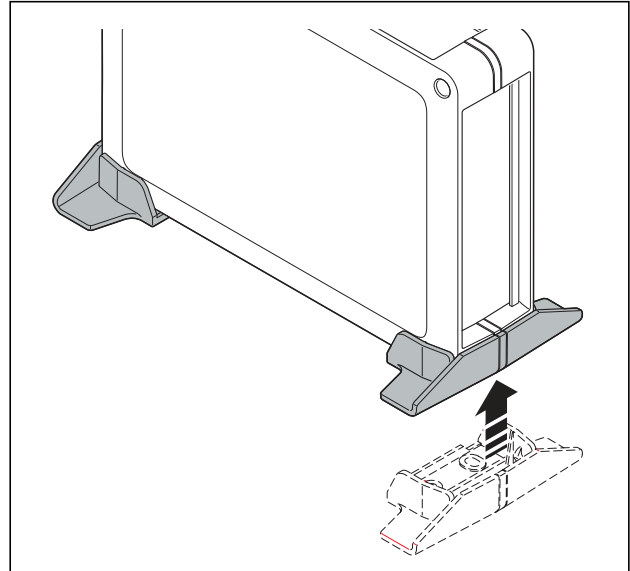


Figure 13 UCS PED... stand

- Snap the stand into the screw holes in the housing.

6.7 Mounting accessories

Stacking adapters

You can connect two housings using the UCS CS... stacking adapter.

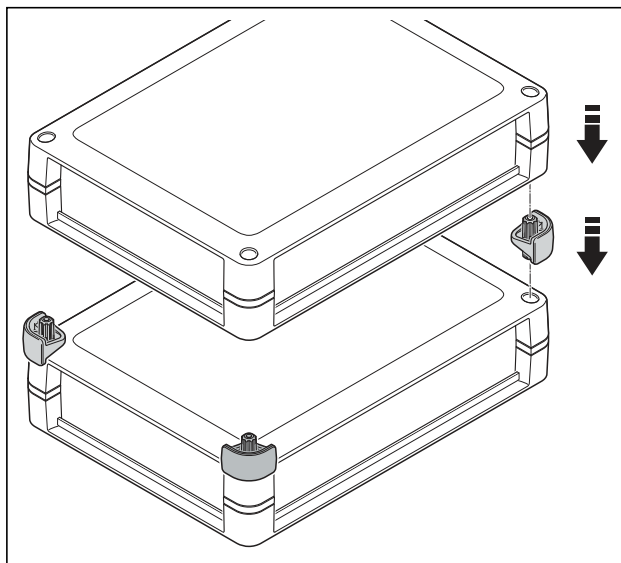


Figure 14 Mounting the UCS CS... stacking adapter

- Snap the stacking adapter into the screw holes in the housing.

Corner guards

UCS CP... corner guards are available for protecting the housing against impacts and providing an anti-slip function.

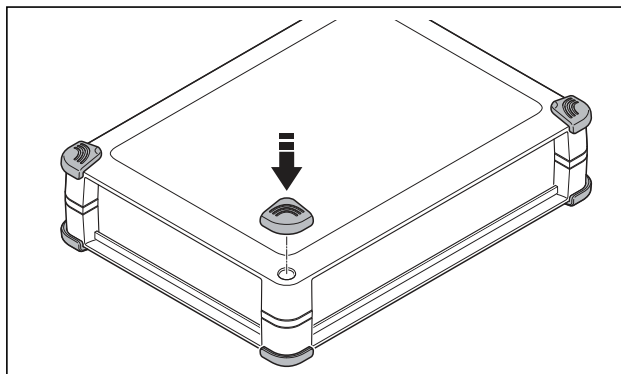


Figure 15 Mounting the UCS CP... corner guards

- Snap the corner guards into the screw holes in the housing.