



## 19" subrack 245



## Reference analyses

The standard subrack 245-312-11 underwent the following reference analyses:

- DIN EN 50155  
Railway use of electrical equipment on rail vehicles  
the following were tested: vibrations · broadband noise · long-term test Fh  
shock stressing – Ea test acc. to DIN 61 373
- DIN EN 61587-1  
Electromechanical designs for electronic systems:  
tests for mechanical, climate and safety requirements for cabinets,  
racks and plug-in units.  
Requirements for shock and vibration stability:  
the following were tested: dynamic tests, DL 3 · resonance analysis – test Fc  
sine wave-form – test Fc  
vibrations, sine wave-form – test Fc  
shock stressing – test Ea  
static test SL1: maximum deflection < 0.4mm

### 19" subrack 245

- for plug-in modules acc. to IEC 60297-3-101/-102/-103 and IEEE 1101.10/1101.11
- EMC-compliant design
- wide range of standard products
- individual configurations available
- also available as VME bus or CompactPCI system
- wide range of accessories
- on request: complete solutions with integrated ventilation concepts

All tests were passed with excellent results.  
The independent test laboratory did not discover any defects.



### 19" subrack 3 U

- basic kit with a wide range of accessories
- easy and quick assembly: only two screws per module rail
- depth mounting increment  $d = 10$  mm
- module rails are prevented from rotating
- please ask for our assembly service.

#### Application:

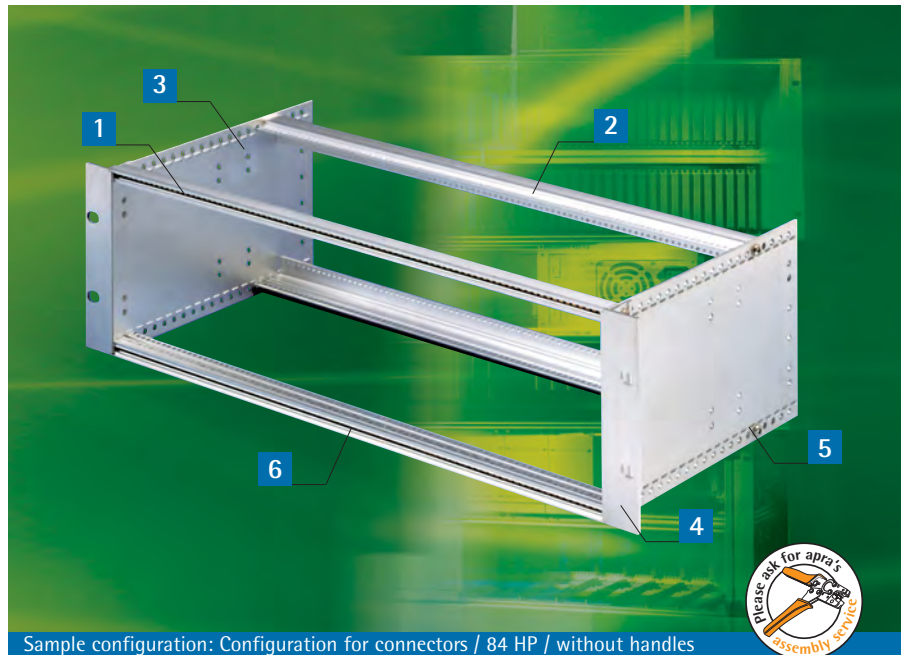
for plug-in modules acc. to IEC 60297-3-101/-102/-103 and IEEE 1101.10/1101.11

#### Material:

side panels: aluminium 2,5 mm  
module rails: aluminium extrusion  
front brackets: aluminium extrusion

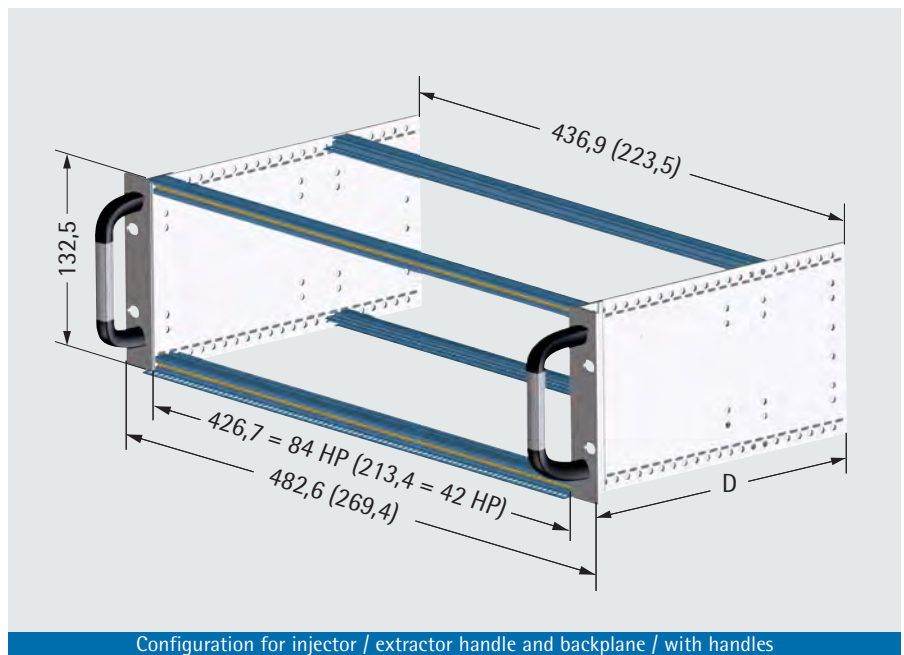
#### Delivery:

kit form



#### Delivery

Item	Pc.	Description
1	2	Module rails, front
2	2	Module rails, rear
3	2	Side panels
4	2	Front fixing bracket with or without handle
5	8	Oval head screws, M 4 x 12, toothed head
6	2	Threaded inserts M 2,5 7 mm x 2 mm
7	2	Threaded inserts M 2,5 5 mm x 1,5 mm (only for rear BUS module rails)
8		Assembly material





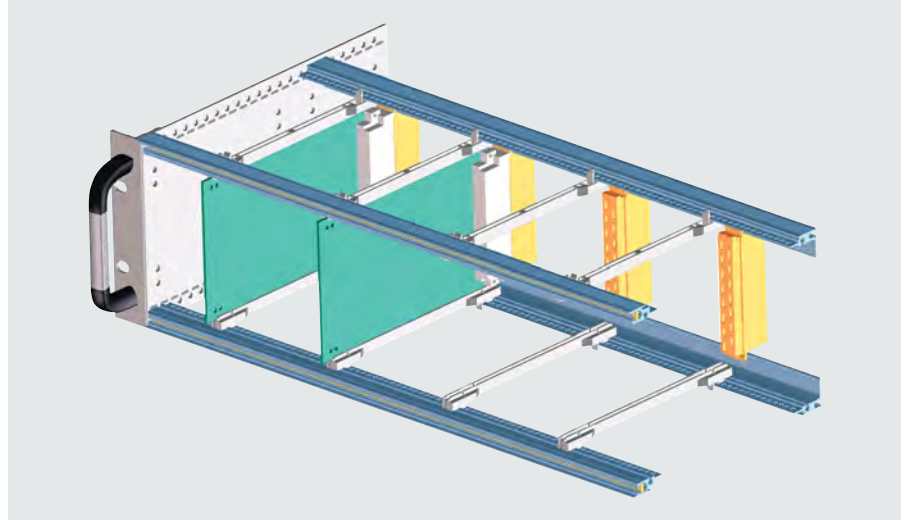
### Configuration for connectors according to IEC 60603-2

**front**

standard module rails 241-022  
threaded inserts M 2,5

**rear**

narrow module rails 241-019  
with integrated mounting rails for plug-  
in connections acc. to IEC 60603-2



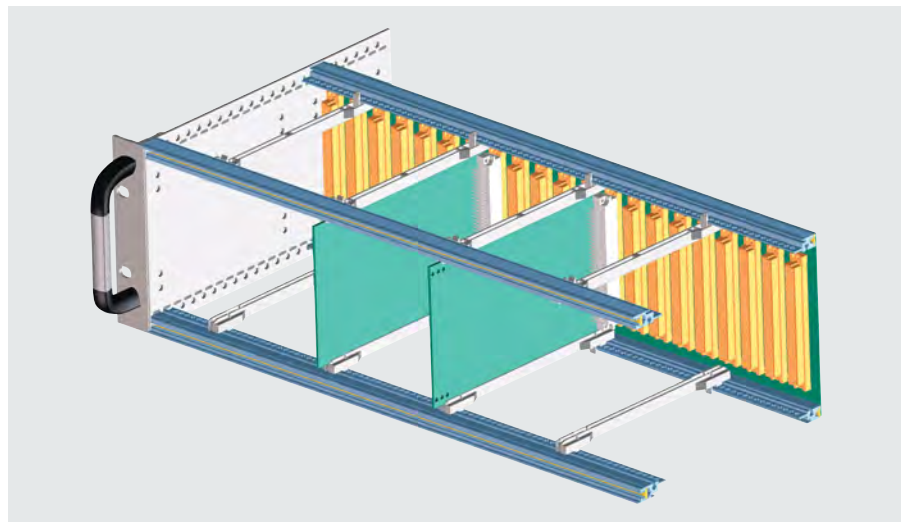
### Configuration for backplane

**front**

standard module rails 241-022  
threaded inserts M 2,5

**rear**

BUS module rails 241-013  
threaded inserts M 2,5



Please order insulating strips or contact strips separately (see p.115).

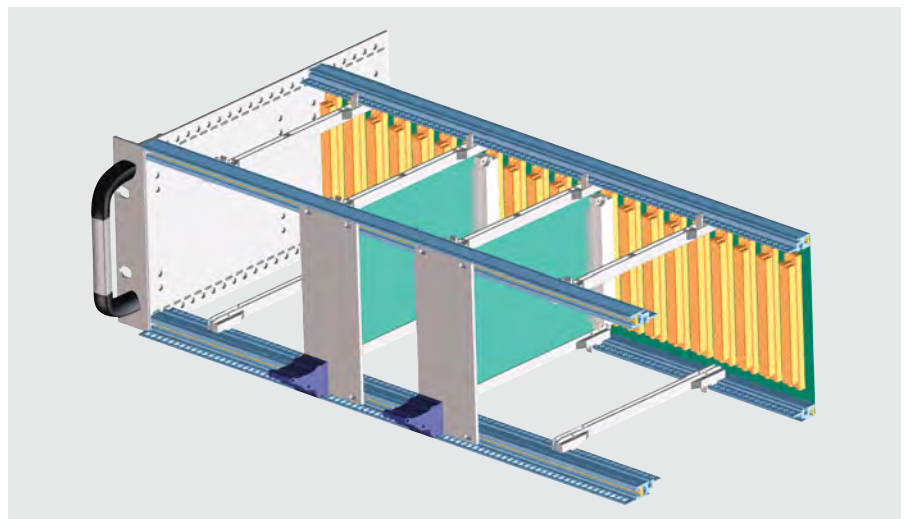
### Configuration for injector / extractor handle and backplane for CPCI acc. to IEEE

**front**

standard module rails 241-022,  
standard module rails 241-049  
with 10 mm clearance for insertion/  
extraction handle  
threaded inserts M 2,5

**rear**

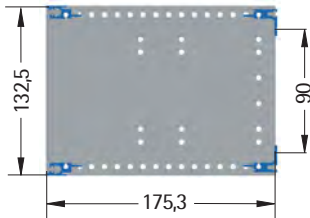
BUS module rails 241-013  
threaded inserts M 2,5



Please order insulating strips or contact strips separately (see p.115).

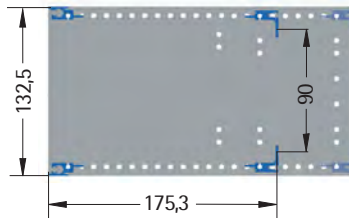


Depth 176 mm



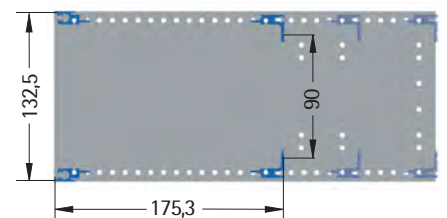
Description	Order no.
84 HP, with handle	245-314-11
84 HP, without handle	245-311-11
42 HP, with handle	245-334-11
42 HP, without handle	245-331-11

Depth 236 mm



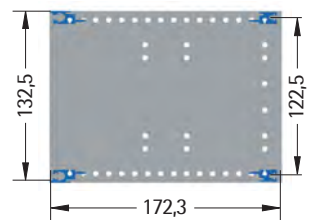
Description	Order no.
84 HP, with handle	245-315-11
84 HP, without handle	245-312-11
42 HP, with handle	245-335-11
42 HP, without handle	245-332-11

Depth 296 mm



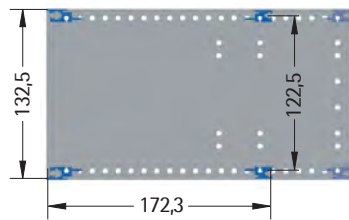
Description	Order no.
84 HP, with handle	245-316-11
84 HP, without handle	245-313-11
42 HP, with handle	245-336-11
42 HP, without handle	245-333-11

Depth 176 mm



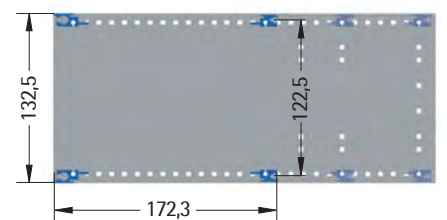
Description	Order no.
84 HP, with handle	245-314-21
84 HP, without handle	245-311-21
42 HP, with handle	245-334-21
42 HP, without handle	245-331-21

Depth 236 mm



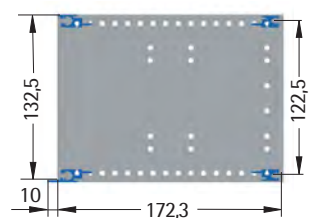
Description	Order no.
84 HP, with handle	245-315-21
84 HP, without handle	245-312-21
42 HP, with handle	245-335-21
42 HP, without handle	245-332-21

Depth 296 mm



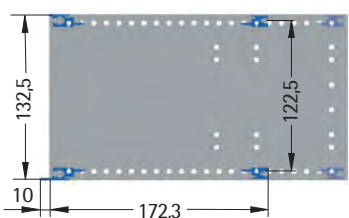
Description	Order no.
84 HP, with handle	245-316-21
84 HP, without handle	245-313-21
42 HP, with handle	245-336-21
42 HP, without handle	245-333-21

Depth 176 mm



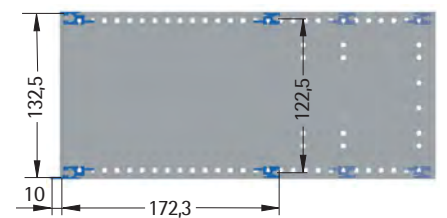
Description	Order no.
84 HP, with handle	245-314-31
84 HP, without handle	245-311-31
42 HP, with handle	245-334-31
42 HP, without handle	245-331-31

Depth 236 mm



Description	Order no.
84 HP, with handle	245-315-31
84 HP, without handle	245-312-31
42 HP, with handle	245-335-31
42 HP, without handle	245-332-31

Depth 296 mm



Description	Order no.
84 HP, with handle	245-316-31
84 HP, without handle	245-313-31
42 HP, with handle	245-336-31
42 HP, without handle	245-333-31

Other depths available on request. All drawings shown in side view. The lighter coloured rear rails show optional installation options.



## 245 • 19" subrack 3 U, EMC

### 19" subrack 3 U, EMC

- protects against electromagnetic environmental influences
- chromated surfaces connect all components, which are thus conductive
- expanded EMC delivery:
  - module rails, rear (item 2)
  - cover brackets (item 6)
- module rails are prevented from rotating

#### Application:

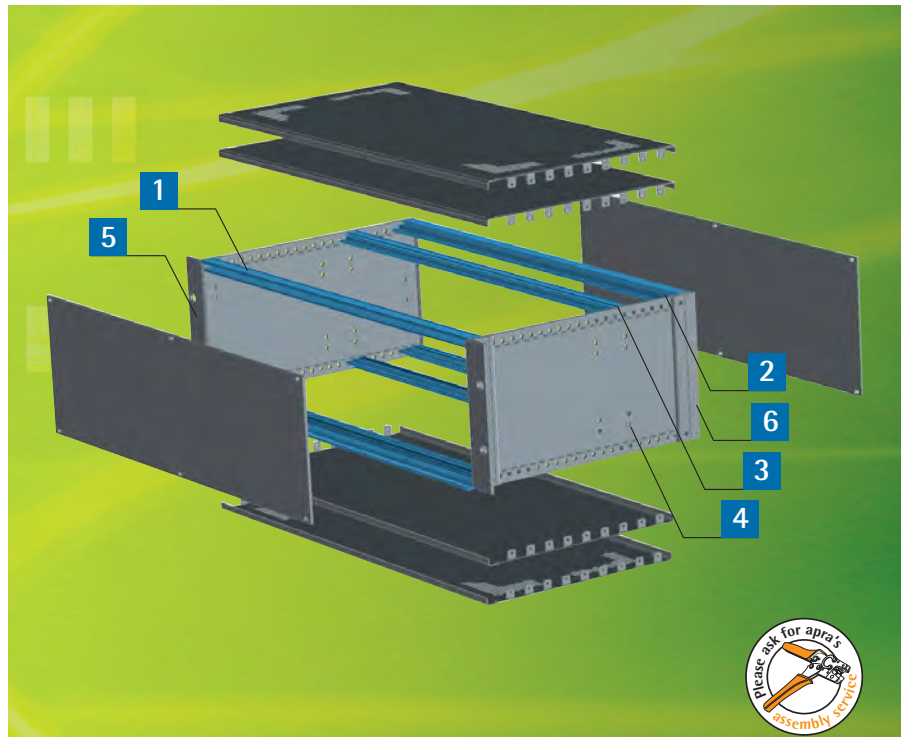
for plug-in modules acc. to IEC 60297-3-101/-102/-103 and IEEE 1101.10/1101.11

#### Material:

side panels: aluminium 2,5 mm  
 module rails: aluminium extrusion  
 front brackets: aluminium extrusion

#### Delivery:

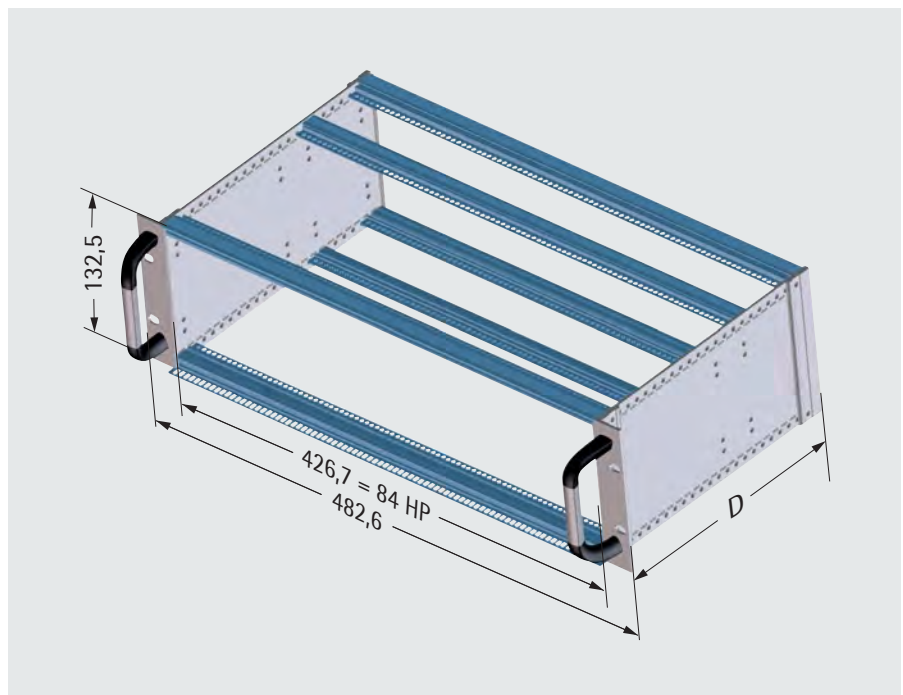
kit form



To achieve complete EMC shielding please order shielding plates, front panels and corresponding EMC clips separately.

#### Delivery

Item	Pc.	Description
1	2	Module rails, front
2	2	Module rails, rear
3	2	Module rails, middle
4	2	Side panels
5	2	Front angle bracket with or without handle
6	2	Cover bracket
7	4	Threaded inserts M 2,5 7 mm x 2 mm
8	2	Threaded inserts M 2,5 5 mm x 1,5 mm (only for middle BUS module rail)
9	12	Oval head screws, M 4 x 12, toothed head
		Assembly material





### Configuration for connectors according to IEC 60603-2

**front**

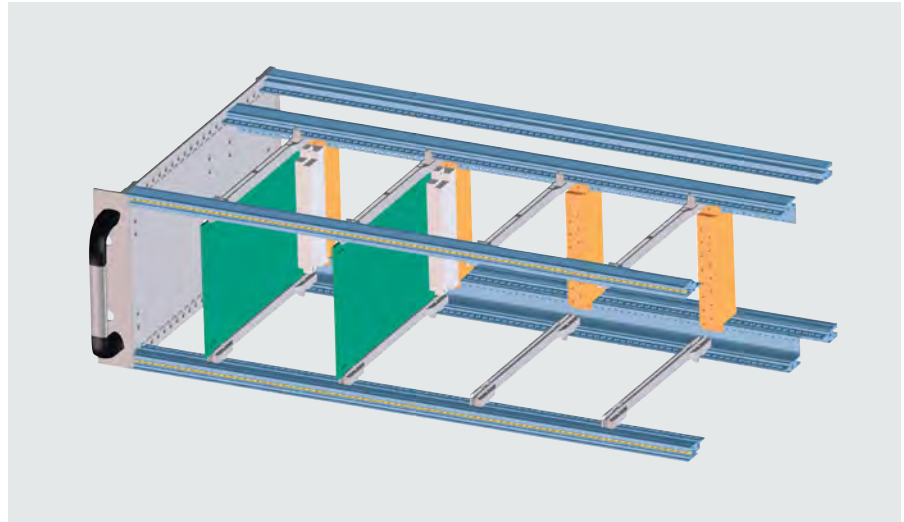
standard module rails 241-022  
threaded inserts M 2,5

**middle**

narrow module rails 241-019  
with integrated mounting rails for plug-  
in connections acc. to IEC 60603-2

**rear**

standard module rails 241-022  
threaded inserts M 2,5



### Configuration for backplane

**front**

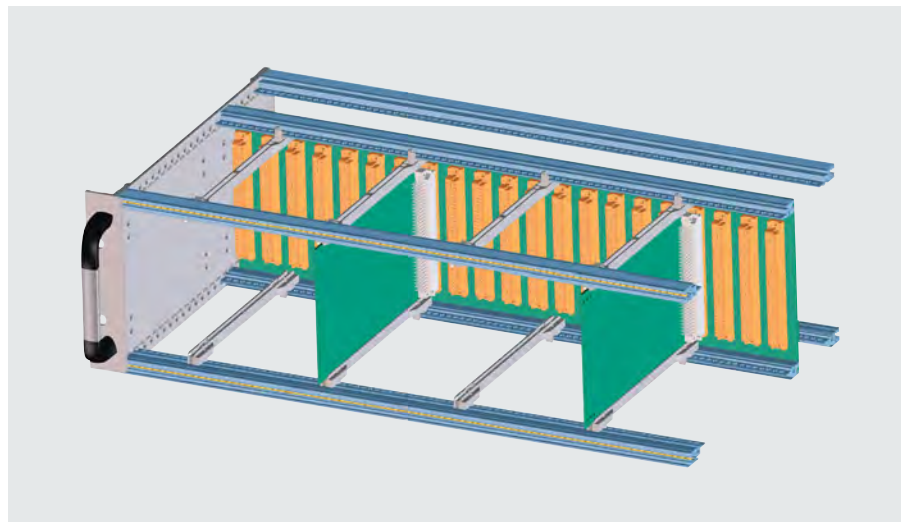
standard module rails 241-022  
threaded inserts

**middle**

BUS module rails 241-013  
threaded inserts M 2,5

**rear**

standard module rails 241-022  
threaded inserts M 2,5



Please order insulating strips or contact strips separately (see p.115).

### Configuration for injector / extractor handle and backplane for CPCI acc. to IEEE

**front**

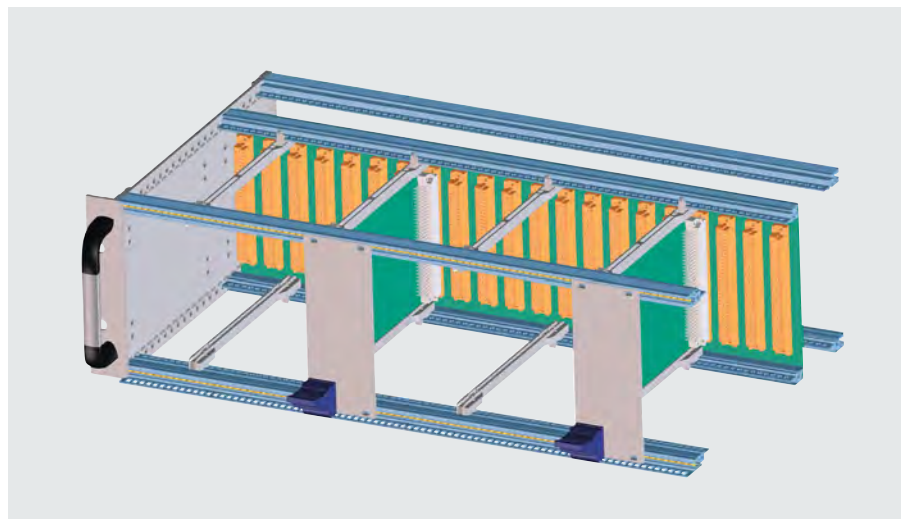
standard module rails 241-022,  
standard module rails 241-049  
with 10 mm clearance for insertion/  
extraction handle  
threaded inserts M 2,5

**middle**

BUS module rails 241-013  
threaded inserts M 2,5

**rear**

standard module rails 241-022  
threaded inserts M 2,5

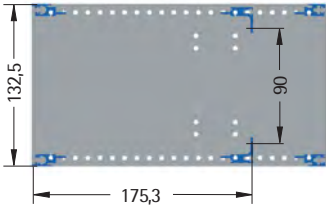


Please order insulating strips or contact strips separately (see p.115).

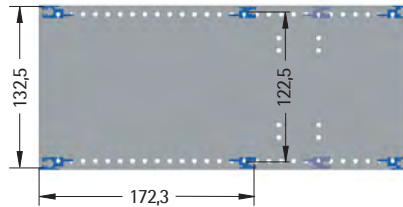


**Configuration for connectors according to IEC 60603-2**

**Depth 236 mm**



**Depth 296 mm**

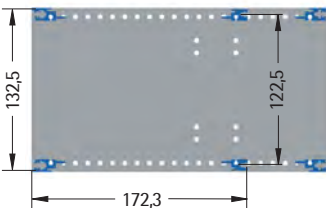


Description	Order no.
84 HP, with handle	245-315-16
84 HP, without handle	245-312-16

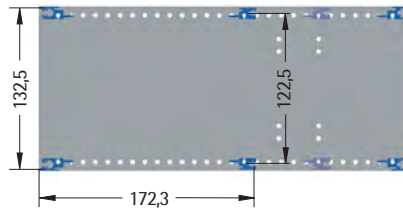
Description	Order no.
84 HP, with handle	245-316-16
84 HP, without handle	245-313-16

**Configuration for backplane**

**Depth 236 mm**



**Depth 296 mm**

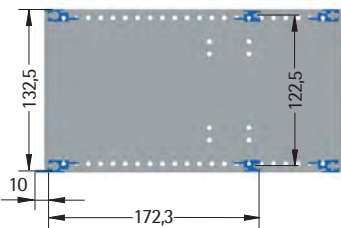


Description	Order no.
84 HP, with handle	245-315-26
84 HP, without handle	245-312-26

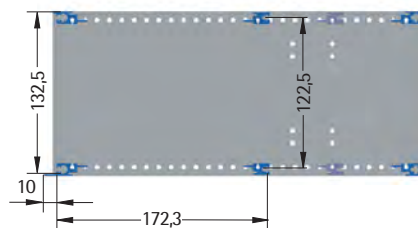
Description	Order no.
84 HP, with handle	245-316-26
84 HP, without handle	245-313-26

**Configuration for injector / extractor handle and backplane**

**Depth 236 mm**



**Depth 296 mm**



Description	Order no.
84 HP, with handle	245-315-36
84 HP, without handle	245-312-36

Description	Order no.
84 HP, with handle	245-316-36
84 HP, without handle	245-313-36

Other depths available on request. All drawings shown in side view. The lighter coloured rear rails show optional installation options.



### 19" subrack, 6 U, single row

- basic kit with a wide range of accessories
- easy and quick assembly
- depth mounting increment  $d = 10\text{mm}$
- module rails are prevented from rotating

**Application:**

for plug-in modules acc. to IEC 297-3 and IEEE 1101.10/1101.11

**Material:**

side panels: aluminium 2.5 mm

module rail: aluminium extrusion

front brackets: aluminium extrusion

**Delivery:**

kit form



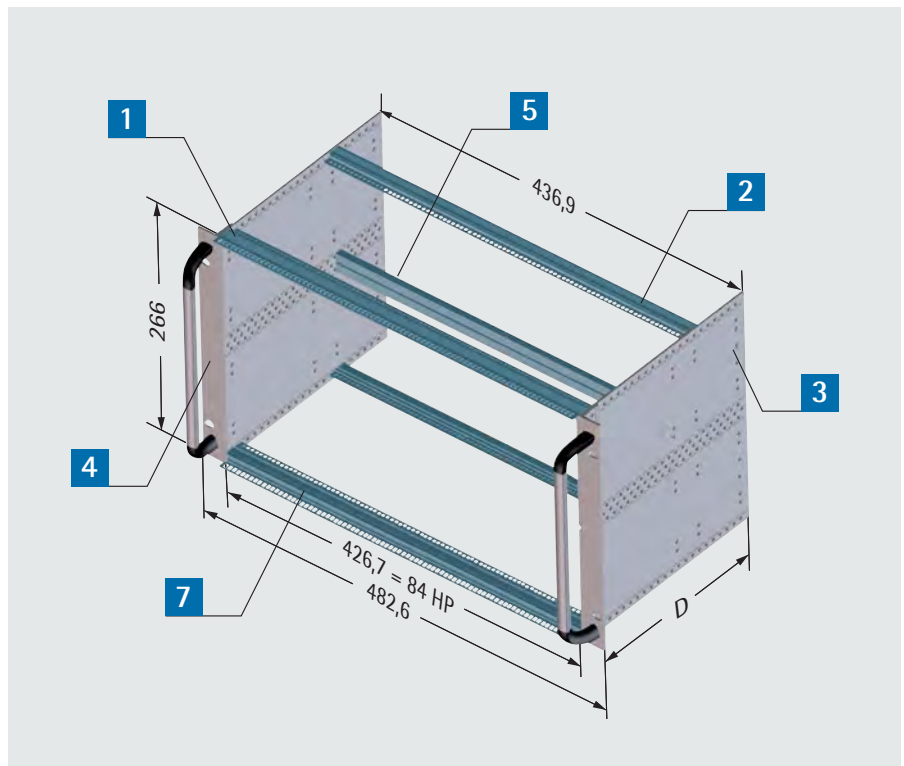
Sample configuration



Also available as double-row version - please contact us!

**Delivery**

Item	Pc.	Description
1	2	Module rails, front
2	2	Module rails, rear
3	2	Side panels
4	2	Front angle bracket with or without handle
5	1	Mounting rail
6	8	Oval head screws, M 4 x 12, toothed head
7	2	Threaded inserts M 2,5 7 mm x 2 mm
8	4	Threaded inserts M 2,5 5 mm x 1,5 mm (only if rear BUS module rail)
9		Assembly material



Configuration for injector / extractor handle and backplane / 84 HP / with handles





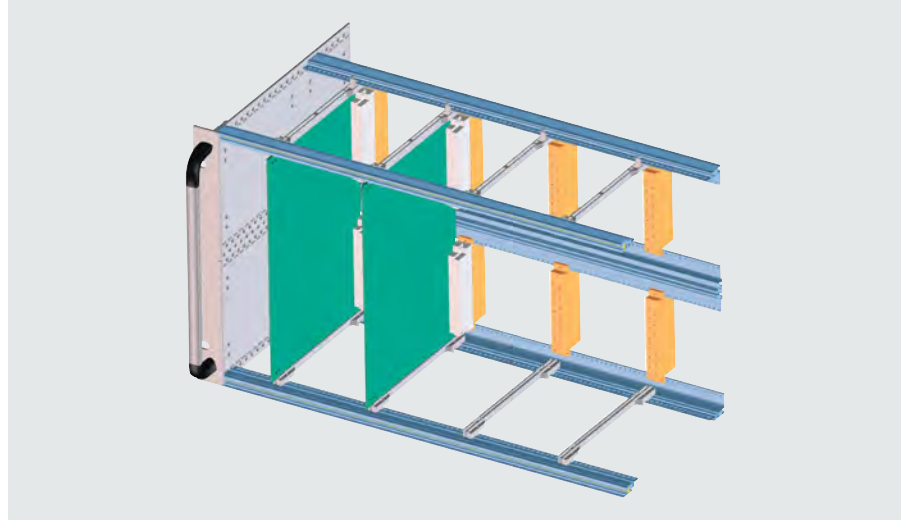
### Configuration for connectors according to IEC 60603-2

**front**

standard module rails 241-022  
threaded inserts M 2,5

**rear**

narrow module rails 241-019  
and support rail with integrated mounting rails for plug-in connections acc. to IEC 60603-2



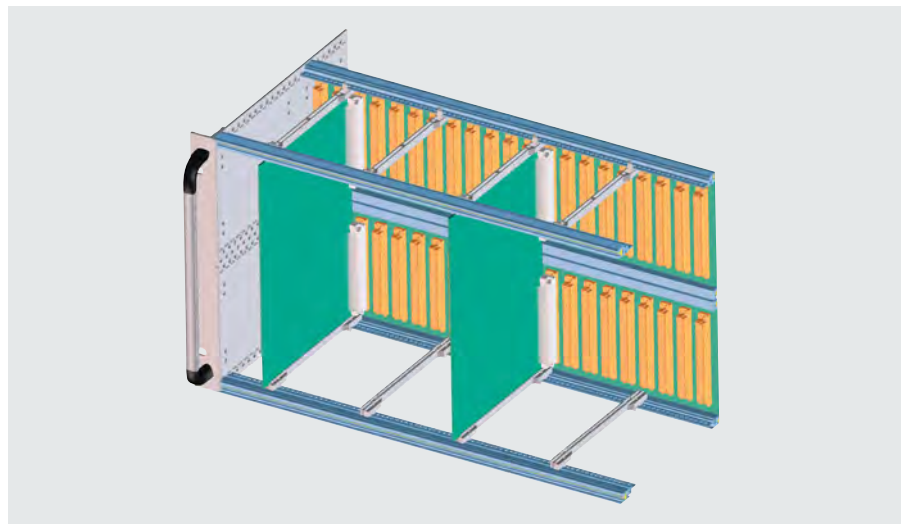
### Configuration for backplane

**front**

standard module rails 241-022  
with threaded inserts, M 2.5

**rear**

BUS module rails 241-013  
with threaded inserts, M 2.5  
and BUS support rail 241-020  
with threaded inserts, M 2.5



Please order insulating strips or contact strips separately (see p.115).

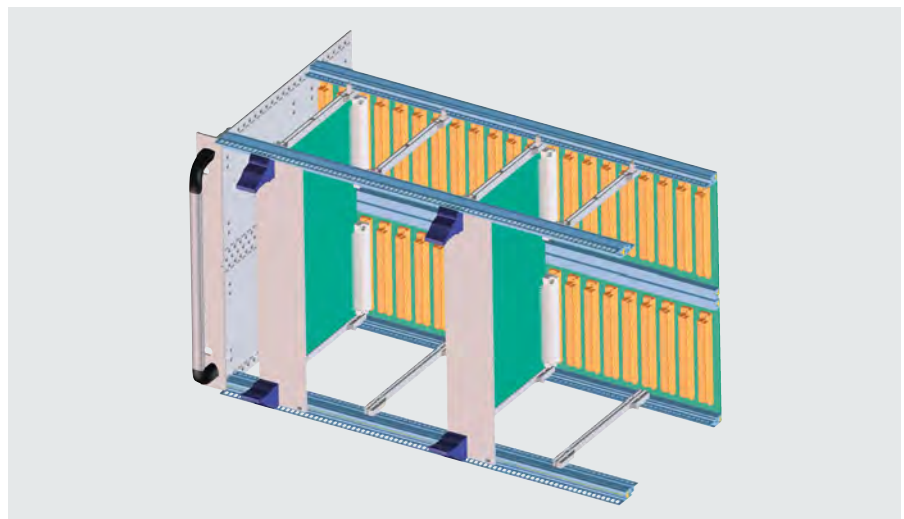
### Configuration for injector / extractor handle and backplane for CPCI acc. to IEEE

**front**

standard module rails 241-049  
with 10 mm clearance for insertion/  
extraction handle  
threaded inserts M 2,5

**rear**

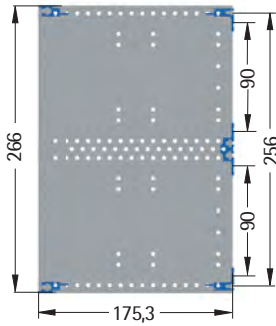
BUS module rails 241-013  
with threaded inserts, M 2.5  
and BUS support rail 241-020  
with threaded inserts, M 2.5



Please order insulating strips or contact strips separately (see p.115).

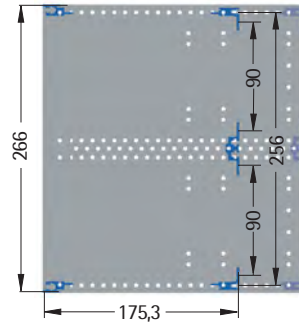


Depth 176 mm



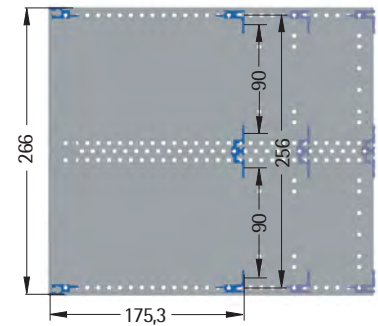
Description	Order no.
84 HP, with handle	245-614-11
84 HP, without handle	245-611-11

Depth 236 mm



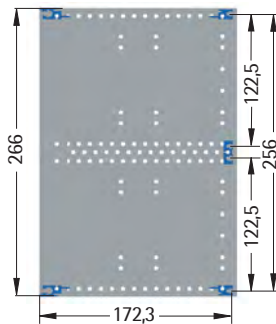
Description	Order no.
84 HP, with handle	245-615-11
84 HP, without handle	245-612-11

Depth 296 mm



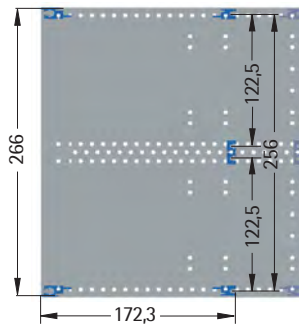
Description	Order no.
84 HP, with handle	245-616-11
84 HP, without handle	245-613-11

Depth 176 mm



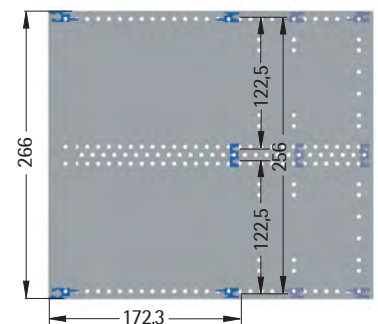
Description	Order no.
84 HP, with handle	245-614-21
84 HP, without handle	245-611-21

Depth 236 mm



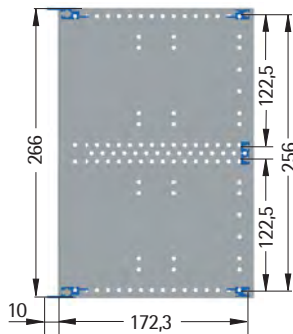
Description	Order no.
84 HP, with handle	245-615-21
84 HP, without handle	245-612-21

Depth 296 mm



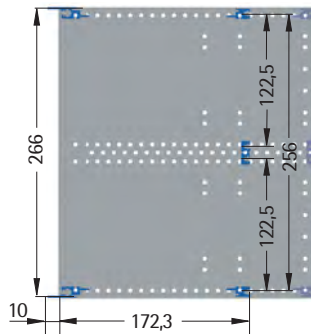
Description	Order no.
84 HP, with handle	245-616-21
84 HP, without handle	245-613-21

Depth 176 mm



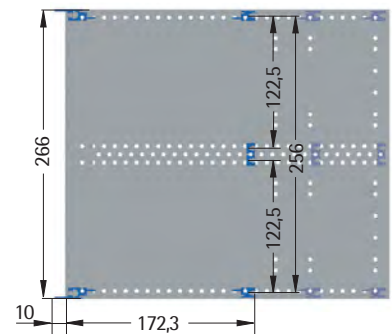
Description	Order no.
84 HP, with handle	245-614-31
84 HP, without handle	245-611-31

Depth 236 mm



Description	Order no.
84 HP, with handle	245-615-31
84 HP, without handle	245-612-31

Depth 296 mm



Description	Order no.
84 HP, with handle	245-616-31
84 HP, without handle	245-613-31

Other depths available on request. All drawings shown in side view. The lighter coloured rear rails show optional installation options.



## 245 • 19" subrack 2 U

### 19" subrack 2 U

- perforated side panels with fan option
- ideal for installing subracks vertically in appropriate 19" apra-norm wall-mounted enclosures
- module rails are prevented from rotating

#### Application:

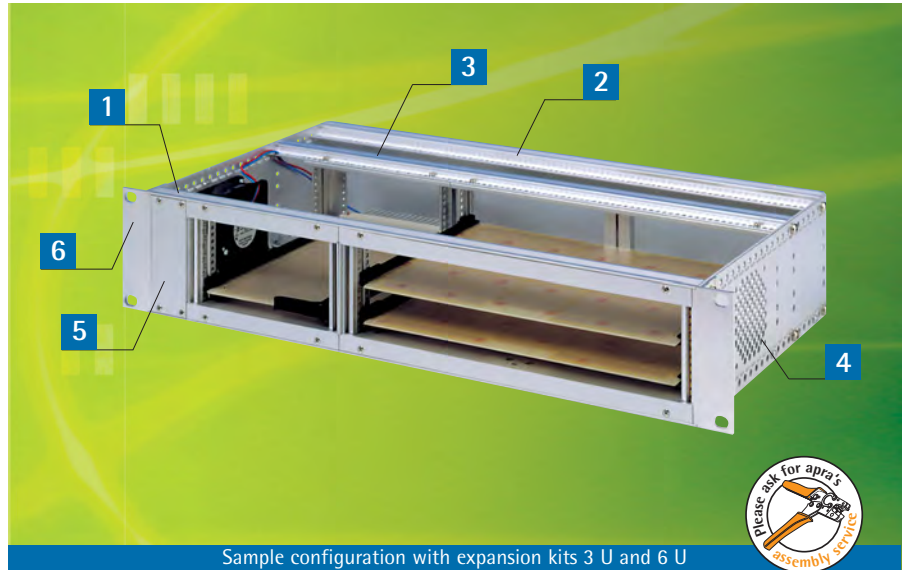
for plug-in modules acc. to IEC 60297-3-101/-102/-103 and IEEE 1101.10/1101.11

#### Material:

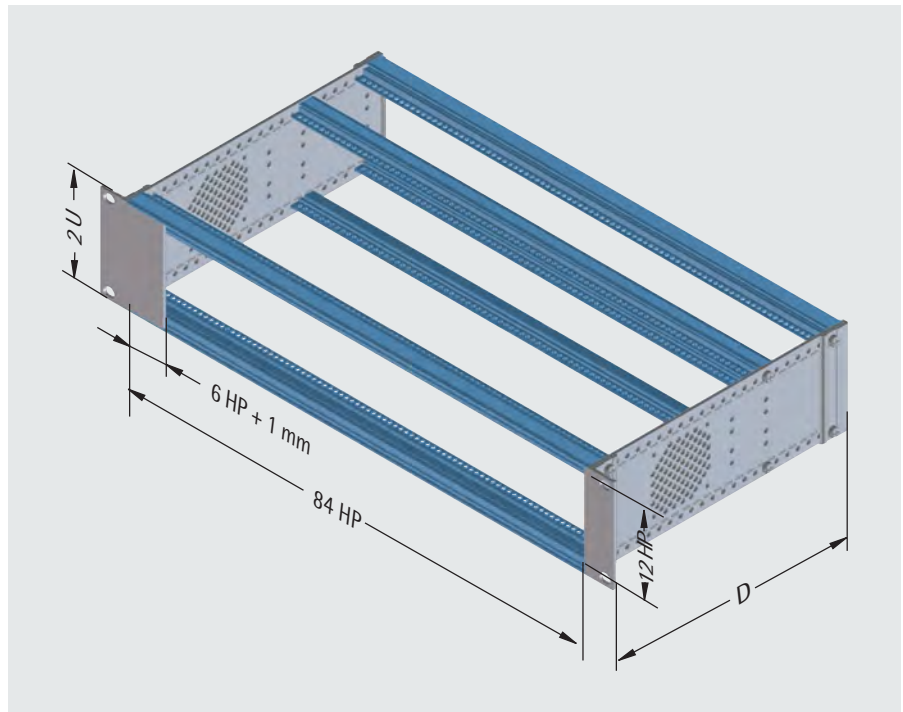
side panels: aluminium 2,5 mm  
module rails: aluminium extrusion  
front brackets: aluminium extrusion

#### Delivery:

kit form



Sample configuration with expansion kits 3 U and 6 U



### Delivery

Item	Pc.	Description
1	2	Module rails, front
2	2	Module rails, rear
3	2	BUS module rails, middle
4	2	Side panels, perforated
5	1	Front panel 6 HP
6	2	Front angle bracket
7	2	Cover bracket
8	4	Threaded inserts M 2,5 7 mm x 2 mm
9	2	Threaded inserts M 2,5 5 mm x 1,5 mm
10	12	Oval head screws, M 4 x 12, toothed head
11		Assembly material

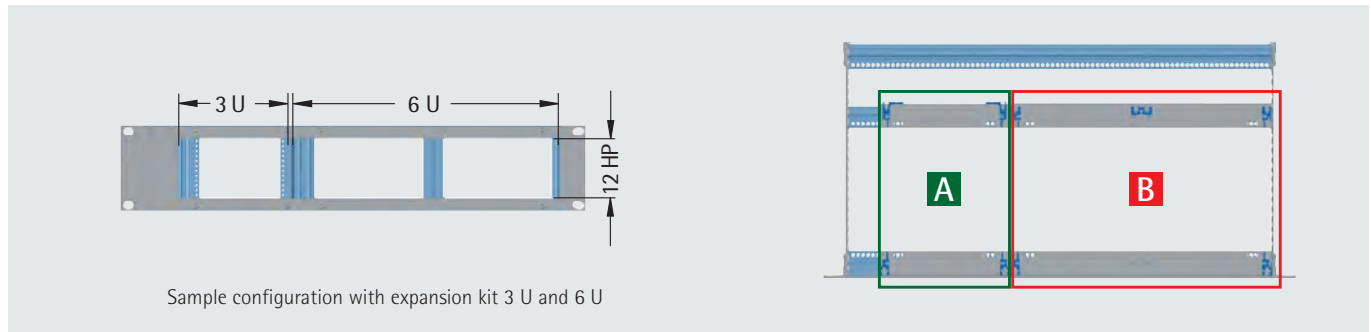
Description	Order no.
D=236 mm	245-212-28
D=296 mm	245-213-28



### Expansion kits

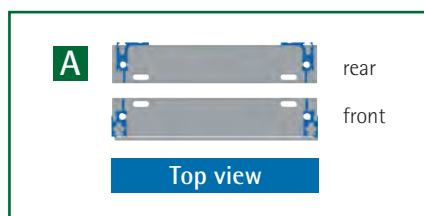
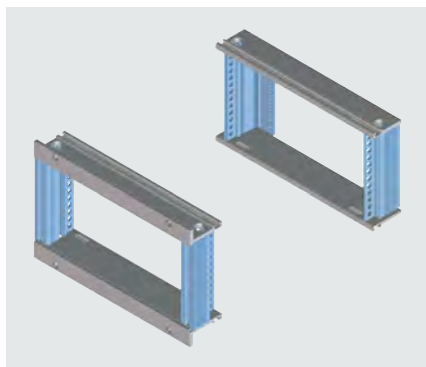
- for installing eurocards or double eurocards horizontally in a 2 U subrack
- the following combinations are possible in 84 HP subracks:

1x 3 U expansion kit + 1x 6 U expansion kit or up to 3x 3 U expansion kits



Horizontal expansion kits for 3U subracks on p. 110. Other expansion kits available on request.

#### Expansion kit 3 U / 12 HP

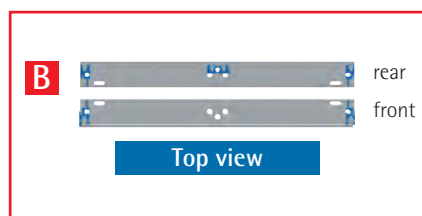
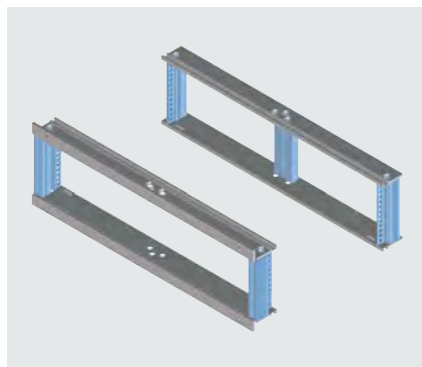


- for installing eurocards horizontally
- front: standard module rails 241-022
- rear: narrow module rails 241-019 with integrated mounting rail for plug-in connectors acc. to IEC 60603-2

Order no.

245-312-61

#### Expansion kit 6 U / 12 HP



- for installing double eurocards horizontally
- front: standard module rails No. 241-022
- rear: BUS module rails No. 241-013 and BUS support rail No. 241-020

Order no.

245-612-62