

# 19" Plug-in Units



... the perfect shell for valuable electronics



# 19" plug-in units



## 19" front panels

beginning on page 4.4

- in compliance with IEC 297-1
- untreated, anodized or painted
- available in sizes 1 U to 12 U
- customized treatment (screen printing, etc.) possible



## 19" universal plug-in unit

beginning on page 4.6

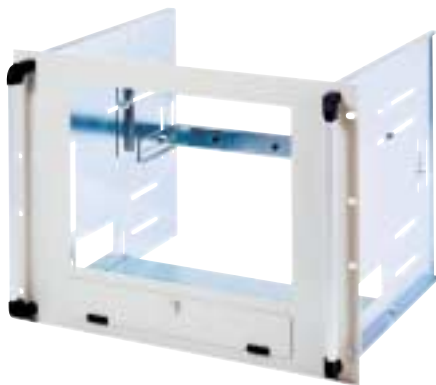
- in compliance with IEC 297-1
- available in sizes 2 U to 6 U
- telescoping



## 19" flat cases, 1 U

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- 19" plug-in unit 1 U 4.12
- 19" flat case 1 U 4.13
- 19" card plug-in unit 1 U 4.14



## 19" monitor plug-in units

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- 19" TFT keyboard plug-in unit, 1 U . 4.21
- apra TFT display plug-in unit . . . . . 4.22
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## 19" computer plug-in units

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- 19" computer plug-in unit, 2 U . . 4.32
- 19" computer plug-in unit, 3 U . . 4.34
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- Industrial PC case, "Hard Box" . . . . 4.42



## 19" server plug-in units

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- 19" server plug-in unit, 6 U, AT/ATX . . . 4.44
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### 19" fan plug-in units

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- for 3, 6 or 9 fans
- with high-power **PAPST** fans



### 19" drawers

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- 19" TFT tray 1 U 4.19
- 19" drawer, 1 U to 3 U 4.20
- 19" document drawer 3 U 4.20



### Accessories

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- ATX connection panels ..... 4.49
- AT and ATX power supplies ..... 4.50
- Fan ..... 4.52
- Disk drive panels ..... 4.53
- Card securing set ..... 4.54
- PC 104 ..... 4.55
- Compact PCI ..... 4.56



### Additional plug-in units

• see Chapter 9 "Network Technology"

- 19" Cu patch panels ..... 9.11
- 19" breakout box, 1 U ..... 9.12
- 19" splicing box, 1 U ..... 9.13



### Individual 19" plug-in systems

beginning on page 4.57

- we develop ideal 19" plug-in unit solutions based on your specific demands



## 200 • 19" front panels



### 19" front panels

- without holes for handles
- fit all 19" cabinets and enclosures
- with standardized mounting holes
- in compliance with IEC 297-1
- customized blanking plates with printing, stamping and embossing available on request

### Specifications

Height	Dimensions	General information
1 U/3 U to 6 U		<p><b>Finish:</b> RAL 7035/7032 untreated (can be anodized) anodized</p> <p><b>Material:</b> aluminium 2.5mm or 4mm</p>
2 U		
7 U to 12 U		



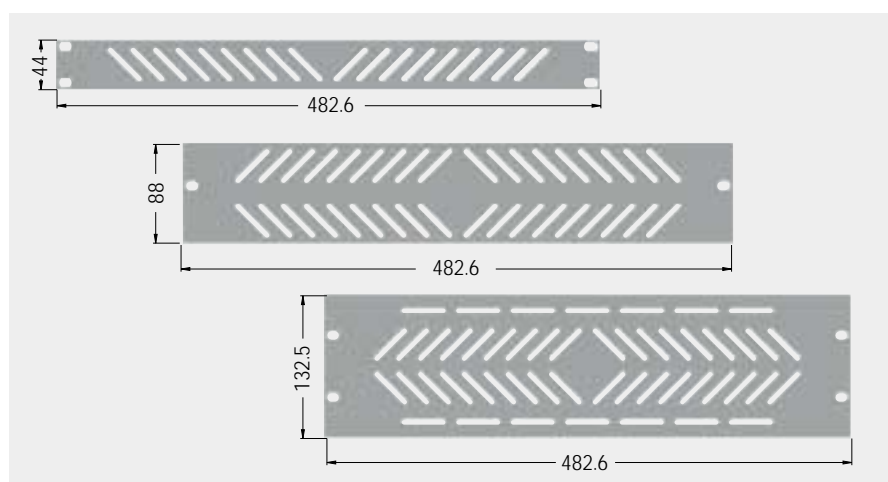


Description				AlMg1 - anodizing quality; 4mm cut edges			AlMg1 - anodizing quality; 4mm milled edges		AlMg1 - anodizing quality; 2.5mm cut edges	
				untreated (can be anodized) with protective film	paint RAL 7032 pebble grey	paint RAL 7035 light grey	untreated (can be anodized) with protective film	natural colour anodized *	untreated (can be anodized) with protective film	natural colour anodized *
Size U	Height H mm	b mm	c mm							
1	44	5.90	32.2	200-301	200-021	20-0021-20	200-001	200-201	-	-
2	88	37.75	-	200-302	200-022	20-0022-20	200-002	200-202	200-102	200-122
3	132.5	37.75	57	200-303	200-023	20-0023-20	200-003	200-203	200-103	200-123
4	177	37.75	101.5	200-304	200-024	20-0024-20	200-004	200-204	200-104	200-124
5	221.5	37.75	146	200-305	200-025	20-0025-20	200-005	200-205	200-105	200-125
6	266	37.75	190.5	200-306	200-026	20-0026-20	200-006	200-206	200-106	200-126
7	310.5	37.75	88.9	200-307	200-027	20-0027-20	200-007	200-207	-	-
8	354.5	37.75	101.6	200-308	200-028	20-0028-20	200-008	200-208	-	-
9	399	37.75	101.6	200-309	200-029	20-0029-20	200-009	200-209	-	-
10	443.5	37.75	101.6	200-310	200-030	20-0030-20	200-010	200-210	-	-
11	488	37.75	133.3	200-311	200-031	20-0031-20	200-011	200-211	-	-
12	532.5	37.75	133.3	200-312	200-032	20-0032-20	200-012	200-212	-	-
Info				• can be painted, anodized or chromated in the future			• can be subsequently painted, anodized or chromated		• can be subsequently painted, anodized or chromated	

Note: See the "Network Technology" chapter on p. 9.17 for sheet steel blanking plates.

## 19" ventilating front panels

- in compliance with IEC 297-1



## Order information

Size U	Height H mm	Aluminium, 4mm, natural colour anodized*	Aluminium, 2.5mm, natural colour anodized*	Aluminium, 4mm RAL 7035 paint	Aluminium, 2.5mm RAL 7035 paint
1	44	200-151	200-141	200-161	200-171
2	88	200-152	200-142	200-162	200-172
3	132.5	200-153	200-143	200-163	200-173

Note: \* Due to the material used, anodized front panels may be slightly different in colour. This variation is permitted within existing resource standards.



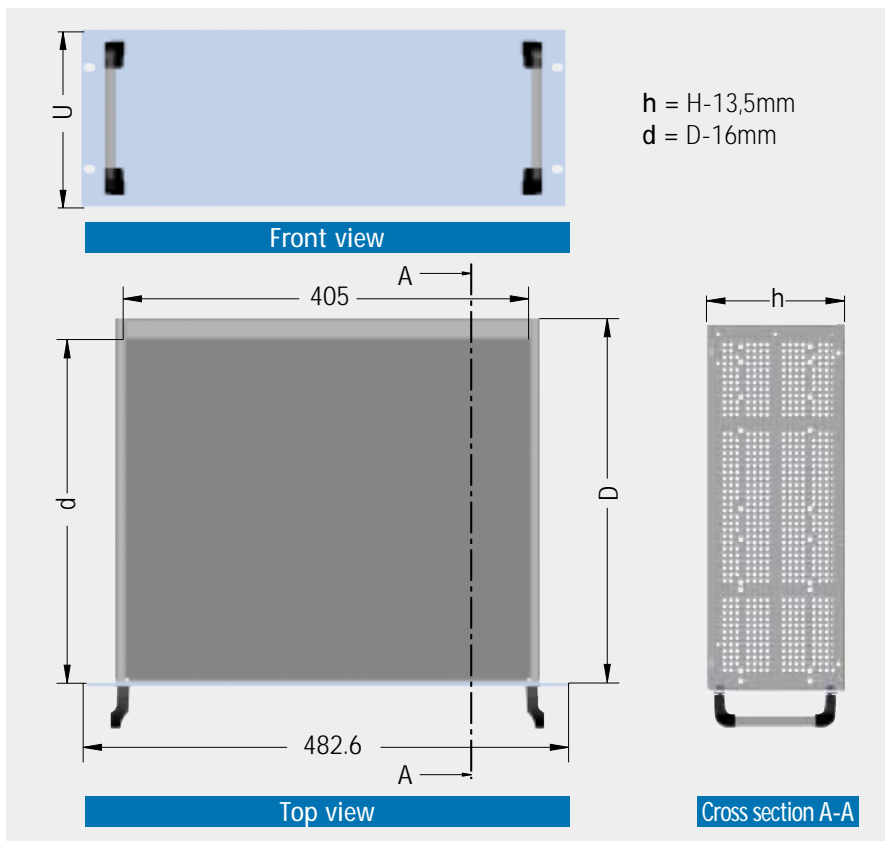
## 205 • 19" universal plug-in unit



### 19" universal plug-in unit

- in compliance with IEC 297-1
- EMC-compliant basic design
- suitable for telescoping rails
- various dimensions
- can be customized to your needs
- high stability
- variable extension due to mounting grids in the side walls

### Specifications



#### Application:

universal, highly stable plug-in system

#### Finish:

Front panel:  
RAL 7035 light grey  
chromated rear side  
Chassis: galvanized

#### Material:

Front panel: aluminium, 4mm  
Chassis: sheet steel

#### Delivery form:

not assembled

### Included in delivery

Item	Pc.	Description
1	1	Front panel, 4mm
2	2	Handles
3	2	Side panels
4	1	Rear panel
5	1	Chassis panel
6	1	Top panel
7		Assembly material

### Order information

Size	Height H mm	with painted front panel		
		D=260mm	D=360mm	D=460mm
2	88	20-5026-20	20-5036-20	20-5046-20
3	132.5	20-5026-30	20-5036-30	20-5046-30
4	177	20-5026-40	20-5036-40	20-5046-40
5	221.5	20-5026-50	20-5036-50	20-5046-50
6	266	20-5026-60	20-5036-60	20-5046-60

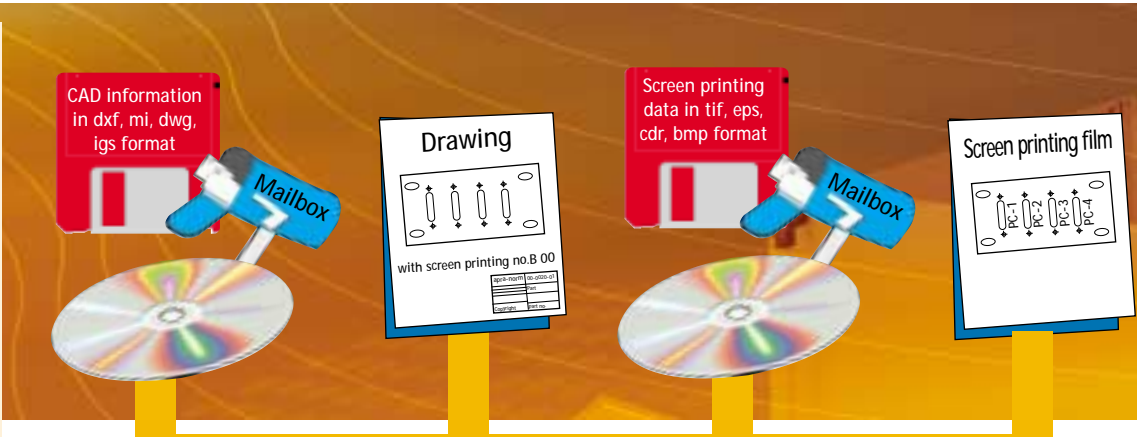


### Front panels customized at apra-norm

**1**

Send us your data via e-mail, diskette, CD or on paper.

Use our Internet front panel service: [www.apra.de](http://www.apra.de)



**2**

We transform your data using modern 2-D/3-D CAD equipment.

We will provide you a drawing for your approval on request.



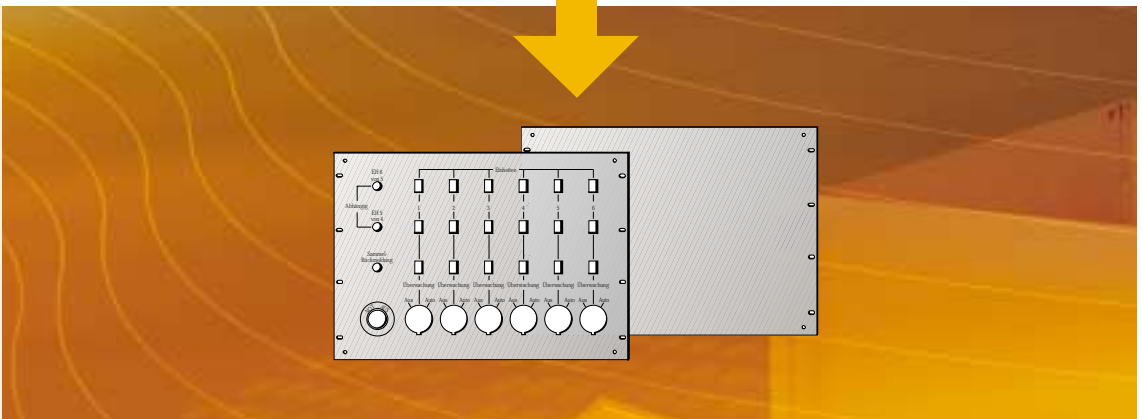
**3**

We use modern manufacturing equipment to high-quality front panels for you.



**4**

You receive your customized front panels (following clarification with technicians) within 5 workdays!





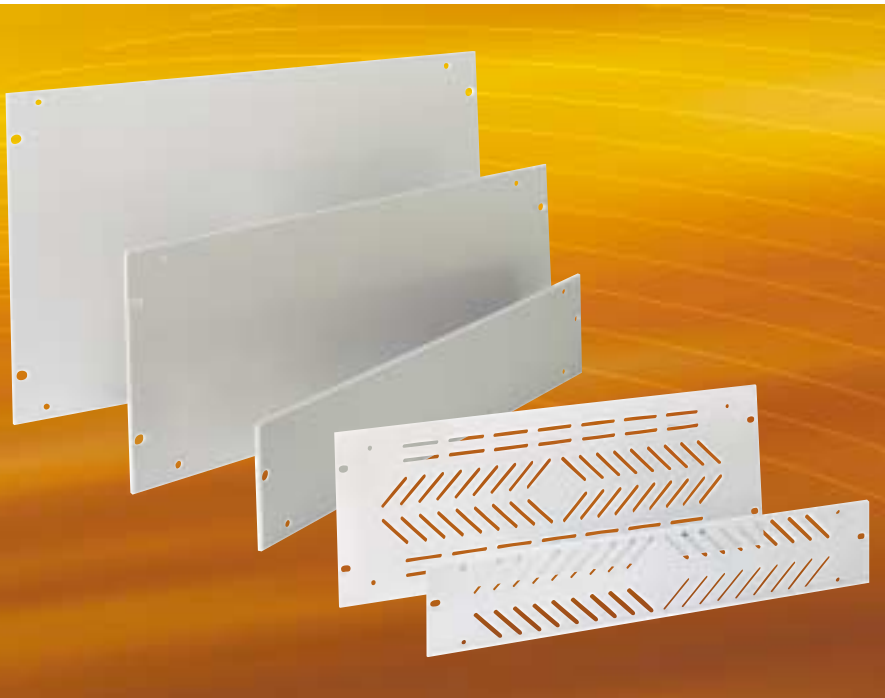
## 205 • 19" universal plug-in unit



### Custom configuration

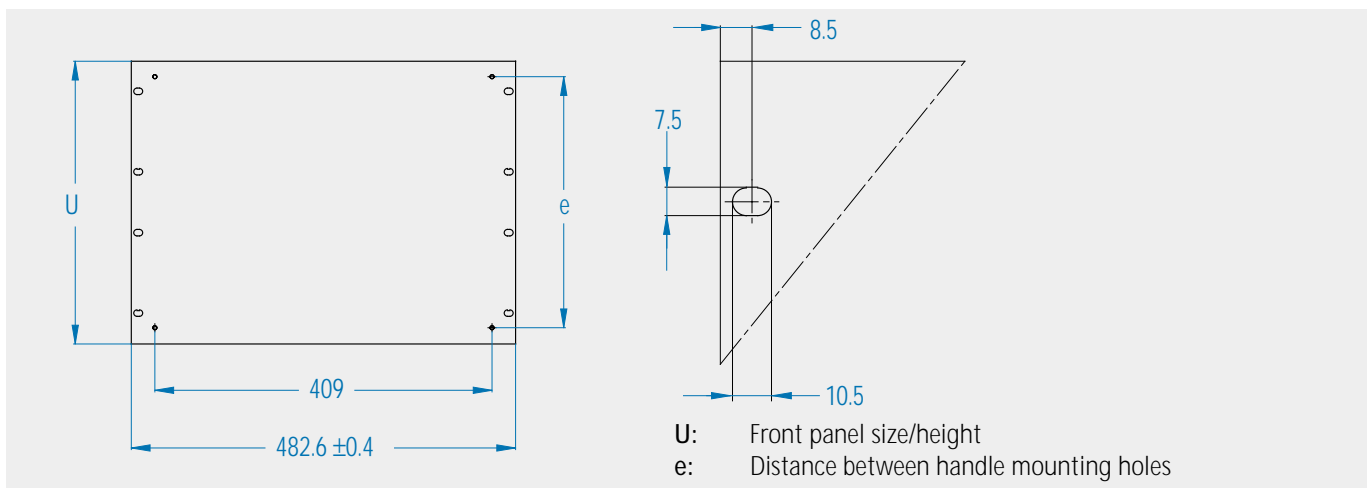
Design your own customized universal plug-in unit.  
Select your required plug-in components one at a time.

#### 1a Front panel



- in compliance with IEC 297-1
- fits all 19" cabinets and enclosures
- with standardized mounting holes
- with holes for mounting handles and plug-in unit side walls
- customized front panels with printing, stamping and embossing available on request
- Internet front panel service

#### Specifications



### Our Internet front panel service for you!

We offer a free 19" front panel download on our homepage at [www.apra.de](http://www.apra.de) so you can keep your costs to a minimum.

Simply download the CAD file (in dxf format) with your desired front panel size. Then draw in your customized cut-outs, embossings, etc. and **e-mail the finished drawing to [vertrieb@apranorm.apra.de](mailto:vertrieb@apranorm.apra.de) in dxf-Format.**

You can also send supplemental [screen printing files in tif, eps, cdr, bmp format](#) at the same time.

Please also specify colours for any painting or screen printing. You will receive a quote for the number you requested shortly thereafter.

It can't get any easier or faster than that!



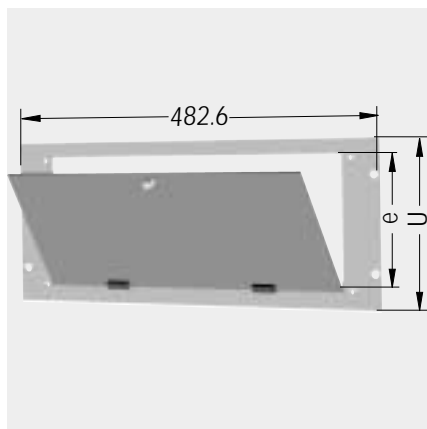


## Standard front panels

Description			AlMg1 - anodizing quality; 2.5mm cut edges				AlMg1 - anodizing quality; 4mm cut edges			
			RAL 7035 light grey		untreated (can be anodized) with protective film		RAL 7035 light grey		untreated (can be anodized) with protective film	
Size U	Height H mm	e mm	ventilated	not ventilated	ventilated	not ventilated	ventilated	not ventilated	ventilated	not ventilated
			2	88	72	20-5002-52	20-5002-42	20-5002-12	20-5002-02	20-5000-52
3	132.5	92.5	20-5002-53	20-5002-43	20-5002-13	20-5002-03	20-5000-53	20-5000-43	20-5000-13	20-5000-03
4	177	137	20-5002-54	20-5002-44	20-5002-14	20-5002-04	20-5000-54	20-5000-44	20-5000-14	20-5000-04
5	221.5	181.5	20-5002-55	20-5002-45	20-5002-15	20-5002-05	20-5000-55	20-5000-45	20-5000-15	20-5000-05
6	266	226	20-5002-56	20-5002-46	20-5002-16	20-5002-06	20-5000-56	20-5000-46	20-5000-16	20-5000-06
Info			• chromated rear side for EMC use		• can be painted, anodized or chromated in the future		• chromated rear side for EMC use		• can be subsequently painted, anodized or chromated	

Note: Other sizes and surfaces available on request.

## 1b Fold-up front panel



- with quick-release lock
- with handle mounting holes


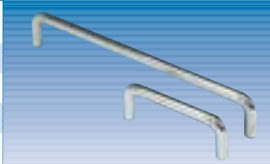
**Finish:**  
RAL 7035 light grey  
chromated rear side

**Material:**  
aluminium

### Order information

Size U	Height H mm	Distance between holes e mm	Part no.
3	132.5	92.5	20-5002-73
4	177	137	20-5002-74
5	221.5	181.5	20-5002-75
6	266	226	20-5002-76

## 2 Front panel handle

Size U	Distance between holes e mm	apra handle (piece) (2 plastic pieces with Al extrusion)	All-metal handle (piece) high-gloss chromated
2	72	 61-1302-00	 610-002
3	92.5	61-1303-00	610-003
4	137	61-1304-00	610-004
5	181.5	61-1305-00	610-005
6	226	61-1306-00	610-006
Assembly material		Matching screws, M5 x 12 DIN 7985 • for use with apra and all-metal handles	Matching decorative washers • for use with all-metal handle only
		630-097 (100 pieces)	chromated black 610-092 (100 pieces) 610-094 (100 pieces)



## 205 • 19" universal plug-in unit



### 3 Side panel



- with mounting grid for various assembly possibilities, for example chassis panel

**Material:** sheet steel, galvanized

Size U	Part no. (1 piece)			
	D = 260mm	D = 360mm	D = 460mm	D = 560mm
2	20-5026-22	20-5036-22	20-5046-22	20-5056-22
3	20-5026-32	20-5036-32	20-5046-32	20-5056-32
4	20-5026-42	20-5036-42	20-5046-42	20-5056-42
5	20-5026-52	20-5036-52	20-5046-52	20-5056-52
6	20-5026-62	20-5036-62	20-5046-62	20-5056-62

### 4 Rear panel



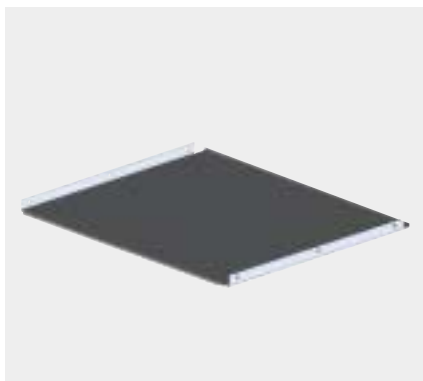
- can be set at different depths in the plug-in unit, if no chassis panel is used
- can be customized to your needs
- can also be installed horizontally as a shelf

**Material:** sheet steel, galvanized

#### Order information

Size U	Part no.
2	20-5056-02
3	20-5056-03
4	20-5056-04
5	20-5056-05
6	20-5056-06

### 5 Chassis panel



- can be installed at different heights
- can be customized to your needs
- incl. assembly material

**Material:** sheet steel, galvanized

#### Order information

Depth D mm	Part no.	
	ventilated	not ventilated
260	20-5026-35	20-5026-33
360	20-5036-35	20-5036-33
460	20-5046-35	20-5046-33
560	20-5056-35	20-5056-33

### 6 Top panel/bottom panel



- ventilated/not ventilated
- can be used as a top or bottom panel

**Material:** sheet steel, galvanized

#### Order information

Depth D mm	Part no.	
	ventilated	not ventilated
260	20-5026-36	20-5026-34
360	20-5036-36	20-5036-34
460	20-5046-36	20-5046-34
560	20-5056-36	20-5056-34



## Accessories

### Telescoping rail set



- with 19" assembly system subject to utility model protection
- high-quality telescoping rails
- ideal for installation in 600 to 800mm-deep cabinets
- includes 2 telescoping rails and assembly material

**Note:** rear 19" mount required

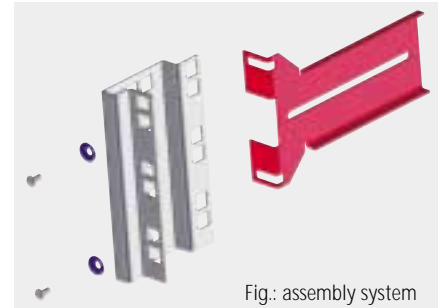


Fig.: assembly system

### Order information

Description	Features	D = 260mm	D = 360mm	D = 460mm	D = 560mm
Includes telescoping rails 0204 (See p. 13.6 for more information on this telescoping rail)	Detachable partial extender Can be locked when pulled out cost-effective Carrying capacity: 51-59kg	68-0077-00	68-0077-00	68-0078-00	68-0079-00
Full set with telescoping rails 3307 (See p. 13.9 for more information on this telescoping rail)	Detachable 100% extension Can be locked when pulled out Carrying capacity: 64-66kg	68-0075-00	68-0075-00	68-0075-00	68-0076-00

### Sliding rail set, with adjustable depth

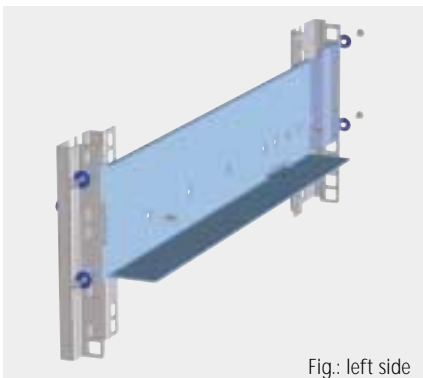


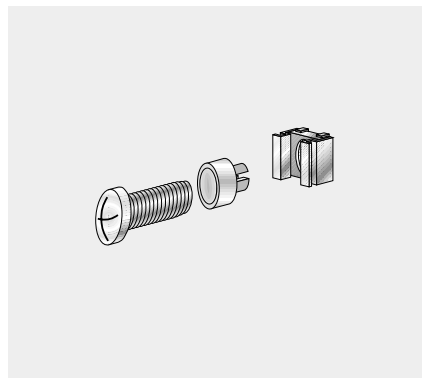
Fig.: left side

- with patented 19" assembly system
- ideal for installation in 600 to 800mm-deep cabinets
- incl. assembly material
- pulls out from 450mm to 700mm

**Carrying capacity:** 60kg

**Note:** rear 19" mount required

### M5 screw set



- required for installing 19" components in cabinets or enclosures

**Included in delivery:**

- 50 screws, M5 x 12
- 50 captive nuts, M4-8
- 50 decorative washers, M5 with collar

### "Uni 205" screw set

- includes all screws necessary for assembling an entire universal plug-in unit

**Included in delivery:**

- 4 screws, M5 x 12
- 10 screws, M5 x 8

Description	Part no.
Sliding rail set	20-5200-00

Description	Part no.
50 pc.	630-991

Part no.
630-405



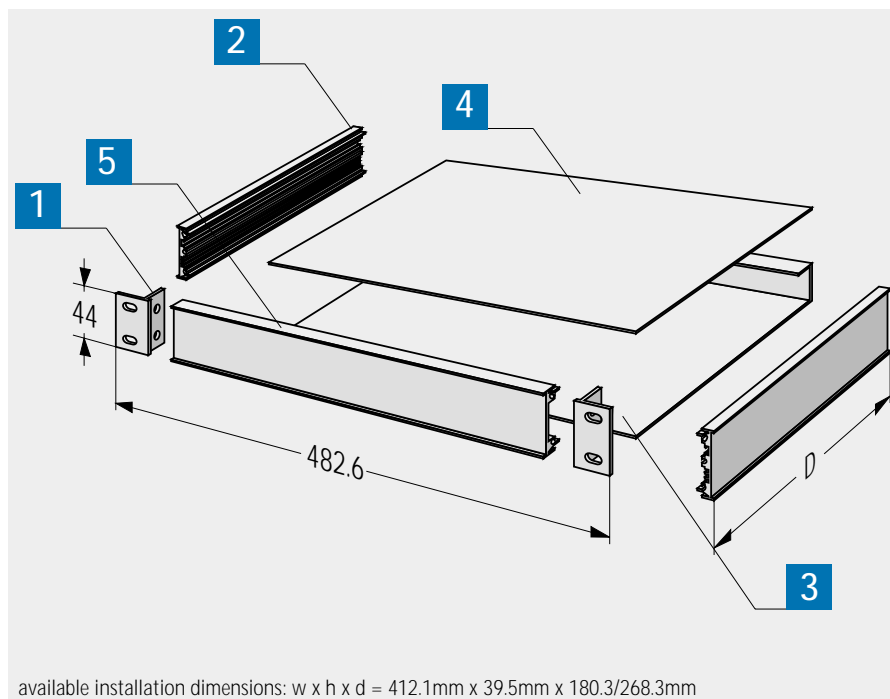
## 269 • 19" section plug-in unit, 1 U



### 19" extrusion plug-in unit, 1 U

- extrusions and contact surfaces are chromated for conductivity
- light construction
- customized treatment available on request

### Specifications



#### Application:

universal use in tight spaces

#### Construction:

aluminium construction

#### Finish:

RAL 7035 light grey

Extrusions:

clear chromated

#### Material:

aluminium

#### Delivery:

not assembled

### Included in delivery

Item	Pc.	Description
1	2	Front angle bracket
2	2	Side extrusion (aluminium)
3	1	Chassis
4	1	Top panel
5	1	Front extrusion (aluminium)
6		Assembly material

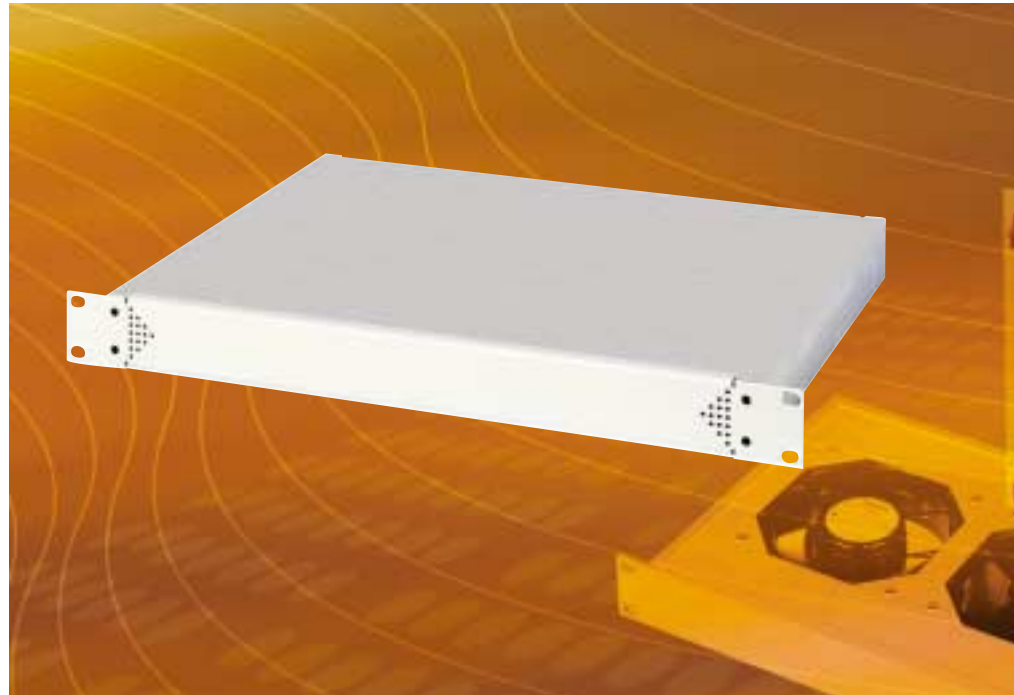
### Order information

Description	Depth D mm	Part no.
Extrusion plug-in unit, 1 U	212	269-107
Extrusion, plug-in unit 1 U	300	269-104



## 19" flat case, 1 U

- universal 1 U plug-in unit
- cost-effective sheet steel construction
- stable construction
- customized treatment available on request



## Specifications

### Application:

universal use in tight spaces in telecommunications, network technology and more

### Construction:

stable sheet steel chassis with top panel, front panel and separate removable rear wall

### Finish:

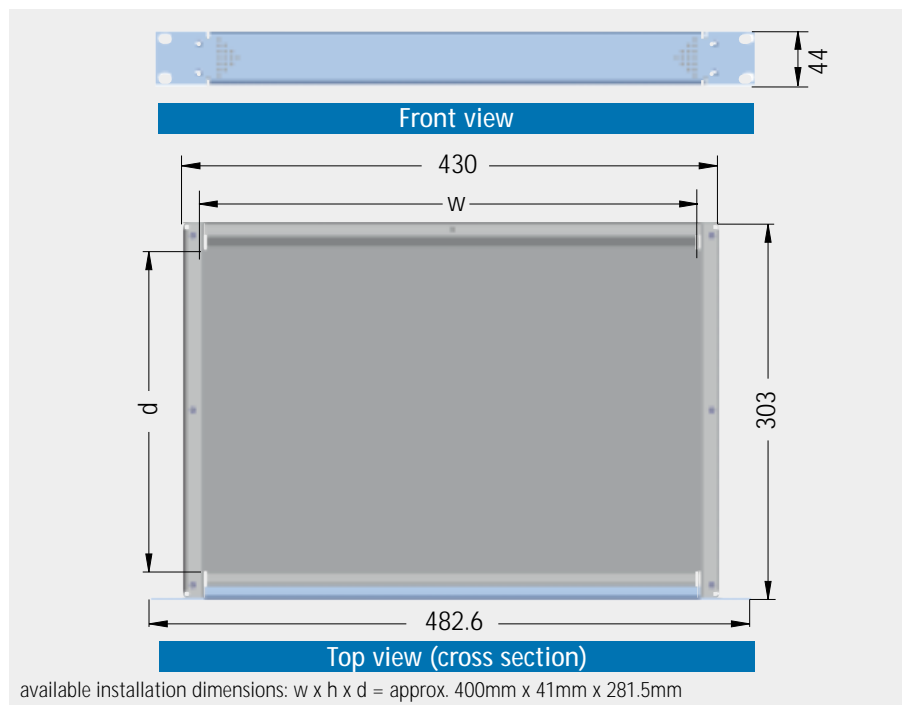
Front panel, RAL 7035 light grey

### Material:

sheet steel, galvanized

### Delivery:

not assembled



## Included in delivery

Item	Pc.	Description
1	1	Enclosure chassis
2	1	Enclosure cover
3	1	Front panel
4	1	Rear wall
5		Assembly material

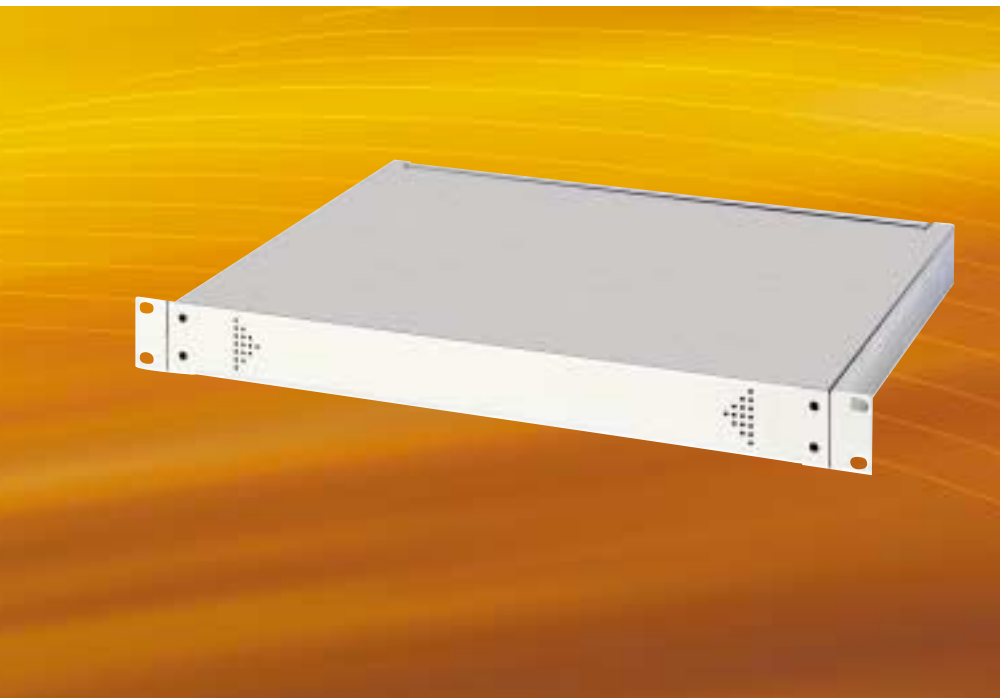
## Order information

Description	Depth D mm	Part no.
19" flat case, 1 U	300	26-9200-00





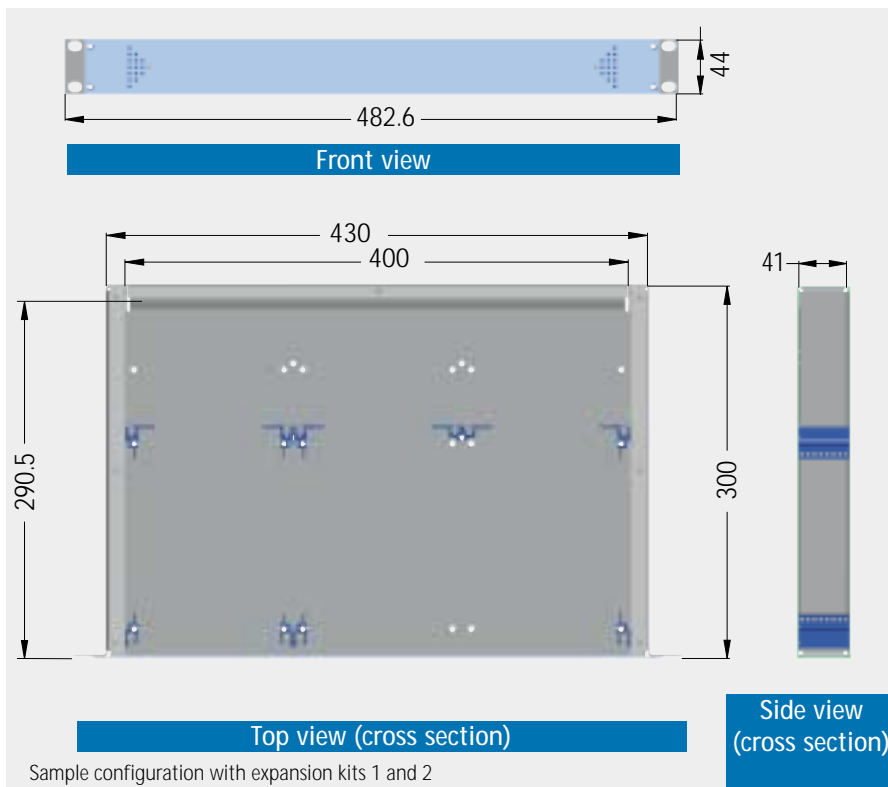
## 269 • 19" card plug-in unit, 1 U



### 19" card plug-in unit, 1 U

- 8 HP available installation height
- cost-effective sheet steel construction
- stable construction
- individual construction available
- front panel can be dismantled while installed
- can be fit with 3 Europe cards or 1 Europe card and 1 double Europe card

### Specifications



#### Application:

1 U plug-in unit for horizontal card installation in Europe or double Europe format with 160mm or 220mm depths

#### Construction:

Sheet steel chassis with top panel, front panel and rear wall that can be installed separately (order extension sets separately)

#### Finish:

Front panel, RAL 7035 light grey

#### Material:

sheet steel, galvanized

#### Delivery:

not assembled

### Included in delivery

Item	Pc.	Description
1	1	Enclosure chassis
2	1	Enclosure cover
3	1	Front panel
4	1	Rear panel
5		Assembly material

### Order information

Description	Depth D mm	Part no.
19" card plug-in unit, 1 U	300	26-9205-00



**Expansion kits:**

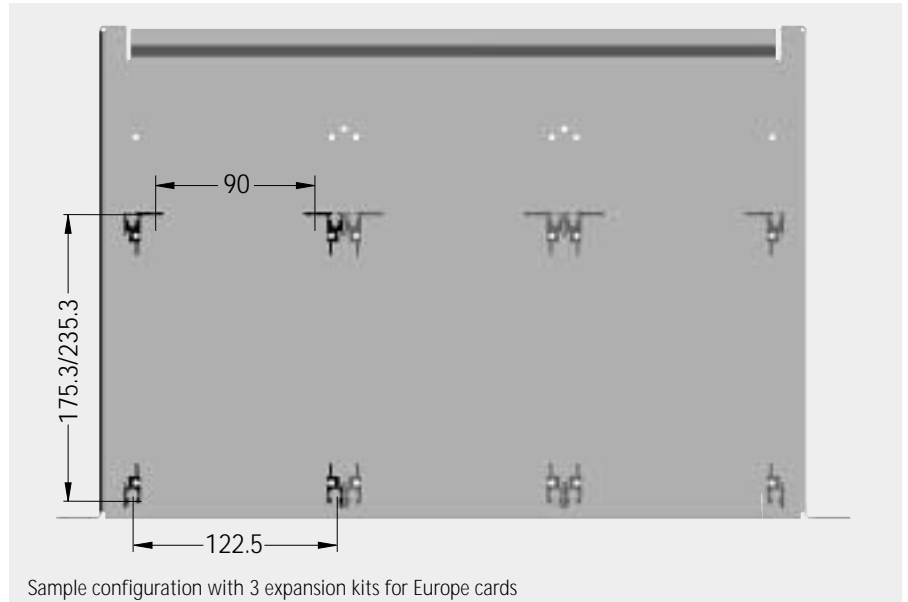
**1. Expansion kit for Europe card**

- 2 standard module rails
- 2 integrated module rails
- incl. assembly material

**Note:**

Up to 3 expansion kits can be used per plug-in unit.

<b>Part no.</b>
26-9205-05



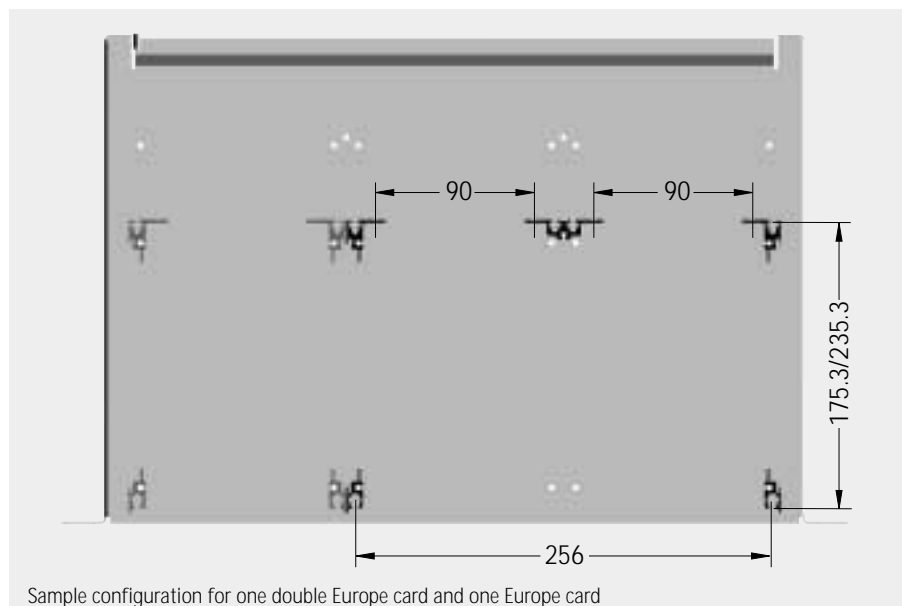
**2. Expansion kit for double Europe cards**

- 2 standard module rails
- 2 integrated module rails
- 1 mounting rail
- Assembly material

**Note:**

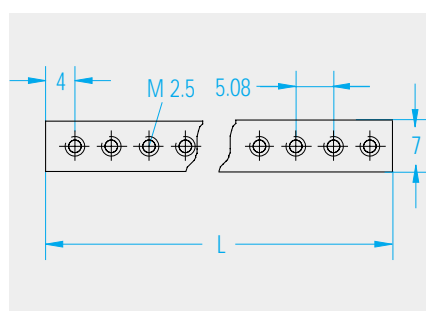
One expansion kit can be used per plug-in unit.  
In addition, one Europe card can be installed using expansion kit 1.

<b>Part no.</b>
26-9205-06



**Accessories**

**Threaded insert**

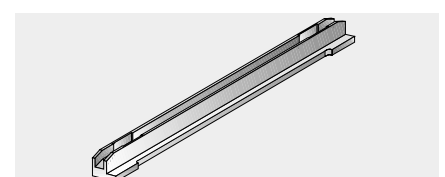


- Length L = 40.56mm

<b>Part no.</b>
25-0050-08

Note: See p. 5.61 for matching partial front panels.

**Card guide**



For card depths	Part no.
d = 160mm	240-401
d = 220mm	240-406



## 269 • 19" fan plug-in unit, 1 U



### 19" fan plug-in unit, 1 U

- with high-power **PAPST** fans
- can be fitted with 3, 6 or 9 fans
- fan noise level 37dB(A)
- particularly compact construction with integrated filter drawer that can be pulled out from the front and quick-release locks
- 9-fan model has a flow rate of over 1,000m<sup>3</sup>/h

### Specifications

Model 1 9 fans		flow rate: 9 x 117m <sup>3</sup> /h = 1,053m <sup>3</sup> /h
Model 2 6 fans		flow rate: 6 x 117m <sup>3</sup> /h = 702m <sup>3</sup> /h
Model 3 3 fans		flow rate: 3 x 117m <sup>3</sup> /h = 351m <sup>3</sup> /h

### Application:

for optimum ventilation of 19" cabinets and 19" enclosures

### Finish:

RAL 7035 light grey  
Filter drawer, RAL 9011  
graphite black

### Fan features:

- dimensions:  
119mm x 119mm x 25mm
- flow rate: 117m<sup>3</sup>/h
- noise level: 37dB(A)
- voltage: 230V

### Delivery:

assembled

### Accessories

Description	Part no.
Replacement filter mat	67-1200-30

Description	Length	Part no.
Power cord with shock-proof and all-purpose plug	1.5m	230-202

### Order information

Description	Part no.
19" fan plug-in unit, 1 U	
Model 1	26-9210-00
Model 2	26-9210-20
Model 3	26-9210-30

### Included in delivery

Item	Pc.	Description
1	1	Enclosure chassis
2	1	Enclosure lid with fan guard (9, 6, 3)
3	1	Front panel
4	9/6/3	Fan
5	1	Rear panel
6	1	Filter drawer
7	1	Filter mat
8	0/1/2	Cover panel
9		Assembly material



## 19" fan plug-in unit, 1 U • 269

### 19" fan plug-in unit, 1 U

- with 3 high-power **PAPST** fans
- air flow rate 3 x 160m<sup>3</sup>/h
- compact size
- installation depth only 212.5mm



### Specifications

#### Application:

for ventilating 19" cabinets and  
19" enclosures in tight spaces

#### Construction:

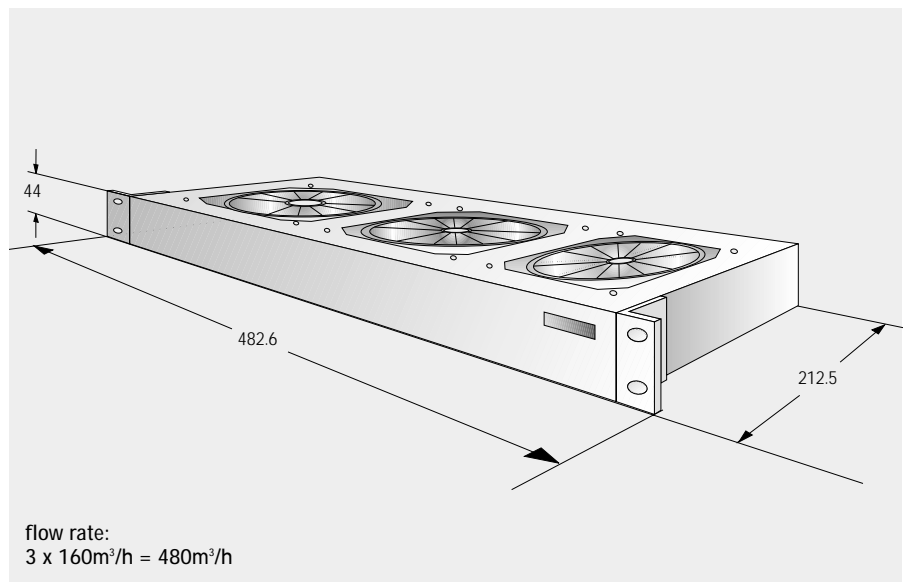
aluminium construction

Finish: anodized front

#### Fan features:

- dimensions:  
119mm x 119mm x 38mm
- flow rate: 160m<sup>3</sup>/h
- noise level: 40dB(A)
- voltage: 230V

Delivery: assembled



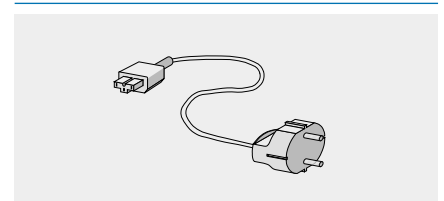
### Included in delivery

Item	Pc.	Description
1	1	Fan plug-in unit, complete
2	1	4 pc. screw set, for 19" installation

### Order information

Description	Part no.
19" fan plug-in unit, 1 U	269-110

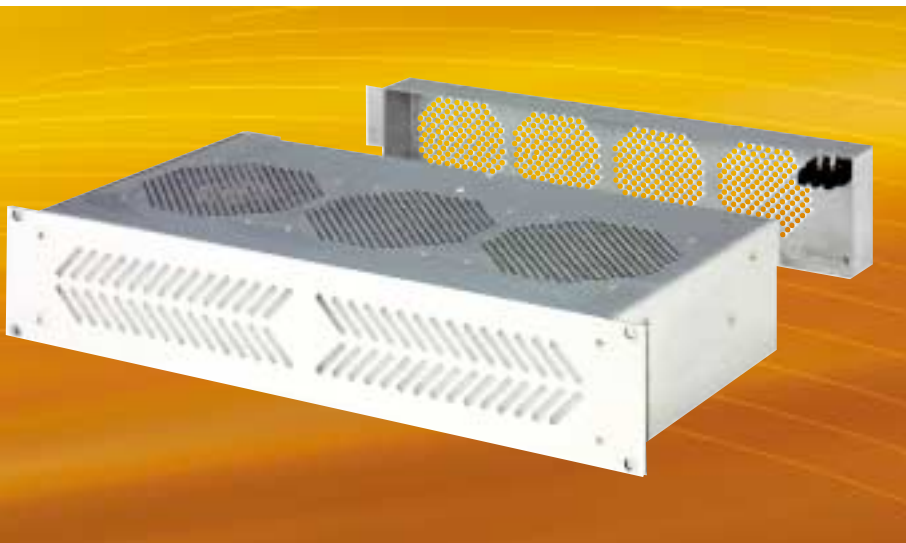
### Accessories



Description	Length	Part no.
Power cable with shock-proof and all-purpose plug	1.5m	230-202



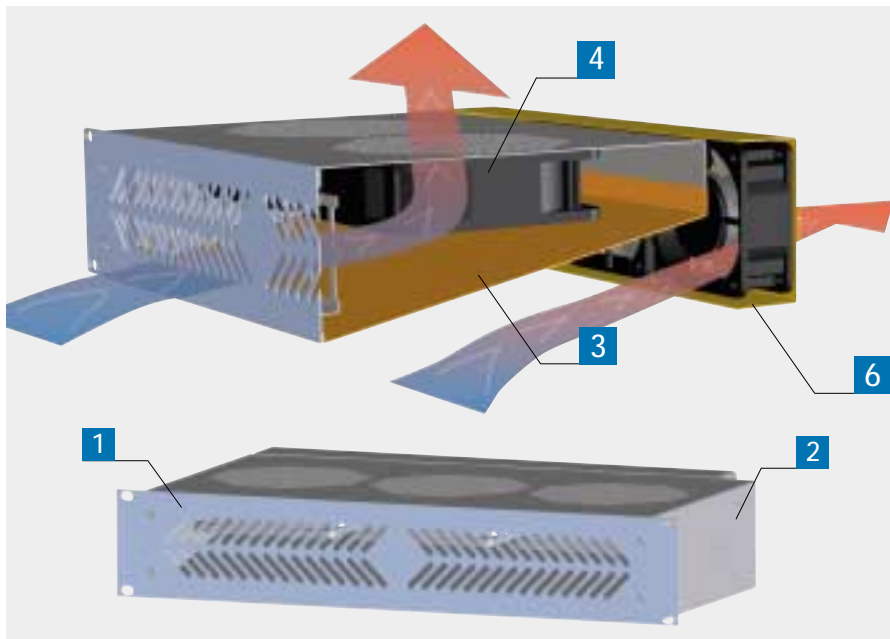
## 269 • 19" fan plug-in unit, 2 U



### 19" fan plug-in unit, 2 U

- front intake, vertical exhaust
- for optimum cooling of open plug-in units or subracks
- with high-power **PAPST** fans
- integrated air guide panel
- can be combined with rear fan attachment (intake)
- incl. filter mat

### Specifications



#### Application:

ideal for vertical ventilation of subracks

#### Finish:

Front panel:  
RAL 7035 light grey  
side walls, fan panel and air guide  
panel:  
galvanized

#### Fan features:

- dimensions:  
119mm x 119mm x 38mm
- flow rate: 160m<sup>3</sup>/h
- noise level: 40dB(A)
- voltage: 230V

#### Delivery:

assembled

### Accessories

#### 6 Fan attachment

- for cooling plug-in units that are installed underneath the fan plug-in unit
- with 4 fans

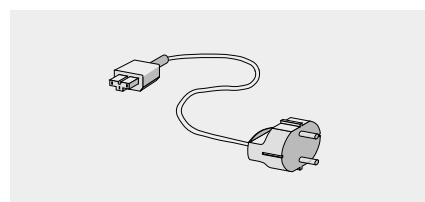
#### Fan features:

- dimensions:  
80mm x 80mm x 38mm
- flow rate: 50m<sup>3</sup>/h
- noise level: 31dB(A)
- voltage: 230V

Finish: galvanized

Part no.
26-9300-50

#### Power cable



Description	Length	Part no.
Power cable with shock-proof and all-purpose plug	1.5m	230-202

### Included in delivery

Item	Pc.	Description
1	1	Front panel with filter mat
2	2	Side panels
3	1	Air guide panel
4	3	Fan
5		Assembly material

### Order information

Description	Part no.
19" fan plug-in unit, 2 U	269-300





### 19" keyboard tray, 1 U

- requires little vertical space
- extractable
- with integrated fold-out mousepad
- Mousepad can be installed on the right or left
- for keyboards up to 433mm wide and 36mm high



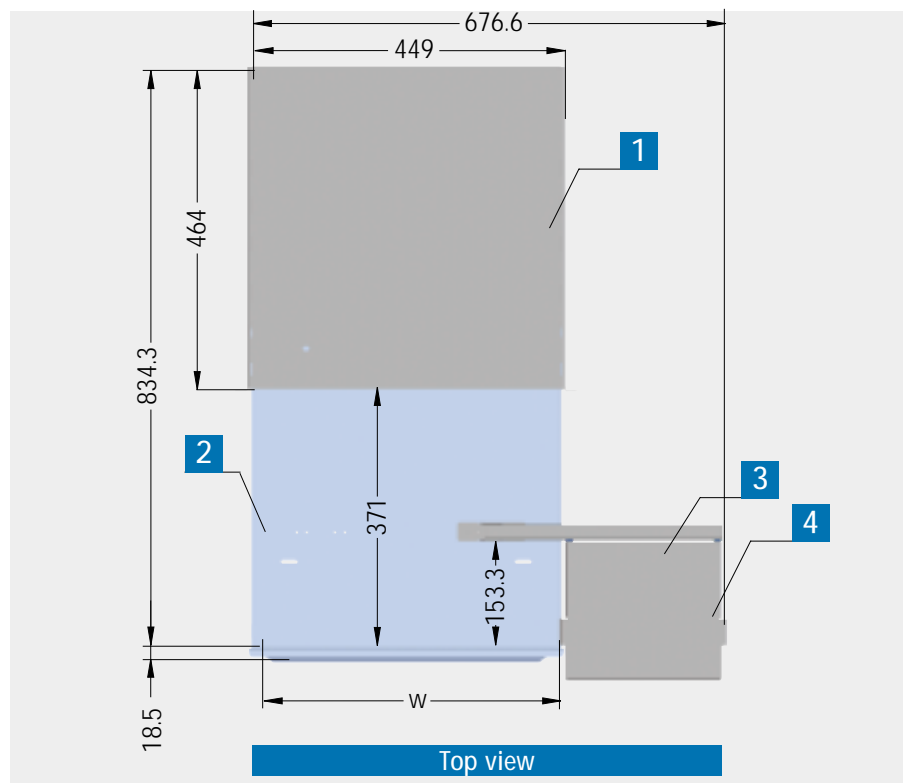
### Specifications

**Application:**  
input console in 19" cabinets or control panels

**Finish:**  
RAL 7035 light grey

**Material:**  
sheet steel

**Delivery:**  
assembled



### Included in delivery

Item	Pc.	Description
1	1	Chassis
2	1	Drawer
3	1	Mouse support
4	1	Mousepad
5		Assembly material
6	1	keyboard)

**Notes:**

- Mouse not included in delivery. Maximum keyboard/mouse height is 36mm.
- We recommend installing tray on guide rails (see p. 1.17).
- See p. 10.6 for an under-desk keyboard tray.

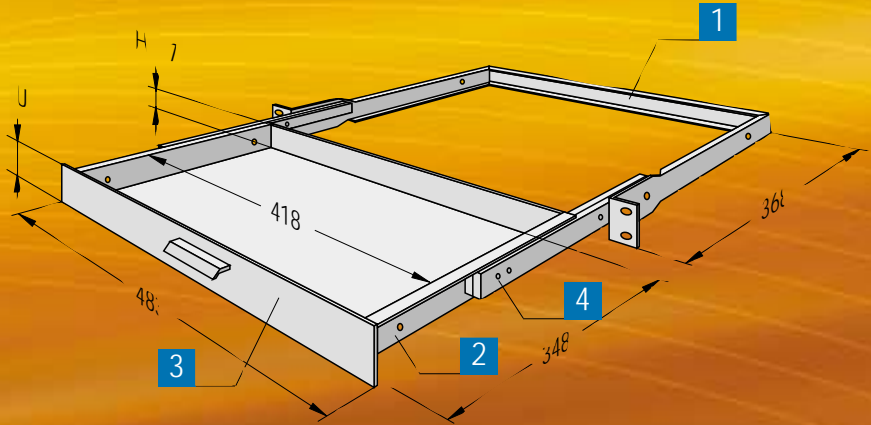
### Order information

Description	Part no.
Plug-in unit without keyboard	20-2870-50
Plug-in unit with German keyboard, QWERTZ-type	20-2870-00
Plug-in unit with French keyboard, AZERTY-type	20-2870-20

Description	Part no.
Keyboard, German, QWERTZ-type	20-2870-09
Keyboard, French, AZERTY-type	20-2870-12
Keyboard, English, QWERTY-type	20-2870-14



## 202 • 19" drawer/document drawer



### 19" drawer, 1 U/2 U/3 U

- extractable
- can be fitted with lock

**Finish:**

RAL 7035 light grey

**Material:**

Front panel: aluminium  
Chassis: sheet steel

**Delivery:**

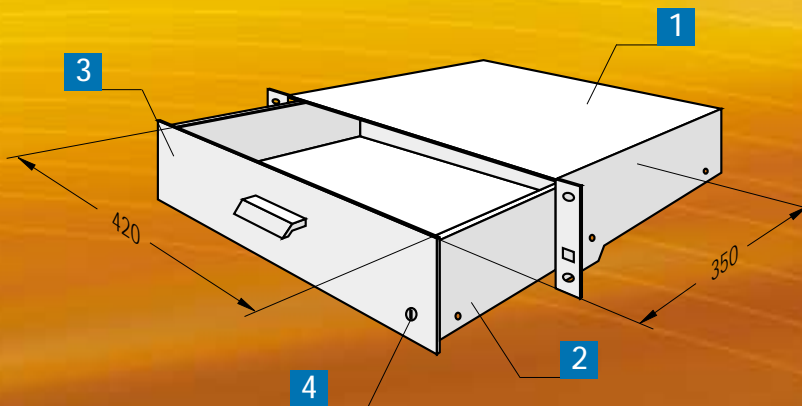
assembled

#### Included in delivery

Item	Pc.	Description
1	1	Frame
2	1	Drawer
3	1	Front panel
4	1 (pair)	Extenders
5		Assembly material

#### Order information

Size (U)	Height (H) mm	Part no. without lock	Part no. with lock
1	44	202-219	202-220
2	88	202-235	202-236
3	132.5	202-237	202-238



### 19" document drawer, 3 U

- extractable
- with lock

**Finish:**

RAL 7035 light grey

**Material:**

Front panel: aluminium  
Chassis: sheet steel

**Delivery:**

assembled

#### Included in delivery

Item	Pc.	Description
1	1	Upper part
2	1	Drawer
3	1	Front panel
4	1	Lock
5	1 (pair)	Extenders
6		Assembly material

#### Order information

Part no.
202-232



## TFT plug-in unit, 1 U with 15" display

- designed as a 19" component - extractable on high-quality telescoping rails
- with 15" display (1024 x 768 pixel max. resolution)
- brightness: 250cd/m<sup>2</sup>
- keyboard with separate numeric keypad and touch pad (PS/2)
- universal 90-240V power supply
- certification: FCC-A, CE, UL
- incl. assembly material

**Finish:**

RAL 9005 deep black

**Material:**

sheet steel

**H x W x D:**

solid (incl. telescoping rails):  
44mm x 482.6mm x 514-614mm\*

**Note:**

\*Telescoping rail installation measurements can be varied by 100mm.

**Weight:**

8.5kg



### Order information

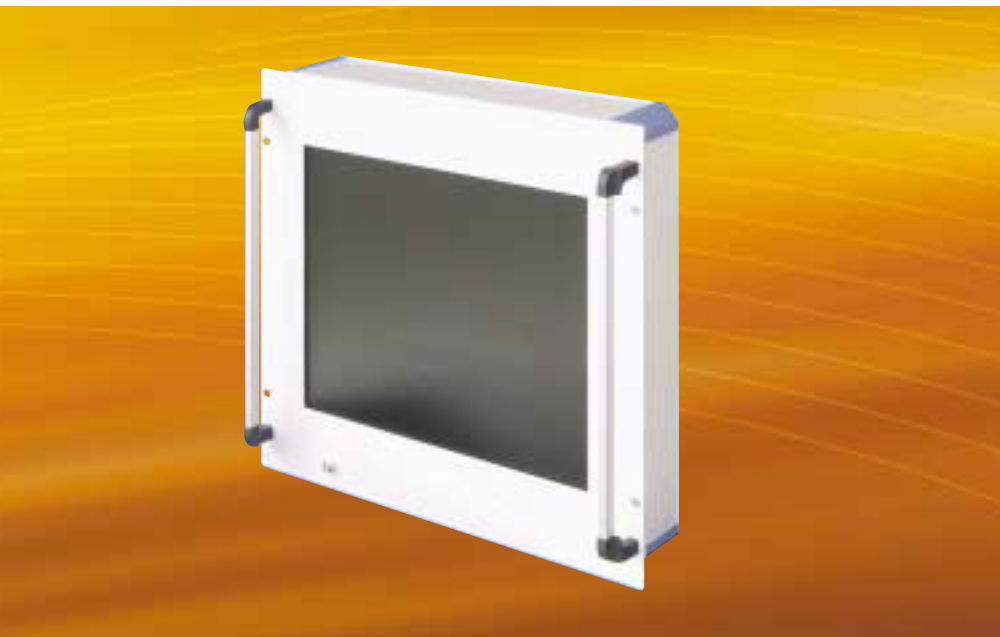
Part no.
20-2869-00

### Included in delivery

Item	Pc.	Description
1	1	includes assembly material



## 381 • apraTFT display plug-in unit



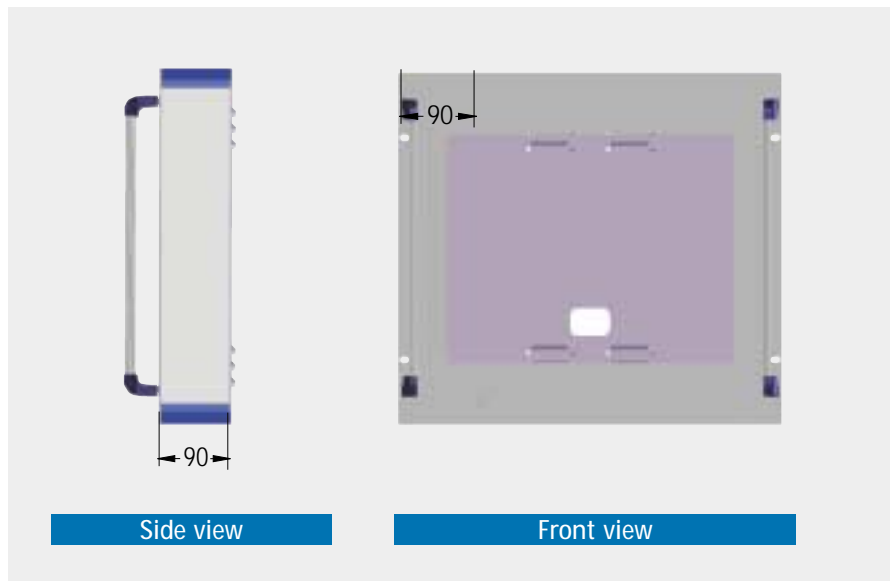
### apra TFT display plug-in unit

- Design allows stepless depth adjustment using corner sections
- max. installation height is 10 U (for 18" display)

#### The advantage:

- optimum use of space in 19" cabinets since the unit can be adjusted steplessly according to the depth of your TFT display

### Specifications



#### Application:

for installing TFT displays up to 18" in diagonal in 19" cabinets

#### Finish:

Cover parts:  
RAL 7035 light grey  
Extrusions:  
RAL 5014 pigeon blue

**Note:** The apraTFT display plug-in unit is also available with a safety glass pane.

### Order information

Description	Installation height (H)	Part no.
for TFT displays up to 12.1"	7 U	38-1124-00
for 13" - 15.1" TFT displays	8 U	38-1154-00
for *17" - 18.1" TFT displays	10 U	38-1184-00

\*Please note that the maximum width of the installation module is 442mm!

Remove the front panel and rear panel to transform the display plug-in unit into a desktop, wall-mounting, ceiling or bracket enclosure or to use it on top of a cabinet as a terminal.

**See the other members of the apraTFT family of products:**

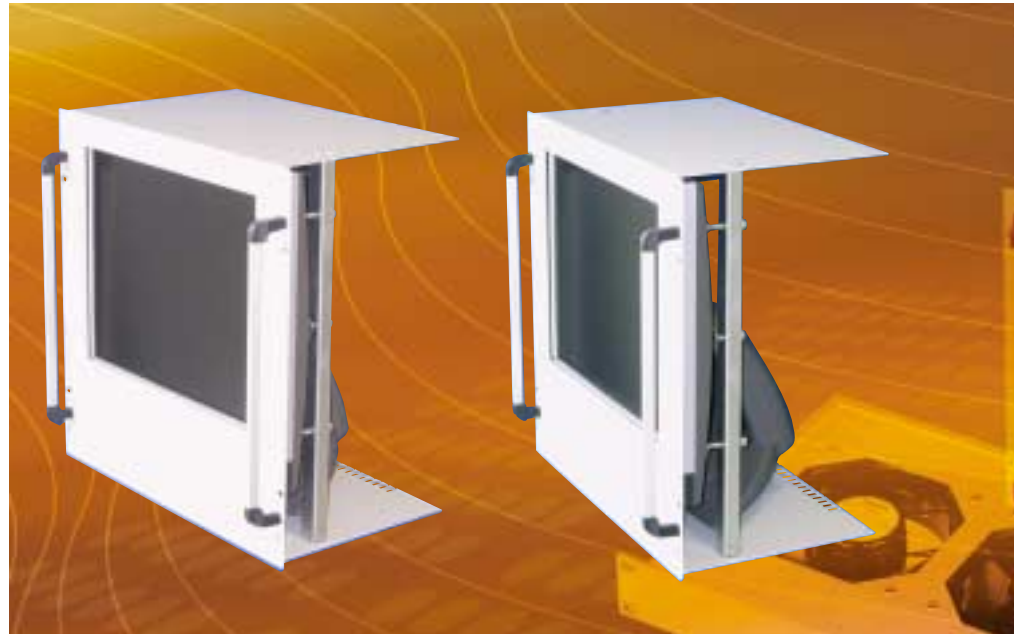
apraTFT display enclosure → see p. 6.27

apraTFT terminal → see p. 11.4



## apraTFT plug-in unit for monitors

- flexible adaptation allows all commercial TFT monitors (with stand foot) to be installed, regardless of their outer form
- monitors with up to an 18" display can be installed
- narrow installation depth; space left over for units to be installed behind the monitor unit
- you also cut costs considerably by using a commercially available TFT monitor in the 19" cabinet instead of a special industrial display



## Specifications

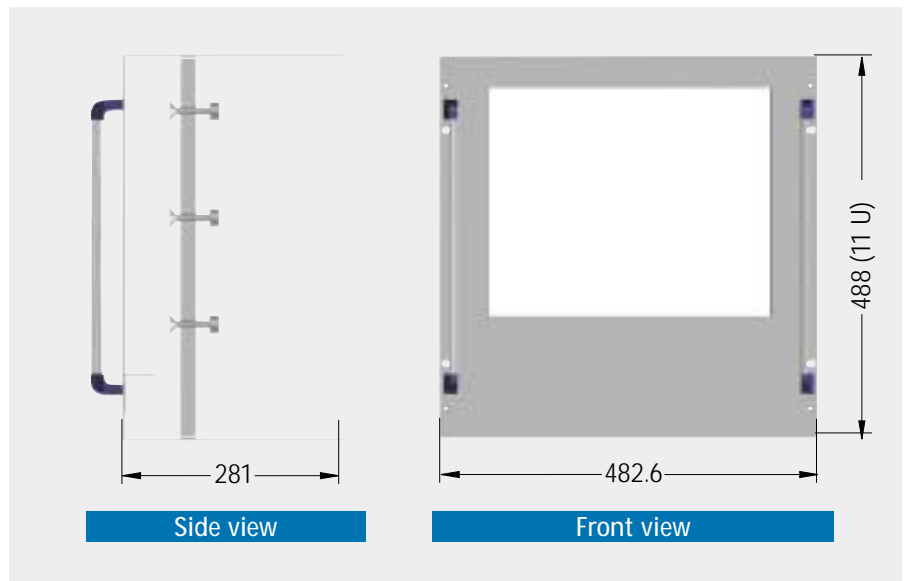
### Application:

for installing commercially available TFT monitors incl. stand, up to 18" in diagonal in 19" cabinets

### Finish:

Front:  
RAL 7035 light grey

Note: The apraTFT plug-in unit for monitors is also available with a safety glass pane.



## Order information

Description	Installation height (H)	Part no.
for 15.1" commercially available TFT monitors	9 U	38-3154-00
for 17"-18.1" commercially available TFT monitors	11 U	38-3184-00

Please note that the maximum monitor width is limited to 450mm by the limited installation dimensions.

See the other members of the apraTFT family of products:

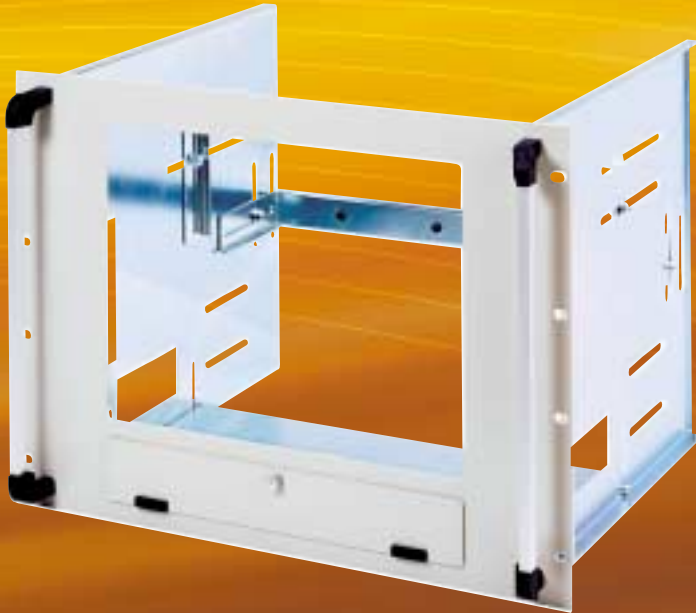
apraTFT display enclosure → see p. 6.27

apraTFT terminal → see p. 11.4





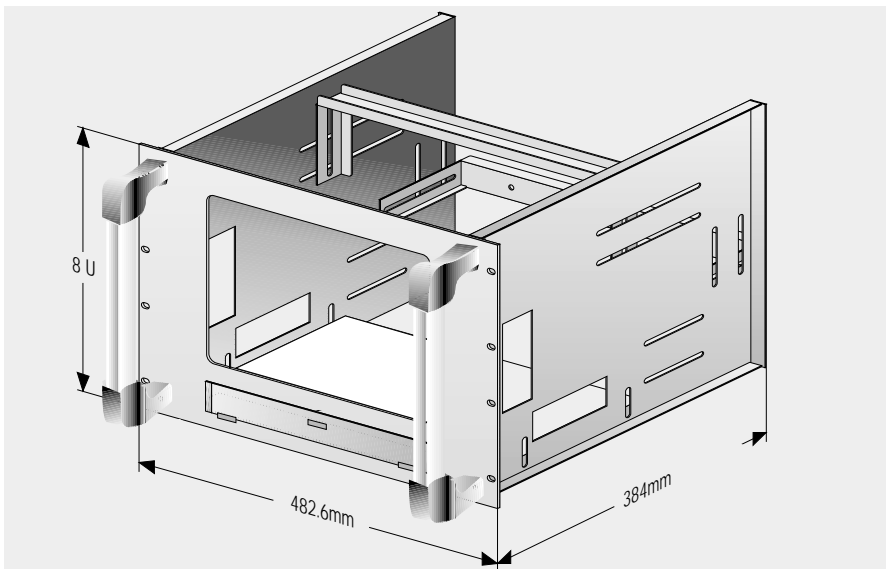
## 202 • 19" plug-in unit for monitors, 8 U



### 19" plug-in unit for monitors, 8 U

- for easy and quick mounting of 14" and 15" monitors
- skid-proof monitor attachment
- front safety glass panel, 5mm thick
- 19" installation dimensions in compliance with IEC 297-1
- max. monitor dimensions:  
WxHxD = 398mm x 319mm x 429mm

### Specifications



#### Application:

The 19" plug-in unit is designed for 14" and 15" standard monitors. You can easily and quickly install monitors. Retaining clips protect and hold the monitor in place. A front service door provides easy access to the monitors controls.

#### Finish:

Front: RAL 7035 light grey

#### Material:

Front panel: 3mm aluminium  
Chassis: sheet steel, galvanized

#### Delivery:

not assembled, incl. assembly instructions

### Order information

<b>Part no.</b>
20-2205-12

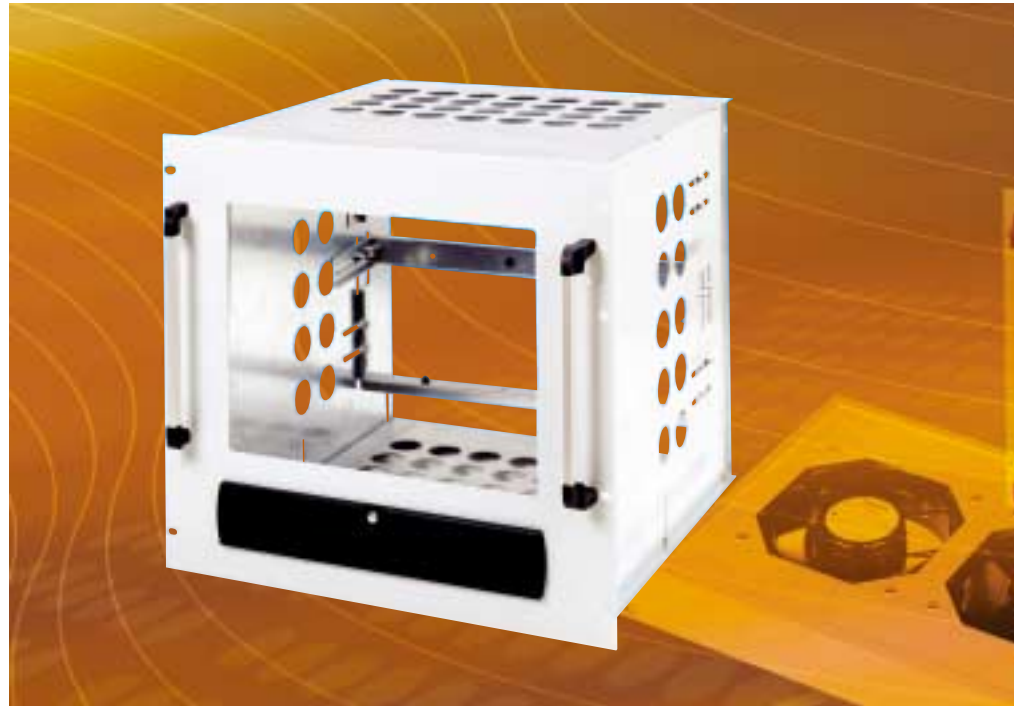
### Included in delivery

Item	Pc.	Description
1	2	Side panels
2	1	Bottom plate
3	1	Front panel with handles and safety glass panel
4	1	Service door
5	2	Angle bracket
6		Assembly material



## 19" plug-in unit for monitors, 10 U

- designed for 17" monitors
- front safety glass panel, 4mm thick
- 19" installation dimensions in compliance with IEC 297-1
- max. monitor dimensions:  
WxHxD = 420mm x 418mm x 480mm



## Specifications

### Application:

The 19" plug-in unit is designed for 17" commercially available monitors.

### Finish:

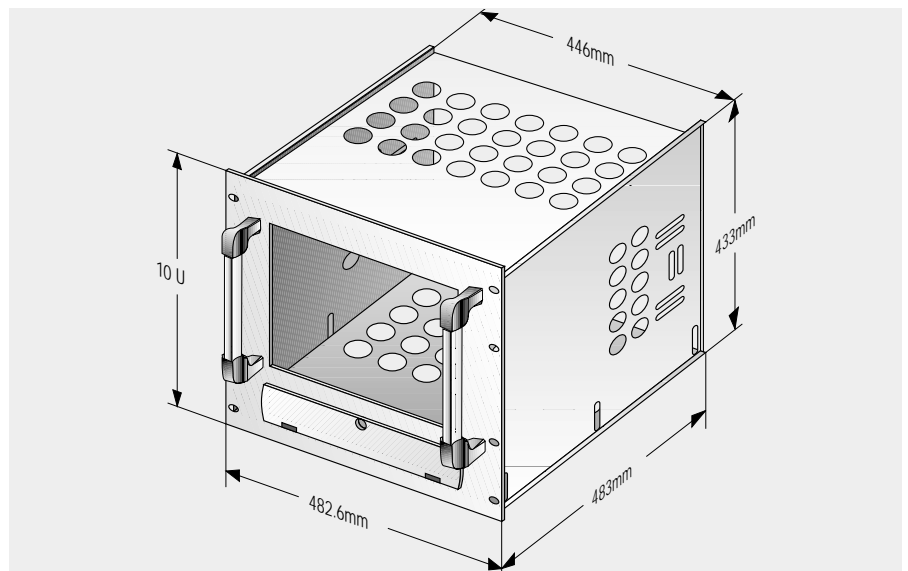
Front: RAL 7035 light grey

### Material:

Front panel: 3mm aluminium  
Chassis: sheet steel, galvanized  
Service door: plastic

### Delivery:

not assembled



## Included in delivery

Item	Pc.	Description
1	2	Side panels
2	1	Bottom plate
3	1	Top panel
4	1	Front plate with handles and safety glass panel
5	1	Service door
6	3	Angle bracket
7		Assembly material

## Order information

Part no.
20-2204-00



## 202 • 19" shelf, 5 U



### 19" shelf with fold-down front panel

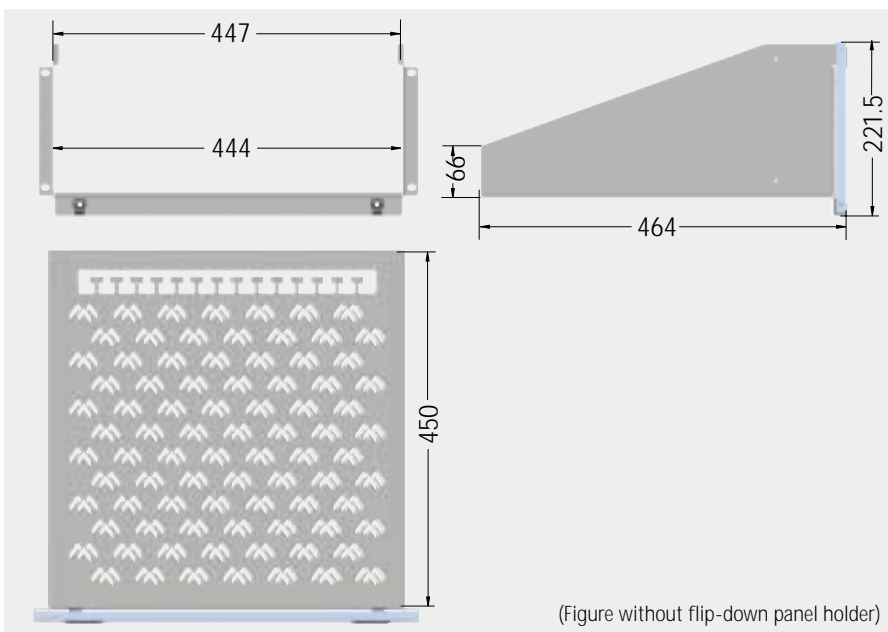
- 5 U shelf
- with practical snap locks
- ventilated floor panel
- flip-down panel opens up to 90°
- with cable tension relief
- Carrying capacity: 30kg

This **5 U shelf** differs from traditional shelves in that it has a flip-down front panel, which protects and hides components on the shelf. "Gaps" on the front of the cabinet are a thing of the past.



Figure without flip-down panel catch

### Specifications



(Figure without flip-down panel holder)

#### Application:

The 19" shelf is ideal for components that are not permanently installed in a cabinet (for example, desktop PC cases).

#### Finish:

RAL 7035 light grey

#### Material:

sheet steel

#### Delivery:

not assembled

### Included in delivery

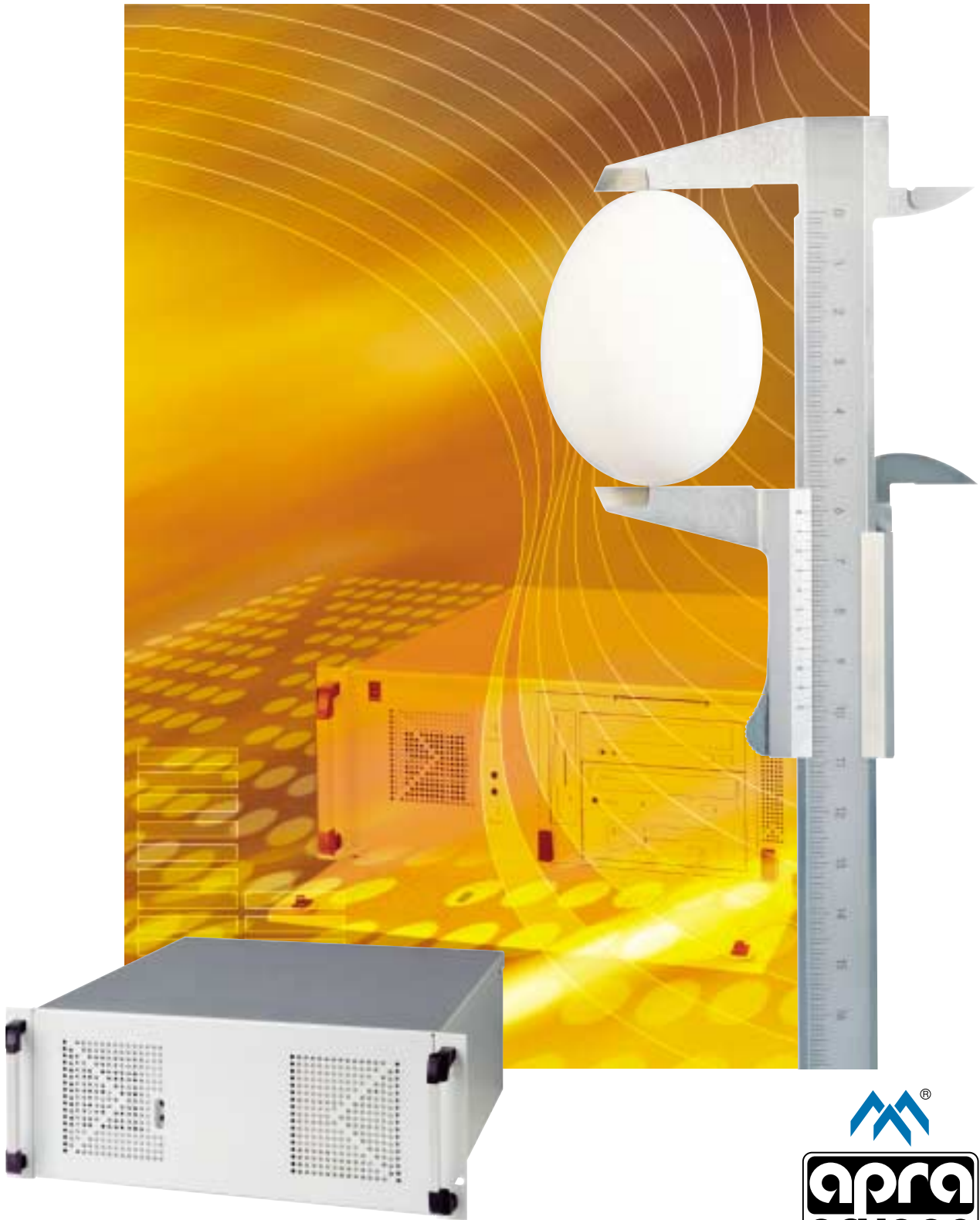
Item	Pc.	Description
1	1	Shelf
2	1	Front flip-down panel
3	2	Flip-down panel holder
4	2	Snap locks
5	2	Plastic hinges
6		Assembly material

### Order information

W x H x D mm	Size	Part no.
482.6 x 221.5 x 464	5 U	20-2830-00

4.26 Other heights available on request.

# 19" Computer Plug-in Units



... the perfect shell for valuable electronics





# 19" computer plug-in units



**19" computer plug-in unit, 1 U**

beginning on page 4.30

- 3 disk drives can be installed
- drive cages can be assembled/ dismantled quickly
- integrated fan bridge with up to 4 fans



**19" computer plug-in unit, 2 U**

beginning on page 4.32

- 5 disk drives can be installed
- drive cages can be assembled/ dismantled quickly
- suitable for telescoping rails



**19" computer plug-in unit, 3 U**

beginning on page 4.34

- 5 disk drives can be installed
- drive cages can be assembled/ dismantled quickly
- suitable for telescoping rails



**Industrial PC case, 4 U, "Hard Box"**

beginning on page 4.42

- 3 disk drives can be installed
- compact size
- customized design available on request



**19" server plug-in unit, 6 U**

beginning on page 4.44

- 10 disk drives can be installed
- all drives can be accessed from the front
- integrated fan bridge with up to 3 fans



**19" server plug-in unit, 7 U, "Delta"**

beginning on page 4.46

- 6 disk drives can be installed
- AT with 20 slots or ATX
- extractable partial plug-in unit for optimum installation
- suitable for telescoping rails





### 19" computer plug-in unit, 4 U

beginning on page 4.36

- 2 models are available
- 8 or 4 disk drives can be installed
- 9 disk drives can be installed when using the internal single hard drive cage
- suitable for telescoping rails



### Accessories for computer plug-in units

beginning on page 4.49

- ATX connection panels . . . . . 4.49
- AT and ATX power supplies . . . . . beginning on page 4.50
- Fan . . . . . 4.52
- Disk drive panels . . . . . 4.53
- Blind covers . . . . . 4.54
- Slot covers/card securing set . . . . . 4.54
- PC 104 . . . . . 4.55
- Compact PCI . . . . . 4.56



### Customized 19" plug-in systems

beginning on page 4.57

- We develop the ideal 19" plug-in solutions based on your specific demands

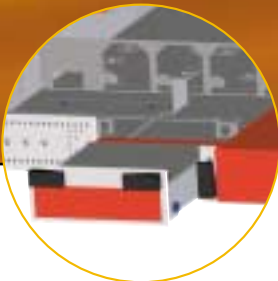


## Exclusive package with high power density

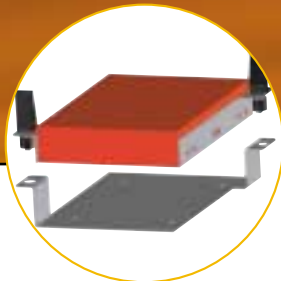
apra-norm has created an exclusive package with high power density, quick assembly time and a slim 1 U computer plug-in unit.



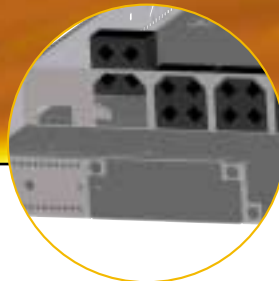
### Features



disk drive cage that can be pulled out quickly



internal hard drive cage with quick-change set



fan bridge; no tools required for changing fans

- integrated fan bridge can be fit with up to 3 fans; no tools required
- integrated board with on/off/reset buttons, 2 LED's and piezo speakers
- rear panel with replaceable ATX connection panels for 1 U and 1 slot
- EMC-compliant basic design
- integrated adjustable mounting angle bracket for the rear 19" mount; no additional sliding rails required
- can be fit with a slimline drive cage for:
  - one 2-1/2" CD-ROM drive
  - one 2-1/2" floppy drive

### 19" computer plug-in unit, 1 U

- 3 disk drives can be installed one 5-1/4" and two 3-1/2"
- vibration-free disk drive cages
- drive cages can be assembled/dismantled quickly using quick-release lock systems; no tools are required
- suitable for all ATX form factors (except Extended ATX)



## Specifications

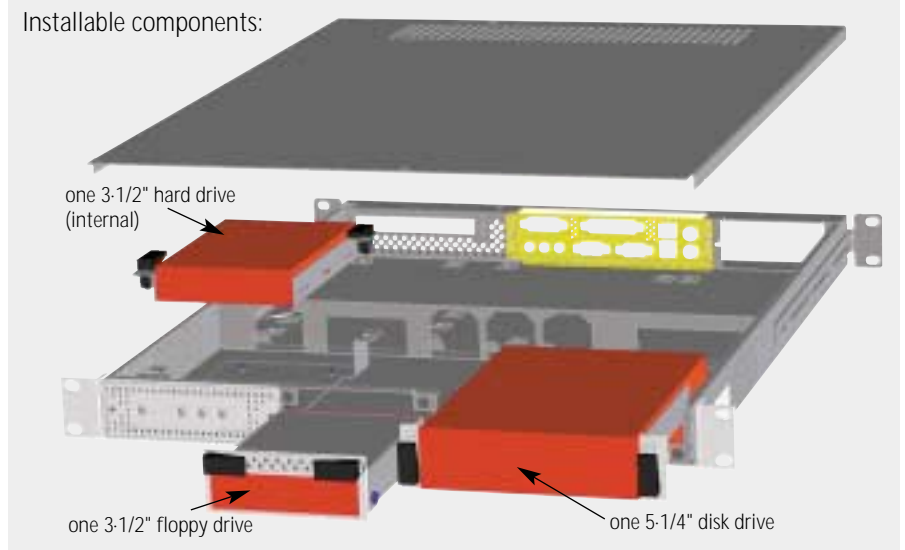
**Finish:**  
RAL 7035 light grey

**Material:**  
sheet steel, galvanized

**H x W x D:**  
44mm x 482.6mm x 560mm

**Delivery:**  
assembled, one cardboard box

**Standards:**  
IEC 297-1  
ATX specification 2.03



## Included in delivery

Item	Pc.	Description
1	1	Enclosure chassis with top panel
2	2	19" front angle bracket
3	1	"Module" front panel
4	1	Drive cage, 5-1/4"
5	1	Drive cage, 3-1/2" external
6	1	Drive cage, 3-1/2" internal

Item	Pc.	Description
7	1	Fan bridge
8	1	ATX rear panel with ATX panel for Intel Venus*
9	1	LED module with on/off/reset buttons, 2 LED's and piezo speakers
10	2	rear 19" angle brackets
11		Assembly material

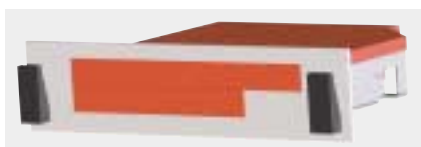
\*Note: other ATX panels available on request

## Order information

Description	Part no.
19" computer plug-in unit 1 U	20-5560-10

## Accessories

### Slimline drive cage



- for installation in the 5-1/4" drive bay
- for 1 slimline CD-ROM and 1 slimline floppy drive

Part no.
20-5560-14

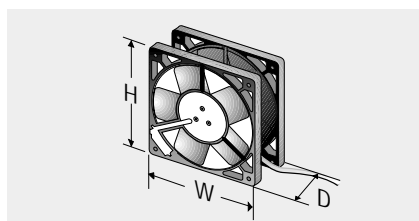
### Drive cage, external



- for installation in the 3-1/2" drive bay

Part no.
20-5560-13

### Fan, 12V



- high-power **PAPST** fan
- incl. connector plug for power supply or speed-monitored on the motherboard
- W x H x D:  
40mm x 40mm x 20mm

Description	Flow rate/ noise level	Part no.
Connection to power supply	13.5m <sup>3</sup> /h/ 29dB(A)	230-829
Connection to motherboard, speed-monitored	13.5m <sup>3</sup> /h/ 25dB(A)	230-834

### ATX power supply



ATX power supply

- 115V/230V
- complies with CE, TÜV, ULc, UL
- incl. power cable

Description	PFC	Part no.
ATX power supply, 300W	active	640-131

**Note:**  
See page 4.50 for more technical information on power supplies



## 205 • 19" computer plug-in unit, 2 U



### Perfect for use with servers

apra-norm's easy-to-install 2 U computer plug-in unit is ideal for use with servers because of its low height and high disk drive capacity.



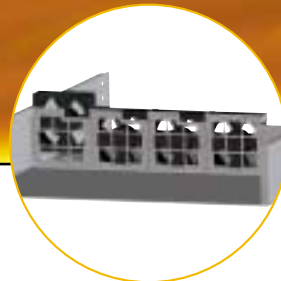
#### Features



drive cage, can be pulled out quickly



internal hard drive cage with quick-change set



fan bridge; no tools required for changing fans

Sample configurations  
(disk drive shown not included in delivery)

#### 19" computer plug-in unit, 2 U

- 5 disk drives can be installed one 5-1/4" and four 3-1/2" or five 3-1/2" when using the appropriate disk drive panel (see accessories on p. 4.53)
- vibration-free drive cages

- both drive cages can be assembled/dismantled quickly using quick-release lock systems; no tools are required
- suitable for all ATX form factors (except Extended ATX)
- integrated fan bridge can be fit with up to 3 fans; no tools required
- no tools required to replace filter mats
- chassis suitable for telescoping rails
- integrated board with on/off/reset buttons, 2 LED's and piezo speakers
- replaceable rear panel for customized solutions (other rear panels available on request)
- flip-down front panel with "invisible" lock
- EMC-compliant basic design





## Specifications

### Finish:

RAL 7035 light grey

### Material:

sheet steel, galvanized

### H x W x D:

88mm x 482.6mm x 560mm

### Delivery:

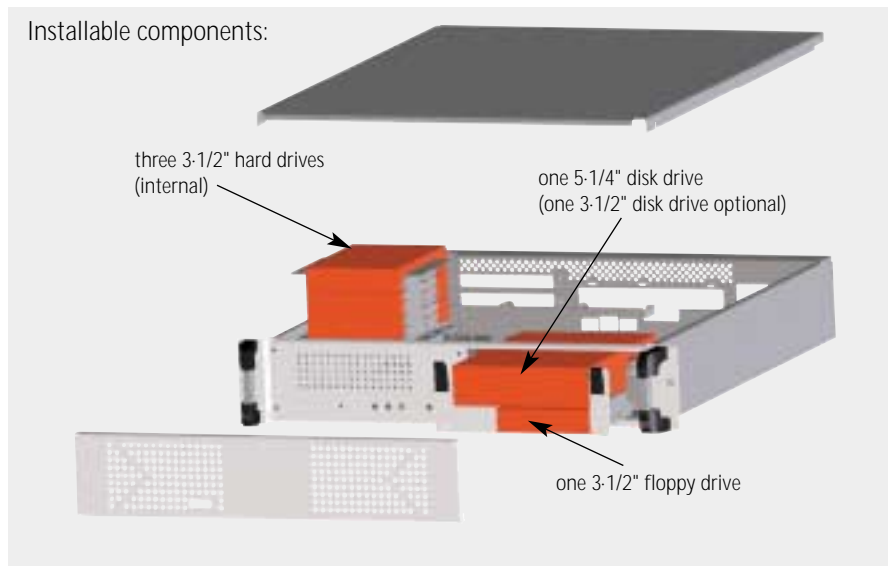
assembled, one cardboard box

### Standards:

IEC 297-1

ATX specification 2.03

### Installable components:



### Included in delivery

## Order information

### Note:

Computer plug-in unit with low-profile rear panel available on request.

Description	Part no.
19" computer plug-in unit 2 U	20-5560-20

Item	Pc.	Description
1	1	Enclosure chassis with top panel
2	1	Front panel with flip-down panel and handles
3	1	Drive cage (one 5-1/4" and one 3-1/2")
4	1	Internal drive cage (three 3-1/2")
5	1	Fan bridge

Item	Pc.	Description
6	1	Rear panel for 2-slot riser card
7	1	LED module with on/off/reset buttons, 2 LED's and piezo speakers
8	2	Slot covers
9	1	Filter holder with filter mat
10		Assembly material

## Accessories

### Telescoping rail expansion set

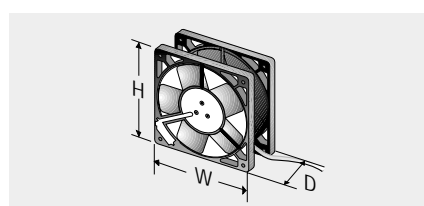


- with patented 19" assembly system
- ideal for installation in 600 to 800mm-deep cabinets
- high-quality telescoping rails with
  - extender, - detachable
  - can be locked when pulled out
- includes 2 telescoping rails and assembly material

**Carrying capacity:** 64kg per pair

Part no. (set)
68-0076-00

### Fan, 12V



- high-power **PAPST** fan
- incl. connector plug for power supply or speed-monitored on the motherboard
- W x H x D:  
80mm x 80mm x 25mm

Description	Flow rate/noise level	Part no.
Connection to power supply	58m <sup>3</sup> /h/ 27dB(A)	23-0828-01
Connection to motherboard, speed-monitored	33m <sup>3</sup> /h/ 12dB(A)	230-832
Replacement filter mat		67-1200-60

### Power supplies

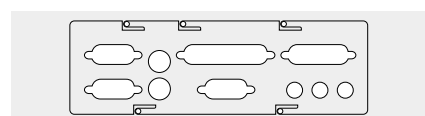
- 115V/230V
- comply with CE, TÜV, ULc, UL
- incl. power cable

Description	PFC	Part no.
ATX power supply, 300W	active	640-131
ATX power supply, 250W	active	640-138

### Note:

See page 4.50 for more technical information on power supplies

### ATX connection panels



See page 4.49 for matching ATX panels.





## 205 • 19" computer plug-in unit, 3 U



### Easy to assemble and saves space

apra-norm's 3 U computer plug-in unit is characterized by its easy-to-assemble installation components. It also saves space when used with vertical plug-in cards.



#### Features



drive cage, can be pulled out quickly



internal hard drive cage with quick-change set



front fan unit; no tools required for replacing fans and filters

#### 19" computer plug-in unit, 3 U

- 5 disk drives can be installed two 5-1/4" and three 3-1/2" or one 5 1/4" and four 3 1/2" when using the disk drive panel provided
- incl. 5-1/4" disk drive panel for 3-1/2" floppy drive
- vibration-free drive cages
- both drive cages can be assembled/dismantled quickly using quick-release lock systems; no tools are required
- suitable for all ATX form factors (except Extended ATX)
- front fan unit; no tools required for replacing fans and filters
- chassis suitable for telescoping rails
- integrated board with on/off/reset buttons, 2 LED's and piezo speakers
- replaceable rear panel for customized solutions (other rear panels available on request)
- rear panel for vertical card installation (7 slots)
- flip-down front panel with "invisible" lock
- EMC-compliant basic design
- integrated board chassis for protecting the PC board from torsional stress



## Specifications

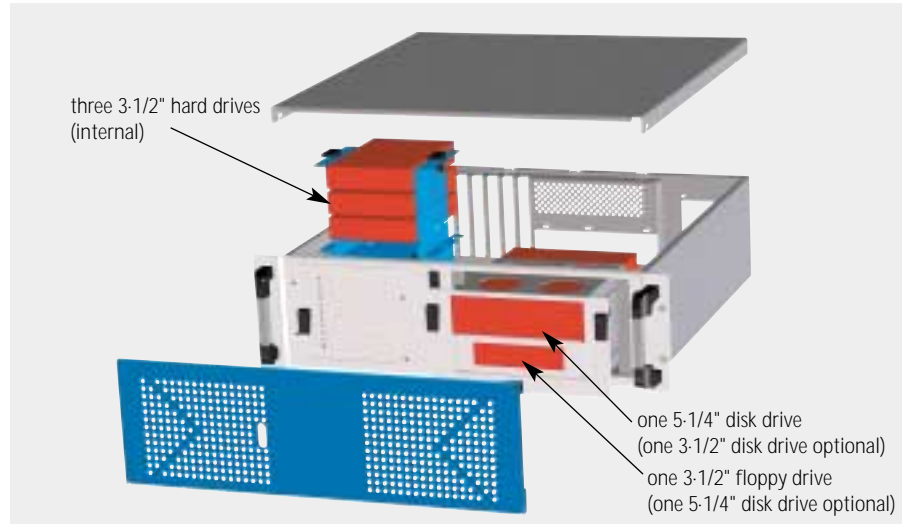
**Finish:**  
RAL 7035 light grey

**Material:**  
sheet steel, galvanized

**H x W x D:**  
132.5mm x 482.6mm x 460mm

**Delivery:**  
assembled, one cardboard box

**Standards:**  
IEC 297-1  
ATX specification 2.03



## Included in delivery

Item	Pc.	Description
1	1	Enclosure chassis with top panel
2	1	Front panel with flip-down panel and handles
3	1	Drive cage (two 5-1/4")
4	1	Internal drive cage (three 3-1/2")
5	1	Fan unit
6	1	Rear panel, 7 slots

Item	Pc.	Description
7	1	LED module with on/off/reset buttons, 2 LED's and piezo speakers
8	5	Slot covers
9	1	Disk drive panel, 5-1/4" for 3-1/2" floppy
10	1	Power supply angle bracket
11	1	Board chassis
12		Assembly material

## Order information

Description	Part no.
19" computer plug-in unit 3 U	20-5460-30

## Accessories

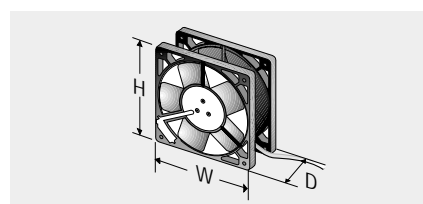
### Telescoping rail expansion set



- with patented 19" assembly system
  - ideal for installation in 600 to 800mm-deep cabinets
  - high-quality telescoping rails with
    - extender, - detachable
    - can be locked when pulled out
  - includes 2 telescoping rails and assembly material
- Carrying capacity:** 66kg per pair

Part no. (set)
68-0075-00

### Fan, 12V



- high-power **PAPST** fan
- incl. connector plug for power supply or speed-monitored on the motherboard
- W x H x D: 80mm x 80mm x 25mm

Description	Flow rate/ noise level	Part no.
Connection to power supply	58m <sup>3</sup> /h/ 27dB(A)	23-0828-01
Connection to motherboard, speed-monitored	33m <sup>3</sup> /h/ 12dB(A)	230-832
Replacement filter mat		67-1200-70

### Power supplies

- 115V/230V
- comply with CE, TÜV, ULc, UL
- incl. power cable

Description	PFC	Part no.
ATX power supply, 300W	active	640-131
ATX power supply, 250W	active	640-138

**Note:**

See page 4.50 for more technical information on power supplies

### Extra processor cooling unit



Description	Part no.
Extra processor cooling unit	20-5460-06
Replacement fan	230-829

### ATX connection panels

See page 4.49 for matching ATX panels.



# The new computer plug-in unit 205 - high-frequency assembly

apra-norm's new generation of computer plug-in units is setting new trends in easy-to-assemble products and user-friendliness. You can not only increase the speed of your processor but also optimize your assembly time. Give yourself a head start:

- Replace the front drive cage without using tools in just a few seconds
- Replace the front fan without using tools in just a few seconds\*
- Replace the internal hard drive cage without using tools in just a few seconds\*

\*Note: in 3 U and 4 U computer plug-in units

EVO



EVOmax

Sample configurations (disk drives and telescoping rails shown not included in delivery)

## 19" ATX computer plug-in unit, 4 U

### EVOmax

- 8 disk drives can be installed three 5-1/4" and five 3-1/2" or eight 3-1/2" when using the appropriate disk drive panel (see accessories on p. 4.53)
- 9 disk drives can be installed when using internal single-slot hard drive cages (see accessories p. 4.40)
- vibration-free drive cages
- all drive cages can be assembled/dismantled quickly; no tools are required
- suitable for all ATX form factors (Note: only 4 disk drives can be installed with Extended ATX)
- a PS/2 power supply or a redundant power supply can be installed using a power supply adapter plate (included in delivery)
- fans and filter mat can be installed/removed using knurled screws; no tools required
- chassis suitable for telescoping rails
- integrated board with on/off/reset buttons and 2 LED's
- EMC-compliant basic design
- integrated board chassis for protecting the PC board from torsional stress

## 19" ATX computer plug-in unit, 4 U

### EVO

- 4 disk drives can be installed three 5-1/4" and 1x 3-1/2" or four 3-1/2" when using the appropriate disk drive panel (see accessories on p. 4.53)
- 9 disk drives can be installed when using single-slot/4-slot hard drive cages (see accessories p. 4.40)





## Features



Drive cage can be pulled out from the front

You can dismantle the drive cage in seconds thanks to the quick-release locks. No tools are required. You do not need to remove the plug-in unit from the 19" enclosure.



Fan can be pulled out from the front

The front fan unit, which comprises a front panel, filter mat, fan support and fans, can be pulled out from the front. The fan and filter mat can be replaced quickly. No tools are required.



Internal drive cage

- The plug-in unit has an internal drive cage that can hold up to four 3-1/2" hard drives. The cage can be removed using the quick-release lock system (no tools are required) and drives can be added while the cage is out of the enclosure. Positioning the cage directly behind the fan unit ensures optimum ventilation.



Extra processor cooling unit

An extra active cooling unit with high-power **PAPST** fans creates the perfect temperature conditions for high-performance processors. No tools are required for replacing fans.



Telescoping rail expansion set

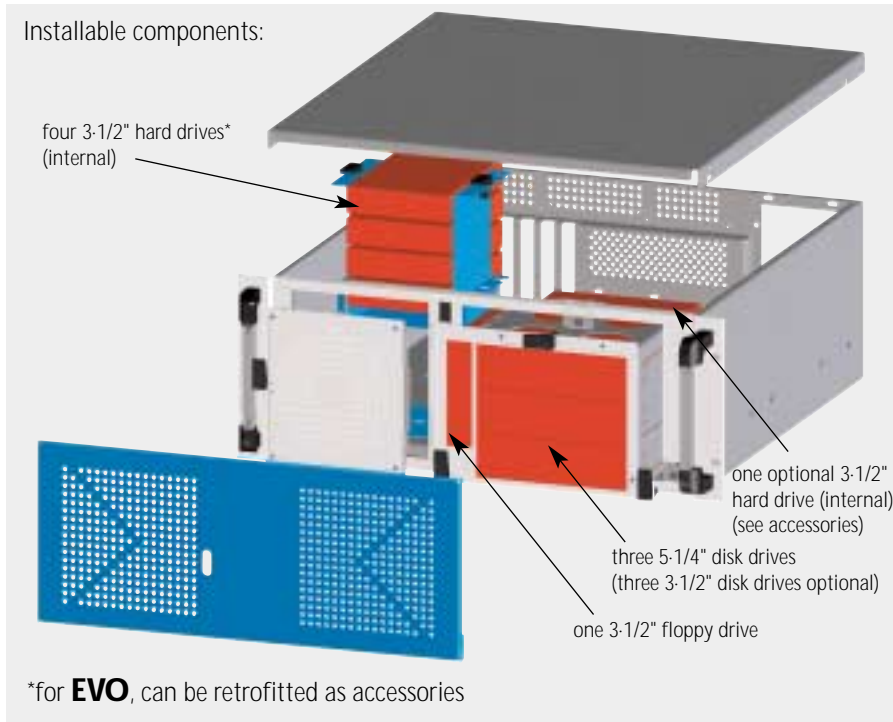
The telescoping rail expansion kit allows you to remove the plug-in unit completely from the 19" enclosure to conduct maintenance work on the computer.



# 205 • 19" computer plug-in unit, 4 U



## Specifications



**Finish:**  
Front panel and flip-down panel,  
RAL 7035 light grey

**Material:**  
sheet steel, galvanized

**H x W x D:**  
177mm x 482.6mm x 460mm

**Delivery:**  
assembled, one cardboard box

**Standards:**  
IEC 297-1  
ATX specification 2.03

## Complete solutions

### Included in delivery **EVOmax**

Item	Pc.	Description
1	1	Basic package: - chassis - external drive cage (holds 4 drives) - fan support with filter mat and panel - LED module with on/off/reset buttons and piezo speakers - board chassis
2	1	Front panel with flip-down panel and handles
3	1	Rear panel with ATX 7-slot insert
4	1	Power supply adapter plate
5	5	Slot covers
6	1	Internal hard drive cage (holds 4 hard drives)
7		Assembly material

### Included in delivery **EVO**

Item	Pc.	Description
1	1	Basic package: - chassis - external drive cage (holds 4 drives) - fan support with filter mat and panel - LED module with on/off/reset buttons and piezo speakers - board chassis
2	1	Front panel with handles
3	1	Rear panel with ATX 7-slot insert
4	1	Power supply adapter plate
5	5	Slot covers
6		Assembly material

### Order information

Description	Part no.
19" computer plug-in unit 4 U <b>EVOmax</b>	20-5460-10

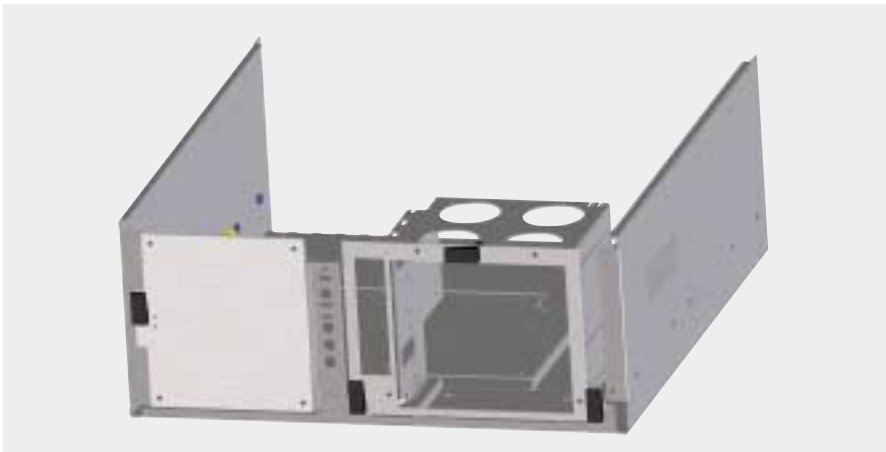
Description	Part no.
19" computer plug-in unit 4 U <b>EVO</b>	20-5460-00



## Individual configuration

Design your own custom-built computer plug-in unit.  
Select your required plug-in components one at a time.

### 1 Basic package



- includes:
  - chassis
  - drive cage, holds 4 drives
  - fan support with filter mat and panel
  - LED module with on/off/reset buttons and piezo speakers
  - board chassis

<b>Part no.</b>
20-5460-08

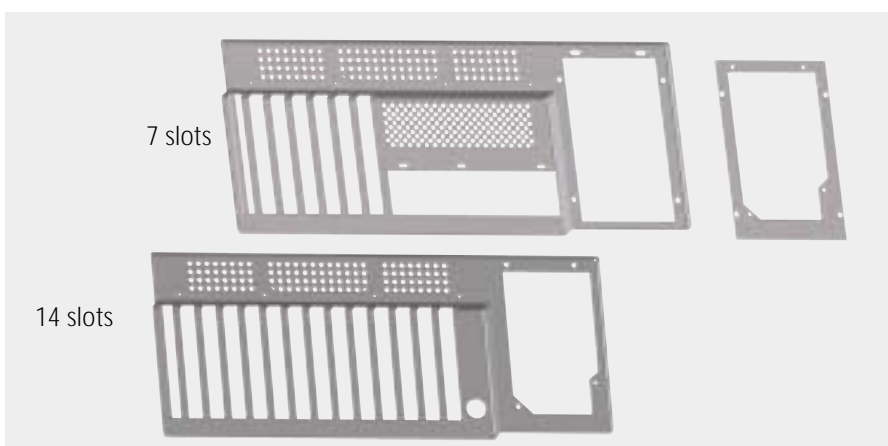
### 2 Front panel/flip-down panel with cover panel



- **EVO** model, as a rigid front panel
- **EVOmax** model, as a flip-down front panel with an externally "invisible" lock
- both models have handles
- front flip-down panel can be equipped with a lock on request

Description	Part no.
Front panel, <b>EVO</b>	20-5460-12
Front panel, <b>EVOmax</b>	20-5460-18

### 3 Rear panel with slot insert



- 7 slots for ATX applications and fewer for AT applications (use appropriate ATX panel) + power supply adapter plate with PS-2 power supply cut-out
- 14 slots for passive backplanes
- incl. 5 slot covers
- other slot inserts (10, 12 slots, etc.) available on request

Description	Part no.
ATX 7-slot insert	20-5460-07
ATX 14-slot insert	20-5460-14

**Note:** Redundant power supplies cannot be used with 14-slot inserts.





## 205 • 19" computer plug-in unit, 4 U



### 4 Internal 3 1/2" hard drive cage (holds 4 hard drives)



- holds up to four 3-1/2" hard drives
- vibration-free
- hard drive cage can be removed/replaced quickly due to the quick-release lock system

**Note:** Cannot be used with Extended ATX mainboards!

<b>Part no.</b>
20-5460-16

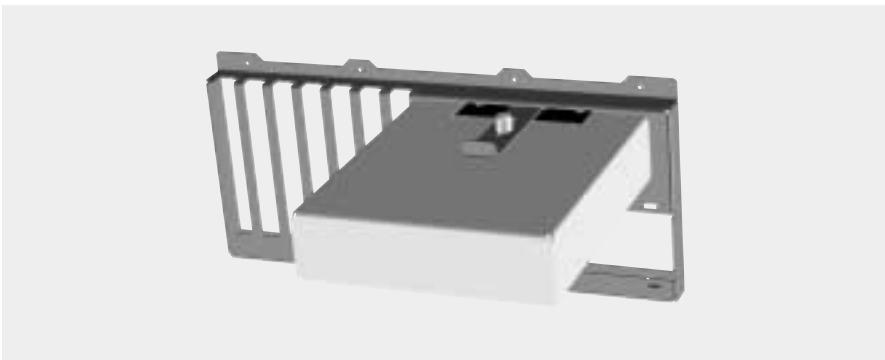
### 5 Internal 3 1/2" hard drive cage (holds 1 hard drive)



- holds one 3-1/2" hard drive
- vibration-free
- hard drive cage can be removed/replaced quickly due to the quick-release lock system
- can also be mounted on the side

<b>Part no.</b>
20-5460-26

### 6 Extra processor cooling unit



- provides extra cooling for the processor
- incl. two **PAPST** fans:
  - flow rate: 13.5m<sup>3</sup>/h per fan
  - noise level: 29dB(A) per fan
  - dimensions (W x H x D): 40mm x 40mm x 20mm

Description	Part no.
Extra processor cooling unit	20-5460-06
Replacement fan, 12V	230-829

### 7 Telescoping rail expansion set



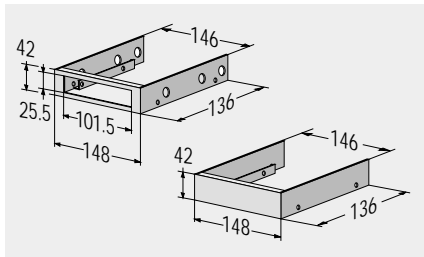
- ideal for installation in 600 to 800mm-deep cabinets
  - high-quality telescoping rails with
    - extender - detachable
    - can be locked when pulled out
  - includes 2 telescoping rails and assembly material
- Carrying capacity:** 66kg per pair

<b>Part no.</b>
68-0075-00



## Accessories

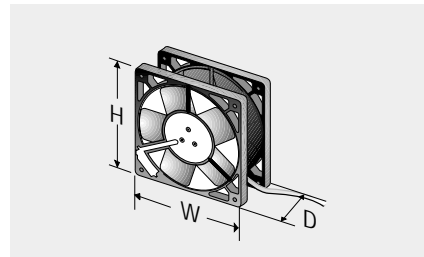
### Disk drive panels



- allows 3-1/2" disk drives and hard drives to be installed in 5-1/4" drive bays
  - slimline panel for installing 3 slimline disk drives in one 5-1/4" drive bay available
  - RAL 7035 light grey
- Material:** sheet steel

Description	Part no.
Solid (for hard drives)	20-2800-26
With cut-out (for disk drive)	20-2800-27
With 2 <b>PAPST</b> fans (for hard drives)	20-5460-22
<b>Slimline (one 3-1/2", one 5-1/4", one 2-1/2")</b>	20-4900-30

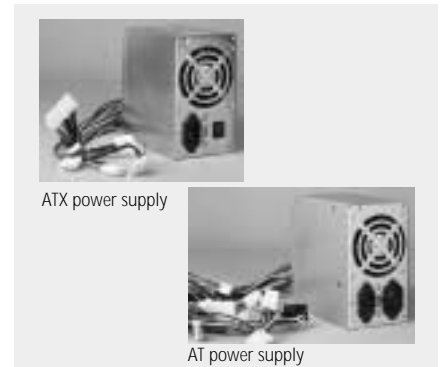
### Fan, 12V



- high-power **PAPST** fan
- incl. connector plug for power supply or speed-monitored on the motherboard
- Dimensions (W x H x D): 119mm x 119mm x 25mm

Description	Flow rate/ noise level	Part no.
Connection to power supply	140m³/h/ 38dB(A)	23-0815-01
Connection to motherboard, speed-monitored	94m³/h/ 26dB(A)	230-824
Replacement filter mat		67-1200-50

### Power supplies



- 115V/230V
- comply with CE, TÜV, ULc, UL
- incl. power cord

Description	PFC	Part no.
ATX power supply, 250W	active	640-118
ATX power supply, 300W	active	640-120
AT power supply, 250W	passive	640-117
Redundant ATX power supply, 2 x 300W hot swap	active	640-135

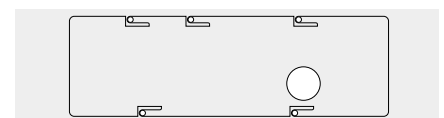
**Note:**  
See page 4.50 for more technical information on power supplies

### ATX connection panels

- inserted into the defined cut-out in the ATX rear panel; adapt the mainboard periphery connections to the plug-in unit case

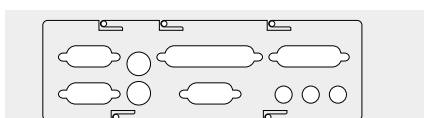
The following connection panels are currently available (other types available on request):

### for AT boards



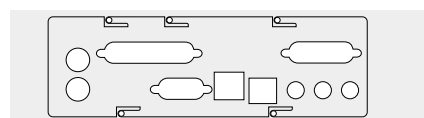
<b>Part no.</b> 20-2500-15
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### Thor



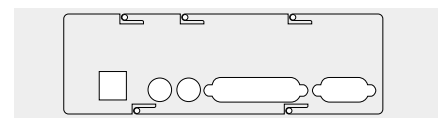
<b>Part no.</b> 20-2500-12
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### Providence



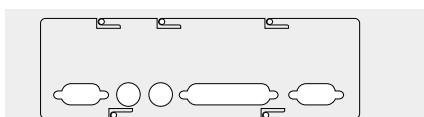
<b>Part no.</b> 20-2500-14
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### ASUS



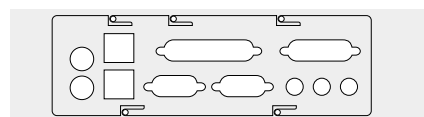
<b>Part no.</b> 20-2500-19
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### Aurora/Marl



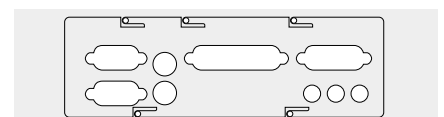
<b>Part no.</b> 20-2500-16
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### Venus/Tucson



<b>Part no.</b> 20-2500-17
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### Gigabyte



<b>Part no.</b> 20-2500-18
-------------------------------



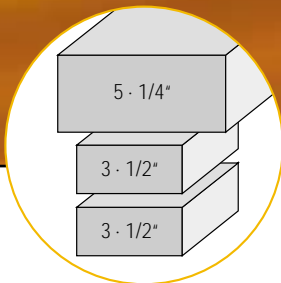
## Your idea, our solution!

We develop the perfect Hard Box based on your demands. The apra-norm team is always available to share its technical experience with you!



figure similar to actual Hard Box

### Features



3 disk drives can be integrated



19" assembly option

apra-norm's Hard Box is a universal solution in a small package. It can be mounted easily on doors or mounting plates in cabinet and enclosure systems. This compact enclosure is ideal for industrial use because it has a mechanically sturdy construction and high resistance to electromagnetic interferences.

### Hard Box

- for ATX applications
- small size
- for installing:
  - one 5-1/4" disk drive
  - one 3-1/2" floppy drive
  - one 3-1/2" hard drive
- cut-out for PS/2 power supply
- fans can be installed at the rear
- board chassis for holding the motherboard
- card securing strip
- can be customized for your specific applications
- numerous assembly options
  - 19" installation (optional)
  - wall mounting
  - mounting on doors or mounting plates



# "Hard Box" industrial PC enclosure, 4 U • 205

## Specifications

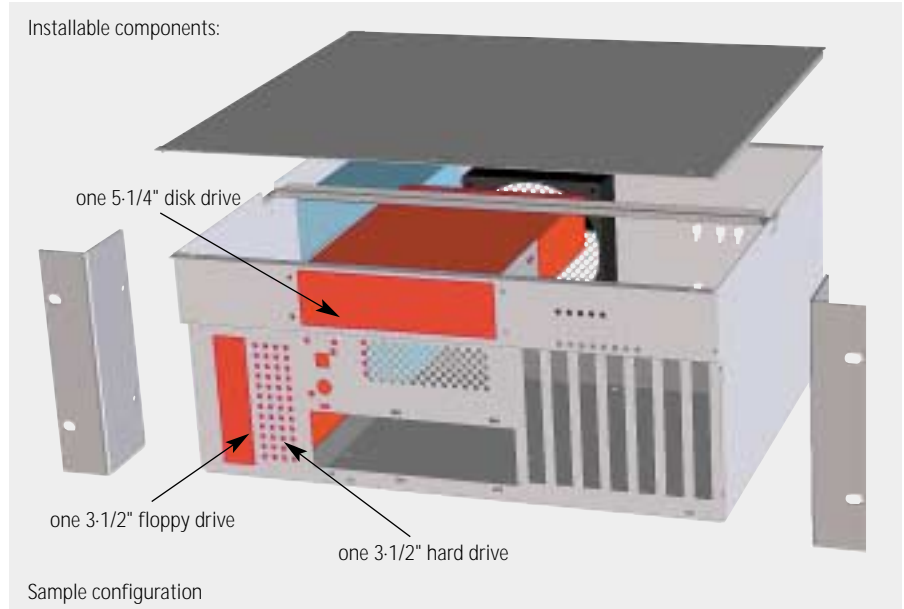
**Application:**  
compact, universal IPC enclosure

**Construction:**  
clined sheet steel design

**Finish:**  
galvanized

**Material:**  
sheet steel

**Delivery:**  
assembled



### Included in delivery

Item	Pc.	Description
1	1	Enclosure chassis with top panel
2	1	Drive cage, 3-1/2"
3	1	Drive cage, 5-1/4"
4	1	Board chassis
5	1	Board with LED, reset button and piezo speakers

### Order information

H x W x D mm	Part no.
177 x 405 x 362.5	20-5880-00

Note: Order front angle brackets 19" separately.

## Accessories

### ATX power supplies

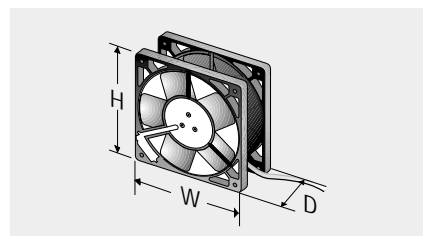


- 115V/230V
- with built-in fan
- comply with CE, TÜV, ULc, UL
- incl. power cord

Power	PFC	Part no.
250W	active	640-118
300W	active	640-120

Note:  
See page 4.50 for more technical information on power supplies

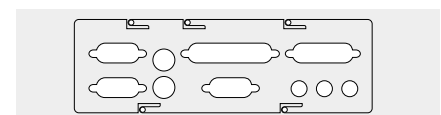
### Fan, 12V



- high-power **PAPST** fan
- incl. connector plug for power supply or speed-monitored on the motherboard
- W x H x D:  
119mm x 119mm x 25mm

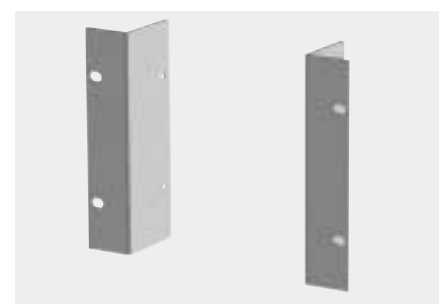
Description	Flow rate/ noise level	Part no.
Connection to power supply	140m <sup>3</sup> /h/ 38dB(A)	230-815
Connection to motherboard, speed-monitored	94m <sup>3</sup> /h/ 26dB(A)	23-0824-02

### ATX connection panels



See page 4.49 for matching ATX panels.

### 19" angle brackets, 4 U



- incl. assembly material

Part no. (pair)
20-5880-10



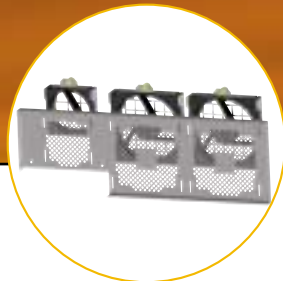
## 19" server plug-in unit, 6 U



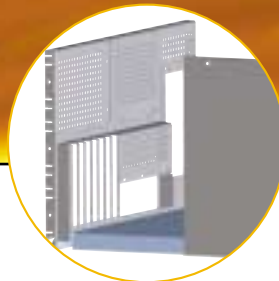
### Features



Drive cages can be dismantled from the front



Fan bridge with quick-replacement system; no tools required



Board chassis drawer can be pulled out from the rear

Sample configurations  
(disk drives and disk drive panels shown  
not included in delivery)

### 19" server plug-in unit, 6 U

- 10 disk drives can be installed ten 5-1/4" or ten 3-1/2" when using the appropriate disk drive panel (see accessories on p. 4.45)
- all disk drives can be accessed and assembled from the front
- suitable for all ATX form factors
- rear panel with 7 slot outlets and cut-outs for two redundant power supplies

- two PS/2 power supplies or redundant power supplies can be installed using a power supply adapter plate (included in delivery)
- fan bridge built-in directly behind the disk drives:
  - direct heat dissipation
  - one type-A fan and two type B fans can be installed (see accessories p. 4.45) - total flow rate: 338m<sup>3</sup>/h
- quick-replace system for replacing fans; no tools required
- integrated board
- 7 long cards can be installed
- flip-down front panel with "invisible" lock
- extractable board chassis drawer for easy mainboard assembly
- EMC-compliant basic design
- integrated board chassis for protecting the mainboard from torsional stress





# 19" server plug-in unit, 6 U • 205

## Specifications

**Finish:**  
RAL 7035 light grey

**Material:**  
sheet steel, galvanized

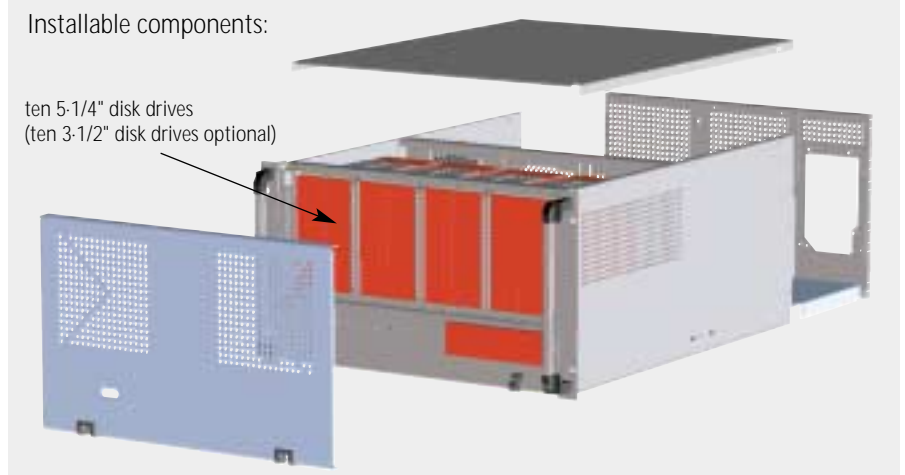
**H x W x D:**  
266mm x 482.6mm x 600mm

**Delivery:**  
assembled, one cardboard box

**Standards:**  
IEC 297-1  
ATX specification 2.03

Installable components:

ten 5-1/4" disk drives  
(ten 3-1/2" disk drives optional)



Included in delivery

## Order information

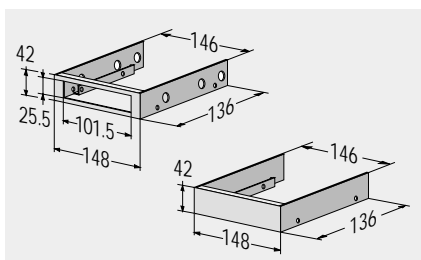
Description	Part no.
19" server plug-in unit 6 U	20-5600-00

Item	Pc.	Description
1	1	Enclosure chassis with top panel
2	1	Front flip-down panel with front angle bracket and handles
3	9	Drive cages
4	1	Rear panel with power supply panels
5	1	ATX 7-slot insert
6	1	Board chassis

Item	Pc.	Description
7	1	Fan bridge
8	2	Power supply adapter plates
9	3	Ventilation panels
10	5	Slot covers
11	1	LED module
12	1	Disk drive panel
13		Assembly material

## Accessories

### Disk drive panels



- allow 3-1/2" disk drives and hard drives to be installed in 5-1/4" drive bays
  - slimline panel for installing 3 slimline disk drives in one 5-1/4" drive bay available
  - RAL 7035 light grey
- Material:** sheet steel, galvanized

Description	Part no.
Solid (for hard drives)	20-2800-26
With cut-out (for disk drive)	20-2800-27
With 2 <b>PAPST</b> fans (for hard drives)	20-5460-22
Slimline (one 3-1/2", one 5-1/4", one 2-1/2")	20-4900-30

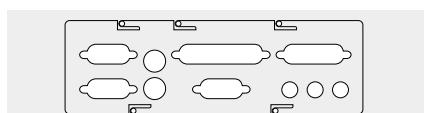
### Fan, 12V

- high-power **PAPST** fan
- incl. connector plug for power supply or speed-monitored on the motherboard
- fan bridge can be fitted with one type-A (80mm x 80mm x 25mm) two type-B (119mm x 119mm x 25mm)

Type	Model	Part no.
A	Connection to power supply	23-0828-01
	Connection to motherboard, speed monitored	230-832
B	Connection to power supply	23-0815-01
	Connection to motherboard speed-monitored	230-824

Note: See page 4.52 for specifications

### ATX connection panels



See page 4.49 for matching ATX panels.

### Card retainer



- incl. 3 card angle brackets

Description	Height (H)	Part no.
Card retainer	-	20-5600-04
	22mm	20-2293-01
Card angle bracket	44mm	20-2293-03
	33mm	20-2293-04
	66mm	20-2293-08

### Power supplies, 115V/230V

- comply with CE, TÜV, ULc, UL

Description	PFC	Part no.
ATX power supply, 300W	active	640-120
AT power supply, 250W	passive	640-117
Redundant ATX power supply, two 300W hot swap	active	640-135

Note:

See page 4.50 for more technical information on power supplies



## DELTA

The 19" "Delta" server plug-in unit has many functions. Passive BUS boards with up to 20 plug-in locations (ISA or ISA/PCI) can be installed. Three fans can be installed to cool the boards directly.



Fig.: with front flip-down panel closed



Fig.: with front flip-down panel open

Three 3 1/2" disk drives and three 5 1/4" disk drives can be installed. The fan in the 3-1/2" drive cage (accessory part) also ensures that the hard drive is cooled optimally. When assembling mainboards or passive BUS boards, a partial plug-in unit can be pulled out towards the rear to provide access. The flip-down front panel provides access to all 6 disk drives. The drive cages can be pulled out from the front and fitted with disk drives. Locks on the front flip-down panel protect the drives from unauthorized access.

### 19" "Delta" computer plug-in unit, 7 U

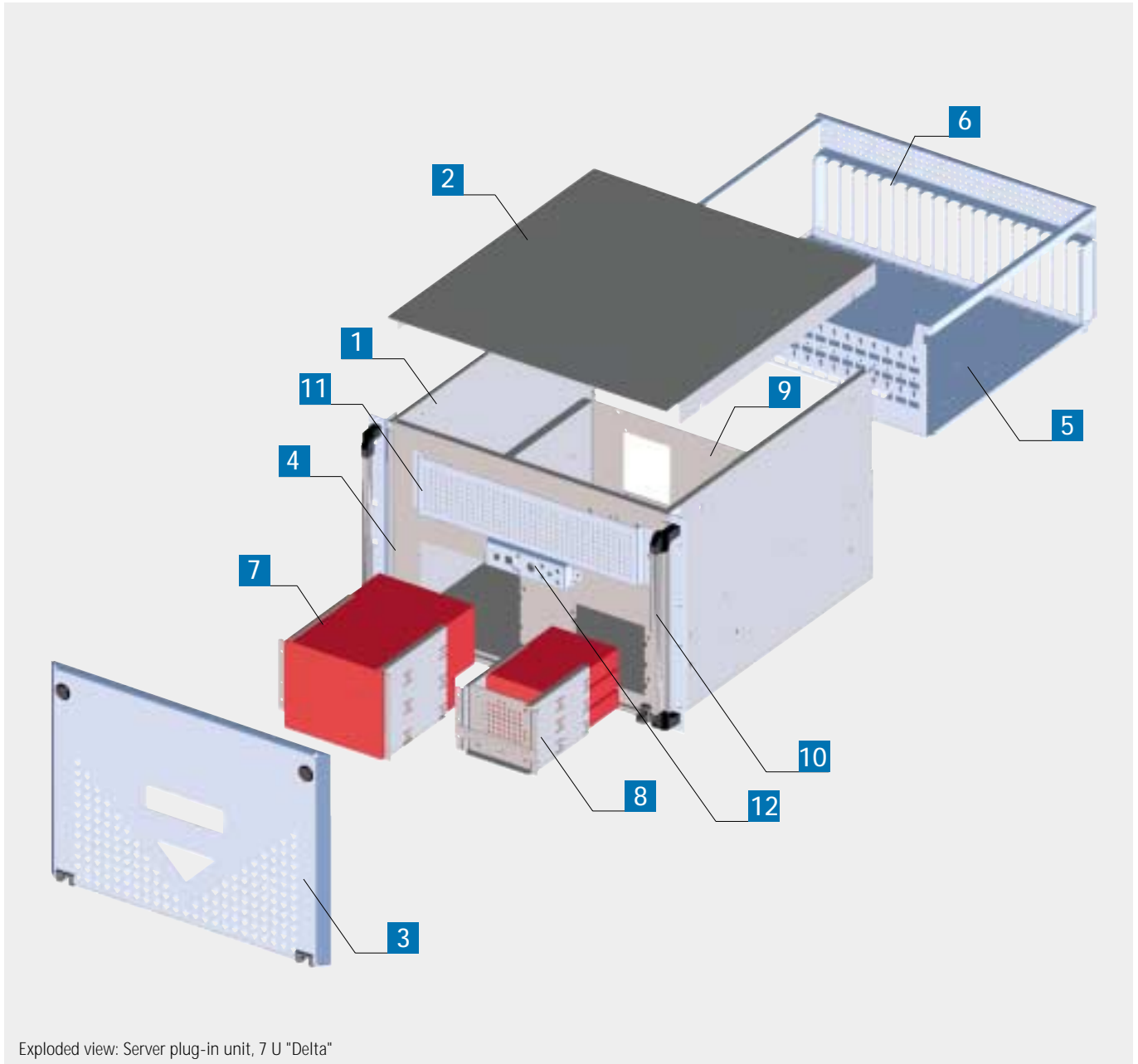
- up to 20 long plug-in cards can be installed
- three 5-1/4" disk drives and three 3-1/2" drives can be installed in drives cages that can be pulled out from the front

- 460mm depth
- stable, high-quality 19" plug-in unit for installation in 19" cabinets
- flip-down front panel with protected access, RAL 7035 light grey
- optimum access from the front to all disk drives, LED's, switches and filter mats
- partial plug-in unit can be pulled out from the back for installing components
- 4 fans with dust filters for cooling the mainboard and 3 1/2" drives directly can be installed
- suitable for use with telescoping rails
- also available with a 7-slot ATX rear panel
- 2 PS/2 or redundant power supplies can be installed



# 19" DELTA server plug-in unit, 7 U • 205

## Specifications



**Use:**  
server plug-in unit for installing passive BUS boards with up to 20 slots (ISA or ISA/PCI) or ATX boards

**Construction:**  
enclosure chassis with flip-down front panel and partial plug-in unit that can be pulled out from the rear

**Finish:**  
RAL 7035 light grey

**Material:**  
sheet steel, galvanized

**Delivery:**  
assembled

Item	Description
1	Chassis
2	Top panel
3	Front flip-down panel
4	Mounting plate
5	Board chassis
6	Slot grid
7	Drive cage, 5-1/4"
8	Drive cage, 3-1/2"
9	Power supply panel
10	19" front angle bracket with handles
11	Fan panel with filter mat
12	LED panel



# 205 • 19" DELTA server plug-in unit, 7 U



## Included in delivery

Item	Pc.	Description
1	1	Chassis with top panel
2	1	Front flip-down panel with two locks
3	1	Board chassis with slot grid
4	1	5-1/4" disk drive cage
5	1	3-1/2" disk drive cage

Item	Pc.	Description
6	2	19" front angle bracket with handles
7	1	Fan panel with filter mat
8	1	LED panel
9	2	Power supply adapter plate
10	1	Power supply panel, ventilated
11		Assembly material

## Order information

Description	Part no.
19" server plug-in unit with 20 slots	20-5888-00
19" ATX server plug-in unit with 7 slots	20-5888-10

## Accessories

### ATX power supply

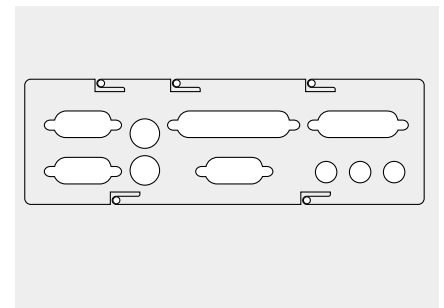


- 115V/230V
- redundant (type 640-135)

**Note:**  
See page 4.50 for more technical information on power supplies

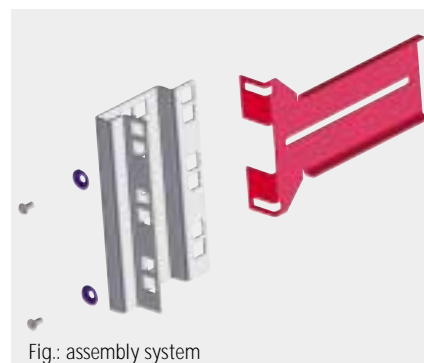
Power	Type	Dimensions (H x W x D) mm	Part no.
300W	PS/2 ATX	86 x 150 x 140	640-120
2 x 300W	redundant ATX	86 x 150 x 175	640-135
300W	PS/2 AT	86 x 150 x 140	640-137

### ATX connection panels



- connection panels for ATX rear panels see accessories on p. 4.49

### Telescoping rail set

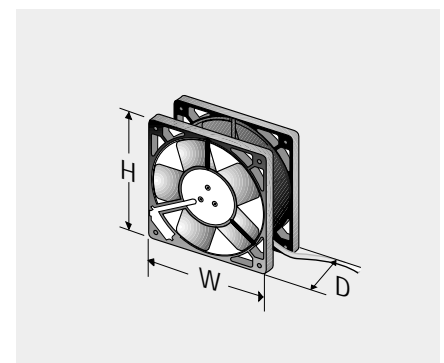


- with 19" assembly system subject to utility model protection
- high-quality telescoping rails
- ideal for installation in 600 to 800mm-deep cabinets
- includes 2 telescoping rails and assembly material

Part no.
68-0078-00

**Note:** rear 19" mount required

### Fan, 12V



- flow rate: 58m<sup>3</sup>/h
- noise level: 27dB(A)
- incl. assembly material

Dimensions mm	Part no.
80 x 80 x 25	230-828



## ATX connection panels

- for installation in the defined cut-out in the ATX rear panel in accordance with ATX specification 2.03
- for adapting mainboard periphery connections to the plug-in case

Description	Shape	Part no.
ATX connection panel Intel Venus/Tucson/Gigabyte/ Micronics/Portland TX 97-x/Asus		20-2500-17
ATX connection panel Intel Thor		20-2500-12
ATX connection panel Intel Providence		20-2500-14
ATX connection panel Intel Aurora/Marl/Asus P/I-XP55TV		20-2500-16
ATX connection panel Gigabyte		20-2500-18
ATX connection panel ASUS		20-2500-19
ATX connection panel for AT boards		20-2500-15





## 205 • Accessories for 19" computer plug-in units

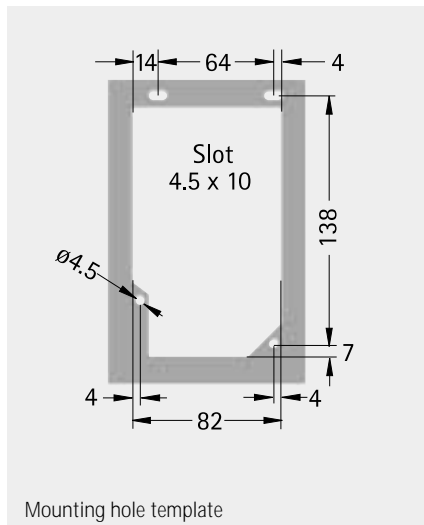


### Power supplies

All following power supplies are equipped with Power Factor Correction (PFC).

- **active PFC:** constantly measures the sink current and electronically regulates the input current
- **passive PFC:** primary inductor is switched to the input current circuit; the energy from the mains is temporarily stored, thus decreasing the machine's current pulse

### PS/2 AT power supply

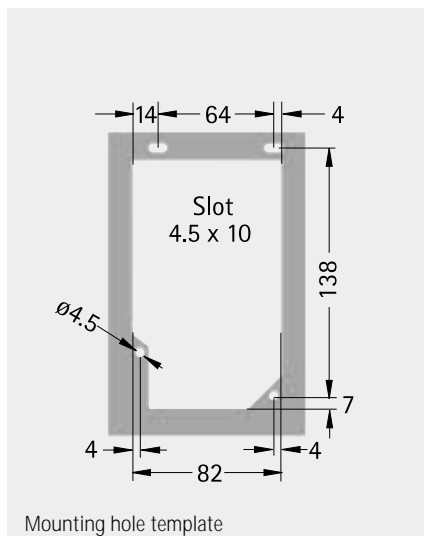


- with integrated fan
- incl. assembly material
- complies with CE, TÜV, ULc, UL
- ports: + 5V; + 12V; - 5V; - 12V



Power	PFC	WxHxD mm	Part no.	Can be installed in
250W	passive	86 x 150 x 140	640-117	<div style="border: 1px solid black; padding: 2px;">           20-5880-00            20-5600-00            20-5460-10            20-5460-00            20-5888-00            20-5888-10         </div>
300W	active	86 x 150 x 140	640-137	<div style="border: 1px solid black; padding: 2px;">           20-5880-00            20-5600-00            20-5460-10            20-5460-00            20-5888-00            20-5888-10         </div>

### PS/2 ATX power supply



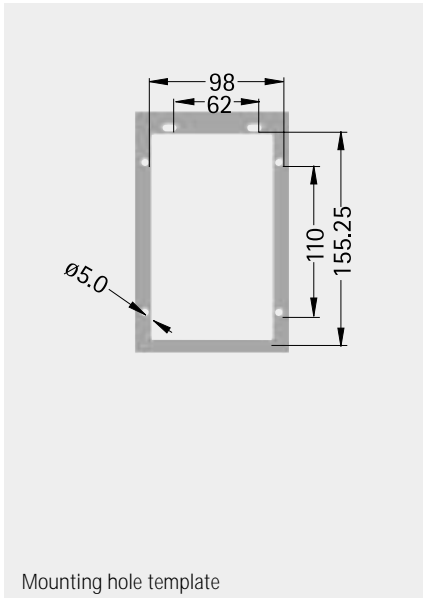
- with integrated fan
- incl. assembly material
- complies with CE, TÜV, ULc, UL
- ATX specification 2.03
- ports: + 3.3V; +5; + 12V;  
- 5V; - 12V; + 5V
- Pentium 4 compatible



Power	PFC	WxHxD mm	Part no.	Can be installed in
250W	active	86 x 150 x 140	640-118	<div style="border: 1px solid black; padding: 2px;">           20-5880-00            20-5600-00            20-5460-10            20-5460-00            20-5888-00            20-5888-10         </div>
300W	active	86 x 150 x 140	640-120	<div style="border: 1px solid black; padding: 2px;">           20-5880-00            20-5600-00            20-5460-10            20-5460-00            20-5888-00            20-5888-10         </div>



## Redundant ATX power supply

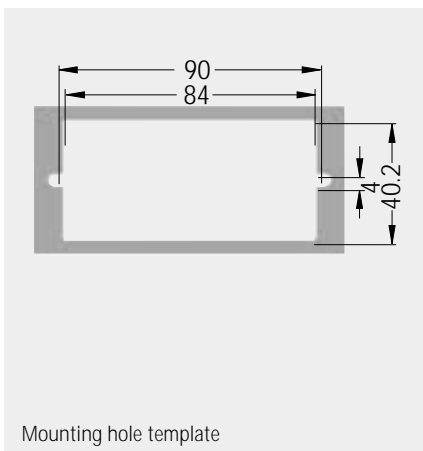


- visual and audio alarm for malfunction
- with integrated fan
- hot-swappable
- incl. assembly material
- complies with CE, TÜV, ULc, UL
- ports: + 3.3V; + 5V; + 12V;  
- 5V; - 12V; + 5V;
- Pentium 4 compatible



Power	PFC	WxHxD mm	Part no.	Can be installed in
2 x 300W	active	86 x 150 x 175	640-135	<div style="border: 1px solid black; padding: 5px; width: fit-content;">           20-5600-00            20-5460-10            20-5460-00            20-5888-00            20-5888-10         </div>

## Mini-ATX power supply



- with integrated fan
- incl. assembly material
- suitable for 1 U enclosures
- complies with CE, TÜV, ULc, UL
- ports: + 3.3V; + 5V; + 12V;  
- 5V; - 12V; + 5V
- Pentium 4 compatible

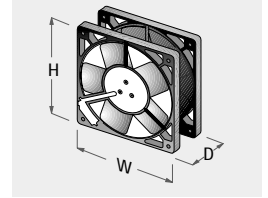


Power	PFC	WxHxD mm	Part no.	Can be installed in
300W	active	100 x 40.5 x 205	640-131	<div style="border: 1px solid black; padding: 5px; width: fit-content;">           20-5560-10            20-5560-20            20-5460-30         </div>



Fan

- high-power **PAPST** fan
- long running time



Included in delivery

Item	Pc.	Description
1	1	Fan
2		Assembly material*

**\*Note:**  
 Assembly material is not required because some computer plug-in units do not require tools to be fitted with fans.

**Info:** **Molex plug:** for connecting to a motherboard for monitoring speed  
**PC connector:** for connecting to a power supply

Order information

Voltage	Air flow rate	Noise level	WxHxD mm	Connections	Features	Part no.	Can be installed in
12 V	140 m³/h	38 dB(A)	119 x 119 x 25	PC connector	limited installation depth	23-0815-01*	<div style="border: 1px solid black; padding: 2px;">                     20-5880-00                      20-5460-10                      20-5460-00                      20-5600-00                 </div>
12 V	94 m³/h	26 dB(A)	119 x 119 x 25	Molex plug	speed-monitored	23-0824-02	<div style="border: 1px solid black; padding: 2px;">                     20-5460-10                      20-5460-00                      20-5880-00                      20-5600-00                 </div>
12 V	58 m³/h	27 dB(A)	80 x 80 x 25	PC connector	low-noise	23-0828-01*	<div style="border: 1px solid black; padding: 2px;">                     20-5560-20                      20-5600-00                      20-5460-30                      20-5888-00                 </div>
12 V	33 m³/h	12 dB(A)	80 x 80 x 25	Molex plug	speed-monitored	230-832*	<div style="border: 1px solid black; padding: 2px;">                     20-5560-20                      20-5600-00                      20-5460-30                      20-5888-00                 </div>
12 V	40 m³/h	40 dB(A)	60 x 60 x 25	310mm cable core	limited dimensions	230-825	<div style="border: 1px solid black; padding: 2px;">                     20-4203-00                 </div>
12 V	13,5 m³/h	29 dB(A)	40 x 40 x 20	PC connector	limited dimensions	230-829*	<div style="border: 1px solid black; padding: 2px;">                     20-5560-10                      20-5460-06                 </div>
12 V	13,5 m³/h	25 dB(A)	40 x 40 x 20	Molex plug	speed-monitored	230-834*	<div style="border: 1px solid black; padding: 2px;">                     20-5560-10                      20-5460-06                 </div>

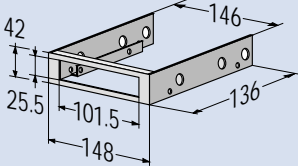
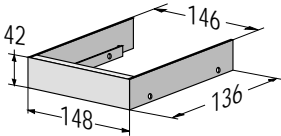
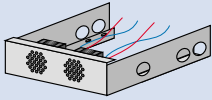
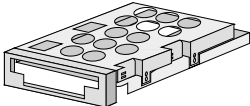


## Disk drive panels

- allow 3-1/2" and 2-1/2" disk drives and hard drives to be installed in computer plug-in unit 5-1/4" drive bays
- panels installed in unused drive bays
- incl. assembly material

**Finish:** RAL 7035 light grey

**Material:** sheet steel, galvanized

Item	Description	Dimensions	Part no.	Can be installed
1	<p><b>Floppy drive cage</b></p> <ul style="list-style-type: none"> <li>• with a cut-out for one 3-1/2" floppy drive</li> </ul>		20-2800-27	<div style="border: 1px solid black; padding: 5px;"> <p>all series-205 computer plug-in units, except 1 U</p> </div>
2	<p><b>Hard drive cage</b></p> <ul style="list-style-type: none"> <li>• solid disk drive panel for installing a 3-1/2" hard drive</li> <li>• also as a panel for unused drive bays</li> </ul>		20-2800-26	<div style="border: 1px solid black; padding: 5px;"> <p>all series-205 computer plug-in units, except 1 U</p> </div>
3	<p><b>Hard drive cage, ventilated</b></p> <ul style="list-style-type: none"> <li>• with integrated fans two 40mm x 40mm x 20mm for directly cooling of the integrated 3-1/2" hard drive</li> </ul>		20-4401-12	<div style="border: 1px solid black; padding: 5px;"> <p>all series-205 computer plug-in units, except 1 U</p> </div>
4	<p><b>Slimline drive cage, holds 3 drives</b></p> <ul style="list-style-type: none"> <li>• with a cut-out for one 2-1/2" CD-ROM drive and for one 2-1/2" floppy drive</li> <li>• an additional 2-1/2" hard drive can be installed</li> </ul>		20-4900-30	<div style="border: 1px solid black; padding: 5px;"> <p>20-5600-00 20-5460-00 20-5460-10 20-5888-00 20-5888-10</p> </div>



## 205 • Accessories for 19" computer plug-in units 205



### Blanking panels for 3.5" drive bay

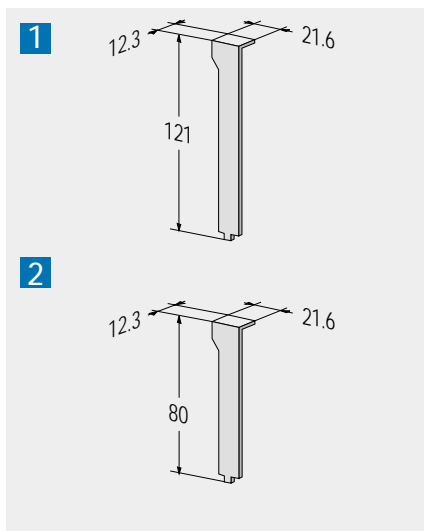


Finish: RAL 7035 light grey

Material: sheet steel

Item	Description	Part no.	Can be installed in
1	Blind cover	20-5460-24	

### Slot covers



- for closing unused slots
- low-profile PCI slot covers are available for installing low vertical expansion cards in low enclosures (2 U)
- incl. assembly material

Item	Description	Part no.	Can be installed in
1	Slot cover, standard	202-224	
2	Slot cover, low-profile PCI	20-4900-19	

### Card securing set



- for attaching and stabilizing vertical plug-in cards
- height adjustable by approx. 58mm
- with a foam rubber coating for protecting cards
- can be used for up to 14 slots
- incl. assembly material

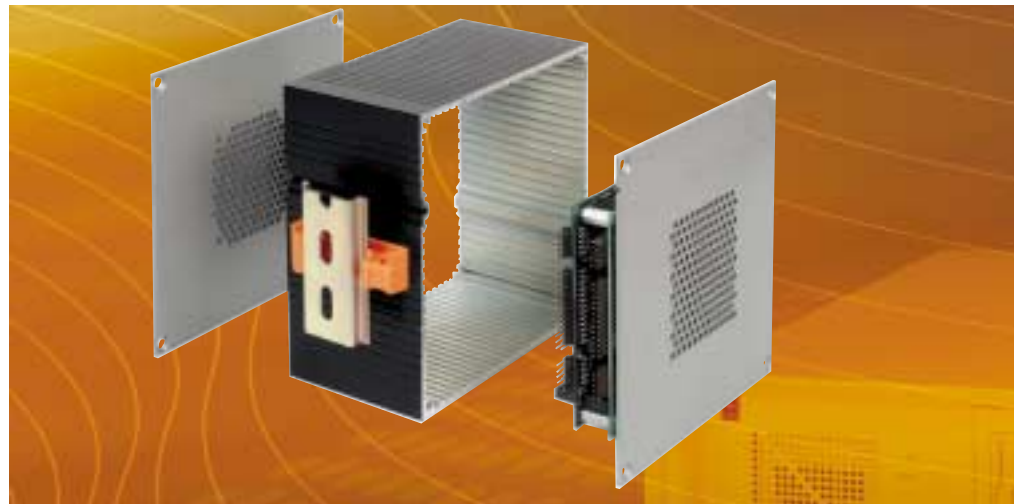
Item	Description	Part no.	Can be installed in
1	Complete set with 7 retainers	20-5460-15	
2	Retainer, individual	675-205	





PC 104

- enclosure for industrial PC's, small size, aluminium extrusion construction allowing installation at different depths and different numbers of cards to be installed
- threaded bolts for mounting boards on the rear panel
- suitable for wall and DIN-rail mounting and as a control panel case
- IP 65 available using moulded seals (part no. 44-2375-01) between the edge and the front/rear panel
- customized cut-outs available on request



The stable aluminium extrusion design allows the PC/104 enclosure to be used in any situation, even in rough environments.

PCB's can be installed horizontally on the rear panel or vertically on a board mounting plate for improved ventilation.

Included in delivery

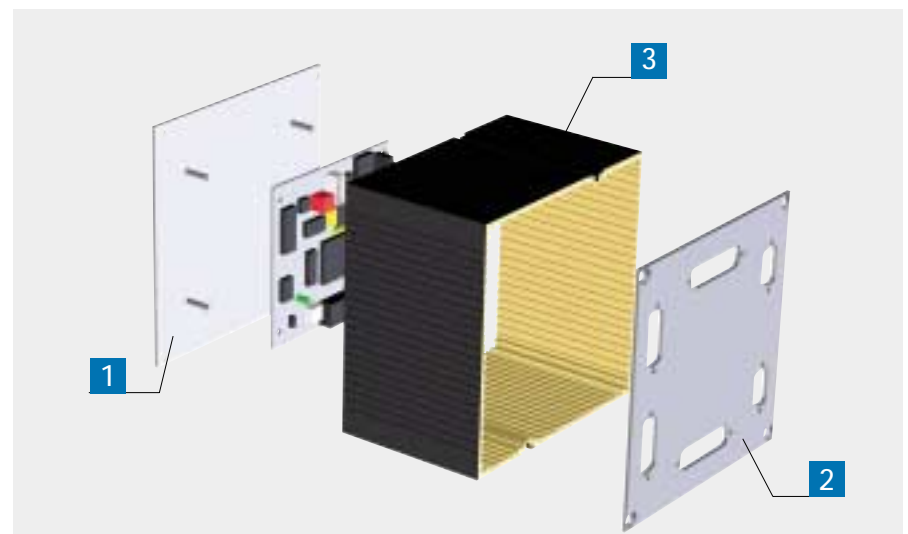
Item	Pc.	Description
1	1	Rear panel with threaded bolts
2	1	Front panel
3	1	Enclosure frame
4	8	Thread-forming countersunk screw, M4

Order information

Dimensions mm	Depth mm	Part no.
135,5 x 135,5	57	44-2200-00
135,5 x 135,5	90	44-2201-00

Other depths available on request!

Specifications



Accessories



1. Clips for mounting on DIN rail, side

Part no. 44-2311-10
------------------------



2. Clips for mounting on DIN rail, front panel

Part no. 44-2311-10
------------------------



3. Clips for mounting on DIN rail, metal slide protection

Part no. 44-2312-10
------------------------



## CompactPCI®



Sample configuration

### Individual configuration

Design your customized **CompactPCI®** with us  
Our specialists will advise you at each step as  
you select the components you require.



#### CompactPCI®

- customized configuration according to your needs
- rear card installation is also available (rear I/O)
- EMC-compliant design
- complies with IEC 297-3 and IEEE 1101.10/1101.11
- complies with PICMG 2.0 R 3.0

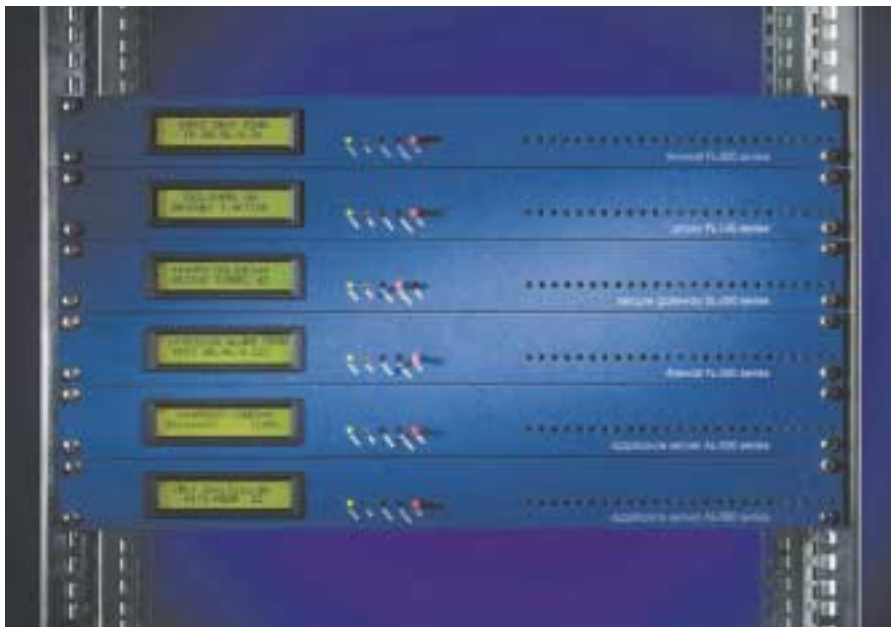
The **CompactPCI®** combines the diverse hardware and software options with sturdy 19" technology. The systems' high data transfer rates make them ideal for telecommunications and automation technology use in particular. The CompactPCI systems developed at apra-norm are based on the 245-series subrack. All extension and accessory parts can be customized. Our specialists would be glad to help you with the customization process.

apra-norm is a member of PICMG Europe.

You can find more information on customized configurations in the chapter on 19" subracks beginning on page 5.31. Or call us! We would be happy to provide more information. Phone: 0 65 92-204-0



Visions become reality ...



### 19" flat cases, 1 U

- for use as a tuner or effects processor for music applications





Visions become reality ...



Tower

- for use as a server tower



IPC compact enclosure

- small size
- fold-up chassis



Mini PC enclosure

- for 6-slot boards