



1: 19" Front Panels

D | 4

1.1 Front Panels 19"

D | 4

1.1.1 Front / Rear Panels 19", solid, anodised

D | 4

1.1.2 Front / Rear Panels 19", solid, powdercoated

D | 4

1.1.3 Fan Front Panels 19"

D | 5

1.1.4 Assembly Material

D | 5

2: Telescopic Rails

D | 6

2.1 Teleskopik Rails 60 kg

D | 6

2.1.1 Telescopic Rails, 60 kg, Set

D | 6

2.2 Cable Carrier

D | 7

2.3 Line Drawings

D | 8

3: 19" Ventilations

D | 9

3.1 Fan Module 19"

D | 9

3.1.1 Fan Module Vertical 19"

D | 9

3.1.2 Fan Module Horizontal 19"

D | 10

3.1.3 Line Drawing and Technical Information

D | 10

3.2 Accessories for Ventilation

D | 11

3.2.1 Handles for Fan Modules 19"

D | 11

3.2.2 Front Filter Set

D | 11

3.2.3 Fans

D | 12

3.2.4 Filter Set on Pressure Side of Fan Body

D | 13

3.2.5 Fan Speed Control

D | 13

4: Keyboards

D | 14

4.1 Keyboard Tray 1 U Overview

D | 14

4.1.1 Technical Data

D | 14

4.2 Keyboard Tray 19", 1 U

D | 15

4.2.1 Keyboard Tray 19", 1 U

D | 15

4.2.2 Keyboard Tray 19", 1 U, with Touchpad (RS232, PS/2)

D | 15

4.2.3 Keyboard Tray 19", 1 U, with Touchpad (USB)

D | 15

4.3 Accessories

D | 17

4.3.1 Earthing Set

D | 17

4.3.3 Assembly Material

D | 17

1: 19" Front Panels



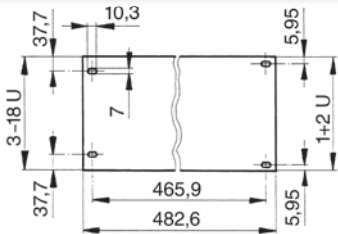
1.1 Front Panels 19"

1.1.1 Front/Rear Panels 19", Solid, Anodised



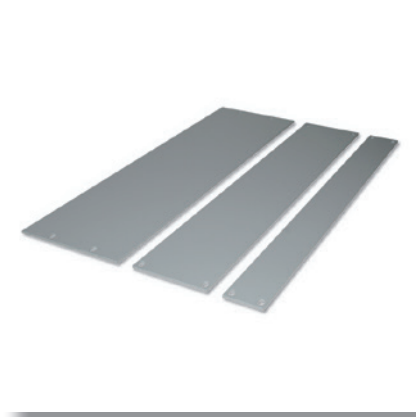
1.1.1 Front/Rear Panels 19", Solid, Anodised

- Aluminium 3 mm
- **Scope of delivery:**
 - 1 front panel
- Assembly material see 1.1.4



Height			Part-No.
for	mm	inch	
1 U	43.6	1.71	20-101
2 U	88.1	3.46	20-102
3 U	132.5	5.21	20-103
4 U	177.0	6.96	20-104
5 U	221.5	8.72	20-105
6 U	266.0	10.47	20-106
7 U	310.5	12.22	20-107
8 U	355.0	13.97	20-108
9 U	399.0	15.70	20-109
10 U	443.5	17.46	20-110
12 U	532.5	20.96	20-112

1.1.2 Front/Rear Panels 19", Solid, Powder Coated



1.1.2 Front/Rear Panels 19", Powder Coated

- Aluminium 3 mm
- Rear conductive
- **Scope of delivery:**
 - 1 front panel
- Assembly material see 1.1.4

Height			Part-No.
for	mm	inch	
1 U	43.6	1.71	20-101-30
2 U	88.1	3.46	20-102-30
3 U	132.5	5.21	20-103-30
4 U	177.0	6.96	20-104-30
6 U	266.0	10.47	20-106-30

Other colours and heights available upon request

1: 19" Front Panels

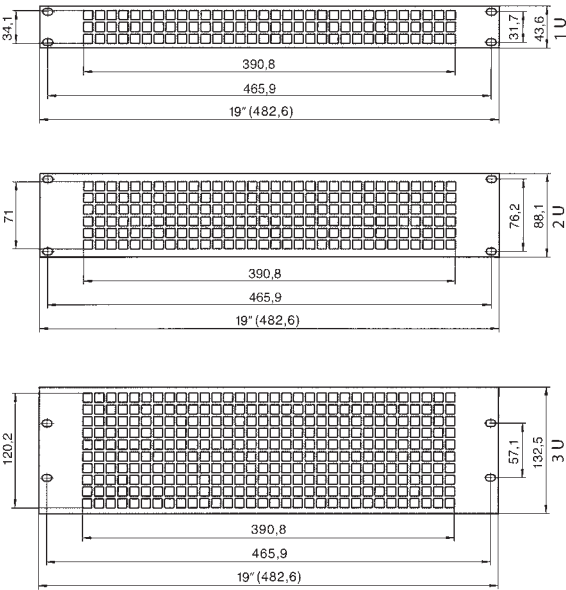
1.1.3 Fan Front Panels 19"

- Aluminium 3 mm
- Clear anodised
- Scope of delivery:**
 - 1 front panel
- Assembly material see below

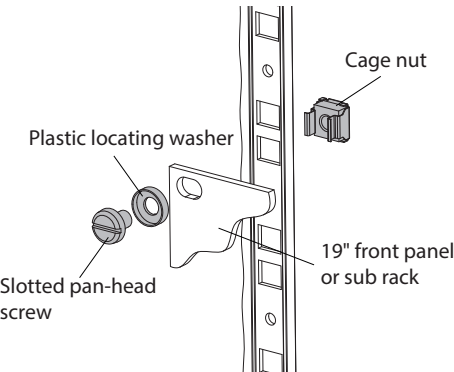


1.1.3 Fan Front Panels 19"

Height for	mm		inch		Part-No. clear anodised
	mm	inch	mm ²	sq. in.	
1 U	43.6	1.71	8643	13.39	20-101-01
2 U	88.1	3.46	17286	26.79	20-102-01
3 U	132.5	5.21	28811	44.65	20-103-01



1.1.4 Assembly Material



1.1.4 Assembly Material

- For mounting front panels in cabinets

Description	Part-No.
Slotted pan-head screw M6 x 8	5561-08
Slotted pan-head screw M6 x 12	5561-12
Plastic locating washer	61-007
Cage nut M6	5625-06

2: Telescopic Rails

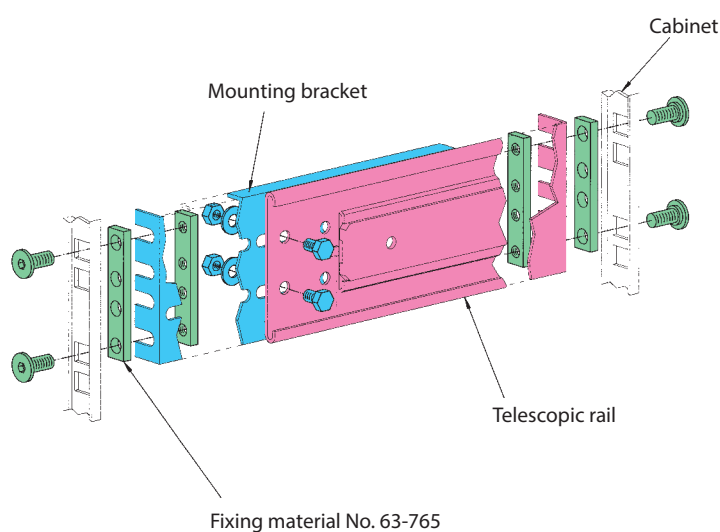


2.1 Telescopic Rails 60 kg

Despite their rugged construction, these are among the slimmest telescopic rails available on the market.

All types can be locked in the extended position and are fitted with a quick release latch. The load carrying capacity of one pair is 60 kg.

- Extremely slim, overall width only 6 mm
- New type of corrosion-protected surface with high sliding properties
- No additional lubrication necessary
- Little frictional resistance with heavy loads
- Selfunlocking plug-in function
- Load capacity up to 60 kg/132 lb (US) / pair
- Ease of assembly
- No milling of front vertical extrusion necessary



2.1.1 Telescopic Rails 60 kg, Set

- Telescopic rails, suitable for all heights
- **Scope of delivery:**
 - 2 telescopic rails
 - Mounting brackets
 - Assembly material for mounting into cabinet and on module



2.1.1 Telescopic Rails, Set (Load Capacity up to 60 kg/Pair)

Max. withdraw	Usable depth		Part-No.
	min.	max.	
511.2 mm	463 mm	681.8 mm	65-051
596.4 mm	564.6 mm	783.4 mm	65-052
719.6 mm	666.2 mm	885.0 mm	65-053

Rugged telescopic rail 90 kg available on request.

2: Telescopic Rails

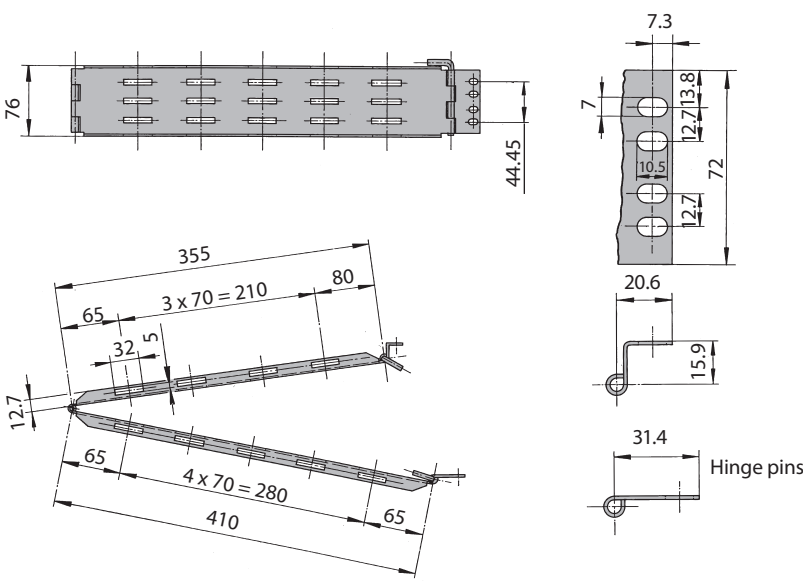
2.2 Cable Carrier

- The cable carrier can be easily installed and detached by removing the hinge bolt
- The cable carrier is mounted on the rear vertical section
- **Scope of delivery:**
 - 1 cable carrier



3.3 Cable Carrier

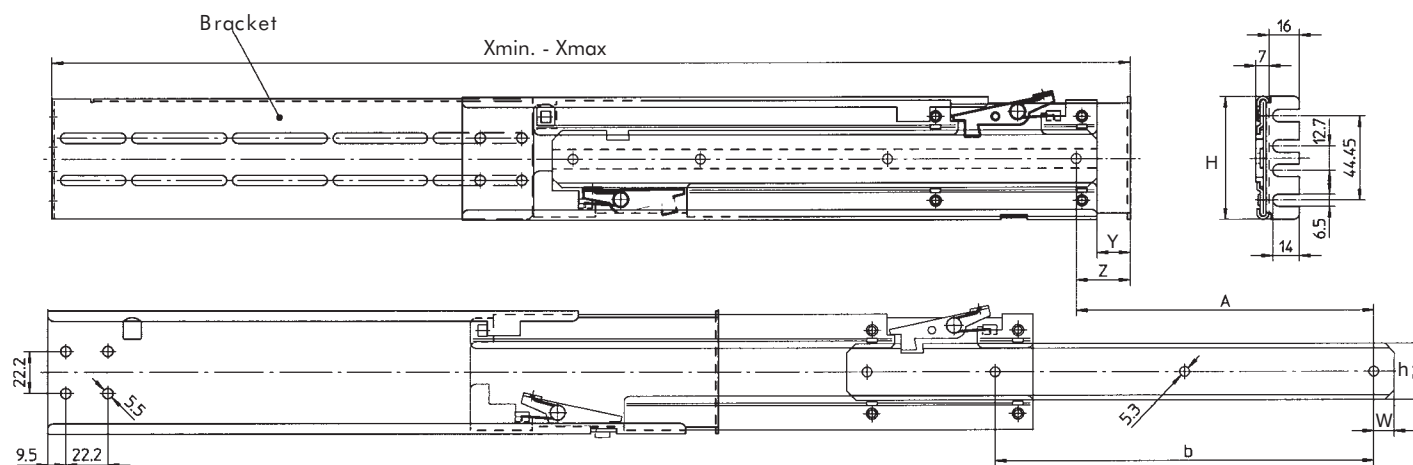
Description	Part-No.
Cable carrier	65-028-00



2: Telescopic Rails

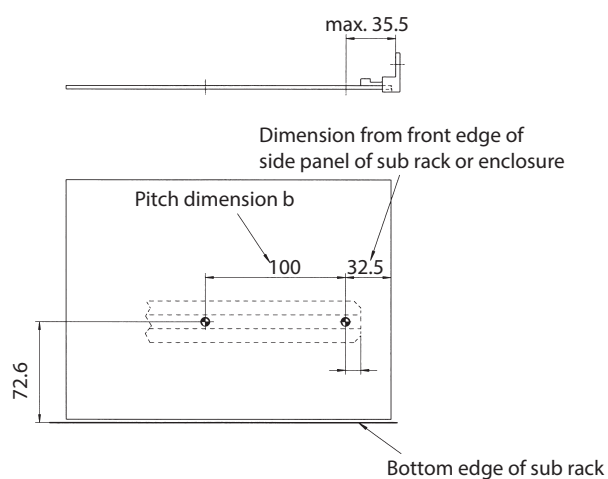
2.3 Line Drawings

- Showing a 60 kg rail



Dimensions

Size	Type	b	h	H	A	Z	Y	W	X min.	X max.
Size 3	65-051	3 x 100	30	65	511.2	32.2	17.5	11	463	681.8
Size 5	65-052	4 x 100	30	65	596.4	31.8	17.5	11	564.6	783.4
Size 7	65-053	5 x 100	30	65	719.6	28.4	11	11	666.2	885





3.1 Fan Modules 19"

- The fan modules are designed for vertical ventilation of 19" cabinets.
- Modules for depths of 160 mm and 220 mm have 3 fans
- These are arranged in an optimum configuration to ensure cooling of the PCBs over the entire width of the rack
- Fan modules with 19" front panels are designed for use in 19" racks and cabinets
- They can be run in and out on supporting rails
- The modules have a 3-pole appliance inlet for connection to the mains

3.1.1 Fan Modules Vertical 19"

- 230V/50Hz (115 V on request)
- **Scope of delivery:**
 - 1 fan module 19"
- Assembly material for mounting fan module in cabinet see below



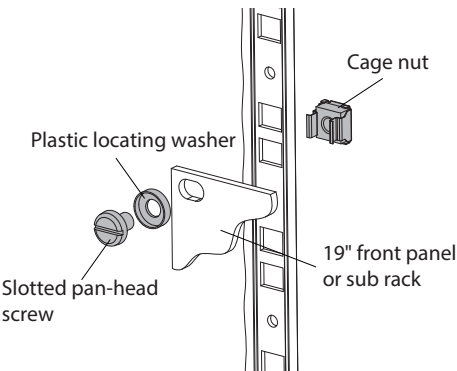
3.1.1.1 Assembled, Ready for Connection

Height	Fan Type (Details see 4.2.5.2)	Card Depth		Part-No.
		mm	inch	
1 U	69-430-20	160	6.29	27-100-02
		220	8.66	27-101-02

3.1.1.2 Assembly Material

- For mounting fan modules in cabinets

Description	Part-No.
Slotted pan-head screw M6 x 8	5561-08
Slotted pan-head screw M6 x 12	5561-12
Plastic locating washer	61-007
Cage nut M6	5625-06



3: 19" Ventilations

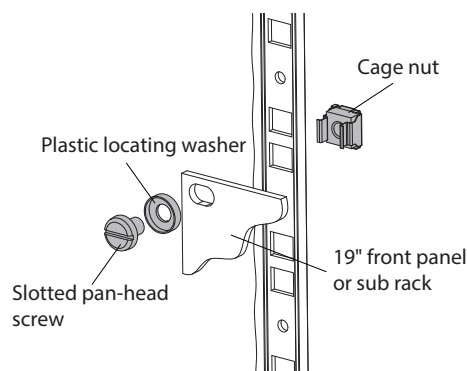
3.1.2 Fan Modules Horizontal 19"

- 230 V/50 Hz (115 V on request)
- **Scope of delivery:**
 - 1 fan module
- Assembly material for mounting fan module in cabinet see below



3.1.2.1 Assembled Ready for Connection

Height	Fan Type (Details see 4.2.5.2)	Card Depth		Part-No.
		mm	inch	
2 U	1925-79	160	6.29	27-250-02
		220	8.66	27-251-02

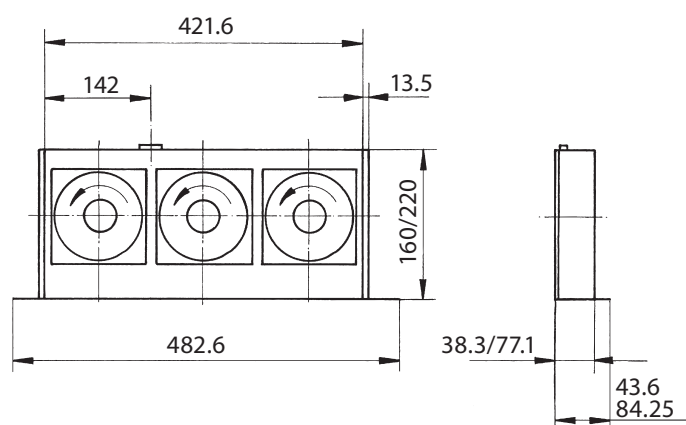


3.1.2.2 Assembly Material

- For mounting fan modules in cabinets

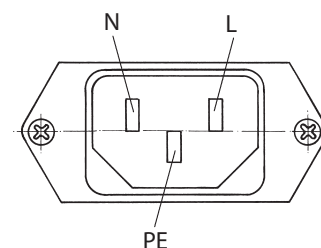
Description	Part-No.
Slotted pan-head screw M6 x 8	5561-08
Slotted pan-head screw M6 x 12	5561-12
Plastic locating washer	61-007
Cage nut M6	5625-06

3.1.3 Line Drawing and Technical Information



Power Supply

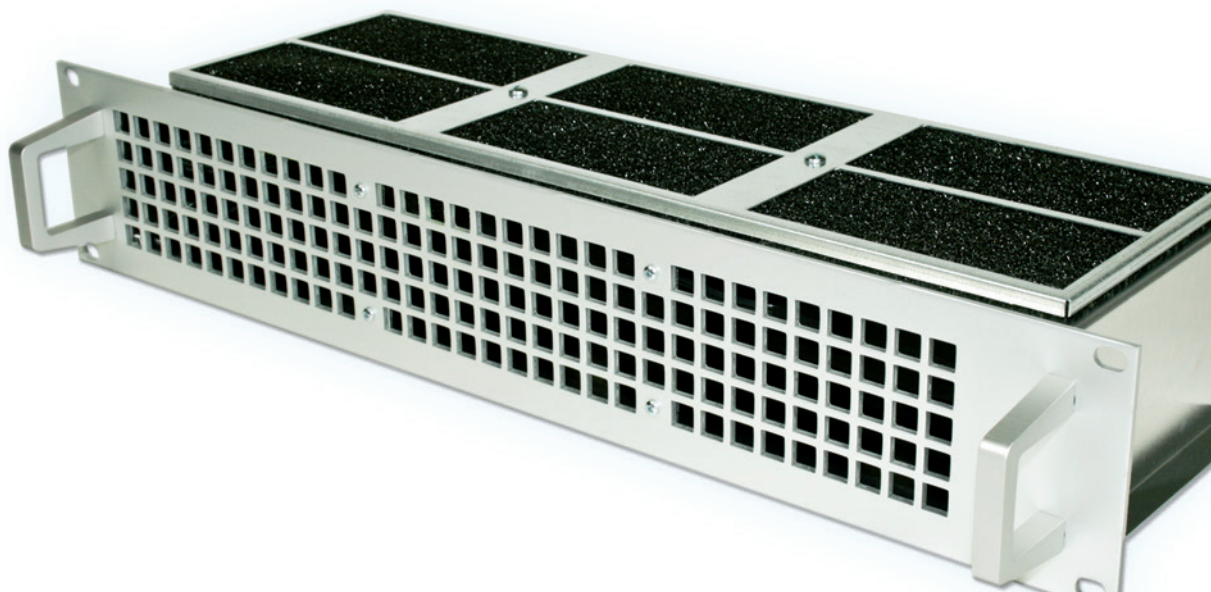
AMP connector, "M" series, 14 pole (pin)
Standard in fan modules 84 HP



N -blue
L -brown
PE -green / yellow

1 AMP connector series M can be assembled additionally

3: 19" Ventilations



3.2 Accessories for Ventilation

3.2.1 Handles for Fan Modules 19"

- **Scope of delivery:**
 - 1 handle
- Per Handle 2 screws are needed, see below



3.2.1 Handles for Fan Modules 19"

- **Scope of delivery:**
 - 1 handle

For Height	Description	Part-No.
1 U	U-handle diecast zinc	60-541
2 U	U-handle aluminium	60-527

Assembly Material

Description	Part-No.
Cross recessed cylinderhead earthing screw M4 x 10	61-260
Torx roundhead earthing screw M4 x 10, size T20	5443-01
Cross recessed countersunk screw M4 x 10	5342-10
Torx countersunk screw M4 x 10, size T20	5470-26

3.2.2 Front Filter Set

- The front filter is fastened to the front panel of the fan body or the fan frontpanel 2 U / 84 HP using two captive screws
- The filter mat can be re-used after washing in water with a temperature of up to approx. 40°C
- Replacement filter mats can be ordered as spare parts



3.2.2 Front Filter Set

- **Scope of delivery:**
 - 1 filter cradle, aluminium, clear anodised
 - 1 filter mat, polyester
 - 1 filter mat support, steel galvanised
 - 1 set of assembly material

Description	Part-No.
Front filter set for 19" fan module	27-281

3: 19" Ventilations

3.2.3 Fans



3.2.3.1 Fans 12V DC

- Brushless
- Sealed ball bearings
- Polarity and electronic locked rotor protection (autorestart)
- Air exhaust in over struts (can be mounted directly on a perforated front panel)
- Connector 2.8 x 0.5 (except fan with speed sensor)
- Fan case and wheel plastic UL94 V-0
- Operating temperature -20 °C to +70 °C
- CE, UL, CSA, VDE standard
- Life expectancy L₁₀ = 70 000 hours at 40 °C
- Special configuration with speed sensor

VDC	Voltage range VDC	Power consumption W**	Current consumption mA**	Rotational speed min ⁻¹	Noise dB (A)**	max. stat. pressure mm H ₂ O	Flow rate m ³ /h	Dimensions						Part-No.
								A		B		C		
								mm	inch	mm	inch	mm	inch	
12	6.0-13.8	6.80	570	2400	39	5.0	153	119.0	4.68	105.0	4.13	25.0	0.98	69-430-26
12	6.0-13.8	3.80	315	3200	41	4.8	93	92.0	3.62	82.5	3.24	25.0	0.98	69-430-32*

* with speed sensor

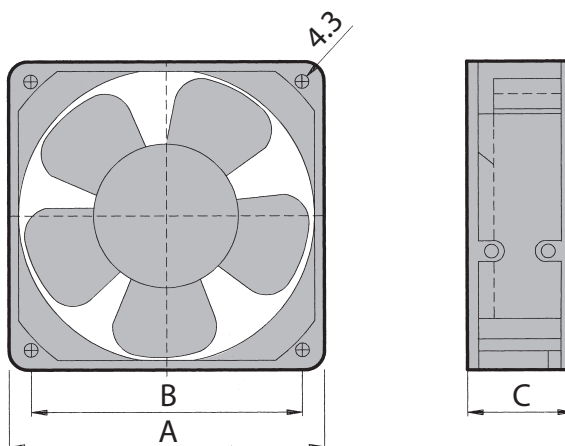
** with free exhaust

3.2.3.2 Fans 230V/115V AC

- Split-pole motor
- Sealed ball bearings
- Impedance protection resp. integrated thermal switch
- Connector 2.8 x 0.5
- Air exhaust in over struts (can be mounted directly on a perforated front panel)
- Fan case: aluminium
- Fan wheel: plastic UL94 V-0
- Operating temperature -40 °C to +70 °C
- CE, UL, CSA, VDE standard
- Life expectancy L₁₀ = 50 000 hours at 40 °C

VAC	Freq. Hz	Power consumption W**	Current consumption mA**	Rotational speed min ⁻¹	Noise dB (A)**	max. stat. pressure mm H ₂ O	Flow rate m ³ /h	Dimensions						Part-No.
								A		B		C		
								mm	inch	mm	inch	mm	inch	
230	50/60	14.0/11.0	100/90	2300/2700	34/38	4.25/4.25	108/120	119.0	4.68	105.0	4.13	25.0	0.98	69-430-20
230	50/60	15.0/14.0	120/100	2600/2900	37/41	9.0/7.3	162/192	119.0	4.68	105.0	4.13	38.0	1.51	1925-79

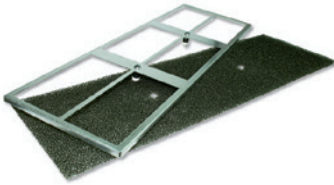
** with free exhaust



3: 19" Ventilations

3.2.4 Filter Set on Pressure Side of Fan Body

- The filter set is fastened to the pressure side of the fan body by means of two quick-release fasteners
- The filter mat can be regenerated by washing in water at approx. 40°C
- The filter set can only be used wiht 2 U / 19" fan modules
- Replacement filter mat can be ordered as spare part (packet with 10 filter mats)



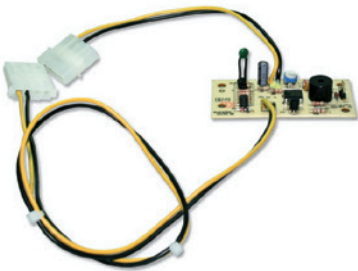
3.2.4 Filter Set on Pressure Side of Fan Body

- **Scope of delivery:**
 - 1 filter catch, steel
 - 1 filter mat, polyester
 - 2 fastening elements

Description	Part-No.
Filter for fan module 19" / 2 U	27-280

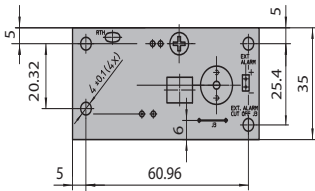
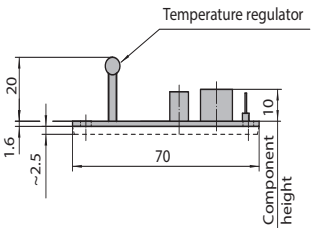
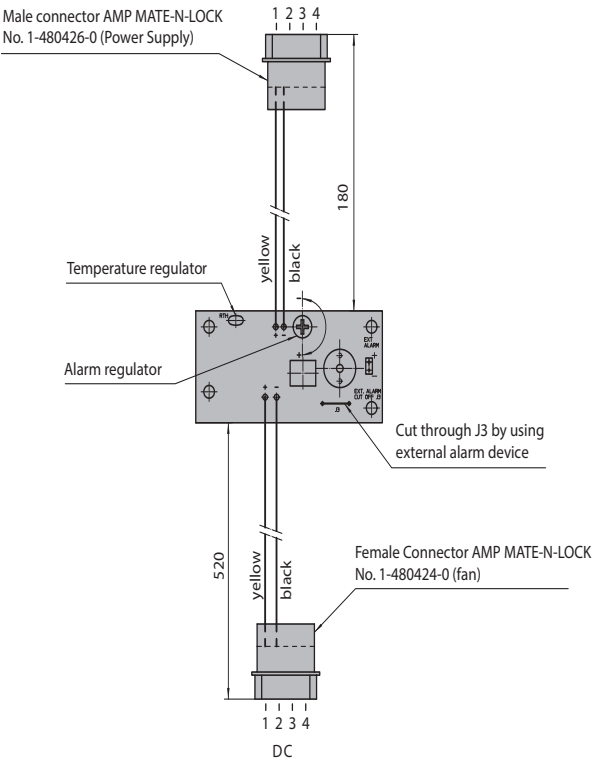
3.2.5 Fan Speed Control

- Temperature regulator with acoustic alarm signal
- Simple conversion to external optical signal
- Range of regulation
 - fan regulating range: min. speed up to 34 °C
max. speed at 48 °C
 - Alarm regulating range: adjustable between 45 °C and 54 °C
- Voltage 12 V/DC, voltage range 10-14 VDC
- Temperature regulator current consumption 50 mA
- Max. current consumption 0,6 A
- Operating temperature 0 °C to 65 °C
- Storage temperature -20 °C to +80 °C



3.2.5 Fan Speed Control

Description	Part-No.
Fan speed control (incl. wiring)	7731-02



4: Keyboards



4.1 Keyboard Trays 1 U Overview

- High-quality compact keyboard for all applications
- Very rugged metal housing
- Single mechanical keys with gold contacts
- Designed for continuous use – more than 50 Mio. key presses
- Simple rack mount
- Additional versions with touchpad
- Country specific keyboard
- Ergonomic design
- Usable with standard drivers of the operating systems

4.1.1 Technical Data

Enclosure:

Dimensions (WxHxD):	19" x 1U x 300 mm
Material :	Galvanised sheet metal enclosure
Weight:	approx. 5 kg
Colours:	Front panel:

- clear anodised
- light grey (RAL 7035)
- black (RAL 9005)

Keyboard housing:

- light grey (RAL 7035)
- black (RAL 9005)

Power supply:

Voltage supply:	• + 5 VDC (PS/2, USB) • ± 15 VDC (RS232)
Current input:	typ. 35 mA (USB: max. 100mA)

General

Storage temperature:	-20 °C until 60 °C
Operating temperature:	0°C until 50 °C
Humidity:	max. 95 % HR (not condensing)

Touchpad:	Resolution:	1000 dpi
	Lifetime (Overlay):	> 10 Mio. strokes

Cable length:	max. 3.0 m (Touchpad 1.4m)
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4: Keyboards

4.2 Keyboard Tray 19", 1U

- **Scope of delivery:**
 - 1 ready for connection keyboard tray
 - 1 adaptor PS/2 → DIN (AT) (Touchpad-Version only)
 - 1 adaptor PS/2 → RS232 (Touchpad-Version only)

4.2.2 Keyboard Trays 19", 1 U with Touchpad (RS232, PS/2)

4.2.2 Keyboard Trays 19", 1 U with Touchpad (RS232, PS/2)

Country Version	Front Panel Colour	Keyboard Housing Colour	Part-No.
Germany (DE)	Clear Anodised	Light Grey RAL 7035	70-190-05E3
	Light Grey RAL 7035	Light Grey RAL 7035	70-190-0533
Switzerland (CH)	Light Grey RAL 7035	Light Grey RAL 7035	70-190-0633
US-English (US)	Clear Anodised	Light Grey RAL 7035	70-190-10E3
	Light Grey RAL 7035	Light Grey RAL 7035	70-190-1033



4.2.3 Keyboard Trays 19", 1 U with Touchpad (USB)

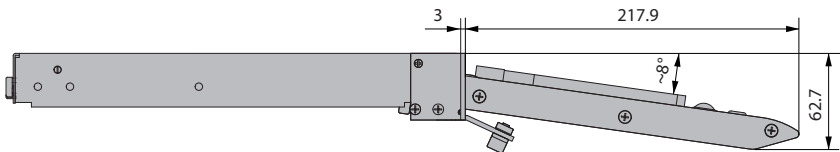
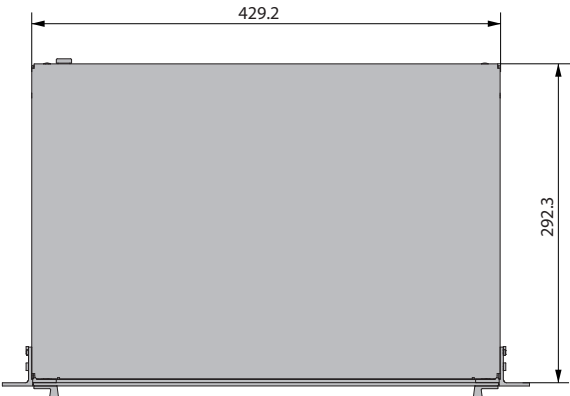
4.2.3 Keyboard Trays 19", 1 U with Touchpad (USB)

Country Version	Front Panel Colour	Keyboard Housing Colour	Part-No.
Germany (DE)	Clear Anodised	Light Grey RAL 7035	70-191-05E3
	Light Grey RAL 7035	Light Grey RAL 7035	70-191-0533
Switzerland (CH)	Clear Anodised	Light Grey RAL 7035	70-191-06E3
	Light Grey RAL 7035	Light Grey RAL 7035	70-191-0633
US-English (US)	Clear Anodised	Light Grey RAL 7035	70-191-10E3
	Light Grey RAL 7035	Light Grey RAL 7035	70-191-1033



Other country versions or colours available on request

Line Drawing

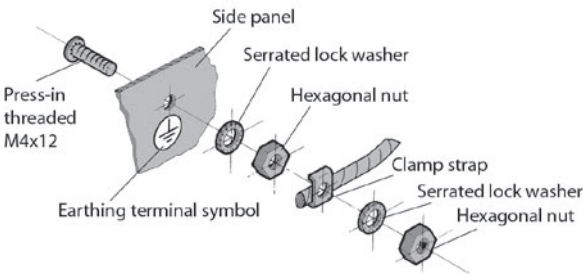


4: Keyboards

4.3 Accessories

4.3.1 Earthing Set

- Enables cases to be earthed in conformance with EN / VDE / SEV
- **Scope of delivery:**
 - 1 press-in threaded bolt M4
 - 2 serrated lock washers
 - 2 hexagonal nuts M4
 - 1 terminal clamp
 - 1 earthing symbol



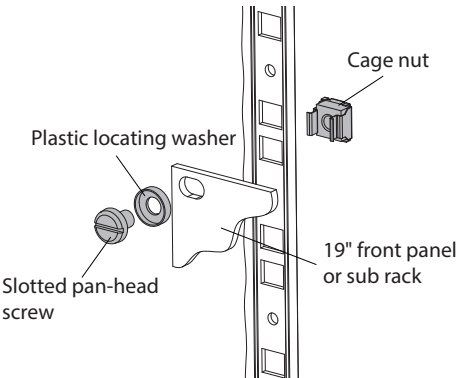
4.3.1 Earthing Set

Description	Part-No.
Earthing set according to EN VDE / SEV	63-174



4.3.2 Assembly Material

- To insert in the square holes in the 19" mounts



4.3.2 Assembly Material

Description	Part-No.
Slotted pan-head screw M6x8	5561-08
Slotted pan-head screw M6x12	5561-12
Plastic locating washer (M6)	61-007
Caged nut M6	5625-06