

CONNECT AND PROTECT

Climate Control

01/2023

Climate control

OVERVIEW

MAIN KATALOG

- Cabinets 1
- Wall mounted cases 2
- Accessories for cabinets and wall mounted cases . . 3
- Climate control . . 4
- Electronics cases 5
- Subracks/ 19" chassis 6
- Front panels, plug-in units 7
- Systems 8
- Power supply units 9
- Backplanes 10
- Connectors, front panel component system 11
- Appendix 12

19" FANS

- Pusher fans
- Circulation fans
- Cooling capacity up to 2000 W



AIR FILTERED FANS

- Simple to fit - just clips in
- Protection type up to IP 55
- Airflow volume up to 770 m³/h

ACCESSORIES

- Heaters
- Speed control
- Thermostats
- Hygrostats



Climate control

AIR/WATER HEAT EXCHANGERS

- Complete cabinet solutions
- For industry and data centers
- Cooling capacities up to 40 kW



Overview 4.0

Cooling concepts 4.2

19" fan trays ... 4.4

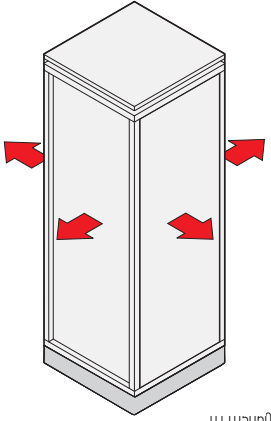
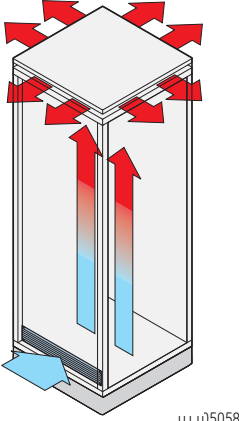
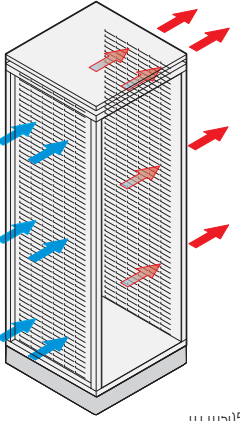
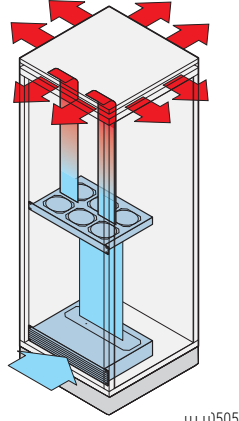
Air filtered fans 4.20

Accessories
 Heaters 4.56
 Fans 4.59
 Speed control 4.60
 Thermostats 4.61
 Hygrostats 4.64

Air/water heat exchangers 1.224

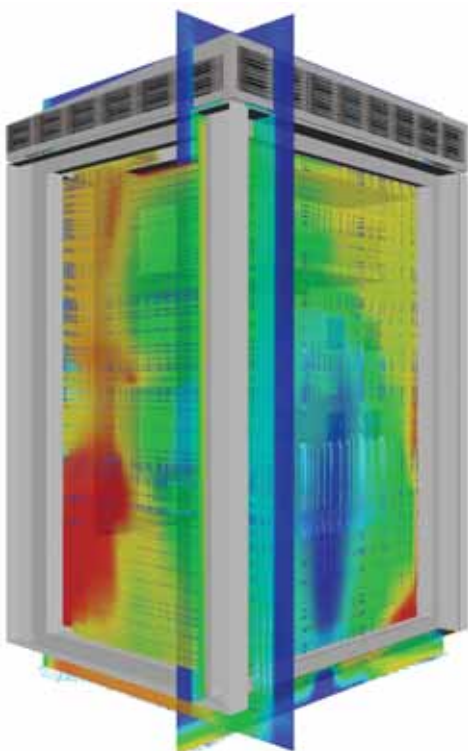
Climate control – Service

PRODUCTS / COOLING CONCEPTS

Product	Closed cabinet	Raised cover, ventilation slots	Perforated doors	19" circulation fan, top cover fan
Description	 <p>Natural convection through thermal radiation</p>	 <p>Free convection through top opening</p>	 <p>Free convection through openings in doors/rear panels</p>	 <p>Cooling with air</p>
Type of protection	≤ IP 55	≤ IP 20	≤ IP 20	≤ IP 20
Noise level approx.	0	0	55 ... 65 dB(A)	34 ... 67 dB(A)
Environmental conditions	$T_i > T_a$	$T_i > T_a$	$T_i > T_a$	$T_i > T_a$
Cooling capacity approx. ¹⁾	< 500 W	500 W ... 800 W	500 W ... 6000 W ²⁾	< 2000 W

¹⁾ depending on cabinet size, electronic components, location and room cooling concept
²⁾ > 800 W are only possible with own, active cooling through components like servers, etc.
 T_i = cabinet inner temperature T_a = cabinet ambient temperature

THERMAL SIMULATION



Project support through state-of-the-art simulation technology

As the packing density and integration density of components increases, the transport of waste heat rapidly becomes more difficult. Analyzing heat transport through thermal paste, flow and heat radiation makes it possible to identify hot spots as early as the design phase. We use state-of-the-art numerical analyses and simulation methods to accomplish this. This allows the analysis and optimization of cooling concepts for anything from an assembly to an entire cabinet system at the preliminary stage. Our cooling specialists would be happy to assist you in finding the right cooling concept for your project

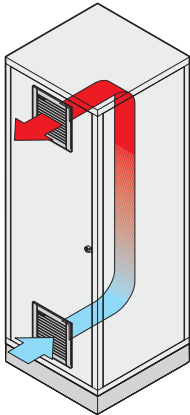
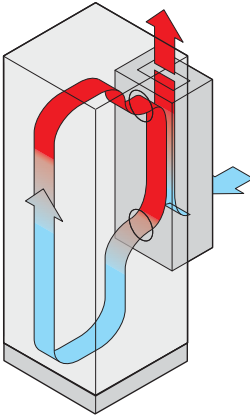
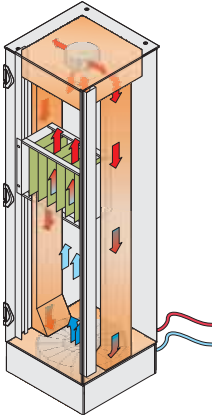
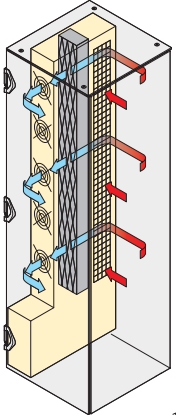
Your advantage:

- Analyzing in detail to eliminate thermal problems at the preliminary stage
- Ensuring the high efficiency and reliability of your systems
- Reducing the number of expensive prototypes and tests
- Reducing expenses and development costs

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Climate control – Service

PRODUCTS/COOLING CONCEPTS

Product	Air filtered fans	Air conditioners	Air/water heat exchanger (LHX 3)	Air/water heat exchanger (LHX 20/40)
Description	 Cooling with air <small>U1102050</small>	 Cooling with coolant <small>U1103001</small>	 Cooling with water <small>U100/055</small>	 Cooling with water <small>U1005081</small>
Type of protection	≤ IP 55	≥ IP 55	≥ IP 55	≥ IP 55
Noise level	39 ... 71 dB(A)	60 ... 81 dB(A)	45.2 dB(A)	50 ... 70 dB(A)
Environmental conditions	$T_i > T_a$	$T_a \leq 55\text{ °C}$	$T_a \leq 70\text{ °C}$	$T_a \leq 70\text{ °C}$
Cooling capacity approx. ¹⁾	< 1500 W	< 17000 W	< 3000 W	< 40000 W

¹⁾ depending on cabinet size, electronic components, location and room cooling concept
 T_i = cabinet inner temperature T_a = cabinet ambient temperature

OPTIMAL TEST EQUIPMENT



Climate bay testing

01112001

Being part of the Pentair group, Schroff and McLean look back on 50 years of experience and are reknown around the world for their expertise in efficient cooling of industrial facilities and equipment.

Based on our own laboratory test chambers with the most modern equipement in Europe, America and Asia:

- Walk-in climate chamber to test and optimize completely integrated cabinets and systems under different conditions
- Smaller climate chambers to test components
- Airflow and air resistance measurements in a wind tunnel
- Noise level measurements
- Tests in accordance with DIN EN 60529 to determine the type of protection (IP)

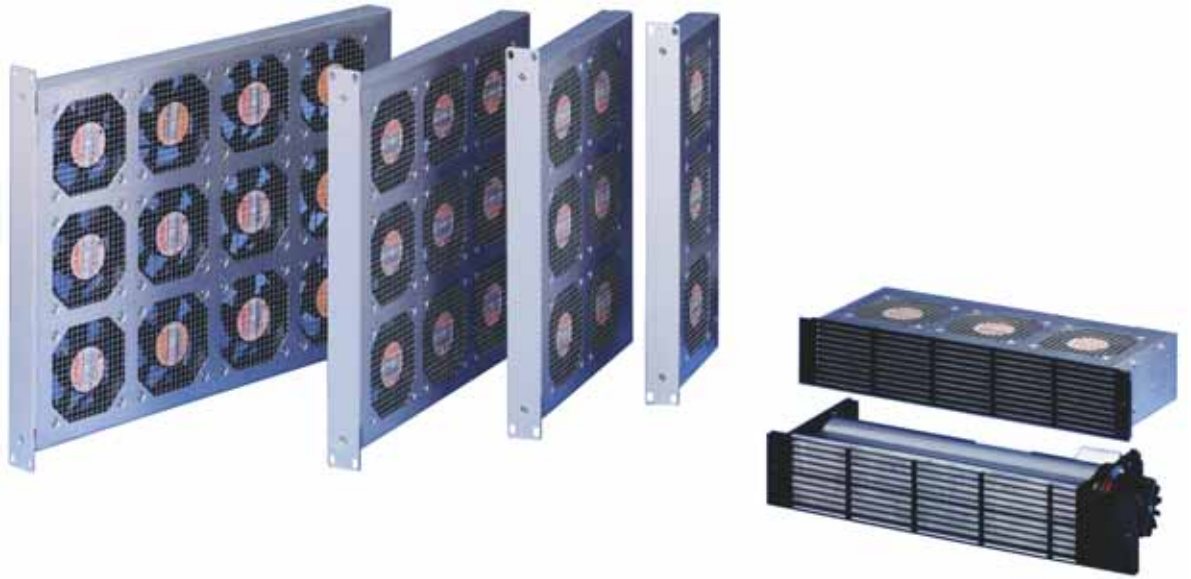
Outstanding standard products, flexible custom solutions, global technical support and service add up to a 'cool' combination!

Climate control – 19" fan trays

OVERVIEW

MAIN KATALOG

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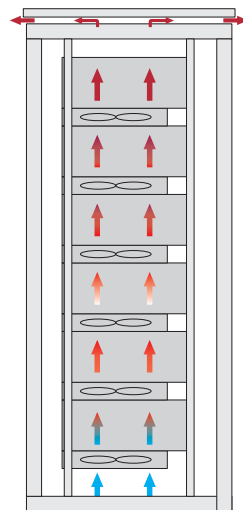
STANDARDS/APPROVALS

- 19" assembly area in accordance with: IEC 60297-3-101

- Mechanical protection to DIN EN ISO 13857
- Contact protection to DIN EN ISO 13857
- Electrical safety to EN 60335 part 1
- Plastics self-extinguishing to UL 94 V0

AIRFLOW

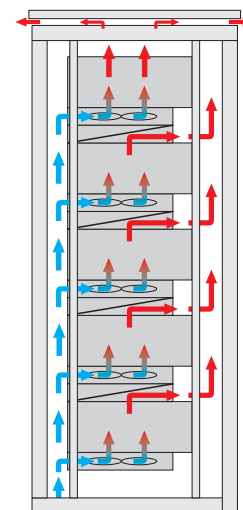
VERTICAL AIRFLOW (CONTINUAL WARMING)



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With vertical airflow the air becomes steadily warmer as it rises through the cabinet.

DIVERTED AIRFLOW (EFFECTIVE COOLING)



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By using the 1 U airflow element, air is introduced from the front and extracted to the rear. Now all sub-assemblies receive the same cooling air.

Climate control – 19" fan trays

OVERVIEW

19" FAN TRAYS

- To cool single components and assemblies in 19" cabinets
- High airflow rate for directed heat removal
- With axial or radial fans
- For voltages 230 V_{AC}, 115 V_{AC} or 24 V_{DC}
- CE- approvals



19" FANS

- 19" circulation fan, height 1 U
- 230 V_{AC}, 115 V_{AC} and 24 V_{DC}
- Up to 1000 m³/h
- With/without mains switch or with temperature-dependent speed control



19" PUSHER FANS

- Tangential fan, height 2 U
- 230 V_{AC} and 115 V_{AC}
- Up to 320 m³/h



- 19" pusher fan, height 2 U
- 230 V_{AC} and 115 V_{AC}
- Up to 530 m³/h



- 19" pusher fan, height 3 U
- 230 V_{AC} and 115 V_{AC}
- Up to 570 m³/h
- Variable air outlet with/without pipe connection, upward or to rear

SERVICEPLUS

- e.g. other airflow capacities
- e.g. supply voltages
- e.g. other dimensions
- e.g. custom solutions

Overview 4.4

19" fans
1 U with/without front switch 4.6
1 U speed-controlled and monitored 4.8
..

19" blower units
Pusher fan, 2 U with tangential blower . . 4.9

Pressure fan, 2 U, (160, 220 mm deep) 4.10

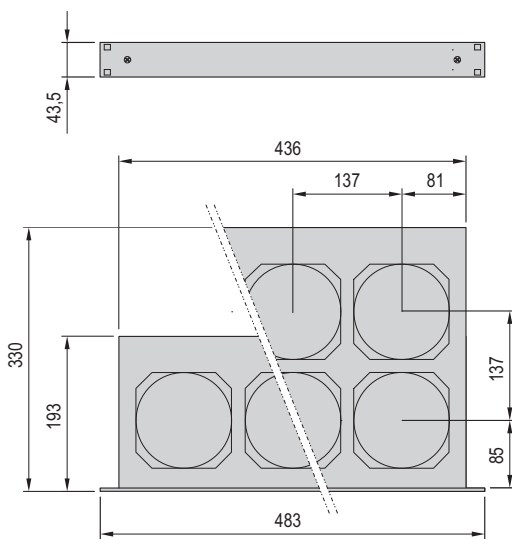
Pusher fan, 3 U . . . 4.12

ServicePLUS configuration 4.14

Accessories
19" airf 4.15
AC fans 4.16
DC fans 4.16

Climate control – 19" fan trays

19" FAN 1 U



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KTA44306

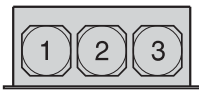
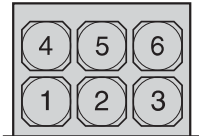
- Mechanical strain relief for mains cables
- Can be adapted to subracks
- Contact protection in accordance with DIN EN ISO 13857



DELIVERY COMPRISES (ready to connect)

Item	Qty	Description
1	1	19" circulation fan, 1 U, cover/base plate, St, 1 mm, finish AlZn, with perforation; front panel 1 U, Al, 3 mm, anodised
2	3 / 6	Fan, see Order Information
3a	1	AC with IEC connector (mains input IEC 60320), incl. safety clamp for mechanical strain relief
b3	1	DC version with connecting cable, cable length 2.5 m

ORDER INFORMATION

	24 V _{DC} Part no.	115 V _{AC} Part no.	230 V _{AC} Part no.
 KTA44857	10713-103	10713-102	10713-100
 KTA44858	10713-107	10713-106	10713-104
Replacement fan 1 piece	20713-240	20713-244	20713-243
Side panel connecting bracket between europacPRO subrack and fan, including fixing material kit, PU 4 pieces			21101-954
Equipment cable SCHUKO/UTE SCHUKO/UTE plug, IEC 60320 C13 socket, 2.5 m, 1 piece			60103-131
Equipment cable, BS British Standard plug, IEC 60320 C13 socket, 2.5 m, 1 piece			60103-137
Equipment cable, USA USA plug, IEC 60320 socket, 2 m, 1 piece			60103-141

TECHNICAL DATA

Voltage	230 V _{AC}		115 V _{AC}		24 V _{DC}
	50	60	50	60	-
Frequency in Hz	50	60	50	60	-
Number of fans	3/6		3/6		3/6
Airflow volume in m ³ /h (3/6 fans)	440/845	520/1000	440/845	520/1000	506/970
Noise level in dB(A) (3/6 fans)	56.5/59.4	60.2/62.9	56.5/59.4	60.2/62.9	60.5/63.3
Power consumption in W (3/6 fans)	45/90	42/84	46.5/93	43.5/87	24/48
Max. stat. pressure in Pa	73	88	73	88	68
Permissible ambient temperature in °C	-40 ... +70 °C				
Lifespan in h L ₁₀ 40 °C	43500				
Lifespan in h L ₁₀ 55 °C	20000				

NOTE

- Fan dimensioning see page 4.18
- Replacement fans see chapter Climate control - Accessories
- Versions with multiple fans see ServicePLUS configuration page 4.14

Climate control – 19" fan trays

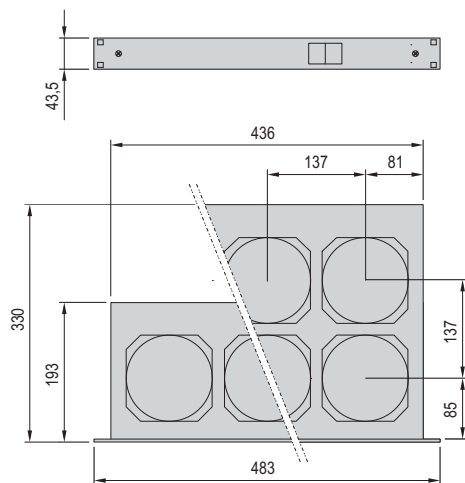
19" FAN 1 U WITH FRONT SWITCH



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KTA45963


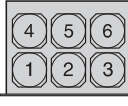
- Front-mounted illuminated mains switch on AC devices, coupled with additional rear mains outlet; mechanical strain relief for mains input and mains output cables
- Can be adapted to subracks
- Contact protection in accordance with DIN EN ISO 13857



DELIVERY COMPRISES (ready to connect)

Item	Qty	Description
1	1	19" circulation fan, 1 U, top/base plate, St, 1 mm, finish AlZn, with perforation; front panel 1 U, Al, 3 mm, anodised
2	3 / 6	Fan, see Order Information
3a	1	AC version with mains switch, illuminated green; plug (mains input IEC 60320) incl. safety clamp for mechanical strain relief; coupled mains output socket (IEC 60320)
b3	1	DC version with mains switch and connecting cable, cable length 2.5 m

ORDER INFORMATION

	24 V _{DC} Part no.	115 V _{AC} Part no.	230 V _{AC} Part no.
 KTA44857	10713-111	10713-110	10713-108
 KTA44858	10713-115	10713-114	10713-112
Replacement fan 1 piece	20713-240	20713-244	20713-243
Side panel connecting bracket between europacPRO subrack and fan, including fixing material kit, PU 4 pieces			21101-954
Equipment cable SCHUKO/UTE SCHUKO/UTE plug, IEC 60320 C13 socket, 2.5 m, 1 piece			60103-131
Equipment cable, BS British Standard plug, IEC 60320 C13 socket, 2.5 m, 1 piece			60103-137
Equipment cable, USA USA plug, IEC 60320 socket, 2 m, 1 piece			60103-141
Mains cable, IEC IEC 60320 C14 plug, IEC 60320 C13 socket, 2.5 m, 1 piece			60197-053

TECHNICAL DATA

Voltage	230 V _{AC}		115 V _{AC}		24 V _{DC}
	50	60	50	60	-
Frequency in Hz	50	60	50	60	-
Number of fans	3/6		3/6		3/6
Airflow volume in m ³ /h (3/6 fans)	440/845	520/1000	440/845	520/1000	506/970
Noise level in dB(A) (3/6 fans)	56.5/59.4	60.2/62.9	56.5/59.4	60.2/62.9	60.5/63.3
Power consumption in W (3/6 fans)	45/90	42/84	46.5/93	43.5/87	24/48
Max. stat. pressure in Pa	73	88	73	88	68
Permissible ambient temperature in °C	-40 ... +70 °C				
Lifespan in h L ₁₀ 40 °C	43500				
Lifespan in h L ₁₀ 55 °C	20000				

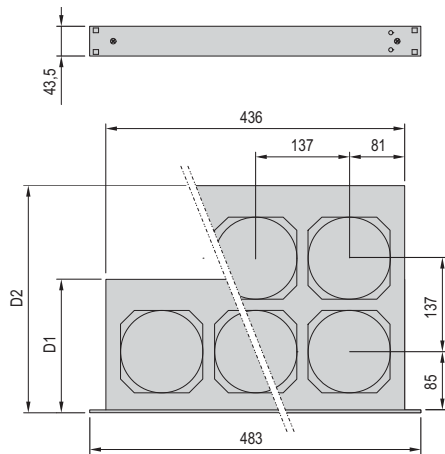
- Fan dimensioning, see page 4.18
- Replacement fans, see chapter Climate control - Accessories
- Versions with multiple fans see ServicePLUS configuration page 4.14

Climate control – 19" fan trays

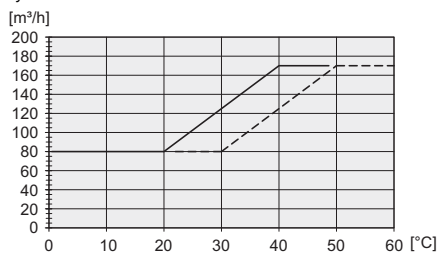
19" FAN 1 U, WITH SPEED CONTROL AND FUNCTION MONITORING



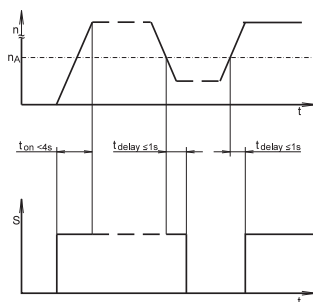
Photo shows 19" fan unit with 3 fans, without switch



Airflow capacity with one fan



Monitoring signal



n = rotating speed, S = signal, n_A = speed threshold value "Alarm"

- Low noise through temperature dependent airflow volume
- Range selectable: 20 ... 40 °C and 30 ... 50 °C
- External sensor, at sensor breakage max speed will be set automatically
- Function control with LEDs and via potential-free contact
- Contact protection in accordance with DIN EN ISO 13857
- 2 versions, 24 V_{DC} or 230 V_{AC}



DELIVERY COMPRISES (ready for connection)

Item	Qty	Description
1	1	19" circulation fan, 1 U; cover/base plate, St, 1 mm, finish Al-Zn, with perforation front panel 1 U, Al, 3 mm, anodised
2	3 / 6	DC fan, see Order information
3	1	Connecting cable, length 2.5 m, open-ended
4	1	Temperature sensor for speed control, NTC resistor, cable length 1.5 m

01198001

ORDER INFORMATION

	24 V _{DC}		230 V _{AC}	
	D	Without switch	D	With switch
	mm	Part No.	mm	Without switch Part No.
D1	193	10713-099	250	19713-121 –
D2	330	10713-098	397	– 19713-006

Accessories

Filter mat, class G 2 for 3 fans, PU 3 pieces	60713-169
Filter mat, class G 2 for 6 fans, PU 3 pieces	60713-170

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TECHNICAL DATA

	86 ... 260 V _{AC} 24 V _{DC} (21 ... 27)	
Voltage AC version (fans 24 V_{DC})		
Voltage DC version		
Number of fans	3	6
Max. airflow volume in m ³ /h	467	895
Noise level in dB(A)	63.5	66.4
Max. stat. pressure in Pa	70	70
Power consumption in W	15.9	31.8 W
Permissible ambient temperature °C	–20 ... +65 °C	
Life in h L ₁₀ 40 °C	70000	

01112050

Technical data Regulation/monitoring

Control range	Changeover switch between 20 ... 40 °C and 30 ... 50 °C
Sensor	External NTC resistor, cable length 1.5 m
Sensor connector	Rear-mounted plug contact, max. rotation speed in case of sensor breakage
Signal at	Speed < 30 % nominal speed; switch-on delay < 4 s, signal delay < 1 s (see monitoring signal)
Signalling	Display via LEDs; potential-free contact (changeover), switching capacity 5 W, max. switching voltage 170 V, open collector on request

kt43400

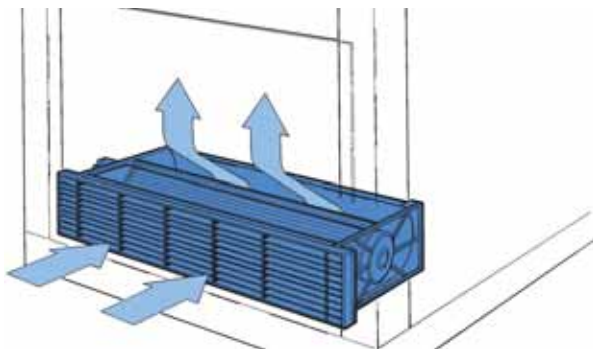
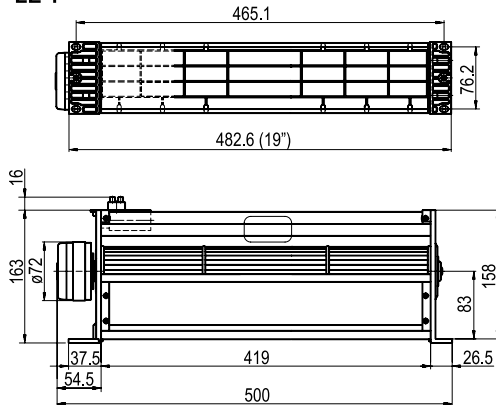
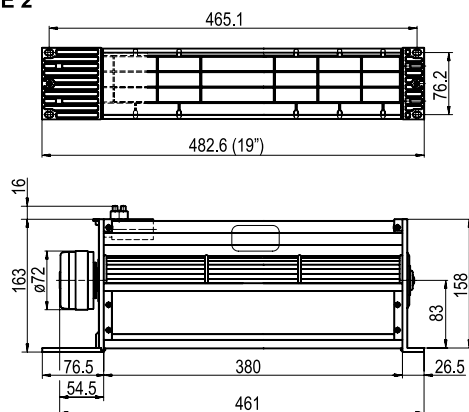
- Fan dimensioning see page 4.18

Climate control – 19" fan trays

PUSHER FAN, 2 U, WITH TANGENTIAL FAN



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LE 1

LE 2


01103056

- High airflow volume
- Integrated filter mat
- 2 versions:
 - LE1: 19" bolt-on dimension, fan unit is wider than 19"
 - LE2: 19" reduced width, for easy assembly



DELIVERY COMPRISES (ready to connect)

Item	Qty	Description
1	1	Blower unit 2 U, with grille, PA 6.6, UL 94 V-0, front grille 2 U, PPO, UL 94 V-0; filter mat, synthetic fibre, filter class G 2
2	1	Fan
3	1	Terminal block

ORDER INFORMATION

Description	115 V _{AC} Part no.	230 V _{AC} Part no.
LE1: Pusher fan 2 U, tangential blower	60713-003	60713-001
LE2: Pusher fan 2 U, tangential blower	60713-004	60713-002
Spare filter mat PU 10 pieces		20705-008

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DIMENSIONS

Voltage	115 V _{AC}		230 V _{AC}	
Frequency in Hz	50	60	50	60
Airflow volume in m ³ /h	320	330	320	330
Noise level in dB(A)	59	62	59	62
Max. stat. pressure in Pa	65	70	65	70
Power consumption in W	30	40	37	46
Permissible ambient temperature in °C	-20 ... +65 °C			
Lifespan in h	30000			

NOTE

- 24 V_{DC} on request
- Fan dimensioning, see page 4.18

Climate control – 19" fan trays

19" PUSHER FAN 2 U (DEPTH 160 MM OR 220 MM)



- Integrated air deflector prevents heat buildup in the assemblies mounted below
- Optionally with rear additional fan, 2 U, for active cooling of assemblies beneath the pusher fan
- Can be adapted to subtracks
- Contact protection in accordance with DIN EN ISO 13857

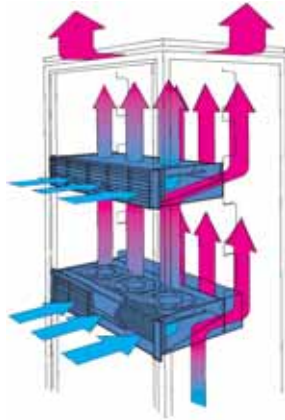
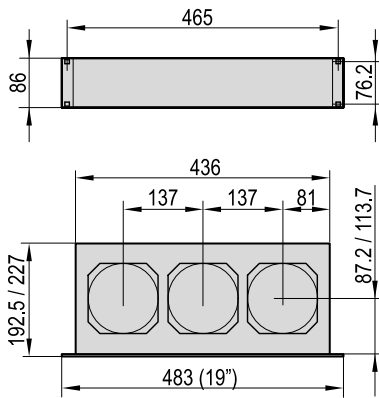


DELIVERY COMPRISES (ready to connect)

Item	Qty	Description
1	1	19" pusher fan 2 U, case, St, 1 mm, finish Al-Zn; front grille 2 U, PPO, UL 94 V-0 Filter mat, synthetic fibre, filter class G 2
2	3	Fan
3a	1	AC-version with plug (mains input, IEC 60320), incl. safety clamp, mechanical strain relief for mains input cable; socket to connect an optional supplementary fan
3b	1	Wide AC input range with DC fans, version as 3 a, additionally speed-controlled and monitored
3c	1	DC version with connecting cable, cable length 2.5 m

NOTE

- Supplementary fan for AC version see page 4.11
- Fan dimensioning, see page 4.18



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ORDER INFORMATION

Description	Front panel Al, anodised		Front panel, plastic, black				
	86 ... 260 V _{AC} (fan 24 V _{DC})	515 m ³ /h	24 V _{DC}	115 V _{AC}	115 V _{AC}	230 V _{AC}	230 V _{AC}
	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.
For board depth 160 mm	19713-540	10713-537	10713-520	10713-536	10713-518	10713-534	
For board depth 220 mm	–	10713-529	–	–	–	10713-526	
Replacement fan piece	20713-240	20713-240	20713-147	20713-244	20700-001	20713-243	
Equipment cable SCHUKO/UTE SCHUKO/UTE plug, IEC 60320 C13 socket, 2.5 m, 1 piece						60103-131	
Equipment cable BS British Standard plug, IEC 60320 C13 socket, 2.5 m, 1 piece						60103-137	
Equipment cable USA USA plug, IEC 60320 socket, 2 m, 1 piece						60103-141	
Side panel connecting bracket between europac subrack, including fixing material kit						21101-104	
Side panel connecting bracket between europacPRO subrack and fan, including fixing material kit, PU 4 pieces						21101-954	
Spare filter mat PU 3 pieces						60713-501	

Technical data with 3 fans								
Voltage	24 V _{DC}		24 V _{DC}		115 V _{AC}		230 V _{AC}	
Frequency in MHz	-		-		50 60		50 60	
Airflow volume in m ³ /h	515		515		300 330		300 330	
Noise level in dB(A)	59.8		59.8		52.2 56.1		52.2 56.1	
Max. stat. pressure in Pa	68		68		41 41		41 41	
Power consumption in W	24		24		42 33		42 33	
Permissible ambient temperature in °C	-20 ... +70 °C		-20 ... +70 °C		-40 ... +70 °C		-40 ... +70 °C	
Life in h, ¹⁾ at 40 °C, ²⁾ at 55 °C	20000 ²⁾		20000 ²⁾		50000 ¹⁾		20000 ²⁾	

Climate control – 19" fan trays

SUPPLEMENTARY FANS WITH HOUSING FOR PUSHER FAN 2 U



- Extra 2 U useable space:
By using a built-on fan, components mounted below the 19" pusher fan can be cooled
- No additional voltage supply necessary: connection is via 19" pusher fan, 2 U
- Contact protection in accordance with DIN EN ISO 13857



DELIVERY COMPRISES (ready to fit and connect)

Item	Qty	Description
1	1	Housing with grille, St, 1 mm, finish AlZn
2	4	Fan
3	1	Cable with plug (electrical connection via socket on 19" blower fan); safety clamp (mechanical strain relief for mains input cable)

ORDER INFORMATION

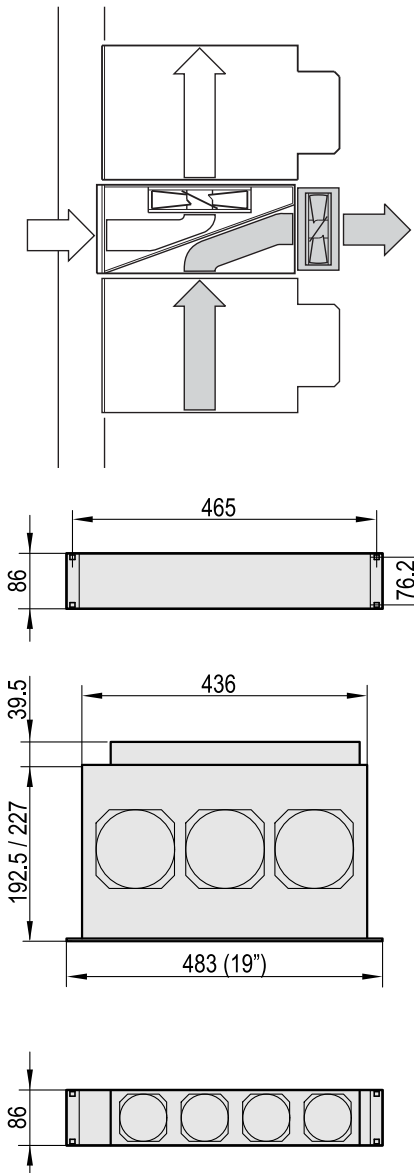
Description	115 V _{AC} Part no.	230 V _{AC} Part no.
Supplementary fans with housing for pusher fan 2 U	10713-532	10713-530

TECHNICAL DATA with 3 fans

Voltage	115 VAC		230 VAC	
	Frequency in MHz	50	60	50
Airflow volume in m ³ /h	130	155	130	155
Noise level in dB(A)	51	54	51	54
Max. stat. pressure in Pa	44	62	44	62
Permissible ambient temperature in °C	-40 ... +70		-40 ... +70	
Power consumption in W	30	24	27	21
Life in h at 55 °C	20000		20000	

NOTE

- 24 V_{DC} version available on request
- Fan dimensioning see page 4.18

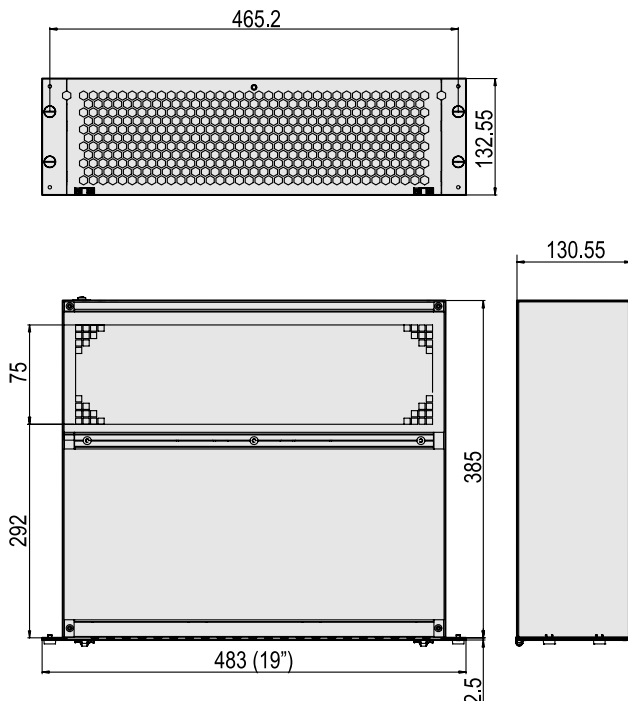


Climate control – 19" fan trays

19" PUSHER FAN 3 U



01102017



01103052

With cover plates, this pusher fan can be re-fitted to different cooling concepts

- Ventilation directed accurately to the electronics
- Air infeed from front, air exits at the top rear of cabinet (guided upwards by cover plates or via hoses to rear and upwards)
- Contact protection in accordance with DIN EN ISO 13857



DELIVERY COMPRISES (ready for connection)

Item	Qty	Description
1	1	Case, St, 1 mm, AlZn; perforated hinged front panel, Al, 2.5 mm; filter mat, synthetic fibre, filter class G 2 in accordance with DIN EN 779
2	1	Radial fan with mains fuse
3	1	Plug (mains input, IEC 60320); safety clamp, mechanical strain relief for mains input cable

ORDER INFORMATION

Description	115 V _{AC}	230 V _{AC}
	Part no.	Part no.
19" pusher fan 3 U	10713-547	10713-546

Accessories

Equipment cable SCHUKO/UTE SCHUKO/UTE plug, IEC 60320 C13 socket, 2.5 m, 1 piece	60103-131
Equipment cable, BS British Standard plug, IEC 60320 C13 socket, 2.5 m, 1 piece	60103-137
Equipment cable, USA USA plug, IEC 60320 socket, 2 m, 1 piece	60103-141
Side panel connecting bracket between europac subrack and fan, including fixing material kit, PU 4 pieces	21101-958
Side panel connecting bracket between europacPRO subrack and fan, including fixing material kit, PU 4 pieces	21101-954
Spare filter mat PU 3 pieces	60713-868

TECHNICAL DATA

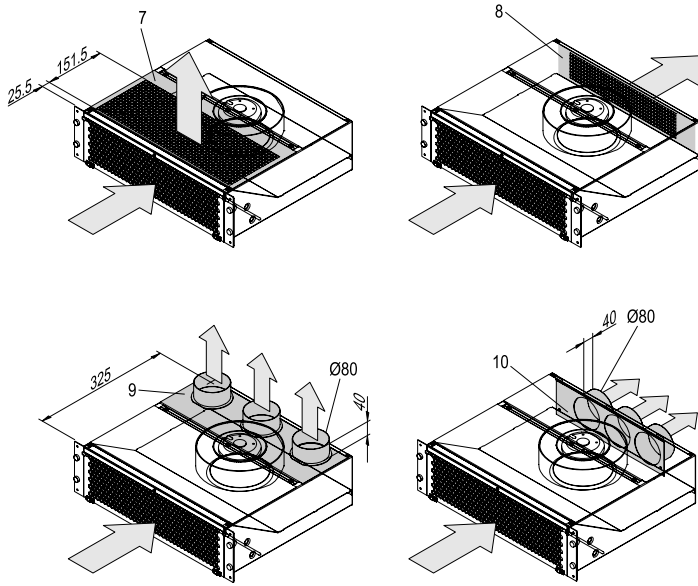
Voltage	115 VAC		230 VAC	
	50	60	50	60
Frequency in MHz	50	60	50	60
Airflow volume in m ³ /h	510	570	510	570
Noise level per fan in dB(A)	62	64	62	64
Max. stat. pressure in Pa	320	410	320	410
Power consumption in W	55	65	58	75
Max. ambient temperatures in °C	-20 ... +50		-20 ... +50	
Life in h at 55 °C	20000		20000	

NOTE

- Wide input voltage range 90 V ... 260 V_{AC} available on request
- Temperature control and function monitoring (alarm via RS 232) on request
- Air deflector plates for other cooling concepts see page 4.13
- Fan dimensioning see page 4.18

Climate control – 19" fan trays

AIR DEFLECTOR PLATE FOR 19" PUSHER FAN 3 U



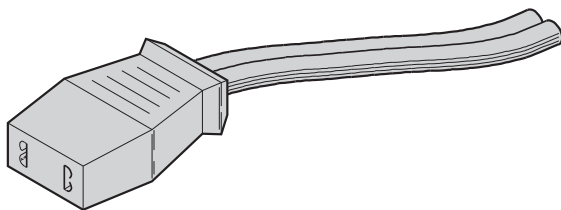
01103053

- For 19" pusher fan 3 U

ORDER INFORMATION

Item	Description	Qty/PU	Part no.
7	Air deflector plate to front, St, 1 mm, finish AlZn	1	20713-504
8	Air outlet to rear: upper cover plate, without perforation, 1 mm, finish AlZn	1	20713-505
9	Air deflector plate with hose connection on upper rear, external diameter 80 mm, St, 1 mm, finish AlZn	1	20713-503
10	Air deflector plate with hose connection to rear, external diameter 80 mm, St, 1 mm, finish AlZn	1	20713-502

CONNECTING CABLE WITH CONNECTOR SOCKET



KTA43091

- Connecting cable with connector for AC fans (25 mm and 38 mm height) and DC fans (38 mm height), cable length 1 m

DELIVERY COMPRISES

Item	Qty	Description
1	1	Cable, PVC (2 x 0.75 mm ²), 1 m long, with 2 FASTON connectors 2.8 x 0.5 mm, DIN 46343 T1

ORDER INFORMATION

Description	Part no.
Connecting cable with plug	21101-246

Climate control – 19" fan trays

SERVICEPLUS: CONFIGURATION WITH ASSEMBLY



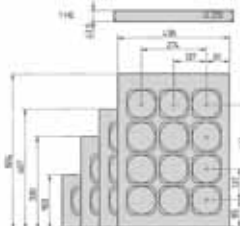
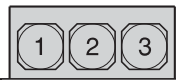
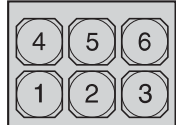
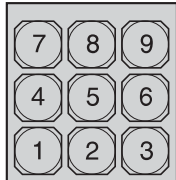
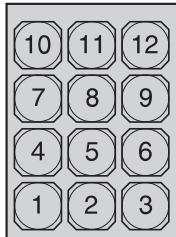
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- You can plan and build up your product yourself using the order information table below
- Dimensions of fan trays
 - Height 1 U
 - Width 19"
 - Depth 193, 300, 467, 604 mm for 3, 6, 9 or 12 fans
- Create your 19" fan trays from individual parts (assembled within 10 working days)

Example configuration

Qty	Description	Order no.
1	Housing, 1 piece	20713-213
1	Front panel with switch, AC, 1 piece	20713-231/05
1	Filter mat, 1 piece	60713-246/05
6	Fan, AC, height 25 mm; mounted at position 1, 3, 5, 7, 9, 11	20700-001/05

ORDER INFORMATION

	Fan height	Fan housing 1)	Front panel without switch		Front panel with switch		Filter mat G 2	Fans
			AC (230 V)	DC	AC (230 V)	DC		
 a44537	mm	1 piece	1 piece	1 piece	1 piece	1 piece	PU 3 pieces	see page
	25	20713-212	20713-220/05	20713-224/05	20713-228/05	20713-236/05	60713-243	4.16
 KTA44857	38	20713-216	20713-220/05	20713-224/05	20713-228/05	20713-236/05	–	4.16
	25	20713-213	20713-221/05	20713-225/05	20713-229/05	20713-237/05	60713-244	4.16
 KTA44858	38	20713-217	20713-221/05	20713-225/05	20713-229/05	20713-237/05	–	4.16
	25	20713-214	20713-222/05	20713-226/05	20713-230/05	20713-238/05	60713-245	4.16
 kta44859	38	20713-218	20713-222/05	20713-226/05	20713-230/05	20713-238/05	–	4.16
	25	20713-215	20713-223/05	20713-227/05	20713-231/05	20713-239/05	60713-246	4.16
 kta44860	38	20713-219	20713-223/05	20713-227/05	20713-231/05	20713-239/05	–	4.16

1) Fan housing cannot be ordered without fans

NOTE

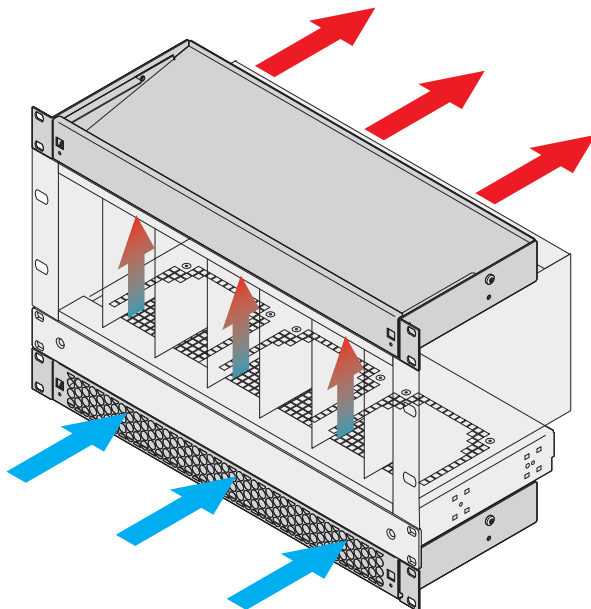
- Unused fan mounting positions are covered with foam material
- Versions for 115 V or with switch available on request
- Fan dimensioning see page 4.18

Climate control – 19" fan trays

1 U AIR DEFLECTOR CHASSIS FOR 19" FAN TRAYS



1 U air deflector chassis (bottom) with 1 U fan tray (top)



Application: air deflector chassis mounted below 19" fan tray, guides the cool air upwards from front; second air deflector chassis at top guides the warm air to the rear

- Optimised cooling together with 19" fan trays
- Vertical buildup of heat is avoided by means of improved airflow
- Fitting options:
 - One fan tray: cool air is drawn in from the front and guided upwards
 - Two fan trays: cool air is drawn in from the front, directed upwards and guided to the rear (see application diagram)
- Versions:
 - With solid front panel to direct airflow
 - With perforated front panel to allow air to flow in/out
- Optional filter mat, simple to swap during operation

DELIVERY COMPRISES (assembled)

Item	Qty	Description
1	1	Air deflector plate, St, 1 mm, finish Zincor, width 432.8 mm (without side panel)
2	2	Side panel, St, 1.5 mm, finish Zincor; with 19" mounting bracket, powder-coated (see Order information for colour)
3a	1	Front panel, perforated, St, 1.5 mm, finish Zincor, powder-coated (see Order information for colour); two quick-release fasteners, black
3b	1	Front panel, solid, St, 1.5 mm, finish Zincor, powder-coated (see Order information for colour); two quick-release fasteners, black
4	1	Assembly kit

ORDER INFORMATION

1 U air deflector chassis for 19" fan trays	Depth mm	Colour	Part no. Front panel, perforated	Part no. Front panel, solid
for single-row fan trays (3 fans)	193	RAL 7035	10713-140	10713-146
	193	RAL 9005	10713-142	10713-148
	193	RAL 9006	10713-144	10713-150
for double-row fan trays (6 fans)	330	RAL 7035	10713-141	10713-147
	330	RAL 9005	10713-143	10713-149
	330	RAL 9006	10713-145	10713-151

Accessories

Filter mat, class G 2 for 3 fans, PU 3 pieces	60713-169
Filter mat, class G 2 for 6 fans, PU 3 pieces	60713-331

Climate control – 19" fan trays

AC FANS/REPLACEMENT FANS



01108005

DELIVERY COMPRISES

Item	Qty	Description
1	1	Fan (width 119 mm, depth 119 mm)

ORDER INFORMATION

Description	Height mm	Airflow volume m ³ /h	115 V _{AC} Part no.	230 V _{AC} Part no.
Type A	25	84	20713-146	20713-142
Type B	25	108	20713-147	20700-001
Type C	38	162	20713-244	20713-243
Assembly kit for fan PU 1 kit				21102-013

DIMENSIONS AC fans

Type	Type A		Type B		Type C	
	50	60	50	60	50	60
Frequency in Hz						
Airflow volume in m ³ /h	84	90	108	120	162	192
Noise level per fan in dB(A)	29	30	34	38	37	41
Max. static pressure in Pa	23	21	41	41	73	88
Max. ambient temperature in °C	70	70	70	70	70	70
Power consumption in W	8	7	14	11	15	14
Dimensions: height in mm (width 119 mm x depth 119 mm)	25		25		38	

- Please order connecting cable separately, see page 4.13
- Please order protective grille separately, see page 4.17

DC FANS/REPLACEMENT FANS



01108005

DELIVERY COMPRISES

Item	Qty	Description
1a	1	Fan, height 38 mm, with plug connection
1b	1	Fan, height 25.5 mm, connecting cable, length 55 mm, connector with 2 x FASTON connectors (2.8 x 0.8 mm)

ORDER INFORMATION

Height mm	Airflow volume m ³ /h	Power consumption W	Input voltage V	Part no.
25.5	171	5.3	24	20713-172
38	184	8	12	20713-241
38	184	8	24	20713-240
38	184	8	48	20713-242
Assembly kit for fan PU 1 kit				21102-013

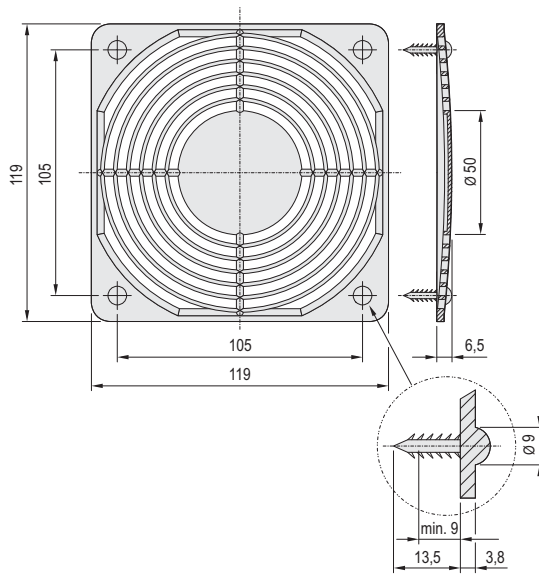
TECHNICAL DATA DC fans

Voltage in VDC	24	12	24	48
Dimensions: height in mm (width 119 mm x depth 119 mm)	25	38	38	38
Airflow volume in m ³ /h	171	184	184	184
Noise level per fan in dB(A)	41.5	42	42	42
Max. stat. pressure in Pa	50.5	68	68	68
Max. ambient temperature in °C	70	70	70	70
Power consumption in W	7	8	8	8

- Please order connecting cable for 38 mm high fans separately, see page 4.13
- Please order protective grille separately, see page 4.17

Climate control – 19" fan trays

PROTECTIVE GRILLE TO SNAP-IN



01108053

- Protective grille for direct mounting on AC and DC fans

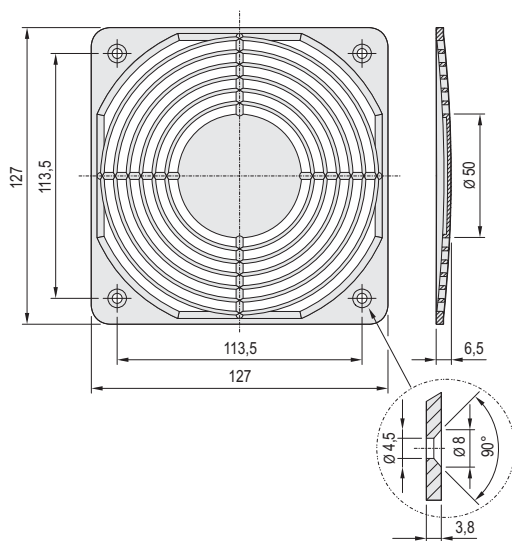
DELIVERY COMPRISES

Item	Qty	Description
1	1	Fibre glass reinforced plastic (PA), black, in accordance with DIN 31001, UL 94 V-0

ORDER INFORMATION

Description	Part no.
Protective grille, plastic, to snap-in	60225-052

PROTECTIVE GRILLE, PLASTIC, TO SCREW-ON



01108054

- Protective grille for AC and DC fans
- Grille may be mounted on a front panel or the wall of the housing

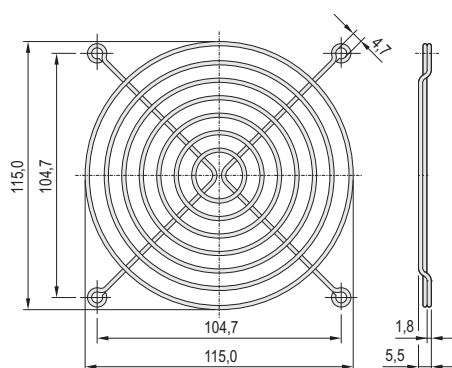
DELIVERY COMPRISES

Item	Qty	Description
1	1	Fibre glass reinforced plastic (PA), black, in accordance with DIN 31001, UL 94 V-0

ORDER INFORMATION

Description	Part no.
Protective grille, plastic, to screw-on	60225-053
Assembly kit for plastic grille (4 screws, 4 washers, 4 nuts M4), PU 1 set	21102-014

PROTECTIVE GRILLE, METAL, TO SCREW-ON



01109050

- Protective grille for direct mounting on AC and DC fans
- Optimised noise level and air resistance

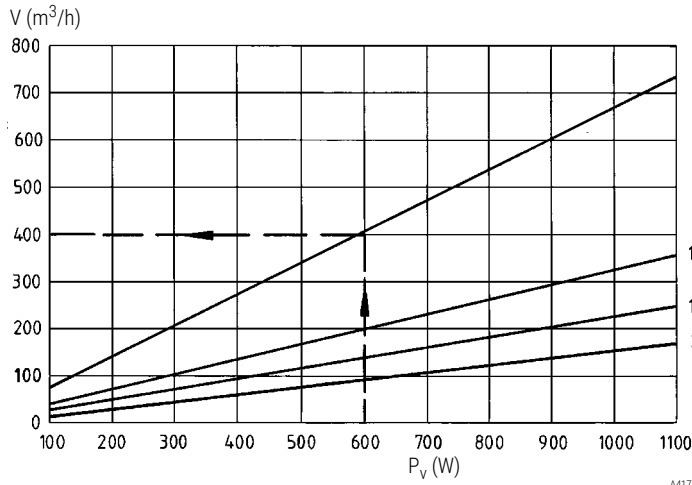
DELIVERY COMPRISES

Item	Qty	Description
1	1	St, 1 mm

ORDER INFORMATION

Description	Part no.
Protective grille, metal, to screw-on	60197-019
Assembly kit for metal grille (4 screws, 4 washers, 4 nuts M4), PU 1 set	21102-015

Climate control – 19" fan trays



For local heat dissipation, the airflow volume required to expel the heat produced is calculated.

Note

The cabinet ventilation is not taken into account here. The required airflow volume is calculated as follows:

$$V = (f \times P_v) / \Delta T$$

The air constant $f = 3.3 \text{ m}^3\text{K}/\text{Wh}$.

ΔT is the temperature difference between the ambient temperature of the sub-assembly and that of the air drawn in.

Example of readings

- $P_v = 600 \text{ W}$
- air sucked in: $25 \text{ }^\circ\text{C}$
- permissible ambient temperature of the sub-assembly = $30 \text{ }^\circ\text{C}$

1. $\Delta T = T_i - T_u = 30 \text{ }^\circ\text{C} - 25 \text{ }^\circ\text{C} = 5 \text{ K}$
2. From $P_v = 600 \text{ W}$ to the curve for $\Delta T = 5 \text{ K}$
3. From the intersection point to the airflow volume $V = 400 \text{ m}^3/\text{h}$

A41771

Climate control – 19" fan trays

Climate control – Air filtered fan

OVERVIEW

MAIN KATALOG

- Cabinets 1
- Wall mounted cases 2
- Accessories for cabinets and wall mounted cases . . 3
- Climate control . . 4
- Electronics cases 5
- Subracks/ 19" chassis 6
- Front panels, plug-in units 7
- Systems 8
- Power supply units 9
- Backplanes 10
- Connectors, front panel component system 11
- Appendix 12



01108012



01108014

Simple to fit without tools by clipping in (can also be bolted)



01108015

Easy tool-less change of filter mat



01108016

Fluted filter to increase degree of ingress protection from IP 54 to IP 55



01108013

Easy tool-less wiring with spring clamp connector

Climate control – Air filtered fan

OVERVIEW

AIR FILTERED FANS, INGRESS PROTECTION FROM IP 54 TO IP 55 IN ACCORDANCE WITH IEC 60529

- Simple to fit without tools by clipping in (can also be bolted)
- Easy conversion from pressure to suction operation
- Easy tool-less change of filter mat
- 7 performance classes with 6 different assembly dimensions



Air filtered fans

01108017

AIR FILTERED FANS

- Airflow capacity of 25 m³/h ... 770 m³/h (FL 100 ... FL 600)
- 3 supply voltages (230 V_{AC}, 115 V_{AC}, 24 V_{DC})
- Outlet/inlet filter
- Fluted filter to increase degree of ingress protection from IP 54 to IP 55
- Side by side mounting of several air filtered fans is possible



Outlet/inlet filters

01108026



Fluted filters

01108016

SERVICEPLUS

- e.g. special colours
- e.g. other cabinet dimensions
- e.g. EMC solutions
- e.g. custom solutions

30407004

Overview 4.20

How to dimension
air filtered fans . . . 4.22
Reading example . . . 4.22
EMC solutions 4.22

Air filtered fans
FL 100 4.23
FL 200 4.24
FL 225 4.25
FL 250 4.26
FL 300 4.27
FL 500 4.28
FL 600 4.29

Climate control – Air filtered fans

AIR FILTERED FAN CALCULATIONS



01108017

To establish the size of the air-filtered fan required, calculate the air throughput necessary to dissipate the amount of heat contained in the cabinet. The necessary airflow volume (at sea level) is calculated thus:

$$V = f \times (P_V - P_S) / \Delta T \text{ with}$$

V = airflow volume

f = air constant = $3.3 \text{ m}^3 \text{ K/Wh}$

P_V = thermal power loss

(sum of heat emitted by the equipment in the cabinet)

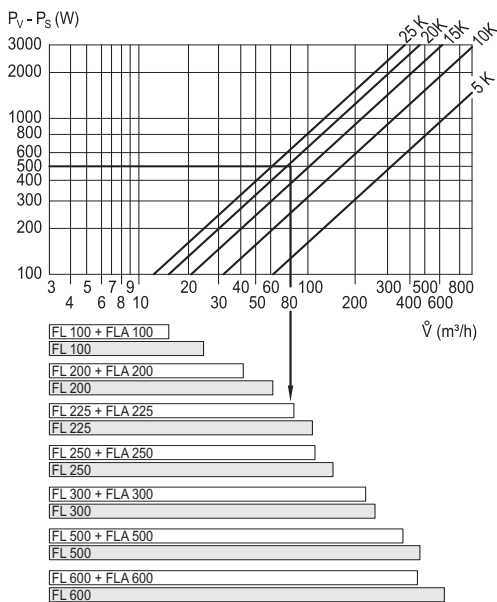
P_S = radiant power

(heat that is radiated from the cabinet without additional ventilation)

ΔT = temperature difference between the air drawn in (ambient temperature T_U) and the exhaust air (internal cabinet temperature T_I),

$$\Delta T = T_I - T_U$$

READING EXAMPLE



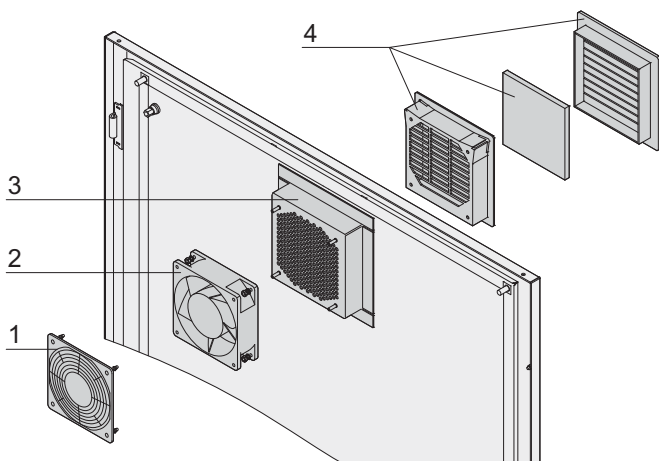
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The devices in the cabinet produce e.g. a power loss of 840 W. Of these 840 W, the cabinet releases 340 W to the environment via its surfaces. The air sucked in from outside the cabinet has a temperature of 20 °C. A maximum temperature of 40 °C is to be permitted in the cabinet.

So which air filtered fan should be employed?

- $P_V = 840 \text{ W}$, $P_S = 340 \text{ W}$, read-off point $P_V - P_S = 500 \text{ W}$
- $\Delta T = T_I - T_a = 40 \text{ °C} - 20 \text{ °C} = 20 \text{ °C} = 20 \text{ K}$
- On the characteristic for 20 K we obtain, at $P_V - P_S = 500 \text{ W}$, a minimum necessary airflow volume of $V = 80 \text{ m}^3/\text{h}$.
- An FL 250 air filtered fan should be used that gives an airflow volume of $131 \text{ m}^3/\text{h}$ or, if used in combination with the FLA 250 exhaust filter, of $95 \text{ m}^3/\text{h}$.

EMC SOLUTIONS



01108070

- EMC shielding in accordance with your requirements
- Customised developments

DELIVERY COMPRISES

Item	Description
1	Protective fan grille
2	Fan
3	EMC hood
4	FLA outlet/inlet filter

Climate control – Air filtered fans

AIR FILTERED FAN FL 100



01108018

- Airflow volume 19 m³/h
- Converts simply from push to pull operation
- Ingress protection IP 54, NEMA type 12
- Simple to fit without tools by clipping in



DELIVERY COMPRISES (completely assembled)

Item	Qty	Description
1	1	Front grille and case, plastic, ABS, RAL 7035, self-extinguishing, UL 94 V-0
2	1	Filter, filter class G 3 (EN 779)
3	1	Fan
4	1	2 wire connection, length 310 mm

ORDER INFORMATION

Description	24 V _{DC} Part no.	115 V _{AC} Part no.	230 V _{AC} Part no.
Air filtered fan FL 100	EF100-24R5	EF100-115R5	EF100R5
Air outlet/inlet filter FLA 100 (items 1 + 2 included), 1 piece			EFA100R5
Replacement filter IP 54 for FL 100 and FLA 100, filter class G 3 (EN 779), PU 5 pieces			EFM100



Air outlet/inlet filter FLA 100



Replacement filter IP 54

TECHNICAL DATA

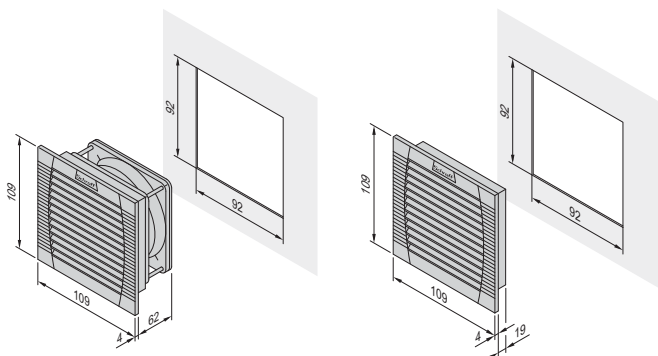
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Voltage	230 VAC	115 VAC	24 VDC
Frequency	50/60 Hz	50/60 Hz	DC
Airflow volume with filter (free blowing)	19/24 m ³ /h	19/24 m ³ /h	19 m ³ /h
Combination FL + FLA	12/14 m ³ /h	12/14 m ³ /h	12 m ³ /h
Max. static pressure	38 Pa	38 Pa	38 Pa
Noise level (in accordance with EN ISO 3741, 50 Hz)	33 dB(A)	33 dB(A)	33 dB(A)
Operating temperatures	-15 ... +55 °C	-15 ... +55 °C	-15 ... +55 °C
Power consumption	12/11 W	12/11 W	2.4 W
Filter efficiency	88 %	88 %	88 %
MTBF at 40 °C	52000 h	52000 h	70000 h
Approvals	CE, UL, cUL, GOST		

NOTE

01108020

- Mounting for sheet thicknesses from 1 to 3 mm
- Multiple fan solution on request
- Dimensions, cut-outs and tolerances see user manual



01108057

Air outlet/inlet filter FLA 100

01108058

Air filtered fan FL 100

Sheet thicknesses 1 ... 2 mm - cut-out 92 x 92 mm;
Sheet thicknesses >2 ... 3 mm - cut-out 93 x 93 mm

Climate control – Air filtered fans

AIR FILTERED FAN FL 200

- Airflow volume 60 m³/h
- Converts simply from push to pull operation
- Ingress protection IP 54, with fluted filter IP 55, NEMA type 12
- Simple to fit without tools by clipping in (can also be bolted)



DELIVERY COMPRISES (Completely assembled)

Item	Qty	Description
1	1	Front grille and case, plastic, ABS, RAL 7035, self-extinguishing, UL 94 V-0
2	1	Filter, filter class G3 (EN 779)
3	1	Fan
4	1	Connection AC (terminal strip), connection DC (2 wires, 310 mm long)

ORDER INFORMATION

Description	24 V _{DC} Part no.	115 V _{AC} Part no.	230 V _{AC} Part no.
Air filtered fan FL 200	EF200-24R5	EF200-115R5	EF200R5
Air outlet/inlet filter FLA 200 (items 1 + 2 included), 1 piece			EFA200R5
Replacement filter IP 54 for FL 200 and FLA 200, filter class G 3 (EN 779), PU 5 pieces			EFM200
Fluted filter IP 55 for FL 200 and FLA 200, filter class G 4 (EN 779), PU 5 pieces			EFMP200

TECHNICAL DATA

Voltage	230 V _{AC}	115 V _{AC}	24 V _{DC}
Frequency	50/60 Hz	50/60 Hz	DC
Airflow volume with IP 54 filter (free blowing)	60/66 m ³ /h	60/66 m ³ /h	60 m ³ /h
Airflow volume with IP 55 filter (free blowing)	56/64 m ³ /h	56/64 m ³ /h	56 m ³ /h
Combination FL + FLA IP 54	38/42 m ³ /h	38/42 m ³ /h	38 m ³ /h
Combination FL + FLA IP 55	40/46 m ³ /h	40/46 m ³ /h	40 m ³ /h
Max. static pressure IP 54	60 Pa	60 Pa	60 Pa
Max. static pressure IP 55	57 Pa	57 Pa	61 Pa
Noise level in accordance with EN ISO 3741, 50 Hz)	44 dB(A)	44 dB(A)	44 dB(A)
Max. ambient temperature	15 ... +55 °C	-5 ... +55 °C	-25 ... +55 °C
Power consumption	19/18 W	19/18 W	5 W
Filter efficiency IP 54	83 %	83 %	83 %
Filter efficiency IP 55	91 %	91 %	91 %
MTBF at 40 °C	37000 h	37000 h	62000 h
Approvals	CE, UL, cUL, GOST		

NOTE

- Mounting for sheet thicknesses from 1 to 3 mm
- Multiple fan solution on request
- Dimensions, cut-outs and tolerances see user manual



01108018



Air outlet/inlet filter FLA 200

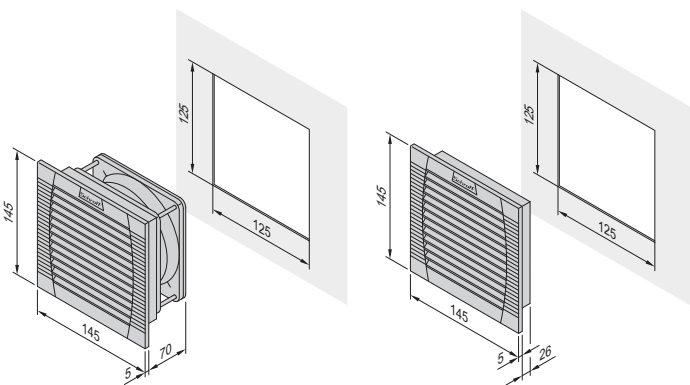
Fluted filter IP 55

01108019 01108021



Replacement filter IP 54

01108020



01108059 01108060

Air filtered fan FL 200

Air outlet/inlet filter FLA 200

Sheet thicknesses 1 ... 2 mm - cut-out 125 x 125 mm;
Sheet thicknesses >2 ... 3 mm - cut-out 126 x 126 mm

Climate control – Air filtered fans

AIR FILTERED FAN FL 225

- Airflow volume 98 m³/h
- Converts simply from push to pull operation
- Ingress protection IP 54, with fluted filter IP 55, NEMA type 12



DELIVERY COMPRISES (completely assembled)

Item	Qty	Description
1	1	Front grille and case, plastic, ABS, RAL 7035, self-extinguishing, UL 94 V-0
2	1	Filter, filter class G 3 (EN 779)
3	1	Fan
4	1	Connection AC (terminal block), DC (spring terminal strip)



01108022

ORDER INFORMATION

Description	115 V _{AC} Part no.	230 V _{AC} Part no.
Air filtered fan FL 225	EF220-115R5	EF220R5
Air outlet/inlet filter FLA 225 (items 1 + 2 included), 1 piece		EFA220R5
Replacement filter IP 54 for FL 225 and FLA 225, filter class G 3 (EN 779), PU 5 pieces		EFM220
Fluted filter IP 55 for FL 225 and FLA 225, filter class G 4 (EN 779), PU 5 pieces		EFMP220



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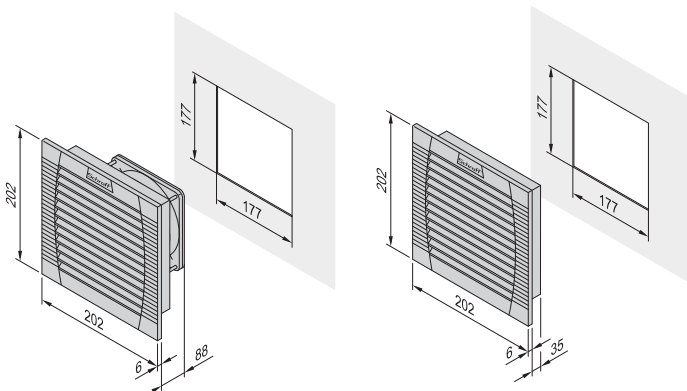
Air outlet/inlet filter FLA 225 Fluted filter IP 55

TECHNICAL DATA

Voltage	230 VAC	115 VAC
Frequency	50/60 Hz	50/60 Hz
Airflow volume with IP 54 filter (free blowing)	98/108 m ³ /h	98/108 m ³ /h
Airflow volume with IP 55 filter (free blowing)	100/110 m ³ /h	100/110 m ³ /h
Combination FL + FLA IP 54	73/80 m ³ /h	73/80 m ³ /h
Combination FL + FLA IP 55	55/64 m ³ /h	55/64 m ³ /h
Max. static pressure IP 54	66 Pa	66 Pa
Max. static pressure IP 55	61 Pa	61 Pa
Noise level (in accordance with EN ISO 3741, 50 Hz)	40 dB(A)	40 dB(A)
Max. ambient temperature	-15 ... +55 °C	-15 ... +55 °C
Power consumption	19/18 W	19/18 W
Filter efficiency IP 54	88 %	88 %
Filter efficiency IP 55	91 %	91 %
MTBF at 40 °C	37000 h	37000 h
Approvals	CE, UL, cUL, GOST	

01108020

Replacement filter IP 54



01108061 01108062

Air filtered fan FL 225 Air outlet/inlet filter FLA 225
 Sheet thicknesses 1 ... 2 mm - cut-out 177 x 177 mm;
 Sheet thicknesses >2 ... 3 mm - cut-out 178 x 178 mm

NOTE

- Mounting for sheet thicknesses from 1 to 3 mm
- Multiple fan solution on request
- Dimensions, cut-outs and tolerances see user manual

Climate control – Air filtered fans

AIR FILTERED FAN FL 250



01108022

- Airflow volume 125 m³/h
- Converts simply from push to pull operation
- Ingress protection IP 54, with fluted filter IP 55, NEMA type 12
- Simple to fit without tools by clipping in (can also be bolted)



DELIVERY COMPRISES (completely assembled)

Item	Qty	Description
1	1	Front grille and case, plastic, ABS, RAL 7035, self-extinguishing, UL 94 V-0
2	1	Filter, filter class G 3 (EN 779)
3	1	Fan
4	1	Connection spring terminal strip

ORDER INFORMATION

Description	115 V _{AC}	230 V _{AC}
	Part no.	Part no.
Air filtered fan FL 250	EF250-115R5	EF250R5
Air outlet/inlet filter FLA 250/300 (items 1 + 2 included), 1 piece		EFA250-300R5
Replacement filter IP 54 for FL 250/300 and FLA 250/300, filter class G 3 (EN 779), PU 5 pieces		EFM250-300
Fluted filter IP 55 for FL 250/300 and FLA 250/300, filter class G 4 (EN 779), PU 5 pieces		EFMP250-300



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Air outlet/inlet filter FLA 250/300

Fluted filter IP 55



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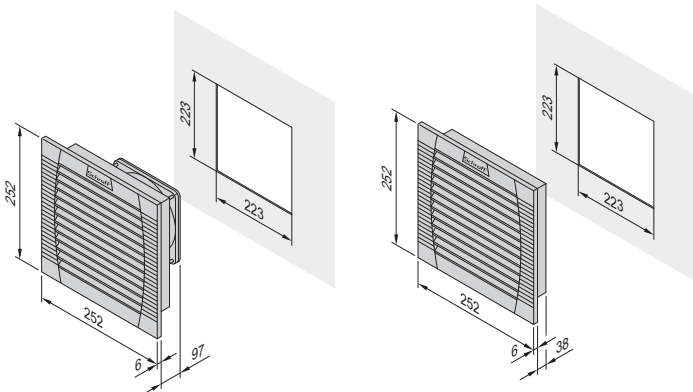
Replacement filter IP 54

TECHNICAL DATA

Voltage	230 VAC	115 VAC
Frequency	50/60 Hz	50/60 Hz
Airflow volume with IP 54 filter (free blowing)	125/138 m ³ /h	125/138 m ³ /h
Airflow volume with IP 55 filter (free blowing)	145/160 m ³ /h	145/160 m ³ /h
Combination FL + FLA IP 54	93/102 m ³ /h	93/102 m ³ /h
Combination FL + FLA IP 55	109/113 m ³ /h	109/113 m ³ /h
Max. static pressure IP 54	52 Pa	52 Pa
Max. static pressure IP 55	49 Pa	49 Pa
Noise level (in accordance with EN ISO 3741, 50 Hz)	40 dB(A)	40 dB(A)
Max. ambient temperature	-15 ... +55 °C	-15 ... +55 °C
Power consumption	18/17 W	18/17 W
Filter efficiency IP 54	88 %	88 %
Filter efficiency IP 55	91 %	91 %
MTBF at 40 °C	40000 h	40000 h
Approvals	CE, UL, cUL, GOST	

NOTE

- Mounting for sheet thicknesses from 1 to 3 mm
- Multiple fan solution on request
- Dimensions, cut-outs and tolerances see user manual



01108063 01108064

Air filtered fan FL 250

Air outlet/inlet filter FLA 250/300

Sheet thicknesses 1 ... 2 mm - cut-out 223 x 223 mm;

Sheet thicknesses >2 ... 3 mm - cut-out 224 x 224 mm

Climate control – Air filtered fans

AIR FILTERED FAN FL 300



01108024

- Airflow volume 223 m³/h
- Converts simply from push to pull operation
- Ingress protection IP 54, with fluted filter IP 55, NEMA type 12
- Simple to fit without tools by clipping in (can also be bolted)



DELIVERY COMPRISES (completely assembled)

Item	Qty	Description
1	1	Front grille and case, plastic ABS, RAL 7035, self-extinguishing, UL 94 V-0
2	1	Filter, filter class G 3 (EN 779)
3	1	Fan
4	1	Connection spring terminal strip

ORDER INFORMATION

Description	115 V _{AC} Part no.	230 V _{AC} Part no.
Air filtered fan FL 300	EF300-115R5	EF300R5
Air outlet/inlet filter FLA 250/300 (items 1 + 2 included), 1 piece		EFA250-300R5
Replacement filter IP 54 for FL 250/300 and FLA 250/300, filter class G 3 (EN 779), PU 5 pieces		EFM250-300
Fluted filter IP 55 for FL 250/300 and FLA 250/300, filter class G 4 (EN 779), PU 5 pieces		EFMP250-300



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Air outlet/inlet filter FLA 250/300

Fluted filter IP 55



Replacement filter IP 54

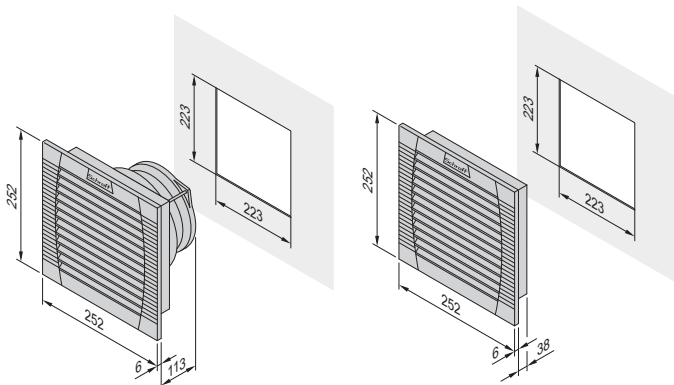
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TECHNICAL DATA

Voltage	230 VAC	115 VAC
Frequency	50/60 Hz	50/60 Hz
Airflow volume with IP 54 filter (free blowing)	223/247 m ³ /h	223/247 m ³ /h
Airflow volume with IP 55 filter (free blowing)	233/265 m ³ /h	233/265 m ³ /h
Combination FL + FLA IP 54	201/223 m ³ /h	201/223 m ³ /h
Combination FL + FLA IP 55	180/207 m ³ /h	180/207 m ³ /h
Max. static pressure IP 54	116 Pa	116 Pa
Max. static pressure IP 55	112 Pa	112 Pa
Noise level (in accordance with EN ISO 3741, 50 Hz)	42 dB(A)	42 dB(A)
Max. ambient temperature	-15 ... +55 °C	-15 ... +55 °C
Power consumption	45/39 W	50/45 W
Filter efficiency IP 54	88 %	88 %
Filter efficiency IP 55	91 %	91 %
MTBF at 40 °C	40000 h	40000 h
Approvals	CE, UL, cUL, GOST	

NOTE

- Mounting for sheet thicknesses from 1 to 3 mm
- Multiple fan solution on request
- Dimensions, cut-outs and tolerances see user manual



01108065 01108064

Air filtered fan FL 300

Air outlet/inlet filter FLA 250/350

Sheet thicknesses 1 ... 2 mm - cut-out 223 x 223 mm;
 Sheet thicknesses >2 ... 3 mm - cut-out 224 x 224 mm

Climate control – Air filtered fans

AIR FILTERED FAN FL 500

- Airflow volume 480 m³/h
- Converts simply from push to pull operation
- Ingress protection IP 54, with fluted filter IP 55, NEMA type 12
- Simple to fit without tools by clipping in (can also be bolted)



DELIVERY COMPRISES (completely assembled)

Item	Qty	Description
1	1	Front grille and case, plastic, ABS, RAL 7035, self-extinguishing UL 94 V-0
2	1	Filter, filter class G3 (EN 779)
3	1	Fan
4	1	Connection spring terminal strip

ORDER INFORMATION

Description	115 V _{AC}	230 V _{AC}
	Part no.	Part no.
Air filtered fan FL 500	EF500-115R5	EF500R5
Air outlet/inlet filter FLA 500/600 (items 1 + 2 included), 1 piece		EFA500-700R5
Replacement filter IP 54 for FL 500/600 and FLA 500/600, filter class G 3 (EN 779), PU 5 pieces		EFM500-700
Fluted filter IP 55 for FL 500/600 and FLA 500/600, filter class G 4 (EN 779), PU 5 pieces		EFMP500-700

TECHNICAL DATA

Voltage	230 VAC	115 VAC
Frequency	50/60 Hz	50/60 Hz
Airflow volume with IP 54 filter (free blowing)	480/480 m ³ /h	480/480 m ³ /h
Airflow volume with IP 55 filter (free blowing)	505/505 m ³ /h	505/505 m ³ /h
Combination FL + FLA IP 54	370/370 m ³ /h	370/370 m ³ /h
Combination FL + FLA IP 55	380/380 m ³ /h	380/380 m ³ /h
Max. static pressure IP 54	76 Pa	76 Pa
Max. static pressure IP 55	74 Pa	74 Pa
Noise level (in accordance with EN ISO 3741, 50 Hz)	54 dB(A)	54 dB(A)
Max. ambient temperature	-15 ... +55 °C	-15 ... +55 °C
Power consumption	80/100 W	90/110 W
Filter efficiency IP 54	88 %	88 %
Filter efficiency IP 55	91 %	91 %
MTBF at 40 °C	40000 h	40000 h
Approvals	CE, UL, cUL, GOST	

NOTE

- Mounting for sheet thicknesses from 1 to 3 mm
- Multiple fan solution on request
- Dimensions, cut-outs and tolerances see user manual



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01108019 01108021

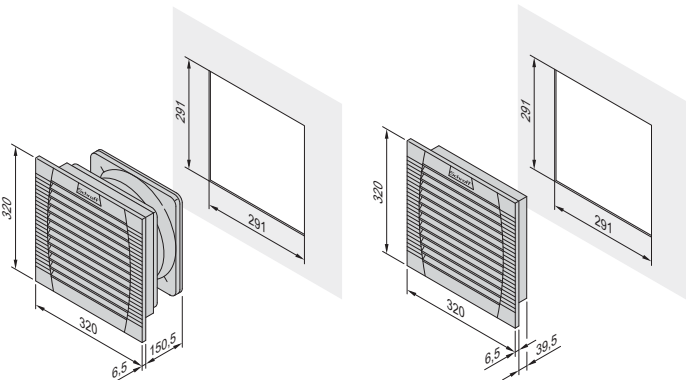
Air outlet/inlet filter FLA 500/600

Fluted filter IP 55



01108020

Replacement filter IP 54



01108067 01108068

Air filtered fan FL 500/600 Air outlet/inlet filter FLA 500/600
Sheet thicknesses 1 ... 2 mm - cut-out 223 x 223 mm;
Sheet thicknesses >2 ... 3 mm - cut-out 224 x 224 mm

Climate control – Air filtered fans

AIR FILTERED FAN FL 600



01108025

- Airflow volume 640 m³/h
- Converts simply from push to pull operation
- Ingress protection IP 54, with fluted filter IP 55, NEMA type 12
- Simple to fit without tools by clipping in (can also be bolted)



DELIVERY COMPRISES (completely assembled)

Item	Qty	Description
1	1	Front grille and case, plastic, ABS, RAL 7035, self-extinguishing, UL 94 V-0
2	1	Filter, filter class G 3 (EN 779)
3	1	Fan
4	1	Connection spring terminal strip

ORDER INFORMATION

Description	115 V _{AC} Part no.	230 V _{AC} Part no.
Air filtered fan FL 600	EF600-115R	EF600R5
Air outlet/inlet filter FLA 500/600 (items 1 + 2 included), 1 piece		EFA500-700R5
Replacement filter IP 54 for FL 500/600 and FLA 500/600, filter class G 3 (EN 779), PU 5 pieces		EFM500-700
Fluted filter IP 55 for FL 500/600 and FLA 500/600, filter class G 4 (EN 779), PU 5 pieces		EFMP500-700



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Air outlet/inlet filter FLA 500/600

Fluted filter IP 55



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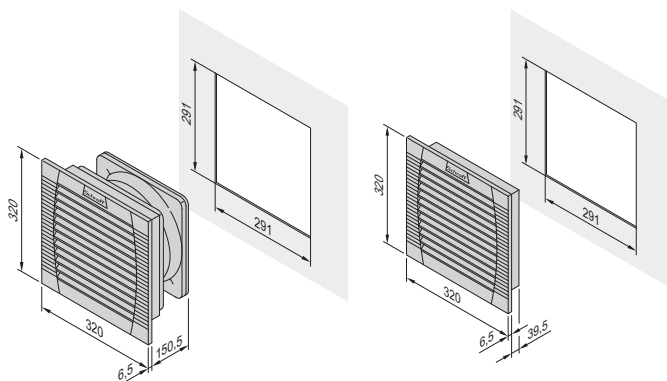
Replacement filter IP 54

TECHNICAL DATA

Voltage	230 VAC	115 VAC
Frequency	50/60 Hz	50/60 Hz
Airflow volume with IP 54 filter (free blowing)	640/653 m ³ /h	640/653 m ³ /h
Airflow volume with IP 55 filter (free blowing)	770/785 m ³ /h	770/785 m ³ /h
Combination FL + FLA IP 54	445/445 m ³ /h	445/445 m ³ /h
Combination FL + FLA IP 55	490/501 m ³ /h	490/501 m ³ /h
Max. static pressure IP 54	134 Pa	134 Pa
Max. static pressure IP 55	132 Pa	132 Pa
Noise level in accordance with EN ISO 3741, 50 Hz)	63 dB(A)	63 dB(A)
Max. ambient temperature	-15 ... +55 °C	-15 ... +55 °C
Power consumption	120/160 W	130/170 W
Filter efficiency IP 54	88 %	88 %
Filter efficiency IP 55	91 %	91 %
MTBF at 40 °C	40000 h	40000 h
Approvals	CE, UL, cUL, GOST	

NOTE

- Mounting for sheet thicknesses from 1 to 3 mm
- Multiple fan solution on request
- Dimensions, cut-outs and tolerances see user manual



01108067 01108068

Air filtered fan FL 500/600

Air outlet/inlet filter FLA 500/600

Sheet thicknesses 1 ... 2 mm - cut-out 223 x 223 mm;

Sheet thicknesses >2 ... 3 mm - cut-out 224 x 224 mm

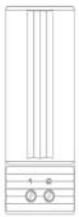
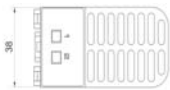
Climate control – Accessories

HEATERS FROM 10 W TO 150 W



10 / 20 W

Dimension drawing



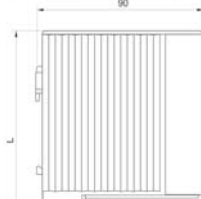
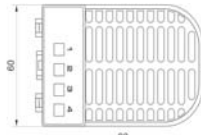
10 / 20 W



01116002

50 / 100 / 150 W

01116001



01116054

50 / 100 / 150 W

01116053

- Compact heater without fan
- Simple and fast assembly with clip-on attachment
- Broad range voltage input AC/DC 120 ... 240 V
- Low surface temperature, protective insulation, and temperature limitation with PTC resistance



DELIVERY INCLUDES (completely assembled)

Item	Qty	Description
1	1	Heater element, voltage AC/DC 100 ... 240 V; PTC resistor, self-regulating
2	1	Heating body housing, plastic UL94 V-0; type of fixing: Clip for 35 mm DIN rail EN 60715
3	1	Connection: 2-pin (10 W, 20 W) and/or 4-pin (50 W, 100 W, 150 W) terminal, 2.5 mm ² , torque 0.8 Nm max.

ORDER INFORMATION

Description	Part no.
10 W	60715-220
20 W	60715-221
50 W	60715-222
100 W	60715-223
150 W	60715-224

NOTE

- Thermostat for heating see page 4.65
- Hygrostat see page 4.68

TECHNICAL DATA

	10 W	20 W	50 W	100 W	150 W
Heater output in W	10	20	50	100	150
Max. switch-on current in A	1.0	2.5	2.5	4.5	8.0
Pre-fuse, delay-action in A	2.0	4.0	4.0	8.0	10.0
Type of protection	IP 20	IP 20	IP 20	IP 20	IP 20
Class of protection	II	II	II	II	II
Dimensions H x W x D in mm	98 x 38 x 75	98 x 38 x 75	110 x 60 x 90	110 x 60 x 90	150 x 60 x 90
Weight in kg	0.2	0.3	0.3	0.3	0.5
Connection	2-pin terminal, 2.5 mm ² , torque 0.8 Nm		4-pin terminal, 2.5 mm ² , torque 0.8 Nm		
Surface temperature in °C	< + 80°C, with exception of above mesh surface				
Test seal	CE, UL, VDE, EAC, RoHS				
Mounting	Clip-on attachment for 35 mm DIN rail (EN 60715)				

Climate control – Accessories

HEATERS WITH HEATER FANS FROM 150 W TO 400 W



- Compact heater with fan, small, compact design with high heater output
- Simple and fast assembly with clip-on attachment or bolt fixing
- Dynamic heating up and temperature limitation by PTC technology
- Quiet



DELIVERY INCLUDES (completely assembled)

Item	Qty	Description
1	1	Heater element, voltage 230 V _{AC} , resistor (PTC resistance) self-regulating
2	1	Heating body housing, plastic UL94 V-0; type of fixing: Clip for 35 mm DIN rail EN 60715
3	1	Axial fan, airflow from bottom to top
4	1	Connection: 2-pin terminal, 2.5 mm ² , torque 0.8 Nm max.

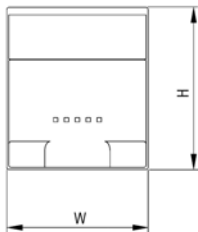
ORDER INFORMATION

Description	Part no.
150 W	60715-225
250 W	60715-226
400 W	60715-227

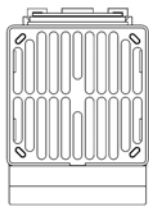
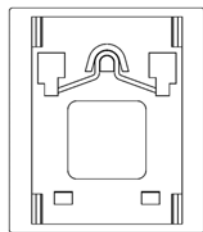
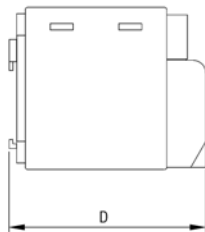
NOTE

- Thermostat for heating see page 4.65
- Hygrostat see page 4.68

Dimension drawing



Clip attachment



01116050

01116051

TECHNICAL DATA

	150 W	250 W	400 W
Heater output in W	150	250	400
Max. switch-on current in A	9.0	12	15
Pre-fuse, delay-action in A	10	10	16
Axial fan, free blowing output	13.8 m ² /h	45 m ² /h	45 m ² /h
Type of protection	IP 20	IP 20	IP 20
Class of protection	II	II	II
Dimensions H x W x D in mm	75 x 65 x 90	90 x 85 x 111	90 x 85 x 111
Weight in kg	0.3	0.5	0.5
Surface temperature in °C	< + 50°C, with exception of above mesh surface		< + 65°C, with exception of above mesh surface
Connection	2-pin terminal, 2.5 mm ² , torque 0.8 Nm max.		
Test seal	CE, UL, VDE, EAC, RoHS		
Mounting	Clip-on attachment for 35 mm DIN rail (EN 60715)		

Climate control – Accessories

HEATERS FROM 30 W TO 150 W



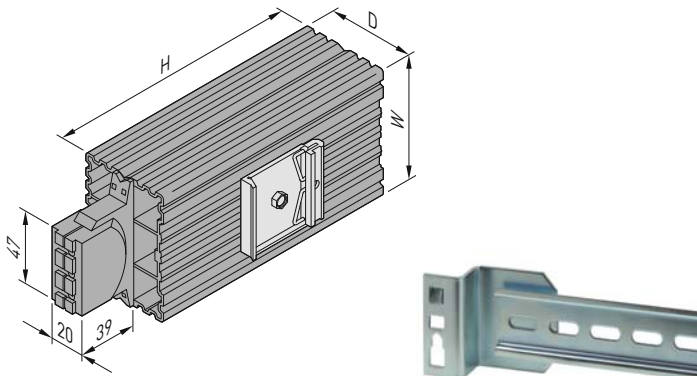
- Radiator heater (without fan)
- Simple and fast assembly with clip-on attachment and press-on terminal connection
- Wide input voltage range 110 ... 250 V_{AC}
- Temperature limiting with PTC resistor



DELIVERY COMPRISES (completely assembled)

Item	Qty	Description
1	1	Heater element, voltage range 110 ... 250 V _{AC} ; resistor (PTC) self-regulating
2	1	Heating body, Al extrusion, anodised Fixing: clip for 35 mm DIN rail EN 50022
3	1	Connection: type 30, with connecting cable (3 x 0.5 mm ² , 300 mm long, black); type 45, 100, 150 with press-on terminal connection (for stranded/rigid wire 3 x 0.5 ... 2.5 mm ²)

01102004



01113050

Support rail

00508013

ORDER INFORMATION

Description	30 Part no.	45 Part no.	100 Part no.	150 Part no.
Heaters from 30 W to 150 W	60715-020	60715-021	60715-023	60715-030
Support rail DIN rail EN 50022 (35 mm), length 215 mm, 1 piece				20715-001

TECHNICAL DATA

	30 W	45 W	100 W	150 W
Heater output in W	30	45	100	150
Surface temperature in °C	approx. 100	approx. 105	approx. 130	approx. 140
Max. switch-on current in A	3,0	3,5	4,0	9,0
Type of protection	IP 54	IP 20	IP 20	IP 20
Class of protection	I	I	I	I
Dimensions H x W x D in mm	70 x 25 x 50	69 x 70 x 50	144 x 70 x 50	224 x 70 x 50
Weight in kg	0.2	0.3	0.5	0.7
Test seal	VDE, CE, UL (File E150057)	CE, UL (File E150057)	CE, UL (File E150057)	CE, UL (File E150057)
Assembly	Clip-on attachment for 35 mm DIN rail (EN 50022)			

NOTE

- Thermostat for heating see page 4.65
- Hygrostat see page 4.68

Climate control – Accessories

HEATER FANS 475/550 W



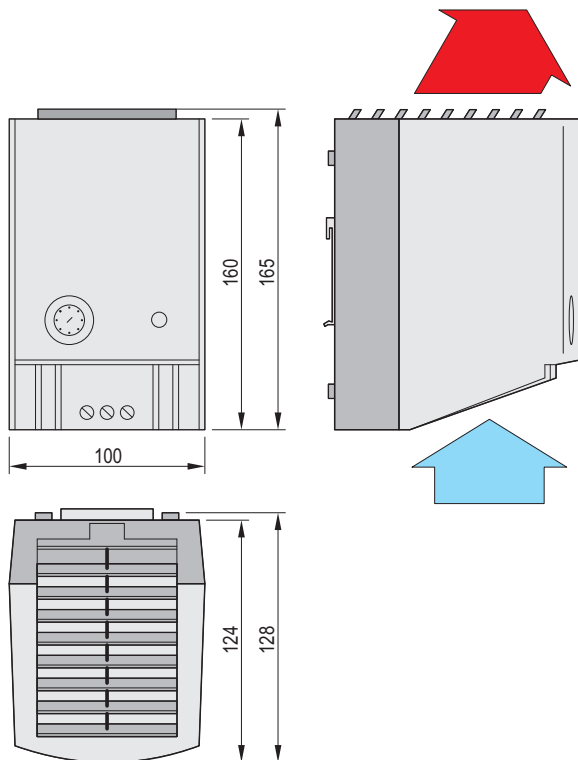
- Heater with fan and thermostat
- Simple and fast assembly with clip-on attachment
- 3-pin terminal clamp, separate heater/fan connection
- Thermostat from 0 ... 60 °C
- Temperature limiting with PTC resistor



DELIVERY COMPRISES (completely assembled)

Item	Qty	Description
1	1	Plastic housing, polycarbonate (RAL 9002, grey white), clip for 35 mm DIN rail EN 50022
2	1	Heater element, 230 V _{AC} , resistor (PTC) self-regulating
3	1	Thermostat
4	1	230 V _{AC} fan

01108030



ORDER INFORMATION

Description	Part no.
Heater 475 W	60715-017
Heater 550 W	60715-018
Support rail DIN rail EN 50022 (35 mm), length 215 mm, 1 piece	20715-001

TECHNICAL DATA

	230 V _{AC}			
	50 Hz	60 Hz	50 Hz	60 Hz
Voltage range	230 V _{AC}			
Frequency	50 Hz	60 Hz	50 Hz	60 Hz
Heater output	475 W	550 W	550 W	650 W
Air capacity of axial fan	35 m ³ /h	39 m ³ /h	45 m ³ /h	50 m ³ /h
Current at switch-on approx.	11 A		13 A	
Weight	0.9 kg		1.1 kg	
Heater element	Resistor (PTC), self-regulating			
Connection	3-pin connecting terminal, 2.5 mm ² , separate connection heating/fan			
Thermostat	Adjustment range 0 ... 60 °C			
Control lamp of control system	Glow lamp			
Temperature control	In the event of fan failure			
Type of protection	IP 20			
Class of protection	II			
Assembly	Clip-on attachment for 35 mm DIN rail (EN 50022)			
Dimensions	Height 165 mm, width 100 mm, depth 128 mm			

01108069



00508013

Support rail

Climate control – Accessories

HEATER FAN 400 W, MODULAR



Example of a complete heater unit: 1: heater, 2: fan, 3: protective grille, 4: connection cable

01108007



Heater element

01108006



Support rail

00508013

- Modular system consisting of: heater element, fan, protective grille and connecting cable
- Fan not included in delivery extent; please order fan with desired air capacity separately
- Simple and fast assembly with clip-on attachment
- Overheating protection through thermal switch



DELIVERY COMPRISES (completely assembled)

Item	Qty	Description
1	1	Heater element, high-performance cartridge
2	1	Connecting cable fan - heating distributor, length 0.3 m
3	1	GND/earth cable, ring tag - open end, length 0.3 m
4	1	Clip-on attachment for DIN rail with assembly kit

ORDER INFORMATION

Description	230 V _{AC} Part no.
Heater fan 400 W, modular	60715-029
Support rail DIN rail EN 50022 (35 mm), length 215 mm, 1 piece	20715-001

TECHNICAL DATA

Voltage range	230 V _{AC}
Current at switch-on	1.8 A
Heater output	400 W
Air capacity m ³ /h	Please choose desired fan
Surface temperature with fan	Approx. 140 °C
Type of protection	IP 20
Class of protection	I, with GND/earthing
Dimensions: height x width x depth in mm	22 x 120 x 160
Assembly	Clip for 35 mm DIN rail EN 50022

NOTE

- **Attention:** Danger of overheating, never use heater without fan
- Fan see page 4.63
- Thermostat for heating see page 4.65
- Hygrostat see page 4.68

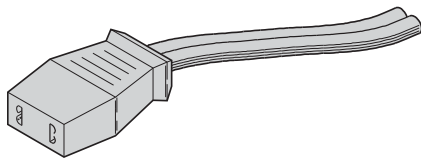
Climate control – Accessories

AC FANS FOR HEATING 400 W

- The fan is screwed below the heater and the cable is connected to the heater (please order connecting cable and protective grille separately)



Connecting cable



01108005

DELIVERY COMPRISES

Item	Qty	Description
1	1	Fan (width 119 mm, depth 119 mm)

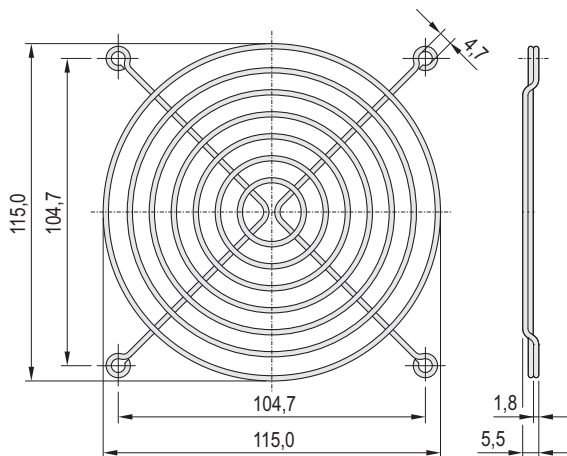
ORDER INFORMATION

	Height mm	Airflow volume m ³ /h	115 V _{AC} Part no.	230 V _{AC} Part no.
Type A	25	84	20713-146	20713-142
Type B	25	108	20713-147	20700-001
Type C	38	162	20713-244	20713-243
PVC (2 x 0.75 mm ²), 1 m long with 2 Faston connectors 2.8 x 0.5 mm to DIN 46343 T1, 1 piece				21101-246
Protective grille, metal, to screw-on				60197-019

DIMENSIONS AC fans

Type	Type A		Type B		Type C	
	50	60	50	60	50	60
Frequency in Hz	50	60	50	60	50	60
Airflow volume in m ³ /h	84	90	108	120	162	192
Noise level per fan in dB(A)	29	30	34	38	37	41
Max. static pressure in Pa	23	21	41	41	73	88
Max. ambient temperature in °C	70	70	70	70	70	70
Power consumption in W	8	7	14	11	15	14
Dimensions: height in mm (width 119 mm x depth 119 mm)	25		25		38	

KTA43091



Protective grille

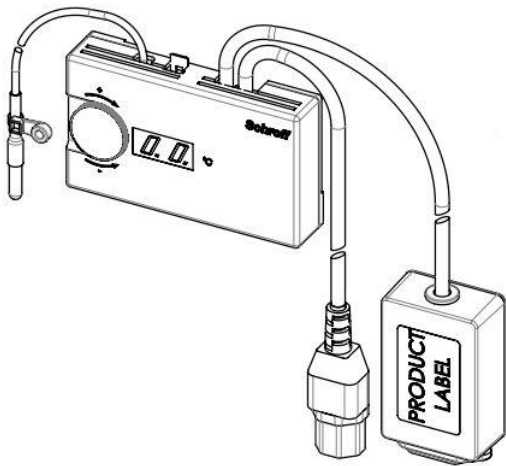
01108055

NOTE

- Please order connection cable and protective grille separately

Climate control – Accessories

SPEED CONTROL FOR FANS WITH C13 PLUG



Speed controller with IEC C13 connecting cables

- Suitable for all AC fans and fan units (up to 300 W) with IEC 60320 C13 plug (plug & play)
- Simple to mount on the support rail provided
- Simple adjustment of switch-on temperature (with knob and digital display)
- External sensor can be fitted at a desired measurement point
- Open-collector output (parametrisable)
 - Alarm output (active/passive)
 - DC fans (PWM output)
 - Remote display (via optional digital display with front panel)

DELIVERY COMPRISES

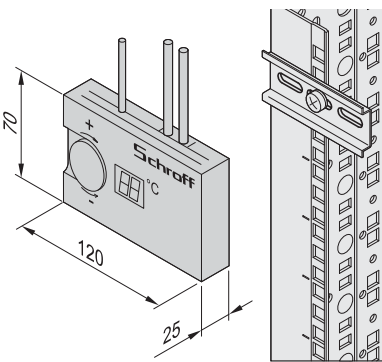
NEW

Item	Qty	Description
1	1	Speed controller; input/output voltages 115 ... 240 V _{AC} , see Technical Data
2	1	Temperature sensor, cable length 1.5 m
3	1	Fan cable, with IEC 60320 socket, 2.0m
4	1	Mains cable, with IEC 60320 connecting plug, 0,5m
5	1	Support rail, St, zinc-plated (EN 50022)
6	1	Assembly kit

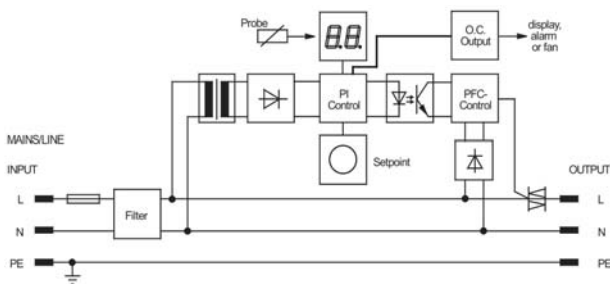
Please order the connecting cables / main cables separately

ORDER INFORMATION

Speed control for fans with C13 plug	Part no.
Mains cable IEC 60320 C13 Plug	60118-616
Accessories	
Thermostat with digital display 230 V _{AC} , 1 piece	Page 4.67
Thermostat with digital display 115 V _{AC} , 1 piece	Page 4.67
Connecting cable for DC fans or alarm output Length 2 m, 2-wire (0.34 mm ²), 1 piece	60715-007
Connection cable, SCHUKO/UTE connector IEC C13 plug	62150-191
Connection cable, IEC C13 plug / connector IEC C13	60197-053
Connection cable, BS connector IEC C13 plug	60103-137



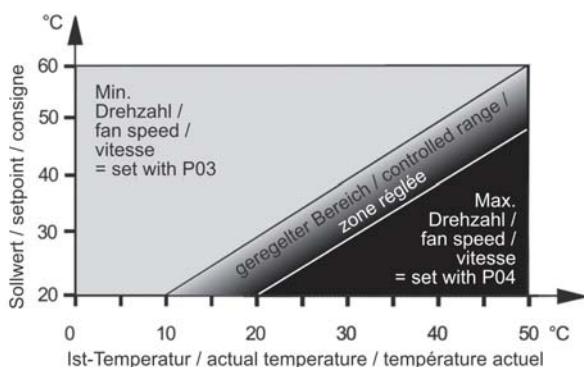
Block diagram



01105055

0111050

Speed varies in relation to temperature



0111051

TECHNICAL DATA

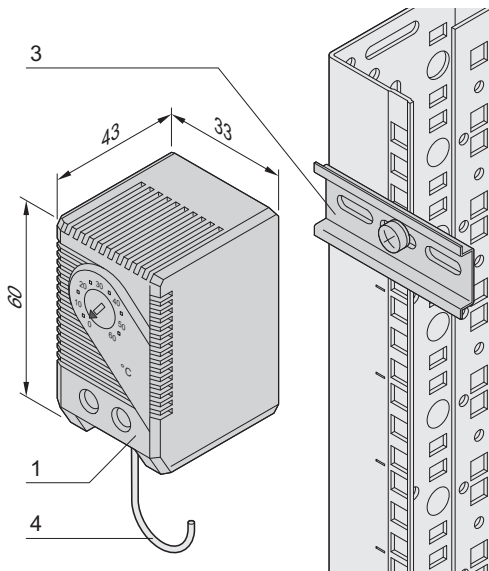
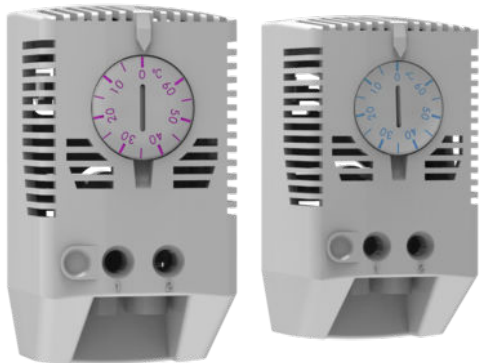
Voltage range	115 ... 240 V _{AC} (90 ... 264 V _{AC})
Frequency	48 ... 62 Hz
Power consumption	max. 4 VA
Display	LCD display, height 13 mm, red
Max. connection power	300 W (230 V _{AC}), 150 W (115 V _{AC})
Max. continuous current	1.3 A
Adjustment range	+20 ... +60 °C with potentiometer
Fan speed frequency	25 ... 100 %
Sensor	External NTC resistor
Sensor connection	AMP plug contact and cable, 1.5 m, 2 x 0.22 mm
In case of sensor failure	Max. speed
Fan connection	Cable with C13 IEC 60320 socket, 2.0m
Open-collector output	AMP plug contact, programmable function, V _{max.} 30 V _{DC} , I _{max.} 30 mA
Mains connection	Cable with plug, 0.5m
Mechanics	Case, IP 30, plastic, weight 0.5 kg, mounts on horizontal rail with lip DIN EN 50022
Dimensions	Width 120 mm, height 70 mm, depth 25 mm
Environmental conditions	0 ... 60°C, max. 85 % rel. humidity, non-condensing

NOTE

- Thermostat with digital display, see page 4.67

Climate control – Accessories

THERMOSTAT WITH INTEGRATED TEMPERATURE SENSOR



Connection cable: 2-pin, ferrules - IEC socket



Connection cable: 2-pin, ferrules - 3-pin, ferrules

- To control fans or heaters
- Adjustment range 0 ... 60 °C
- Individual adaptation with three separate components: thermostat (for cooling or heating), assembly material, connecting cable (IEC connector or ferrules)
- 2 versions
 - for heating
 - for cooling



DELIVERY COMPRISES

Item	Qty	Description
1	1	Thermostat, width 33 mm, height 60 mm, depth 43 mm; clip-on attachment for 35 mm DIN rail EN 50022, switched voltage 120 ... 250 V _{AC}
2	1	User manual

ORDER INFORMATION

Description	Part no. for cooling	Part no. for heating
Thermostat with integrated temperature sensor	ETR201	ETR202

Accessories

Item 3 DIN rail (EN 50022) 35 mm; length 75 mm; with fixing materials kit, PU 1 set	21120-178
Item 4 Connection cable, SCHUKO/UTE connector, cable length 1.5 m; connection on thermostat/hygrostat, 2-pin, ferrules; connection on fan IEC socket; 1 piece	62150-201
Item 4 Connection cable, SCHUKO/UTE connector, cable length 1.5 m; connection on thermostat/hygrostat, 2-pin, ferrules; connection on fan/heater, 3-pin, ferrules, 1 piece	62150-264

DIMENSIONS

01108050	Thermostat	for cooling (make contact), blue control button	for heating (break contact), red control button
	Adjustment range	0 ... 60 °C	
	Switching temperature difference	7 K (± 4 K tolerance)	
	Sensing element	Thermobimetal (snap-action contact)	
	Contact resistance	<10 m?	
	Lifespan	>100000 cycles	
	Max. switch performance	10 A at 250 V _{AC} , 15 A at 120 V _{AC} ; 30 W at DC voltage	
	Connection	2-pin clamp, up to 2.5 mm ² , torque max. 0.5 Nm	
01108009	Case	Plastic, in accordance with UL 94 V-0, light grey	
	Dimensions	Height 60 mm, width 33 mm, depth 43 mm	
	Assembly	Clip for 35 mm DIN rail, EN 50022	
	Weight	40 g	
	Operating/storage temperature	-20 ... +80 °C/-45 ... +80 °C	
	Protection class	IP 20	
	Plastic Material	UL94 V0, RAL 7035	

ORDER INFORMATION

Description	Part no.	
01108010	Thermostat with integrated temperature sensor assembly material and cable (Schuko / UTE), 230V	24630-119
	Thermostat with integrated temperature sensor assembly material and cable (IEC 60320, C13 /C14), 230V	24630-116

Climate control – Accessories

THERMOSTAT WITH INTEGRATED TEMPERATURE SENSOR



01102008

- To control heaters or fans
- Adjustment range 5 ... 60 °C

DELIVERY COMPRISES

Item	Qty	Description
1	1	Thermostat with clip-on attachment for 35 mm DIN rail EN 50022, voltage 200 ... 250 V _{AC} and 100 ... 130 V _{AC}
2	1	Support rail, length 200 mm
3	1	Connection cable, length 1.5 m
4	1	Strain relief
5	1	Assembly kit for cabinet assembly

ORDER INFORMATION

Description	Part no.
Thermostat with integrated temperature sensor	20715-002

TECHNICAL DATA

Dimensions	Height: 75 mm, width: 75 mm, depth: 25 mm
Adjustment range	5 ... 60 °C
Switch difference	0,5 K
Supply voltage	200 ... 250 V _{AC}
Contact load	Heat (terminals 1 - 2) 10 A / 4 A
(ohmic load/inductive load)	Cool (terminals 1 - 3) 5 A / 2 A
Contacts	Changeover contact, single pole
Type of assembly	Bolt-on, snap mounting for slide rail

THERMOSTAT WITH EXTERNAL TEMPERATURE SENSOR



01102007

- To control heaters or fans
- External sensor can be positioned near the critical sub-assembly
- Adjustment range 20 ... 60 °C, switch difference 3 ... 10 K



DELIVERY COMPRISES

Item	Qty	Description
1	1	Thermostat with external temperature sensor, sensor length approx. 1.7 m
2	1	Mounting plate for cabinet assembly, Al, 2.5 mm
3	1	Assembly kit

ORDER INFORMATION

Description	Part no.
Thermostat with external temperature sensor	20715-003

TECHNICAL DATA

Dimension (height x width x depth)	93 mm x 68 mm x 44 mm
Adjustment range	20 ... 60 °C
Switching difference	3 ... 10 K
Mains/line voltage	90 ... 260 V _{AC}
Contact load (ohmic load/inductive load)	24 A/10 A
Contacts	Change-over, single pin
Assembly	Screw-fixed

Climate control – Accessories

THERMOSTAT WITH DIGITAL DISPLAY



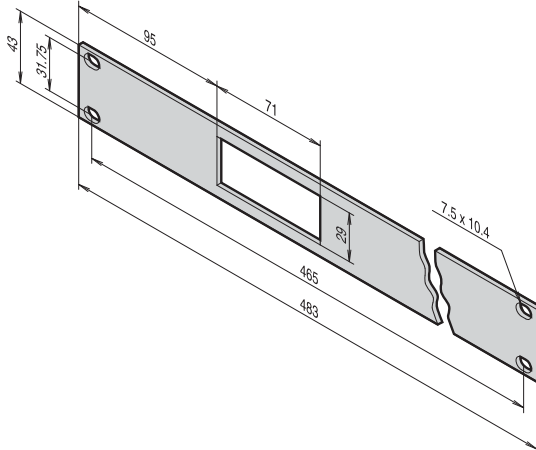
- Adjustment range from -50 to +100 °C (switch difference 0 ... 10 °C)
- Display switchable from °C to °F
- Programmable (secured against unauthorised operation)
- 3-character red segment display



ORDER INFORMATION

Description	Part no.
Thermostat with digital display, 230 V _{AC}	60715-132
Thermostat with digital display, 115 V _{AC}	60715-133
Front panel 1 U, RAL 7035 with cut-out for thermostat	30118-315
Front panel 1 U, anodised with cut-out for thermostat	30118-267
Front panel 1 U, RAL 7021 with cut-out for thermostat	30118-360

Front panel 1 U



01197001

SZA45550

TECHNICAL DATA

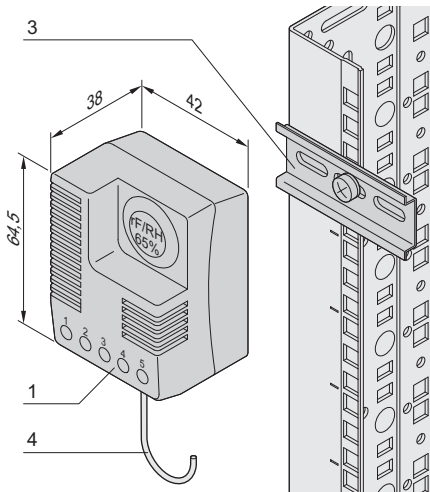
Operating voltage	115 V _{AC} or 230 V _{AC}
Power consumption	Approx. 3.5 W
Dimensions	Height: 35 mm, width: 76 mm, depth: 59 mm
Assembly cut-out	28.8 × 70.5 mm
Adjustment range	-50 ... +100 °C
Switch difference	0 ... 10 K selectable
Data safeguarding at power failure	Non-volatile memory
Contact load (ohmic load/inductive load)	8 A/3 A (ohmic/inductive load)
Input/sensor	PTC resistance, -55 ... +120 °C, cable length 3 m
Contacts	Relay, changeover contact, single pin
Protection class to front	IP 54
Connection	Screw-on terminals, 2.5 mm ²
Fixing	With clamping bracket
Type of assembly	Can be screwed on

Climate control – Accessories

HYGROSTAT



Hygrostat with adjustable and permanently set relative humidity



- Adjustable or fixed relative air humidity
- Switches fan or heaters when the set value is reached
- Visual display
- Integrated LED lights up when the connected consumer is switched on
- Individual adaptation with three separate components: Hygrostat, assembly material, connecting cable (input with SCHUKO/UTE connector; output with IEC connector or open end) please order separately



DELIVERY INCLUDES (assembled)

01116006

Item	Qty	Description
1	1	Hygrostat, width 42 mm, height 64.5 mm, depth 38 mm; clip-on attachment for 35 mm DIN rail EN 50022
2	1	User manual

ORDER INFORMATION

Description	Part no.
Hygrostat, fixed, 65 % air humidity	60715-138
Hygrostat, adjustable, 40 ... 90 % air humidity	60715-213
Accessories	
DIN rail (EN 50022) Item 3 35 mm; length 75 mm; with fixing materials kit, PU 1 set	21120-178
Connection cable Item 4 SCHUKO/UTE connector, cable length 1.5 m; connection on thermostat/hygrostat, 2-pin, ferrules; connection on fan IEC socket; 1 piece	62150-201
Connection cable Item 4 SCHUKO/UTE connector, cable length 1.5 m; connection on thermostat/hygrostat, 2-pin, ferrules; connection on fan/heater, 3-pin, ferrules, 1 piece	62150-264

01108051

TECHNICAL DATA

Supply voltage	230 V_{AC}, 50/60 Hz	
Default setting for relative air humidity	65 % fixed	40 ... 90% adjustable humidity
Switch difference	5 % air humidity (w 1 % air humidity tolerance at 25 °C)	
Switch contact	Changeover contact (relay)	
Lifespan	> 50,000 cycles	
Max. switching capacity	8 A (16 A for 10 s)	
Mains supply	2-pin terminal, up to 2.5 mm ² , torque max. 0.5 Nm	
Output change-over relay	3-pin terminal, up to 2.5 mm ² , torque max. 0.5 Nm	
Case	Plastic, in accordance with UL 94 V-0, light gray	
Dimensions	Height 64.5 mm, width 42 mm, depth 38 mm	
Type of assembly	Clip for 35 mm DIN rail, EN 50022	
Weight	65 g	
Operating/storage temperature	0 ... +60 °C/-20 ... +70 °C	
Max. storage humidity	90 % air humidity (non-condensing)	
Type of protection	IP 20	

01108009

connecting cable, connection cable, 2-pole, ferrule - IEC-(female) connector; input jack; bush; socket



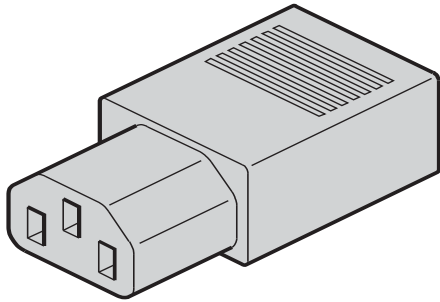
01108010

connecting cable, connection cable, 2-pole, ferrules - ferrules



Climate control – Accessories

IEC INPUT PLUG



- For connection of fans
- Bolted housing made of heat-resistant plastic (UL 94 V-0)
- 10 A/250 V_{AC}, protection class I

ORDER INFORMATION

Description	Part no.
IEC input plug	60715-046

KTA45246

North America

Warwick, RI, USA

Tel +1.401.738.1722

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Europe, Middle East & India

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Lainate, Italy

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