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Dachlüfter
Roof-mounted fan
Ventilateur de toit
Dakventilator
Takfläkt
Ventilador de techo
Ventilatore da tetto
ルーフ型ファン

3138.000	3140.110
3139.100	3140.140
3139.110	3140.500
3140.100	3140.510

Montage-, Installations- und Bedienungsanleitung
Assembly and operating instructions
Notice d'emploi, d'installation et de montage
Montage-, installatie- en bedieningshandleiding
Montage-, installations- och bruksanvisning
Instrucciones de montaje, instalación y mando
Istruzioni di montaggio, installazione e uso
取扱説明書 (組立・設置および操作マニュアル)

ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

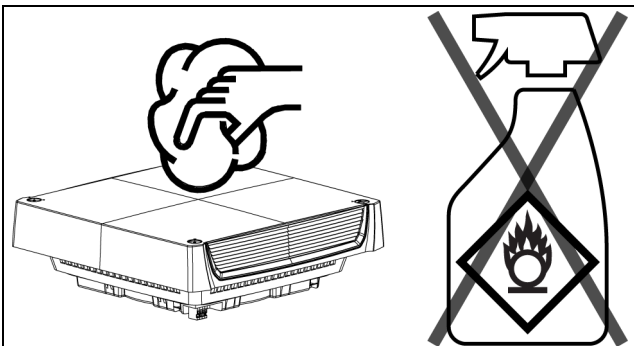
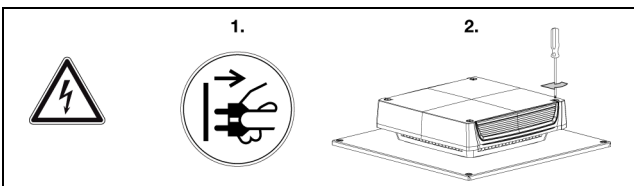
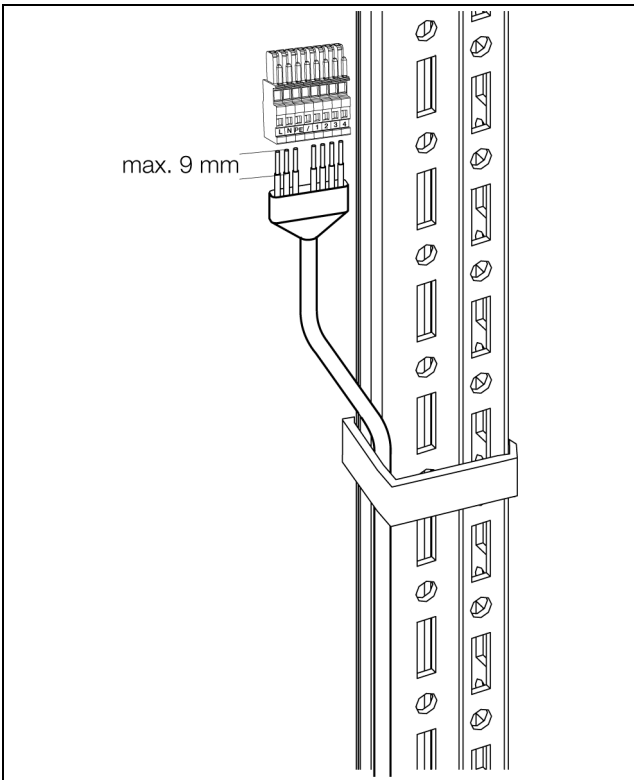
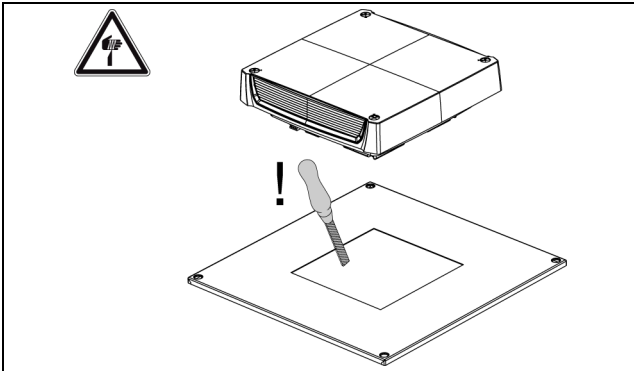
SOFTWARE & SERVICES

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Warning and safety notes

Warning and safety notes



Hinweis:

Die Montage-, Installations- und Betriebsanleitung ist auch als Download unter www.rittal.de verfügbar.



Note:

The assembly and operating instructions are available for downloading from www.rittal.com.



Remarque :

La notice d'emploi, d'installation et de montage peut être téléchargée depuis le site www.rittal.fr.



Opmerking:

De montage-, installatie- en gebruikshandleiding is ook te downloaden via www.rittal.nl.



Obs:

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Nota:

Las instrucciones de montaje, instalación y puesta en marcha también están disponibles para su descarga en www.rittal.es.



Nota:

Le istruzioni di montaggio, installazione e uso possono anche essere scaricate dal sito www.rittal.it.



注記:

この取扱説明書(組立・設置および運用マニュアル)は、www.rittal.co.jpからもダウンロードできます。

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1 Notes on documentation

1.1 General information

These assembly instructions are aimed at

- tradespersons who are familiar with assembly and installation of the roof-mounted fan.
- trained specialists who are familiar with operation of the roof-mounted fan.

1.2 CE label

Rittal GmbH & Co. KG hereby confirms that the roof-mounted fan is compliant with the Machinery Directive 2006/42/EC and the EMC Directive 2004/108/EC. A corresponding declaration of conformity has been issued and enclosed with the unit.



1.3 Storing the documents

The assembly and operating instructions as well as all other applicable documents are an integral part of the product. They must be issued to everyone who works with the roof-mounted fan and must always be available and on hand for the operating and maintenance personnel.

1.4 Symbols used in these operating instructions

The following symbols are used in this documentation:



Danger!

A dangerous situation which will result in death or severe injury if the instructions are not followed.



Warning!

A hazardous situation which may lead to death or serious injury if the instructions are not followed.



Caution!

A hazardous situation which may lead to (minor) injuries if the instructions are not followed.



Note:

Important notices and indication of situations which may result in material damage.

- This symbol indicates an "action point" and shows that you should perform an operation or procedure.

1.5 Other applicable documents

Assembly and operating instructions exist as paper documents for the unit types described here and are enclosed with the equipment.

We cannot accept any liability for damage associated with failure to observe these instructions. Where applicable, the instructions for any accessories used also apply.

2 Safety notes

- Please observe the following safety notes when assembling and operating the unit.
 - Assembly, installation and servicing may only be performed by properly trained specialists.
 - Do not obstruct the air inlet and air outlet of the roof-mounted fan inside and outside the enclosure (see also section 4.2.2 "Layout of the electronic components in the enclosure").
 - The specific air throughput of the roof-mounted fans must be adequate to meet the climate control requirements of the enclosure.
 - Use only original spare parts and accessories.
 - Do not make any changes to the roof-mounted fan other than those described in these and other applicable instructions.
 - The roof-mounted fan must only be connected to the mains with the system de-energised. Connect the pre-fuse specified in the Technical Specifications.
 - Never insert your fingers into the rotating fan blade.
 - The roof-mounted fan must only be fitted on a sealed enclosure with protected access to the electrical connection.
 - Electrical connection and any repairs may only be carried out by authorised, specialist personnel.
 - Children and persons with limited cognitive/coordination abilities must not operate, maintain or clean the unit or be allowed to use it as a toy.
 - Spending long periods in the airflow may irritate the eyes and muscles.
 - If extinguisher gas is used in the enclosure, the roof-mounted fan must be incorporated into the fire protection concept.

3 Product description

3.1 Components

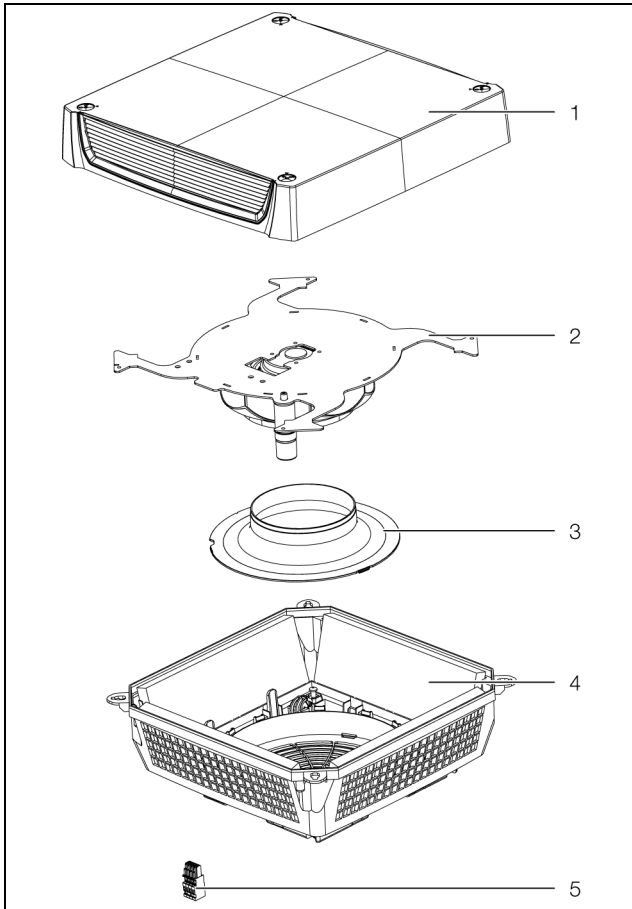


Fig. 1: Product description

Legend

- 1 Cover
- 2 Fan plate with fan
- 3 Inflow nozzle for air routing
- 4 Base tray with filter mats
- 5 Electrical connector

3.2 Function

The roof-mounted fan in conjunction with the corresponding inlet filter(s) is used to dissipate heat loss from enclosures and ventilate the enclosure, thereby protecting temperature-sensitive components. This is achieved via the direct infeed of ambient air, the temperature of which must be lower than the admissible enclosure interior temperature.

3.2.1 Control

Rittal roof-mounted fans may be controlled more efficiently with the following accessories:

Accessories	3139.1x0	3140.1x0	3140.5x0
	AC		EC
Enclosure internal thermostat 3110.000	■	■	■
Hygostat 3118.000	■	■	■
Digital enclosure internal temperature display and thermostat 3114.200	■	■	■
Speed control 3120.200	■	■*	–
Sensor for speed control 3235.450	–	–	■
Control unit for speed control 3235.440	–	–	■

Tab. 1: Accessories

* Not compatible with 3140.140.

3.2.2 Safety devices

The fan is equipped with a thermal winding protection for protection against overload.

3.2.3 Filter mats

The roof-mounted fan is supplied with four class G3 filter mats installed. The filter must be checked regularly depending on the level of dust exposure, and replaced as necessary.

3.3 Proper use

Rittal roof-mounted fans were developed and designed in accordance with the state of the art and the recognised rules governing technical safety. Nevertheless, if used improperly, they may pose a threat to life and limb or cause damage to property. The unit is only intended for ventilating enclosures and electronic cases. Any other use is deemed improper. The manufacturer will not be liable for any damages caused as a result of improper use, or for incorrect assembly, installation or use. All risk is borne solely by the user.

Proper usage also includes the observation of all valid documents and compliance with the inspection and servicing conditions.

4 Installation

EN

3.4 Scope of supply

The roof-mounted fan is supplied in a packaging unit in a fully assembled state and ready to connect.

- Please check the scope of supply for completeness.

Qty.	Description
1	Roof-mounted fan
1	Assembly and operating instructions
4	Standard filter mats (pre-installed)
1	EC declaration of conformity
1	Connector

Tab. 2: Scope of supply

4 Installation

4.1 Choosing the installation site

- When choosing the installation site for the enclosure, please observe the following:
 - The site for the enclosure, and hence the position of the roof-mounted fan, must be carefully selected so as to ensure good ventilation.
 - The site must be free from excessive dirt and moisture.
 - Roof-mounted fans must always be installed on horizontal panels (roof).
 - The ambient temperature must be lower than the admissible enclosure interior temperature.
 - The mains connection data as stated on the rating plate of the unit must be guaranteed.

4.2 Notes on installation

4.2.1 General

- Check the packaging carefully for signs of damage. Any packaging damage may be the cause of a subsequent functional failure.



Note:

The inlet filter must ensure an adequate air exchange.

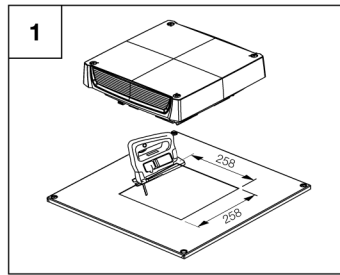
- The enclosure must be sealed on all sides (IP 54). If the enclosure has a leak, unfiltered, contaminated air may enter the enclosure.
- The fan motor is a rotating component that may transfer vibrations and oscillations.
- Appropriate measures to decouple vibration must be taken in advance by the company responsible for the overall plant or system.
- During transportation, the roof-mounted fan must be secured in accordance with section 4.3 "Installing the roof-mounted fan" (installation for protection category IP 55) to prevent damage.

4.2.2 Layout of the electronic components in the enclosure

- Take note of the air flows from the internal fans of installed electronic components.
- When installing the roof-mounted fan, it is important to ensure that the airflows of fans and built-in electronic components do not adversely influence one another (air short-circuit).
- The corresponding minimum distances between the fan and component must be observed in order to ensure unhindered air circulation.

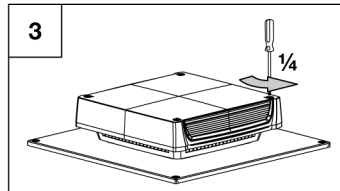
4.3 Installing the roof-mounted fan

Installation/maintenance



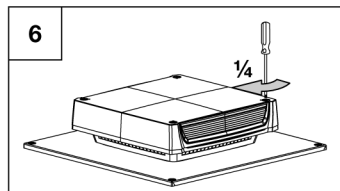
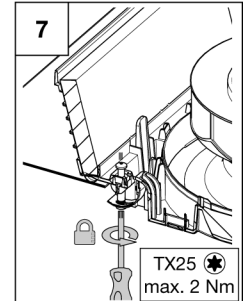
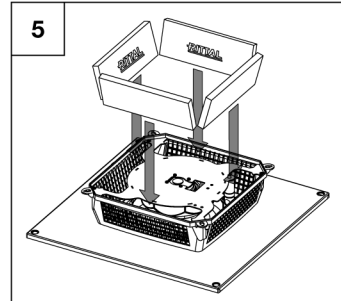
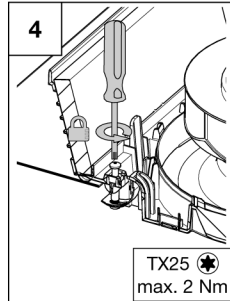
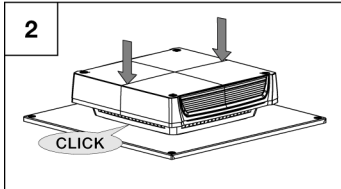
Installation from outside

Installation from inside



Installation

Filter change

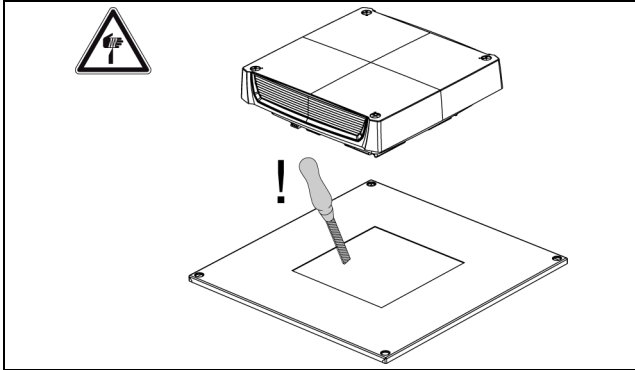


5 Performing the electrical installation

Step 1



Note:
The position of the roof-mounted fan in the mounting cut-out is freely selectable. It should be based on the position of the electrical connection inside the enclosure.



Step 2



Note:
No filter mats are needed in order to achieve protection category IP 20.



Note:
Check that the clips are completely snapped into place to ensure that the roof-mounted fan is securely held in the mounting cut-out.

Step 4



Note:
The filter mats may be removed to achieve a higher air throughput. In this case, the protection category will be reduced to IP 22 and UL Type 1.

Step 5



Note:
Use only original Rittal filters which bear the Rittal logo to be sure of the protection category, air throughput and approvals.



Note:
You should inspect the filter regularly depending on the amount of dust. Recommended: Replace after 2,000 operating hours at the latest, and as and when necessary.



Note:
The side with the Rittal logo must be pointing towards the fan.

Step 6



Note:
The orientation of the cover on the base tray is freely selectable.

5 Performing the electrical installation

5.1 Electrical connection

5.1.1 Notes on electrical installation

When performing the electrical installation, it is important to observe all valid national and regional regulations as well as the provisions of the responsible electrical supply company.

The electrical installation must only be carried out by a qualified electrician who is responsible for compliance with the existing standards and regulations.

5.1.2 Connection data

- The connected voltage and frequency must correspond to the values stated on the rating plate.
- The electrical installation and any repairs may only be carried out by authorised specialist personnel.

■ Use only original spare parts!

■ Install the pre-fuse cited in the Technical Specifications (circuit-breaker or slow fuse) to protect from short-circuits.

- If several fans are operated on a single pre-fuse, observe the total connected load.
- The roof-mounted fan must be connected to the mains via an all-pole disconnecting device to overvoltage category III (IEC 61058-1).

5.1.3 Overvoltage protection and supply line load

- The unit does not have its own overvoltage protection. Measures must be taken at the supply end by the switchgear manufacturer or operator to ensure effective protection against lightning and overvoltage. The limits specified in standard UL/IEC/EN 60335-2-40 must be observed.

- The units are classified as overvoltage category III. The mains voltage must not exceed a tolerance of $\pm 10\%$.


5.1.4 PE conductor connection

The PE conductor must be connected to the PE conductor system of the overall system.

5.1.5 Installing the power supply

■ Remove the mains connector from the packaging and connect to the mains as shown in the connection diagram.

5 Performing the electrical installation

Connection	Pin	Function/assignment
L		Power supply
N		Neutral conductor
PE 		PE conductor
+10 V	1	Voltage output 10 V max. 1.1 A, galvanically isolated, not short circuit-protected
0...10 V/PWM	2	Control input 0...10 V or PWM, galvanically isolated, impedance 100 kΩ
GND	3	GND connection of the control interface
Speed	4	Speed output Open Collector, 1 pulse per revolution, galvanically isolated

Tab. 3: Connection designations

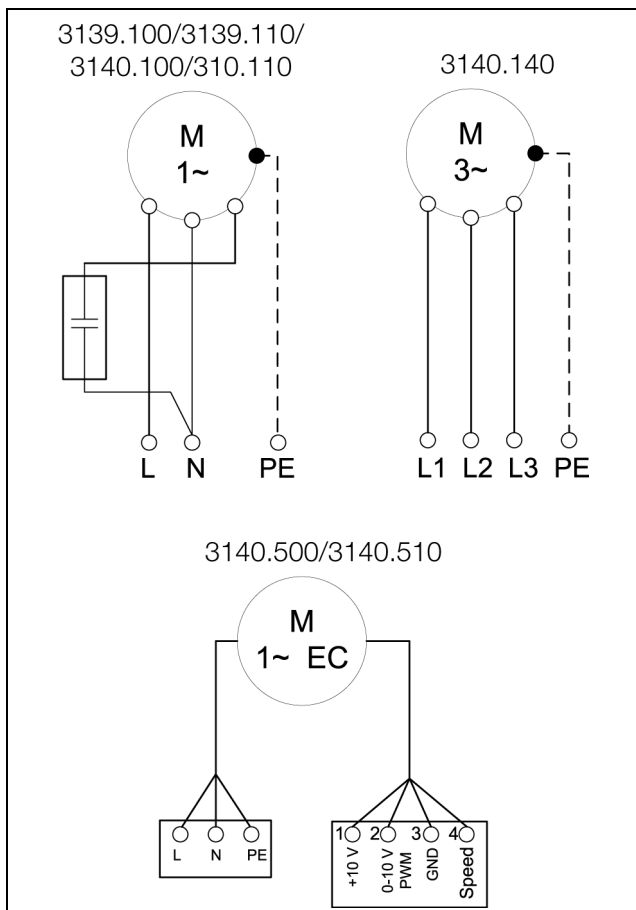


Fig. 2: Connection diagrams

- Select the conductor cross-section according to the pre-fuse (0.5–4 mm² single-wire, 0.5–2.5 mm² fine-wire).
A smaller pilot wire may be selected (min. 0.34 mm²).



Note:

In accordance with NFPA 70 (NEC), only copper conductors must be used to connect the supply cable to the mains connector.

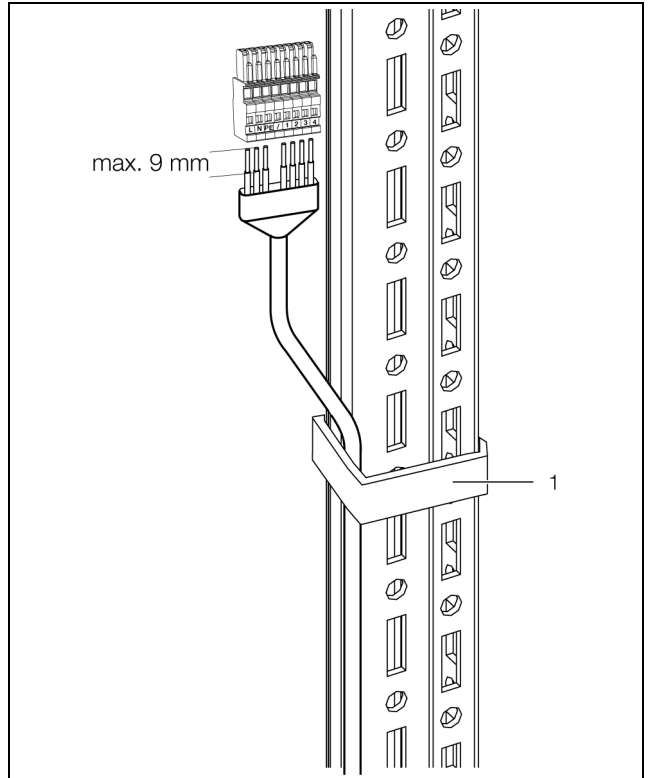


Fig. 3: Connector and strain relief

Key

- 1 Strain relief

- Connect the connector to the roof-mounted fan from below.

5.2 Installing the pilot wire

To control the EC roof-mounted fans via an external control unit (e.g. 3235.440), types 3140.5xx have additional connections for the pilot wire.

- Release and remove the jumper between the "+10 V" and "0 – 10 V/PWM" (terminals 1 and 2) connections.
- Use a screwdriver with a 3.5 x 0.5 mm blade.
- Open the terminal with the screwdriver and insert the connection cable as shown in the connection diagram.
- Remove the screwdriver.



Note:

To operate without a pilot wire, the jumper should be left in the connection terminal. The unit will then be operated at maximum speed.

6 Commissioning

EN

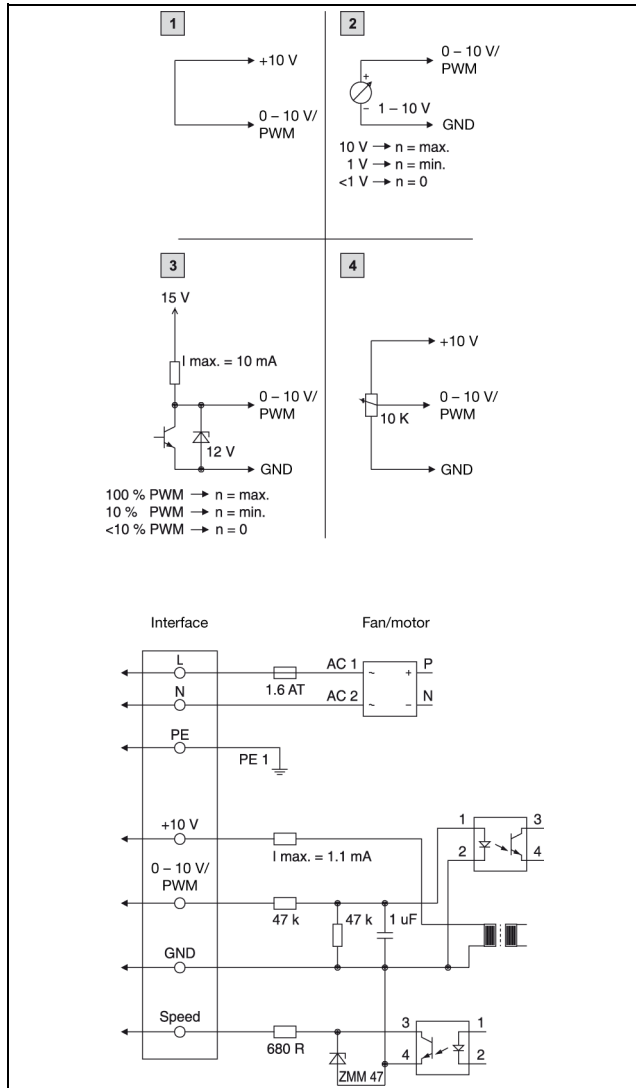


Fig. 4: Pilot wire

Key

- 1 Max. speed (as delivered, with jumper between the "+10 V" and "0 – 10 V/PWM" connections).
- 2 Adjustable speed
- 3 Adjustable speed via PWM 1 – 10 kHz
- 4 Adjustable speed via potentiometer

6 Commissioning

Once all the assembly and installation work is complete, switch on the power supply to the roof-mounted fan.

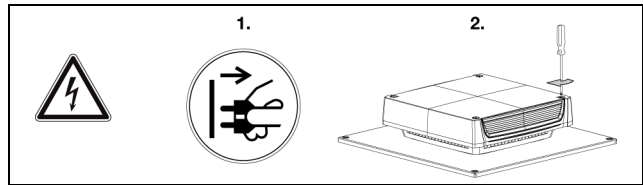
The roof-mounted fan operates automatically, in other words, the fan will start up once the power has been switched on.



Note:

EC roof-mounted fans start running with a delay of approx. 15 sec.

7 Inspection and maintenance



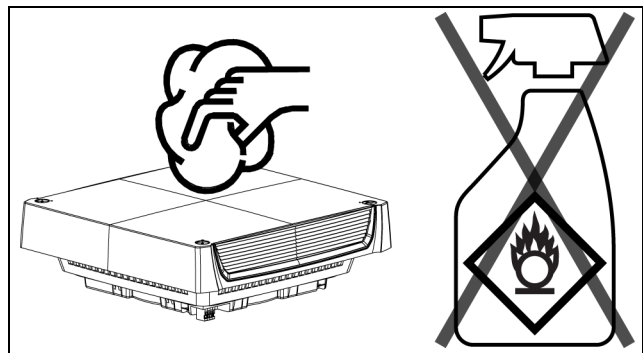
The installed maintenance-free fan is mounted on ball bearings, protected against moisture and dust, and fitted with a temperature monitor.

The life expectancy is at least 50,000 operating hours (L10, 40°C).

The roof-mounted fan is therefore largely maintenance-free.

From time to time, the components may need to be cleaned using a vacuum cleaner or compressed air if they become visibly dirty.

Any stubborn, oily stains may be removed using a non-flammable detergent, such as degreaser.



Sequence of maintenance work

- Check the level of dirt: If necessary, vacuum the fan housing, or clean with compressed air.
- Filter soiling: Replace the filter.
- Check the noise generation of the fan.

8 Storage and disposal



Note:

The roof-mounted fan must not be exposed to temperatures above +70°C or below -30°C whilst in storage.

Facilities for disposal are available at the Rittal plant. Please contact us for advice.

9 Technical specifications

	Unit	3138.000	3139.100	3139.110	3140.100	3140.110	3140.140	3140.500	3140.510	
Electrical specifications										
Rated operating voltage	V Hz	Without fan motor	220...240, 1~, 50/60	115, 1~, 60	220...240, 1~, 50/60	115, 1~, 60	380...415, 3~, 50/60 400...480, 3~, 60	220...240, 1~, 50/60	115, 1~, 60	
Rated current max.	A	–	0,23/0,27	0,56	0,43/0,56	1,2	0,17/0,2	1	1,51	
Power consumption	W	–	51/62	65	99/130	138	90/122 98/130	129	112	
Pre-fuse	A	–	3	3	3	3	–	3	3	
Motor circuit-breaker		–	–	–	–	–	0,2...0,4	–	–	
Rated insulation voltage (U _i)	V	–	300							
Rated impulse withstand voltage (U _{imp})	kV	–	4					2		
Control interface		–	–	–	–	–	–	■	■	
Dimensions										
Width (B1) x depth (T1)	mm	400 x 400								
Required mounting cut-out (B2 x T2)	mm	258 x 258 ±2								
Height (H1)	mm	133								
Maximum installation height (H2)	mm	27.5	34.6							
Air throughput (for performance diagrams, see Rittal homepage)										
Air throughput, unimpeded air flow (without filter mats)	m ³ /h	–	500/525	500/525	873/965	873/965	863/942	1069	1069	
Air throughput, unimpeded air flow (with filter mats)	m ³ /h	–	417/446	446	725/759	759	700/749	841	841	
Air throughput (with filter mats and inlet filter)										
1 x 3243.200	m ³ /h	–	370/391	391	590/610	610	580/610	690	690	
2 x 3243.200	m ³ /h	–	400/428	428	680/700	700	650/695	785	785	
Fan		–	Radial / capacitor motor				Radial / rotary current motor	Radial / EC motor		
Electromagnetic compatibility										
Immunity to interference		–	For industrial areas to EN 61000-6-2							
Emitted interference		–	For residential, business and commercial areas and small companies to EN 61000-6-3							
Other										
Noise level (with filter mats)	dB (A)	–	52/54	54	58/60	60	56/58	60	60	
Noise level (without filter mats)	dB (A)	–	54/56	56	60/62	62	60/61	63	63	

Tab. 4: Technical specifications for roof-mounted fans

9 Technical specifications

EN

	Unit	3138.000	3139.100	3139.110	3140.100	3140.110	3140.140	3140.500	3140.510
Operating temperature range	°C	-20...+55							
Storage temperature range	°C	-40...+70							
Protection category (to IEC 60 529)		IP 21 (without filter mat and installation in accordance with section 4.3 "Installing the roof-mounted fan" – Installation for protection category IP 21) IP 21 (without filter mat and installation in accordance with section 4.3 "Installing the roof-mounted fan" – Installation for protection category IP 55) IP 55 (without filter mat and installation in accordance with section 4.3 "Installing the roof-mounted fan" – Installation for protection category IP 55)							
Accessories	Packs of								
Spare filter mats (filter class G3)	12 pc(s).	3174.100							
Enclosure internal thermostat	1 pc(s).	–	3110.000						
Digital enclosure internal temperature display and thermostat	1 pc(s).	–	3114.200						
Hygostat	1 pc(s).	–	3118.000						
Speed control	1 pc(s).	–	3120.200				–		
Sensor for speed control	1 pc(s).	–	–	–	–	–	–	3235.450	
Control unit for speed control	1 pc(s).	–	–	–	–	–	–	3235.440	
Outlet filter	1 pc(s).	3243.200							

Tab. 4: Technical specifications for roof-mounted fans

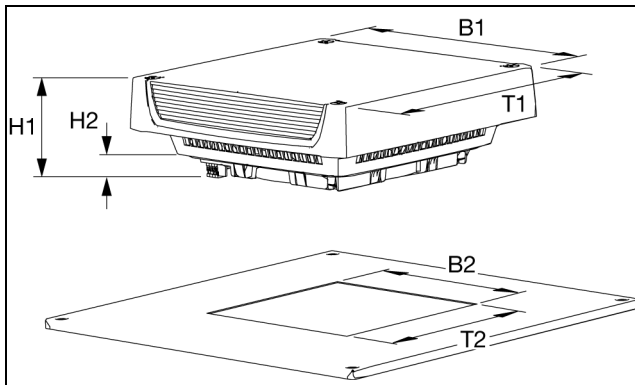


Fig. 5: Dimensions

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