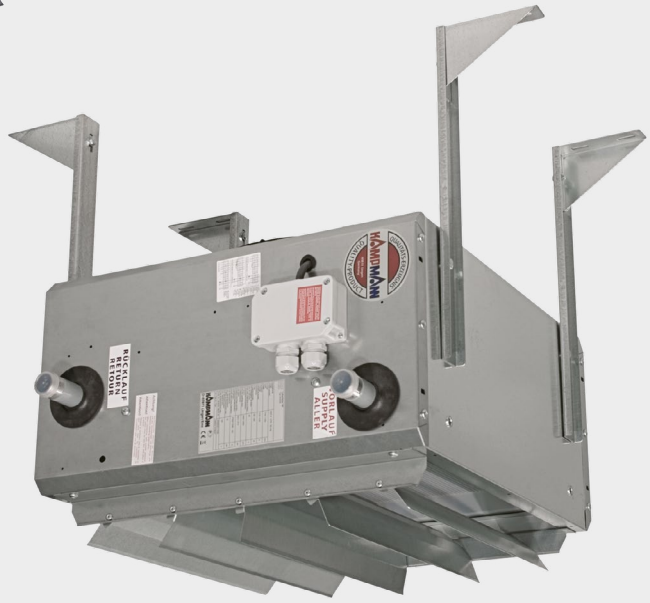


# TIP Unit Heaters

**Unit heater with 2-stage, three-phase motor**
**Unit heater with 1-stage single-phase motor**

## ▸ Assembly and installation instructions

Keep these instructions in a safe place for future use!

Kampmann.de/installation_manuals

I369 11/17 EN | SAP-Nr. 1070634

KAMPMANN
Genau mein Klima.

# 1.57 TIP unit heaters

**Unit heaters with 2-stage three-phase motor / Unit heaters with 1-stage single-phase motor**

**Installation and operating instructions**

## Contents



KAMPMANN
Genau mein Klima.

KAMPMANN
Genau mein Klima.

# 1.57 TIP unit heaters

**Unit heaters with 2-stage three-phase motor / Unit heaters with 1-stage single-phase motor**

**Installation and operating instructions**

## 1. General

### 1.1 About these instructions

These instructions ensure the safe and efficient handling of this equipment. These instructions form an integral part of the unit and must be kept in the direct vicinity of the unit and available to personnel at all times. All personnel must have carefully read through these instructions prior to commencing all work on the equipment. A fundamental prerequisite for safe working is compliance with all the stated safety instructions and other instructions contained in this manual.

In addition, all local occupational health and safety at work regulations apply, as do general safety provisions governing the use of the equipment.

Illustrations in these instructions are intended to provide a basic understanding and may differ from the actual model.

Anyone involved with the installation, commissioning and use of this product is obliged to pass these instructions on to tradespeople who are involved at the same time or subsequently, as well as to end users or operators. Retain these instructions until final decommissioning!

### 1.2 Explanation of symbols

**Important notes**

**DANGER!**
This combination of symbol and signal word indicates an immediately dangerous situation, which will cause death or injuries if not avoided.

**Risk from electrocution!**
Danger from hazardous electrical voltage!
Death or severe injury can occur if appropriate precautionary measures are not taken!

KAMPMANN
Genau mein Klima.

**IMPORTANT NOTE!**
This combination of symbol and signal word indicates a possible dangerous situation, which can cause material and environmental damage if not avoided.

This symbol highlights useful hints, recommendations and information for efficient and trouble-free operation.

## 1.3 Copyright protection



## 1.4 Customer Service

Our Customer Service team is available for technical information:

| | |
|---|---|
| Address | Kampmann GmbH<br>Friedrich-Ebert-Str. 128–130<br>49811 Lingen (Ems) |
| Phone | +49 591 7108 670 |
| Fax | +49 591 7108 360 |
| Email | service@kampmann.de |
| Website | www.kampmann.de |

We are always interested in receiving information and experiences relating to the use of our products which could be of value for improving our products.

## 2. Safety

This section provides an overview of all important safety aspects to ensure optimum protection of personnel as well as safe and trouble-free operation. Additional order-related safety information is contained in the sections covering the individual phases of the product's life.

### 2.1 Intended use

**Applications**

Kampmann TIP unit heaters are constructed in line with the state of the art and recognised safety regulations. Nevertheless, their use can result in danger to people or damage to the units or other material property if they are not appropriately installed and operated or correctly and properly used.

**TIP should only be used**

- indoors (e.g. in manufacturing plants, warehouses, industrial and commercial workshops, sports halls, showrooms and greenhouses etc.)
- when connected to a hot water supply

**TIP should not be used**

- outdoors,
- in humid areas, such as swimming pools, in wet rooms,
- in areas where there is a risk of explosion,
- in areas with a high dust content,
- in areas with an aggressive atmosphere.

Protect the products from any moisture during storage and installation. If in doubt, check the proposed use with the manufacturer. Any use other than the use specified above is deemed not to be correct and proper. The operator of the unit is solely responsible for any damage arising as a result of information contained in this

manual.

**Specialist knowledge**

The installation of this product requires specialist knowledge of heating, cooling, ventilation and electrical engineering. This knowledge, generally learned in vocational training in one of the fields mentioned above, is not described separately. Damage caused by improper installation is the responsibility of the operator.

The installer of these units should have adequate knowledge of the following gained from specialist vocational training:

- safety and accident prevention regulations
- guidelines and recognised technical regulations, i.e. Association of German Electricians (VDE) regulations, DIN and EN standards.

**Purpose and scope of these instructions**
This manual contains information on the installation of the TIP for operation. The information contained in this manual can be altered without prior notification.

## 2.2 Limits of operation and use

We would refer to VDI-2035 Sheets 1 & 2, DIN EN 14336 and DIN EN 14868 with regard to the properties of the medium used to protect the equipment. The following values provide further guidance.

| Limits of operation | | |
|---|---|---|
| Min. water temperature | °C | 5–120 |
| Min./max. air intake temperature | °C | -20 to +40 |
| Min./max. air humidity | % | 15–75 |
| Max. operating pressure | bar | 16 |
| Min./max. glycol percentage | % | 25-50 |

The water used should be free of contamination, such as suspended substances and reactive substances.

| Water quality | | |
|---|---|---|
| pH value*1 | | 8-9 |
| Conductivity*1 | µS/cm | < 700 |
| Oxygen content ($O_2$) | mg/l | < 0.1 |
| Hardness | °dH | 4-8.5 |
| Sulphur ions (S) | | not measurable |
| Sodium ions ($Na^+$) | mg/l | < 100 |
| Iron ions ($Fe^{2+}$,$Fe^{3+}$) | mg/l | < 0.1 |
| Manganese ions ($Mn^{2+}$) | mg/l | <0.05 |
| Ammonia ions ($NH^{4+}$) | mg/l | < 0.1 |
| Chlorine ions (Cl) | mg/l | < 100 |
| $CO_2$ | ppm | < 50 |
| Sulphate ions ($SO_4^{2-}$) | mg/l | < 50 |
| Nitrite ions ($NO_2^-$) | mg/l | < 50 |
| Nitrate ions ($NO_3^-$) | mg/l | < 50 |

**Important:**

**Note the maximum flow temperature to protect the fan!**
Long periods of fan idleness with high water temperatures can lead to impermissible heating of the fan motor. The flow temperatures should therefore be limited depending on the use and motor configuration.

Should a temperature limit not be possible or not be sensible for the intended use, there is also an option of using appropriate valves (thermoelectric, motorised or solenoid) to shut off the heating medium.

This can interrupt the flow of medium before the fan is switched off and the heat exchanger cools down. Appropriate fan controllers with a fan run-on relay and connection terminals for the motorised valve are available on request.

**Max. flow temperatures**

| | Type of installation | |
|---|---|---|
| Use | Ceiling | Wall |
| Without shut-off valve | 100 °C | 120 °C |
| With shut-off valve | 120 °C | 120 °C |

## 2.3 Safety information

Installation, assembly and maintenance work on electrical units may only be performed by a qualified electrician (in compliance with VDE regulations). The connection should comply with the VDE regulations and provisions laid down by the regional electricity providers.

Non-compliance with the regulations and operating instructions can result in the units malfunctioning with consequential damage and danger to people. There is a danger of fatal injury caused by wires being crossed due to incorrect wiring!

Regularly check the unit heater's electrical equipment. Immediately replace loose connections and faulty cables.

Disconnect all parts of the system from the mains power supply and prevent them from being reconnected before starting any connection and maintenance work!

Please read these instructions in full to ensure correct and proper installation and the correct operation of TIP unit heaters.

**Please note the following safety-relevant information**

- Disconnect all parts of the system that are being worked on. Ensure that the system cannot be accidentally re-connected!
- Before commencing installation/maintenance work, wait until the fan has come to a standstill after the unit has been switched off. After working on the unit, remove any tools, the short circuit detector or any other objects from the unit.
- Caution! Pipes, casings and fittings can become very hot or very cold depending on the operating mode!
- Caution! Wear gloves, safety shoes and suitable protective clothing when transporting the unit! Sharp edges cannot be ruled out despite care during manufacture.
- The operator of the unit is responsible for the EMC conformity of the entire system in accordance with the local applicable standards.

**Modifications to the unit**

Do not undertake any modifications or upgrades to the TIP without discussing them with the manufacturer as they can impair the safety and operation of the unit.

**Do not carry out any measures on the unit not described in this manual. Make sure that on-site systems and cabling are suitable for connection to the intended system!**

## 3. Transport and storage

- Please note all applicable safety and accident prevention regulations.
- Attention! Risk of sharp edges! Wear gloves, safety shoes and suitable protective clothing during transportation!
- Caution! Do not carry the TIP by the louvre slats! Use suitable means of transport to avoid any damage to your health!
- Please note the transport information printed on the packaging.

**Interim storage**

Store the units in dry, dust-free and weather-proof rooms without any temperature fluctuations.

- Never stack the units on top of each other to prevent damage to them!
- Use the original packaging for storage.
- Store TIP unit heaters in the position shown on the packaging.

## 4. Scope of delivery

Provide materials for fixing the units heaters, e.g. screws, plugs etc., on site, depending on the type of mounting and support structure.

**Check immediately on receipt:**

- Is the delivery damaged?
- Have the items ordered been delivered? Check model numbers.
- Is the delivery and number of items delivered correct?

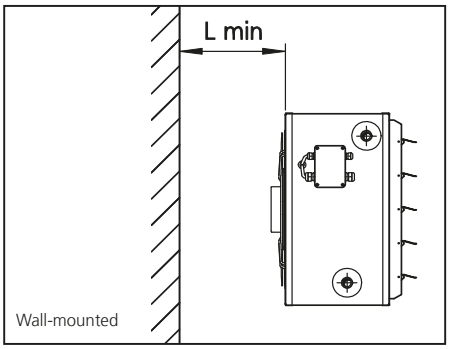
## 5. Technical data

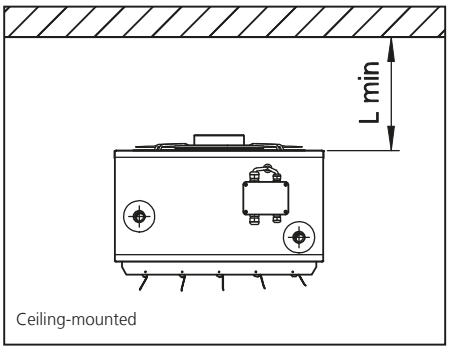
| Technical data | | | | |
|---|---|---|---|---|
| **Series** | **54** | **55** | **56** | **57** |
| Enclosure type | IP 54 | IP 54 | IP 54 | IP 54 |
| Water content l | 1.6 - 2.6 | 2.2 - 3.8 | 3.4 - 5.6 | 4.8 - 7.6 |
| Weight kg | 27 - 29 | 36 - 38 | 47 - 51 | 64 - 68 |
| Sound pressure level[1] dB(A) | | | | |
| Switching stage 1<br>Switching stage 2 | 49<br>55 | 51<br>59 | 51<br>58 | 57<br>61 |

[1] The sound pressure levels were calculated with an assumed room insulation of 16 dB(A).
This corresponds to a clearance of 5 m, a room volume of 3000 $m^3$ and a reverberation time of 2.0 s (in accordance with VDI 2081).

Please refer to the typeplate on the unit heater for precise technical data.
The unit conforms to the provisions of: 89/392 EEC, 73/23 EEC; 89/336 EEC; 79/196 EEC.

## 6. Installation




### Qualifications

Installation of this product requires specialised knowledge of heating, cooling and ventilation. This knowledge, generally learned in vocational training in one of the fields mentioned above, is not described separately. Damage caused by improper installation is the responsibility of the operator.

Wall brackets can be used to mount unit heaters upright or suspended on the wall and ceiling brackets to suspend them from the ceiling. Unit heaters can also be mounted on wall or ceiling brackets provided on site. Maintain a minimum clearance L between the unit intake and the wall or ceiling when installing unit heaters.

If you do not leave this minimum clearance, the output of the unit heaters will be reduced and the noise level will increase. When using accessory components, ensure that you maintain the minimum clearance and leave sufficient space around elements that require access for maintenance (e.g. filters).

| Type overview | | | |
|---|---|---|---|
| **Unit size** | **Type** | **Minimum clearance $L_{min}$** | **Standard clearance L*** |
| 4 | 54 _ _ 36 / 54 _ _ 31 | 160 mm | 285 mm |
| 5 | 55 _ _ 36 / 55 _ _ 31 | 180 mm | 285 mm |
| 6 | 56 _ _ 36 / 56 _ _ 31 | 230 mm | 335 mm |
| 7 | 57 _ _ 36 / 57 _ _ 31 | 300 mm | 345 mm |

* when using wall brackets type 3_044

KAMPMANN
Genau mein Klima.

## 7. Hydraulic connections

- Connect the TIP as per the labels on the product.
- Route the pipes so that no mechanical stresses are transferred to the heat exchanger and the unit can be accessed with ease for maintenance and repair work.
- Provide ventilation and drainage for the pipes on site.
- Properly seal pipe connections not in use.
- **Important note:**

  The LPHW heat exchanger is suitable for use with hot water heating systems in compliance with DIN 18380. Ensure that operating conditions and water quality conform to VDI 2035 and comply with industry-standard installation regulations.

**Caution!** Hold the connections on the heat exchanger with a pipe wrench or other suitable tool when connecting the pipework.

# 8. Electrical wiring

## 8.1 Safety information

The electrical wiring of this product requires technical knowledge of electrical engineering. This knowledge, generally learned in vocational training in one of the fields stated, is not described separately here. Errors with the wiring can lead to the unit being damaged! The manufacturer is not liable for any damage to people and materials caused by the wrong wiring and/or improper handling. Note the following safety information before starting to work on the controller and on the TIP unit heater:

- Regularly check the unit heater's electrical equipment. Immediately replace loose connections and faulty cables.
- Disconnect the system and ensure that it cannot be accidentally reconnected.
- Only use the wiring diagrams enclosed to carry out the electrical connection.
- Only wire the unit in accordance with currently applicable VDE and EN guidelines, as well as Technical Wiring Regulations stipulated by the regional energy supply companies.
- Only connect the unit to fixed wiring.
- The operator of the unit is responsible for the EMC conformity of the entire system in accordance with the local applicable standards.

Please read these instructions in full to ensure correct and proper installation and the correct operation of TIP unit heaters.

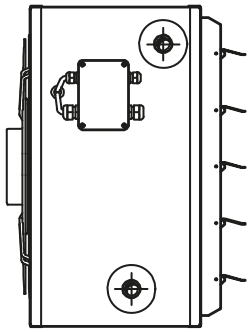
## 8.2 Motor protection

Thermal contacts (temperature monitors) are embedded in the motor windings, which open when the maximum winding temperature of 155 °C is exceeded. The motor is switched off whenever it inadmissibly heats up combined with an appropriate protective switch. The motor is thus protected against overload, over- and undervoltage, unacceptably high ambient temperature and the rotor jamming.

Thermal contacts meet the conditions for protecting against overloading of equipment with electric motor drive (VDE 0730). Commercial motor protection switches or bi-metal trips are not suitable as motor protection with multi-stage operated motors. Only appropriately wired controllers or modules or a similar type of switch may be used.

The thermal contacts lock the motor via the single-phase controller each time the motor heats up inadmissibly.

## 8.3 Electrical wiring



TIP with motor junction box

Damage can be caused by the use of incompatible switching devices and inadequate protective equipment. The manufacturer does not accept any warranty in these cases.

Only connect up units that have a circuit breaker that switches off all poles from the mains power supply with a minimum contact gap of 3 mm!

## 8.4 Three-phase motor

The three-phase external rotor motor can be switched between two stages using a 2-stage three-phase switch (Y/Δ configuration).

The motor in each of the two switching configurations (Y or Δ) can be switched between 5 stages by voltage reduction using a 5-stage three-phase controller.

| | |
|---|---|
| Switching stage 1 | Y-connection |
| Switching stage 2 | Delta connection |

The fans are operated with a clockwise rotating field!

**Caution!** Operation of this unit on frequency converters is only permitted if the frequency converter has a sinus filter effective on all poles. Missing sinus filters can lead to severe thermal damage to the fan motor. In this case, the manufacturer accepts no warranty.

**Three-phase parallel connection**

- Several TIP units, even of different sizes, can be connected in parallel to a stage switch if the switching power of the stage switch is not exceeded.
- The thermal contacts of all TIP unit heaters must be switched in series.
- If several TIP unit heaters are connected to a single-phase controller, we recommend the use of intermediate terminal boxes.

| Max. number of connectible TIP unit heaters | | | | | | |
|---|---|---|---|---|---|---|
| **Description** | **Type** | **$I_{max.}$** | **54 _ _ 36** | **55 _ _ 36** | **56 _ _ 36** | **57 _ _ 36** |
| 2-stage, three-phase controller with room thermostat connection | 30049 | 10 A | 25 | 11 | 7 | 5 |
| 5-stage three-phase controller 2 A | 30751 | 2 A | 6 | 3 | 1 | 1 |
| 5-stage three-phase controller 4 A | 30752 | 4 A | 12 | 6 | 3 | 3 |
| 5-stage three-phase controller 8 A | 30754 | 8 A | 25 | 11 | 6 | 5 |
| Electronic 2-stage three-phase controller | 30177 | 10 A | 25 | 11 | 7 | 5 |
| | 30277 | | | | | |

### Suitable three-phase switching units

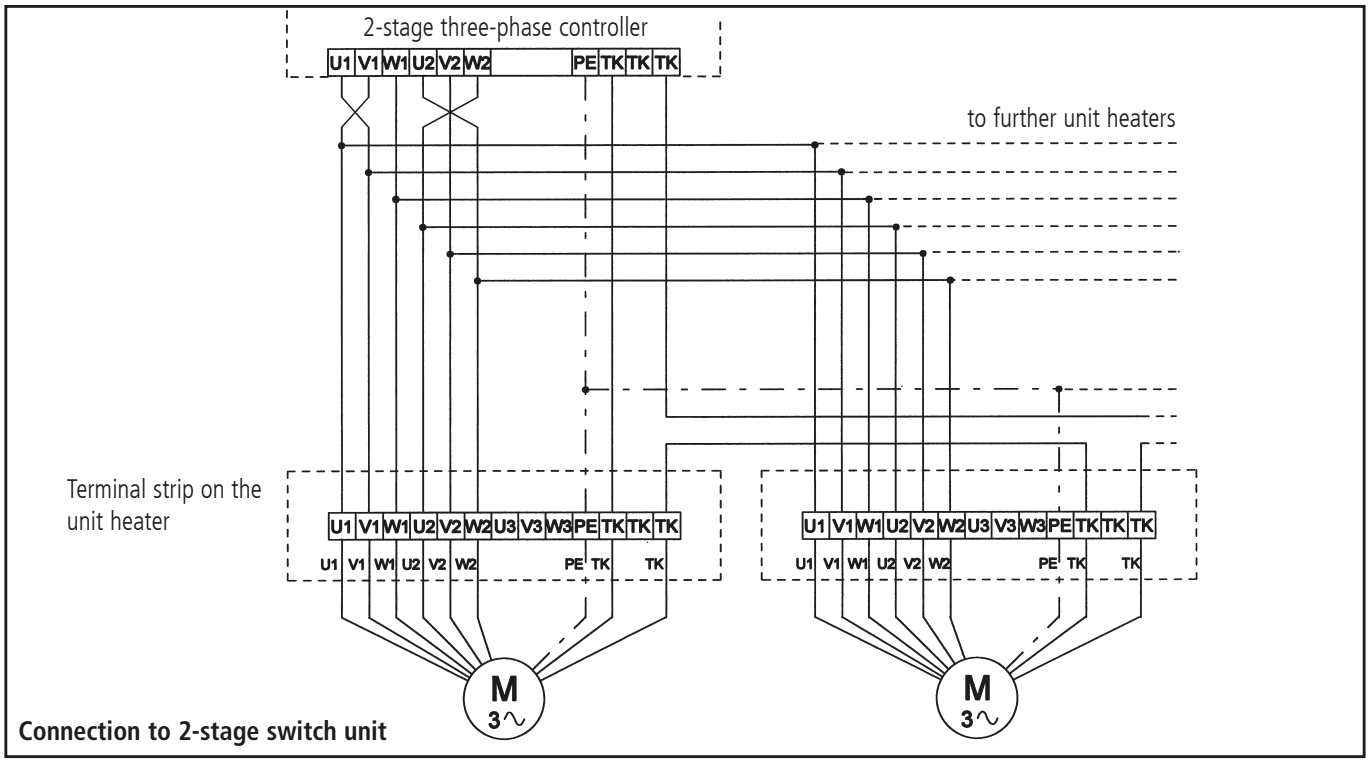
Different switches from our range are available to switch and control the speed of the motors. The above table provides an overview of the switches used, their switching power and the resulting max. number of TIP unit heaters, which can be connected to a switch unit.

# 1.57 TIP unit heaters

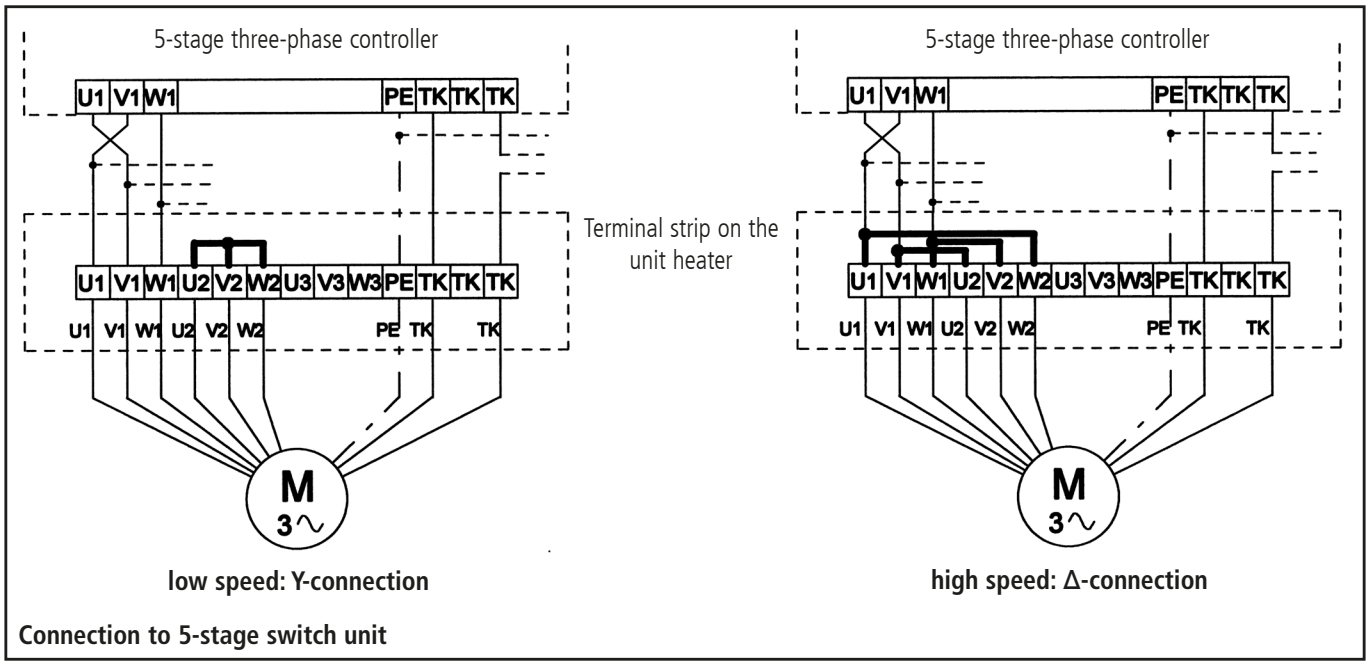
**Unit heaters with 2-stage three-phase motor / Unit heaters with 1-stage single-phase motor**

## Installation and operating instructions

### Three-phase wiring diagrams




**Connection to 2-stage switch unit**



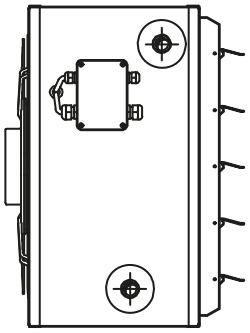

**low speed: Y-connection**

**high speed: Δ-connection**

**Connection to 5-stage switch unit**

KAMPMANN
Genau mein Klima.

## 8.5 Single-phase motor



TIP with motor junction box

The fan motors (230 V/50 Hz) are equipped with a single-phase winding with capacitor auxiliary phase. The speed can be reduced with a 7-stage single-phase controller by reducing the voltage.

**Electrical wiring of a single-phase motor**
The fan motor has a 230 V main winding with capacitor auxiliary winding. The units are factory-wired to the correct direction of rotation (wiring diagram 1).

If there is no air output then it means that the direction of rotation is incorrectly wired!

**Parallel connection of single-phase motors**
The parallel connection of several TIP units, even of different sizes, to a single stage switch is possible up to the maximum switching capacity of the stage switch. If several TIP unit heaters are connected to a single-phase controller, we recommend the use of intermediate terminal boxes.

**Important:** Switch the thermal contacts of all fan motors in series!

**Important:** Switch the motor windings of all fans in parallel!

**Suitable single-phase switching units**
Different switches from our range are available to switch and control the speed of the motors. The table at the top of page 18 provides an overview of the switches used, their switching power and the resulting max. number of TIP units that can be connected to a switch.

### Single-phase wiring diagrams

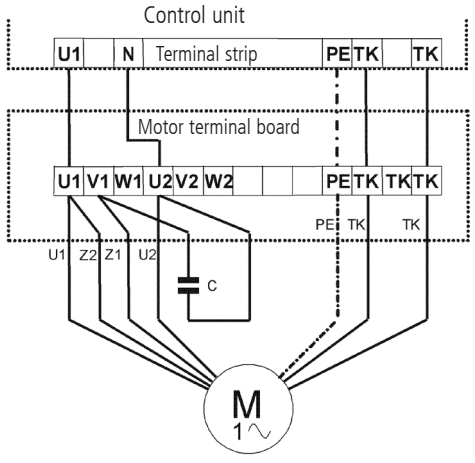
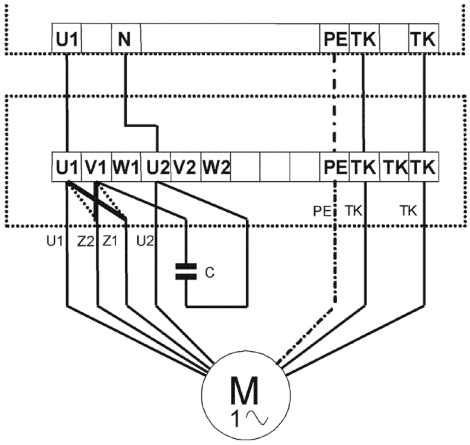



**Diagram 1 Single-phase factory wiring**




Reversal of fan direction by switching the wires of two motor connection wires:

Connection: U1-Z2 ==> U1-Z1
Connection: V1-Z1 ==> V1-Z2

**Wiring diagram 2 single-phase: reversal of fan direction**

| Max. number of connectible TIP single-phase unit heaters per controller | | | | | | |
|---|---|---|---|---|---|---|
| **TIP type series** | **Type** | **$I_{max.}$** | **54 _ _ 31** | **55 _ _ 31** | **56 _ _ 31** | **57 _ _ 31** |
| 7-stage single-phase controller | 30781 | 4 A | 4 | 2 | 2 | 1 |
| 7-stage single-phase controller | 30782 | 7.5 A | 8 | 4 | 3 | 2 |
| Electronic continuously variable single-phase controller | 30540 | 4.5 A | 4 | 2 | 2 | 1 |
| | 30543 | | | | | |

## 9. Commissioning

### 9.1 Pre-commissioning checks

Perform the following checks before commissioning the TIP unit heater:

- Is the TIP properly and securely fixed in place?
- Is the protective conductor connected properly on all units?
- Are the thermal contacts wired correctly (where several TIP unit heaters are connected in series)?
- Are all the lines connected properly as per the wiring diagrams?
- Take into account information on the commissioning of other parts of the system!

### 9.2 Commissioning

Proceed as follows after conducting the above checks:

- Open the valves on the heating system.
- Properly fill the pipes and heat exchanger, if they have been drained after installation.
- Ensure that the entire system is vented.
- Then check that all pipes and valves are leak-tight.
- Start up the TIP by applying voltage to all electrical components.
- Check the direction of rotation and all fan speed stages.

## 9.3 Post-commissioning checks

Perform the following checks after commissioning the TIP unit heaters:

**Are all the fans switched off by the thermal contact?**

To do this, disconnect a wire from terminal TK of the stage switch (Danger: 230 V!). All the fans should switch off immediately. The operating readiness indicator must go out on the stage switch. Reconnect the wire to terminal TK. The fans should not start up again. Reset the stage switch and switch it on again. The fans should restart. Briefly disconnect the connecting wires of all thermal contacts individually to check that all thermal contacts are correctly wired.

**Are the fans in all TIP unit heaters running in the correct direction at all switching stages?**

The direction of rotation is indicated by the arrow. Make sure that the fan is drawing in air. Swap 2 phases on the stage switch if all three-phase fans are rotating in the wrong direction at all fan stages. Swap the auxiliary phase connections (Z1, Z2) if the single-phase motors are rotating in the wrong direction. Check the wiring of the incorrectly rotating fans if individual fans are rotating in the wrong direction.

**Are all the impellers running smoothly or are grinding noises audible?**

Determine the cause as soon as grinding noises become audible. Possible causes are:

- a unit installed in too confined a space
- dirt on site (e.g. pieces of paper) between the impeller and heat exchanger.

## 10. Decommissioning (longer term)

- Switch off all electrical components.

If there is a risk of frost, it is essential that the heat exchanger and pipework are protected from freezing by the use of antifreeze!

## 11. Maintenance and cleaning

### 11.1 Housing

The galvanised unit heater housing is maintenance-free.

Dirt on the housing does not affect the operation of the unit. Cleaning is only necessary for aesthetic reasons.

### 11.2 Heat exchanger

Dusty and oily deposits on the fins of the heat exchanger restrict the air flow and heat transfer. Only a clean heat exchanger will produce its full heat output in the long term. For this reason, regularly check the unit heater heat exchanger for dirt and clean if necessary.

Check the unit heater once a year before the start of the heating season, and in less favourable conditions (high dust content in the air) even monthly.

Carefully blast the Cu/Al heat exchanger with compressed air to remove accumulated dust. Proceed extremely carefully, as the aluminium fins bend very easily (bent fins have to be straightened with an appropriate tool).

### 11.3 Motor

Immediately rectify any defects established on systems/assemblies/equipment. If the defect constitutes an acute danger, then do not operate the unit / system in its defective state.

- Note safety and operating guidelines (EN 50 110, IEC 364) with all repair and maintenance work.

Disconnect the motor from the mains voltage supply and prevent it from being re-connected!

The unit heater's external rotor motor is maintenance-free. The motor's ball bearing runs, sealed on both sides, are greased for life. Deposits on the blades of the fan and the fan guard reduce the air volume. Regularly check the fan, inlet nozzle and fan guard (-> Heat exchanger) and clean if dirty.

- Never use aggressive, paint-dissolving cleaning agents to clean the unit heaters.
- Check the condensation water openings, positioned to fit the installation position, to ensure that water runs off freely.
- No warranty can be offered for corrosion / paint adhesion of unpainted / painted fans in the event of improper cleaning of fans.

Once work has been completed, remove the reconnection safety guard.

## 12 Operational problems

| Fault | Possible cause | Remedy |
|---|---|---|
| Impeller not running concentrically | Rotating parts unbalanced | Clean the unit, replacing the unit if it is still unbalanced after cleaning<br>Please make sure that no balancing clips are removed during cleaning |
| Air flow is not warm in heating mode | Insufficient heating medium | Check heating medium (heating circuit, boiler) and remedy fault |
| | Air in heat exchanger | Vent heat exchanger |
| Fan not moving any or too little air | Air flow is interrupted or disrupted e.g. by dirty filter or dirty heat exchanger | Restore air passage, change filter and/or replace heat exchanger |
| | Wrong direction of rotation | Check the direction of rotation of the fan |
| Fan does not rotate when motor is switched on and standby light on | Setpoint temperature too low | Raise setpoint |
| | Remote switch contact has switched off | Check remote switch contact, insert jumper if necessary |
| Fan does not rotate when motor is switched on and standby light off | No power supply to unit | Check fuses in sub-junction box |
| | No control voltage | Check control fuse in switch unit |
| | Cable connection broken | Check cable connections |
| | Fan thermal contact has been triggered (overheating risk) | Check motor temperature and allow to cool down if necessary. Clarify the cause of overheating (e.g blocked motor, intake temperatures too high, dirty filter);<br>Switch unit off and on again |

## 13. Disposal

Recycle dismantled components if no return or disposal agreement has been concluded:

- Scrap metals.
- Recycle plastics.
- Sort and dispose of other components.

**IMPORTANT NOTE!**

**Environmental hazard from incorrect disposal!**

Incorrect disposal can present a hazard to the environment.

- Electrical scrap, electronic components, lubricants and other auxiliary materials represent hazardous waste and should only be disposed of by authorised specialist companies.
- If in doubt, seek information on environmentally responsible disposal at the local municipal authority or specialist disposal company.

## 14. Declaration of Conformity

**Information requirements for fan coils according to regulation (EU) No 2016/2281**
Informationsanforderungen für Fan Coils gemäß Verordnung (EU) Nr. 2016/2281

| **TIP**<br>**heating only**<br>nur heizen<br>**2-pipe unit**<br>2-Rohrsystem | | | **cooling capacity (sensible)** Kühleistung (sensibel) | | **cooling capacity (latent)** Kühleistung (latent) | | **Heating capacity** Wärmeleistung | | **Total electric power input** Elektrische Gesamtleistungsaufnahme | | **Sound power level (per speed setting, if applicable)** Schallleistungspegel (ggf. je Geschwindigkeits-einstellung) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Version** | **heat exchanger** Wärmetauscher | **Series** Serie | $P_{rated,c}$ | | $P_{rated,c}$ | | $P_{rated,h}$ | | $P_{elec}$ | | $L_{WA}$ | |
| | | | kW | | kW | | kW | | kW | | dB (A) | |
| **AC 230V**<br>**Fan code no. 31**<br>Motorkennziffer 31 | **low, code no. 20**<br>niedrig, Kennziffer 20 | Serie 54 | - | | - | | 5,6 | | 0,170 | | 71 | |
| | | Serie 55 | - | | - | | 8,8 | | 0,300 | | 75 | |
| | | Serie 56 | - | | - | | 13,7 | | 0,360 | | 74 | |
| | | Serie 57 | - | | - | | 21,2 | | 0,740 | | 77 | |
| | **medium, code no. 30**<br>mittel, Kennziffer 30 | Serie 54 | - | | - | | 7,1 | | 0,170 | | 71 | |
| | | Serie 55 | - | | - | | 12,2 | | 0,300 | | 75 | |
| | | Serie 56 | - | | - | | 18,6 | | 0,360 | | 74 | |
| | | Serie 57 | - | | - | | 28,6 | | 0,740 | | 77 | |
| | **high, code no. 40**<br>Hoch, Kennziffer 40 | Serie 54 | - | | - | | 8,0 | | 0,170 | | 71 | |
| | | Serie 55 | - | | - | | 13,7 | | 0,300 | | 75 | |
| | | Serie 56 | - | | - | | 21,3 | | 0,360 | | 74 | |
| | | Serie 57 | - | | - | | 34,3 | | 0,740 | | 77 | |
| **AC 400V**<br>**Fan code no. 36**<br>Motorkennziffer 36 | **low, code no. 20**<br>niedrig, Kennziffer 20 | Serie 54 | - | | - | | 5,6 | | 0,100 | | 71 | |
| | | Serie 55 | - | | - | | 8,8 | | 0,260 | | 75 | |
| | | Serie 56 | - | | - | | 13,7 | | 0,360 | | 74 | |
| | | Serie 57 | - | | - | | 21,2 | | 0,530 | | 77 | |
| | **medium, code no. 30**<br>mittel, Kennziffer 30 | Serie 54 | - | | - | | 7,1 | | 0,100 | | 71 | |
| | | Serie 55 | - | | - | | 12,2 | | 0,260 | | 75 | |
| | | Serie 56 | - | | - | | 18,6 | | 0,360 | | 74 | |
| | | Serie 57 | - | | - | | 28,6 | | 0,530 | | 77 | |
| | **high, code no. 40**<br>Hoch, Kennziffer 40 | Serie 54 | - | | - | | 8,0 | | 0,100 | | 71 | |
| | | Serie 55 | - | | - | | 13,7 | | 0,260 | | 75 | |
| | | Serie 56 | - | | - | | 21,3 | | 0,360 | | 74 | |
| | | Serie 57 | - | | - | | 34,3 | | 0,530 | | 77 | |

| **Standard rating conditions for fan coil units according to regulation (EU) No 2016/2281** | | | | | | |
|---|---|---|---|---|---|---|
| Norm-Prüfbedingungen für Gebläsekonvektoren gemäß Verordnung (EU) Nr. 2016/2281 | | | | | | |
| **Cooling Test /** | **Air temperature** | **27 °C (dry bulb)<br>19 °C (wet bulb)** | **Inlet water temperature** | **7 °C** | **Water temperature rise** | **5 °C** |
| Test Kühlbetrieb | Luft-temperatur | 27 °C (Trockenkugel)<br>19 °C (Feuchtkugel) | Wassertemperatur am Einlass | | Anstieg der Wassertemperatur | |
| **Heating Test** | **Air temperature** | **20 °C (dry bulb)** | **Inlet water temperature** | **45 °C for 2-pipe units<br>65 °C for 4-pipe units** | **Water temperature decrease** | **5 °C for 2-pipe units<br>10 °C for 4-pipe units** |
| Test Heizbetrieb | Luft-temperatur | 20 °C (Trockenkugel) | Wassertemperatur am Einlass | 45 °C für 2-Rohrsysteme<br>65 °C für 4-Rohrsysteme | Sinken der Wassertemperatur | 5 °C für 2-Rohrsysteme<br>10 °C für 4-Rohrsysteme |
| **Sound power test** | **At ambient conditions without water flow** | | | | | |
| Test Schallleistungspegel | Bei Umgebungsbedingungen ohne Wasserdurchsatz | | | | | |

| **Contact Details** | **Kampmann GmbH** |
|---|---|
| Kontaktinformationen | Friedrich-Ebert-Straße 128-130, D-49811 Lingen (Ems), Germany |

KAMPMANN
Genau mein Klima.

KAMPMANN
Genau mein Klima.

# EU-Konformitätserklärung

## EU Declaration of Conformity
## Déclaration de Conformité CE
## Deklaracja zgodności CE
## EU prohlášení o konformite

**Wir (Name des Anbieters, Anschrift):**
We (Supplier's Name, Address):
Nous (Nom du Fournisseur, Adresse):
My (Nazwa Dostawcy, adres):
My (Jméno dodavatele, adresa):

**KAMPMANN GMBH**
**Friedrich-Ebert-Str. 128-130**
**49811 Lingen (Ems)**

**erklären in alleiniger Verantwortung, dass das Produkt:**
declare under sole responsibility, that the product:
déclarons sous notre seule responsabilité, que le produit:
deklarujemy z pełną odpowiedzialnością, że produkt:
deklarujeme, vědomi si své odpovědnosti, že produkt:

| | | |
|---|---|---|
| **Type, Modell, Artikel-Nr.:** | **Lufterhitzer TOP** | **44****, 45****; 46****, 47****** |
| Type, Model, Articles No.: | **Lufterhitzer TIP** | **54****, 55****, 56****, 57****** |
| Type, Modèle, N° d'article: | **Resistent 8000** | **84****, 85****, 86****, 87****** |
| Typ, Model, Nr artykułu: | **Ultra** | **73****, 84****, 85****, 96****, 97****** |
| Typ, Model, Číslo výrobku: | | |

**auf das sich diese Erklärung bezieht, mit der / den folgenden Norm(en) oder normativen Dokumenten übereinstimmt:**
to which this declaration relates is in conformity with the following standard(s) or other normative document(s):
auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou autre(s) document(s) normatif(s):
do którego odnosi się niniejsza deklaracja, jest zgodny z następującymi normami lub innymi dokumentami normatywnymi:
na který se tato deklarace vztahuje, souhlasí s následující(mi) normou/normami nebo s normativními dokumenty:

| | |
|---|---|
| **DIN EN 55014-1; -2** | **Elektromagnetische Verträglichkeit** |
| **DIN EN 61000-3-2; 3-3** | **Elektromagnetische Verträglichkeit** |
| **DIN EN 61000-6-1; 6-2; 6-3** | **Elektromagnetische Verträglichkeit** |
| **DIN EN 60335-1** | **Sicherheit elektr. Geräte f. den Hausgebrauch und ähnliche Zwecke** |
| **DIN EN ISO 12100** | **Sicherheit von Maschinen** |
| **DIN EN ISO 13857** | **Sicherheit von Maschinen** |

KAMPMANN
Genau mein Klima.

| | |
|---|---|
| **DIN EN 60079-0; -7; -14** | **Explosionsfähige Atmosphäre** |
| **DIN EN 13463-5** | **Nicht elektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen** |

**Gemäß den Bestimmungen der Richtlinien:**
Following the provisions of Directive:
Conformément aux dispositions de Directive:
Zgodnie z postanowieniami Dyrektywy:
Odpovídající ustanovení směrnic:

| | |
|---|---|
| **2014/30/EU** | **EMV-Richtlinie** |
| **2014/35/EU** | **Niederspannungsrichtlinie** |
| **2014/34/EU** | **Richtlinie für Geräte in explosionsgefährdeten Bereichen** |
| **EUV 327/2011** | **Umweltgerechte Gestaltung von Ventilatoren** |
| **EUV 1253/2014** | **Umweltgerechte Gestaltung von Lüftungsanlagen *(nur Mischluftgeräte)*** |

**Hendrik Kampmann**

**Lingen (Ems), den 08.09.2016**
**Ort und Datum der Ausstellung**
Place and Date of Issue
Lieu et date d'établissement
Miejsce i data wystawienia
Místo a datum vystavení

**Name und Unterschrift des Befugten**
Name and Signature of authorized person
Nom et signature de la personne autorisée
Nazwisko i podpis osoby upoważnionej
Jméno a podpis oprávněné osoby

**Kampmann.co.uk/tip**

**Kampmann GmbH**
Friedrich-Ebert-Str. 128 - 130
49811 Lingen (Ems)
Germany

**T** +49 591 7108-660
**F** +49 591 7108-173
**E** export@kampmann.de
**W** Kampmann.eu

**Kampmann UK Ltd.**
Dial House, Govett Avenue
Shepperton, Middlesex, TW17 8AG
Great Britain

**T** +44 (0)1932 228592
**F** +44 (0)1932 228949
**E** info@kampmann.co.uk
**W** Kampmann.co.uk

I369 11/17 EN | SAP-Nr. 1070634