Truma VarioHeat

truma

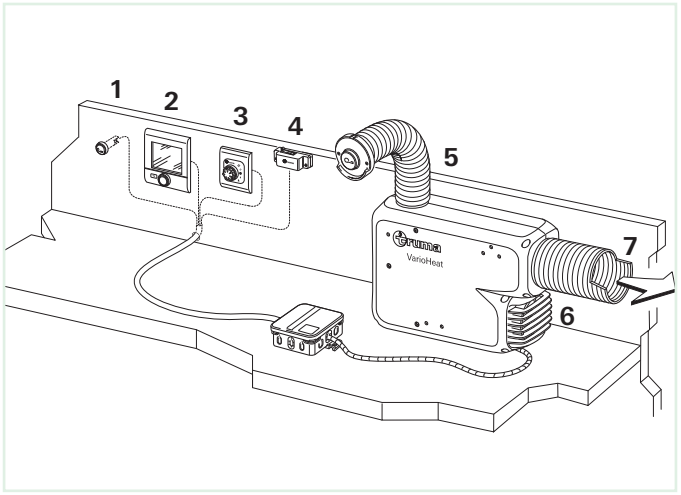


Bild 1

Einbauvarianten / Installation options / Variantes d'installation / Varianti d'installazione / Inbouwvarianten / Indbygningsvarianter / Einbauvarianten

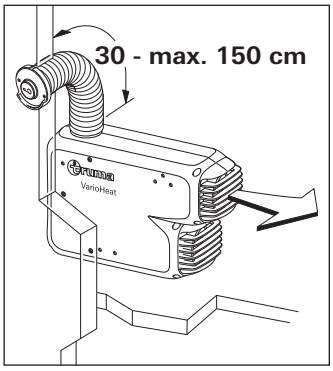


Bild 2 / Fig. 2 / Afbeelding 2

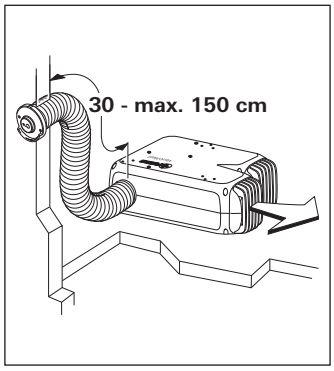


Bild 3 / Fig. 3 / Afbeelding 3

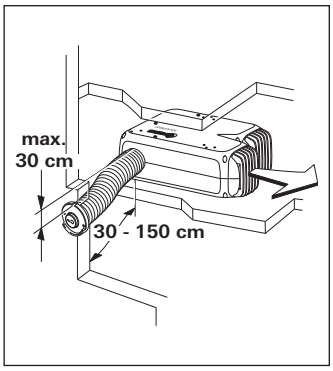


Bild 4 / Fig. 4 / Afbeelding 4

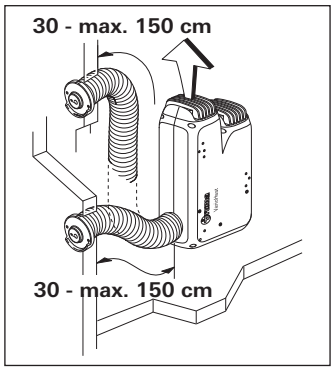


Bild 5 / Fig. 5 / Afbeelding 5

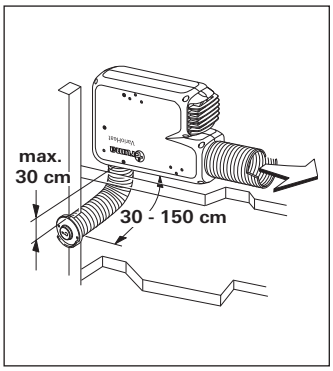


Bild 6 / Fig. 6 / Afbeelding 6

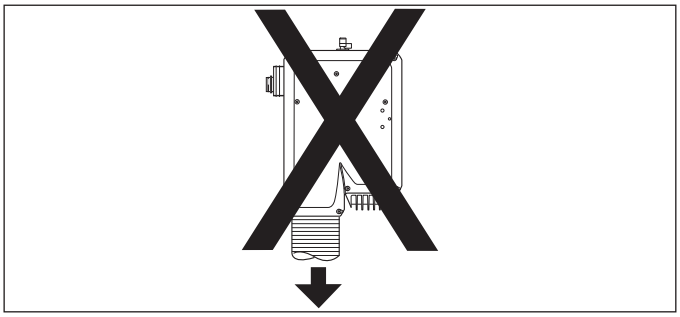


Bild 7 / Fig. 7 / Afbeelding 7

(D)

Einbaubeispiel

1 Raumtemperaturfühler
2 Bedienteil digital
3 Bedienteil analog (optional)
4 Fensterschalter (optional)
5 Abgasführung
6 Umluft
7 Warmluft

(GB)

Installation example

1 Room temperature sensor
2 Control panel, digital
3 Control panel, analogue (optional)
4 Window switch (optional)
5 Exhaust duct
6 Circulated air
7 Warm air

(F)

Exemple de montage

1 Sonde de température ambiante
2 Pièce de commande numérique
3 Pièce de commande analogique (en option)
4 Commutateur de fenêtre (en option)
5 Guidage de gaz brûlés
6 Air de circulation
7 Air chaud

(I)

Esempio d'installazione

1 Sensore temperatura ambiente
2 Unità di comando digitale
3 Unità di comando analogica (opzionale)
4 Interruttore da finestra (opzionale)
5 Scarico fumi
6 Aria di ricircolo
7 Aria calda

(NL)

Inbouwvoorbeeld

1 Binnentemperatuurvoeler
2 Bedieningspaneel digitaal
3 Bedieningspaneel analoog (optioneel)
4 Raamschakelaar (optioneel)
5 Rookgasafvoer
6 Luchtcirculatie
7 Warme lucht

(DK)

Monteringseksempel

1 Rumtemperaturføler
2 Betjeningsdel digital
3 Betjeningsdel analog (option)
4 Vinduesafbryder (option)
5 Forbrændingsgasføring
6 Cirkulationsluft
7 Varmluft

(S)

Monteringsexempel

1 Rumstemperatursensor
2 Manöverenhet (digital)
3 Manöverenhet analog (tillval)
4 Fönsterbrytare (tillval)
5 Avgasledning
6 Cirkulationsluft
7 Varmluft

Table of Contents

Symbols used

The unit must only be installed and repaired by an expert.

Symbol indicates possible hazards.

Note containing information and tips.

Observe the ESD regulations! Electrostatic charging can cause destruction of the electronics. Ensure that potential compensation is present before touching the electronics.

In-vehicle installations must comply with the technical and administrative regulations of the respective country of use (e.g. EN 1648, VDE 0100-721). In other countries, the relevant regulations must be observed. National regulations and rules must be followed.

Disregarding installation instructions or erroneous installation can put people in danger and cause damage to property.

Observe the ESD regulations!

Scope of delivery

Truma VarioHeat
Truma CP classic VarioHeat or
Truma CP plus VarioHeat (Analogue CP or digital CP)
Control panel cable

Installation materials

Operating instructions
Installation instructions

Accessories required
Exhaust system

Optional accessories
Window switch
Warm air parts
On-surface frame
Control panel cable 3 m / 9 m

Intended use

The Truma VarioHeat eco / Truma VarioHeat comfort liquid gas heater was designed for installation in motor homes (vehicle class M1) and caravans (vehicle class O).

The equipment must not be installed in buses (vehicle classes M2 and M3) and in vehicles for transporting hazardous goods.

Approval

Directive UN ECE R 122 stipulates that a safety shut-off device is required if motor homes and caravans are heated while driving. The Truma MonoControl CS gas pressure regulation system satisfies this requirement. Throughout Europe, a type-tested liquid gas heater may be used while driving (according to the directive UN ECE R 122) if the system includes a gas pressure regulation system with an appropriately configured gas installation. National regulations and rules must be followed.

The heater is approved for installation in passenger vehicles (class M1 motor homes) with a maximum of 8 seats excluding the driver's seat, and for trailers (class O caravans).

Regulations

Guarantee claims, warranty claims and acceptance of liability will be ruled out in the event of the following:

– Modifications to the device (including accessories),
– Modifications to the exhaust duct and the cowl,
– Use of replacement and accessory parts other than original Truma parts,
– Failure to follow the installation and operating instructions.

The device's operating permit, and consequently also the vehicle's operating permit in some countries, are also rendered void.

Installation instructions

Vehicles

The operating pressure of the gas supply (30 mbar) and of the heater (see type plate) must be the same.

In Germany, only pressure regulating equipment that complies with DIN EN 16129 (in vehicles) with a fixed output pressure of 30 mbar may be used for the gas system. The flow rate of the pressure regulating equipment must correspond to at least the maximum consumption of all devices installed by the system manufacturer.

If exhaust gas is discharged beneath the floor, it must be ensured that the vehicle floor is sealed. In addition, at least three sides beneath the vehicle floor must be free to ensure that the exhaust gas can escape unhindered (snow, stone guard etc.).

Cowls must be positioned so that no exhaust gases can enter the interior. The exhaust duct must always be routed at least as far as the side wall.

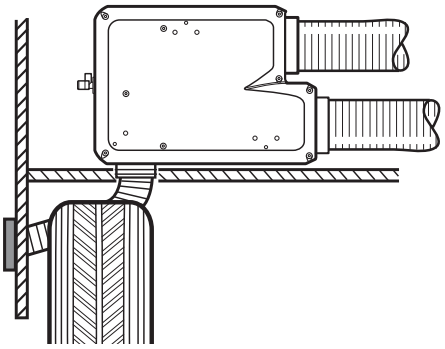


Figure 8

The installation of the device in vehicles must comply with the technical and administrative regulations of the respective country of use (e.g. EN 1949). The national legislation and regulations (e.g. DVGW Work Sheet G 607 for vehicles in Germany) must be observed.

The relevant employer's liability insurance association accident prevention regulations must be observed in Germany for vehicles used for commercial purposes (DGUV regulation 79 – formerly BGV D 34).

In other countries, the relevant regulations must be observed.

More information about the regulations in the relevant destination countries can be requested from our foreign representatives (see www.truma.com).

Water supply

If a water supply is being installed in the vehicle, it must be ensured that sufficient room is left between the water lines and the heat source (e.g. heater, warm air duct).

A water pipe may only be routed at a distance of 1.5 m from the heater at the warm air duct. The Truma SC hose clip (part no.: 40712-01) can be used from this distance on. With parallel routing (e.g. through a wall) a spacer (e.g. insulation) must be fitted in order to avoid contact.

Selecting a location

Dimensions (all dimensions in mm)

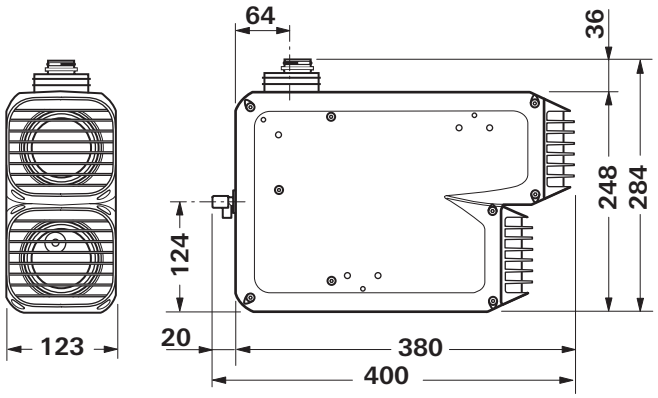


Figure 9

The device and its exhaust duct must always be installed so that they are easy to access at all times for service work, and are also easy to remove and install.

The distance between the heater and surrounding furniture items or vehicle components must be at least 6 mm on all sides.

Depending on the installation situation, additional space must be provided for connections (gas, exhaust duct, warm air and circulating air ducts).

The scope of delivery includes a second type plate (duplicate) with removable bar code.

If the type plate on the heater is not visible after the heater has been installed, the second type plate (duplicate) must be affixed to the unit in a clearly visible location.

The duplicate must only be used in conjunction with the original.

In order to heat the vehicle evenly, the heater must be installed in a location in the vehicle that is as **central** in the vehicle as possible, so that the air distribution ducts can be routed with approximately equal lengths. Appropriate openings must be present in the installation compartment so that air can be drawn in – see relevant sections concerning circulated air intake and warm air distribution.

The operation of important vehicle components must not be adversely affected.

In order to prevent damage to components inside the appliance, no cables or water lines may be attached to the appliance's housing.

The wall cowl must be attached so that there is no fuel tank filler neck or fuel tank breather opening within 500 mm (R). There must also be no living area ventilation openings or window openings within 300 mm (R).

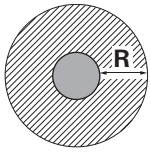


Figure 10

⚠ If the cowl is being installed in the shaded area underneath or next to a window that will be opened, an electric window switch (part no. 34000-85800) must be installed.

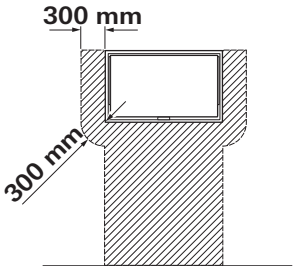


Figure 11

Attaching the heater

Check whether the vehicle has a load-bearing floor, double floor or false floor for securing the heater. If the floor is unsuitable, create a load-bearing surface beforehand by gluing a plywood board to the floor, for example.

Depending on the installation position, securely screw the heater into place with the supplied fastening bows or brackets.

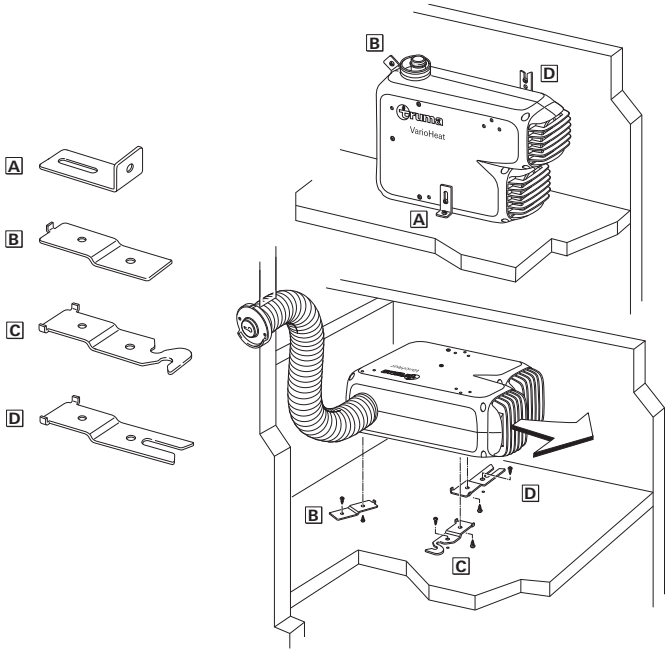


Figure 12

Screw the supplied PT screws for securing the mounting bracket to the housing with a torque of 1.5 Nm. Securely screw the appliance in place using the mounting brackets and the supplied screws B 5.5 x 25.

⚠ **The heater must be screwed to the floor, double floor or false floor of the vehicle in order to prevent the gas system from becoming damaged because of movement while driving!**

Exhaust duct

Only Truma exhaust duct AA 24 (part no. 39420-00) and combustion air intake duct ZR24 (part no. 39440-00) may be used for the Truma VarioHeat eco / Truma VarioHeat comfort for installation with wall cowl, because the heaters have been tested and approved only with these ducts.

Permissible duct lengths

Duct lengths of 30 cm up to max. 150 cm
(see page 2 for installation options)

Do not crush or kink ducts during installation.

Secure the ducts with a clamp (15) every 50 cm (Figure 12).

Installing the wall cowl

Fit wall cowl to a surface that is as flat as possible so that air can flow around at all sides.

– Drill opening (8) with a diameter of 70 mm (duct hole must be lined with wood in cavities).

– Seal with provided rubber seal (10). Use flexible body sealant on textured surfaces – do not use silicon .

– Slide the rubber seal (10 – **smooth side to the wall)** and clamp (4) onto the inner part of cowl (11).

– Before pushing the exhaust double duct through the hole, slide clamp (7) over duct.

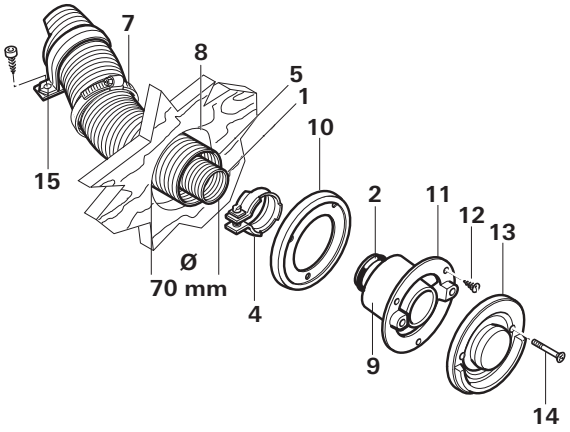


Figure 13

The ducts must be cut to length so that they protrude from the hole for the cowl after installation. The exhaust duct (1) must be 10 % longer than the combustion air intake duct (5). This avoids exhaust duct expansion and tensile load.

– Compress the beginning of the exhaust duct (1) (approx. 2 cm thereof) so that the coils are lying against each other.

– Push the exhaust duct (1) over the O-ring (2a) and onto the connection (2) as far as the collar (3) (the wall cowl angle faces upwards).

– Position the clamp (4) so that the flanged rim of the clamp is gripping the collar.

– Securely screw the clamp (4) into place (tightening torque 1 Nm).

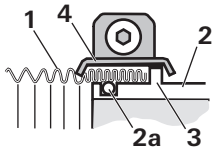


Figure 14

– Secure the cowl inner part (11) with 3 screws (12) (pay attention to the installation position – the Truma logo must be at the bottom).

– Fit outer part of cowl (13) and screw it on with 2 screws (14).

– Slide the combustion air intake duct (5) onto serrated connection (9) and secure with clamp (7) (3 Nm).

⚠ A new O-ring (2a) must be fitted after every removal.

Connecting the exhaust double duct to the device

– Push the clamp (7) over the ducts.

– Compress the exhaust duct (1) at its beginning so that the coils are lying against each other.

– Slide the clamp (4) over the exhaust duct (1).

– Slide the exhaust duct (1) over the O-ring (2a) on the connection (2) as far as the collar (3).

– Hook in the clamp (4) and screw it securely into place 1 Nm. Slide the combustion air intake duct (5) onto the connection (6) and secure with the clamp (7) 3 Nm.

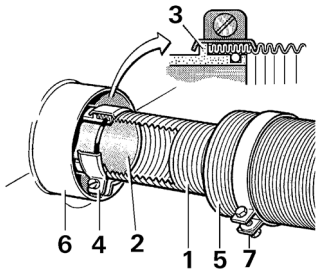


Figure 15

Warm air distribution

The heater routes the warm air either directly or via flexible ducts in the floor living compartment (warm air distribution).

For the warm air distribution, use only pressure-safe ducts in compliance with Truma quality requirements. Other ducts that do not meet our quality standard (particularly crown pressure resistance, duct diameter and number of grooves) must not be used.

Warm air distribution accessories

Accessories	Icon	Description
	VR 80	Warm air duct VR 80 (Ø 80 mm)
	ÜR	Warm air duct ÜR (Ø 65 mm)
	Y 80	Y-piece 80, Ø 80 mm inlet, outlet 2x Ø 65 / 72 mm
	Y	Y-piece, for ducts Ø 65 mm / 72 mm
	ZRS	Clamp ZRS Ø 80 mm
	EN	End outlet with air throttle

1. The grid on the heater's warm air outlet must be removed if warm air distribution is being used.

2. Only the duct VR 80 may be connected to the heater.

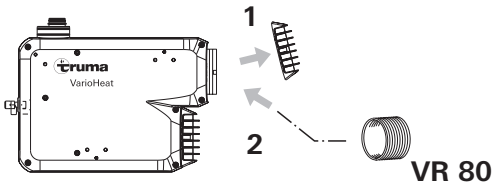


Figure 16

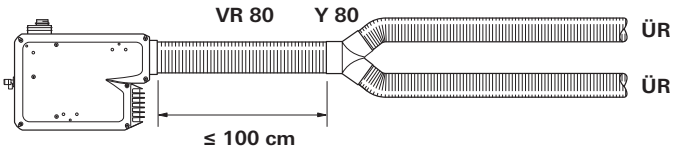


Figure 17 – Example, Truma VarioHeat eco warm air system

In the case of the Truma VarioHeat comfort heater, the warm air must be distributed to three lines.

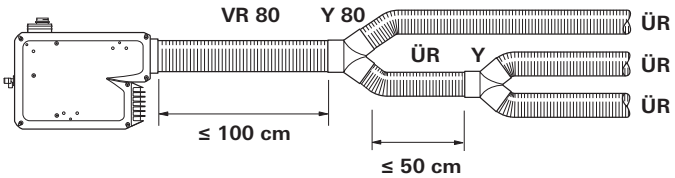


Figure 18 – Example, Truma VarioHeat comfort warm air system

To avoid a build-up of heat, all warm air connections must be connected.

Secure all duct connections with clips / self-tapping screws. Fix ducts with clamps.

The warm air system is designed individually for each vehicle type using the modular design principle. A wide range of accessories is available for this purpose (see brochure).

Circulated air intake

The circulated air (U) is drawn back in by the heater. This must have one large or several small openings with a total area of at least 150 cm^2 between the living compartment (not the rear storage space) and the installation compartment.

Circulated air intake with grid
If a grid (not supplied) is installed, the same requirements must be complied with for drawing in air in terms of the cross-sectional area through which flow occurs (150 cm^2).

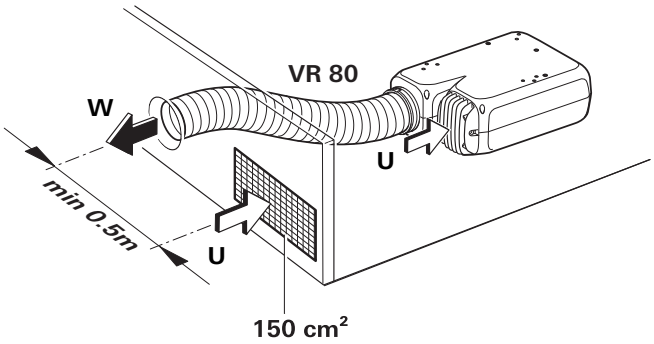


Figure 19 – Example, circulated air intake via grid

Room temperature sensor installation

The provided room temperature sensor must always be connected, otherwise the heater will switch to fault.

Selecting a location

When choosing a location, please note that the room temperature sensor must not be subjected to direct heat radiation. In order to obtain optimum room temperature control, install room temperature sensor over the entrance door.

Please ensure that the sensor is always installed in a **vertical** wall. There must be a free flow of interior air around the sensor.

Assembly

– Drill a hole with diameter of 10 mm.

– Route the connector cable from the back and through the hole, and attach the cable end to an insulated connection plug on the sensor (no attention needs to be paid to polarity).

– Slide in the room temperature sensor and route the end of the cable with the bushing X7 to the heater (lengthen the cable to a maximum total length of 10 m with 2 x 0.5 mm^2 cable if necessary).

– Connect the room temperature sensor's cable to the heater's cable harness. (see “Electrical connections”).

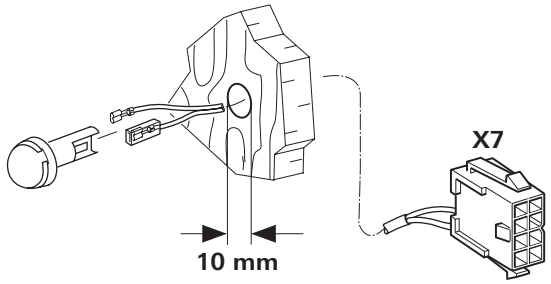


Figure 20

Digital control panel installation

Truma CP plus VarioHeat[1] digital control panel for operating a Truma VarioHeat eco / Truma VarioHeat comfort heater. It is also possible to connect a Truma air conditioning system Aventa eco, Aventa comfort (from serial number 24084022 – 04/2013), Saphir comfort RC and Saphir compact [2] (from serial number 23091001 – 04/2012).

Description

The Truma CP plus VarioHeat control panel (with polarity reversal protection) is supplied with voltage via a 12 V connector cable. With a connector cable (TIN bus), the control panel is connected to a Truma VarioHeat heater and / or an air conditioning system.

[1] And Truma CP plus VarioHeat CI-BUS for CI-BUS – not retrofittable.
[2] In combination with a Truma VarioHeat heater, a “control panel cable coupling” is essential between the air conditioning system and the heater. Order the “control panel cable coupling” separately. Not in conjunction with a TG 1000 sinus power inverter.

Dimensions

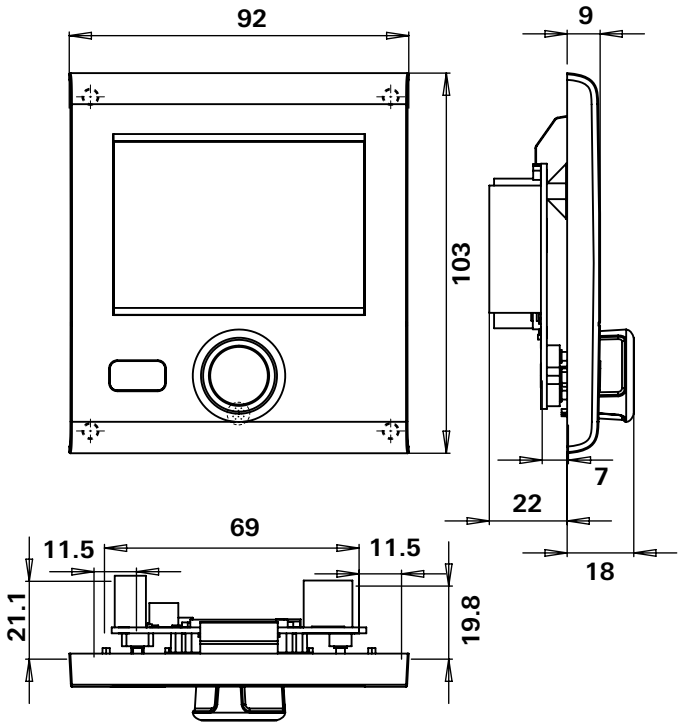


Figure 21 – Dimensions in mm. Illustration not to scale

Selecting a location

Install the Truma CP plus VarioHeat control panel in a location that is protected from moisture and humidity.

Mount the Truma CP plus VarioHeat control panel at eye level for optimum character legibility.

– Make the installation opening.

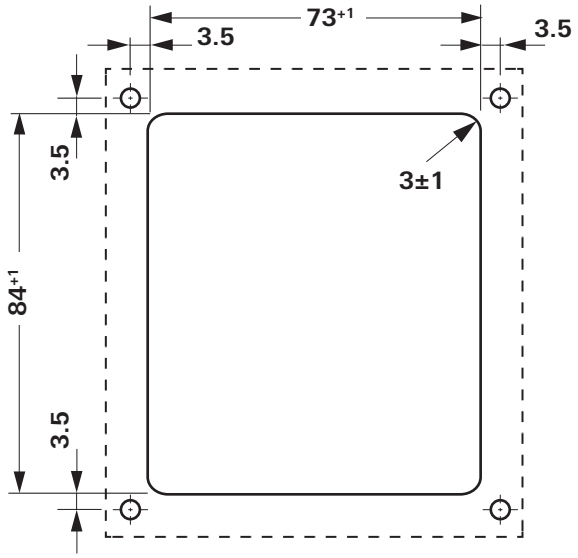


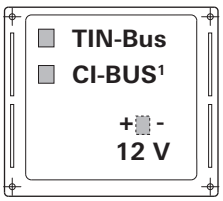
Figure 22 – Dimensions in mm. Illustration not to scale

Connection

Observe the ESD regulations!

Lay the connector cable of the TIN bus and of the 12 V operating voltage in loops without any tension. It must be possible to pull the control panel approx. 20 cm out of the installation opening without placing any tensile stress on the plug connection. On no account pull on the connector cable when it is connected to the control panel.

– Lay the connector cable (TIN bus) to the heater, air conditioning system and plug it in on the Truma CP plus VarioHeat control panel.
– Plug in the 12 V connector cable and attach to unswitched 12 V operating voltage (permanent positive). The heater and the Truma CP plus control panel must be connected on the same circuit.
– The positive cable must have a 1 A fuse.



+ = red
– = red / black

Figure 23 – Back view

[1] Only in the case of variant Truma CP plus VarioHeat CI-BUS. An external control panel (master) is connected at the factory.

Assembly

If the control panel cannot be flush-mounted, Truma can provide an on-surface frame (part no. 34030-39300) as an accessory upon request.

– Fix the frame to the wall with 4 screws.

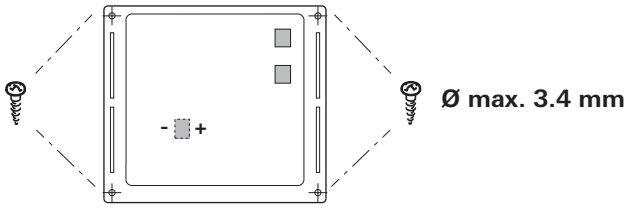


Figure 24 – Front view

– Hook control panel upper section into frame using 2 latching lugs.
– Fix control panel upper section in position with a screw.
– Slide rotary push button onto axis.

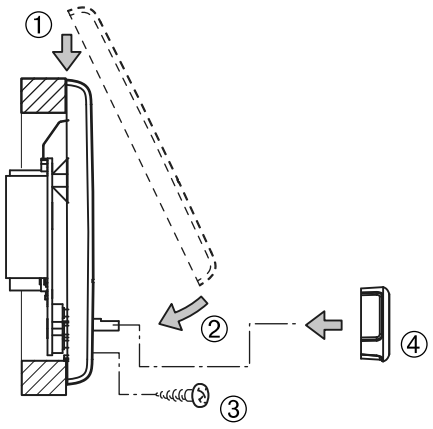


Figure 25 – Installing the control panel upper section and rotary push button

Analogue control panel installation (optional)

Selecting a location

Install the control panel in a location that is protected from moisture and humidity.

The length of the supplied connector cable is 6 m (3 m or 9 m available as an accessory).

⚠ Maximum length of connector cable 9 m.

Assembly

If the control panel cannot be flush-mounted, Truma can provide an on-surface frame (8 – part no. 40000-52600) as an accessory upon request.

– Drill a hole with diameter of 55 mm.

– Attach plug (3) of the connector cable (2) to control panel (1).

– Clamp the connector cable (2) in the cable duct of the control panel.

– Lay the connector cable (2) to the heater and attach the connector (4) to the heater's cable harness (see "Electrical connections").

– Ensure that all connectors are engaged.

– Secure control panel with 4 screws (5).

– Attach the cover frame (6).

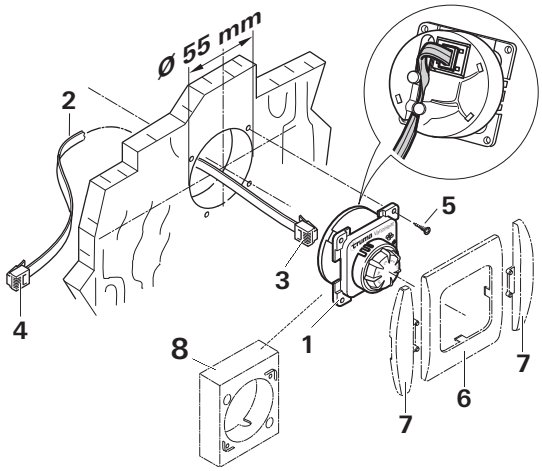


Figure 26

Truma supplies side parts (7) as accessories to improve the appearance of the cover frame (6). Please contact your dealer.

Electrical connections

Lay the connector cables so that they cannot chafe. Please also use leadthrough bushings or edge protection profiles where there are sharp edges such as metal panel lead-throughs. The connector cables must not be attached to or come into contact with metal surfaces, the exhaust duct or warm air ducts.

The electrical connection is made via an external cable harness.

Pay attention to the connector cables so that they cannot be pulled out or crushed.

Connection diagram

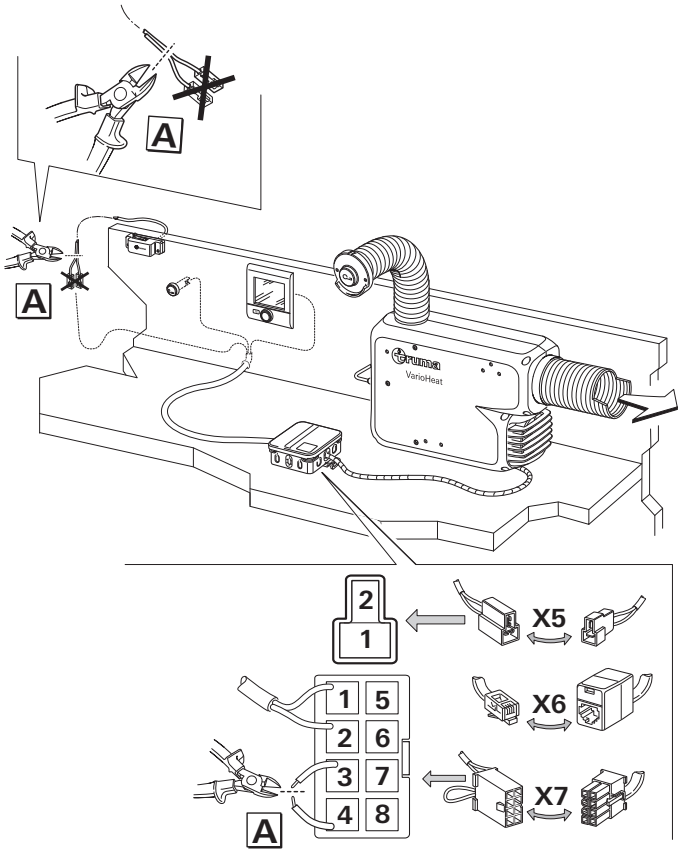


Figure 27 – Connection diagram

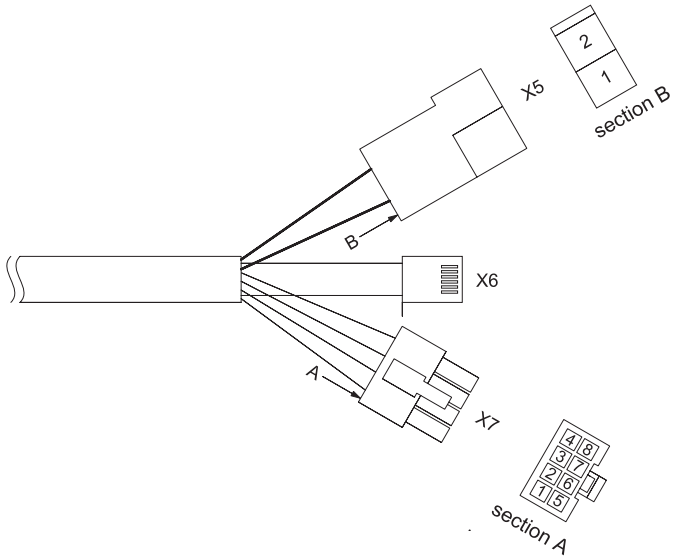


Figure 28 – Cable harness

Plug / contact	Description
X7-1	Room temperature sensor
X7-2	Room temperature sensor
X7-3	Window switch or jumper
X7-4	Window switch or jumper
X7-5	—
X7-6	—
X7-7	—
X7-8	—
X5-1	+ Battery
X5-2	- Battery
X6	TIN bus / CP plus / CP classic

12 V voltage supply

Electrical lines, switching and control equipment for heaters must be in locations that will not cause the operation thereof to be adversely affected under normal operating conditions. The breakthroughs of all lines leading to the outside must be protected from splash water.

Disconnect the device from the power supply before starting to work on electrical components. Switching off at the control panel is insufficient!

The unit must be disconnected from the on-board power supply when electric welding work is being carried out on the body.

In order to ensure that an optimum power supply is provided, the heater **must** be connected to the fuse-protected on-board power supply (central electrical system 10 A) **with 2 x 2,5 mm²** cables (2 x 4 mm² when lengths exceed 6 m). Voltage drops in the supply line must be taken into consideration if necessary. Connect negative line to main ground connection. If the equipment is connected directly to the battery, the positive and negative lines must be protected.

The fuse F1 is tripped if the polarity is incorrect.

No other consumers must be connected to the supply line!

When power packs or power supply units are being used, note that the output voltage is between 11 V and 15 V and the alternating current ripple is < 1.2 Vpp.

Battery connection

Depending on the cable cross section, crimp the supplied 6.3 mm flat connectors onto the positive and negative line and insert at the connector X5 (contact 1 / 2) (if necessary, fuse the positive and negative lines).

Room temperature sensor connection

Connect the bushing X7 of the room temperature sensor to the connector X7 of the cable harness.

Digital control panel connection

Plug in the connector X6.

Analogue control panel connection (optional)

Plug in the connector X6.

Window switch connection (optional)

Split the jumper (contact 3 / 4) from the bushing X7. Cut off the two plug contacts from the cable of the window switch and connect to the contact 3 / 4. Any polarity.

Gas connection

The 30 mbar operating pressure of the gas supply must correspond to the device's operating pressure (see type plate).

The Ø 8 mm gas supply duct must be attached to the gas connection with an olive screw connection. Carefully counterhold with another wrench when tightening.

The gas connection on the device may not be shortened or bent.

Before connecting to the device, please ensure that the gas ducts are free of dirt, shavings and the like.

The ducts must be routed in such a way that the device is easy to remove for service work.

The number of separation points in the gas supply line in rooms used by persons must be limited to the technical minimum.

The gas system must comply with the technical and administrative regulations of the respective country of use (e.g. EN 1949 for vehicles in Europe). The national laws and regulations (e.g. DVGW Worksheet G 607 for vehicles in Germany) must be observed.

Function check

The leak tightness of the gas supply line must be tested using the pressure drop method after installation. A test certificate must be issued (e.g. in accordance with DVGW Worksheet G 607 for vehicles in Germany).

Then check all device functions as described in the operating instructions.

The operating instructions must be handed over to the vehicle owner.

The year when the equipment was first put into operation must be indicated with a cross on the type plate.

Warnings

The installer or vehicle owner must affix the yellow sticker with the warning information, which is enclosed with the appliance, in a location in the vehicle where it is clearly visible to all users (e.g. the wardrobe door). Missing stickers can be requested from Truma.

Technical data, heater

Determined in accordance with EN 624 or Truma test conditions

Type of gas
Liquid gas (propane / butane)
Operating pressure
30 mbar (see type plate)
Rated heat output (gas consumption)
Truma VarioHeat eco
1300 W (100 g/h) / 2800 W (220 g/h)
Truma VarioHeat comfort
1300 W (100 g/h) / 2800 W (220 g/h) / 3700 W (290 g/h)
Additional information according to EN 624
Truma VarioHeat eco
Q_n = 3.1 kW (Hs); 230 g/h; C_{13}; $I_{3B/P}$
Truma VarioHeat comfort
Q_n = 4.1 kW (Hs); 300 g/h; C_{13}; $I_{3B/P}$
Destination countries
BE, BG, RO, DK, DE, EE, FI, FR, GB, GR, HR, IS, IE, IT, LV, LT, LU, MT, NL, NO, AT, PL, PT, SE, CH, SK, SI, ES, CZ, HU, CY, TR, AL, MK
Air delivery volume
Truma VarioHeat eco
75 / 155 m^3/h
Truma VarioHeat comfort
75 / 155 / 210 m^3/h
Power consumption at 12 V
Truma VarioHeat eco
0.65 / 2.75 A
Truma VarioHeat comfort
0.65 / 2.75 / 5.4 A
Quiescent current consumption
with Truma CP plus VarioHeat
0.004 A
with Truma CP classic VarioHeat
0.001 A
Weight
Heater without peripheral devices:
5.5 kg

CE 0085 

CE product ID number
CE-0085CR0203

Subject to technical changes.