

Electrically Heated Connector Series

T..-H1, V..-H1

Instruction Manual
Version 1.00.01



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Dear customer,

we have made up this operating manual in such a way that all necessary information about the product can be found and understood quickly and easily.

Should you still have any question, please do not hesitate to contact **M&C** directly or go through your appointed dealer. Respective contact addresses are to be found in the annexe to this operating manual. Please also contact our homepage www.mc-techgroup.com for further information about our products. There, you can read or download the data sheets and operating manuals of all **M&C** products as well as further information in German, English and French.

This Operating Manual does not claim completeness and may be subject to technical modifications.

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1 GENERAL INFORMATION

The product described in this operating manual has been examined before delivery and left our works in perfect condition related to safety regulations. In order to keep this condition and to guarantee a safe operation, it is important to heed the notes and prescriptions made in this operating manual. Furthermore, attention must be paid to appropriate transportation, correct storage, as well as professional installation and maintenance work.

All necessary information a skilled staff will need for appropriate use of this product are given in this operating manual.

2 DECLARATION OF CONFORMITY



The product described in this operating manual complies with the following EU directives:

EMV-Instruction

The requirements of the EU directive 2014/30/EU “Electromagnetic compatibility” are met.

Low Voltage Directive

The requirement of the EU directive 2014/35/EU “Low Voltage Directive” are met.
The compliance with this EU directive has been examined according to DIN EN 61010.

Declaration of conformity

The EU Declaration of conformity can be downloaded from the **M&C** homepage or directly requested from **M&C**.

3 SAFETY INSTRUCTIONS

Please take care of the following basic safety procedures when mounting, starting up or operating this equipment:

Read this operating manual before starting up and use of the equipment. The information and warnings given in this operating manual must be heeded.

Any work on electrical equipment is only to be carried out by trained specialists as per the regulations currently in force.

Attention must be paid to the requirements of VDE 0100 (IEC 364) when setting high-power electrical units with nominal voltages of up to 1000 V, together with the associated standards and stipulations.

Check the details on the type plate to ensure that the equipment is connected to the correct mains voltage.

Protection against touching dangerously high electrical voltages:

Before opening the equipment, it must be switched off and hold no voltages. This also applies to any external control circuits that are connected.

The device is only to be used within the permitted range of temperatures and pressures.

Check that the location is weather-protected. It should not be subject to either direct rain or moisture.

The device must not be used in hazardous areas.

Installation, maintenance, monitoring and any repairs may only be done by authorized personnel with respect to the relevant stipulations.

4 WARRANTY

If the equipment fails, please contact **M&C** directly or else go through your **M&C** authorised dealer. We offer a one year warranty as of the day of delivery as per our normal terms and conditions of sale, and assuming technically correct operation of the unit. Consumables are hereby excluded. The terms of the warranty cover repair at the factory at no cost or the replacement at no cost of the equipment free ex user location. Reshipments must be send in a sufficient and proper protective packaging.

5 USED TERMS AND SIGNAL INDICATIONS



DANGER!

This means that death, severe physical injuries and/or important material damages **will occur** in case the respective safety measures are not fulfilled.



WARNING!

This means that death, severe physical injuries and/or important material damages **may occur** in case the respective safety measures are not fulfilled.



CARE!

This means that minor physical injuries **may occur** in case the respective safety measures are not fulfilled.

CARE!

Without the warning triangle means that a material damage may occur in case the respective safety measures are not met.

ATTENTION!

This means that an unintentional situation or an unintentional status may occur in case the respective note is not respected.



NOTE!

These are important information about the product or parts of the operating manual which require user's attention.

SKILLED STAFF

These are persons with necessary qualification who are familiar with installation, use and maintenance of the product.



6 INTRODUCTION AND APPLICATION

In analysis technique, often temperatures must be kept above the sample gas dew point. Therefore, it is absolutely necessary to avoid cold bridges.

In order to ensure this, the temperature regulated M&C hose-/tube connectors T..-H1 and V..-H1 are used to connect heated sample lines type 3/4/5-N/M/H with an operating temperature up to 180 °C.

6.1 POWER SUPPLY

The electrically heated connectors **T.-H1** and **V.-H1** are available in 2 versions for alternating current 230V, 50Hz or 115V, 60Hz.

7 TECHNICAL DATA

	T6-H1	T8-H1	V6-H1	V8-H1
Part number	10B1001 (a)**	10B1101 (a)**	10B1011 (a)**	10B1111 (a)**
Connector version	union tee	union tee	straight connector	straight connector
Connector dimensions	3x ø 6 mm	3x ø 8 mm	2x ø 6 mm	2x ø 8 mm
Fittings system	tube connectors of stainless steel type Swagelok			
Operating pressure	max. 200 bar			
Operating temperature	max. +180 °C			
Ambient temperature	-25 to +60 °C			
Storage temperature	-25 to +80 °C			
Temperaturregler	capillary thermostat with high temperature limiter and low temperature alarm integrated in electrical connection box			
Operating temperature	adjustable from 0 to 180 °C, set at factory at 180 °C			
Low temperature alarm contact	alarm point ΔT 30 °C, change over contact, voltage free; contact rating 250V, 3A~, 0,25A =			
Power supply	230V 50Hz, 100VA **optionally 115V 60Hz (a)			
Electrical connections	terminals 4 mm ² , 2x cable gland PG13			
Degree of protection	IP 54 EN60529			
Electrical standard	EN 61010, EN60519-1			
Dimensions	350 x 320 x 120 mm (w x h x d)			
Weight	4,5 kg			
Material of sample contacting parts	stainless steel 316Ti			
Mounting	Wall mounting			

8 DESCRIPTION

The **M&C** hose-/tube connectors **T.-H1** and **V.-H1** are fixed on a mounting plate, decoupled from heat and covered with an insulated enclosure.

The heater consists of a heating element with high capacity. The temperature is adjustable on the integrated thermostat up to 180 °C with high temperature limiter and low temperature alarm. The connection box with integrated thermostat is installed outside the enclosure on the mounting plate.

The bushings for the heated sample lines in the enclosure are insulated with sockets of heat resistant silicone. In order to avoid cold bridges, the connector is completely heated by means of a double-ended thermal conducting jaw. For fixing the electrically heated sample lines type 3/4/5-N/M/H – see data sheet -2-6.1 –, mounting brackets are integrated.

9 RECEPTION AND STORAGE

- Please take the heated connector and possible special accessories carefully out of the packaging material immediately after arrival, and compare the goods with the items listed on the delivery note!
- Check the goods for any damage caused during delivery and, if necessary, notify your transport insurance company without delay of any damage discovered

The heated connector usually is delivered in one packaging unit.



NOTE!

The equipment should be stored in a protected, frost-free room!

10 PREPARATION AND INSTALLATION

Locate the heated connector in such a way that there is adequate space for removing the cover. Make certain that the heated connector is easily accessible so that you can carry out any subsequent repair work without trouble.

The aluminium plate is fixed with 4 screws.

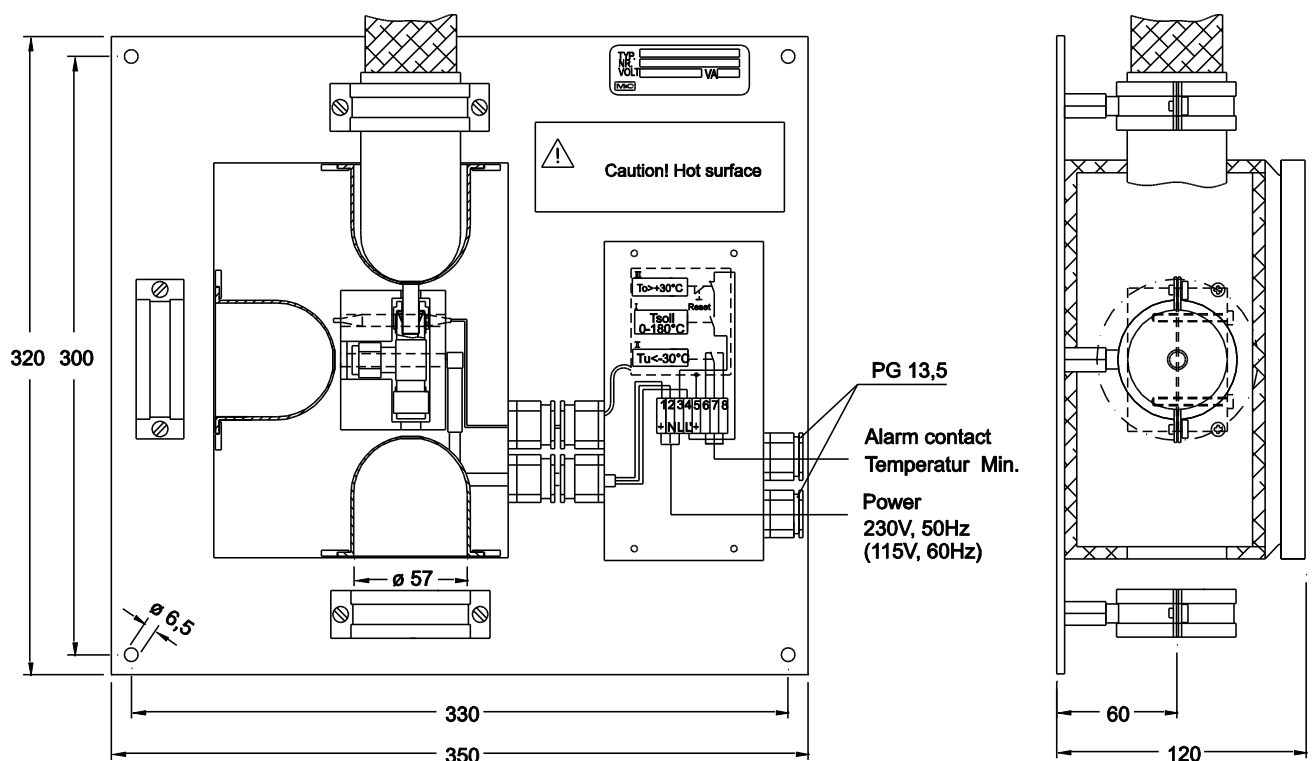


Figure 1 Heated T-connector

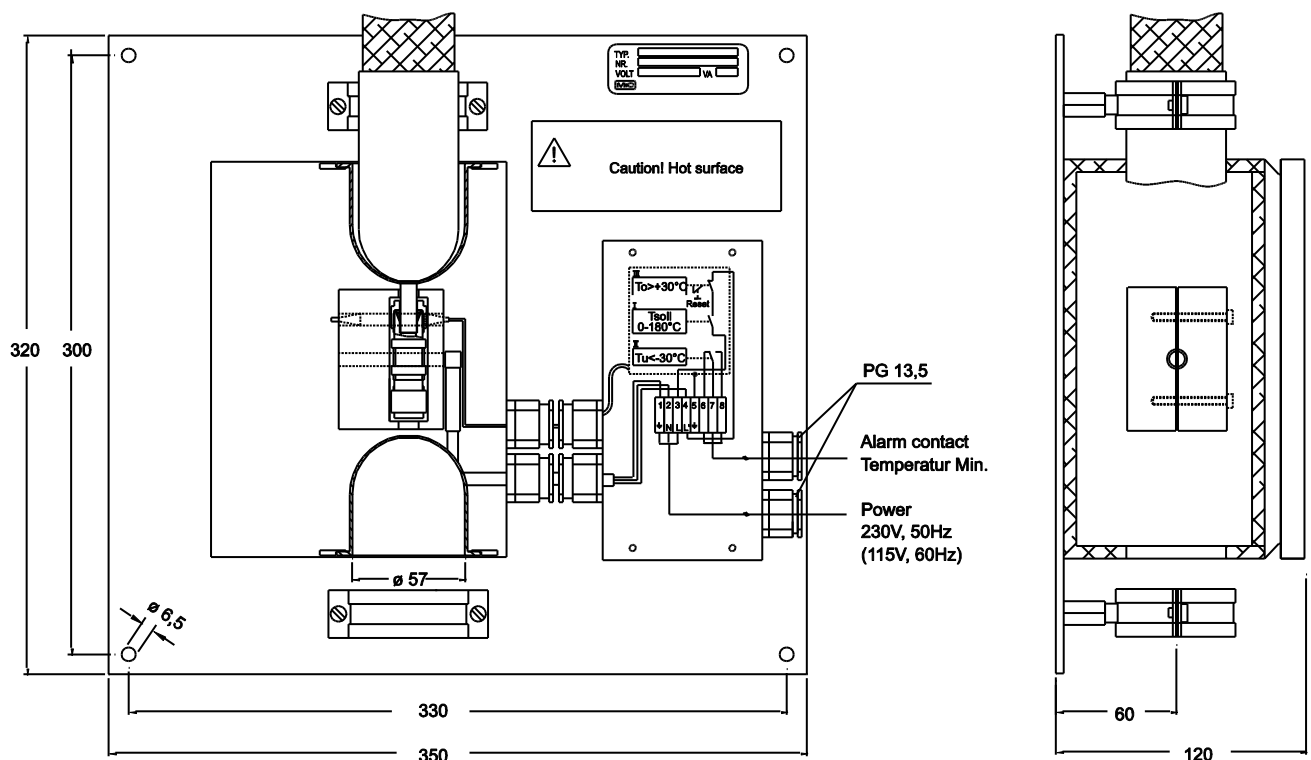


Figure 2 Heated connector

11 MOUNTING

For mounting the heated connector we recommend the following procedure:

- Remove the lid of the heated connector by loosening the 4 screws;
- Remove the thermal conductivity jaws by loosening the 2 screws M4;
- Remove the upper part of the mounting clamp;
- Put the heated sample line into the silicone cap and feed the end of the tube through the hole of the cap;
- Remove nut and compression rings of the fitting and put them in right order on the end of the tube;
- Put the end of the tube into the fitting;
- The temperature-resistant, stainless steel connectors supplied by **M&C** have a double ferrule system to ensure reliable sealing. After tightening the nuts of these connectors by hand, they should then be tightened exactly $1\frac{1}{4}$ of a turn using a flat spanner and are then properly mounted;



HINWEIS!

If a PTFE tube is used as sample line, an insert must under all circumstances be inserted in the end of the tube in order to prevent the tube being pressed together. Make sure that the connection is leak proof!

- Retrofit the upper part of the mounting clamp;
- After connection of the heated sample lines retrofit the thermal conductivity jaws and the lid;

12 ELECTRICAL CONNECTION



WARNING!



When connecting the equipment, please ensure that the supply voltage is identical with the information provided on the model type plate.

After mounting the heated connector, the possibility of getting in touch with live parts has to be prevented!

The use of temperature resistant cable is necessary !



NOTE!

Attention must be paid to the requirements of IEC 364 (DIN VDE 0100) when setting high-power electrical units with nominal voltages of up to 1000 V, together with the associated standards and stipulations.

A main switch and matching fuse must be provided externally!

The main circuit must be equipped with a fuse corresponding to the nominal current (over current protection), for electrical details see technical data.

- Remove the lid of the electrical connection box. The electrical connection layout is located in the lid.
- Insert the mains cable (min. 3 x 1.5 mm²) through the cable gland and connect to the appropriate terminals (Fig.3).
- Insert the signal cable through the cable gland and connect to the appropriate terminals.
- Screw lid back on.

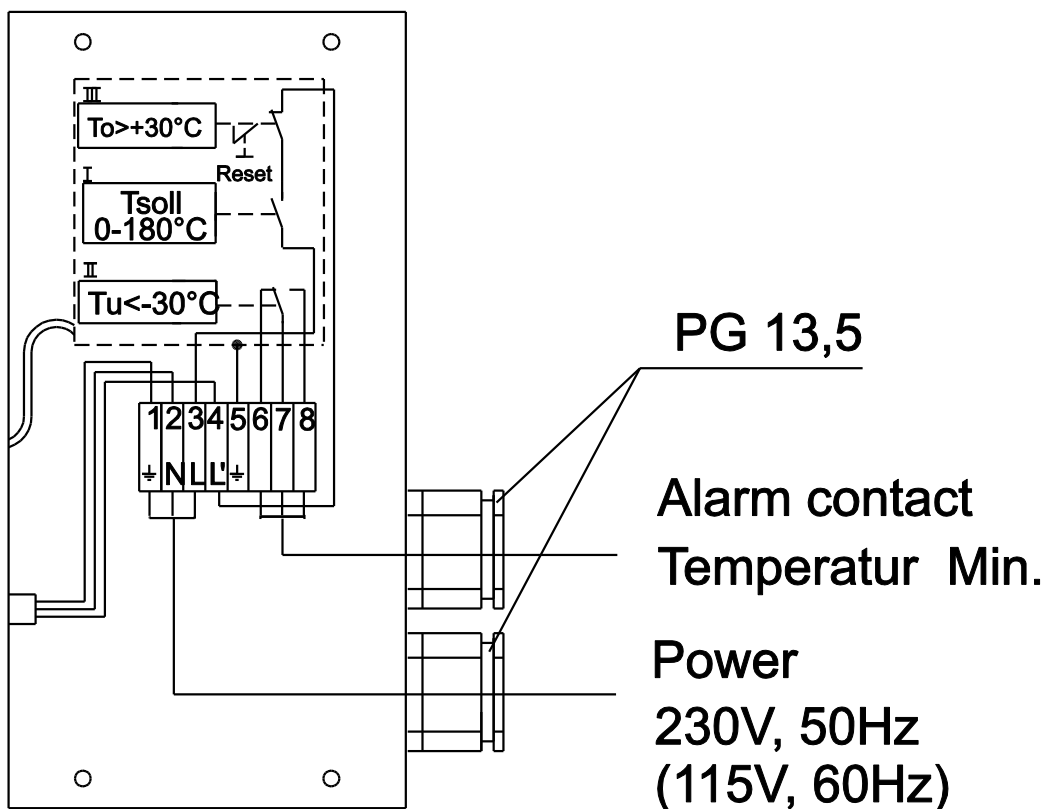


Figure 3 Electrical connection

13 STARTING

Before using the equipment for the first time, check that the safety measures specific to the installation and process are complied with!

For the carried media the corresponding safety regulations and measures have to be considered.



WARNING!

Before starting up check whether the mains power supply voltage corresponds with the information stated on the nameplate.



Beware of touching the filter surface during operation. Serious burns can occur because of high surface temperatures. Wear protective gloves and protect the filter from unauthorized access.



The following procedure is recommended:

- Check the rated value setting on the built-in thermostat.



NOTE!

If the rated value temperature needs to be lowered more than 30°C in one step during operation, the thermostat's excess temperature switch-off is triggered (for re-start press reset key).

- Switch on mains power supply.



NOTE!

The total heating-up time is approximately 30 minutes. After exceeding the low temperature limit (30°C below set temperature) the connector is ready for operation.

In case of low temperature alarm (failure of heating) the gas flow has to be interrupted by adequate measures!

14 MAINTENANCE

In case of correct use the heated connector works maintenance free.

The safety instructions specific to the plant and process are to be consulted prior to any repair work!



WARNING!

Aggressive condensate is possible.

Wear protective glasses and proper protective clothing!



High surface temperatures!

Touching the filter surface can cause serious burns!

Wear protective gloves and protect the filter of unauthorized access!



Prior to carrying out maintenance work on electrical parts, mains voltage should be disconnected from all poles!

This also applies to any external control circuits, which may be connected.



15 SPARE PARTS LIST

Electrically heated connectors T.-H1 and V.-H1 (C) Consumables, (R) recommended spare parts, and (S) spare parts			Recommended quantity For operating period [years]		
			C/R/S	1	2
90 P 5015	Heating cartridge , 230V/50Hz, 100W, length: 50mm	S	a.t.r.	a.t.r.	a.t.r.
90 P 5016	Heating cartridge , 115V/60Hz, 100W, length: 50mm	S	a.t.r.	a.t.r.	a.t.r.
90 P 5020	Thermostat (0-180°C), with over-temperature limiter and low-temperature alarm	S	a.t.r.	a.t.r.	a.t.r.

a.t.r. = according to requirements

16 APPENDIX



Further product documentation can be seen and downloaded from our homepage:

www.mc-techgroup.com