

SMART HEATER VARITHERM HI System



1 Application

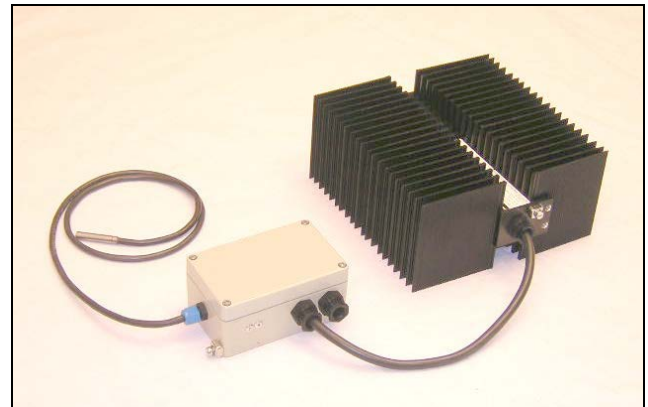
SMART HEATER ...THERM HI is a system consisting of an explosion-proof electric heater and a microprocessor, designed to control the air temperature in instrument enclosures and protective cabinets and to limit the surface temperature of the heater.

The controller is equipped with an intrinsically safe sensor, thus allowing measurement and accurate regulation of the temperature of the instruments and equipment (e.g. of manifolds).

SMART HEATER ...THERM HI heaters are designed to solve sophisticated and complex heating problems in hazardous areas, and in particular for high temperature maintenance of analyzing equipment.

2 Special Features

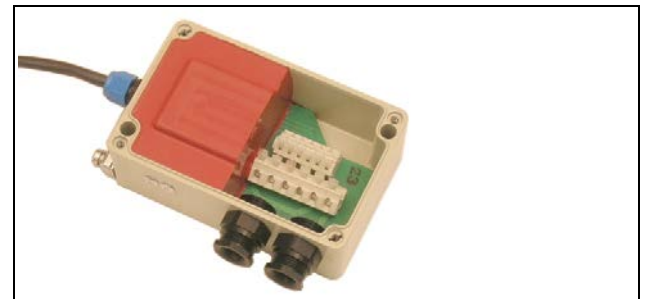
- The surface temperature of the heater is redundantly limited both electronically as well as by a safety fuse at the heat source. This patented concept ensures very safe operation and at the same time guarantees a high level of safety for explosion protection.
- A digital PID controller provides precise temperature control.
- The RS 485 interface allows networking in fieldbus networks and parameterizing at the PC.
- Extensive fault monitoring.
- Long life of the controller, as no mechanical switching elements are used (solid state). The calculated failure probability with uninterrupted operation of 10 years is less than 5 %.
- Storage and operating temperature ranging from -50° C to +80° C.
- Negligible network regeneration through phase group control with no voltage triac switching
- The temperature set point can be adjusted continuously
- Industrial design inside an aluminium terminal box



3 Description

SMART HEATER ...THERM HI heating system basically consists of an electric heater body (heating block or finned heater) and a controller in an aluminium housing. The two parts can be separated (e.g. for installation).

The heater can be made the same form as any INTERTEC ATEX heater with fixed resistance, i.e. VARITHERM, MULTITHERM, BLOCKTHERM etc.



The controller consists of an electronic section with microprocessor, completely encapsulated in silicone, and a terminal section with EEx e terminals. The controller has three analogue inputs:

- An integrated temperature sensor at the housing for the room temperature
- A temperature sensor in the heating coil of the heater serving as temperature limiter
- Optionally: an intrinsically safe external temperature sensor

For more information about the controller please refer to data sheet [HD252](#)



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4 The SMART controllers' functionality

- PID controller
- Temperature limiter

It consists of an integrated zero voltage switch, a triac as switching element and a thermistor (NTC) as sensor. The electronics are completely encapsulated. The sensor is integrated into the housing.

5 Explosion protection

EC Examination certificate	PTB 04 ATEX 2022 X
	PTB 02 ATEX 1041 X
IEC Scheme Certificate	IECEX PTB 08.0011X
	IECEX PTB 07.0052X

6 Types and Technical Data

6.1 SMART Controller

IEC Scheme Type of Protection	Ex e mb [ib] IIC T4 Ex tD A21 IP66 T130°C
GOST Certificate	Yes
Nominal voltage	230 V AC .. 250 V AC
Power minimal / maximal	60 W / 2300 W
Operating temperature range	max. 80° C (box) -50°C to +80°C *
Connection cable	2 x M20
Ingress Protection	IP66
Material	Seawater-proof aluminium, black anodized
Dimensions (H x W x D)	57 x 125 x 80 mm

* see data sheet [HD252](#)

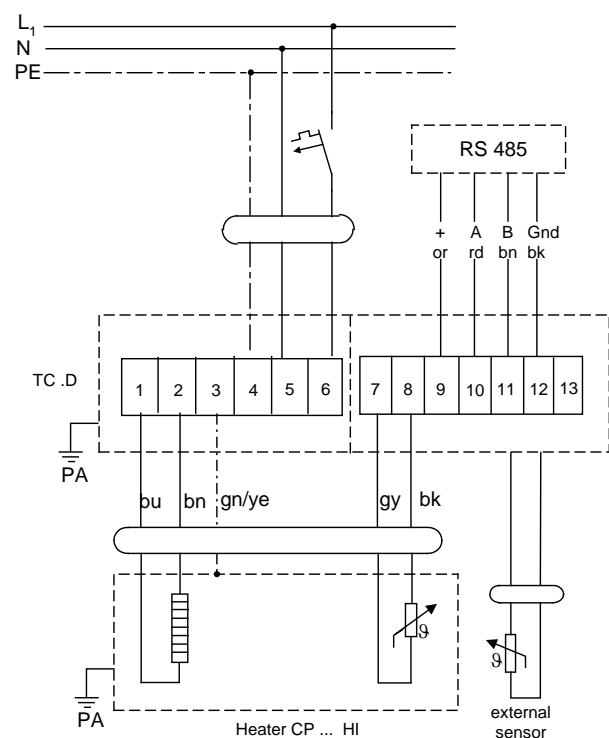
6.2 CP VARITHERM DPA ... 120 HI

Type	..500 T3..	..200 T3..	..200 T4..
Nominal power	500 W	200 W	200 W
Temperature class	T3	T3	T4
Operating temperature range	-60° to +180° C		
IEC Scheme Type of Protection	II 2G Ex db IIC T6, T5, T4, T3 II 2D Ex tb IIIC T85°C T100°C, T135°C, T200°C		
GOST Certificate	Yes		
Ingress Protection	IP68		
Nominal voltage	230 V AC		
Dimensions (H x W x L)	120 x 213 x 220 mm		
Material	Seawater-proof aluminium, black anodized		

7 Options

3M	Connection cable 3 m long
120 V	Nominal voltage 120 V AC
240 V-250 V	Nominal voltage 240-265 V AC
KLE	Additional cable entry for fieldbus connection

8 Electric wiring



bk=black bn=brown gy=grey bu=blue gn/ye=green/yellow or=orange rd=red