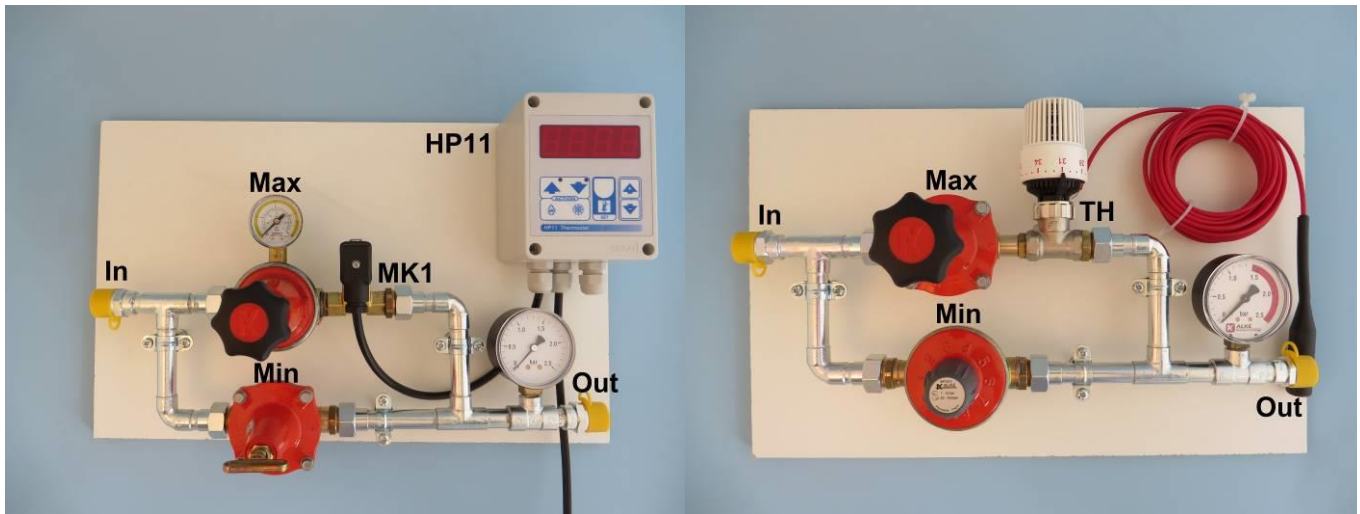
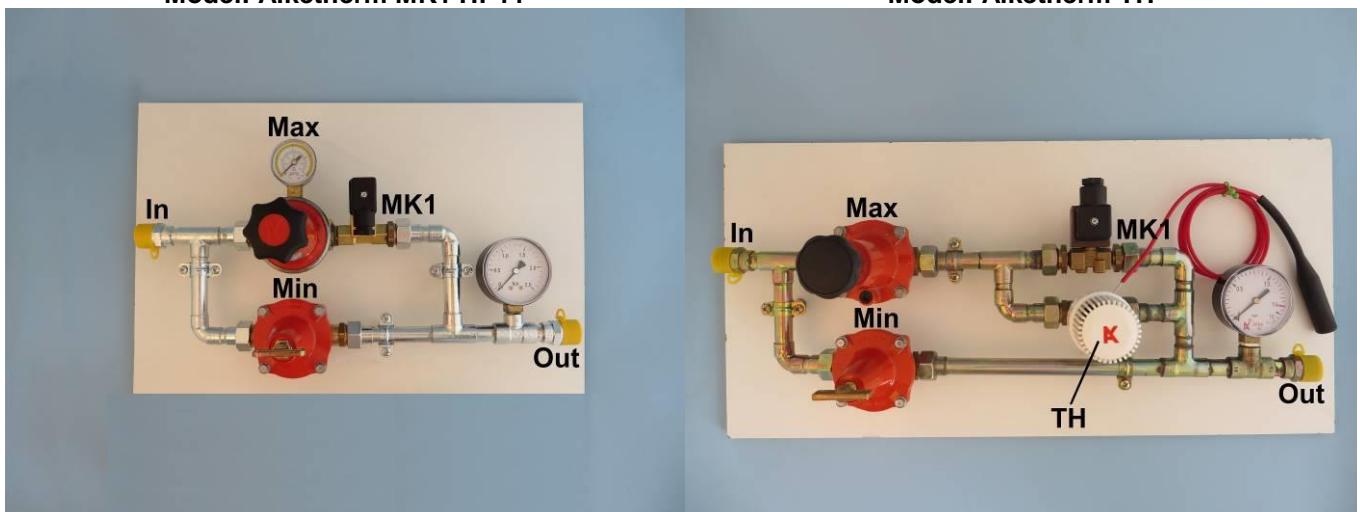


For radiant gas heaters with manual ignition and adjustable gas supply pressure



**Model: Alketherm MK1 HP11**

**Model: Alketherm TH**



**Model: Alketherm MK1**

**Model: Alketherm MK1 TH**

(All pictures are of the 20-1400mbar model range. The components on the picture are samples. The actual components used can be slightly different in shape or color. The models for pressure ranges 50-150 mbar, 5-200 mbar, 5-300 mbar and 5-400 mbar are basically identical except for the different pressure regulators. The text below is written for the 20-1400 mbar models. The values that are different for the other versions are added in *italic* between brackets)

### Model description

- Alketherm MK1:** - Gas control panel with a solenoid valve MK1 for the selection of high or low gas supply to the heaters. An external thermostat or temperature computer is needed to operate the valve MK1 to maintain the temperature requested.
- Alketherm MK1 HP11:** - Gas control panel with a solenoid valve MK1 for the selection of high or low gas supply to the heaters. A thermostat HP11 is integrated to operate the valve MK1 to maintain the temperature requested.
- Alketherm TH:** - Gas control panel with an independent mechanical thermostat TH to maintain the temperature requested. No electricity needed. Gas supply to the heaters can be regulated at any position between high to low.
- Alketherm MK1 TH:** - Gas control panel with a solenoid valve MK1 for the selection of high or low gas supply to the heaters. An external thermostat or temperature computer is needed to operate the valve MK1 to maintain the temperature requested. A back-up mechanical thermostat TH is available to be able to maintain temperature in case of an electric power failure.

## **Installation**

Make sure that the control panel is placed in a well ventilated area and carefully protected against frost, rain, water, high temperature and excessive dust. Always check if the use and installation of the panel is allowed and done in accordance with the national and local regulations. Only competent and qualified installers are allowed to install and service the panels. With the position of the panel as indicated in the pictures above, the left side of the panel is the gas entrance side and the right side (with the manometer) is the supply side to the heaters. The inlet and outlet connection thread is G1/2" male.

Before putting the control panel into first operation, make a final check with soapy water if all gas connections are still gas tight after installation. No bubbles shall appear. Repeat this check on leakage periodically, but at least once a year. The control panel is intended for vapor LPG gas use only. Never allow entrance of LPG liquid in the panel.

Check for safety reasons that a proper ground connection is used. Make sure that the voltage of the electric parts of the panel is corresponding with the voltage available. Take care that all electric connections are made water and dust tight to avoid corrosion and connection problems later on. The ambient temperature of the room where the panels are installed shall be never outside the range of -10 till +50C (14-122F)

## **Position thermostat sensor**

The temperature sensor of the thermostat TH or HP11 must be placed free hanging in the room. Handle the sensor and the sensor wire with care. Especially the sensor wire of the TH, with a small tube inside, is critical for twisting or sharp bending. Avoid draft to the sensor. Keep sufficient distance to cold (or hot) walls. The best position of the sensor in a barn depends strongly to the circumstances in the barn. Consider the following dimensions as a starting point, watch the behavior of the animals during the adjusting process and relocate the sensor accordingly. The starting position is to place the sensor 60 cm above the ground, in a draft free location and in-between 2 heaters. Keep at least 2 meter distance to a heater. The position of the sensor shall be such that the sensor sees the radiation surface of one or more heaters. Make sure that the sensor is not overheated by placing it too close to the radiation surface of a heater. Place the sensor in such a way that it senses a realistic temperature that is representing the average temperature of the room. Always check the final setting with an independent thermometer. Also make sure that the animals cannot damage the sensor. The sensor of the HP11 can be placed on a remote position by extending the line with a normal 2-pole 0,5 mm<sup>2</sup> electric wire to a maximum of about 100 meter.

## **Adjustment**

The Alketherm panels are equipped with two manual gas regulators. Before adjusting the gas regulators on the panel, first check for the minimum and maximum pressure, as indicated on the data plate of the heaters. Make the adjustments on the panel accordingly. Note that the manometer on the control panel is only for indicative use. Connect during the adjustment of the panel a (digital or water column) gas pressure meter to the gas line after the panel. Make all adjustments with all the heaters in operation!!

The upper gas regulator, in line with the solenoid valve MK1 or TH, is for adjustment of the maximum gas pressure to the heaters. This regulator is normally adjusted for the maximum setting of 1400 mbar/1,4 bar (*or 150, 200, 300, 400 mbar*). Check if the manometer indicates 1,4 bar (*or 150, 200, 300, 400 mbar*) when the panel is in use with the solenoid valve MK1 or TH open for maximum heat input. By turning the knob on the regulator clockwise the gas pressure will increase and turning anti-clockwise the pressure will become lower. Do not adjust higher than 1,4 bar (*or 150, 200, 300, 400 mbar*) while it will shorten the life time of the heaters due to overheating, or even damage the heaters directly.

The lower gas regulator is for adjustment of the minimum gas pressure to the heaters. This regulator is normally adjusted for the minimum setting of 20 mbar/0,02 bar (*or 5, 50mbar*). Check if the manometer will indicate just above zero when the panel is in use with the solenoid valve MK1 and TH closed for minimum heat input. By turning the knob on the regulator clockwise the pressure will increase and anti-clockwise the pressure will become lower. Do not adjust lower than 20 mbar (*or 5, 50 mbar*) while otherwise the heaters will extinguish or produce CO due to lack of gas.

## **Temperature adjustment**

HP11 For adjustment of the HP11 computer, see the instructions attached behind this document.

TH The adjustment of the TH models can be done by turning the white thermostat knob to the required temperature. During the first operation make a comparison check between the settings on the white knob and the real temperature in the barn.

MK1 Consult the manual of the barn computer, which operates the solenoid valve MK1, for the adjustment of the temperature.

**Notes:**

\* Models MK1 and MK1 HP11: In the event of a power failure (or a broken thermostat unit) the control panel still remains in operation, but only in low heat input setting. By adjusting the lower gas regulator of the minimum setting clockwise, the heat input of the heaters can be adjusted manually to a higher heat input to maintain temperature. Do not forget to re-adjust to the original setting after the power is back on the system or the thermostat is repaired.

\* Model MK1 TH will operate during a power failure as a TH, due to the back-up thermostat.

\* Models MK1 TH and TH: In the event of a broken thermostat unit TH the control panel still remains in operation, but only in maximum heat input setting. By adjusting the upper gas regulator of the maximum setting counter clockwise, the heat input of the heaters can be adjusted manually to a lower heat input to maintain temperature. Do not forget to re-adjust to the original setting after the thermostat TH is repaired or replaced.

\* The required minimum gas supply to the control panel must be 1500 mbar/1,5 bar or higher during running conditions and when all heaters are operating at maximum capacity. If this supply pressure is not available, the heat input of the gas heaters cannot be guaranteed. The maximum gas supply pressure the panel can handle is 8 bars (equal to vapor pressure of LPG in bottles/tanks).

\* Make sure that the gas line diameter after the panel to the heaters is large enough. If the diameter is too small and/or the length of the lines is too long for a certain diameter, the heaters will not operate on the proper capacity due to gas pressure loss in the gas-line. Check with your gas supplier or gas installer for a capacity calculation of the gas lines.

\* The pressure regulators have a small venting hole of 1 mm diameter in their body. Never block these holes and keep them free from dirt.

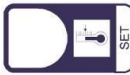
\* The lifetime of the regulators is determined by their manufacturers to 10 years. Replace after 10 years the regulators by new ones to avoid a sudden gas leakage due to ageing. Replace at the same time also the rubber seals used in the couplings of the regulators.

\* In case the optional in-line gas filter is ordered, make sure the filter is placed upstream of the gas supply (so before the panel). The filter unit shall be mounted downwards in a horizontal running gas line. Note the arrow for the proper gas direction. Clean the filter regularly and also when the capacity of the system drops after a certain period. The filter unit will become damaged by pressures above 2 bar, so limit the gas pressure to a maximum of 2 bars at the filter unit.

**Technical data:**

Number	Model	Inlet pressure range	Outlet pressure range	Gas	Capacity Propane	Voltage
13011001	Alketherm TH	1,5 – 8 bar	20-1400 mbar	Propane, Butane or Prop./But. mix	40 kg	X
13011000	Alketherm TH	1,5 – 8 bar	20-1400 mbar	Propane, Butane or Prop./But. mix	12 kg	X
13007010	Alketherm TH	1,5 – 8 bar	5-350 mbar	Propane, Butane or Prop./But. mix	6 kg??	X
13007000	Alketherm TH	1,5 – 8 bar	5-300 mbar	Propane, Butane or Prop./But. mix	4 kg	X
13008000	Alketherm TH	1,5 – 8 bar	5-200 mbar	Propane, Butane or Prop./But. mix	4 kg	X
13005000	Alketherm TH	1,5 – 8 bar	50-150 mbar	Propane, Butane or Prop./But. mix	4 kg	X
13011010	Alketherm TH	1,5 – 8 bar	20/90-1400mbar	Propane, Butane or Prop./But. Mix	12 kg	X
13013001	Alketherm MK1	1,5 – 8 bar	20-1400 mbar	Propane, Butane or Prop./But. mix	40 kg	220-240V/50-60Hz
13013000	Alketherm MK1	1,5 – 8 bar	20-1400 mbar	Propane, Butane or Prop./But. mix	12 kg	220-240V/50-60Hz
13013010	Alketherm MK1	1,5 – 8 bar	20-1400 mbar	Propane, Butane or Prop./But. mix	12 kg	24V/50-60Hz
13008020	Alketherm MK1	1,5 – 8 bar	5-400 mbar	Propane, Butane or Prop./But. mix	12 kg	220-240V/50-60Hz
13008010	Alketherm MK1	1,5 – 8 bar	5-300 mbar	Propane, Butane or Prop./But. mix	4 kg	220-240V/50-60Hz
13005010	Alketherm MK1	1,5 – 8 bar	50-150 mbar	Propane, Butane or Prop./But. mix	4 kg	220-240V/50-60Hz
13013005	Alketherm MK1	1,5 – 8 bar	20/90-1400mbar	Propane, Butane or Prop./But. Mix	12 kg	220-240V/50-60Hz
13014000	Alketherm MK1 TH	1,5 – 8 bar	20-1400 mbar	Propane, Butane or Prop./But. mix	12 kg	220-240V/50-60Hz
13017000	Alketherm MK1 HP11	1,5 – 8 bar	20-1400 mbar	Propane, Butane or Prop./But. mix	12 kg	220-240V/50-60Hz
13017002	Alketherm MK1 HP11	1,5 – 8 bar	20-2000 mbar	Propane, Butane or Prop./But. mix	25 kg	220-240V/50-60Hz
13008021	Alketherm MK1 HP11	1,5 – 8 bar	5-400 mbar	Propane, Butane or Prop./But. mix	12 kg	220-240V/50-60Hz
13008022	Alketherm MK1 HP11	1,5 – 8 bar	5-300 mbar	Propane, butane or Prop./But. Mix	4 kg	220-240V/50-60 Hz
13008023	Alketherm MK1 HP11	1,5 – 8 bar	5-300 mbar	Propane, butane or Prop./But. Mix	12 kg	220-240V/50-60 Hz

## PRESET PROGRAMS



At delivery this processor is programmed with the following (variable) settings.  
To return to these settings at any time.  
Power off the processor, press **SET** key and keep it pressed giving power on: release **SET** key when on the screen *boot* message appears. **t.SET = 25.0°**  
The **COST** values are shown in **COST** paragraphs.

## MANUAL MODE



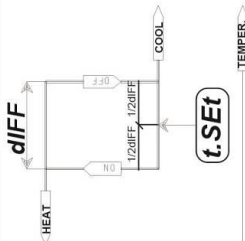
In some start-up conditions may be useful to work in "hand" mode.  
Power off the processor, push + key and keep it pressed giving power on:  
**HAnd** message will be displayed (release now + key).  
Press + (1 is displayed) and press **SET** to activate relay.  
You can press **SET** key for a least two seconds to escape and return to the *Run Mode*.

## STATE INDICATION LAMPS

The lights situated at the bottom of the display show the state of the relay.



## OPERATING DIAGRAM

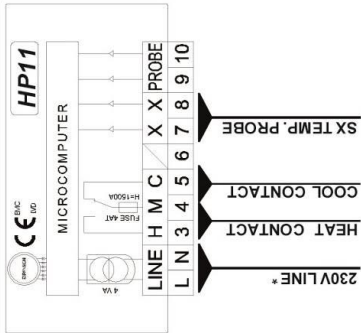


## INSTALLATION

**How to connect the line**  
Connect 230V line on terminals L-N.  
Protect supply with adequate fuse.

**How to connect the contacts**  
Connect terminals on the terminal block (contacts up to 4AMP.AC1) to the loads as shown in the diagram.

**How to connect the sensors**  
Connect the provided sensor as shown in the diagram.  
For remote connections use a standard 0.5-square millimetre two-pole wire, taking great care over the connections, by insulating and sealing the joins carefully. -O.C.- is displayed when the temperature sensor wiring is open, -S.C.- is displayed when the temperature sensor wiring is short circuit (extinguishing condition of relay in this case is that settled in **Cost**, **rY.OC** - **rY.SC**).



\* Other power voltage if you required

As it company policy to continually improve the products the Manufacturers reserve the right to make any modifications thereto without prior notice. They cannot be held liable for any damage due to malfunction.



07.10.13

# HP11

SL 4.0

Single-level thermostat

## Handbook

### MAIN SETTINGS (Run Mode).



#### TEMPERATURE SETTING.

Press **SET** (key lamp flashes):

This message will be displayed in alternance with the

°Set 1 temperature value .

Press + or - to modify. Press **SET** to confirm.

1.5.5E1  
25.0C  
Example t.SET = 25.0°

### VIEWING TEMPERATURE RECORDING



After pressing + will be displayed followed by

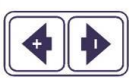
°Maximum Temperature Recording.

After pressing - will be displayed followed by

°Minimum Temperature Recording.

Recorder values are stored in a permanent memory. To clean memory keep pushed + keys for more than 3 seconds. Before cleaning the **CLEA** message will be displayed.

### COST PROGRAMMING (System constants).



These settings refer to the operation mode of the system and must be made on initial startup. Press - / + at the same time for at least one second: the message **C.O.S.t** will be displayed.

Press than repeatedly **SET** until the message regarding the chosen variable is displayed (see table below): variable's value and message will be displayed.

Press + or - to set a new value and then press **SET** to confirm.

The next system constant will then appear.

You can press **SET** for at least 2 seconds to exit and return to the *Run Mode*.



Mess.	Value	Meaning	Note
diff	0.2 °	° differential	*1
tEnP	=1	Temperature representation (=1 °C, =2 °F)	*2
Ad.tE	0 °	° Input temperature sensor correction (+ or -)	*3
rY.OC	=1	Relay status if sensor Open Circuit (O.C)	*4
rY.SC	=0	Relay status if sensor Short Circuit (S.C)	*4

\*1) For more details see *Operating Diagrams*.

\*2) **tEnP=1** : °C Temperature range.

**tEnP=2** : °F Temperature range.

\*3) Sensor reading can be adjusted by pressing the + or - keys

\*4) =0 Relay De-Energised, =1 Relay Energised.