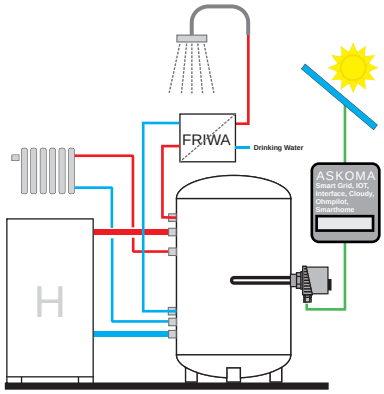
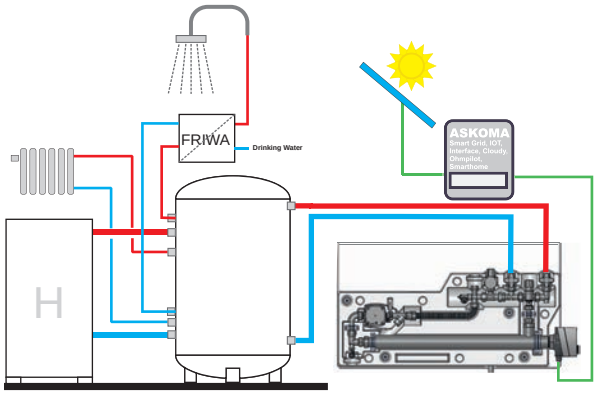
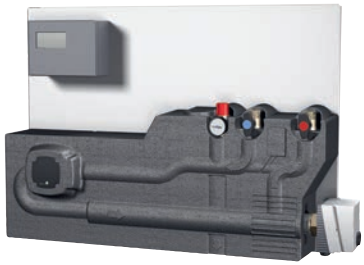
ELECTRIC HEATER FOR OWN POWER CONSUMPTION

ASKOHEAT-PV

FOR HEATING INDUSTRIAL AND HEATING WATER WITH PHOTOVOLTAICS







ASKOMA we care about energy

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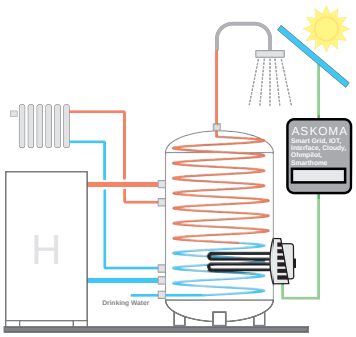
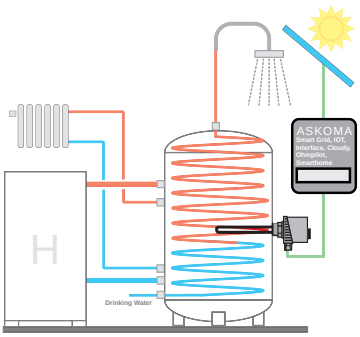
info@askoma.com Å www.askoma.com

WHAT BENEFITS YOU HAVE, BY CHOOSING AN ASKOMA HEATER?

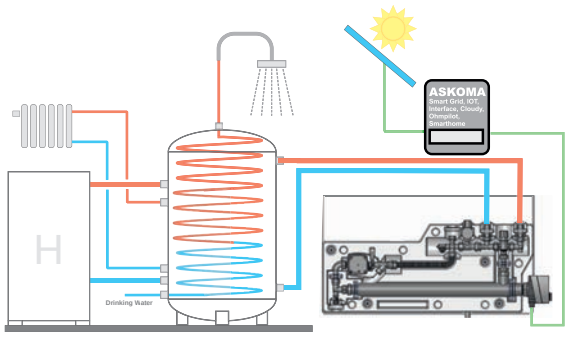
- 52 years of experience have gone into our high-quality products
- With our insulated heating elements in the PV series, there is no corrosion in the storage tank
- Regardless of whether you have a stainless steel, enamel or black steel storage tank, you get a heating element for all materials, thanks to the DIP switch
- In the high-quality Incoloy version the heating elements are approved for heating drinking and heating water
- One manufacturer for all applications
  - 3- and 7-stage via relay
  - 7-stage for Modbus and 0-10V
  - Continuously variable with Fronius Ohmpilot
- ASKOMA has the right heating element for most energy management systems
- The **ASKO***HEAT*-***PV*** can be operated continuously up to 85 °C in order to store the excess energy for you



Flange heater



Screw-in heater



ASKO*WALL*
with
screw-in heater

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INDEX ASKO*HEAT-PV*

We would be happy to advise you on heating inserts for other energy managers.

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ASKOFAMILY+

EVERYTHING REQUIRED FOR SURPLUS PV POWER STORAGE

1.1

CE

ASKOMA we care about energy

ASKOHOME +

Installer ASKOHOMEI...

ASKO*HOME+*
(Demo application is available in Play/AppStore for free testing)

ASKOFAMILY+

- **ASKO***HEAT+* SCREW-IN AND FLANGE HEATER
- **ASKO***WALL+* WALL CONSOLE READY FOR CONNECTION
- **ASKO***SET+* incl. **ASKO***BASIC*
- **ASKO***HOME*
- **ASKO***HOME+*

POWER TO HEAT

In the **ASKO***FAMILY+* the **ASKO***SET+* together with the **ASKO***HEAT+* is used. The **ASKO***HEAT+* converts your electricity surplus from the PV system, wind turbine, water turbine or CHP into heat and stores this energy as heat in your buffer tank / boiler in the house. This heat is then available when needed. The whole thing is easy to install thanks to **the finished cable connector system**.

1.2

Example of maximum PV electricity storage:
You have a 1000L buffer tank with a fresh water station that you heat up to 40°C with your heat pump with a high COP.
With the **ASKO***WALL+* and the **ASKO***HEAT+* you can load this buffer tank up to 85°C.

This means: 1000L x 45°C temperature difference to max. 85°C x 1.16 = 52 kWh
You can save up to 52 kWh of PV power.
Thanks to the PV surplus storage, you can protect the compressor of your heat pump in summer operation and increase the service live of the heat pump due to the hot water heating.
This energy will then be available on demand as needed.

ASKO*SET+*

The **ASKO***SET+* consists of an energy meter (bidirectional counter up to 100A) and an ASKOMA energy manager with power pack. Those are mounted at the house node (fuse box) when installing the **ASKO***HEAT+* in the buffer tank.

If you use the **ASKO***WALL+*, the energy manager and the power pack are placed in the pre-mounted junction box. But the energy meter is still installed at the house node.
You connect the energy manager, the house router and the **ASKO***HEAT+* with an on-site LAN cable. Then connect the energy manager with the energy meter using a RS485 cable and the wiring for **power to heat** is done.

If an existing inverter does not have a digital interface or if the protocol is not compatible with the energy manager, a second energy meter (up to 100A) is integrated into the inverter. The PV electricity production can then be measured and visualised. Also the power consumption in the house can then be calculated and visualised.
If the PV system has an output of more than 100A, an energy meter with flip conversions is used (see option 4.1 on the last page).

ASKO*HEAT+*

The **ASKO***HEAT+* are available in two device variants for boiler installation:
- Flange heater, Ø180mm in power ranges 1.75, 3.5, 4.4, 5.8kW
- Screw-in heater 1½" in power ranges 1.75, 3.5, 4.4, 5.2kW

All screw-in heater 1½" are also applicable for **ASKO***WALL+* .

The **ASKO***HEAT+* flange- and screw-in heater are produced as Incoloy 825 versions, suitable for a simple direct mounting in all heating and drinking water tanks. Thanks to the insulated construction and the dip switch, they can be used in black steel, enamelled as well as stainless steel tanks, and corrosion can be prevented.

ADVANTAGES ASKO*HEAT+*

- 7-stage settings for heating elements
- Insulated mounting of the heating tubes against corrosion
- Pre-wired in the heating element and ready to plug in
- Straightforward cable connection on provided connector plug
- Low surface load (7W/cm²) for low calcification
- 4 x PT1000 probes connectable to Modbus TCP / RTU
- Off line operation possible
- As Ø 180mm flange with seal
- The screw-in heater 1½" with solid brass nipples
- Thanks to dip switch applicable for all tank materials

Subject to technical changes

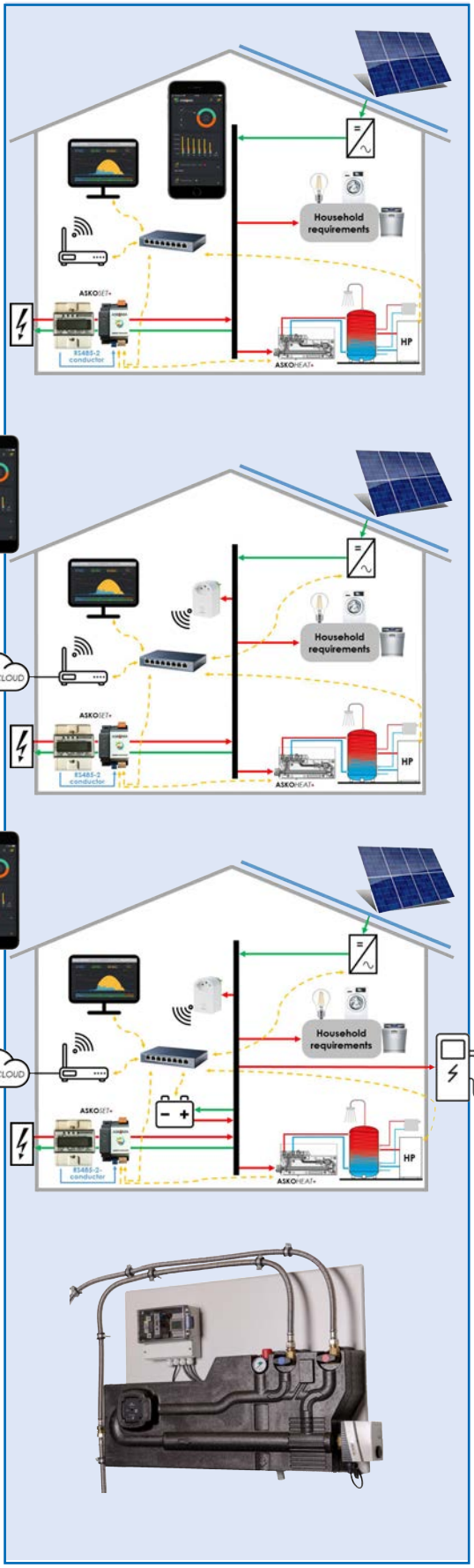
232_V3_012021

1.3

ASKO*BASIC* (included in **ASKO***SET+*)

Contains the following possibilities:

- Power to heat, 7-stage regulation for a heating element
- Manual use, 100% output (autom. shut down after 24h)
- Actuation as emergency heating of heat pumps, 100% output
- Anti-legionella management
- System can only be monitored via in-house network
- Real-time visualisation only
- No cloud services necessary
- Visualisation about in-house network via PC, tablet and mobile phone



EXTENDING OPTIONS (postable any time)

ASKO*HOME* (extension to **ASKO***BASIC*)

- It can be accessed remotely and is visible
- PV excess current prioritised on several **ASKO***HEAT+*
- All data is stored in the Cloud
- History data visible
- Storage temperature stratification can be visualised using four PT1000 probes
- SmartPlugs (switchable, personalised sockets switchable and monitoring)
- Heat pump visualisation
- Inverter can be chosen (no energy meter for inverter necessary, see picture 2)

ASKO*HOME+ (extension to* **ASKO***BASIC / HOME)*

Read out, visualise and charge management of:

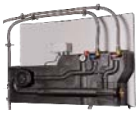
- Energy yield estimate
- Car charging station (continuously variable)
- Battery storage

ADVANTAGES ASKO*WALL+*

- For max. surplus PV power storage
- Automatic temperature control
- Min. flow temperature can be freely selected (50-75°C)
- Temperatures up to 85°C possible
- Full buffer tank volume can be used
- Legionella protection thanks to high temperature
- Self-regulating pump
- No turbulence in thermal stratification of tank
- Pressure relief valve 3 bar
- Hydraulic unit tested up to 10 bar
- Slight changes possible
- Heating elements up to 9kW can be used

Subject to technical changes

232_V3_012021

	Order no.	Appellation	Description	Immersion length mm	Use
		1.1. ASKO*WALL +*			
	012-2103	**ASKO*WALL +***	**ASKO*WALL +*** for heating water, composed of a hydraulic unit with mud flap, filling valve, vent valve, connection for possible expansion tank, pressure relief valve, return flow shutoff, flow shutoff, thermostatic valve 50-75°C, connection for **ASKO*HEAT +*** according to choice of power, drain cock, circulation pump and insulation housing. Electrical junction box prepared for **ASKO*SET +*** system, including pre-wiring of the circulation pump and the heating element.	1300x700	
		2.1. ASKO*SET +*			
	012-2275	**ASKO*SET +***	Contains energy manager and power supply 24V (if bidirectional energy meter is available on site from smart meter list). A possible extension tool would be a second smart meter to display PV production and energy consumption if the inverter was non-readable.		WALL/Tank
	012-2280	**ASKO*SET +***	Contains bidirectional energy meter, energy manager and power pack 24V. A possible extension would be a second smart meter to display the pv production and the energy consumption if the inverter was non-readable.		WALL/Tank
		3.1. Screw-in heater ASKO*HEAT +*, 7 levels, 230V / 400V, Modbus TCP / RTU, LAN			
	012-6391	AHIR-BI-plus-1.75	**ASKO*HEAT +***, 230V / 400V, 7 levels 1.75kW	400	WALL/Tank
	012-6392	AHIR-BI-plus-3.5	**ASKO*HEAT +***, 400V, 7 levels 3.5kW	600	WALL/Tank
	012-6393	AHIR-BI-plus-4.4	**ASKO*HEAT +***, 400V, 7 levels 4.4kW	700	WALL/Tank
	012-6394	AHIR-BI-plus-5.2	**ASKO*HEAT +***, 400V, 7 levels 5.2kW	750	WALL/Tank
		3.2. Flange heater ASKO*HEAT -F+*, 7 levels, 230V / 400V, Modbus TCP / RTU, LAN			
	012-6791	AHFR-BI-plus-1.75	**ASKO*HEAT -F+***, 230V / 400V, 7 levels 1.75kW	250	Tank
	012-6792	AHFR-BI-plus-3.5	**ASKO*HEAT -F+***, 400V, 7 levels 3.5kW	360	Tank
	012-6793	AHFR-BI-plus-4.4	**ASKO*HEAT -F+***, 400V, 7 levels 4.4kW	420	Tank
	012-6794	AHFR-BI-plus-5.8	**ASKO*HEAT -F+***, 400V, 7 levels 5.8kW	540	Tank
		4.1. Options			
	012-0130	**ASKO*HOSE***	Two oxygen-tight OXYban connection hoses for a flexible connection of the **ASKO*WALL*** to the buffer tank (length 1600mm)		WALL
	012-0125	**ASKO*SENSOR***	Probe set with 3 x PT1000 probes and junction box for **ASKO*HEAT +*** if used in tank		Tank
	012-0126	**ASKO*SENSOR***	Probe set with 4 x PT1000 probes for **ASKO*HEAT +*** to be attached on the **ASKO*WALL***		WALL
	012-0134	Energy meter 100-200A and flip conversions	Energy meter for node point or inverter reading from 100 up to 200A with three flip conversions		

Supported devices (current overview at www.askoma.com/askofamily+):

Heat pumps:
- Every SG Ready heat pump
- PV Ready with Shelly 1
- Alpha Innotec
- Heliotherm
- STIEBEL ELTRON
- S&W Futura HSW
- Roth Werke
- Novelan

Batteries:
- BYD B-BOX H with Kostal
- BYD B BOX H with Victron
- sonnenBatterie
- Fronius with BYD
- VARTA Storage
- GREENROCK Saltwater batteries
- E3 / DC
- Tesla Powerwall 2
- SOLARWATT MyReserve
- Solaredge StorEdge
- Innovenergy
- Powerball energy storage systems
- SMA Sunny Island
- RCT Power Storage

Smart meter:
- Fronius
- SolarEdge
- Smart-me Cloud
- B-Control EM3000
- GUDE Expert
- EmonCms
- Carlo Gavazzi
- my-PV
- Clemap ONE
- Kostal
- Shelly 1, Shelly 1PM, Shelly 2.5, Shelly EM, Shelly 3EM, Shelly 4Pro
- Socomec Countis
- Huawei SUN2000

Inverter:
- ABB Trio with VSN3000
- Fronius Symo
- SolarEdge SE
- SMA
- Kostal
- KACO Tx1 and Tx3
- Delta
- SolarMax
- Output measures via EM300
- Output measures via smart-me meter
- RCT Battery Inverter
- Huawei SUN2000

Car charging station:
- KEBA Wallbox
- go-eCharger
- ABB EVLunic
- JUICE CHARGER 2
- Etrel Inch Home
- easee Home
- Alfen EVE Single / Duo

Smart Plug / Switch:
- smart-me Relay
- smart-me plug (e. g. for bicycle)
- Relay box GUDE 2302
- myStrom
- Shelly 1, Shelly 1PM, Shelly 2.5, Shelly 4Pro

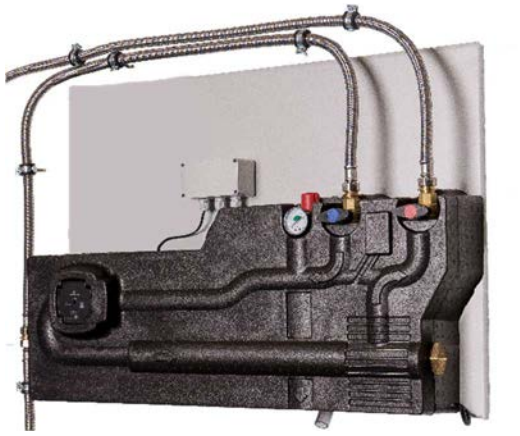
Wall console ready for connection

without screw-in heater

1.5

To maximise PV own power consumption

- for **ASKO***HEAT+* screw-in heater
- 7 levels up to 5.2kW
- for high storage temperatures up to 85°C
- excellent legionella protection



Application

For external connection on heating buffer tank

1. For storage of PV energy as heat in heating water
2. As emergency heating for heating systems
3. For high storage temperatures for legionella protection (hygienic storage)
4. For existing buffer tanks without heating element access

Features

This wall console can be retrofitted easily and individually and will be connected to the on-site buffer tank or integrated in the intake and outlet of the heating lines.

Increasing the storage temperature can contribute to legionella protection in a hygienic storage. A temperature between 50 and 75°C can be set manually on the thermostatic valve.

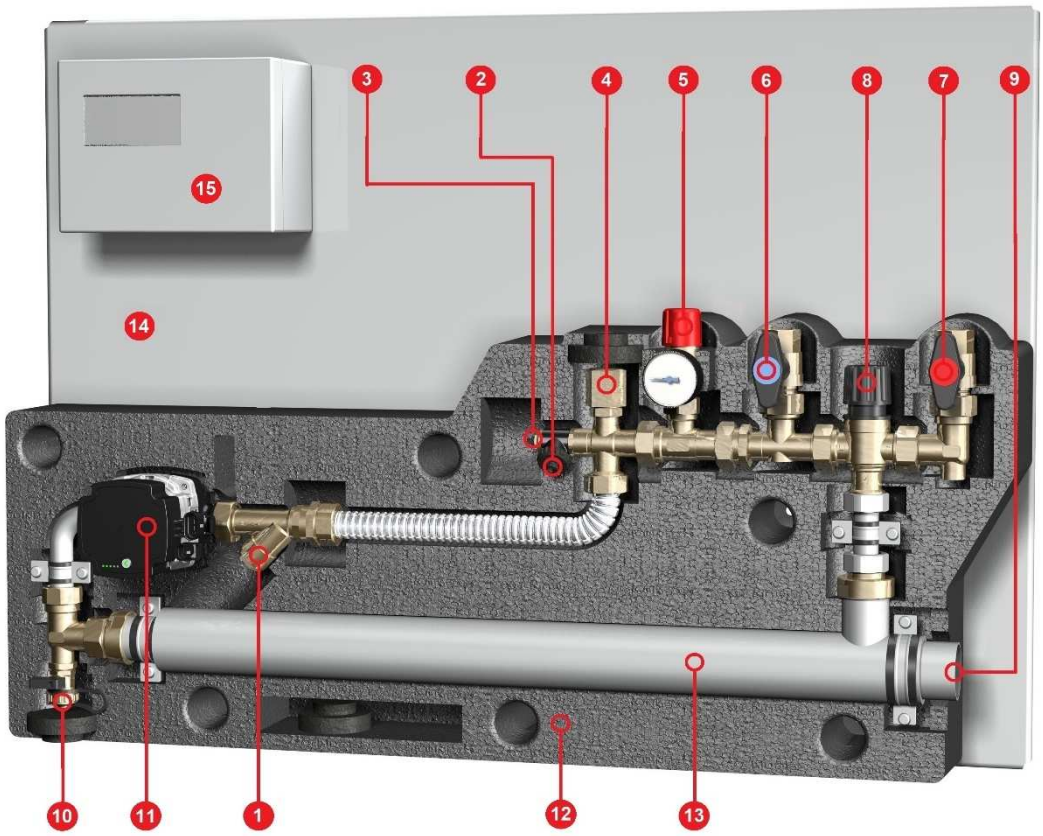
Thanks to the circulation pump in the **ASKO***WALL+*, the water circulates until the set temperature is reached. As soon as this set temperature is reached, the valve opens and the hot medium is stratified in the storage tank. If the temperature in the **ASKO***WALL+* falls below the set value due to cold water flowing in, the valve closes.

7-stage **ASKO***HEAT+* screw-in heater with 1½" thread can be used up to a maximum immersion length of 750mm.

Order summary

Type	*Order no.*	*Additional text*	*Immersion length [EL]*
ASKO*WALL+*	012-2103	1.75 kW up to 5.2 kW	up to max. 750mm
Accessories			
ASKO*HEAT+*			
AHIR-BI-plus-1.75	012-6391	7x0.25kW	400mm
AHIR-BI-plus-3.5	012-6932	7x0.50kW	600mm
AHIR-BI-plus-4.4	012-6393	7x0.65kW	700mm
AHIR-BI-plus-5.2	012-6934	7x0.75kW	750mm
Connection hoses for **ASKO***WALL* & **ASKO***WALL+*	012-0130	1600mm length	
Probe set with 4 probes for **ASKO***HEAT+*	012-0126	5m cable length	
ASKO*SET+* Energy meter, energy manager & power pack	012-2280	Incl. **ASKO***BASIC*	

Overview of the components and the function



1 Mud flap
2 Filling valve
3 Vent valve
4 Connection for possible expansion tank (1" internal thread, flat sealing)
5 Pressure relief valve
6 Return flow shutoff & OXYban hose connection
7 Flow shutoff & OXYban hose connection
8 Thermostatic valve 50-75°C
9 1½" threaded connection for screw-in heater
10 Drain cock
11 Circulation pump
12 Insulation housing
13 Instantaneous water heater **ASKO***FLOW*
14 Console rear wall
15 Electrical junction box prepared for **ASKO***HEAT***+** screw-in heater

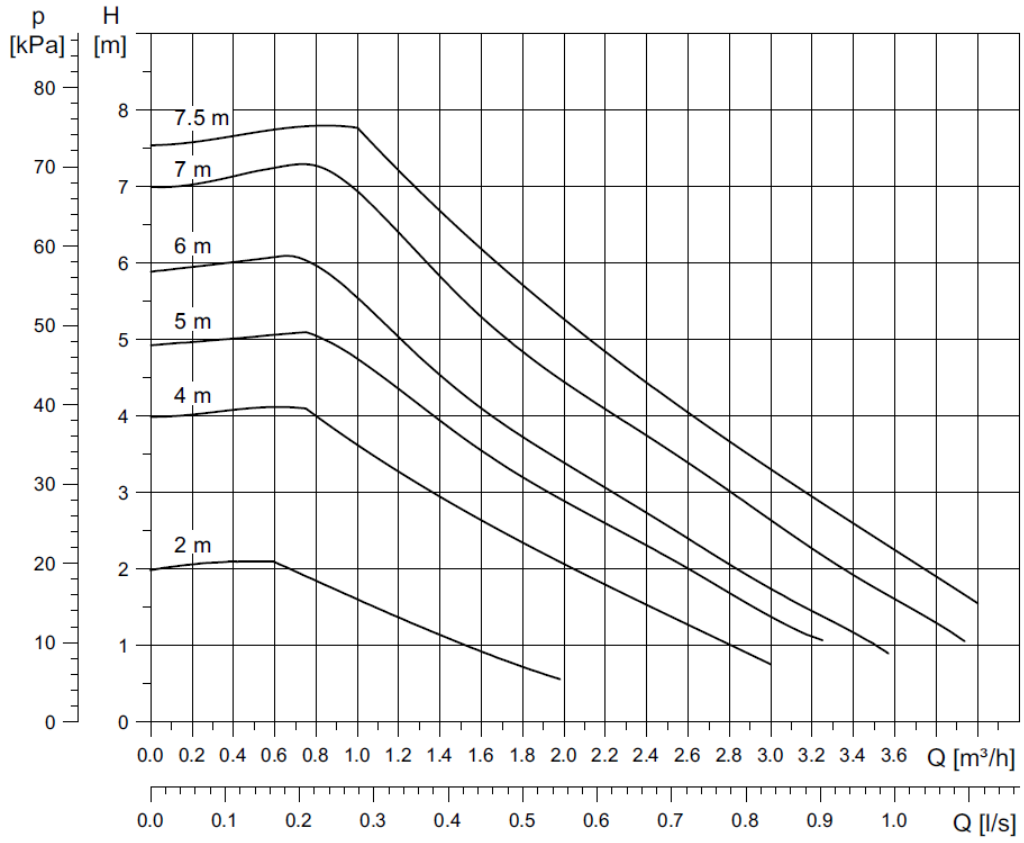
Components

1.7

Pump

Type:	Grundfos UPM3 Auto 15-70
Power range:	min. 5W (0.07A) max. 52W (0.52A) at 1.0MPa maximal pumping height 7m
Connection:	230V ~ 50/60Hz

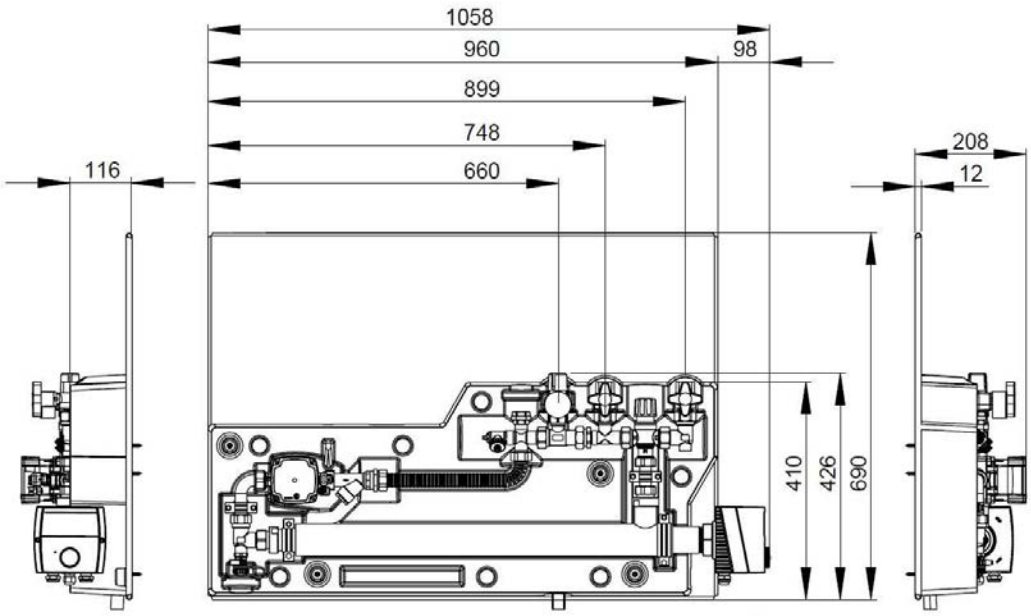
Pump capacity



Pressure gauge:	Pressure range:	0-4 bar
	Gauge:	Ø 50mm
Pressure relief valve:	Type:	DUCO safety valve DN25
	Reaction pressure:	3 bar (permanently set)
	Max. heat output:	50kW
	Temperature:	-10°C up to +120°C
	Medium:	Water and water glycol mixture up to 50%
	Material:	Brass CW614N
	Standard:	NEN-EN-ISO 4126-1
Thermostatic valve:	Type:	tubra®-therm 507.19.00
	Adjustment range:	+50°C up to +75°C
	Flow factor:	1.9m³/h
	Material:	Brass CuZn39Pb3 (2.0401)
Ball valve:	Connection:	3/4" internal thread
	Material:	Brass
Filling valve:	Connection:	3/4" external thread
	Material:	Brass
Connection-expansion vessel:	Connection:	3/4" external thread
	Material:	Brass
Vent cock:	Connection:	3/4" external thread

Dimensions

Dimensions of the wall console incl. screw-in heater



Description

The **ASKO***WALL***+** is designed for easy installation on any conventional buffer tank to provide the user with energy-efficient, smooth, high-temperature stratification.
To this end **ASKO***WALL***+** can be connected directly to the relevant buffer tank.

On the **ASKO***WALL***+** the user sets the thermostatic valve (no. 8, see page 2) to the desired temperature, at which the valve should open, to fill the buffer tank with a minimum temperature. This can be chosen between 50 and 75°C.

Example: desired temperature is set at 60°C. The heating water in the **ASKO***WALL***+** circulates within the internal circuit until the water is heated to 60°C.
The thermostatic valve then opens and the hot water passes to the tank. This continues for as long as water at the desired temperature is available. Then, the thermostatic valve closes and the process begins again.
The **ASKO***HEAT***+** can heat the heating water up to 85°C and then the smart thermostat switches off.

Application possibilities

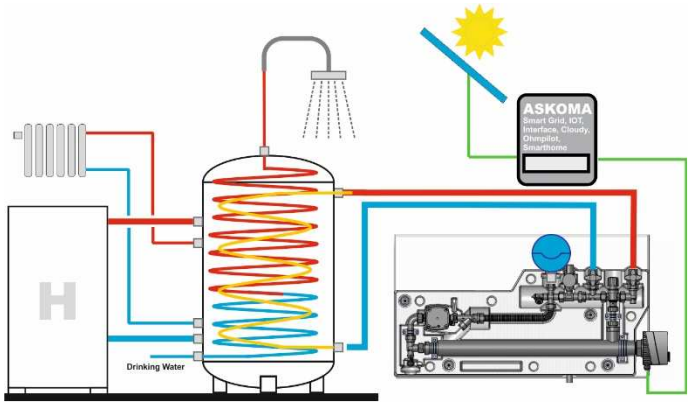
ASKO*HEAT***+** heating elements are available in a variety of power output levels.
These are available for signale (230V~) and three-phase operation (400V 3~)
The **ASKO***HEAT***+** can be controlled via LAN, with Modbus-TCP.
Which of these screw-in heaters should be used depends on the surplus power output of your PV system.
The **ASKO***WALL***+** can also be used as direct heating.

Application examples

1.9

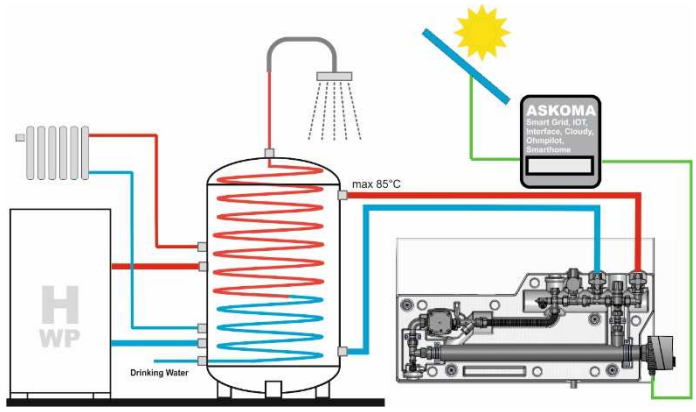
Hygienic tank with integrated solar heat exchanger

The **ASKO***WALL***+** is designed for easy installation on a **hygienic tank with integrated solar heat exchanger**.
To this end, the **ASKO***WALL***+** can be connected directly to the solar heat exchanger loop. This requires the customer to connect a solar expansion tank to connection no. 4 (see page 2)
(size must be dimensioned and supplied by the technician on the basis of internal volume).



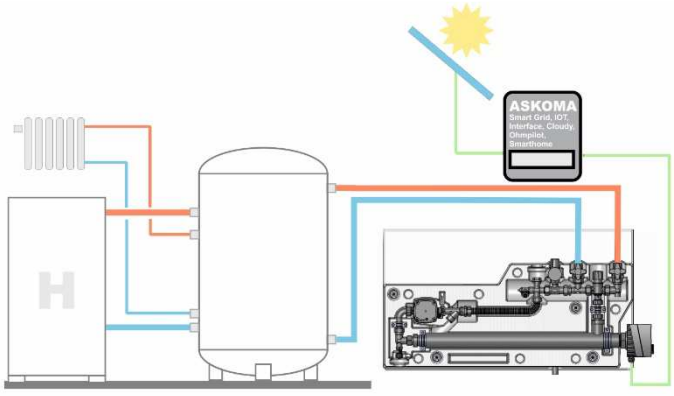
Hygienic tank without integrated solar heat exchanger

The **ASKO***WALL***+** is designed for easy, direct installation on a **hygienic tank** to provide the user with energy-efficient, smooth, high-temperature stratification.
ASKO*HEAT***+** heating elements are available in many performance sizes.



Buffer tank

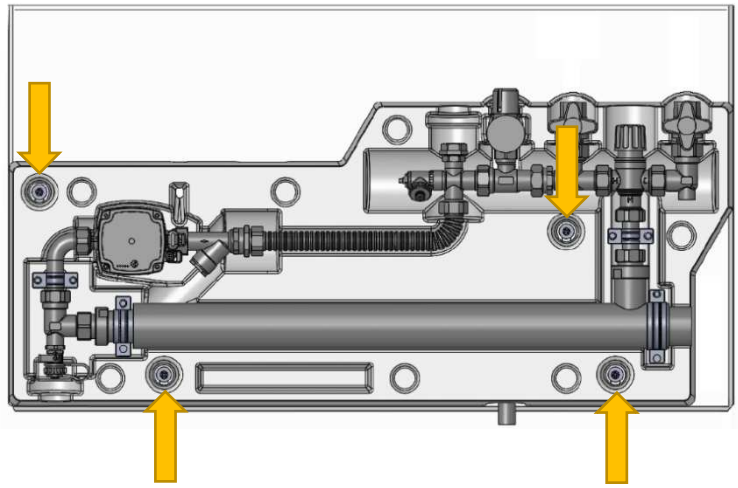
The **ASKO***WALL***+** is designed for easy, direct installation on a **buffer tank** to provide the user with energy-efficient, smooth, high-temperature stratification.



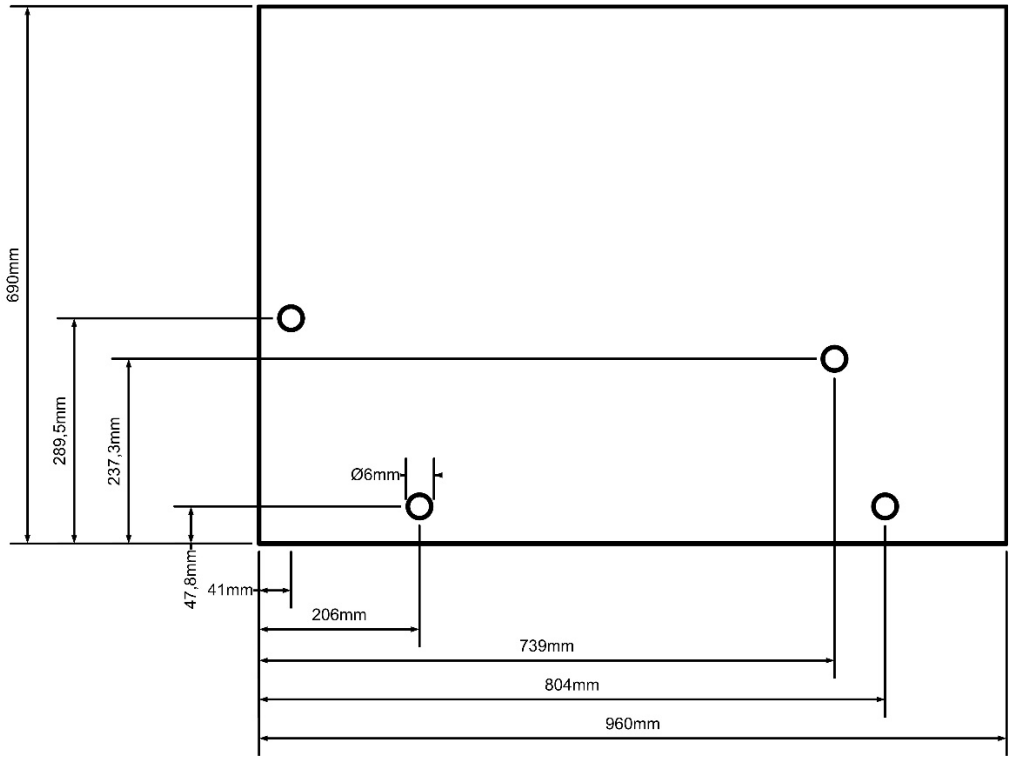
Mounting

Installation of the wall console

The **ASKO***WALL***+** can be attached to the wall using the four screws and dowels supplied.



Position of the boring holes



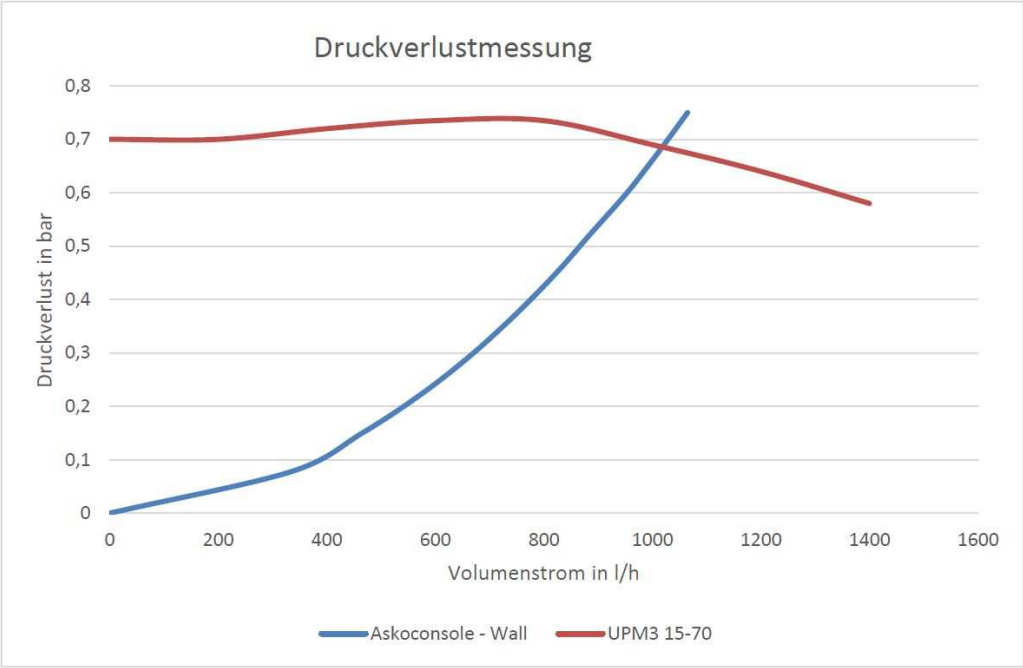
Fitting notes

The **ASKO***WALL***+** must be installed horizontally. Access must be guaranteed for inspection and maintenance. Uncovering the installation is not permitted. The **ASKO***WALL***+** must be installed in a dry and frost-free surrounding.

The srew-in heater must be covered entirely by the liquid. The circulation of the liquid shall not be inhibited.

Specific values

Pressure loss



1.11

Electrical connections

Pre-wired connections of the ASKO*WALL*+

Connection cable for circulation pump
Connecting line between junction box (clamp X2) and the circulation pump

Connection cable temperature sensor
Connecting line between junction box (clamp X3) and the **ASKO*HEAT*+**

Connection cable heat pump request
Connecting line between junction box (clamp X4) and the **ASKO*HEAT*+**

Data cable energy manager
Connecting line between energy manager and the **ASKO*HEAT*+**

ASKO*WALL*+ connections to be set up by the customer

Supply line (energy manager and pump)
Power supply to the energy manager and the pump, connection box (clamp X1)

Supply line (ASKO*HEAT*+)
Power supply for the screw-in heater

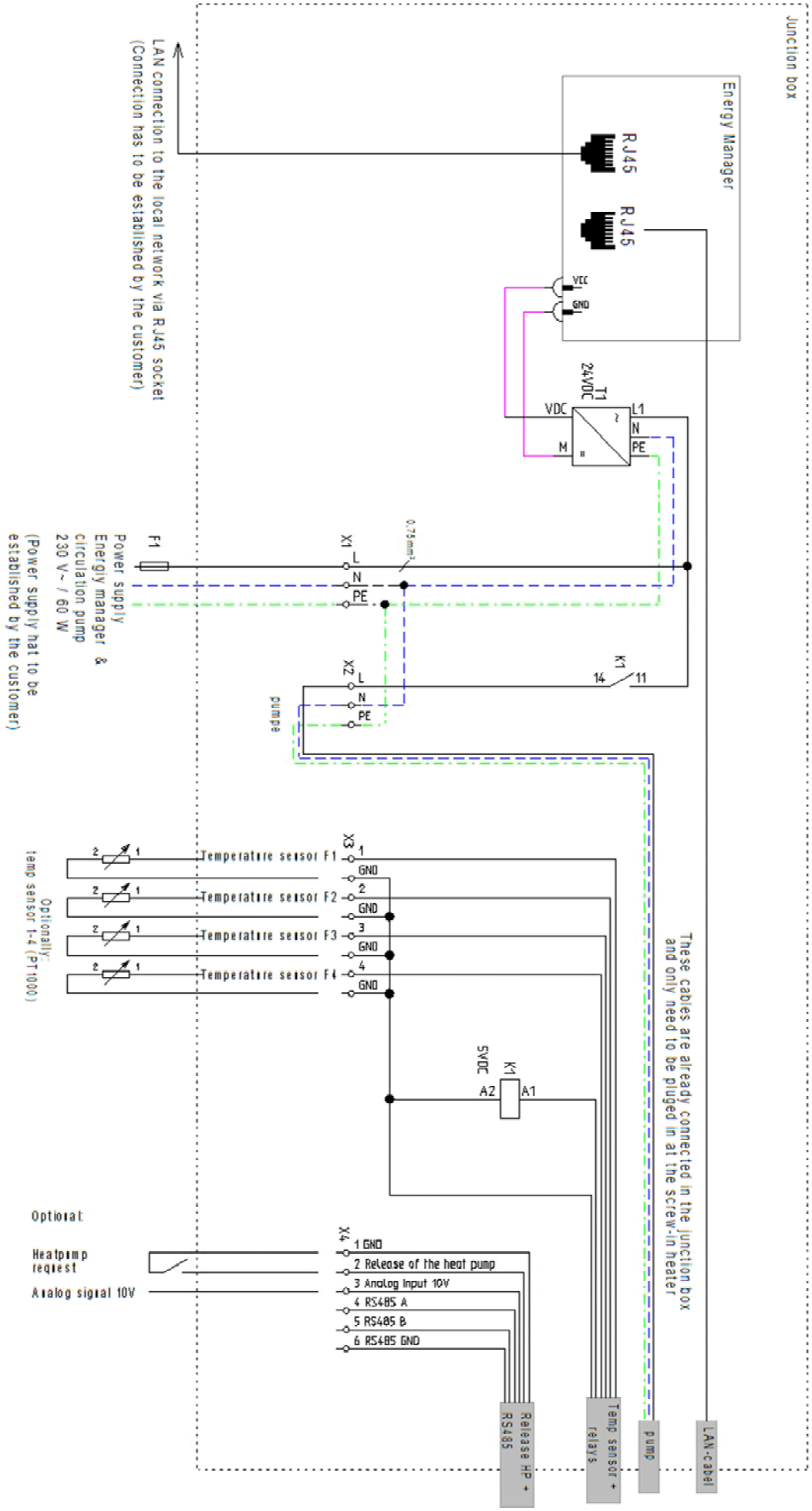
Optional:

Connection of PV energy meter
Connection line between the energy meter of the PV system and the energy manager

Note !

The ASKO*HEAT*+ heating element and the energy manager require an Ethernet (LAN) connection to the local network.
This local network must be connected to the internet.
The ASKO*HEAT*+ and the energy manager must be able to establish a connection to the ASKOMA server for parameterization, registration and commissioning.
The data cannot be compared without a connection to the ASKOMA server. The ASKO*HEAT*+ heating element cannot be put into operation.

Anschlussbox to ASKOWALL+



004-0356
004-0364

Energy meter

Bidirectional counter with display

1.13

Application

Can be used at the node & to read out the PV yield

Bidirectional counter for measuring, transmitting and displaying electrical parameters.

The energy meter 004-0356 is suitable for the direct measurement of the three outer conductors up to max. 100A and a cross section of max. 25mm².

Larger currents or larger wire cross sections can be measured with the help of current transformers and the energy meter 004-0364.

These bidirectional meters measure the electricity consumption and the electricity output.

The energy meters can be optimally used to determine and evaluate the self-consumption of self-generated electricity.

On the display, values such as voltage, energy, active and reactive power and the total current, can be shown.

Certification: CE / IEC62052-11, IEC62053-21

Connection

The measured values can be read out via an RS 485 interface and Modbus protocol.

These measured values enable the **ASKO***SET+* to control and regulate the **ASKO***HEAT+* devices .

Both energy meters offer accuracy class 1

Types

004-0356	**004-0364**
direct method of measurement up to max. 100A / 25mm²	Measurement with a current transformer (Current transformers are included with delivery)

Technical data

	3-phase direct measurement	**3-phasige measurement with current transformers**
Operating voltage:	3x230V /400V	3x230V /400V
Max. current per phase :	100A	1A
Operating frequency AC:	50-60Hz	50-60Hz
Own consumption per phase:	1W / 8VA	1W / 8VA
Operating temperature:	-20 C up to +65 C	-20 C up to +65 C
puncture strength:	AC 4kV for 1 minute / 6kV impulse 1.2/50µsec	AC 4kV for 1 minute / 6kV impulse 1.2/50µsec
Max. Conductor cross section:	25mm²	25mm²
Accuracy class:	Class 1	Class 1

004-0356
004-0357

Energy manager

Gateway for the transfer of field data

CE

Application

Can be used as an interface between Askoma heating elements and the cloud

The Askoma energy manager is used to transmit energy and resource consumption.
The gateway is used to monitor and control devices and system states.
The screw-in heater **ASKO***HEAT*+ and the flange heater **ASKO***HEAT*-F+ require this gateway for communication.
Together with the cloud, the energy manager controls the **ASKO***HEAT*+ / **ASKO***HEAT*-F+ independently of an internet connection.
With the energy meter (article number: 004-0356 / 004-0364) the data is exchanged via Modbus RTU, with the **ASKO***HEAT* devices via Modbus TCP.

Connection

The data transfer to the cloud takes place via a local router that must be connected to the Internet.

Article numbers

Power pack:	004-0356
Energy manager:	004-0357

Software

Update-capable energy manager software based on a fast Linux distribution.

Technical data

Size (W x L x H):	37mm x 97mm x 62mm
Mounting:	DIN Rail mounting (35mm cap rail)
Operating temperature (max.):	0ºC up to +55ºC
Supply:	24 VDC (±15%), 60 mA (max.), via plug (Weidmüller BL 5.08/03)
CPU:	i.MX 6UL (Cortex A7, 528 MHz), 512MB DDR3 RAM, 1MB NOR Flash, 512MB NAND Flash
Real Time Clock	Buffered by lithium battery
Ethernet interface:	2 x 10/100BaseT, 2x MAC address, RJ45 connectors, Link and traffic LED indicators
Serial interface:	1 x RS485 galvanically isolated, Weidmüller BL 5.08/02 plug
SD Card Interface:	1 x microSD card, SD / SDHC, Push/push Slot
Trusted **P**latform **M**odule:	External circuit for encryption and identification of the hardware
I2C interface	Pin header for connecting external I2C functions such as display or push buttons
CE RoHS /WEEE:	IEC 61000-6-3, IEC 61000-6-2, IEC 62368-1

ASKOMA

ASKO*HEAT+* 7 levels

012-6391

Screw-in heater 1½" Insulated mounting

AHIR-BI-plus...

With combination of temperature control, safety temperature limiter and power switching unit for photovoltaic system
Suitable for installation in ASKO*WALL+*

1.15

PV own power consumption (Power to Heat)

- Controllable via Modbus-TCP via LAN
- Controllable via 0-10V analog signal
- 7 linear power levels

Application

Auxiliary heating system of industrial water and heating water in photovoltaic systems.

To optimise the own consumption of PV energy

Features

SH The heating element is made of three U-shaped heating tubes, which are mounted isolated into a 1½" conical brass nipple by food-safe plastic sleeves.
Thanks to the insulated mounting of the heating tubes, the devices are also suitable for enamelled boilers.
The unheated zone is 150 mm for all types.

TC Electromechanical temperature control acc. EN 14597, not fail safe.

STL Electromechanical safety temperature limiter acc. EN 14597, fail safe. If nominal value is reached, the limiter switches OFF and stays locked in this position. Reset is performed manually and is only possible after the sensing element is cooled off by approx. 10 K.

- Time factor of sensing element acc. EN 14597
- Operation type TC Type 2 B acc. EN 14597
- Operation type STL Type 2 BK acc. EN 14597

Connections

The screw-in heater is equipped with four connection sockets. All necessary plugs are included in the scope of delivery. After the first connection or commissioning by an electrician, the device can be completely disconnected from the mains and the connection to the control by pulling out the plug.

Type summary

Industrial and heating water
Incoloy 825, 2.4858

Type	*Order no.*	*Power range*	*Immersion length [EL]*
AHIR-BI-plus-1.75	012-6391	**1.75 kW** (0.25 + 0.50 + 1.00 kW)	400 mm
AHIR-BI-plus-3.5	012-6392	**3.50 kW** (0.50 + 1.00 + 2.00 kW)	600 mm
AHIR-BI-plus-4.4	012-6393	**4.40 kW** (0.65 + 1.25 + 2.50 kW)	700 mm
AHIR-BI-plus-5.2	012-6394	**5.25 kW** (0.75 + 1.50 + 3.00 kW)	750 mm

Function modes

Analog mode (0-10V control signal)
The heating element can be regulated with a 0-10V signal in 7 power levels.
At a voltage of 1.25V the device switches to the first heating level. Each following stage needs a voltage rise of 1.25V. At a voltage of 8.75V the device switches to the seventh heating level.
To avoid flickering, a hysteresis of 0.25V is programmed.

Modbus-TCP
In this function, the device obtains an IP address from a local DHCP server (router). After the heating element has been integrated into the network, it can be regulated in 7 power levels and the temperature of the sensors can be read out.
The power levels can be controlled via a value 0-7 or via a target value specification (here the **ASKO***HEAT***+** independently selects the appropriate power level).
The Modbus registers are described in a separate document.
The Modbus protocol can be downloaded from our homepage www.askoma.com

Legionella protection
The automatic legionella protection automatically heats up the system daily / weekly or bi-weekly to min. 65°C. If the temperature of 65 ° C is reached within the interval regardless of the legionella protection program, the interval timer starts from this point on again. The parameters can be configured via Modbus or MQTT.

Heat pump requirement
If a heat pump is available, the device can be used as an additional heater. The heat pump is controlled via a digital input that activates the full heating output (level 7).

Emergency operation
The device has a button that can be used to manually switch the full heating output (level 7) on and off at any time. This function is automatically deactivated after 24 hours of continuous operation.

Energy manager

If the analogue mode (0-10V) is not sufficient, the **ASKO***HEAT***+** should always .be connected to a compatible energy manager

The **ASKO***HEAT***+** receives control and configuration requests via Modbus TCP and delivers current measured values and status information.

ASKOMA offers a separately available energy manager that is optimally tailored to the use case Power to Heat, in connection with the **ASKO***HEAT***+**.

The ASKOMA energy manager locally monitors the energy consumption in the house and activates the **ASKO***HEAT***+** when there is excess energy from the solar system. Compatible, controllable consumers (e.g. large electrical appliances, electric vehicles, etc.) can be monitored and prioritized using the energy manager. An energy generation forecast calculates in advance which energy yield is to be expected. History data is transferred to the cloud and can be conveniently analysed and evaluated there. The current system status can be viewed on the go at any time via cloud.

Technical data

The following indications are valid for the above listed standard types. Due to the function, other types might show different data.

Application range

Adjustable cut-off temperature	0…❄…28...85 °C
Safety cut-off temperature ϑ_{off}	110 °C (0-9 K)
Ambient temperature on switching head	max. 50 °C (T50)
Thermal switching differential	11.0 K ± 5.5 K
Ambient temperature for storage and transport	-30...+90 °C

Calibration

Calibration tolerance	± 7 K
Time factor in water	<45 s

Specification

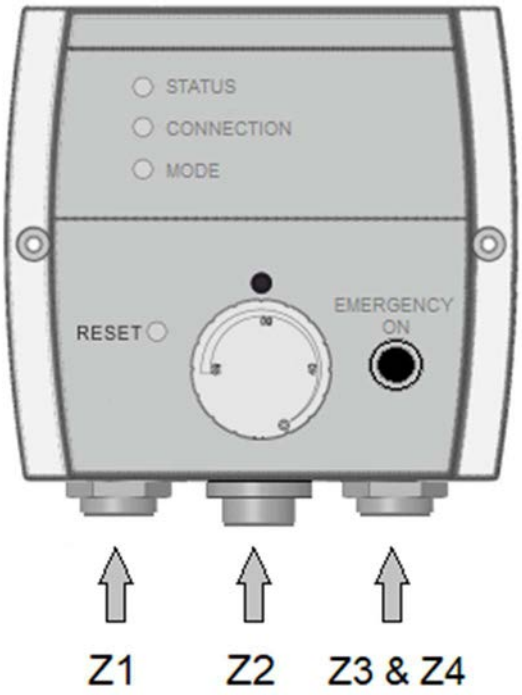
Fitting thread	R 1½" conical
Brass nipple	CuZn40Pb2
Heating tube	Incoloy 825, 2.4858
Surface load	8-9 W/cm²
Electrical connection	Connecting plug with screwed contact
Operating pressure	max. 10 bar
Housing cover	Polycarbonate, RAL 7035 (light gray)
Housing base	Polycarbonate, RAL 7016 (anthracite gray)
Protection mode	IP41 acc. EN 60529

Fitting notes

The device must be installed horizontally. The heating tubes must be covered entirely by the liquid. The circulation of the liquid shall not be inhibited.

Please note: This heating element is applicable in stainless steel boilers as well as in black steel / enamelled boilers. Select the settings via DIP switch in the housing interior according to the boiler type.

Connecting plug



Plug Z1 - mains supply
To supply energy to the heating element and the internal circuit boards
Wieland RST 5-pin plug, IP66
Screwed contact max. 2.5mm² (up to 1.5mm² ferrules can be used)
Power rating: 250/400V 16A

Plug Z2 – sensors & analogue input
Connection options for the external sensors and 0-10V analogue signal
Bulgin Mini Buccaneer 6-pin plug, IP68
Screwed contact max 1.0mm² (18 AWG)
Power rating: 250V~ 3A

Plug Z3 – communication & relay signal
Connection options for communication via RS485 interface
Bulgin Mini Buccaneer 6-pin plug, IP68
Screwed contact max 1.0mm² (18 AWG)
Power rating: 250V~ 3A

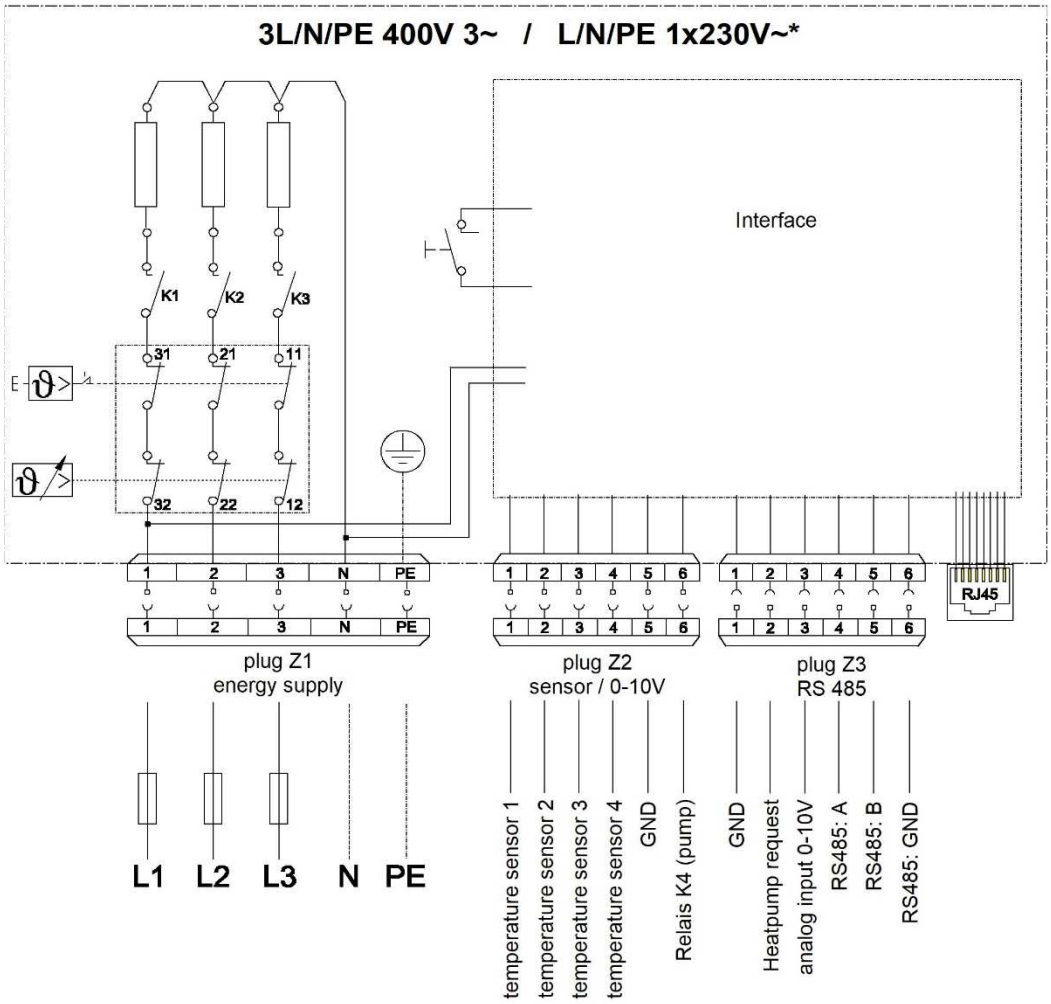
Plug Z4 – RJ45 connection socket
Network connection possible via LAN connection

All plugs required for the connection are included in the scope of delivery.

Connection diagram

1.19

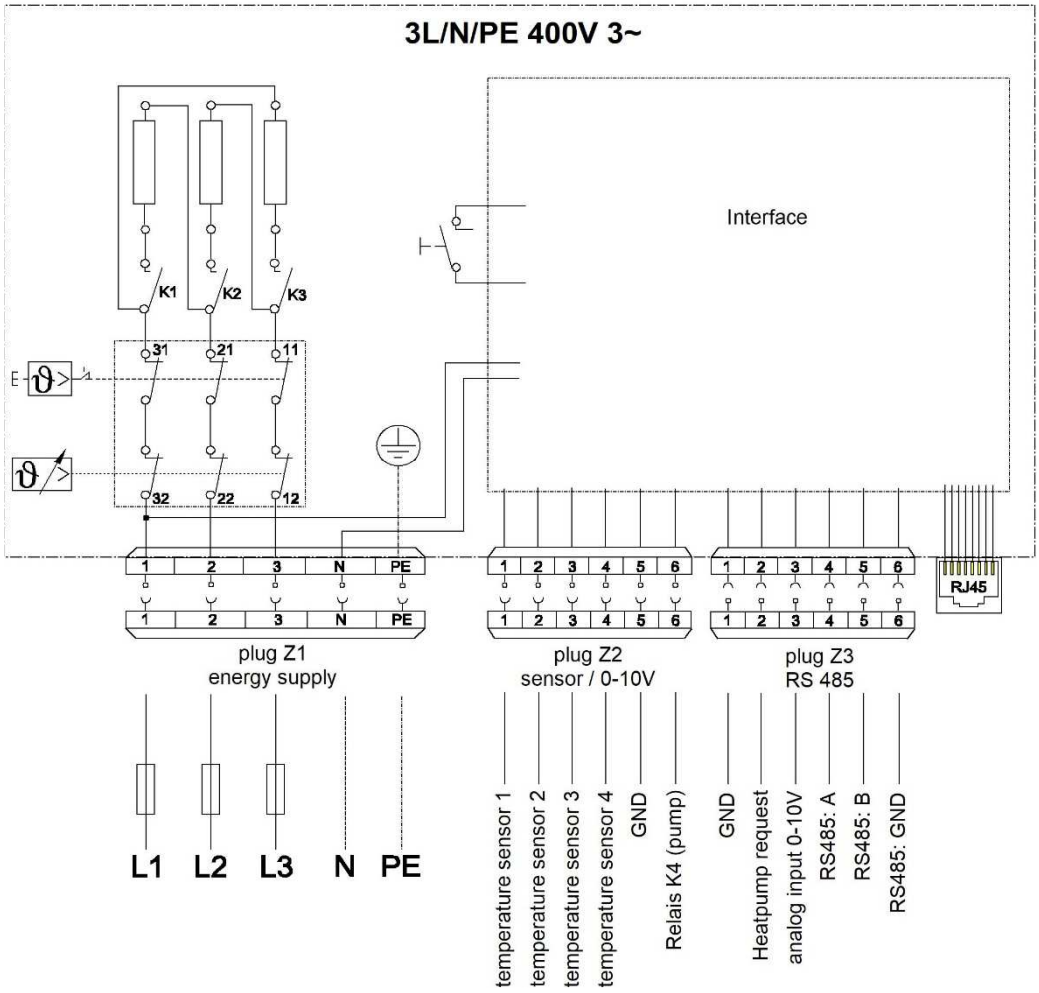
1.75 kW



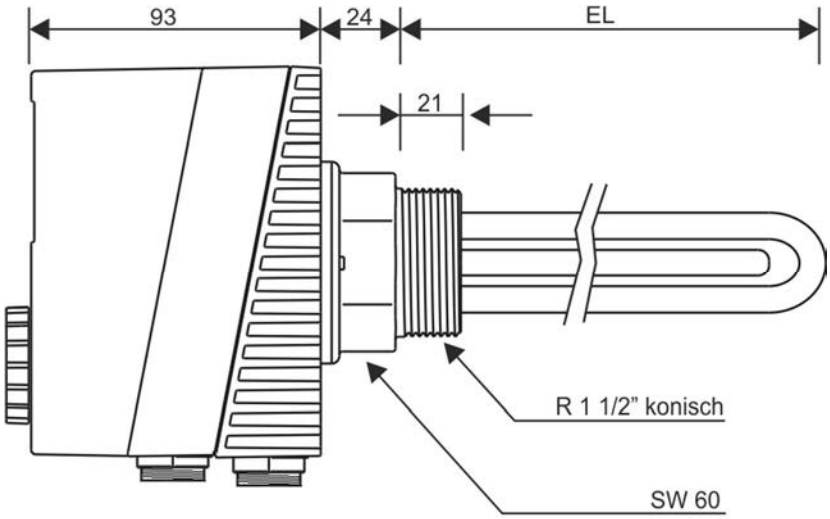
*** for single-phasing (1x230V~) L1, L2 and L3 use external jumper**

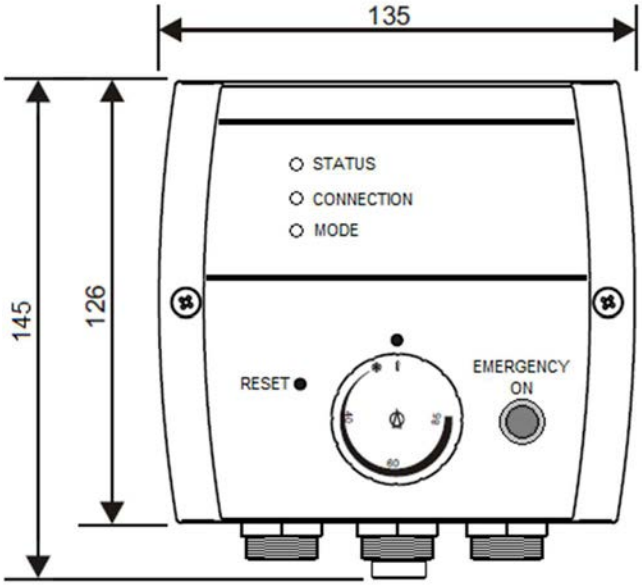
Connection diagram

3.5 kW - 5.2 kW



Dimension drawing





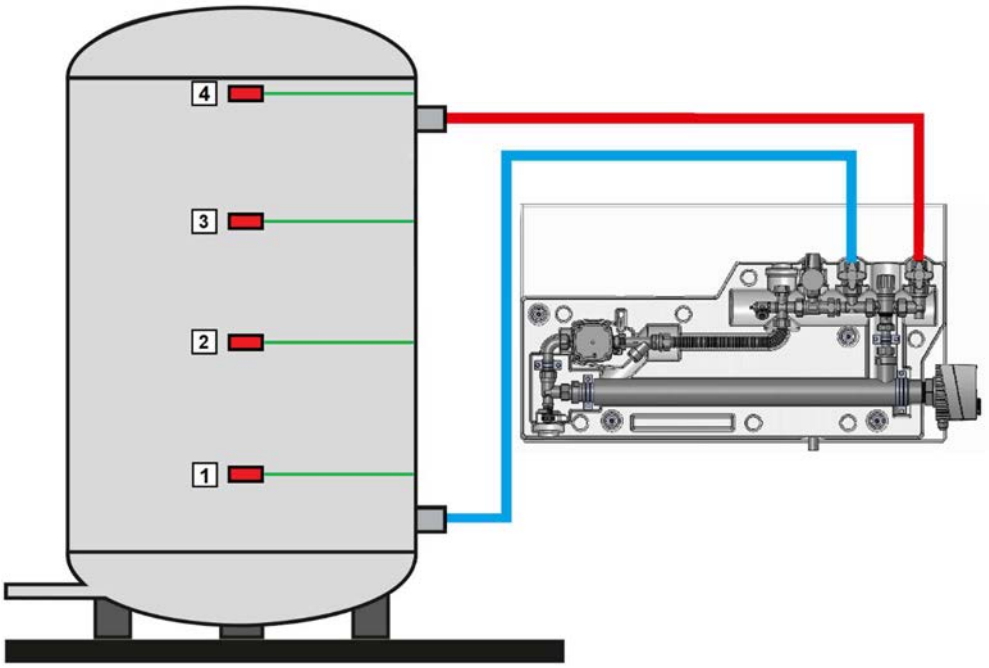
Temperature sensor

The **ASKO***HEAT***+** heating element is capable of evaluating four sensor temperatures. The hot water stratification of the storage tank can be displayed and controlled using these four temperatures. The temperature data can be displayed in the app as the current measured value and can be recorded in the cloud as history data.

When using the heating insert in the ASKO*WALL*+

4 separately available sensors can be connected to terminals in the **ASKO***WALL***+** junction box. The connection up to the heating insert is already wired.

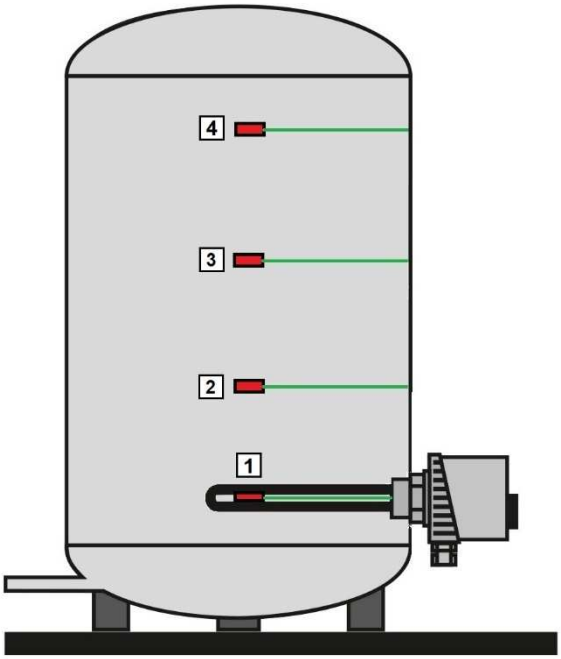
The 4 sensors can be ordered as optional accessories with the order number 012-0126.



When using the heating element in a storage tank

three additional sensors can be connected to the heating element. The additional sensors must be attached above the heating element. Sensor No. 1 is already included in the screw-in heater and can be read out.

The 3 sensors can be ordered as optional accessories with the order number 012-0125.



ASKOMA

ASKOHEAT-F+ 7 levels

012-6791

Flange heater Ø 180mm

AHFOR-BI-plus...

With combination of temperature control, safety temperature limiter and power switching unit for photovoltaic system

1.23

PV own power consumption (Power to Heat)

- Controllable via Modbus-TCP via LAN
- Controllable via 0-10V analog signal
- 7 linear power levels

Application

Auxiliary heating system of industrial water and heating water in photovoltaic systems.

To optimise the own consumption of PV energy.

Features

FH The heating element is made of three U-shaped heating tubes, each press-fitted into a press-fitting nipple. These are bolted with the immersion tube onto a steel flange.
A food-safe plastic disk serves as insulation.
This heating element is applicable in stainless steel boiler as well as in black steel / black steel enamelled boilers. Select the settings via DIP switch according to the boiler type.
The unheated zone is 70 mm for all types.

TC Electromechanical temperature control acc. EN 14597, not fail safe.

STL Electromechanical safety temperature limiter acc. EN 14597, fail safe. If nominal value is reached, the limiter switches and stays locked in this position. Reset is performed manually and is only possible after the sensing element is cooled off by approx. 10 K.

- Time factor of sensing element acc. EN 14597
- Operation type TC Type 2 B acc. EN 14597
- Operation type STL Type 2 BK acc. EN 14597

Connections

The flange heater is equipped with three connection sockets. All necessary plugs are included in the scope of delivery. After the first connection or commissioning by an electrician, the device can be completely disconnected from the mains and the connection to the control by pulling out the plug.

Type summary

Industrial and heating water
Incoloy 825, 2.4858

Type	*Order no.*	*Power range*	*Immersion length [EL]*
AHFR-BI-plus-1.75	012-6791	**1.75 kW** (0.25 + 0.50 + 1.00 kW)	260 mm
AHFR-BI-plus-3.5	012-6792	**3.50 kW** (0.50 + 1.00 + 2.00 kW)	360 mm
AHFR-BI-plus-4.4	012-6793	**4.40 kW** (0.65 + 1.25 + 2.50 kW)	420 mm
AHFR-BI-plus-5.8	012-6794	**5.80 kW** (0.83 + 1.66 + 3.33 kW)	540 mm

Function modes

Analogue mode (0-10V control signal)
The heating element can be regulated with a 0-10V signal in 7 power levels.
At a voltage of 1.25V the device switches to the first heating level. Each following stage needs a voltage rise of 1.25V. At a voltage of 8.75V the device switches to the seventh heating level.
To avoid flickering, a hysteresis of 0.25V is programmed.

Modbus-TCP
In this function, the device obtains an IP address from a local DHCP server (router). After the heating element has been integrated into the network, it can be regulated in 7 power levels and the temperature of the sensors can be read out.
The power levels can be controlled via a value 0-7 or via a target value specification (here the **ASKO***HEAT-F+* independently selects the appropriate power level).
The Modbus registers are described in a separate document.
The Modbus protocol can be downloaded from our homepage www.askoma.com

Legionella protection
The automatic legionella protection automatically heats up the system daily / weekly or bi-weekly to min. 65°C. If the temperature of 65°C is reached within the interval regardless of the legionella protection program, the interval timer starts from this point on again. The parameters can be configured via Modbus or MQTT.

Heat pump requirement
If a heat pump is available, the device can be used as an additional heater. The heat pump is controlled via a digital input that activates the full heating output (level 7).

Emergency operation
The device has a button that can be used to manually switch the full heating output (level 7) on and off at any time. This function is automatically deactivated after 24 hours of continuous operation.

Energy manager

If the analogue mode (0-10V) is not sufficient, the **ASKO***HEAT-F+* should always be connected to a compatible energy manager.

The **ASKO***HEAT-F+* receives control and configuration requests via Modbus TCP and delivers current measured values and status information.

ASKOMA offers a separately available energy manager that is optimally tailored to the use case Power to Heat, in connection with the **ASKO***HEAT-F+*.

The ASKOMA energy manager locally monitors the energy consumption in the house and activates the **ASKO***HEAT-F+* when there is excess energy from the solar system. Compatible, controllable consumers (e.g. large electrical appliances, electric vehicles, etc.) can be monitored and prioritised using the energy manager. An energy generation forecast calculates in advance which energy yield is to be expected. History data is transferred to the cloud and can be conveniently analysed and evaluated there. The current system status can be viewed on the go at any time via cloud.

Technical data

The following indications are valid for the above listed standard types. Due to the function, other types might show different data.

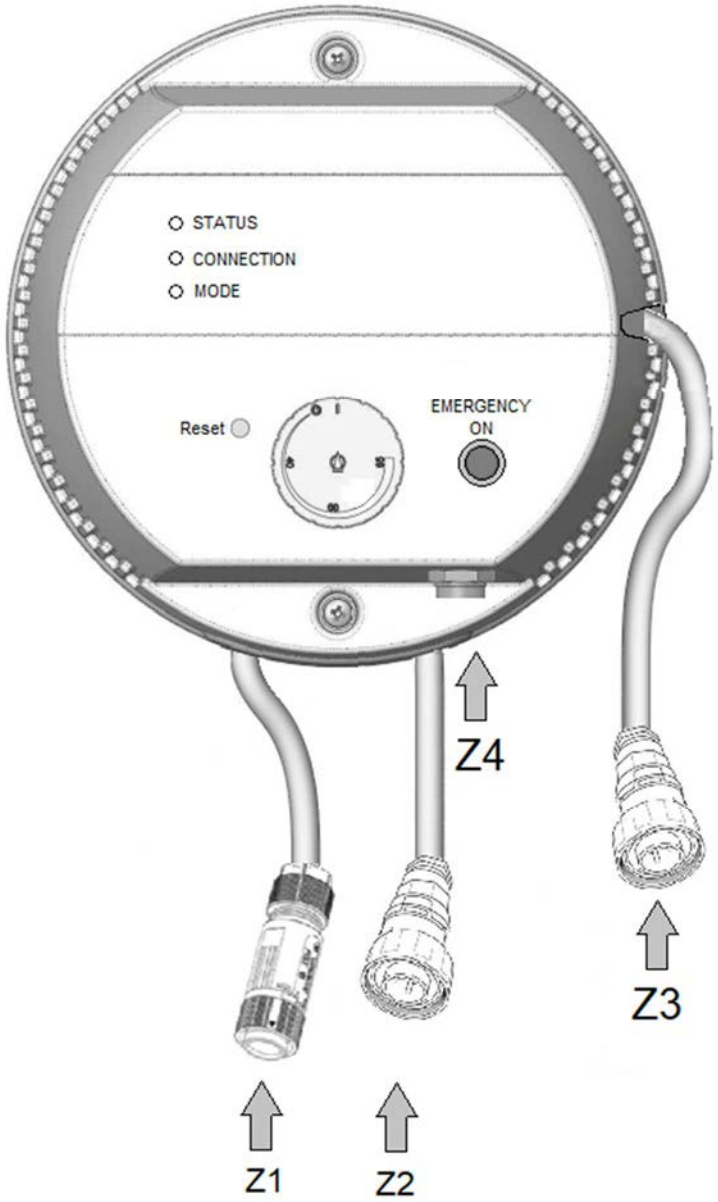
Application range	Adjustable cut-off temperature	0…❄…28...85 °C
	Safety cut-off temperature ϑ_{off}	110 °C (0-9 K)
	Ambient temperature on switching head	max. 50 °C (T50)
	Thermal switching differential	11.0 K ± 5.5 K
	Ambient temperature for storage and transport	-30...+90 °C
Calibration	Calibration tolerance	± 7 K
	Time factor in water	<45 s
Specification	Flange material	St 37
	Outside flange diameter	Ø 180 mm
	Pitch circle diameter	Ø 150 mm / 8 X M12
	Flange seal	EPDM, KTW certification
	Plastic disk	PP-H, FDA certification
	Heating tube	Incoloy 825, 2.4858 Ø8.2 mm
	Immersion tube	Incoloy 825, 2.4858
	Surface load	7 W/cm²
	Electrical connection	Spring-type and screw terminal
	Operating pressure	max. 10 bar
	Housing cover	Polycarbonate, RAL 7035 (light gray)
	Protection mode	IP21 acc. EN 60529

Fitting notes

The device must be installed horizontally. The heating tubes must be covered entirely by the liquid. The circulation of the liquid shall not be inhibited.

Please note: This heating element is applicable in stainless steel boilers as well as in black steel / enamelled boilers. Select the settings via DIP switch in the housing interior according to the boiler type.

Connecting plug



Plug Z1 - mains supply
To supply energy to the heating element and the internal circuit boards
Wieland RST 5-pin plug, IP66
Screwed contact max. 2.5mm² (up to 1.5mm² ferrules can be used)
Power rating: 250/400V 16A

Plug Z2 – Temperature sensor
Connection options for the external sensors 1-3
Bulgin Mini Buccaneer 6-pin plug, IP68
Screwed contact max 1.0mm² (18 AWG)
Power rating: 250V~ 3A

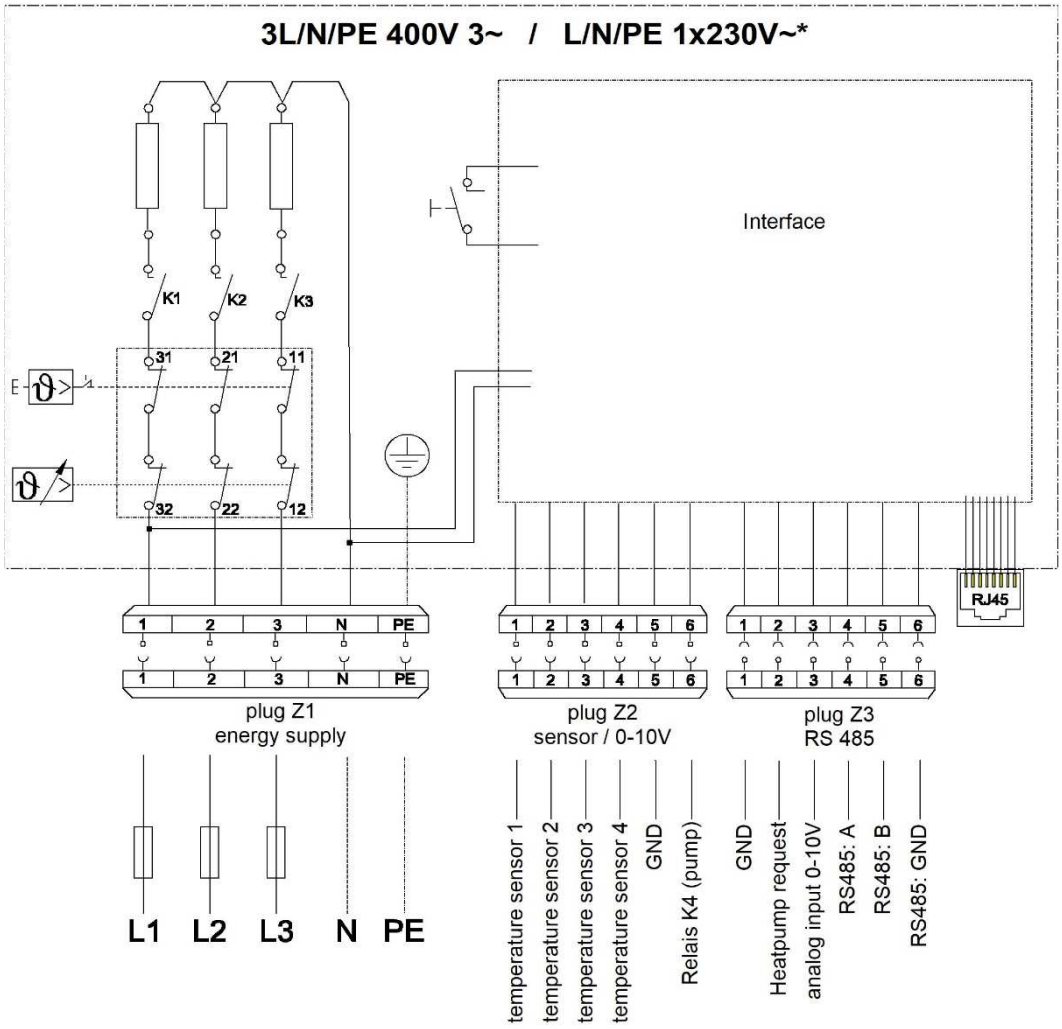
Plug Z3 – Analogue input & heat pump requirement
Connection options for the analogue signal (0-10V) & the release of the heat pump
Bulgin Mini Buccaneer 6-pin plug, IP68
Screwed contact max. 1.0mm² (18 AWG)
Power rating: 250V~ 3A

Plug Z4 – RJ45 connection socket
Network connection possible via LAN connection

Connection diagram

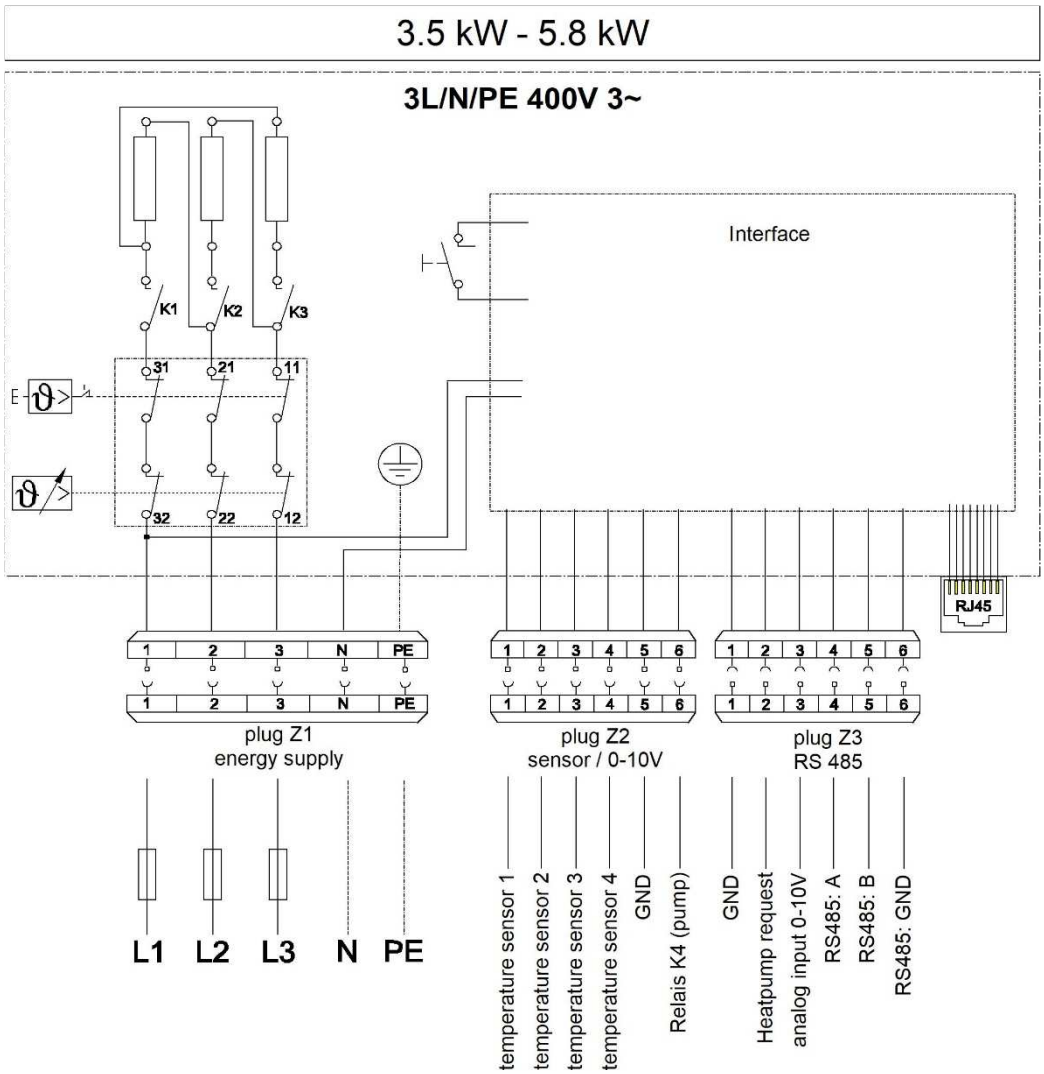
1.27

1.75 kW

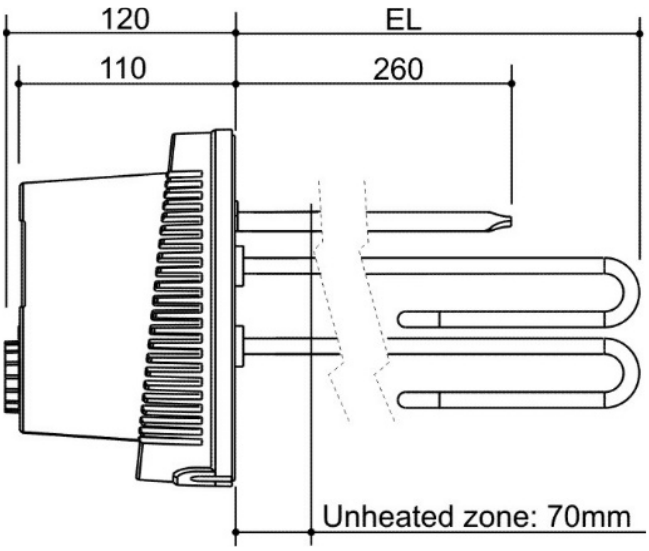


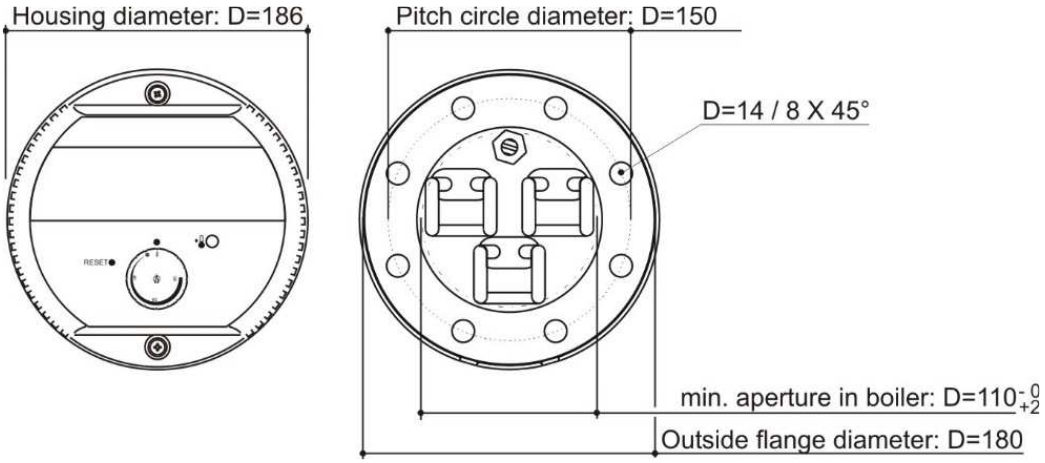
*** for single-phasing (1x230V~) L1, L2 and L3 use external jumper**

Connection diagram



Dimension drawing

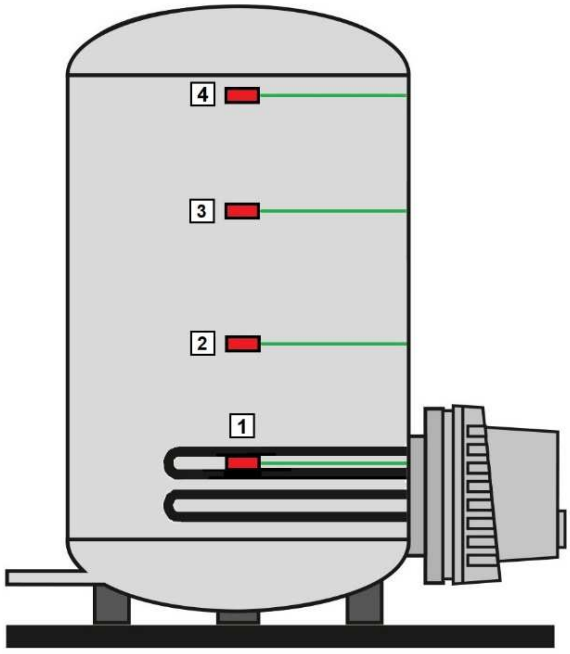




Temperature sensor

Three additional sensors can be connected to the heating element. The additional sensors must be attached above the heating element. Sensor no. 1 is already included in the immersion tube of the flange heater and can be read out.

The 3 sensors can be ordered as optional accessories with the order number 012-0125.



Notes

ASKOHEAT-OHMPILOT

SCREW-IN AND FLANGE HEATER SUITABLE FOR CONTINUOUS OPERATION VIA OHMPILOT

2.1

CE

ASKOMA we care about energy

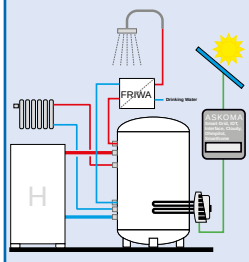
SCREW-IN HEATER IN 1½“
FLANGE HEATER Ø 180, 240 & 280mm

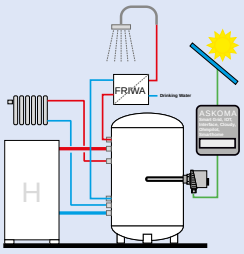
- Continuous heating power via Ohmpilot
- 400V

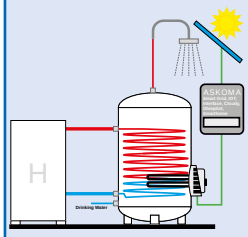
Screw-in heater 1½",
up to 9kW

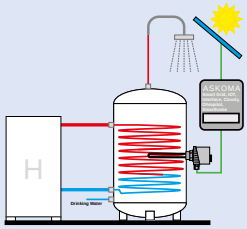
Flange heater
Ø 180mm, up to 9kW

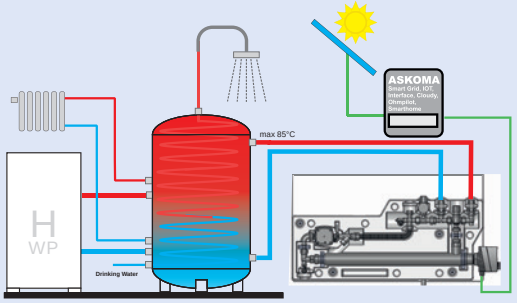
Flange heater
Ø 240 & 280mm, 18kW











APPLICATION EXAMPLES

If you want to store ecxess electricity with a Fronius Ohmpilot, the **ASKO*HEAT*-OP** 400V continuously variable will be used.

Our scope of supply includes the **ASKO*HEAT*-OP** in various power classes as 400V version.
The following device variants are available:
- Screw-in heater 1½"
- Flange heater Ø 180, 240 and 280mm
- **ASKO*WALL*-OP**

The **ASKO*HEAT*-OP**, combined with the Ompilot, converts your electricity surplus from the PV system into heat and stores it in your buffer tank / boiler in the house. This heat is then available when needed.

Example of maximum PV electricity storage:
You have a 1000L buffer tank with a fresh water station that you heat up to 40°C with your heat pump with a high COP.
With the **ASKO*WALL*-OP** and the **ASKO*HEAT*-OP** you can load this buffer tank up to 85°C.

This means: 1000L x 45°C temperature difference to max. 85°C x 1.16 = 52 kWh
You can save up to 52 kWh of PV power.
Thanks to the PV surplus storage, you can protect the compressor of your heat pump in summer operation and increase the service live of the heat pump due to the hot water heating.
This energy will then be available on demand as needed.

"Take pleasure in heating" through the maximum use of surplus of specially produced renewable energy.

2.2

Buffer tank, alternatively with fresh water station

- The **ASKO*HEAT*-OP** screw-in and flange heater are designed for easy, direct installation on a abuffer tank, in order to give the user the opportunity to store the maximum PV excess current.
- **ASKO*HEAT*-OP** heating elements are available in many performance sizes (see last page).

Drinking water storage

- The **ASKO*HEAT*-OP** flange heater are designed for easy, direct installation on a drinking water storage, in order to give the user the opportunity, to store the maximum PV excess current.
- **ASKO*HEAT*-OP** heating elements are available in many performance sizes (see last page).

ASKO*WALL* for Ohmpilot

- For max. surplus PV power storage
- Automatic temperature control
- Min. flow temperature can be freely selected (50-75°C)
- Temperatures up to 85°C possible
- Full buffer tank volume can be used
- Legionella protection thanks to high temperature
- Self-regulating pump
- No turbulence in thermal stratification of tank
- Pressure relief valve 3 bar
- Hydraulic unit tested up to 10 bar
- Slight changes possible
- Heating elements up to 9kW can be used

Subject to technical changes

234_V2_07.2020

ADVANTAGES ASKO*HEAT-OP*

Easy to install

① Screw-in heater 1-9kW with insulated mounted heating tubes are suitable for enamelled and black steel boilers, and thanks to a dip switch also for stainless steel tanks
② Standard hex for secure tightening with conventional wrenches
③ Thread for precise housing position and tight installation (1½" standard)

Technical design

④ Surface load 8-9W/cm², suitable for heating water
⑤ Optimal sensor position in the oval immersion tube for identical temperature measurement of safety temperature limiter and temperature control

ADVANTAGES ASKO*HEAT-FOP*

Easy to install

① Standard flange Ø 180mm, 1-9kW / Ø 240 & 280mm, 18kW are suitable for enamelled and black steel boilers, thanks to a dip switch also for stainless steel tanks
② Flat gasket included

Technical design

③ Low surface load (7W/cm²) for low calcification
④ Optimal sensor position
⑤ Insulated assembly of the heating elements for low corrosion

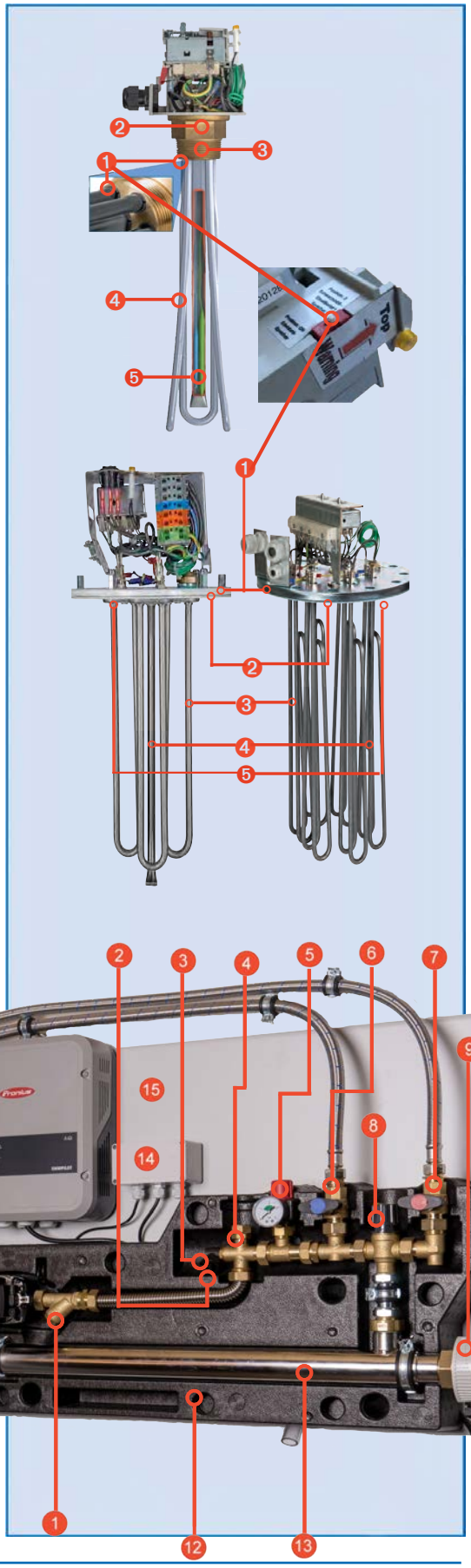
ADVANTAGES ASKO*WALL-OP*

Easy to install

- Simple wall installation
- Ready to connect with two flexible oxygen-tight OXYban hoses (can be ordered)
- Pump incl. time delay relay completely pre-wired

Technical design

① Mud flap
② Filling valve
③ Vent valve
④ Connection for possible expansion tank
⑤ Pressure relief valve
⑥ Return flow shutoff (and OXYban hose connection)
⑦ Flow shutoff (and OXYban hose connection)
⑧ Thermostatic valve 50-75°C
⑨ Screw-in heater **ASKO***HEAT-OP* according to choice of power
⑩ Drain cock
⑪ Circulation pump
⑫ Insulation housing
⑬ Instantaneous water heater **ASKO***FLOW* up to 9kW
⑭ Junction box with pump time delay relay
⑮ Console rear wall
⑯ On-site Fronius Ohmpilot



Subject to technical changes

234_V2_072020

ORDER OPTIONS ASKO*HEAT -OP*

	Order no.	Appellation	Description	Immersion length mm	Use
1.1. ASKO*WALL -OP*					
	012-5500	**ASKO***WALL -OP*	**ASKO***WALL -OP* for heating water, composed of a hydraulic unit with mud flap, filling valve, vent valve, connection for possible expansion tank, pressure relief valve, return flow shutoff, flow shutoff, thermostatic valve 50-75°C, connection for **ASKO** *HEAT -OP* according to choice of power, drain cock, circulation pump and insulation housing. The electrical junction box is pre-wired for the on-site Fronius Ohmpilot as well as for the circulation pump and contains the time delay relay.	1300x700	
2.1. Screw-in heater ASKO*HEAT -OP*, continuously variable 400V					
	012-5501	AHIR-BI-OP-1.0	**ASKO***HEAT -OP*, 400V, continuously variable 1.0kW	300	WALL/Tank
	012-5502	AHIR-BI-OP-2.0	**ASKO***HEAT -OP*, 400V, continuously variable 2.0kW	300	WALL/Tank
	012-5503	AHIR-BI-OP-2.5	**ASKO***HEAT -OP*, 400V, continuously variable 2.5kW	350	WALL/Tank
	012-5504	AHIR-BI-OP-3.0	**ASKO***HEAT -OP*, 400V, continuously variable 3.0kW	400	WALL/Tank
	012-5505	AHIR-BI-OP-3.8	**ASKO***HEAT -OP*, 400V, continuously variable 3.8kW	450	WALL/Tank
	012-5506	AHIR-BI-OP-4.5	**ASKO***HEAT -OP*, 400V, continuously variable 4.5kW	500	WALL/Tank
	012-5507	AHIR-BI-OP-6.0	**ASKO***HEAT -OP*, 400V, continuously variable 6.0kW	600	WALL/Tank
	012-5508	AHIR-BI-OP-7.5	**ASKO***HEAT -OP*, 400V, continuously variable 7.5kW	700	WALL/Tank
	012-5509	AHIR-BI-OP-9.0	**ASKO***HEAT -OP*, 400V, continuously variable 9.0kW	750	WALL/Tank
2.2. Flange heater ASKO*HEAT -FOP* Ø 180mm, continuously variable 400V					
	012-5601	AHFOR-BI-OP-2.0	**ASKO***HEAT -FOP* Ø 180mm, 400V, continuously variable 2.0kW	260	Tank
	012-5602	AHFOR-BI-OP-2.5	**ASKO***HEAT -FOP* Ø 180mm, 400V, continuously variable 2.5kW	310	Tank
	012-5603	AHFOR-BI-OP-4.0	**ASKO***HEAT -FOP* Ø 180mm, 400V, continuously variable 4.0kW	260	Tank
	012-5604	AHFOR-BI-OP-5.0	**ASKO***HEAT -FOP* Ø 180mm, 400V, continuously variable 5.0kW	300	Tank
	012-5605	AHFOR-BI-OP-6.0	**ASKO***HEAT -FOP* Ø 180mm, 400V, continuously variable 6.0kW	360	Tank
	012-5606	AHFOR-BI-OP-7.5	**ASKO***HEAT -FOP* Ø 180mm, 400V, continuously variable 7.5kW	420	Tank
	012-5607	AHFOR-BI-OP-8.0	**ASKO***HEAT -FOP* Ø 180mm, 400V, continuously variable 8.0kW	450	Tank
	012-5608	AHFOR-BI-OP-9.0	**ASKO***HEAT -FOP* Ø 180mm, 400V, continuously variable 9.0kW	490	Tank
2.3. Flange heater ASKO*HEAT -FOP* Ø 240 & 280mm, continuously variable 400V					
	012-5611	AHFOR-BI-OP-18.0, Ø240mm	**ASKO***HEAT -FOP* Ø 240mm, 400V, continuously variable 18.0kW	490	Tank
	012-5611	AHFOR-BI-OP-18.0, Ø280mm	**ASKO***HEAT -FOP* Ø 280mm, 400V, continuously variable 18.0kW	490	Tank
3.1. Options					
	012-0130	**ASKO***HOSE*	Two oxygen-tight OXYban connection hoses for a flexible connection of the **ASKO***WALL* to the buffer tank (length 1600mm)		WALL

Approvals screw-in and flange heater

- EN 60335 -2-21
  Condensate drain in housing prevents corrosion
  No damage to the heating element during dry run
  Overvoltage resistant (7.25%)
- EN 60 335-1, EN 6 03 35 -2-73
- EN 55014 -1, EN 5 5014-2
- EN 62233
- EN 60529

Fronius OPTIMIZED

2.4

ASKO*WALL-OP* for Fronius Ohmpilot

012-5500

Wall console ready for connection

without screw-in heater, without Fronius Ohmpilot

To maximise PV own power consumption

- for Fronius Ohmpilot continuously variable up to 9.0kW
- for high storage temperatures up to 85°C
- excellent legionella protection

CE

Application

For external connection on heating buffer tank

1. For storage of PV energy as heat in heating water
2. As emergency heating for heating systems
3. For high storage temperatures for legionella protection (hygienic storage)
4. For existing buffer tanks without heating element access

2.5

Features

This wall console can be retrofitted easily and individually and will be connected to the on-site buffer tank or integrated in the intake and outlet of the heating lines.

Increasing the storage temperature can contribute to legionella protection in a hygienic storage. A temperature between 50 and 75°C can be set manually on the thermostatic valve.

Thanks to the circulation pump in the **ASKO***WALL-OP*, the water circulates until the set temperature is reached. As soon as this set temperature is reached, the valve opens and the hot medium is stratified in the storage tank. If the temperature in the **ASKO***WALL-OP* falls below the set value due to cold water flowing in, the valve closes.

Continuously variable **ASKO***HEAT-OP* screw-in heater with 1½" thread can be used up to a maximum immersion length of 750mm.

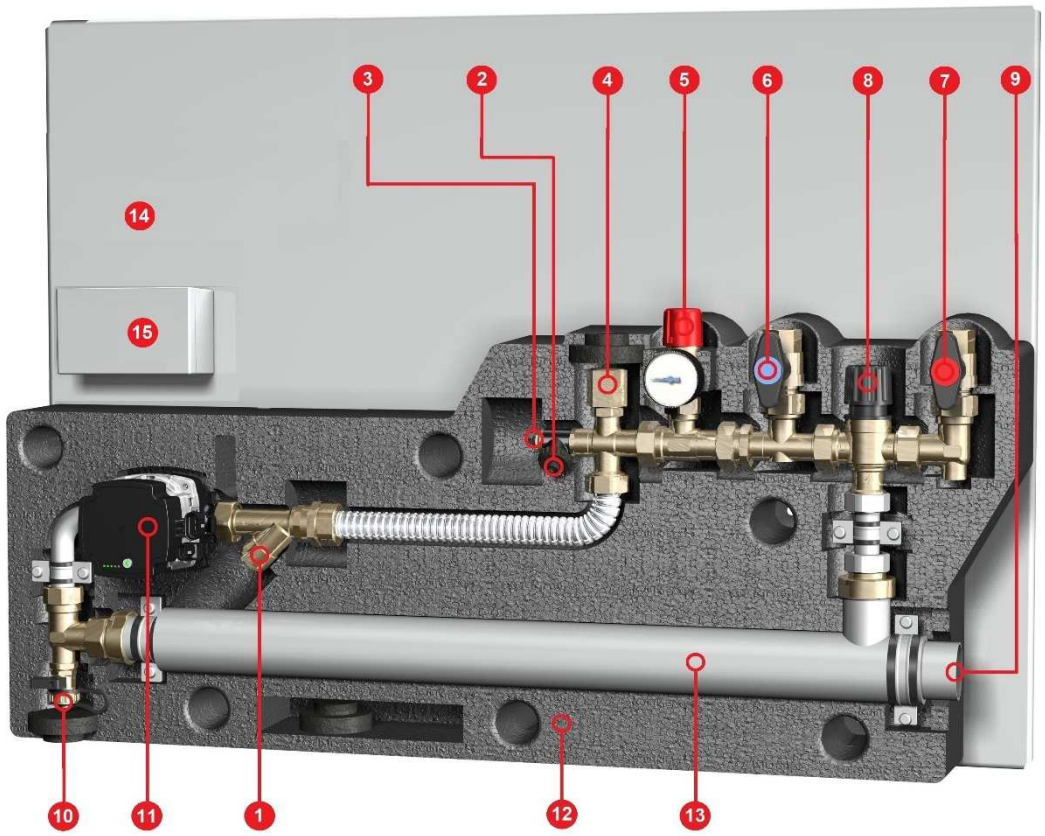
Type summary

Type	*Order no.*	*Additional text*	*Immersion length [EL]*
ASKO*WALL-OP* *for Fronius Ohmpilot*	012-5500	1.0 kW up to 9.0 kW	up to max. 750mm
Connection hoses for **ASKO***WALL-OP*	012-0130	1600mm length	

Technical data

The following indications are valid for the above listed standard types. Due to the function, other types might show different data.

Overview of the components and the function



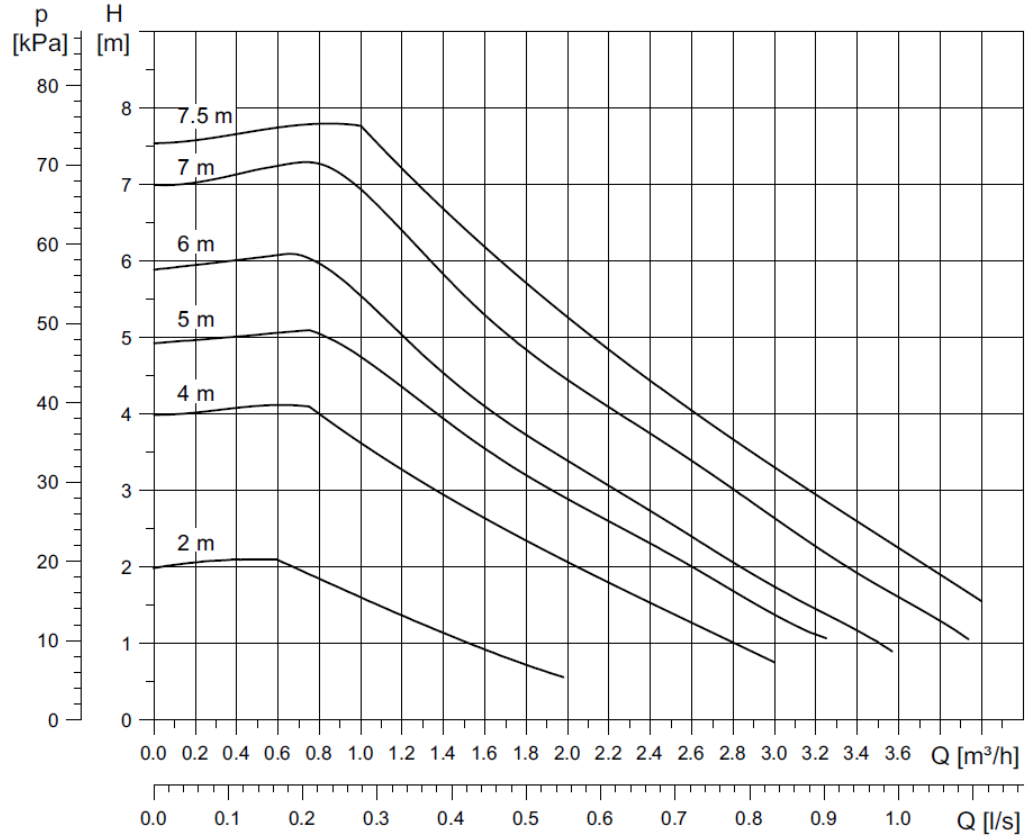
1 Mud flap
2 Filling valve
3 Vent valve
4 Connection for possible expansion tank (1" internal thread, flat sealing)
5 Pressure relief valve
6 Return flow shutoff & OXYban hose connection
7 Flow shutoff & OXYban hose connection
8 Thermostatic valve 50-75°C
9 1½" threaded connection for screw-in heater
10 Drain cock
11 Circulation pump
12 Insulation housing
13 Instantaneous water heater **ASKO***FLOW*
14 Console rear wall
15 Electrical junction box prepared for connection of circulation pump, controlled by Fronius Ohmpilot

Components

Pump

Type:	Grundfos UPM3 Auto 15-70
Power range:	min. 5W (0.07A) max. 52W (0.52A) at 1.0 MPa maximal pump height 7m
Connection:	230V ~ 50/60Hz

Pump capacity

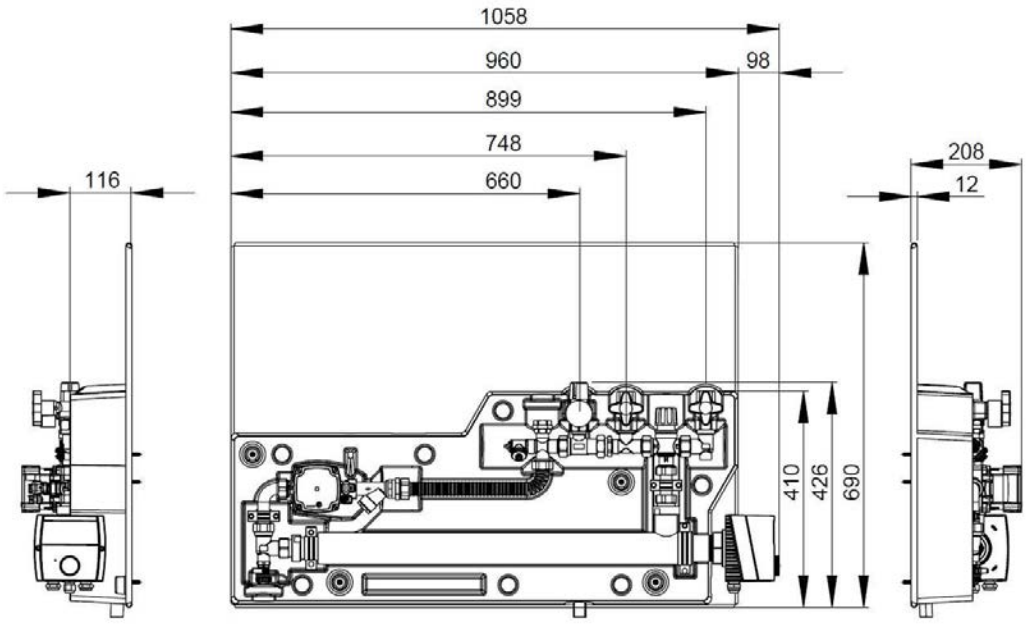


2.7

Pressure gauge:	Pressure range:	0-4 bar
	Gauge:	Ø 50mm
Pressure relief valve:	Type:	DUCO safety valve DN25
	Reaction pressure:	3 bar (permanently set)
	Max. heat output:	50kW
	Temperature:	-10°C up to +120°C
	Medium:	Water and water glycol mixture up to 50%
	Material:	Brass CW614N
	Standard:	NEN-EN-ISO 4126-1
Thermostatic valve:	Type:	tubra®-therm 507.19.00
	Adjustment range:	+50°C up to +75°C
	Flow factor:	1.9 m³/h
	Material:	Brass CuZn39Pb3 (2.0401)
Ball valve:	Connection:	3/4" internal thread
	Material:	Brass
Filling valve:	Connection:	3/4" external thread
	Material:	Brass
Connection - expansion vessel:	Connection:	3/4" external thread
	Material:	Brass
Vent cock:	Connection:	3/4" external thread

Dimensions

Dimensions of the wall console incl. screw-in heater



Description

The **ASKO***WALL-OP* is designed for easy installation on any conventional buffer tank to provide the user with energy-efficient, smooth, high-temperature stratification.
To this end **ASKO***WALL-OP* can be connected directly to the relevant buffer tank.

On the **ASKO***WALL-OP* the user sets the thermostatic valve (no. 8, see page 2) to the desired temperature, at which the valve should open, to fill the buffer tank with a minimum temperature. This can be chosen between 50 and 75°C.

Example: desired temperature is set at 60°C. The heating water in the **ASKO***WALL-OP* circulates within the internal circuit until the water is heated to 60°C.
The thermostatic valve then opens and the hot water passes to the tank. This continues for as long as water at the desired temperature is available. Then, the thermostatic valve closes and the process begins again.
The **ASKO***HEAT-OP* can heat the heating water up to 85°C and then the smart thermostat switches off.

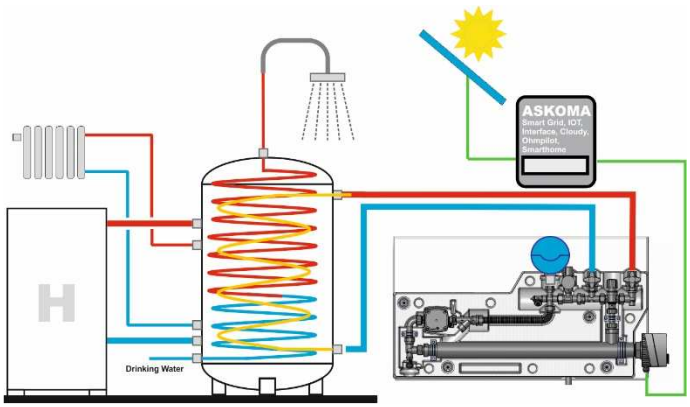
Application possibilities

ASKO*HEAT-OP* heating elements are available in a variety of power output levels, with the total heating output from 1.0 to 9.0kW.
Which of these screw-in heaters should be used depends on the surplus power output of your PV system and your energy management system.
It sounds complicated, but it isn't – we are happy to provide you with information about which **ASKO***HEAT-OP* heating element you require.
The **ASKO***WALL-OP* can also be used as direct heating.

Application examples

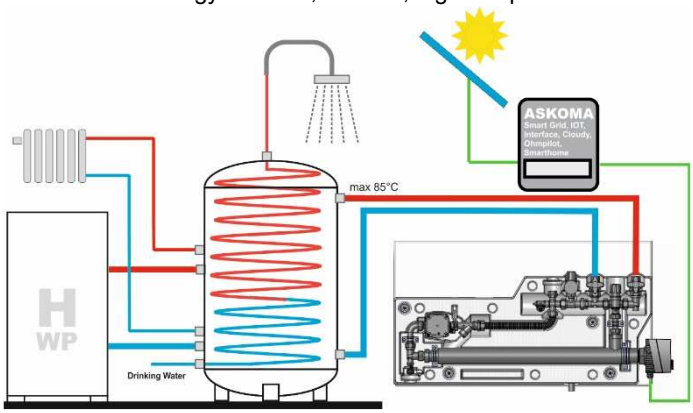
Hygienic tank with integrated solar heat exchanger

The **ASKO***WALL*-OP is designed for easy installation on a **hygienic tank with integrated solar heat exchanger**.
To this end, the **ASKO***WALL*-OP can be connected directly to the solar heat exchanger loop. This requires the customer to connect a solar expansion tank to connection no. 4 (see page 2) (size must be dimensioned and supplied by the technician on the basis of internal volume).



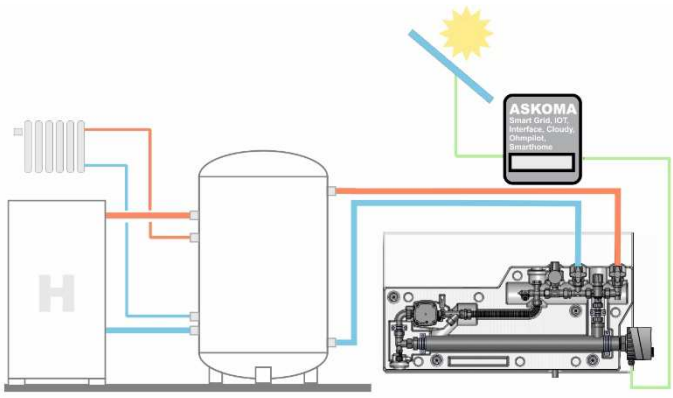
Hygienic tank without integrated solar heat exchanger

The **ASKO***WALL*-OP is designed for easy, direct installation on a **hygienic tank** to provide the user with energy-efficient, smooth, high-temperature stratification.



Buffer tank

The **ASKO***WALL*-OP is designed for easy, direct installation on a **buffer tank** to provide the user with energy-efficient, smooth, high-temperature stratification.

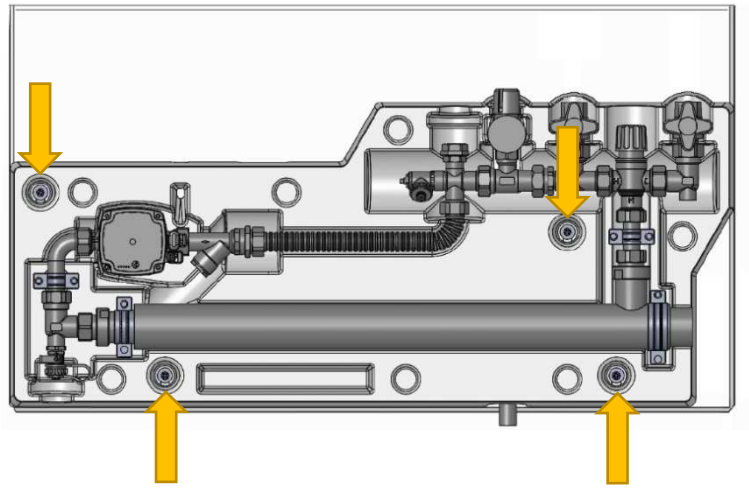


2.9

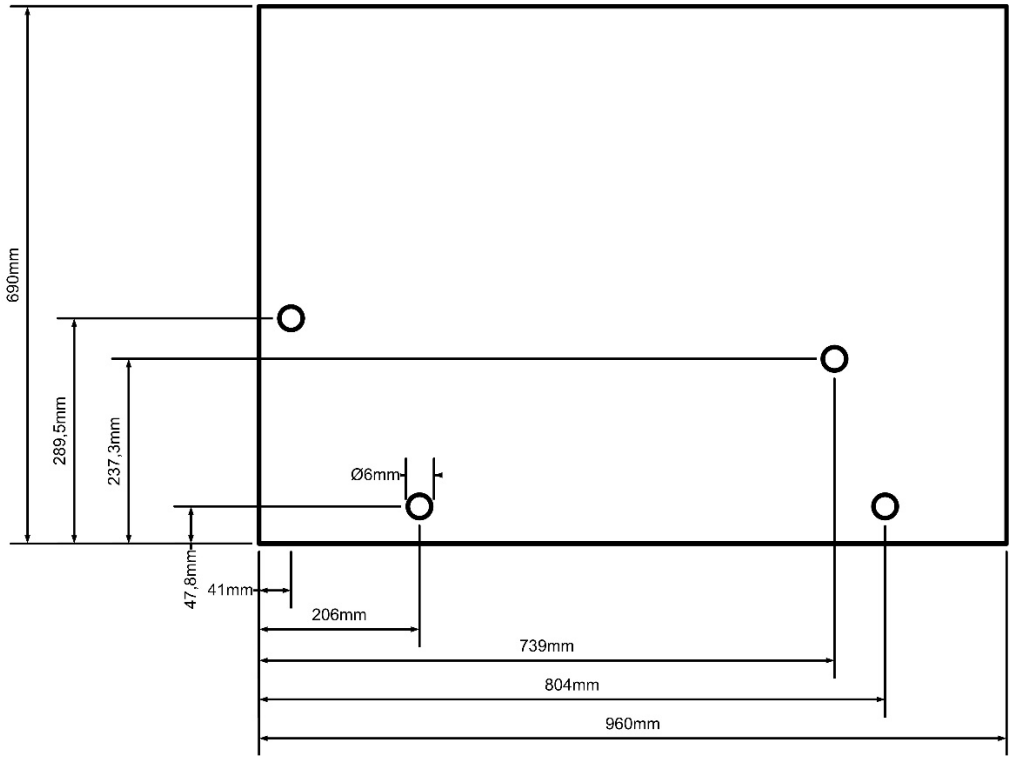
Mounting

Installation of the wall console

The **ASKO***WALL-OP* can be attached to the wall using the four screws and dowels supplied



Position of the boring holes



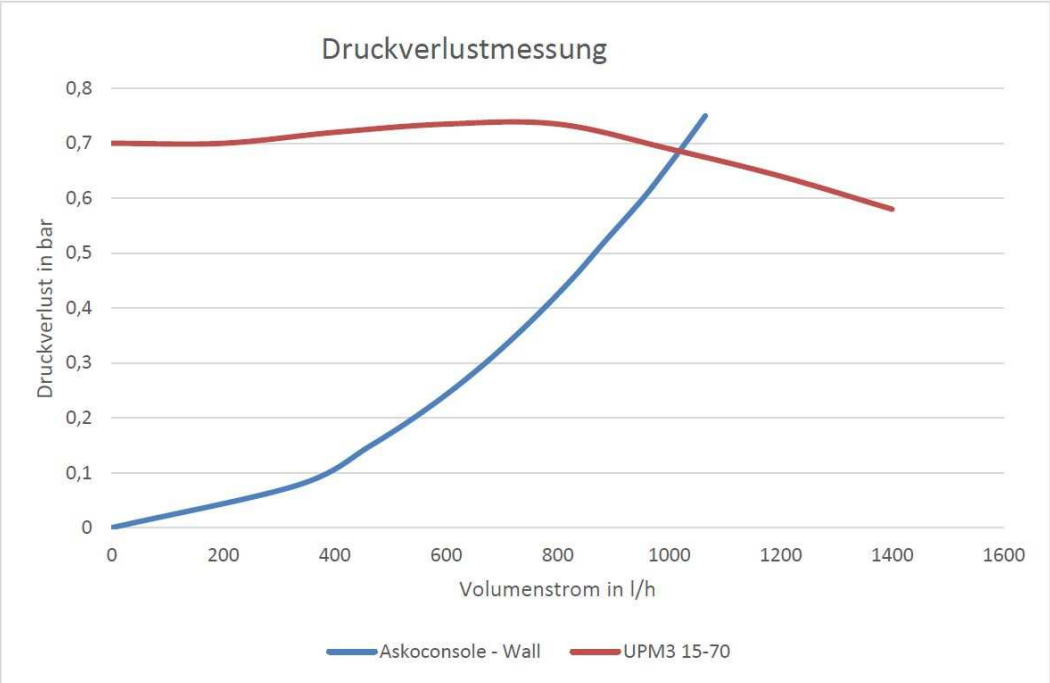
Fitting notes

The **ASKO***WALL-OP* must be installed horizontally. Access must be guaranteed for inspection and maintenance. Uncovering the installation is not permitted. The **ASKO***WALL-OP* must be installed in a dry and frost-free surrounding.

The srew-in heater must be covered entirely by the liquid. The circulation of the liquid shall not be inhibited

Specific values

Pressure loss



Electrical connections

ASKO*WALL*-OP connections to be set up by the customer

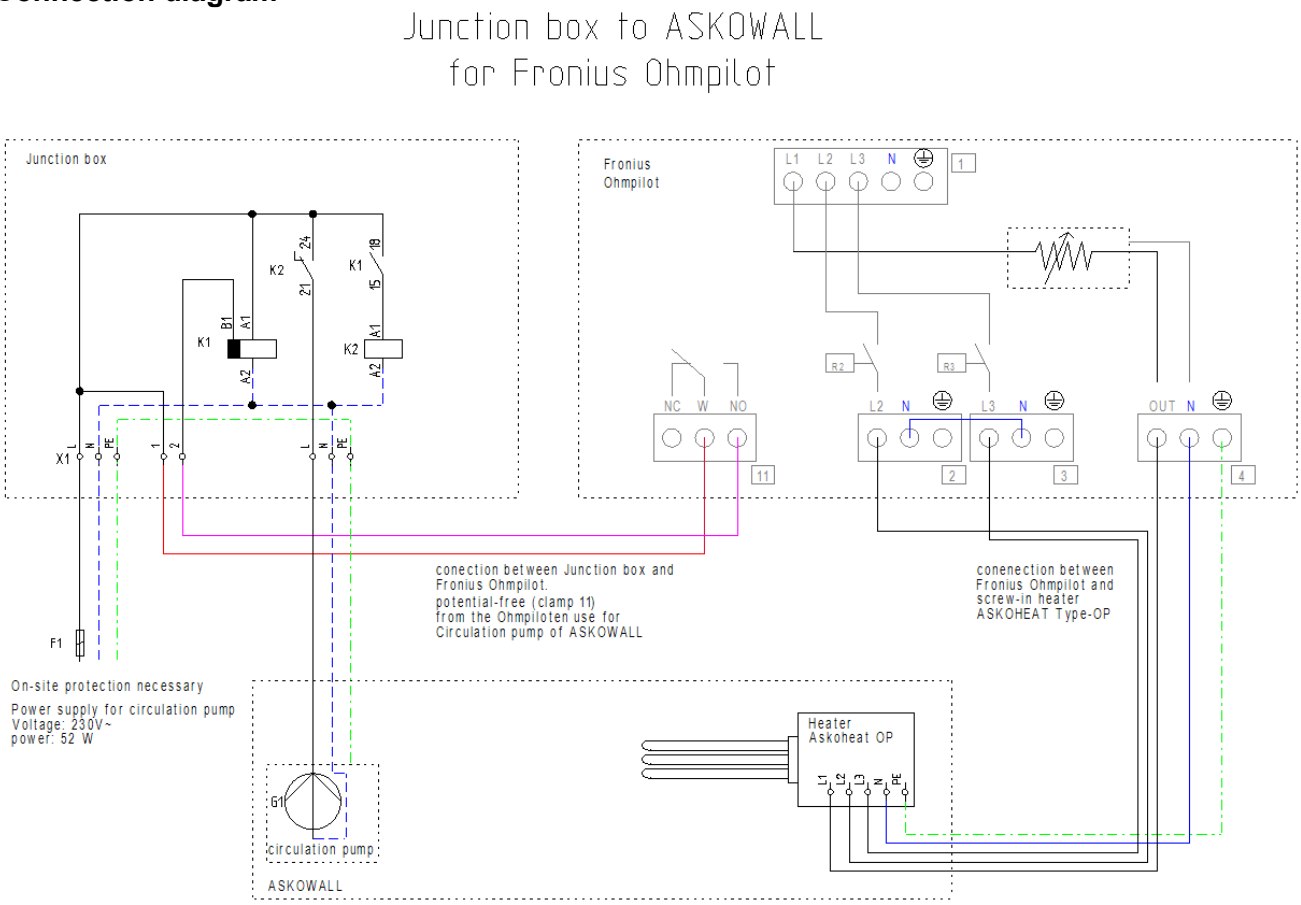
Connection cable screw-in heater (heating circuit)
Connecting line between Fronius Ohmpilot (clamp 2/3 and 4) and screw-in heater
Suggestion ASKOMA: 5x2.5mm²

Power supply circulation pump
The supply line of the circulation pump in the junction box (clamp X1)
Suggestion ASKOMA: 3x1.5mm²

Control of the circulation pump
Connection cable between junction box (clamp X3) and Fronius Ohmpilot
Suggestion ASKOMA: cross section 1.5mm²

2.11

Connection diagram



2.12

ASKOHEAT-OP

012-5501

Type OP – 400V 3~

Screw-in heater
insulated monting

AHIR-BI-OP-...

With combination of temperature control and safety temperature limiter
Compatible with the consumption regulator Fronius Ohmpilot

PV own power consumption

- Immersion heater with continuous adjustment via Ohmpilot from Fronius
- Power regulation from 0 to 100%

CE

Application

Auxiliary heating system of industrial water and heating water in photovoltaic systems.

Features

SH The heating element is made of three U-shaped heating tubes, which are mounted isolated into a 1½" conical brass nipple by food-safe plastic sleeves.
Thanks to the insulated mounting of the heating tubes, the devices are also suitable for enamelled boilers. By using the integrated DIP switch, the potential equalisation resistance for the usage in stainless steel tanks is bridgeable.
The unheated zone is 150 mm for all types.

TC Electromechanical temperature control acc. EN 14597, not fail safe.

STL Electromechanical safety temperature limiter acc. EN 14597, fail safe. If nominal value is reached, the limiter switches and stays locked in this position. Reset is performed manually and is only possible after the sensing element is cooled off by approx. 10 K.

- Time factor of sensing element acc. EN 14597
- Operation type TC Type 2 B acc. EN 14597
- Operation type STL Type 2 BK acc. EN 145979

2.13

Type summary

Industrial and heating water
Incoloy 825, 2.4858

Type	*Order no.*	*Power*	*Immersion length [EL]*
AHIR-BI-OP-1.0	012-5501	1.00 kW; 400V 3~	300mm
AHIR-BI-OP-2.0	012-5502	2.00 kW; 400V 3~	300mm
AHIR-BI-OP-2.5	012-5503	2.50 kW; 400V 3~	350mm
AHIR-BI-OP-3.0	012-5504	3.00 kW; 400V 3~	400mm
AHIR-BI-OP-3.8	012-5505	3.80 kW; 400V 3~	450mm
AHIR-BI-OP-4.5	012-5506	4.50 kW; 400V 3~	500mm
AHIR-BI-OP-6.0	012-5507	6.00 kW; 400V 3~	600mm
AHIR-BI-OP-7.5	012-5508	7.50 kW; 400V 3~	700mm
AHIR-BI-OP-9.0	012-5509	9.00 kW; 400V 3~	750mm

Technical data

The following indications are valid for the above listed standard types. Due to the function, other types might show different data.

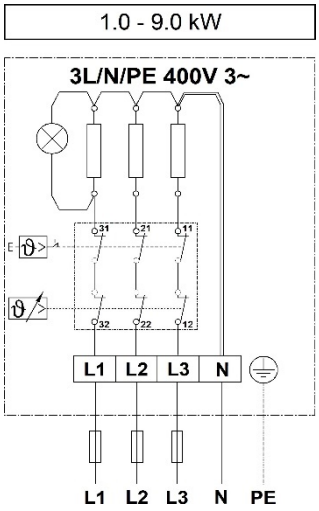
Application range	Adjustable cut-off temperature	0…❄…28...85 °C
	Safety cut-off temperature ϑ_{off}	110 °C (0-9 K)
	Ambient temperature on switching head	max. 50 °C (T50)
	Thermal switching differential	11.0 K ± 5.5 K
	Ambient temperature for storage and transport	-30...+90 °C
Calibration	Calibration tolerance	± 7 K
	Time factor in water	<45 s

Specification	Fitting thread	R 1½ " conical
	Brass nipple	CuZn40Pb2
	Heating tube	Incoloy 825, 2.4858
	Surface load	8-9 W/cm2
	Electrical connection	Screw clip
	Operating pressure	max. 10 bar
	Housing	Polycarbonate, RAL 7035 (light gray)
	Protection mode	IP41 acc. EN 60529

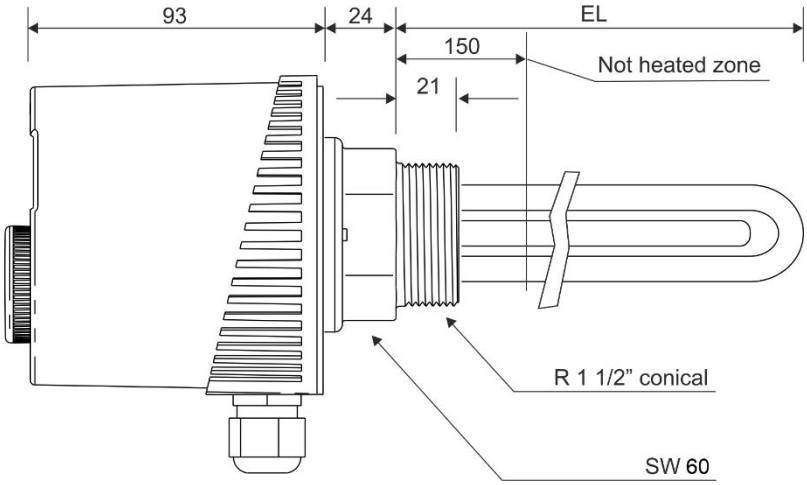
Fitting notes

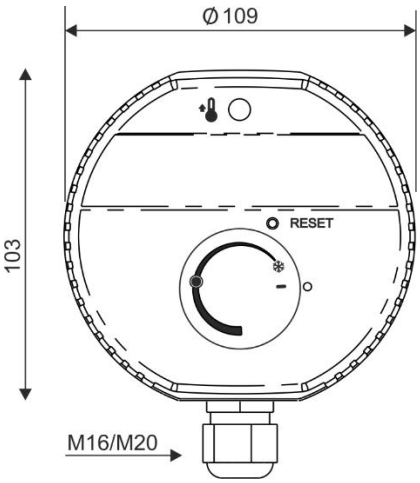
The device must be installed horizontally. The heating tubes must be covered entirely by the liquid. The circulation of the liquid shall not be inhibited.

Wiring diagram



Dimension drawing





2.14

ASKOHEAT-FOP 2.0 – 9.0 kW

012-5601

Flange heater Ø 180 mm Incoloy 825; 2.4858

AHFOR-BI-OP-...

With combination of temperature control and safety temperature limiter
Compatible with the consumption regulator Fronius Ohmpilot

PV own power consumption

- Immersion heater with continuous adjustment via Ohmpilot from Fronius
- Power regulation from 0 to 100%

CE

Application Auxiliary heating system of industrial water and heating water.

Features

FH The heating element is made of three U-shaped heating tubes, each press-fitted into a press-fitting nipple. These are bolted with the immersion tube onto a steel flange.
A food-safe plastic disk serves as insulation.
Thanks to the insulated mounting of the heating tubes, the devices are also suitable for enamelled boilers.
By using the integrated DIP switch, the potential equalisation resistance for the usage in stainless steel tanks is bridgeable.
The unheated zone is 70 mm for all types.

TC Electromechanical temperature control acc. EN 14597, not fail safe.

STL Electromechanical safety temperature limiter acc. EN 14597, fail safe. If nominal value is reached, the limiter switches and stays locked in this position. Reset is performed manually and is only possible after the sensing element is cooled off by approx. 10 K.

- Time factor of sensing element acc. EN 14597
- Operation type TC Type 2 B acc. EN 14597
- Operation type STL Type 2 BK acc. EN 145979

2.15

Type summary

Industrial and heating water
Incoloy 825, 2.4858

Type	*Order no.*	*Power*	*Immersion length [EL]*
AHFOR-BI-OP-2.0	012-5601	2.0kW; 400V 3~	260mm
AHFOR-BI-OP-2.5	012-5602	2.5kW; 400V 3~	310mm
AHFOR-BI-OP-4.0	012-5603	4.0kW; 400V 3~	260mm
AHFOR-BI-OP-5.0	012-5604	5.0kW; 400V 3~	300mm
AHFOR-BI-OP-6.0	012-5605	6.0kW; 400V 3~	360mm
AHFOR-BI-OP-7.5	012-5606	7.5kW; 400V 3~	420mm
AHFOR-BI-OP-8.0	012-5607	8.0kW; 400V 3~	450mm
AHFOR-BI-OP-9.0	012-5608	9.0kW; 400V 3~	490mm

Technical data The following indications are valid for the above listed standard types. Due to the function, other types might show different data.

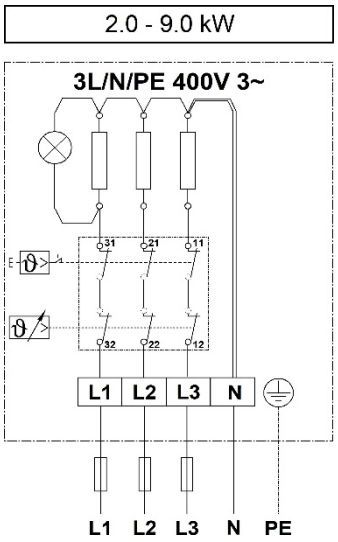
Application range	Adjustable cut-off temperature	0…❄…28...85 °C
	Safety cut-off temperature ϑ_{off}	110 °C (0-9 K)
	Ambient temperature on switching head	max. 50 °C (T50)
	Thermal switching differential	11.0 K ± 5.5 K
	Ambient temperature for storage and transport	-30...+90 °C
Calibration	Calibration tolerance	± 7 K
	Time factor in water	<45 s

Specification	Flange material	St 37
	Outside flange diameter	Ø 180 mm
	Pitch circle diameter	Ø 150 mm / 8 X M12
	Flange seal	EPDM, KTW and FDA certification
	Plastic disk	PP-H, FDA certification
	Heating tube	Incoloy 825; 2.4858, Ø 8.2 mm
	Immersion tube	Incoloy 825; 2.4858
	Surface load	7 W/cm^2
	Electrical connection	Screw clip 4mm²
	Operating pressure	max. 10 bar
	Housing cover	Polycarbonate, RAL 7035 (light gray)
	Protection mode	IP21 acc. EN 60529

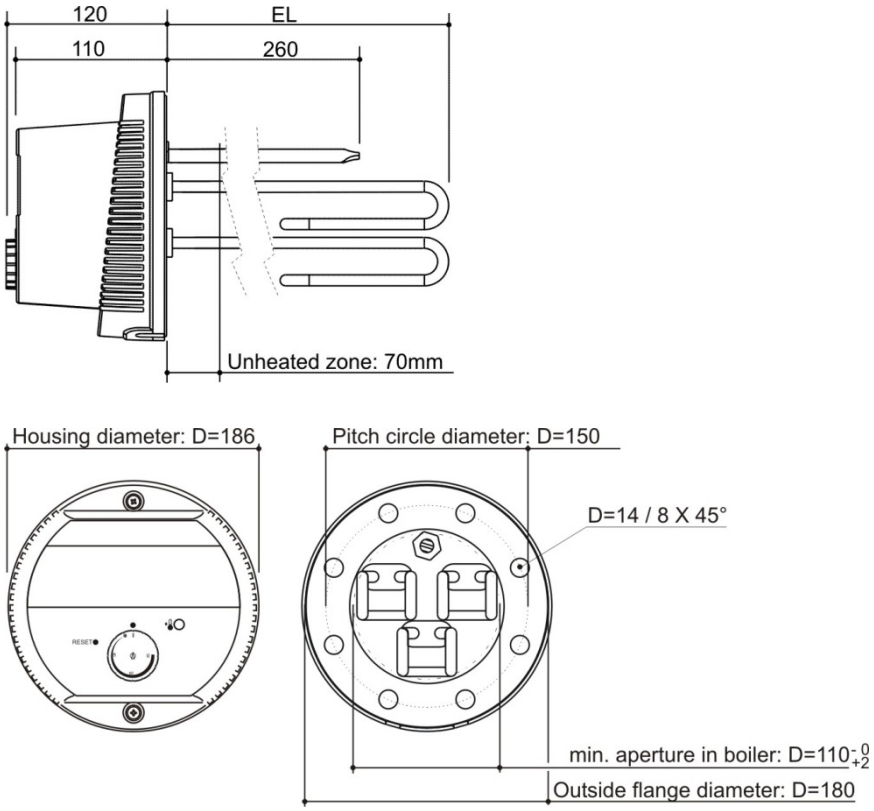
Fitting notes

The device must be installed horizontally. The heating tubes must be covered entirely by the liquid. The circulation of the liquid shall not be inhibited.

Wiring diagram



Dimension drawing



ASKOHEAT-FOP 18.0 kW

012-5611

Flange heater Ø 240 mm Incoloy 825; 2.4858

AHFOR-BI-OP

With combination of temperature control and safety temperature limiter
Compatible with the consumption regulator Fronius Ohmpilot

2.17

Application

Auxiliary heating system of industrial water and heating water.

Features

FH The heating element is made of six U- shaped heating tubes, each press-fitted into a press-fitting nipple. These are bolted with the immersion tube onto a steel flange.
A food-safe tesnit disk serves as insulation .
This heating element can be used for stainless steel-, as well as for black steel or enamelled storage tanks. Depending on storage type, select the settings using the DIP switch.
The unheated zone is 70 mm for all types.

TC Electromechanical temperature control acc. EN 14597, not fail safe .

STL Electromechanical safety temperature limiter acc. EN 14597, fail safe. If nominal value is reached, the limiter switches and stays locked in this position. Reset is performed manually and is only possible after the sensing element is cooled off by approx. 10 K.

- Time factor of sensing element acc. EN 14597
- Operation type TC Type 2 B acc. EN 14597
- Operation type STL Type 2 BK acc. EN 145979

Type summary

Industrial and heating water
Incoloy 825; 2.4858

Type	*Order no.*	*Power*		*Immersion length [EL]*
AHFOR-BI-OP-18.0	012-5611	18.0kW;	400V 3~	490mm

Technical data

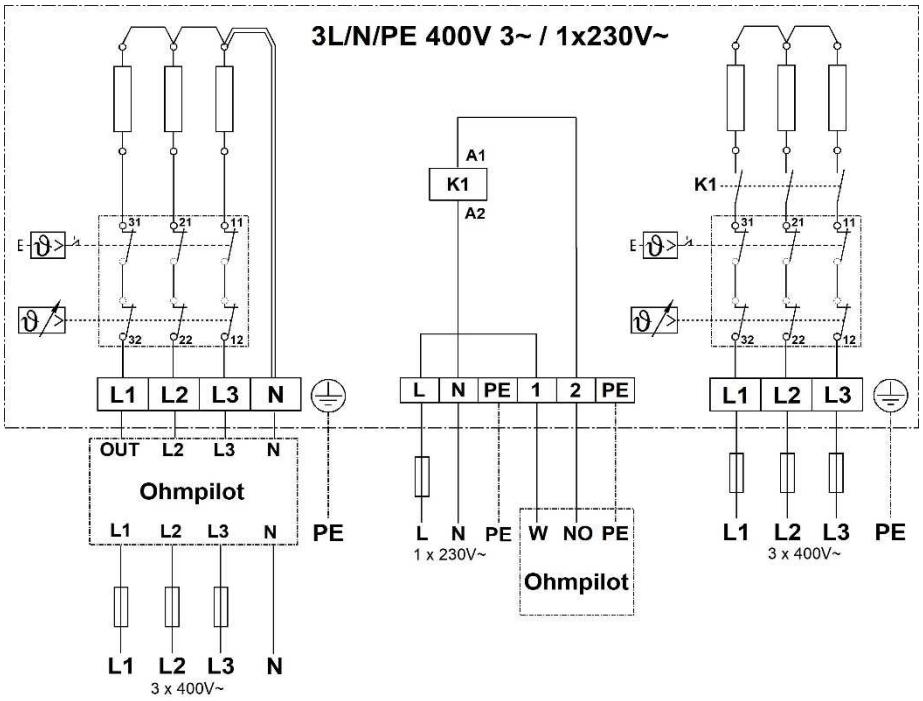
The following indications are valid for the above listed standard types. Due to the function, other types might show different data.

Application range	Adjustable cut-off temperature	0…❄…28...85 °C
	Safety cut-off temperature ϑ_{off}	110 °C (0-9 K)
	Ambient temperature on switching head	max. 50 °C (T50)
	Thermal switching differential	11.0 K ± 5.5 K
	Ambient temperature for storage and transport	-30...+90 °C
Calibration	Calibration tolerance	± 7 K
	Time factor in water	<45 s
Specification	Flange material	St 37
	Outside flange diameter	Ø 240 mm
	Pitch circle diameter	Ø 210 mm / 12 X M12
	Flange seal	EPDM, KTW and FDA certification
	Tesnit sealing disk	Tesnit BA-U light blue, KTW certification
	Heating tube industrial water	Incoloy 825; 2.4858, Ø 8.2 mm
	Immersion tube	Cronifer 1.4529
	Surface load	7 W/cm^2
	Electrical connection	Screw clip
	Operating pressure	max. 10 bar
	Housing cover	ABS UL94 V0, NCS 2005-R80B (light gray)
	Protection mode	IP21 acc. EN 60529

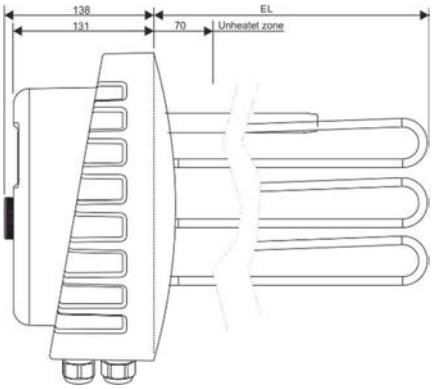
Fitting notes

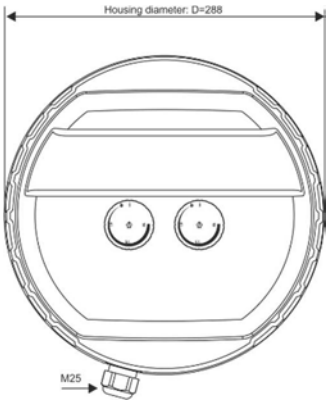
The device must be installed horizontally. The heating tubes must be covered entirely by the liquid. The circulation of the liquid shall not be inhibited.

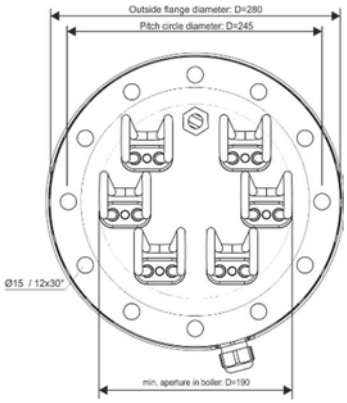
Wiring diagram



Dimension drawing







2.18

ASKOHEAT-FOP 18.0 kW

012-5612

Flange heater Ø 280 mm Incoloy 825; 2.4858

AHFOR-BI-OP

With combination of temperature control and safety temperature limiter
Compatible with the consumption regulator Fronius Ohmpilot

2.19

Application

Auxiliary heating system of industrial water and heating water.

Features

FH The heating element is made of six U- shaped heating tubes, each press-fitted into a press-fitting nipple. These are bolted with the immersion tube onto a steel flange.
A food-safe tesnit disk serves as insulation .
This heating element can be used for stainless steel-, as well as for black steel or enamelled storage tanks. Depending on storage type, select the settings using the DIP switch.
The unheated zone is 70 mm for all types.

TC Electromechanical temperature control acc. EN 14597, not fail safe .

STL Electromechanical safety temperature limiter acc. EN 14597, fail safe. If nominal value is reached, the limiter switches and stays locked in this position. Reset is performed manually and is only possible after the sensing element is cooled off by approx. 10 K.

- Time factor of sensing element acc. EN 14597
- Operation type TC Type 2 B acc. EN 14597
- Operation type STL Type 2 BK acc. EN 145979

Type summary

Industrial and heating water
Incoloy 825; 2.4858

Type	*Order no.*	*Power*		*Immersion length [EL]*
AHFOR-BI-OP-18.0-Ø280	012-5612	18.0kW;	400V 3~	490mm

Technical data

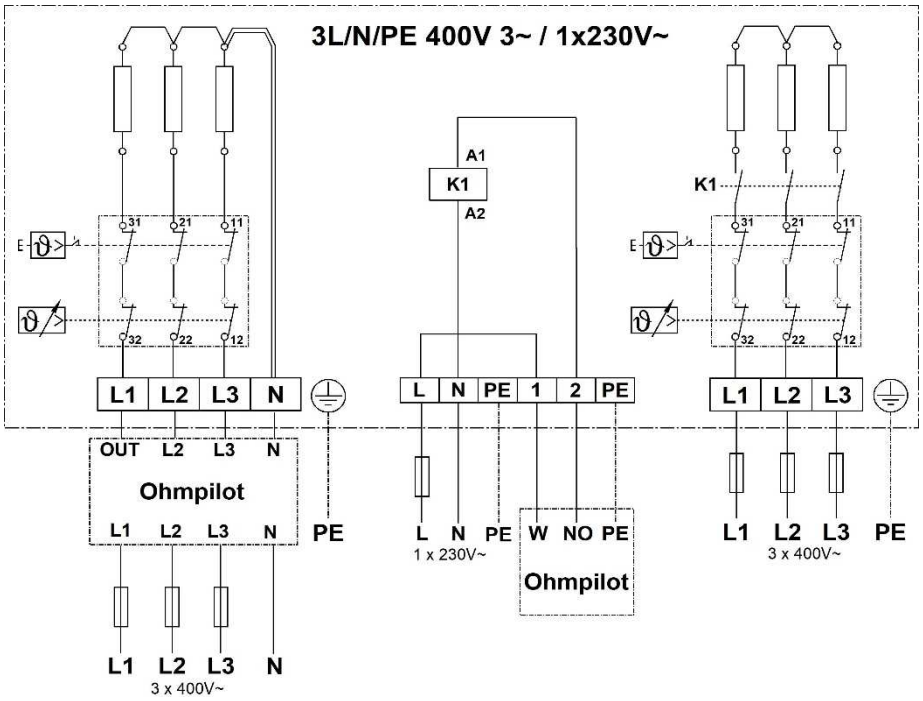
The following indications are valid for the above listed standard types. Due to the function, other types might show different data.

Application range	Adjustable cut-off temperature	0…❄…28...85 °C
	Safety cut-off temperature ϑ_{off}	110 °C (0-9 K)
	Ambient temperature on switching head	max. 50 °C (T50)
	Thermal switching differential	11.0 K ± 5.5 K
	Ambient temperature for storage and transport	-30...+90 °C
Calibration	Calibration tolerance	± 7 K
	Time factor in water	<45 s
Specification	Flange material	St 37
	Outside flange diameter	Ø 280 mm
	Pitch circle diameter	Ø 210 mm / 12 X M12
	Flange seal	EPDM, KTW and FDA certification
	Tesnit sealing disk	Tesnit BA-U Hellblau, KTW certification
	Heating tube industrial water	Incoloy 825; 2.4858, Ø 8.2 mm
	Immersion tube	Cronifer 1.4529
	Surface load	7 W/cm^2
	Electrical connection	Screw clip
	Operating pressure	max. 10 bar
	Housing cover	ABS UL94 V0, NCS 2005-R80B (light gray)
	Protection mode	IP21 acc. EN 60529

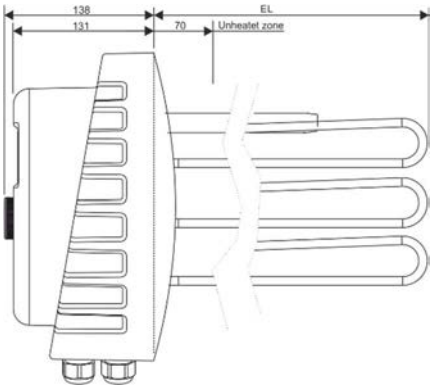
Fitting notes

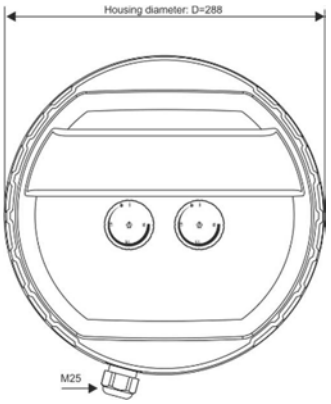
The device must be installed horizontally. The heating tubes must be covered entirely by the liquid. The circulation of the liquid shall not be inhibited.

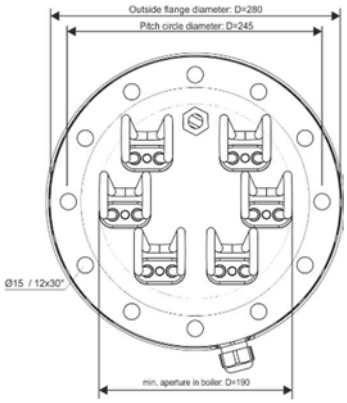
Wiring diagram



Dimension drawing



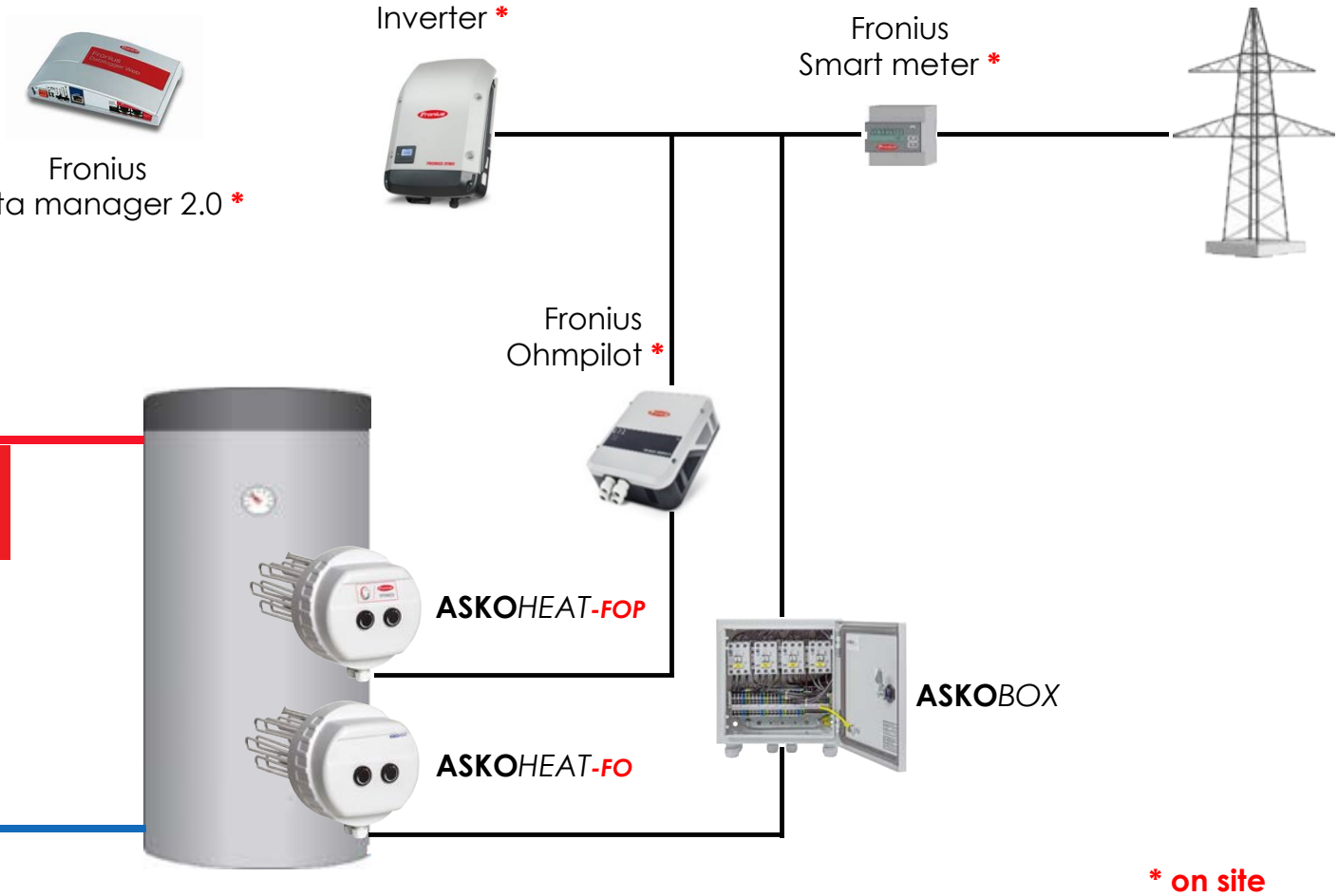




2.20

ASKO*HEAT*-OHMPILOT

ASKOMA - FRONIUS OHMPILOT
CONTINUOUSLY VARIABLE SOLUTION FOR 36kW



2.21

* on site

CE

ASKOMA we care about energy

Fronius OPTIMIZED

STORE 36kW EXCESS ELECTRICITY
CONTINUOUSLY VARIABLE IN HEAT

ORDER OPTIONS 36kW SOLUTION

ASKOMA

	Order no.	Appellation	Description	Immersion length mm
			1.1. On-site Fronius components	
		Fronius Inverter	Galvo, Primo, Symo or Eco	
	43.0001.1473 63A	Fronius Smart meter	Bidirectional meter for recording power consumption	
	43.0001.1478 50kA-3	Fronius Smart meter	Bidirectional meter for recording power consumption	
	4.240.160	Fronius Ohmpilot	Consumption regulater that continuously transfers excess PV electricity to the **ASKO***HEAT* **-OP** for hot water preparation	
			1.2. Option (on-site, if there is no Fronius inverter)	
	4.240.125	Fronius Data manager 2.0	WLAN Datalogger necessary for externel inverters or CHP	
			2.1. ASKOMA components for storage tanks with connection flange Ø 240mm	
	012-5611	AHFOR-BI-OP-18.0, Ø 240mm	**ASKO***HEAT* **-FOP** Ø 240mm, 400V, continuously variable 18.0kW	490
	012-1748	AHFOR-BI-A-18.0, Ø 240mm	**ASKO***HEAT* **-FO** Ø 240mm, 400V, continuously variable 18.0kW	490
	012-0110	Switching box with power contactors	**ASKO***BOX* for Fronius 36kW solution HxWxD: 280x250x145mm	
			2.2. ASKOMA components for storage tanks with connection flange Ø 280mm	
	012-5612	AHFOR-BI-OP-18.0, Ø 280mm	**ASKO***HEAT* **-FOP** Ø 280mm, 400V, continuously variable 18.0kW	490
	012-1848	AHFOR-BI-A-18.0 Ø 280mm	**ASKO***HEAT* **-FO** Ø 280mm, 400V, continuously variable 18.0kW	490
	012-0110	Switching box with power contactors	**ASKO***BOX* for Fronius 36kW solution HxWxD: 280x250x145mm	

2.22

234_V2_072020

Notes

ASKOHEAT-PV

SCREW-IN HEATER AND FLANGE HEATER, 7 AND 3 LEVELS

INCLUDING 3 RELAYS - 230V

ASKOMA we care about energy

SCREW-IN HEATER IN 1 1/2"
FLANGE HEATER Ø 180mm

- 7 and 3 levels
- 230V / 400V
- Including 3 Relays - 230V

APPLICATION EXAMPLES

The **ASKO***HEAT-PV* relay 7- and 3-stage are used with energy management systems, which controls the built-in 3 relays in the heating element.

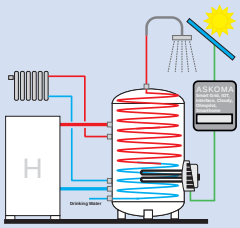
Our scope of supply includes the **ASKO***HEAT-PV* 7 or 3 levels in various power classes as 230V or 400V versions.
3 connection variants are available: Flange and screw-in heaters 1½“ and also in the **ASKO***WALL*.

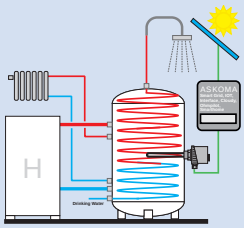
The **ASKO***HEAT-PV* converts your electricity surplus from the PV system, wind turbine, water turbine or CHP into heat and stores it in your buffer tank / boiler in the house. This heat is then available when needed.

Example:
You have a 1000L buffer tank with a fresh water station that you heat up to 40 °C with your heat pump. With the **ASKO***WALL* and the **ASKO***HEAT-PV* you can load this buffer up to 85°C.
This means: 1000L x 45°C temperature to max. 85°C x 1.16 / 1000 = You can save around 52kW of PV power.

If you want to save your heat pump‘s compressor in summer operation for domestic water heating to increase its service life, you can store even more energy than the 52kW listed above. This energy will then be available on demand as needed.

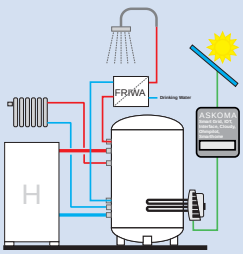
«Pleasure in heating» through the maximum use of surplus of specially produced renewable energy.

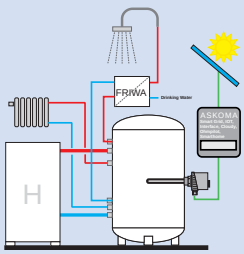




Hygienic tank

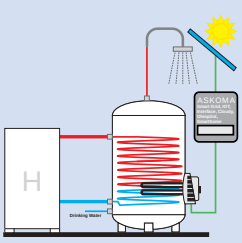
- The **ASKO***HEAT-PV* flange and screw-in heaters are designed for easy, direct installation on a hygenic tank to provide the user with energy-efficient, smooth, high-temperature stratification and to store the maximum PV excess current.
- **ASKO***HEAT* heating inserts are selectable in many performance sizes.

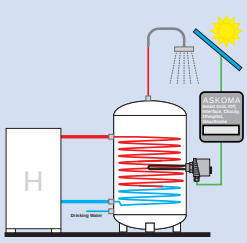




Buffer tank, alternatively with fresh water station

- The **ASKO***HEAT-PV* flange and screw-in heaters are designed for easy, direct installation on a buffer tank to provide the user with energy-efficient, smooth, high-temperature stratification and to store the maximum PV excess current.
- **ASKO***HEAT* heating inserts are selectable in many performance sizes.





Drink water storage with ASKOMA PV heating storage insert

- The **ASKO***HEAT-PV* flange and screw-in heaters are designed for easy, direct installation on a drink water storage to provide the user with energy-efficient, smooth, high-temperature stratification and to store the maximum PV excess current.
- **ASKO***HEAT* heating inserts are selectable in many performance sizes.

Technical alterations reserved

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ADVANTAGES ASKO*HEAT-E*

Easy to install

① Standard hex for secure tightening with conventional wrenches
② Tapered thread for precise housing position and tight installation (1½“ and 2“ standard)
③ With insulated mounting of the heating tubes, suitable for enamelled boilers

Technical Design

④ Low surface load (8 W/cm²) for low calcification
⑤ Optimal sensor position in the oval immersion tube for identical temperature measurement of safety temperature limiter and temperature control

Technical advantages (on customer request)

- Pre-wired with connection cable
- Various colour options for housing (OEM)
- 400 V and 230 V models
- Multi-stage settings for heating elements
- Fitting thread $1^1/_4$” for heating water

ADVANTAGES ASKO*HEAT-F*

Easy to install

① Standard flange Ø 180 mm
② Flat gasket included

Technical design

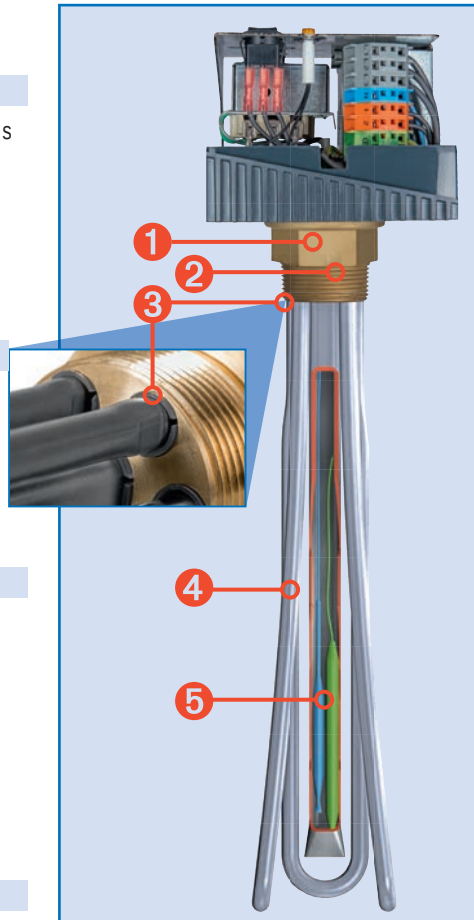
③ Low surface load (7 W/cm²) for low calcification
④ Optimal sensor position
⑤ Insulated assembly of the heating elements for low corrosion

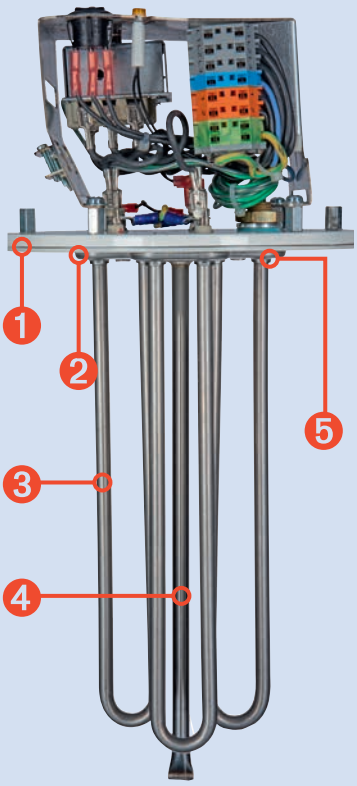
Technical advantages (on customer request)

- Cable entry possible on the side at the top
- Pre-wired with connection cable
- Various colour options for housing (OEM)
- 400 V and 230 V models
- 3 stage settings for heating elements

Approvals

- EN 60335-2-21
  Condensate drain in housing prevents corrosion
  No damage to the heating element during dry run
  Overvoltage resistant (7.25 %)
- EN 60335-1, EN 60335-2-73
- EN 55014-1, EN 55014-2
- EN 62233
- EN 60529





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ASKOHEAT-PV
7 levels – 400 V~

012-6171

Screw-in heater
insulated mounting

AHIR-BI-PV4-A...

with combination of temperature control, safety temperature limiter and power switching unit for photovoltaic systems

PV own power consumption

- Immersion heater with 7-stage switching via 3 built-in relais at 16 A
- 7 linear power stages
- For PV-controlling without load switching circuit

CE

Application

Auxiliary heating system of drinking water and heating water in photovoltaic systems.

Features

SH The heating element is made of three U-shaped heating tubes, which are mounted isolated into a 1½" conical brass nipple by food-safe plastic sleeves.
Thanks to the insulated mounting of the heating tubes, the devices are also suitable for enamelled boilers.
The unheated zone is 150 mm for all types.

TC Electromechanical temperature control acc. EN 14597, not fail safe.

STL Electromechanical safety temperature limiter acc. EN 14597, fail safe. If nominal value is reached, the limiter switches and stays locked in this position. Reset is performed manually and is only possible after the sensing element is cooled off by approx. 10 K.

- Time factor of sensing element acc. EN 14597
- Operation type TC Type 2 B acc. EN 14597
- Operation type STL Type 2 BK acc. EN 145979

Type summary

Drinking- and heating water
Incoloy 825, 2.4858

Type	*Order-no.*	*Power*	*Immersion length [EL]*
AHIR-BI-PV4-A-1.75	012-6171	**1.75 kW** (0.25 + 0.50 + 1.00 kW)	400 mm
AHIR-BI-PV4-A-3.5	012-6172	**3.50 kW** (0.50 + 1.00 + 2.00 kW)	600 mm
AHIR-BI-PV4-A-4.4	012-6173	**4.40 kW** (0.65 + 1.25 + 2.50 kW)	700 mm
AHIR-BI-PV4-A-5.2	012-6174	**5.20 kW** (0.75 + 1.50 + 3.00 kW)	750 mm

Technical data

The following indications are valid for the above listed standard types. Due to the function, other types might show different data.

Application range	Adjustable cut-off temperature	0…❄…28...85 °C
	Safety cut-off temperature ϑ_{off}	110 °C (0-9 K)
	Ambient temperature on switching head	max. 50 °C (T50)
	Thermal switching differential	11.0 K ± 5.5 K
	Ambient temperature for storage and transport	-30...+90 °C
Calibration	Calibration tolerance	± 7 K
	Time factor in water	<45 s
Specification	Fitting thread	R 1½" conical
	Brass nipple	CuZn40Pb2
	Heating tube	Incoloy 825, 2.4858
	Surface load	8-9 W/cm²
	Electrical connection	Spring clip
	Operating pressure	max. 10 bar
	Housing cover	Polycarbonate, RAL 7035 (light gray)
	Housing base	Polycarbonate, RAL 7016 (anthracite gray)
	Protection mode	IP41 acc. EN 60529

3.4

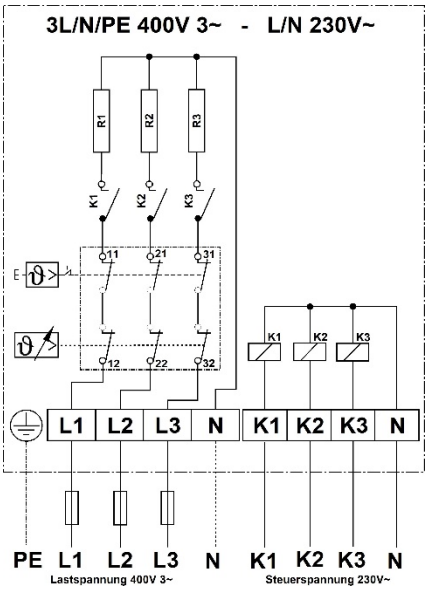
Fitting notes

The device must be installed horizontally. The heating tubes must be covered entirely by the liquid. The circulation of the liquid shall not be inhibited.

Please note: This heating element is applicable in stainless steel boiler as well as in black steel / black steel enamelled boilers. Select the settings via DIP switch according to the boiler type.

Wiring diagram

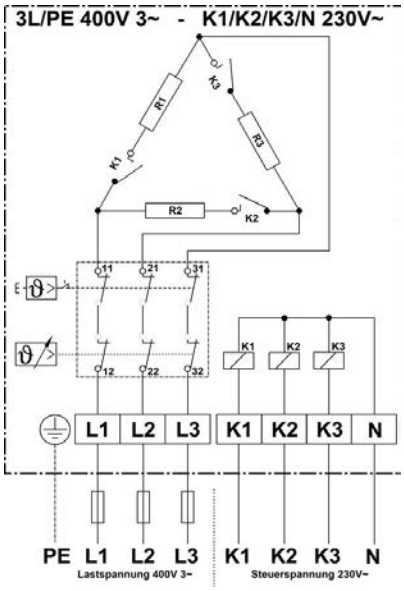
Power range: 1.75 kW



Operating voltage:
L1 / L2 / L3 / N 400 V 3~

Control voltage:
K1 / K2 / K3 / N 230 V~

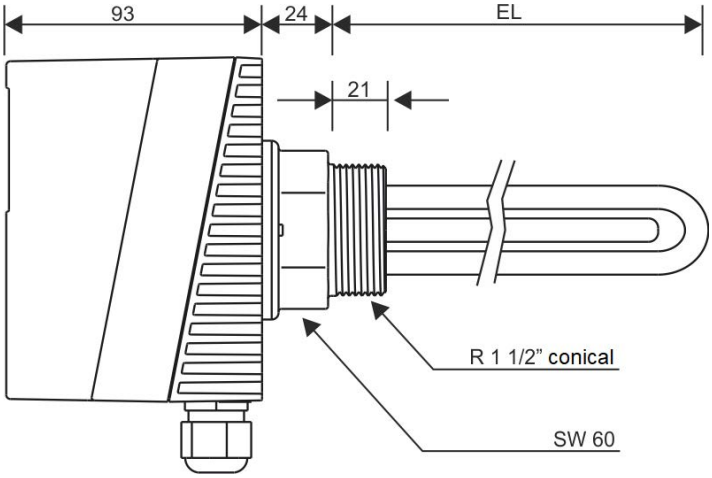
Power range: 3.5 kW and 5.2 kW

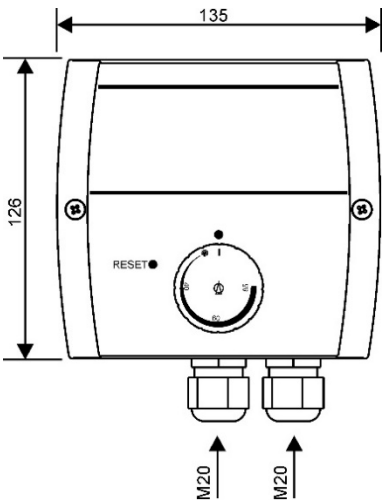


Operating voltage:
L1 / L2 / L3 400 V 3~

Control voltage:
K1 / K2 / K3 / N 230 V~

Dimension drawing





ASKOHEAT-F-PV
7 levels – 400 V~

012-6671

Flange heater AHFR-BI-PV4-A...

with combination of temperature control, safety temperature limiter and power switching unit for photovoltaic systems

PV own power consumption

- Immersion heater with 7-stage switching via 3 built-in relais at 16 A
- 7 linear power stages
- For PV-controlling without load switching circuit

CE

Application

Auxiliary heating system of industrial water and heating water in photovoltaic systems.

Features

FH The heating element is made of three U-shaped heating tubes, each press-fitted into a press-fitting nipple. These are bolted with the immersion tube onto a steel flange.
A food-safe plastic disk serves as insulation.
The unheated zone is 70 mm for all types.

TC Electromechanical temperature control acc. EN 14597, not fail safe.

STL Electromechanical safety temperature limiter acc. EN 14597, fail safe. If nominal value is reached, the limiter switches and stays locked in this position. Reset is performed manually and is only possible after the sensing element is cooled off by approx. 10 K.

- Time factor of sensing element acc. EN 14597
- Operation type TC Type 2 B acc. EN 14597
- Operation type STL Type 2 BK acc. EN 14597

Type summary

Industrial and heating water
Incoloy 825, 2.4858

Type	*Order-no.*	*Power*	*Immersion length [EL]*
AHFR-BI-PV4-A-1.75	012-6671	**1.75 kW** (0.25 + 0.50 + 1.00 kW)	260 mm
AHFR-BI-PV4-A-3.5	012-6672	**3.50 kW** (0.50 + 1.00 + 2.00 kW)	360 mm
AHFR-BI-PV4-A-4.4	012-6673	**4.40 kW** (0.65 + 1.25 + 2.50 kW)	420 mm
AHFR-BI-PV4-A-5.8	012-6674	**5.80 kW** (0.83 + 1.66 + 3.33 kW)	540 mm

Technical data

The following indications are valid for the above listed standard types. Due to the function, other types might show different data.

Application range	Adjustable cut-off temperature	0…❄…28...85 °C
	Safety cut-off temperature ϑ_{off}	110 °C (0-9 K)
	Ambient temperature on switching head	max. 50 °C (T50)
	Thermal switching differential	11.0 K ± 5.5 K
	Ambient temperature for storage and transport	-30...+90 °C
Calibration	Calibration tolerance	± 7 K
	Time factor in water	<45 s
Specification	Flange material	St 37
	Outside flange diameter	Ø 180 mm
	Pitch circle diameter	Ø 150 mm / 8 X M12
	Flange seal	EPDM, KTW certification
	Plastic disk	PP-H, FDA certification
	Heating tube	Incoloy 825, 2.4858 Ø8.2 mm
	Immersion tube	Incoloy 825, 2.4858
	Surface load	7 W/cm²
	Electrical connection	Spring clip and screw type terminal
	Operating pressure	max. 10 bar
	Housing cover	Polycarbonate, RAL 7035 (light gray)
	Protection mode	IP21 acc. EN 60529

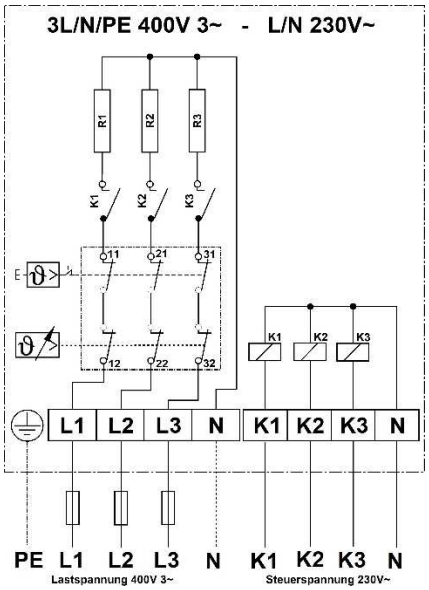
3.6

Fitting notes

The device must be installed horizontally. The heating tubes must be covered entirely by the liquid. The circulation of the liquid shall not be inhibited.

Wiring diagram

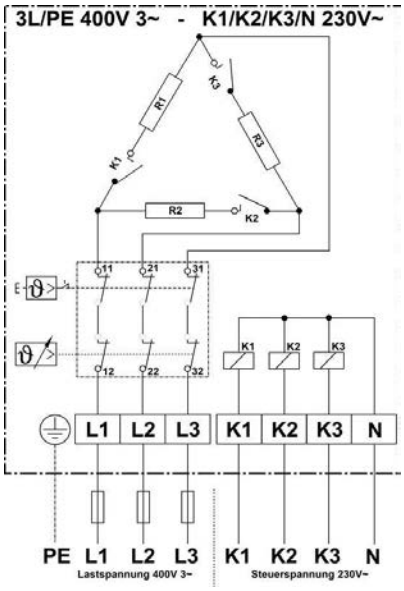
Power range: 1.75 kW



Operating voltage:
L1 / L2 / L3 / N 400 V 3~

Control voltage:
K1 / K2 / K3 / N 230 V~

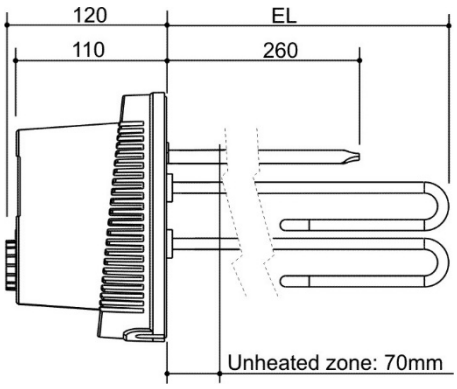
Power range: 3.5 kW up to 5.8 kW

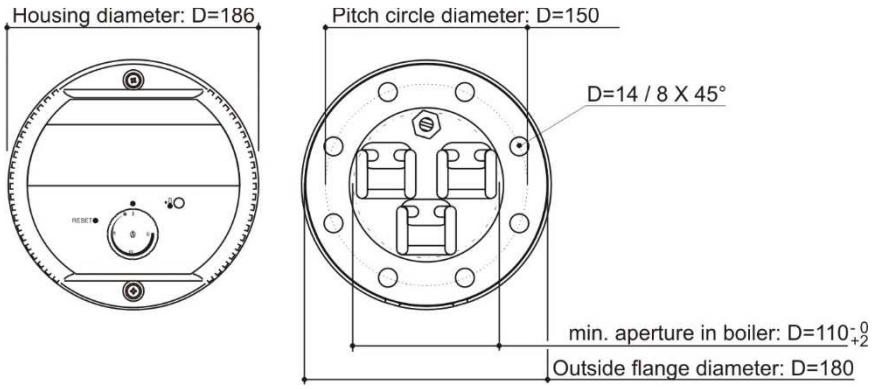


Operating voltage:
L1 / L2 / L3 400 V 3~

Control voltage:
K1 / K2 / K3 / N 230 V~

Dimension drawing





ASKOHEAT-PV 3 levels – 400 V~

012-6161

Screw-in heater insulated mounting

AHIR-BI-PV4-S...

with combination of temperature control, safety temperature limiter and power switching unit for photovoltaic systems

PV own power consumption

- Immersion heater with 3-stage switching via 3 built-in relais at 16 A
- 3 linear power stages
- For PV-controlling without load switching circuit

CE

Application

Auxiliary heating system of industrial water and heating water in photovoltaic systems.

Features

SH The heating element is made of three U-shaped heating tubes, which are mounted isolated into a 1½" conical brass nipple by food-safe plastic sleeves.
Thanks to the insulated mounting of the heating tubes, the devices are also suitable for enamelled boilers.
The unheated zone is 150 mm for all types.

TC Electromechanical temperature control acc. EN 14597, not fail safe.

STL Electromechanical safety temperature limiter acc. EN 14597, fail safe. If nominal value is reached, the limiter switches and stays locked in this position. Reset is performed manually and is only possible after the sensing element is cooled off by approx. 10 K.

- Time factor of sensing element acc. EN 14597
- Operation type TC Type 2 B acc. EN 14597
- Operation type STL Type 2 BK acc. EN 145979

Type summary

Industrial and heating water
Incoloy 825, 2.4858

Type	*Order-no.*	*Power*	*Immersion length [EL]*
AHIR-BI-PV4-S-1.0	012-6161	**1.00 kW** (3 x 0.33 kW)	300 mm
AHIR-BI-PV4-S-2.0	012-6162	**2.00 kW** (3 x 0.66 kW)	300 mm
AHIR-BI-PV4-S-2.5	012-6163	**2.50 kW** (3 x 0.83 kW)	350 mm
AHIR-BI-PV4-S-3.0	012-6164	**3.00 kW** (3 x 1.00 kW)	400 mm
AHIR-BI-PV4-S-3.8	012-6165	**3.80 kW** (3 x 1.26 kW)	450 mm
AHIR-BI-PV4-S-4.5	012-6166	**4.50 kW** (3 x 1.50 kW)	500 mm
AHIR-BI-PV4-S-6.0	012-6167	**6.00 kW** (3 x 2.00 kW)	600 mm
AHIR-BI-PV4-S-7.5	012-6168	**7.50 kW** (3 x 2.50 kW)	700 mm
AHIR-BI-PV4-S-9.0	012-6169	**9.00 kW** (3 x 3.00 kW)	750 mm

Technical data

The following indications are valid for the above listed standard types. Due to the function, other types might show different data.

Application range	Adjustable cut-off temperature	0…❄…28...85 °C
	Safety cut-off temperature ϑ_{off}	110 °C (0-9 K)
	Ambient temperature on switching head	max. 50 °C (T50)
	Thermal switching differential	11.0 K ± 5.5 K
	Ambient temperature for storage and transport	-30...+90 °C
Calibration	Calibration tolerance	± 7 K
	Time factor in water	<45 s
Specification	Fitting thread	R 1½" conical
	Brass nipple	CuZn40Pb2
	Heating tube	Incoloy 825, 2.4858
	Surface load	8-9 W/cm²
	Electrical connection	Spring clip
	Operating pressure	max. 10 bar
	Housing cover	Polycarbonate, RAL 7035 (light gray)
	Housing base	Polycarbonate, RAL 7016 (anthracite gray)
	Protection mode	IP41 acc. EN 60529

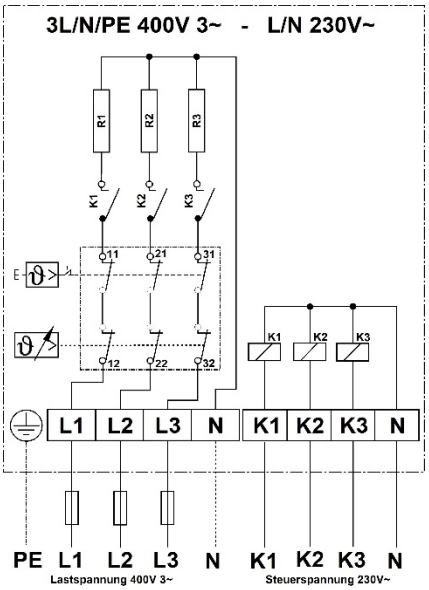
Fitting notes

The device must be installed horizontally. The heating tubes must be covered entirely by the liquid. The circulation of the liquid shall not be inhibited.

Please note: This heating element is applicable in stainless steel boiler as well as in black steel / black steel enamelled boilers. Select the settings via DIP switch according to the boiler type.

Wiring diagram

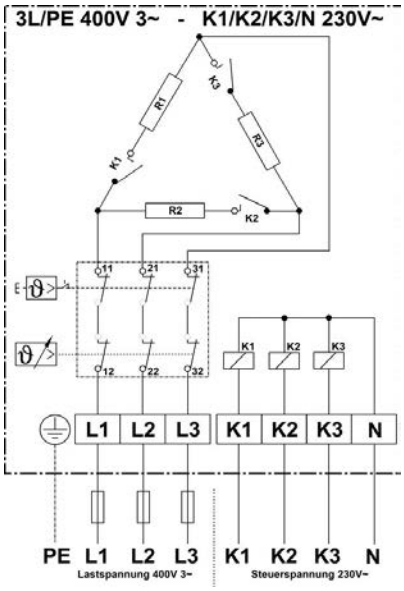
Power range: 1.0 kW up to 3.0 kW



Operating voltage:
L1 / L2 / L3 400 V 3~

Control voltage:
K1 / K2 / K3 / N 230 V~

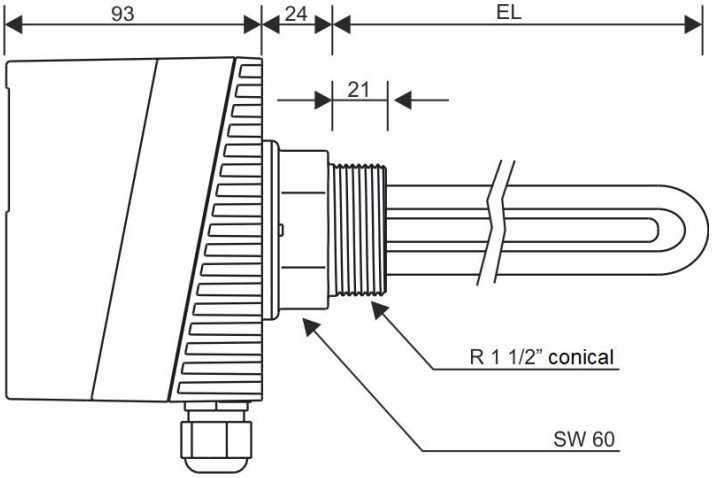
Power range: 3.8 kW up to 9.0 kW

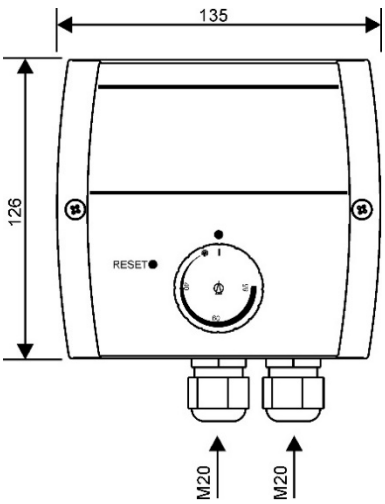


Operating voltage:
L1 / L2 / L3 400 V 3~

Control voltage:
K1 / K2 / K3 / N 230 V~

Dimension drawing





ASKOHEAT-F-PV 3 levels – 400 V~

012-6661

Flange heater AHFR-BI-PV4-S...

with combination of temperature control, safety temperature limiter and power switching unit for photovoltaic systems

PV own power consumption

- Immersion heater with 3-stage switching via 3 built-in relais at 16 A
- 3 linear power stages
- For PV-controlling without load switching circuit

CE

Application

Auxiliary heating system of industrial water and heating water in photovoltaic systems.

Features

FH The heating element is made of three U-shaped heating tubes, each press-fitted into a press-fitting nipple. These are bolted with the immersion tube onto a steel flange.
A food-safe plastic disk serves as insulation.
The unheated zone is 70 mm for all types.

TC Electromechanical temperature control acc. EN 14597, not fail safe.

STL Electromechanical safety temperature limiter acc. EN 14597, fail safe. If nominal value is reached, the limiter switches and stays locked in this position. Reset is performed manually and is only possible after the sensing element is cooled off by approx. 10 K.

- Time factor of sensing element acc. EN 14597
- Operation type TC Type 2 B acc. EN 14597
- Operation type STL Type 2 BK acc. EN 14597

Type summary

Industrial and heating water
Incoloy 825, 2.4858

Type	*Order-no.*	*Power*	*Immersion length [EL]*
AHFR-BI-PV4-S-2.0	012-6661	**2.0 kW** (3 x 0.66 kW)	260 mm
AHFR-BI-PV4-S-2.5	012-6662	**2.5 kW** (3 x 0.83 kW)	310 mm
AHFR-BI-PV4-S-3.0	012-6663	**3.0 kW** (3 x 1.00 kW)	260 mm
AHFR-BI-PV4-S-4.0	012-6664	**4.0 kW** (3 x 1.33 kW)	260 mm
AHFR-BI-PV4-S-5.0	012-6665	**5.0 kW** (3 x 1.66 kW)	300 mm
AHFR-BI-PV4-S-6.0	012-6666	**6.0 kW** (3 x 2.00 kW)	360 mm
AHFR-BI-PV4-S-7.5	012-6667	**7.5 kW** (3 x 2.50 kW)	420 mm
AHFR-BI-PV4-S-9.0	012-6668	**9.0 kW** (3 x 3.00 kW)	490 mm
AHFR-BI-PV4-S-10	012-6669	**10.0 kW** (3 x 3.33 kW)	540 mm

Technical data

The following indications are valid for the above listed standard types. Due to the function, other types might show different data.

Application range	Adjustable cut-off temperature	0…❄…28...85 °C
	Safety cut-off temperature ϑ_{off}	110 °C (0-9 K)
	Ambient temperature on switching head	max. 50 °C (T50)
	Thermal switching differential	11.0 K ± 5.5 K
	Ambient temperature for storage and transport	-30...+90 °C
Calibration	Calibration tolerance	± 7 K
	Time factor in water	<45 s
Specification	Flange material	St 37
	Outside flange diameter	Ø 180 mm
	Pitch circle diameter	Ø 150 mm / 8 X M12
	Flange seal	EPDM, KTW certification
	Plastic disk	PP-H, FDA certification
	Heating tube	Incoloy 825, 2.4858 Ø8.2 mm
	Immersion tube	Incoloy 825, 2.4858
	Surface load	7 W/cm²
	Electrical connection	Spring clip and screw type terminal

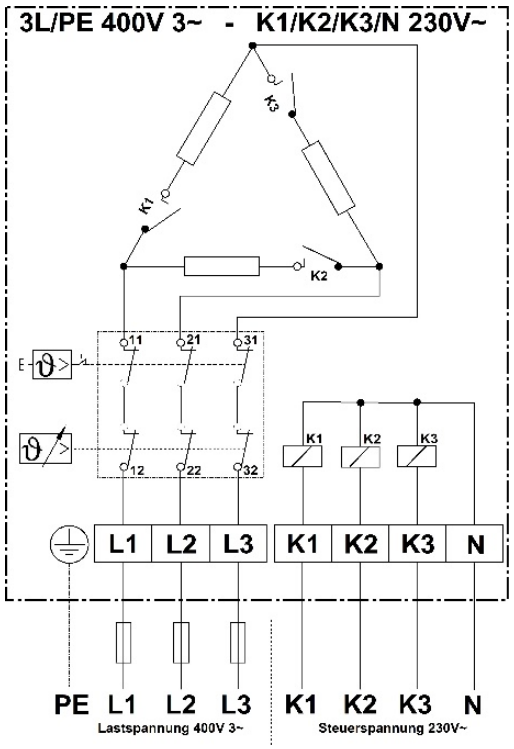
3.10

Operating pressure	max. 10 bar
Housing cover	Polycarbonate, RAL 7035 (light gray)
Protection mode	IP21 acc. EN 60529

Fitting notes

The device must be installed horizontally. The heating tubes must be covered entirely by the liquid. The circulation of the liquid shall not be inhibited.

Wiring diagram



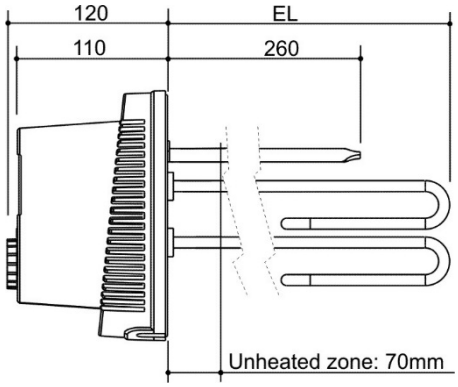
Operating voltage:

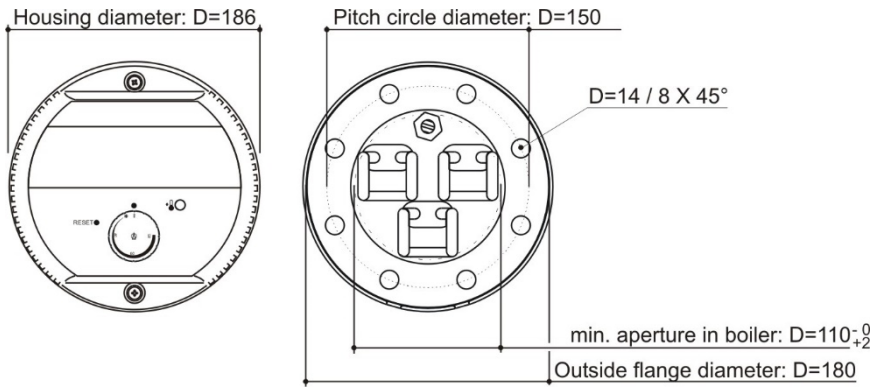
L1 / L2 / L3 400 V 3~

Control voltage:

K1 / K2 / K3 / N 230 V~

Dimension drawing

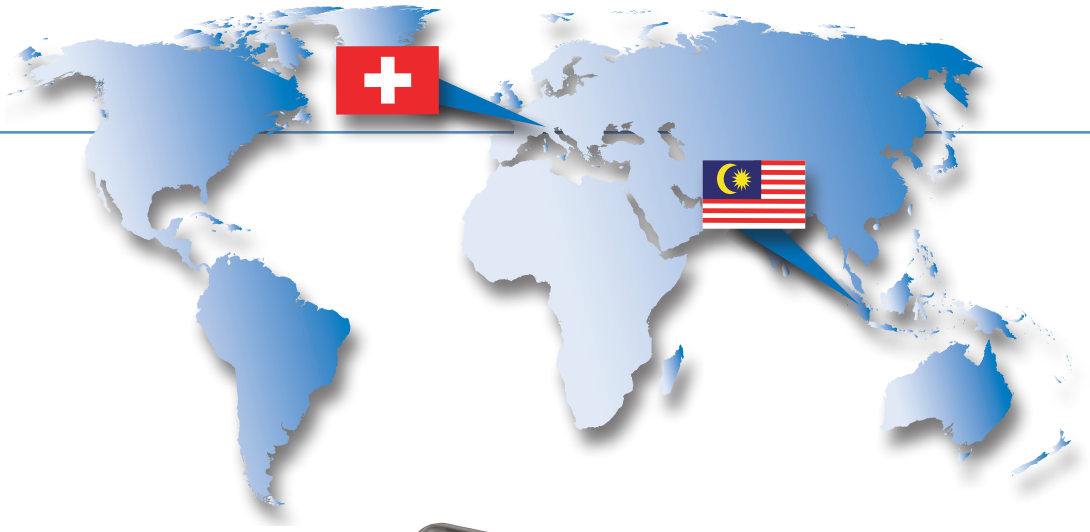




PRODUCT OVERVIEW

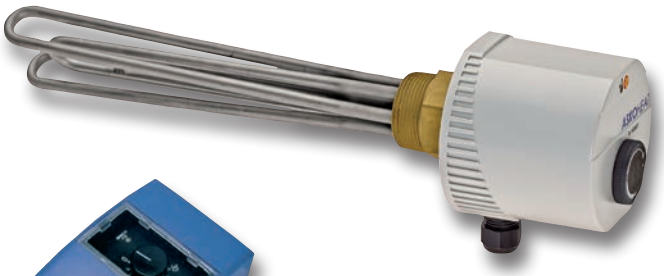
ASKOMA®

*ISO CERTIFIED PRODUCTION LOCATION · **SWITZERLAND** · **MALAYSIA***



HEAT

ASKO*HEAT*

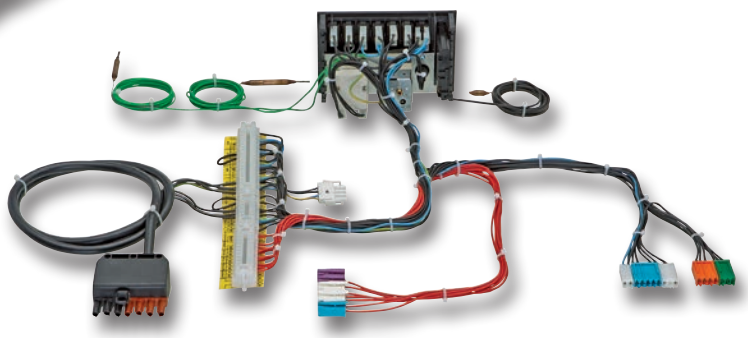


CONTROL

ASKO*STAT*

CUSTOMISE

ASKO*CONTROL*



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