Circulator for OEMs

Calio SI HP MINI / HP MINI Therm

Type Series Booklet



KSB

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Type Series Booklet Calio SI HP MINI / HP MINI Therm

Original operating manual

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Building Services: Heating

Variable Speed Circulator Pumps

Calio SI HP MINI 25-130 PWM



Main applications

Heating, ventilation, air-conditioning and circulation systems

- Underfloor heating systems
- Boiler or primary circuits
- Solar power systems
- Heat pumps

  Transfer stations and similar

Fluids handled

- Heating water to VDI 2035. If the glycol content equals or exceeds 50 %, check and verify the operating data.
- Pure, thin, non-aggressive and non-explosive fluids not containing any mineral oil, solids or long fibers

Operating data

Operating properties

Characteristic		Value
Flow rate	Q [m³/h]	4
Head	H [m]	9,5
Fluid temperature	T [°C]	-10 to +110
Ambient temperature	T [°C]	0 to 55
Operating pressure	p [bar]	10
Sound pressure level	[dB (A)]	≤ 30
Connection	G2 ½	

Designation

Example: Calio SI HP MINI 25-130 PWM

Designation key

Code	Description	
Calio SI HP Mini	Type series	
25	Nominal diameter of pipe connection	
	25	G1 ½
130	Overall length 130 mm	

Design details

Design

- Highly efficient, maintenance-free wet rotor pump (glandless)
- Screw-ended

Drive

- Brushless permanent magnet motor, self-cooling
- 230 V - 50/60 Hz
- Inrush current < 3 A
- Thermal class F
- IP44 enclosure
- Temperature class TF 110
- Interference emission EN 55014-1
- Interference immunity EN 55014-2
- IEC 60335-2-51

Bearings

- Ceramic bearing

Operating modes

- Pump speed control via external PWM signal

Materials

Overview of available materials

Component	Material
Volute casing	Grey cast iron/Stainless
Shaft	Ceramics
Impeller	Plastic with glass fibers content (PA - GF 35)
Bearing	Ceramics
Bearing plate	Stainless steel 1.4401
Can	Stainless steel 1.4401

1) In the boiler

Certifications

Overview

Label	Valid in:	Comment
ErP 2015+	Europe	EEI ≤ 0.21

Technical data

Selection table

Size	Connection		PN	P_1	Motor protection	Signalling contacts	Nominal current
	Pipeline	Pump		[W]			1~230 VAC, 50/60 Hz [A]
HP Mini 25-180 PWM	R1	G1 ½	10	150	✗	PWM / 0 - 10 V	0,1 - 1
HP Mini Therm 25-180 PWM	R1	G1 ½	10	150	✗	PWM / 0 - 10 V	0,1 - 1
HP Mini 25-130 PWM	R1	G1 ½	10	150	✗	PWM / 0 - 10 V	0,1 - 1

Operation controlled by external input

PWM signal

The pump set communicates with an external control system via a pump-integrated 2-way PWM interface. The pump sends the flow rate Q to the external control system and, in return, receives the maximum required differential pressure. The pump control system adjusts the speed to achieve the required differential pressure. Profile A for heating applications is stored in the pump software as standard. If no PWM signal is connected, the pump set is operated at maximum speed.

PWM profiles available for selection:

- Profile A for heating applications
- Profile C for solar applications

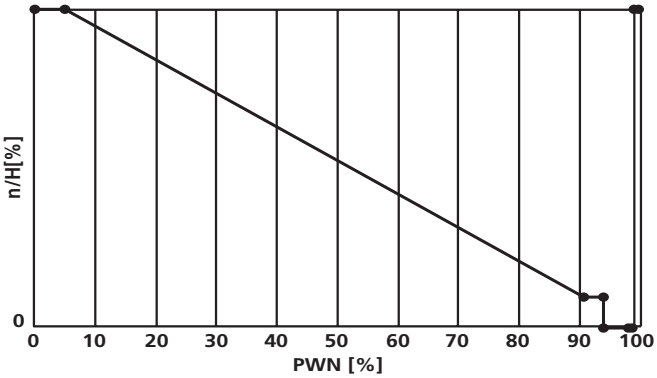


Fig. 2: PWM profile A, PWM signal from pump control system to external control system

Operation controlled by PWM profile A (heating applications)

Parameters / statuses sent

Parameter / function	PWM signal [%]	Comments
Parameters / statuses sent by external control system		
Maximum speed	99 - 100	No PWM signal connected: The pump set is operated at maximum speed
Pump ID	0 - 4	-
Modulation	5 - 91	-
Stand-by	94 - 98	Pump set can still be controlled.

Parameter / statuses sent by pump set

Parameter / function	PWM signal [%]	Comments
Parameters / statuses sent by external control system		
Pump ID	85	-
Blocked rotor	75	-
Modulation	20-70	Estimated flow rate
Dry running	10	-

Operation controlled by PWM profile C (solar applications)

Parameter / function	PWM signal [%]	Comments
Parameters / statuses sent by external control system		
Maximum speed	91 - 99	No PWM signal connected: Pump set stops.
Pump ID	0 - 4	-
Modulation	5 - 91	-
Stand-by	94 - 98	Pump set can still be controlled.

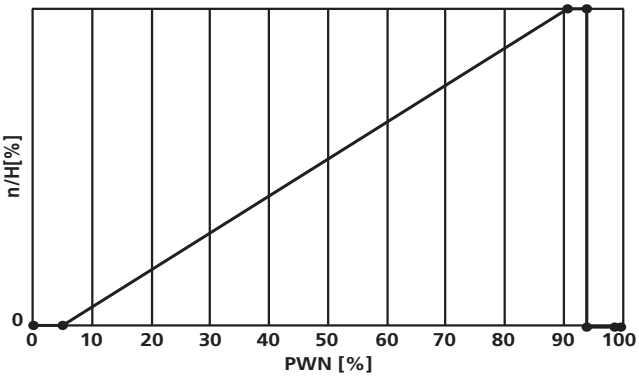


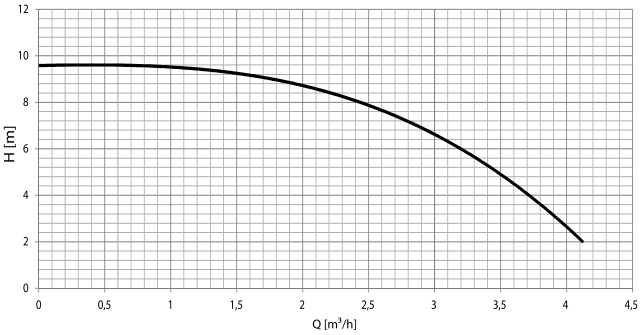
Fig. 3: PWM profile C, PWM signal from the pump to the external control system

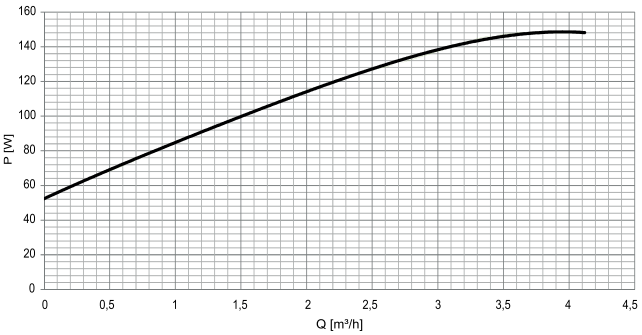
Parameter / statuses sent by pump set

Parameter / function	PWM signal [%]	Comments
Parameters / statuses sent by external control system		
Pump ID	85	-
Blocked rotor	75	-
Modulation	20-70	Estimated flow rate
Dry running	10	-

Characteristic curves

Calio SI HP MINI 25-130/180 PWM

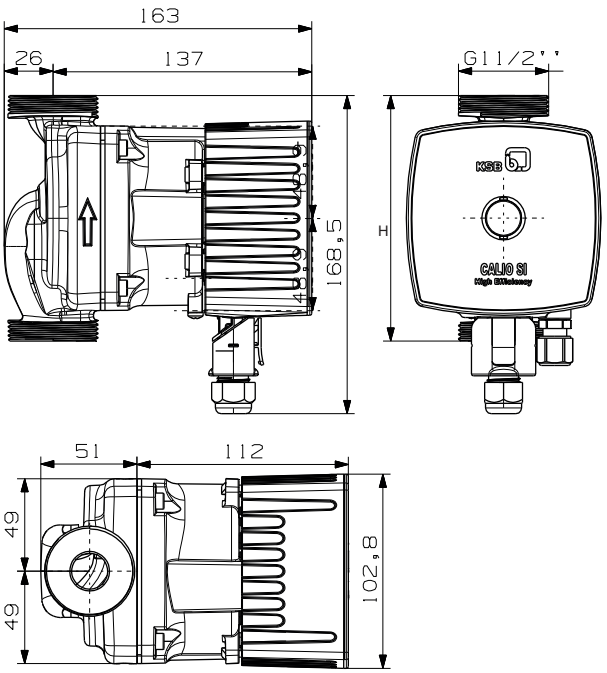




Constant curve (25-130)

Dimensions

Calio SI HP MINI 25-130 PWM



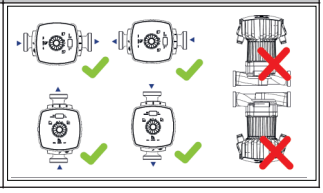
Dimensions

Size	R	G	H
HP Mini 25-180 PWM	R1	G1 1/2	180
HP Mini Therm 25-180 PWM*	R1	G1 1/2	180
HP Mini 25-130 PWM	R1	G1 1/2	130

*Stainless Steel

Calio SI HP MINI

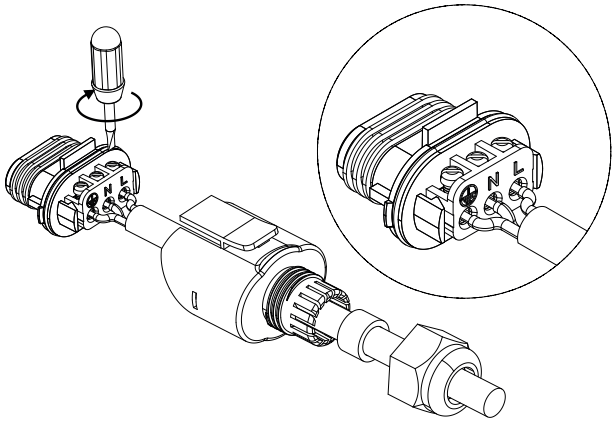
Permissible installation positions

Sizes	
All	

Scope of supply

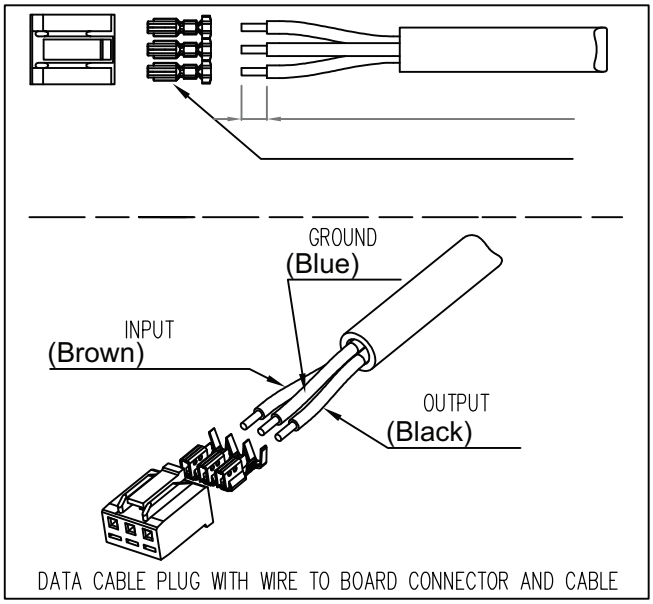
- Pump
- Connection socket for main supply 230 V
- Communication Cable

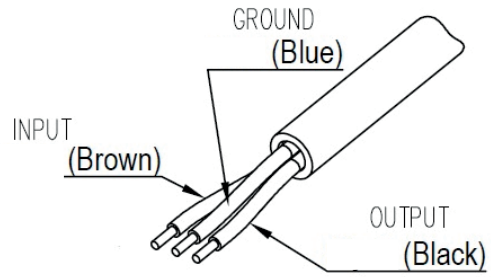
Connecting the power cable



Connecting the cores at the contact insert

L	Conductor / phase (230 V)
N	Neutral conductor
⏚	Earthing





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