AUTOADAPT CONTROL
HOT WATER RECIRCULATION PUMP

WASSERMANN CF series with AUTOADAPT control sets the standards for hot water re-circulation on domestic homes. Thanks to the low noise permanent magnet motor, energy consumption is the lowest, while AUTOADAPT control function ensures that the pump runs only when required, which minimizes both heat and power waste. The result is maximum comfort with a minimum of water, heat and electricity consumption.

MULTIPLE FUNCTIONS
The pump with AUTOADAPT control and temperature control includes many features that increase your comfort with hot water re-circulation.

EASY OPERATION
LCD digital settings are easy to change.

CORROSION-FREE HOUSING
The eco-friendly brass housing eliminates the risk of corrosion

EASY INSTALLATION
Install even in confined spaces. The line cord enables easy connection without opening the terminal box.

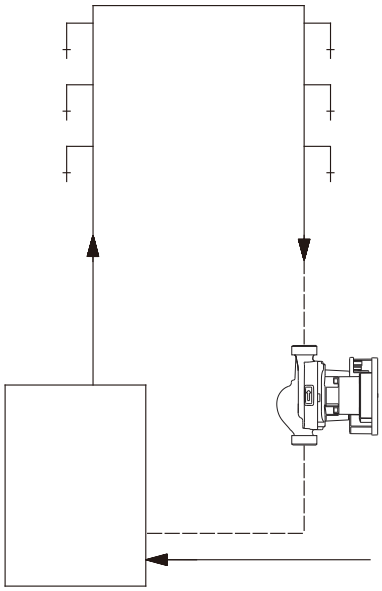
SILENT OPERATION
Noiseless living comfort.

1. Applications

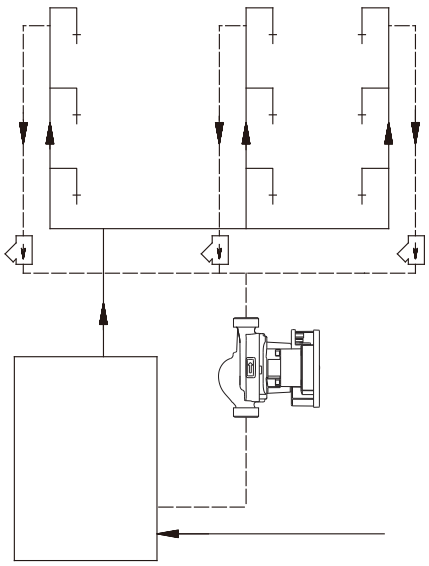
WASSERMANN CF re-circulation pumps are designed for the following:

- Domestic hot-water systems in single- and two-family houses.
- Small heating systems.
- Cooling and air-conditioning systems.

The pumps are suitable for open and closed systems. They must be installed indoors.



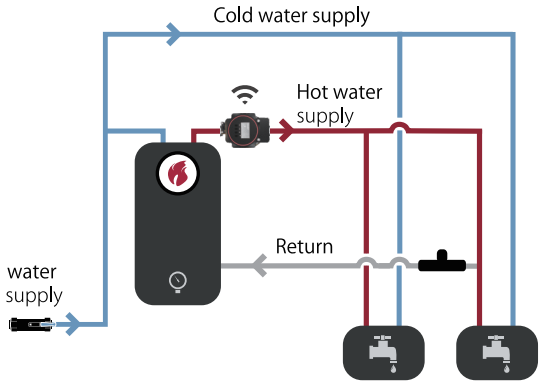
Single-loop system



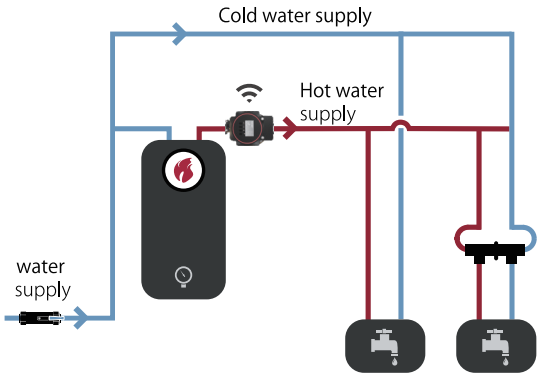
Branched system

Domestic hot-water systems

For circulation of drinking water in domestic hot-water systems, we recommend to use WASSERMANN CF types with brass pump housing in systems with hot-water storage tanks.



Domestic hot-water system with hot-water storage tank and return water pipe



Domestic hot-water system without return water pipe

FEATURES

. Instant hot water, improves comfort and eliminates waiting for hot water.
. Different control modes can further reduce recirculation heat energy losses.
. Brass housing suitable for potable water and open loop systems.

Remote control

The pump is equipped with a "brain", allowing you to control and monitor it right from your phone. The functions are intuitive, the reliability is guaranteed remotely.

Pressure boosting mode

The pump incorporates a flow switch which starts and stops the pump when a tap is turned on or off. The user interface allows to select between six constant speed curves from maximum power to minimum.

Temperature control mode

The pump has an integrated temperature control mode that controls the circulation. The pump switches off and back on when the feedback from the sensor exceeds the preset temperature upper limit or falls below the preset lower limit.

ECO Temperature control mode

The integrated flow switch starts and stops the pump. The pump adapts the temperature mode when it detects the water demand from the users.

AUTOADAPT mode

The AUTOADAPT function adapts the operating hours by switching on and off according to the tapping pattern of the users. In 24 hours, if the pump detects no use of water, the pump enters standby mode automatically, the pump keeps standby at the minimum power consumption, the pump shows "OFF" on the user interface.

Timer mode

Enables the pump to operate based on set operating times. This function is available only in the temperature control mode and ECO temperature control mode, it can be set only on the interface of phone APP.

Protection

Anti stuck: The pump runs 3 mins every 24 hours under standby mode.
Anti freezing: The pump starts when the water temperature is lower than 5℃ and stops when it is higher than 15℃.

Alarm display

Short circuit, Overload, Over heated, Low voltage, High voltage, Software abnormal, NTC defect, Flow switch defect.

2.Product range

CF BOX

CF

WIFI APP

Model	Voltage	Power P1 max [W]	Pipe connection	Q.max	H.max	Port to port
CF 15-90B	1x220V, 50/60Hz	70	G3/4"	2 m^3/h	9 m	180 mm
CF BOX 15-90B	1x220V, 50/60Hz	70	G3/4"	2 m^3/h	9 m	180 mm

CF BOX

CF

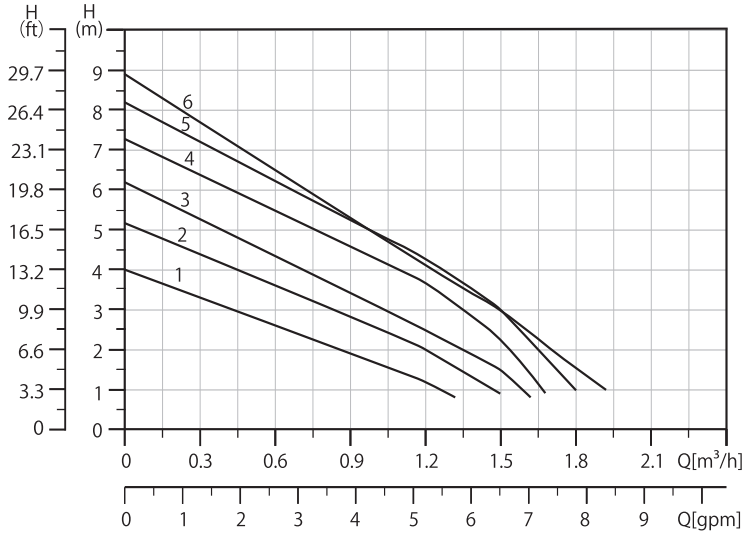
WIFI APP

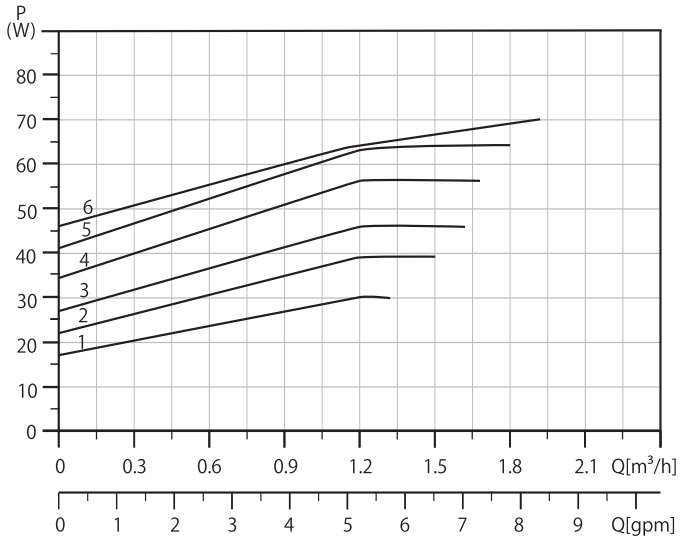
Model	Voltage	Power P1 max [W]	Pipe connection	Q.max	H.max	Port to port
CF 15-200B	1x220V, 50/60Hz	190	G3/4"	2.5 m^3/h	20 m	180 mm
CF BOX 15-200B	1x220V, 50/60Hz	190	G3/4"	2.5 m^3/h	20 m	180 mm

3.Performance curves and technical data

Pump Curve 1×220 V, 50/60 Hz

CF 15-90B,CF BOX 15-90B



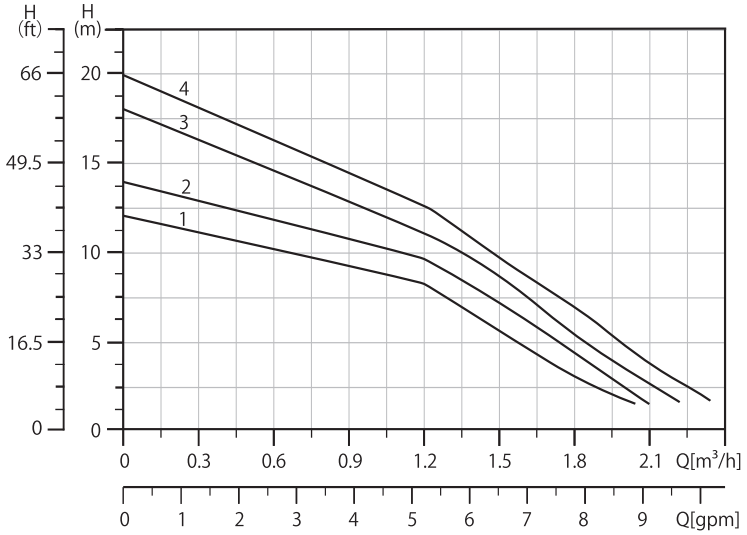


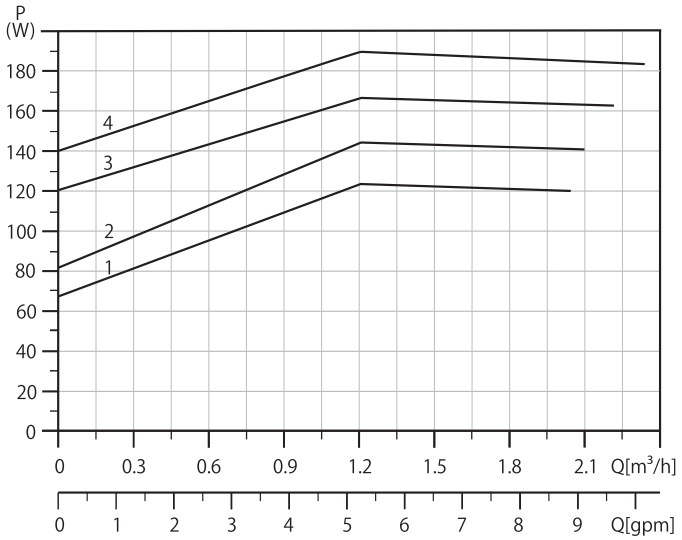
Technical data

Voltage:	220V-240VAC	Liquid temperature:	+2℃ to +95℃
Frequency:	50/60Hz	Ambient temperature :	0℃ to +55℃
Maximum Power:	70W	Storage temperature:	0℃ to +70℃
Standby power:	＜2W	Ambient humidity:	≤95%
Inrush current:	＜3A, at ambient temp. 25℃	Temperature sensor:	10K, 0-100℃
System pressure:	Max. 1.0 Mpa (10 bar)	Flow sensor:	Hall type, pulse signal
Minimum inlet pressure:	0.01Mpa at 95℃ liquid temperature	User interface:	LCD display

Pump Curve 1×220 V, 50/60 Hz

CF 15-200B,CF BOX 15-200B



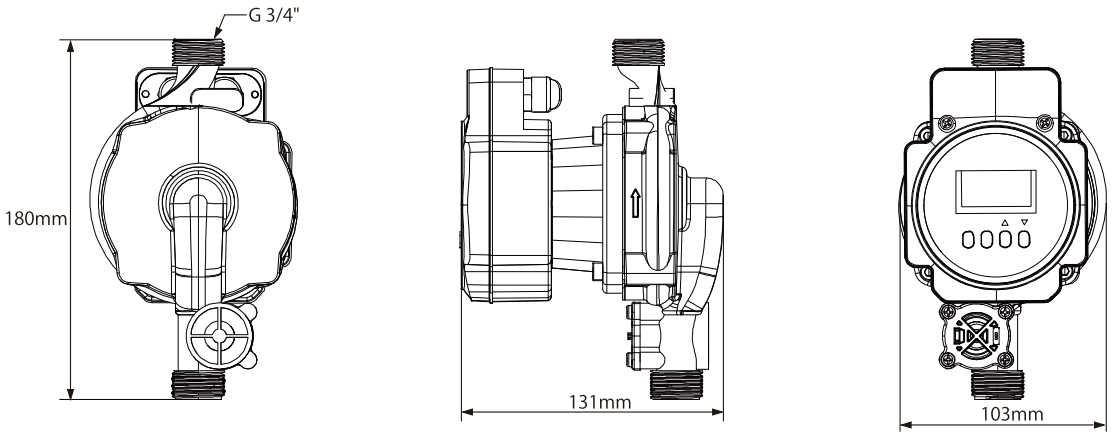


Technical data

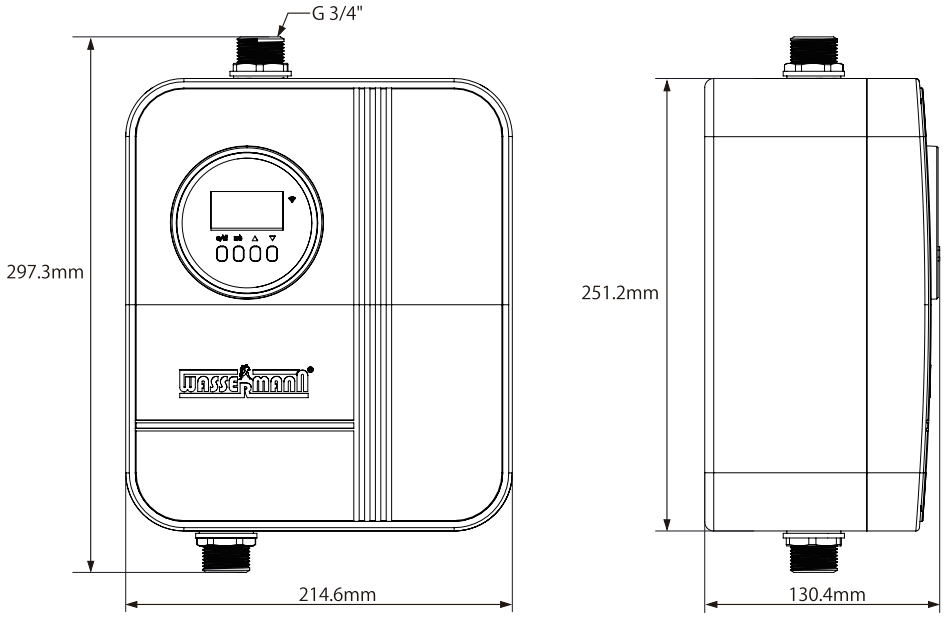
Voltage:	220V-240VAC	Liquid temperature:	+2℃ to +95℃
Frequency:	50/60Hz	Ambient temperature :	0℃ to +55℃
Maximum Power:	190W	Storage temperature:	0℃ to +70℃
Standby power:	＜2W	Ambient humidity:	≤95%
Inrush current:	＜3A, at ambient temp. 25℃	Temperature sensor:	10K, 0-100℃
System pressure:	Max. 1.0 Mpa (10 bar)	Flow sensor:	Hall type, pulse signal
Minimum inlet pressure:	0.01Mpa at 95℃ liquid temperature	User interface:	LCD display

4.Dimensions

CF15-90B

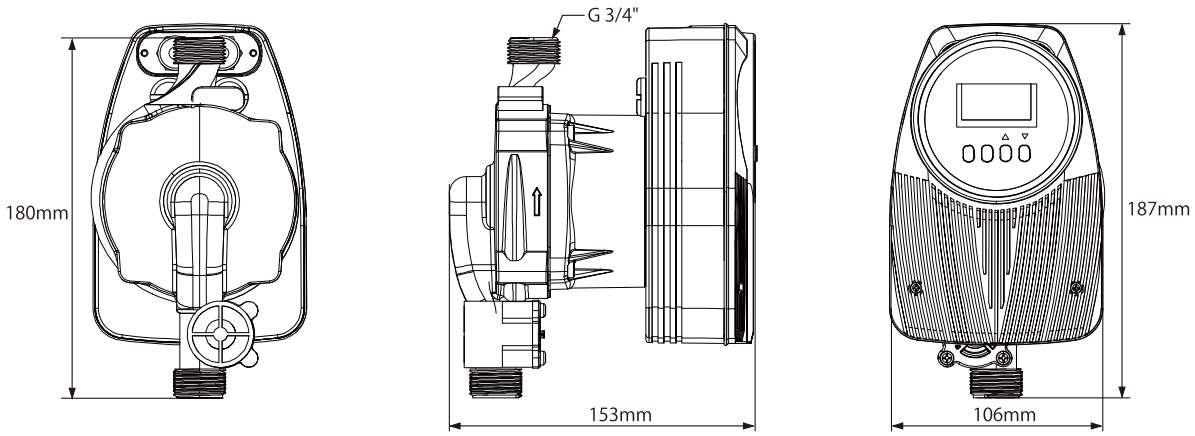


CF BOX 15-90B

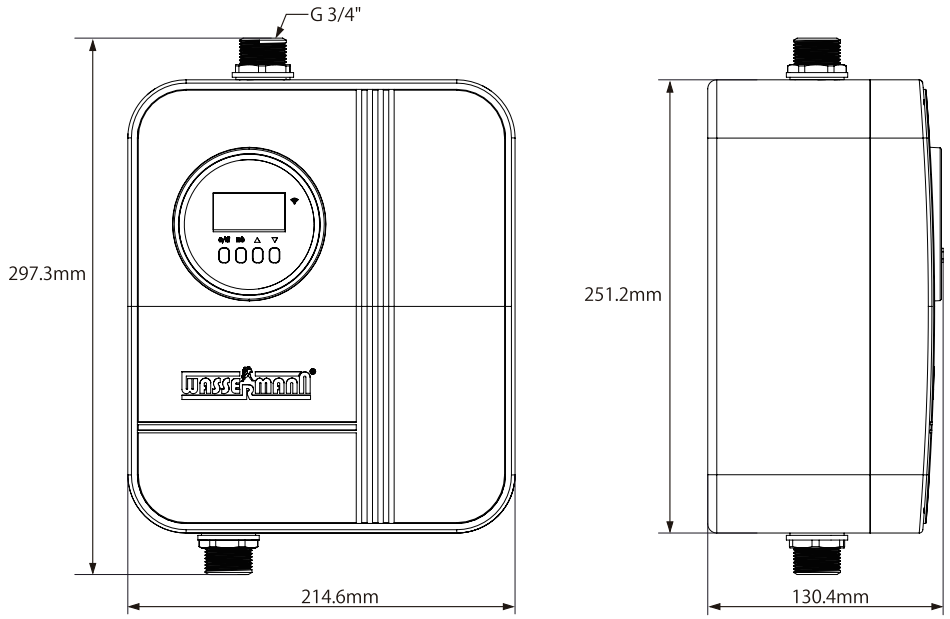


4.Dimensions

CF15-200B



CF BOX 15-200B



5. Functions

Pressure boosting mode (M: BOOST)

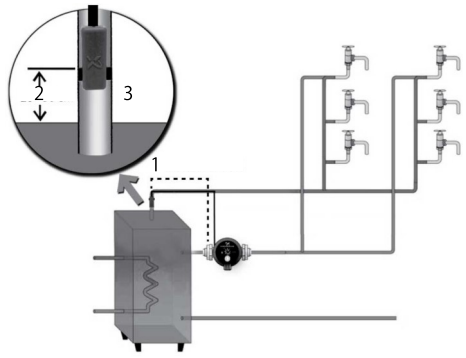
The pump is running continuously at full speed. It is allowed to select between six constant speed curves from maximum to minimum power, the function can be set on the pump control panel or the mobile app interface.

Temperature control mode (M: TEMP)

The CF pump has an integrated temperature control mode that controls the circulation, it requires a temperature sensor to be installed on the flow pipe.

The upper limit temperature can be set on the pump control panel or the mobile app interface, the setting will be applied by default across all operating modes.

Temperature range: 20°C - 80°C, the pump switches off and back on when the feedback from the sensor exceeds the preset temperature upper limit or falls below the preset lower limit.



ECO Temperature control mode (M: ECO-T)

The pump adapts the temperature control mode only when it detects the water demand from the users, with the help of the flow switch.

AUTOADAPT mode (M: AUTO)

The AUTOADAPT function adapts the operating hours by switching on and off according to the tapping pattern of the users. This means that the pump provides maximum comfort and saves energy at the same time.
The function can be set on the pump control panel or the mobile app interface.

The AUTOADAPT function automatically adjusts the number of operating hours, based on the hot-water consumption in the given system.

The AUTOADAPT function requires a temperature sensor to be installed on the flow pipe at least 50cm far from the boiler outlet. This sensor detects when hot water is tapped.

The detected tapping events are logged and used to predict the consumption pattern. The AUTOADAPT function automatically controls the on/off behaviour of the pump according to this pattern. This ensures that the pump only runs when necessary, which saves both heat energy and electrical energy.

For the first time using, on the first day, the pump runs in temperature control mode to collect user tapping events. This means that the pump stats up in temperature mode on the first day even if you have selected AUTOADAPT, and work in AUTOADAPT mode the next day.

Event log function

The AUTOADAPT function incorporates an event log that learns the scheme of demand for hot water in the domestic hot-water system. Via the event log, the pump predicts when to start circulating hot water.

	Time of day															
	00:00	00:20	00:20	00:40	--->	07:00	07:20	07:20	07:40	07:40	08:00	08:00	08:20	--->	23:30	23:50
01	0		0			0		T		0		0			0	
02	0		0			0		T		T		0			0	
03	0		0			0		T		0		0			0	
04	0		0			0		T		0		0			0	
05	0		0			0		0		T		0			T	
06	0		0			0		T		0		0			0	
07	0		0			0		T		0		0			0	

0: No consumption.

T: Tapping event is registered.

Example

- From 07:20 to 07:40, six tapping events (T) are registered (morning bath).
- From 07:40 to 08:00, two tapping events (T) are registered.
- From 23:30 to 23:45, one tapping event (T) is registered.

This pattern implies that hot water should be available for tapping from 07:20 to 08:00. At 08:00 the pump can stop circulating hot water. Likewise, the pump should circulate hot water for use from 23:30 to 23:45.

The data shown is for one week of operation only. The pump stores data for two weeks. When data for two weeks has been logged, the pump is able to well distinguish the tapping pattern.

If the user needs to reset the AUTOADAPT mode, press the up and down setting button for 5 seconds, will delete original record, the pump will automatically re-perform the AUTOADAPT event log process.

Pump control

Pump operation is based on the data stored in the event log and on the temperature of the pipes.

The pump control incorporates a temperature hysteresis, meaning that the pump ensures that the hot-water temperature is within the range of what is accepted as hot water. This temperature hysteresis control is enabled when the data content of the event log makes it probable that hot water will be tapped within the next 30 minutes, and may extend the use of hot water for 60 minutes. In the example, the pump switches on at 06:50 and run continuously until 08:20.

Standby mode

In 24 hours, if the pump detects no use of water, the pump enters standby mode automatically, the pump keeps standby at the minimum power consumption, the pump shows “OFF” on the user interface, this function is only available in AUTOADAPT mode.

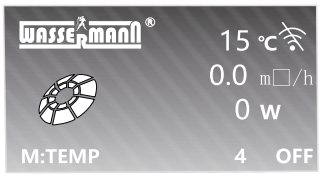
To resume operation, simply press “on/off” button on the user interface, the pump will instantly return to active mode. This intelligent feature ensures energy efficiency without compromising convenience, maintaining optimal performance when water demand resumes.

Remote control and APP settings

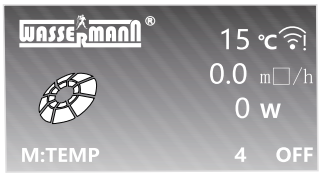
The pump comes with integrated WIFI module. The user experience is enhanced by the introduction of built-in connectivity, through which it can connect natively to cloud services without requiring any additional accessories. Following the instructions below to connect your phone with the pump.

• Download APP “Tuya Smart” or “Smart Life - Smart Living” on the phone.

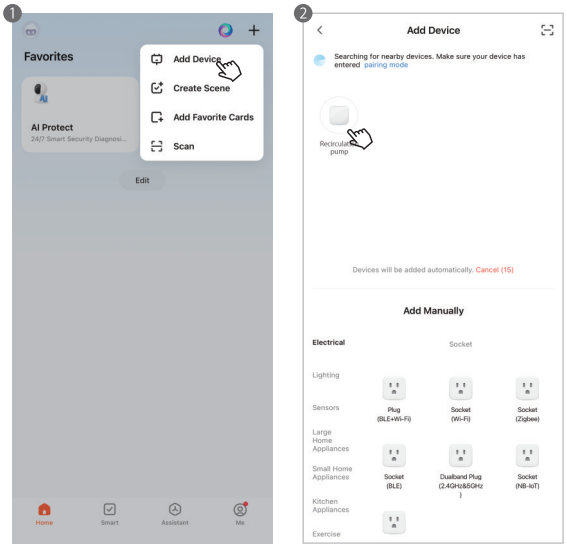
• In the first time installation of the pump, after powering on, the display indicates that the pump is not connected to Wi-Fi.

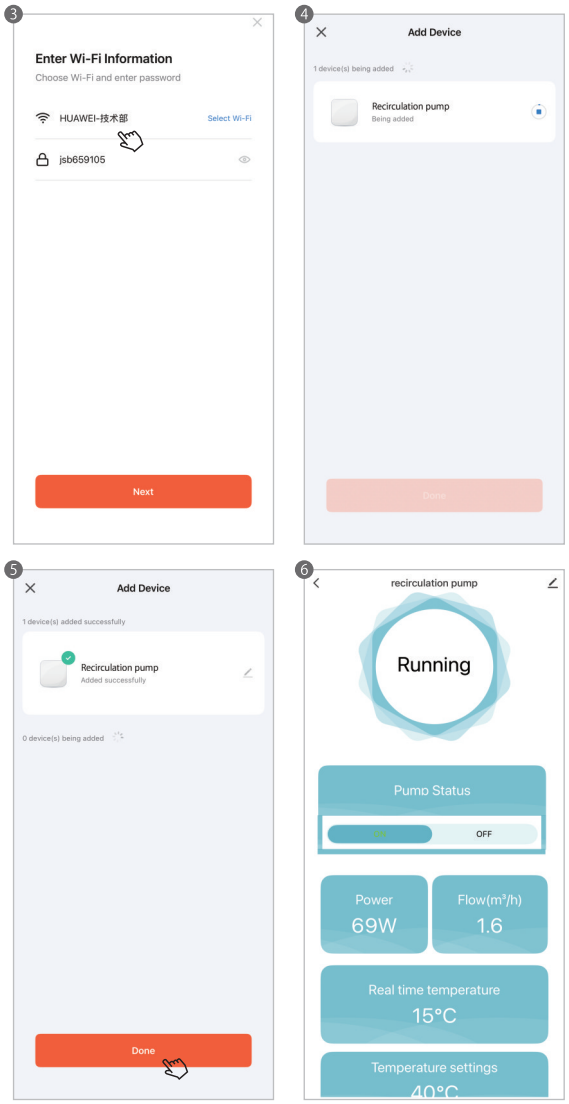


• Press and hold the down button ▼ for 5 seconds until the display shows , which indicates that the pump is connected to Wi-Fi.

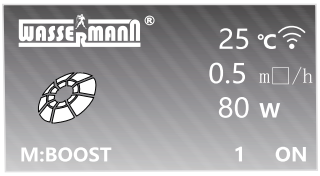


• Follow the steps in fig. below to set up the mobile app.





• The display indicates that both the pump and the mobile app are connected, the user can control the pump from the phone.



6.LCD display interface

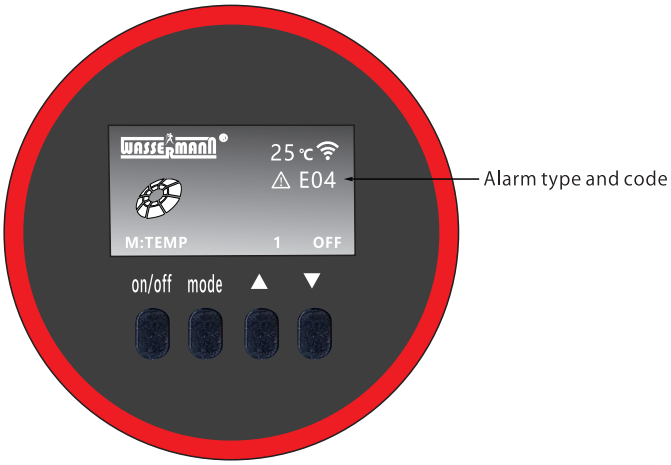
WASSERMANN®	LOGO
	Pump operation status: all lights up when the pump stops, the lights up alternately during operation.
M:BOOST	The current running mode is BOOST
on/off	Press the button to start or stop the pump
mode	Press the button and switch between modes AUTO, TEMP, ECO-T and BOOST
▲ ▼	Setting button: power and speed setting button in BOOST mode, temperature setting button in TEMP-T and ECO-T modes , the buttons are invalid in AUTO mode.
	The pump is not connected to WIFI The pump is connected to WIFI, phone APP is not connected The pump and the phone are both connected, APP can control the pump remotely
25℃	The water temperature of current duty point is 25℃
0.5m³/h	The flow of current duty point is 0.5 m³/h
80W	The input power of current duty point is 80W
1	The current running or selected curve is no.1
ON	The pump is on

7. Alarm type and display

If the circulating pump detects one or more alarms, the LCD fault icon will flash and a fault code will appear.When the alarm is activated, the LCD screen displays the alarm types in the table below.

If multiple alarms are activated simultaneously, the LCD screen only displays the highest priority error. Priorities are defined according to the sequence of the table.

When there are no active alarms, the user interface switches back to operating mode.



Code	Alarm type	Description	Alarm priority
E01	Over current protection	If the peak current exceeds 4A, the protection will be activated and the pump will shut down. After 8 seconds, the pump will restart. If the fault persists after 3 consecutive restarts, the machine will be completely shut down.	1
E02	Stuck protection	If the speed of the pump is less than 800 RPM and lasts more than 10 seconds,the protection will be activated and the pump will stop. After 8 seconds, the pump will restart continuously for 30 times. If the fault is not eliminated, the machine will be completely shut down.	2
E03	Over heated protection	If the temperature of the power module exceeds the set value and lasts for more than 5 seconds, the protection will be activated. After 8 seconds, the pump will restart. If the fault persists after 3 consecutive restarts, the machine will be completely shut down.	3
E04	Under voltage protection	If the input voltage is below 140V (±10V) and lasts for more than 2 seconds, the protection will be activated, the pump will stop.The pump restarts when VAC≥150 (±10V) .	4
E05	Over voltage protection	If the input voltage exceeds 285V (±10V) and lasts for more than 2 seconds, the protection will be activated, the pump will shut down. The pump restarts when VAC≤270 (±10V).	5
E06	Phase loss protection	If there is a phase loss, the protection will be activated and the pump will shut down. After 8 seconds, the pump will restart. If the fault persists after 3 consecutive restarts, the machine will be completely shut down.	6
E07	NTC defect	No temperature sensor signal is detected (temperature sensor not connected, disconnected or damaged). The fault will be resolved if the signal returns to normal.	7
E08	Flow switch defect	No water flow sensor signal is detected or the signal is abnormal.The fault will be resolved if the signal returns to normal.	8
E09	Heat source defect	In any temperature control mode, if the pump runs continuously for 30 minutes without reaching the set temperature, it will be forced to shut down after a delay of 3 seconds.	9