



DKB80 (80 Watt) DC Water pump Manual

Version 1.01

29/03/2023





Warning and Caution Safety Information*

**This is not an all-inclusive list.*

- Use common sense and act responsibly, electric motor controllers, motors lithium battery systems and other kit components are extremely powerful and could cause death, dismemberment or other serious injury if misused or not safely handled!
- Wear protective or safety equipment such as safety shoes, safety glasses and gloves when working with Electric Vehicle Equipment. And remove all metal jewelry and metal objects from hands, wrist, fingers, etc. before working on any electric system.
- Use Insulated tools only in proximity to connection points that have any voltage potential to prevent shorts if the tool is accidentally dropped onto the terminals/connections.
- Use caution when operating any of the components. If you are not sure what you are doing, or do not feel comfortable with the situation, find a knowledgeable person to advise you.
- Make certain all components are disconnected from any power source before servicing. If any doubt exists of the voltage that might exist, measure with proper metering devices that are in good functional condition and rated for the voltages that could exist.
- Verify and re-verify proper wiring connections.



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1.0 Product description

Centrifugal pumps are water circulation pumps for DC operation. They are suitable as circulation pumps in electric vehicles, if a water circuit is to be used, e.g. the former cooling circuit of the combustion engine.

The water flowing through the pump is heated by an electric heating element. The heated water is pumped to the heat exchanger, which provides hot air for passengers in the cabin of the car.

The water pump power consumption is 80W and there are two models, one operating on 12 VDC and the other on 24 VDC.

The water pump is equipped with reverse polarity, dry running, overvoltage, overcurrent, overload and overtemperature protection.



2.0 Specifications

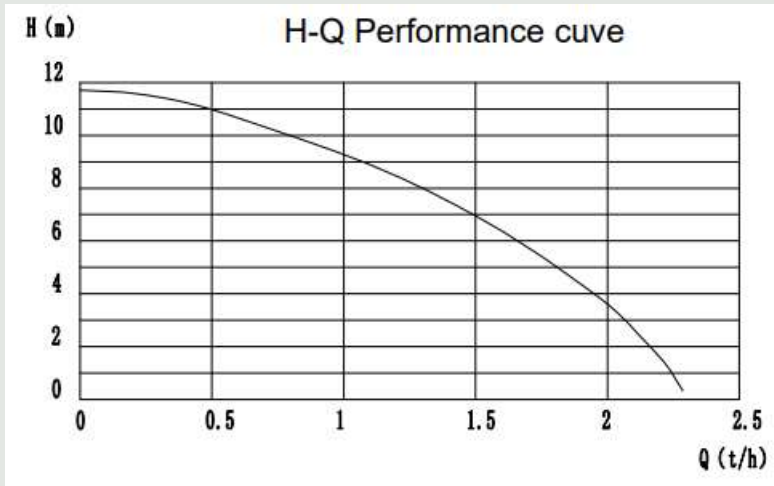
Type	DKB80
Driving motor	BLDC motor
Max. Power	80 Watt
Voltage Range	Specified in Model information
Weight	1000 gram
Dimensions	137*80*96 mm
Connector model	AMP282088-1
Nozzle diameter	22.6mm
Medium liquid	Pure water, liquid mixture (water with under 60% glycol)
Max liquid flow	2400 L/H
System pressure	-0.2 to 2.5 bar (100°C)
Max hydraulic head	≥ 11 m
Medium liquid temperature	-40°C to +100°C
Working ambient temperature	-40°C to +120°C
Protection level	IP67

2.1 Model information

Model	Voltage Range	Rated Power	Max Current
DKB80-12A	9-16 (12) VDC	80 Watt	9 A
DKB80-24A	18-32 (24) VDC	80 Watt	4.5 A

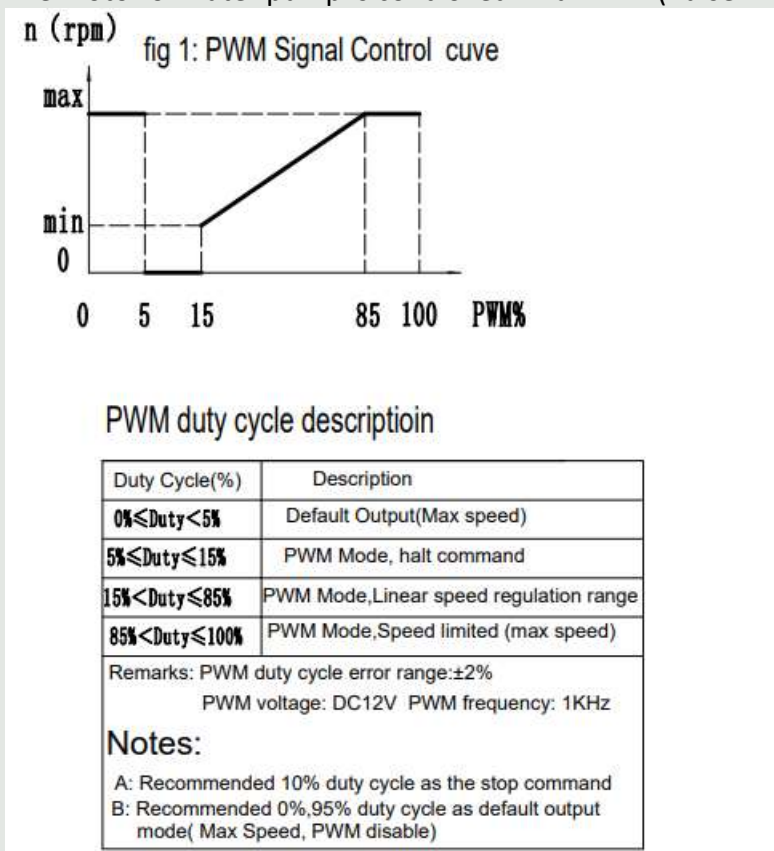


2.2 Flow curve



2.3 Control

The motor of water pump is controlled* via PWM (Pulse Width Modulation).



PWM duty cycle description

Duty Cycle(%)	Description
0% ≤ Duty < 5%	Default Output(Max speed)
5% ≤ Duty ≤ 15%	PWM Mode, halt command
15% < Duty ≤ 85%	PWM Mode, Linear speed regulation range
85% < Duty ≤ 100%	PWM Mode, Speed limited (max speed)

Remarks: PWM duty cycle error range: ±2%
 PWM voltage: DC12V PWM frequency: 1KHz

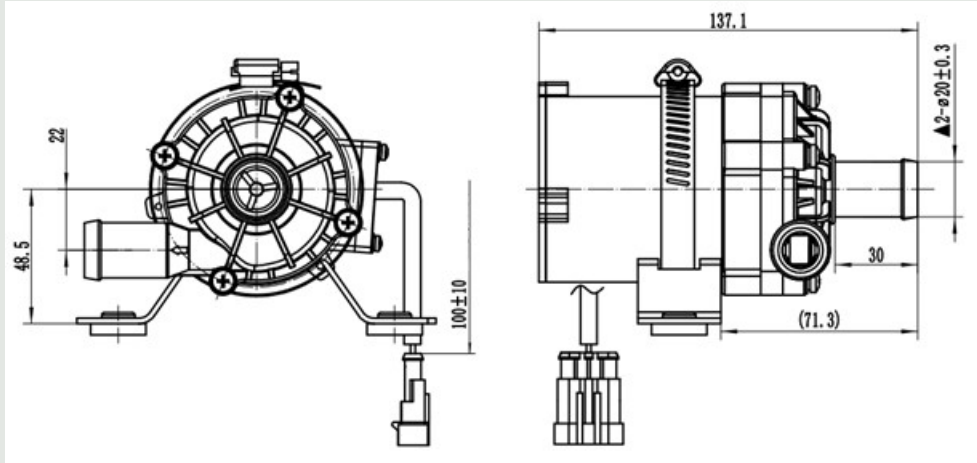
Notes:

A: Recommended 10% duty cycle as the stop command
 B: Recommended 0%, 95% duty cycle as default output mode(Max Speed, PWM disable)

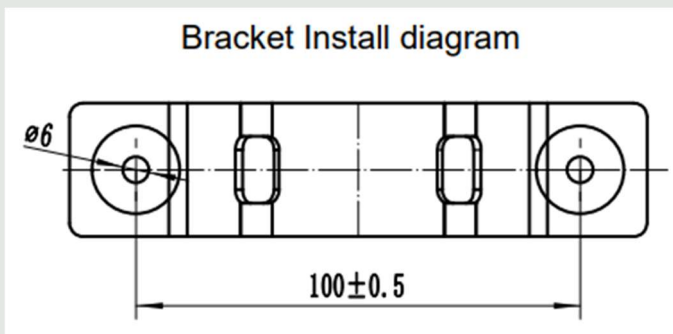
*If no PWM signal is present the PWM wire can be connected to +12V so the Pump will run at maximum speed at all times.



3.0 Dimensions of the pump



3.1 Dimensions of the installation bracket



3.2 Connections

View from A

4 3-2 1

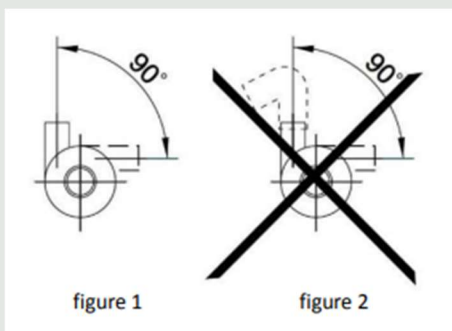
Sheath Model: AMP282106-1

PIN	Description	Remark
1	GND	
2	Fault Feedback	
3	PWM	
4	+12V	



4.0 Installation

- Use the recommended diameter pipe for the pump inlet.
- The pump can be installed vertically or horizontally mounted (see figure 1)
When installed vertically, the outlet port should be upward.
- The connected pipe should be as straight as possible(no elbow in 20cm) to make the air discharge easily. The outlet pipe should not have an elbow with less than 90 degrees (see figure 2).
- The installation location of water pump should be as close as possible to the low water level, to ensure that the impeller is always immersed in liquid to extend the service life of the pump.
- **During operation, it must always be ensured that the water pump is filled with liquid even though the pump can dry run for 30 seconds.**
- **To avoid dry running (air get stuck in impeller), the water pump outlet port should be vertical or in the top side of the impeller (see figure 1)**
- Can't use the seawater or other heavily polluted liquid medium.
- As viewed from the pump inlet direction, the impeller rotates clockwise (see the arrow on the outlet port).





We expressly point out that the installation may only be carried out by qualified personnel.

The operator is responsible for ensuring that the device complies with the recognized technical rules of the country of installation.

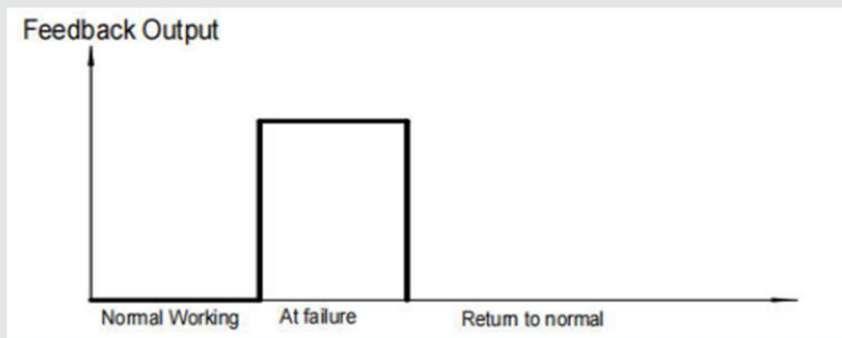
Particular attention must be paid to the conditions and methods of installation and operation cannot be monitored by the manufacturer.

Improper execution of the installation can lead to property damage and endanger people. From there we accept no responsibility or liability whatsoever for any loss, damage or cost arising out of: incorrect installation, improper operation, incorrect use and maintenance, or thus result in cohere.



5.0 Trouble shoot and support

The pump is included with a fault feedback signal. If the signal is high, this indicates a failure in the pump.



Problem	Cause	Possible solutions
Pump not working at all	Loose connection	<ul style="list-style-type: none">• Check connections and fix them
	Overvoltage	<ul style="list-style-type: none">• Check the LV system of your car (DC/DC)
	Overcurrent	<ul style="list-style-type: none">• Check the wiring
	Low voltage	<ul style="list-style-type: none">• Check the LV system of your car (DC/DC)
Pump not working properly	Air in the system	<ul style="list-style-type: none">• Let the air out, refill the system
	Liquid contaminated	<ul style="list-style-type: none">• Empty the system of liquid and refill with clean liquid