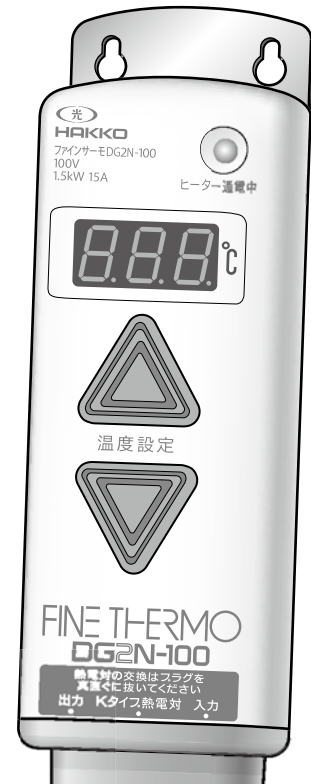


DIGITAL FINE THERMO
DG2N
(100V / 200V)

INSTRUCTIONS MANUAL

Thank you for your choosing our product.
Read the instructions before use and keep in a
convenient place for future reference.



CAUTIONS FOR SAFE USE

[Power supply]

Use the power equipment with overtemperature protection and circuit breakers. We recommend HAKKO POWER BOX 15B.

[Relay]

DG2N controls temperature by ON/OFF of a contact relay. The more frequent ON/OFF cycles are, the shorter the lifetime of the relay is. According to the manufacturer, the lifetime of the relay will end in 200,000 cycles of ON/OFF. If 200,000 cycles are reached, the power indicator starts blinking quickly. Then stop the use of DG2N and replace it, otherwise it may cause fires or serious accidents. If you prefer static relays, use HAKKO DIGITAL FINE THERMO DG2P/DG3P. For frequent use, overtemperature protectors are needed.

[Use only for heaters]

DG2N is only designed for heaters. Do not use as a controller for such as electric lights, motors, or electromagnetic contactors.

[Current load]

Current load of heaters is 15A or less to

connect. When you need to apply the heater with more than 15A, use HAKKO THERMO series, CH controllers, or HP controllers.

[Noise]

Strong noise may cause malfunctions. Set DG2N away from the source of noise or replace the power equipment when the noise arises.

[Vibration]

DG2N has no vibration proof structure. Use in the condition without vibration.

[Use in equipment]

If you use DG2N-100V successively as built-in apparatus in the equipment, detach the plug of cable and connect on the terminal block firmly. Periodic inspections (every 6 months or one year) are needed. Overheat or deformation may cause fire.

[Fire protection]

Pay fully attention to the protection from firing and electric shock when you use DG2N and heaters.

1. FOR SAFE USE OF THIS PRODUCT

We use the following symbols for safety.



Improper use may cause the danger of death or injury.



Improper use may cause the danger of slight injury or property damage.

! WARNING

- **Do not alter or deform the controller.**

Otherwise it may cause fire, electric shock and failures.



- **Do not operate the controller with wet hands.**

Otherwise it may cause electric shock.



- **Do not use in the explosive or flammable atmosphere.**

Otherwise it may cause explosion or fire.



- **Do not use other than recommended sensors.**

Otherwise, it may cause fire, electric shock or failures.



- **Do not use longer than the relay's lifetime.**

Otherwise it may cause fire. The lifetime of the relay is 200,000 cycles of ON/OFF.

· Power indicator starts blinking quickly after 200,000 cycles are reached.



- **Connect power cables with the controller by crimping terminals.**

Otherwise it may cause fire or electric shock.



! CAUTION

- **Do not use the heater in the following condition. It may cause fire, electric shock or failures.**

· Use in the corrosive atmosphere
· Use in the atmosphere at temperatures of -5°C or less
· Use in the atmosphere at temperatures of 40°C or more
· Use in the atmosphere of high humidity, such as bath
· Use in the steamy or water dropping place



- **Do not use other power voltage than the indicated.**

Otherwise it may cause fire and electric shock.



- **Do not pour water at the controller.**

Wet controller may cause electric shock or leakage.



- **Do not bent or pull forcedly, or deform the power cables.**

Otherwise it may cause fire or electric shock. Ask your distributor to replace when the power cable has damage.



- **Do not use the controller outdoors.**

DG2N is designed only for indoor use.



- **Do not sink the sensor sleeve or compensation lead wires into water.**

Otherwise it may cause failures.



- **Power off and connect sensors or wire cables.**

Otherwise it may cause electric shock.



- **Hold the plug by hand and pull out of the socket.**

Damage on cables may cause fire and electric shock.



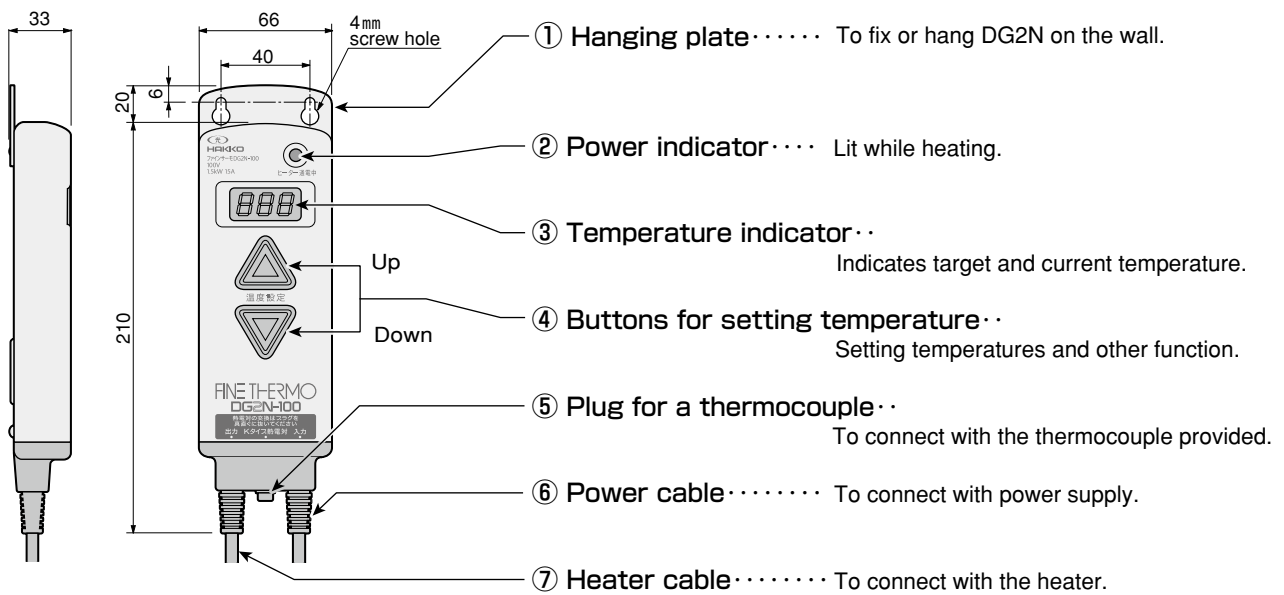
2. SPECIFICATIONS

DIGITAL FINE THERMO DG2N makes temperature control easier to connect with immersion heaters or plug heaters.

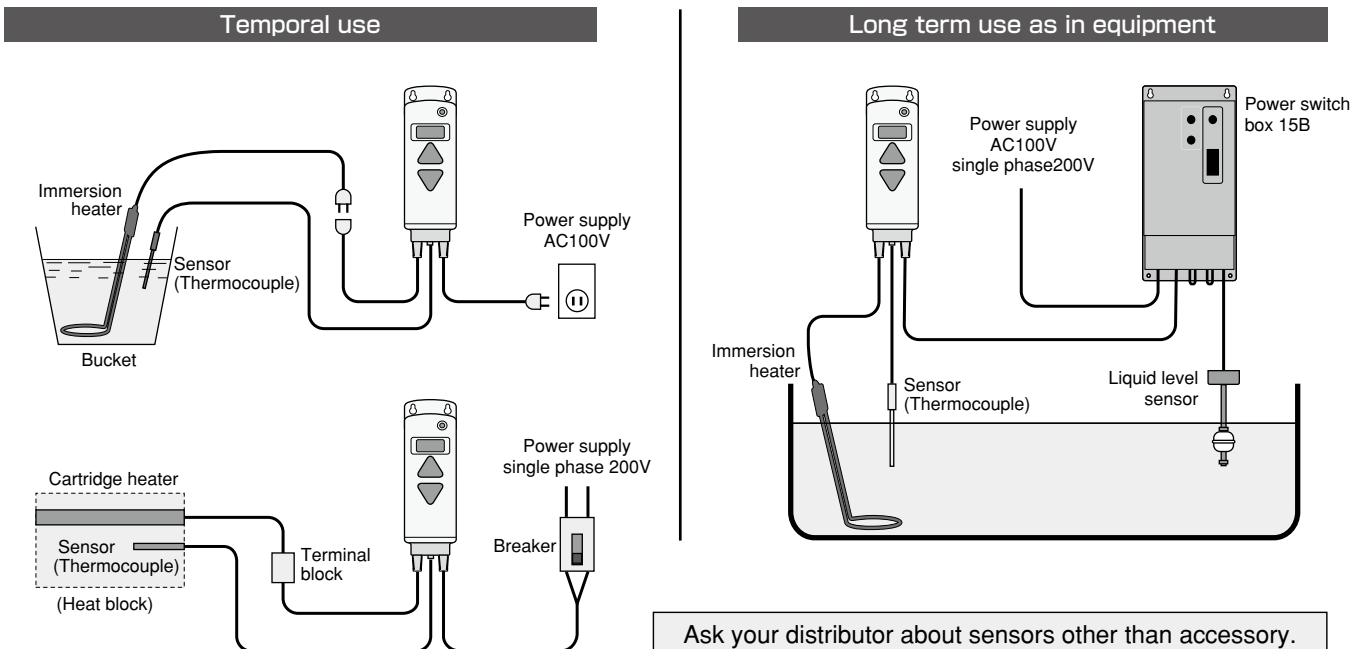
PRODUCT NAME	DG2N-100	DG2N-200
Product number	DGC1151	DGC2151
Input voltage	100V(50/60Hz)	single phase 200/220V(50/60Hz)
Maximum load	1.5kW (resistance load)	3 kW (resistance load)
The range of controlled temperatures	0°C to 750 °C *	
The range of controlled temperatures	-9°C to 800 °C	
Precision of temperature indication	±(1% F.S. +2.5) °C	
Precision of room temperature compensation	±3 °C	
Control method	ON/OFF control	
Sensor	K type sheathed thermocouple (maximum 700°C for the provided sensor)	
Usage environment	5~40 °C (humidity 85% or less) Keep from dew condensation.	
Lifetime of the output relay	200,000 cycles of ON/OFF (manufacturer's data)	
Weight	500g	

* : If you use DG2N at a temperature of 700°C or more, the sensor with sheath of 3.2mm in diameter is available.

3. NAMES OF PARTS



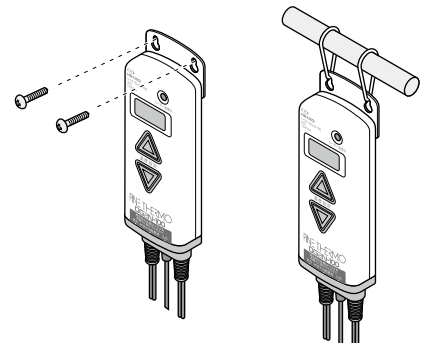
4. CONNECTION IMAGE



5. APPLICATION

To fix DG2N on the wall

- ① Fix DG2N on the wall by screws or bolts through the holes.
- ② If you fix on the hollow wall, use special screws for them.



To hook DG2N

- ① Keep DG2N from shaking or vibration.
- ② Hook DG2N through two holes and fix tightly.

6. HOW TO OPERATE

Power ON/OFF

DG2N has no power switch on the body. After powered on by plugging or a breaker, the temperature indicator shows **888** and some numbers from **0** to **100**. Consequently current temperature is indicated. Power off immediately after use of DG2N.

Temperature setting

- ① Normally the temperature indicator shows current temperature.
- ② After pressing buttons once (0.3 second), the temperature indicator shows target temperature for 1 second. After 2 or 3 seconds, it returned to show current temperature.
- ③ To raise the target temperature, press the upper button. To turn down, press the lower button. One press (0.3second) can change one degree. Keeping pressing can make continuous change.

- ④ Keep pressing to approach the target temperature, and press some more times to adjust to it (the range of setting temperatures is from 0°C to 750°C). 2 or 3 seconds after releasing from button, the indicator shows current temperature.

Reconfirmation of the target temperature

If you need to see target temperature while heating, press either the upper or the bottom button once (0.3 second) and the indicator shows target temperature. If you press again within 3 seconds, the target temperature moves. Press once after 5 seconds if you need to confirm again.

WARNING

Do not push both UP and DOWN buttons at the same time. Otherwise DG2N may shift to the mode required to recalibrate. Repair charge is needed to recover from the mode.

7. TROUBLE SHOOTING

MALFUNCTION	CAUSE	SOLUTION
FFF is indicated.	The sensor is not connected.	Connect exactly the sensor cable.
	The sensor cable has disconnection.	Replace the sensor.
Hot or CLd is blinking.	Failure occurs inside the controller.	Replace or repair DG2N.
E-1 or E-2 is indicated.	Failure in FEPRM of DG2N.	
E-5 , E-6 , or E-7 is indicated.	Failure in AD converter of DG2N	
Temperature is not increased while the power indicator is on.	The heater has disconnection.	Replace the heater.
	The sensor cable is short-circuited.	Replace the sensor.
The temperature indicator does not show anything after powered on.	Short circuit protection is activated by overloaded current.	Impossible to repair. Replace DG2N.
The power indicator is blinking quickly.	ON/OFF cycles of the relay exceed 200,000 times.	Replace or repair DG2N.
100 is blinking and DG2N stops working.	The lifetime of the relay is ended.	Impossible to repair. Replace DG2N.

AFTER SALES SERVICE For Inquiry

If you have any questions about our products, contact with your distributors, or the Sales Head Office of HAKKO CO., LTD. The addresses and phone numbers are as follows.

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