GRUNDFOS

revision 0.0

GU02 Manual

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1. General

GU02 is complete monitoring unit, it can monitor the pump status by detecting motor overheating, high bearing temperature, seal leakage and moisture in junction box and if there is any problem you can recognize it by alarm sound.

GU02 can detect

1) Moisture incursion into the junction box
2) Overheat of stator windings (U,V,W)
3) High temperature of bearing (Upper and Lower)
4) Seal leakage

GU02 can be mounted in MCC (motor control center) without the need for a power transformer since it has an inbuilt voltage regulating device.

2. Sensors inside the Motor

The installed sensors are as following;

1) Thermal Protectors in Stator Windings
   - For 90 kW(120 Hp) and above, three PT 100 ohm type thermal protection sensors are embedded in each phase of stator windings to monitor the stator winding temperature.
   - The three thermal protect devices can be connected in parallel (6 wires to connect to GU02) or in series (2 wires to connect).
   - The setting temperature of GU02 can be adjusted easily without service technician; the recommended temperature setting is 125 degrees C.
   - For the 75kW (100Hp) and below motors, one bimetal type thermal protection sensor is installed in stator winding and the inherent setting temperature of the bimetal is 125degree C.
   - If three bimetal type sensors are required these can be installed as an option. It will be connected in series so 2 wires will be connected to the GU02.

2) Leakage Sensor
   - One electrode type seal leakage sensor is installed on the seal chamber.
   - If the primary seal leaks and water penetrates into the oil chamber, the resistance of the electrode changes to below 5 Kilo ohm.
   - Under normal conditions, the resistance value of the electrode sensor is greater than 10 mega ohm.

3) Bearing Temperature Sensor

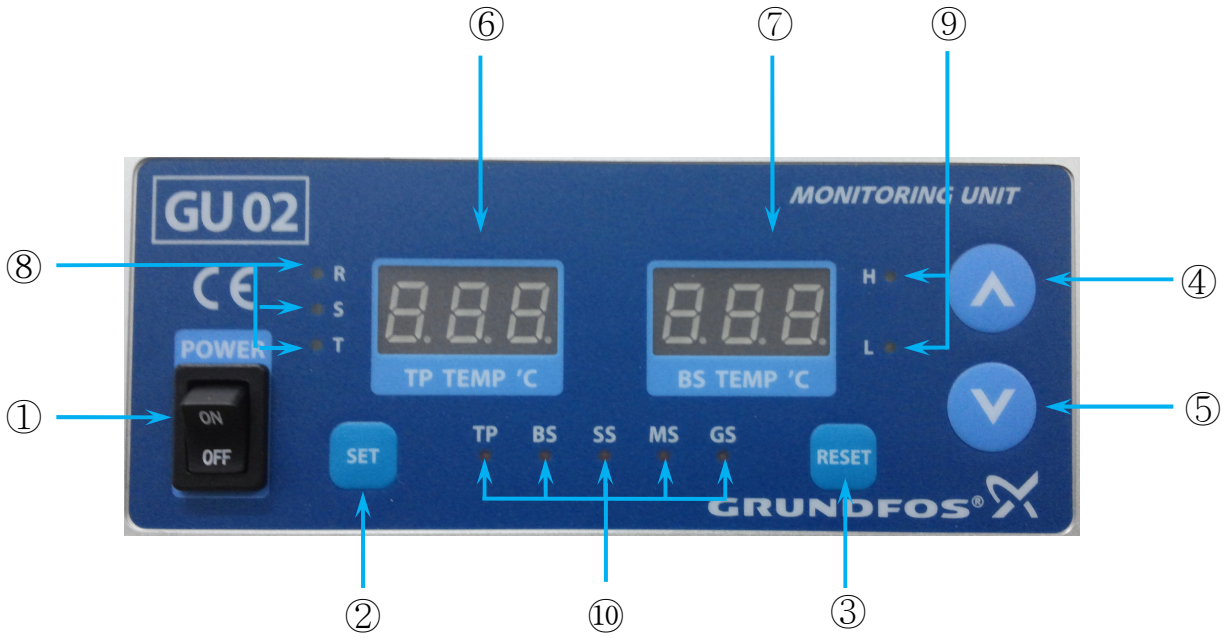
- For 90 kW (120 HP) and above motors, a lower bearing temperature sensor is embedded as standard. An upper bearing sensor can be embedded as an optional.
- The bearing temperature sensor is platinum transducer type. The temperature of bearing sensors can be adjusted easily.

4) Moisture Sensor in Junction Box

- One electrode type moisture sensor is installed in the junction box to monitor any water entry into the junction box.

In the event that the outer sheath of the cable is damaged, water may enter the junction box by capillary action (wicking), causing drop of the motor insulation resistance drop.
If water enters into the junction box, the resistance value of the moisture sensor will drop to 5 kilo ohms.

3. Nomenclature



① Power switch
② Set button
③ Reset button
④ Temperature up key
⑤ Temperature down key
⑥ Stator winding temperature display window
⑦ Bearing Temperature display window

⑧ Phase indication lamp for stator windings; R for U, S for V, T for W
⑨ Bearing indication lamp: H for upper bearing, L for lower bearing
⑩ Status indication lamp

4. Operating & Setup Sequence

GU02 unit is installed in the MCC(motor control center) and accordingly MCC manufacturer should prepare the wiring in the panel for GU02 accordingly.
Therefore if the panel is not supply scope of Grundfos, it is strongly recommended to supply GU02 unit to the selected MCC manufacturer.

The GU02 unit is sophisticated and sensitive instrument with many useful functions. It should be handled the correct ways and connected in accordance with the instructions.

Please follow the below procedure to set up GU02.

1) First of all, check the input voltage to GU02 whether it is in the range of AC 90 ~ 240VAC, 50/60Hz, 6W Max.
2) Follow the below procedure to set the parameters of operation.

① Turn on the power switch of GU02.
② Wait to disappear the value of basic SET Number on display window.
③ Press the 'Set' button for 5 seconds when the basic SET Number disappears. The basic SET Number will be displayed on the left display window again.
④ Select new Set Numbers by using up/down key
⑤ Press the “SET” button.
⑥ Show “Cht_” (C with one digit number) on the screen.
⑦ Select the “Cht_” by using up/down key
⑧ Press the “SET” button and the set up procedure is complete.

* Remarks
The "C_" settings are a timing mechanism. The C1 means the thermals in each phase are checked separately In every one second, C2 means every two seconds, C3 means every three seconds, etc.

Input / Set Mode	TP-B	TP-R	TP-S	TP-T	BS-H	BS-L	SS	MS	GS
SET-1	○					○	○	○	○
SET-2	○				○	○	○	○	○
SET-3		○				○	○	○	○
SET-4		○			○	○	○	○	○
SET-5		○	○	○		○	○	○	○
SET-6		○	○	○	○		○	○	○
SET-7		○	○	○	○	○	○	○	○
SET-8		○	○	○			○	○	○
SET-9						○	○	○	○

- TP(B) : Thermal protection (Bimetal type sensor)
- TP(R) : One thermal protection device (PT100 ohm thermistor) in one of the stator windings
- TP(R,S,T) : Three thermal protection devices (PT100 ohm thermistor) one in each phase of the stator windings
- BS(L) : Bearing temperature detector (Lower bearing)
- BS(H) : Bearing temperature detector (Upper bearing)
- SS : Seal leakage detector
- MS : Moisture detection sensor in junction box
- GS : Pressure detector for gear oil pressure in gear box(Where gear box is used)

3) After setting the mode, set the temperature for thermal protection sensor and follow the below procedure for the bearing temperature

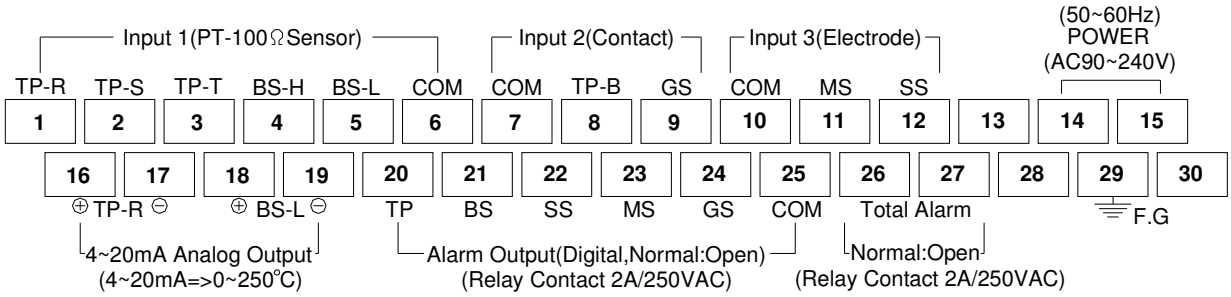
① Press 'Set' key, and then signal lamp for TP(R), TP(S), TP(T), BS(H), BS(L) will blink in turn.
② Select the sensor what you want to set and press the 'Set' key once again.
③ Select the required temperature by using the up/down keys.
④ After select the temperature, press the 'Set' key to complete the temperature set up.
⑤ Repeat the above procedure for the sensors to complete the temperature setting.

4) Connect all sensor wires to the right position of terminal.
There is identification mark on the terminal block of GU02 to connect in right ways.
5) Turn on the buzzer switch to provide an audio alarm on signal failure.
Then set up procedure is complete.
6) Turn on the main power switch of MCC to start operation of pump.
7) If one of the sensors is activated, the buzzer will give alarm sound and the operator can find which sensor is activated by observing which lamp is blinking.
After hear the alarm sound, switch off MCC and correct the fault. If the cause of fault is not completely removed, the alarm buzzer will keep give alarm sound and the warning signal of the buzzer wouldn't be disappeared.

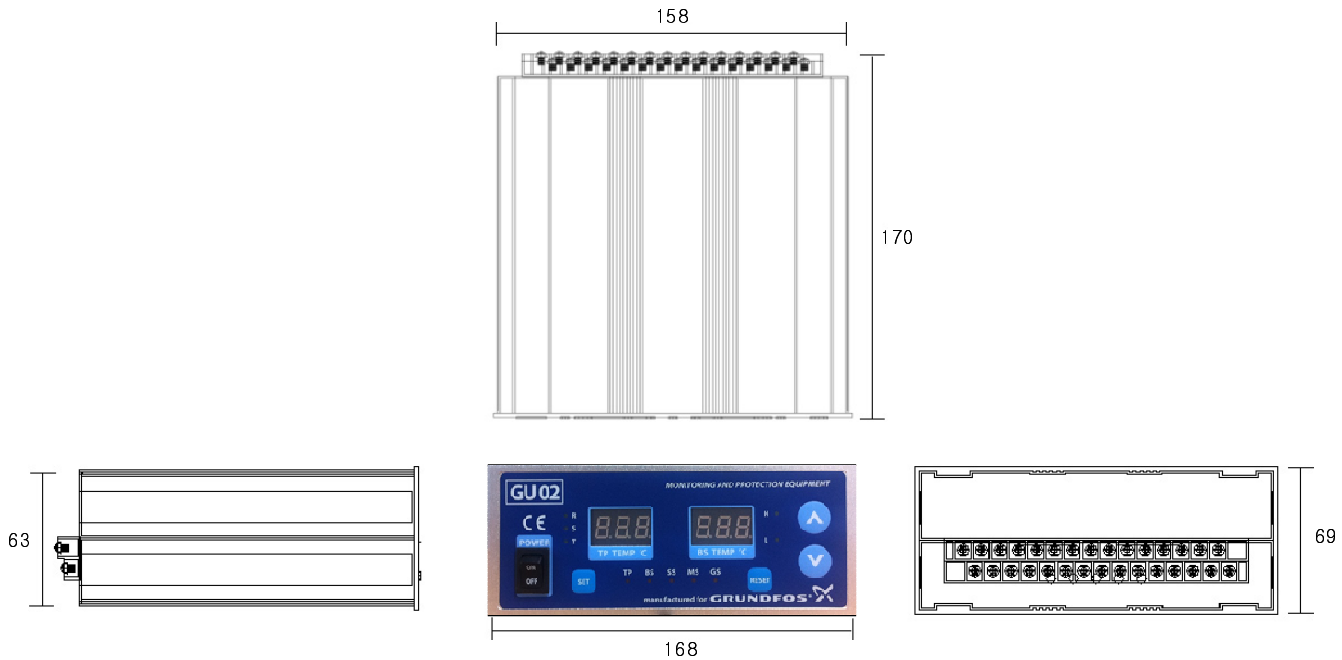
The buzzer will stop only when the fault is corrected. After that the signal will be restored to the correct level.

8) Press reset button of GU02 when the fault is rectified completely.
All conditions will go return to the original condition.

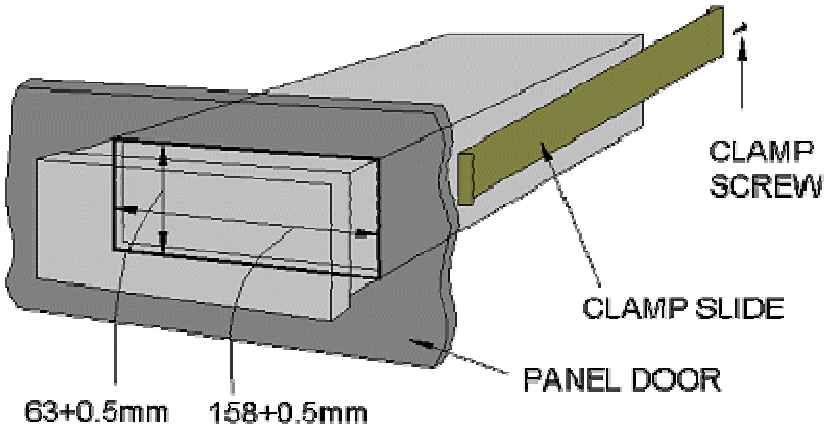
5. Connection



6. Dimension



7. Panel Cut Out



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