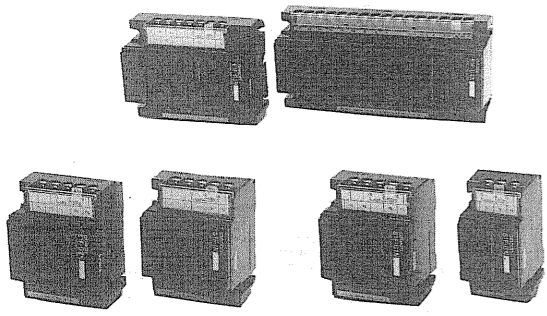


OMRON

MODEL 61F COMPACT FLOATLESS LEVEL SWITCH

INSTRUCTION MANUAL

Thank you for purchasing the Model 61F Floatless Level Switch. Before using it, thoroughly familiarize yourself with the instructions in this manual. It is recommended that you save this sheet for future reference.



OMRON Corporation

AVAILABLE TYPES

Model	General purpose type	Classification	Application
Model GN	61F-GN	61F-GNL 61F-GNH 61F-GND 61F-GNR	Automatic Water Supply and Drainage Control
Model G1N	61F-G1N	61F-G1NL 61F-G1NH 61F-G1ND 61F-G1NR	Application 1 Automatic Water Supply Control with Prevention of Pump Idling Application 2 Automatic Water Supply Control with Alarm for abnormally Low Level
Model G2N	61F-G2N	61F-G2NL 61F-G2NH 61F-G2ND 61F-G2NR	Automatic Water Supply and Drainage Control with Alarm for Abnormally Low Level
Model G3N	61F-G3N	61F-G3NL 61F-G3NH 61F-G3ND 61F-G3NR	Automatic Water Supply and Drainage Control with Alarm for Abnormally High and Low Levels
Model G4N	61F-G4N	61F-G4NL 61F-G4NH 61F-G4ND 61F-G4NR	Automatic Water Supply Control with Level Display of Water Source and Tank
Model IN	61F-IN	61F-INL 61F-INH 61F-IND	Level Indication with Alarm

- Long distance 61F-GNL 2km or 4km Type
- High sensitivity 61F-GNH Control of liquids, such as distilled water, that as low a specific resistance as 10¹⁰ Ω·cm
- Low sensitivity 61F-GND for low specific resistance liquids
- Two-wire 61F-GNR Suitable for simple liquid level control

Mounting..... ● DIN rail clamping. ● Screw fastening.

OPTION

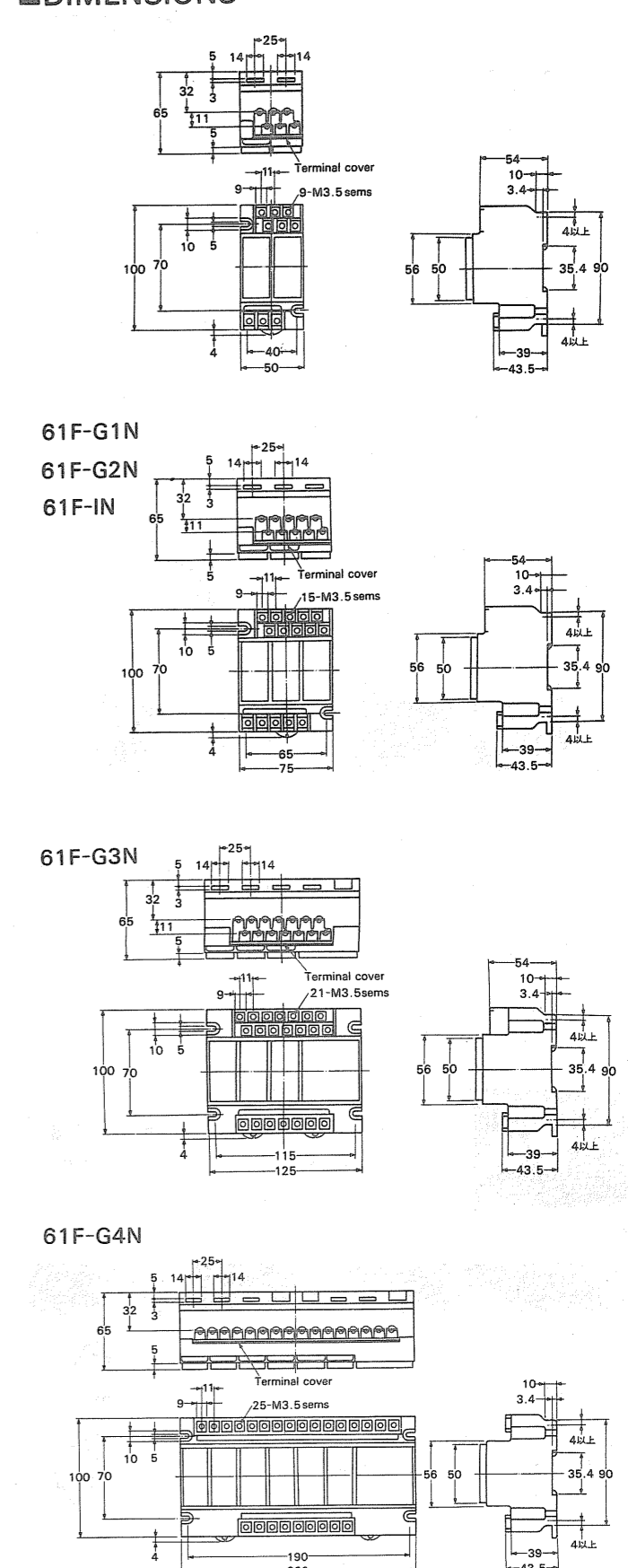
- Electrode holder
- Type
- PS-3S
- PS-4S
- PS-5S
- PS-3SR (for 2-wire circuits)
- PS-4SR (for 2-wire circuits)
- PS-5SR (for 2-wire circuits)
- PS-31 (SUS 304 300mm)
- BF-1
- BF-3
- BF-4
- BF-5
- BF-3R (for 2-wire circuits)
- BF-4R (for 2-wire circuits)
- BF-5R (for 2-wire circuits)
- BS-1
- BS-1T
- PH-1 (1m vinyl code)
- PH-1 (1m chloroprene cord)
- PH-2 (1m vinyl cord)
- PH-2 (1m hypalon cord)

NOTE: Select the lengths of the Type PH-1 and Type PH-2 cords from the following.
1m, 5m, 10m, 15m, 20m, 30m, 40m, 50m, 60m, 70m, 80m, 90m, 100m.

● Electrode, accessories

Product name	Type
SUS201 electrode (1m)	F03-01 (SUS201)
SUS201 connecting nut	F03-02 (SUS201)
SUS201 lock nut	F03-03 (SUS201)
SUS201 spring washer	F03-04 (SUS201)
SUS201 electrode set	F03-60 (SUS201)
SUS316 electrode (1m)	F03-01 (SUS316)
SUS316 connecting nut	F03-02 (SUS316)
SUS316 lock nut	F03-03 (SUS316)
SUS316 spring washer	F03-04 (SUS316)
SUS316 electrode set	F03-60 (SUS316)
Hastelloy B electrode (1m)	F03-01 (HAS B)
Hastelloy B connecting nut	F03-02 (HAS B)
Hastelloy B lock nut	F03-03 (HAS B)
Hastelloy B electrode set	F03-60 (HAS B)
Hastelloy C electrode (1m)	F03-01 (HAS C)
Hastelloy C connecting nut	F03-02 (HAS C)
Hastelloy C lock nut	F03-03 (HAS C)
Hastelloy C electrode set	F03-60 (HAS C)
Titanium electrode (1m)	F03-01 (Titanium)
Titanium connecting nut	F03-02 (Titanium)
Titanium lock nut	F03-03 (Titanium)
Titanium electrode set	F03-60 (Titanium)
Electrode band 3P (1m)	F03-05 3P
Electrode band 4P (1m)	F03-05 4P
Electrode band 5P (1m)	F03-05 5P
Electrode band connecting nut	F03-06
Electrode band split weight	F03-07
Electrode band and cap	F03-08
Electrode band insulation cap	F03-09
Electrode band adhesive agent	F03-10
Protective cover (for BF, PS)	F03-11
Mounting bracket	F03-12
Frame for installing in concrete	F03-13
Separator (for one pole)	F03-14 1P
Separator (for three poles)	F03-14 3P
Separator (for five poles)	F03-14 5P

DIMENSIONS

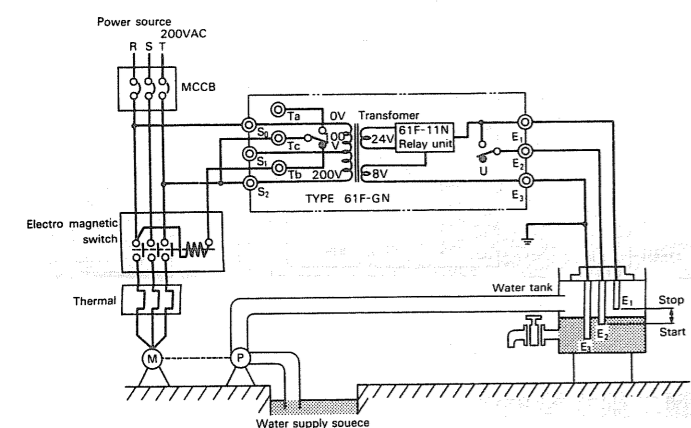


HINTS ON CORRECT USE

- Prior to power application, check the following.
- Be sure to use the floatless level switch for the correct applications at the correct supply voltage. The terminal connection of the switch at 100 VAC is different from that at 200 VAC. When using supply voltage other than 100 or 200 VAC, refer to the indication on the switch.
- Check the wiring of the power circuit. Check the wiring against the circuit diagram provided in this instruction manual.
- Be sure to ground the ground terminal.
- Check whether the electrodes contact each other in the liquid. If they do, separate them using a separator optionally available.
- Avoid placing the connection of the electrodes where liquids other than that to be sensed, such as rainwater, exist.
- Adequately tighten the nuts of the electrodes.
- Prevent any foreign objects from collecting on the electrodes.
- The level switch cannot be used to sense substances with high specific resistance such as oil.
- The main body of the switch is fixed in position by fastening screws or mounting onto rails.
- When mounting onto rails, first attach the provided sliders to the main body and let claws of the main body hook onto rails, which will firmly position the entire unit on the rails.
- To remove the main body from the rails, insert a screwdriver into slider grooves and displace sliders from the main body.

EXTERNAL CONNECTION EXAMPLE

GN type (200, 220, or 240VAC)
Automatic Water Supply and Drainage Control



- With the power supply voltage 100V, (110, 120V) the wiring is made between S₀-S₁ and with 200V (220, 240V) S₀-S₂.
- Be sure to ground terminal E3.

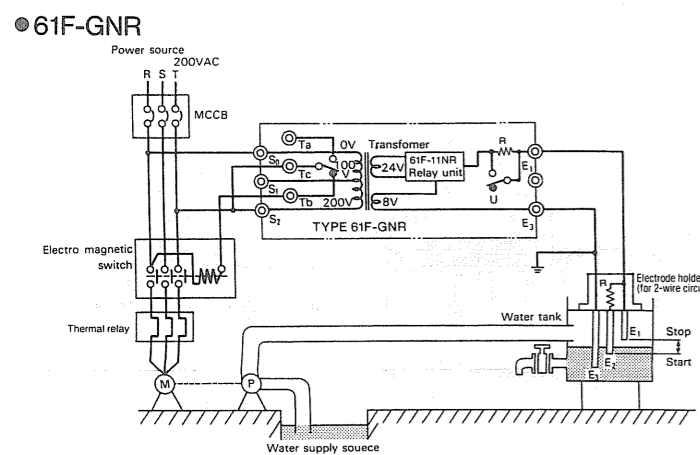
OPERATION

Water supply
Connect electromagnetic switch coil terminal A to Tb. The pump stops (U operates) when water level reaches E1 and starts (U stops the operation) when water level drops below E2.

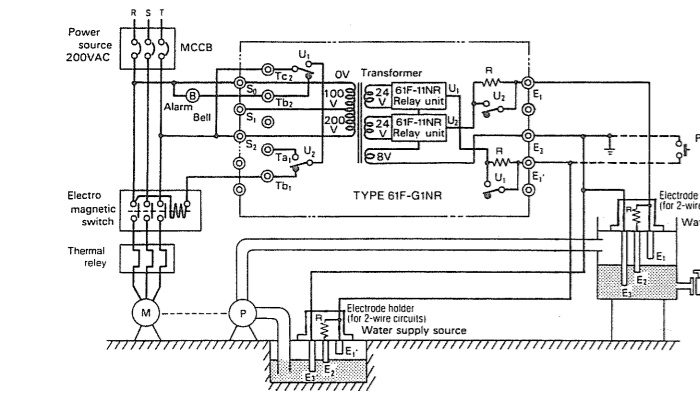
Drainage
Connect the electromagnetic switch coil terminal A to Ta. Pump starts (U operates) when water level reaches E1 and stops (U stops the operation) when water level drops below E2.

EXTERNAL CONNECTION EXAMPLE

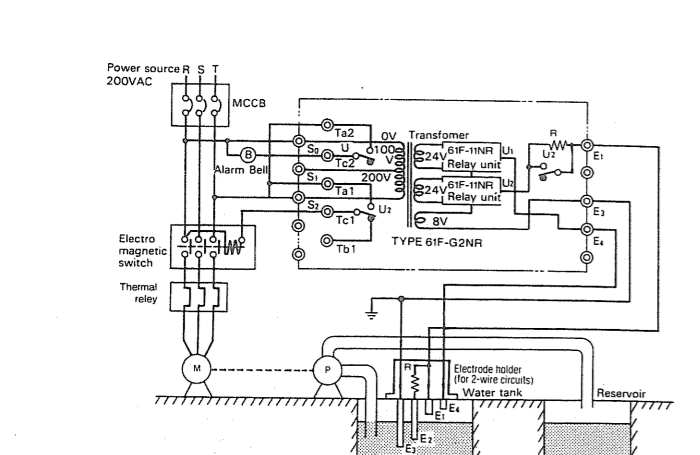
FOR 2-WIRE CIRCUITS



61F-G1NR

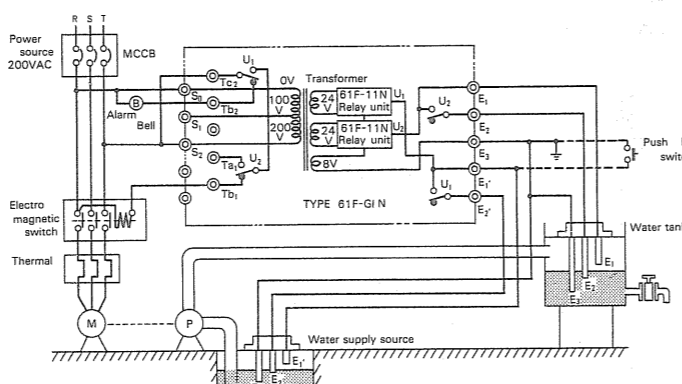


61F-G2NR



G1N type (200, 220, or 240 VAC)
Automatic Water Supply Control with Prevention of Pump Idling

Warning: Note the difference in the wiring between the automatic water supply control with prevention of pump idling and that with issuance of alarm for abnormal water shortage.



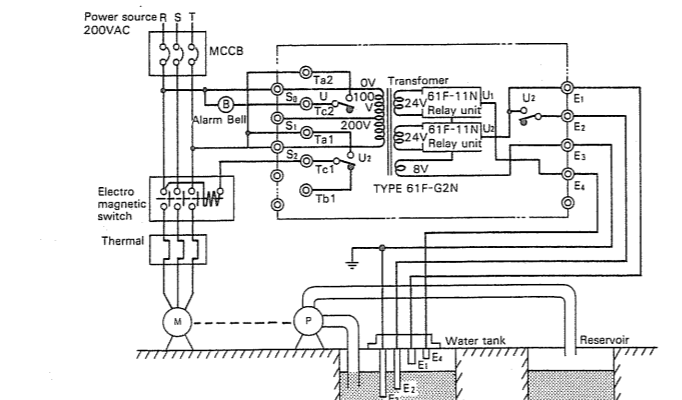
- With the power supply voltage 100V, (110, 120V) the wiring is made between S₀-S₁ and with 200V (220, 240) S₀-S₂.
- Be sure to ground terminal E3.

OPERATION

- For Prevention of Pump Idling: When the liquid level in the water tank reaches E₁ (high) the motor is turned off, and when the level drops below E₂ (medium) it is turned on.
- For Prevention of Pump Idling: The motor is automatically turned off, when the liquid at the water supply source is in shortage and drops below the level of E₂ (medium). An alarm is then sounded.
- Issuance of Alarm for Abnormal Water Shortage: The motor is automatically turned off when for any reason the liquid level in the water tank drops below E₁ (low). An alarm is then sounded.
- Liquid level control is conducted within the range between the tips of E₁ (high) and E₂ (medium) in the water tank. Therefore, by changing the length of electrodes the range of control can be freely adjusted.
- However, depending on the type of liquid and voltage variation, a slight difference is noted of the level where the pump resumes operation after the liquid level had reached the tip of the electrode.
- Insert a pushbutton switch (NO contact) between E1' and E3 as shown by the dotted line on the right. In starting pump or after recovery from power failure, if water supply source level has not yet reached E1', depress the pushbutton switch to start the pump by momentarily short-circuiting E1' and E3. When the pump stops during normal operation subsequent to an alarm issued for low water level (water level does not reach E2'), do not depress the pushbutton switch.

G2N (200, or 240 VAC)

Automatic Drainage Control with Issuance of Alarm for Abnormal Water Increase

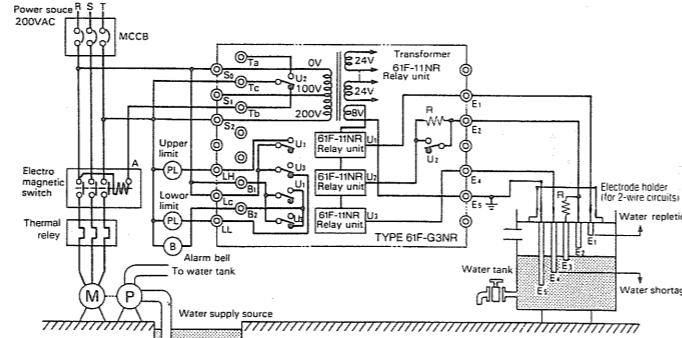


- With the power supply voltage 100V, the wiring is made S₀-S₁ and 200V S₀-S₂.
- Be sure to ground E3.

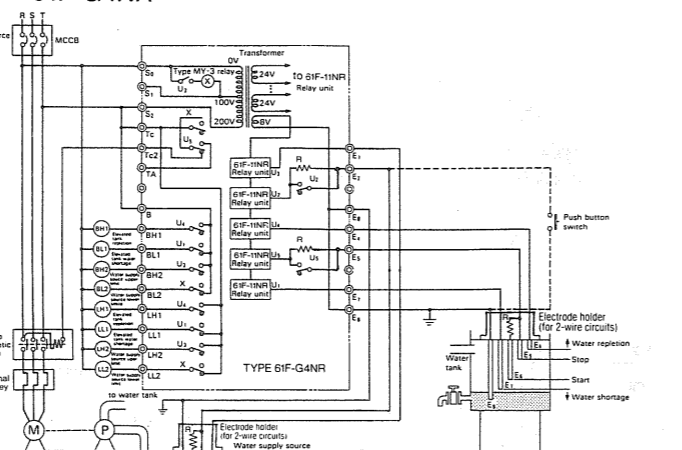
OPERATION

- When the liquid level in the drainage tank exceeds E₁ (high), the motor is turned on and when the level drops to E₂ (medium) it is turned off. When the liquid surface rises to E₁ (highest), an alarm is sounded warning the abnormally high level of water.
- Thus, the liquid level control is conducted within the range between the tips of E₁ (high) and E₂ (medium) in the water tank. Therefore, the range of control can be freely adjusted by changing the length of.
- However, depending on the type of liquid and voltage variation, a slight difference is noted of the level where the pump resumes operation after the liquid level has reached the tip of the electrode.

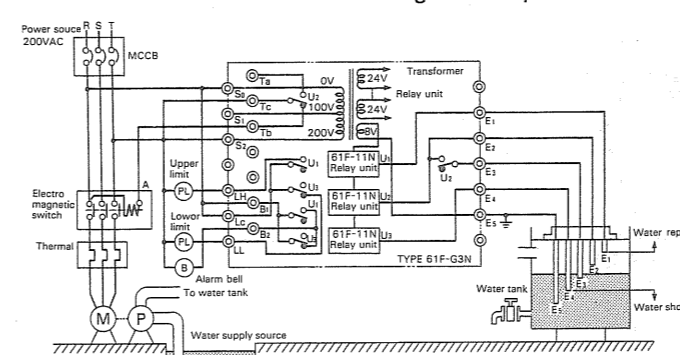
61F-G3NR



61F-G4NR



G3N type (200, 220, or 240 VAC)
Automatic Water Supply and Drainage Control with Issuance of Alarm for Abnormal Water Shortage and Repletion in Tank.



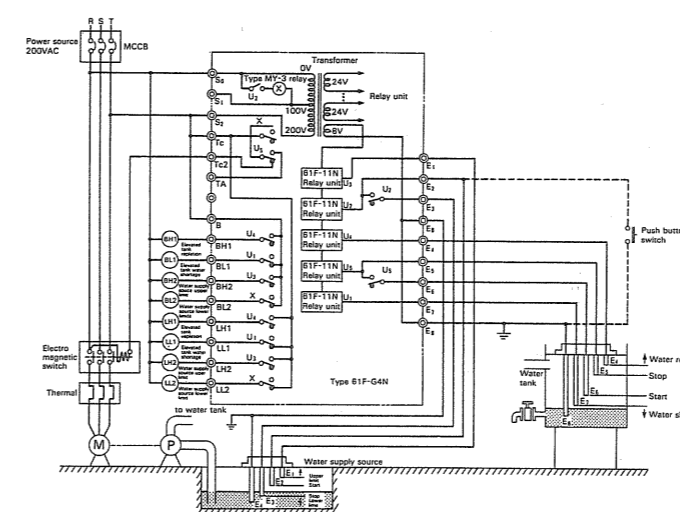
- With the power supply voltage 100V, the wiring is made between S₀-S₁ and with 200V S₀-S₂.
- Water supply - Connect electromagnetic switch coil terminal A with Tb.
- Drainage - Connect electromagnetic switch coil terminal A with Ta.
- Be sure to ground terminal E5.

OPERATIONS

- Water Supply: The pump stops when the liquid level in the water tank reaches E₁ (high) and resumes operation when the level drops below E₂ (medium).
- Drainage: The pump starts operating when the liquid level within the water tank reaches E₂ (high) and stops when the level drops below E₁ (medium).
- Issuance of Alarm for Abnormally High Level: When the liquid level within the water tank reaches E₁ (high), the upper limit indicator lamp lights and an alarm is sounded indicating an abnormally high level of liquid.
- Issuance of Alarm for Abnormal Water Shortage: When the liquid level within the water tank drops below E₁ (low), the lower limit indicator lamp lights, and an alarm is sounded indicating an abnormal water shortage.

G4N type (200, 220, or 240 VAC) Water Supply Water Source Level Indication, Prevention of Pump Idling Due to Water Shortage, Automatic Water Supply Control and Indication of Water Level in Tank.

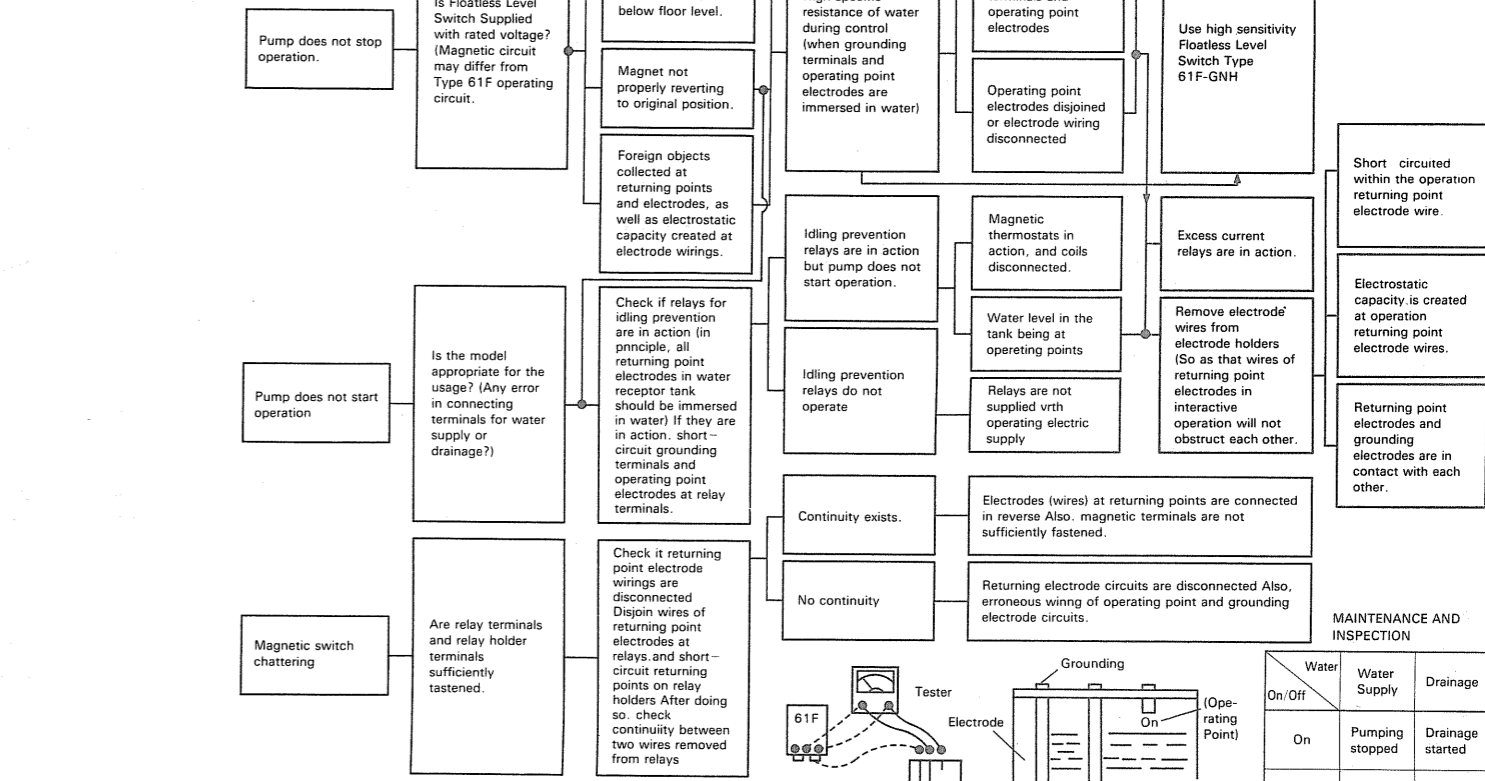
- With the power supply voltage 100V, the wiring is made between S₀-S₁ and with 200V S₀-S₂.
- Be sure to ground terminal E8.



OPERATIONS

- The lower-limit indicator lamp for the water supply source remains lit while water source level is below E₃.
- When water level rises to E₂ the lower-limit indicator lamp goes out and the pump becomes ready for operation.
- When water level reaches E₁ the upper-limit indicator lamp lights.
- When the water level is not as high as E₂ at the start of the pumping operation, E₂ and E₁ are short-circuited before commencing the operation.
- The water-shortage indicator lamp for the elevated tank remains lit while water level in the elevated tank is below E₇. The indicator lamp goes out when water level rises to E₇.
- The pump stops when water level reaches E₅ and starts when water level drops below E₄.
- If water level reaches E₄ for any reason, the tank repletion indicator lamp for the elevated tank lights.
- Insert a pushbutton switch (NO contact) between E2 and E8 as shown by the dotted line on the right. In starting pump and after recovery from power failure, if water source level has not yet reached E2 (U2 LED goes off), depress the push button switch to start the pump by momentarily short-circuiting E2 and E8. When the pump stops during normal operation subsequent to an alarm issued for low water level (water level has not reached E3), do not depress the pushbutton switch.

MAINTENANCE AND INSPECTION



MAINTENANCE AND INSPECTION		Water Supply	Drainage
On/Off	Water Supply	On	Pumping started
On/Off	Water Supply	Off	Pumping resumed
On/Off	Drainage	On	Drainage stopped
On/Off	Drainage	Off	Drainage resumed