

# Panasonic FLOATLESS LIQUID LEVEL CONTROL

User's Manual

Keep this manual nearby for reference

● Before installing these items, Please read this manual completely.

## ■ Main unit selection table

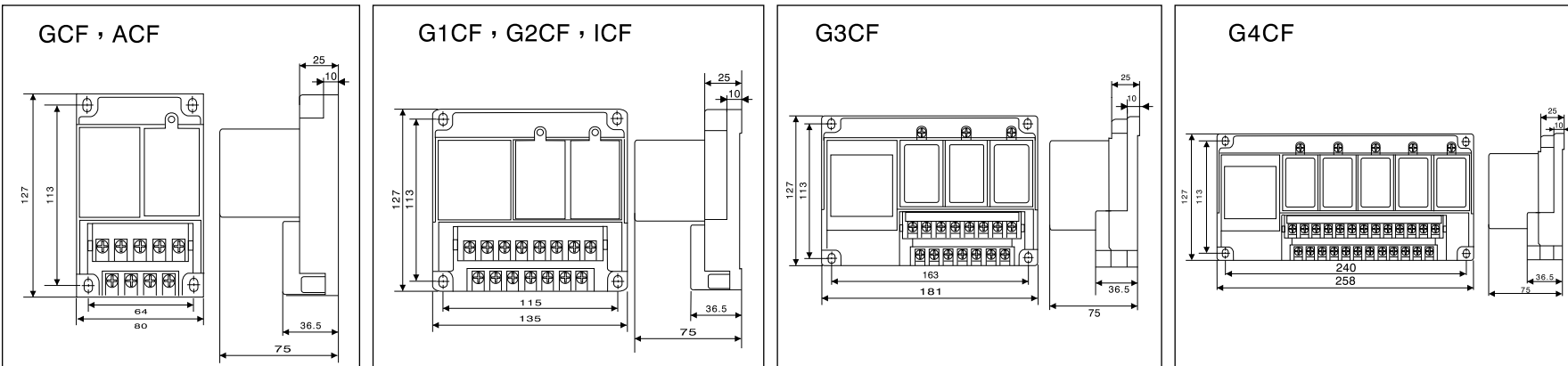
Model type	Water supply						Drainage		Control by combination with type GC-G4C	Type No. (Part No.) Standard type 0 ~ 1,000m
	Standard water supply	Alarm		Elevated tank		Standard drainage	Drain Alarm Reservoir			
		Anti idling	Water source High level	Water source Low level	Elevated tank High level	Elevated tank Low level	High level	Low level		
21F-GCF	●								AF 310668 · AF 310664	
21F-G1CF	●	△							AF 311668 · AF 311664	
21F-G2CF	●		△				△		AF 312668 · AF 312664	
21F-G3CF	●				△				AF 313668 · AF 313664	
21F-G4CF	●	○	○	○	○	○			AF 314668 · AF 314664	
21F-ICF			△		△		△		AF 315668 · AF 315664	
21F-ACF								○	AF 316668 · AF 316665 · AF 316666	

## ■ Main Unit specifications

Applicable type	Standard type		For alternate operation
	GCF · G1CF · G2CF · G3CF · G4CF · ICF		
Power source rating	Dual voltage by terminal change AC 110V / 220V (or AC 230V / 240V)		AC 220V (or AC 230V, AC 240V)
Control capacity	Inductive load (cos φ=0.4)	AC 1A 440V AC 2A 250V	
	Electrical Life	More than 500,000 operation	
Life	Mechanical life	More than 200,000 operation	
		More than 5,000,000 operation	
Resistance between probe rods	Less than 5kΩ (at rated voltage)		
Usable ambient temperature	-10°C ~ +40°C (NO freezing under 0°C.)		
Wiring distance between main unit and probe fitting	0 ~ 1,000m (0.75mm <sup>2</sup> cad tire cable used at rated voltage)		
Tolerance of power source voltage	rated voltage ±15 %		
Change of resistance between probe rods and max wiring distance due to variation of power source voltage	Tolerance of rated voltage +15% less than 4.5kΩ -15% less than 700m		

## ■ Important Notes - For proper mounting and operation

- Application: The LIQUID LEVEL CONTROL is not applicable to liquids with no conductivity such as distilled water or to liquids with inflammability such as oil gasoline etc.
- For use in sewage water please use the probe cable with the single pole probe fitting. Separate the fitting by approx 30cm each other.
- For proper mounting of a probe fitting, Probe fitting shall be installed where the controlled liquid will not come into it.
- For use in high temperature liquids. High temperature high pressure probe fitting where the temperature of liquid in the tank may exceed 60°C.
- For use with corrosive liquids. Use the corrosion resistant type probe rod where the content of tank is strongly corrosive (Contact us for alkalis or acids).
- For proper operation of probe rods Secure as much difference in height as possible between short probe rod E1 and medium probe rod E2. (Otherwise the motor may tend to operate intermittently.)
- Cleaning of probe rod: Be sure to clean probe rods periodically at least once a year even for use in clean water.
- In case two or more sets of probe fitting are used in the same water tank keep a distance at least 1m between the probe fittings.
- It is used common to AC 110V and 220V by switching terminal. (or AC 230V / and 240V)



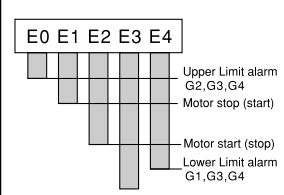
## ■ INSPECTION & REMEDY IN THE CASE OF A FAILURE

Please check if a proper voltage is applied to each of the relays for Floatless Liquid Level Control, and perform the following inspection and remedy as necessary.

Failure	Check if the failure is attributed to the Main Unit or Probe Fitting	Cause	Inspection & Remedy
Pump will not start.	High / low level alarm does not sound	Thermal relay of the electromagnetic switch has tripped.	Reset the thermal relay. (Press the reset button.)
		Anti-idling is functioning. (For G1 and G4 only)	Short-circuit terminals between E1' and E3 temporarily by using a line or the like Re-tighten terminal E2' and check the connection Check the heights of probe rods in the water tank and check symbols of the connecting terminals
		Improper setting heights of the probe rods or miswiring between the probe fitting and the main unit	Check the heights of probe rods and check the symbols of the connecting terminals
		Contacting of probe rods or insulation failure	Remove foreign matter if any. Install separators. Check points where insulation failure is occurring
Pump will not stop	High / low level alarm does not stop sounding	Long wiring distance for the circuit of probe rods (Adverse effect due to floating capacity)	Review the wiring method. Replace with the long distance type
		Loosened terminal connecting points, unconnected wires	Check the tightening condition of each terminal, and check for unconnected wires
		Continuity failure due to deposits and oil film, etc.	Clean the probe rods
		Trouble due to the use of anti-ripple tube or electrode band	Provide some additional holes in the anti-ripple tube. Provide some additional spalls in the electrode band
Anti-idling will not function.	(For G1 and G4 only)	High specific resistance of water	Use a long probe rod for E1 to allow its end to be sufficiently soaked in water
		Miswiring	Check the wiring
		Improper setting heights of the probe rods in the water tank. Or miswiring between the probe fitting and the main unit	Check the heights of the probe rods in the water tank and check the symbols of the connecting terminals
		Contacting of probe rods in the water tank or insulation failure	Remove foreign matter. If any. Install separators. Check points where insulation failure is occurring
The contacts of electromagnetic switch chatter.		Loosened terminal of the self-hold probe rod (E2), unconnected wire	Re-tighten the terminal and check for unconnected wires
		Improper setting heights of the probe rods or miswiring between the probe fitting and the main unit	Check the heights of probe rods and check symbols of the connecting terminals
		A resistor is connected to the probe fitting in 3-wire system	Remove the resistor
		A resistor is not connected to the probe fitting in 2-wire system	Connect resistor (10kΩ for standard type)

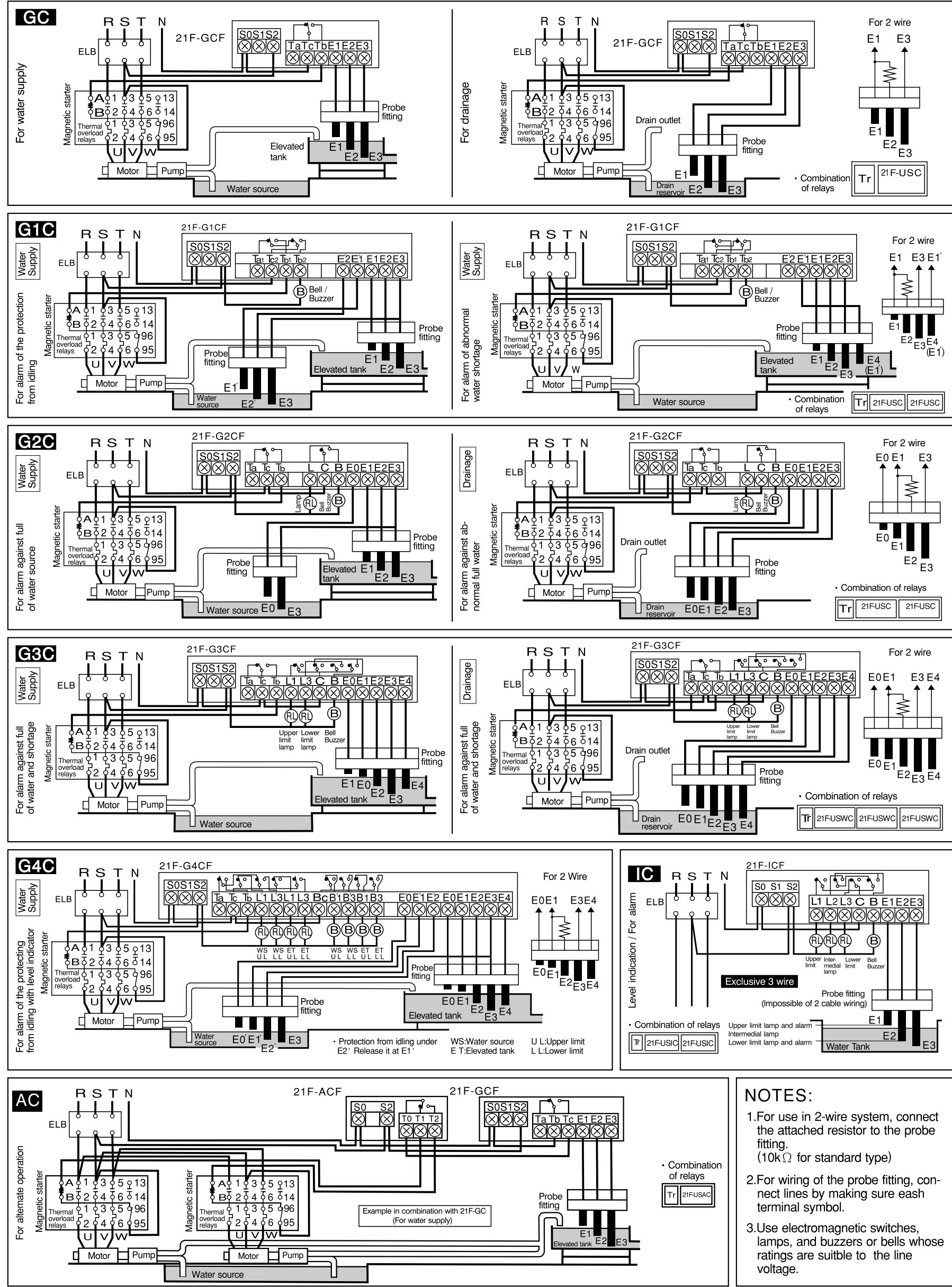
## ■ Function of Probe fitting

Water Supply  
Notes in ( ) is for drainage.



If the product have the function of anti-idling, the function will be enabled under E2', and it will be released at E1'.  
ICF is used for level indication.

## ■ Wiring diagram for apply voltage between S0 and S2



- ### NOTES:
- For use in 2-wire system, connect the attached resistor to the probe fitting. (10kΩ for standard type)
  - For wiring of the probe fitting, connect lines by making sure each terminal symbol.
  - Use electromagnetic switches, lamps, and buzzers or bells whose ratings are suitable to the line voltage.