



## INSTALLATION OPERATION & SERVICE MANUAL

### Model: PF1102 FREEZE PROTECTION CONTROL

IN RAINPROOF (TYPE 3R) ENCLOSURE

### Model: PF1102M FREEZE PROTECTION CONTROL MECHANISM

SUITABLE FOR POOL/SPA EQUIPMENT CONTROL

INPUT VOLTAGE: 240 VOLT - 60 HZ.

ELECTRICAL RATING: 3 HP - 240 VOLT AC.

#### **DANGER! To Reduce the Risk of Injury:**

*...do not permit children to operate the Control Unit or use the Pool/Spa unless they are closely supervised at all times.  
...test GROUND FAULT protection regularly. If it fails to reset, DO NOT USE THE POOL or SPA! Contact a qualified service technician.*

*...always disconnect electricity before servicing this control or the equipment(s) connected to it. THIS CONTROL IS NOT TO BE USED AS A POWER DISCONNECT.*

**READ, FOLLOW & SAVE THIS INSTRUCTION MANUAL**

## GENERAL INFORMATION

**Model PF1102** Freeze Protection Control is self-contained in an indoor-outdoor, beige, rainproof enclosure and designed to be connected to a timing or switching device. Together, they control as well as protect the Pool/Spa equipment and plumbing against freeze damage. The Control, if wired according to instructions, turns ON the Filter Pump when the air temperature (where this Control is located) drops below the temperature set by the thermostat dial (between 32°F and 45°F). Nevertheless, the Control is not intended to be a substitute for the insulation, coverings or maintenance.

**Model PF1102M** is a mechanism only, functions just like Model PF1102 and fits (snaps into) any Intermatic Pool Panel, Models T10000R, T30000R or T40000R Series. Both models are designed to operate on 240 Volt, 60 cycle only.

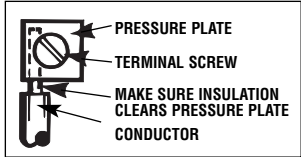


## IMPORTANT SAFETY INSTRUCTIONS

*When installing and operating this Product and other associated equipment, basic safety precautions should always be followed.*

- 1. This Control must be installed by a qualified person, according to National and Local Electrical Codes.*
- 2. Install this Control not less than 5 feet (3 meters in Canada) from inside edge of pool and 1 foot (30cm) above ground. USE COPPER CONDUCTORS ONLY rated minimum 75° C.*
- 3. Do not exceed the maximum ratings of individual components, wiring devices, and current carrying capacity of conductors.*
- 4. For Control grounding, bonding, installing and the wiring of underwater lights, refer to Article 680 of the National Electrical Code or Article 68 of the Canadian Electrical Code.*
- 5. The Control should not operate any equipment which would cause bodily injury or property damage should it be activated unexpectedly.*

## INSTALLATION - MODEL PF1102

1. Select the proper **outdoor** location for the Freeze Protection Control and prepare the necessary conduit run(s) required by the installation layout.
2. Hang enclosure on a flat vertical surface or other support, preferably next to the Switching Device, using hardware suitable for the purpose.
3. Properly terminate conduits at both ends and pull-in the conductors as specified by the installation layout.
4. Follow wiring diagram on page 4 of this manual and make LINE and LOAD (Pump) connections as shown. Wiring the Freeze Control, first identify each lead by its color (Line: **Black** and **Red**, LOAD: **Blue** and **Yellow**), then make wire connections by using twist on wire connectors.
  - a. If the control device is an Intermatic 240 Volt Time Switch, follow diagram on top of page 4 of this manual. Make connections to Time Switch terminal block as shown in the insert above for the proper wire termination.
  - b. If the control device is a Time Switch made prior 1984 by Intermatic or made by another manufacturer or it is other than a time switch (air switch, contactor, etc.), first identify the LINE and LOAD terminals (leads) of the control and wire the two devices in **Parallel**, as shown on bottom of page 4.

5. If the Freeze Protection Control is installed in a location where it is exposed to direct sun most of the day, extend 8 inches of the copper capillary tube of the thermostat into an open ended (plastic or metal) conduit about 10 inches long, installed at bottom of the enclosure. **Handle capillary tube with care!**
6. TEST INSTALLATION:
  - a. Turn the thermostat dial to its lowest setting and place crushed ice (in plastic bag) inside capillary coil of Thermostat.
  - b. Turn ON power to Control Panel, wait one minute, then slowly turn thermostat dial counterclockwise until Filter Pump starts.
  - c. Turn power OFF to Control, remove ice, and check wiring. Tighten terminal screws if necessary. Reinstall front plate.
  - d. Turn power ON to Control and set the Time Switch and the Thermostat. See OPERATION instructions below.

## INSTALLATION - MODEL PF1102M

1. Install mechanism in any Intermatic Pool Panel with only one Time Switch by snapping it into the unused mounting bracket, furnished with the Panel.
2. Follow steps 4 to 6 above, complete the installation.

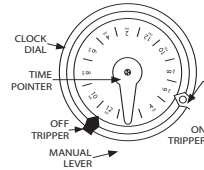
**Make sure the installation is properly grounded.**

# OPERATION

TO SET THERMOSTAT, turn dial, pointing to desired temperature between 32°F and 45°F, marked on the plate. Remember, many variables, such as the location of the Freeze Protection Control, the location of equipment and the pool or spa, the location and insulation of the plumbing, etc., must be considered before selecting the "turn ON" temperature of the filter Pump. Your local pool service professional is the best source of information. The Thermostat is factory set to turn OFF the Filter Pump when the ambient temperature rises 5°F above its set point.

TO SET TIME SWITCH, if Intermatic, follow instructions on the right. If other than Intermatic, follow instructions inside enclosure cover. The length of the daily filtration/heating cycle depends on many variables such as size, shape, and geographic location of the pool, water chemistry, type of pool equipment usage and season of year. If not sure, contact your local pool service professional for advice.

## TIME SWITCH OPERATING INSTRUCTIONS



**1. TO SET "ON" AND "OFF" TIMES:** Hold TRIPPERS against edge of CLOCK-DIAL, pointing to time (AM or PM) when ON and OFF operations are desired. Tighten tripper screws firmly.

**2. TO SET TIME-OF-DAY:** Pull CLOCK-DIAL outward. Turn in either direction and align the exact time-of-day on the CLOCK-DIAL (the time now, when switch is being put into operation) to the pointer.

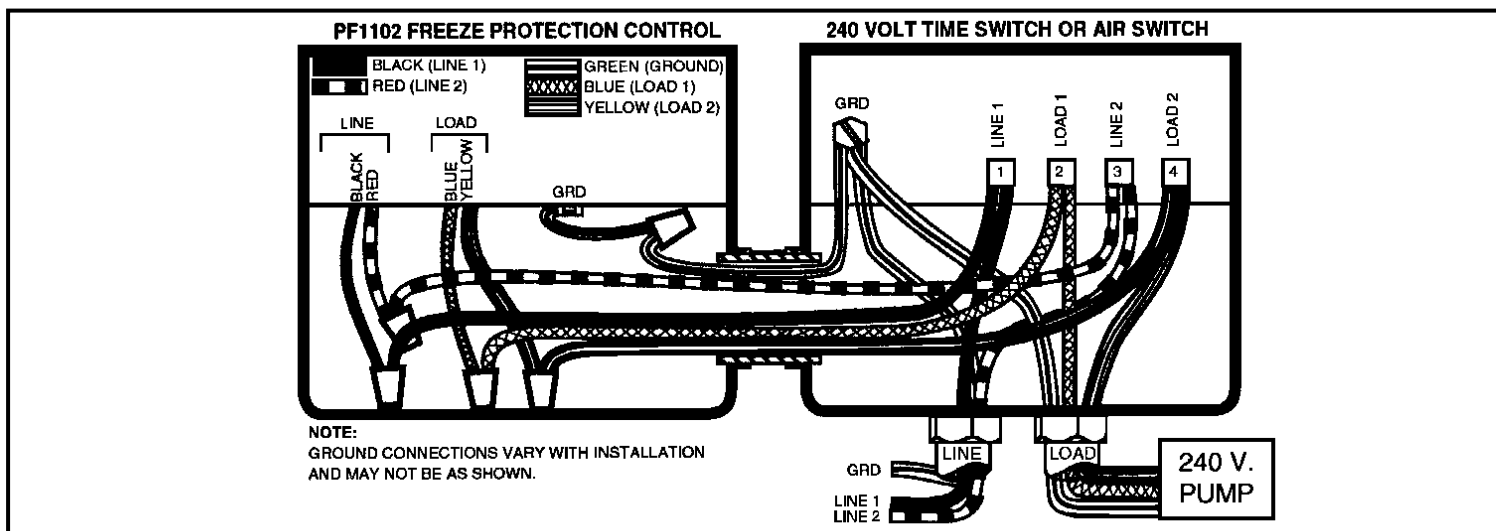
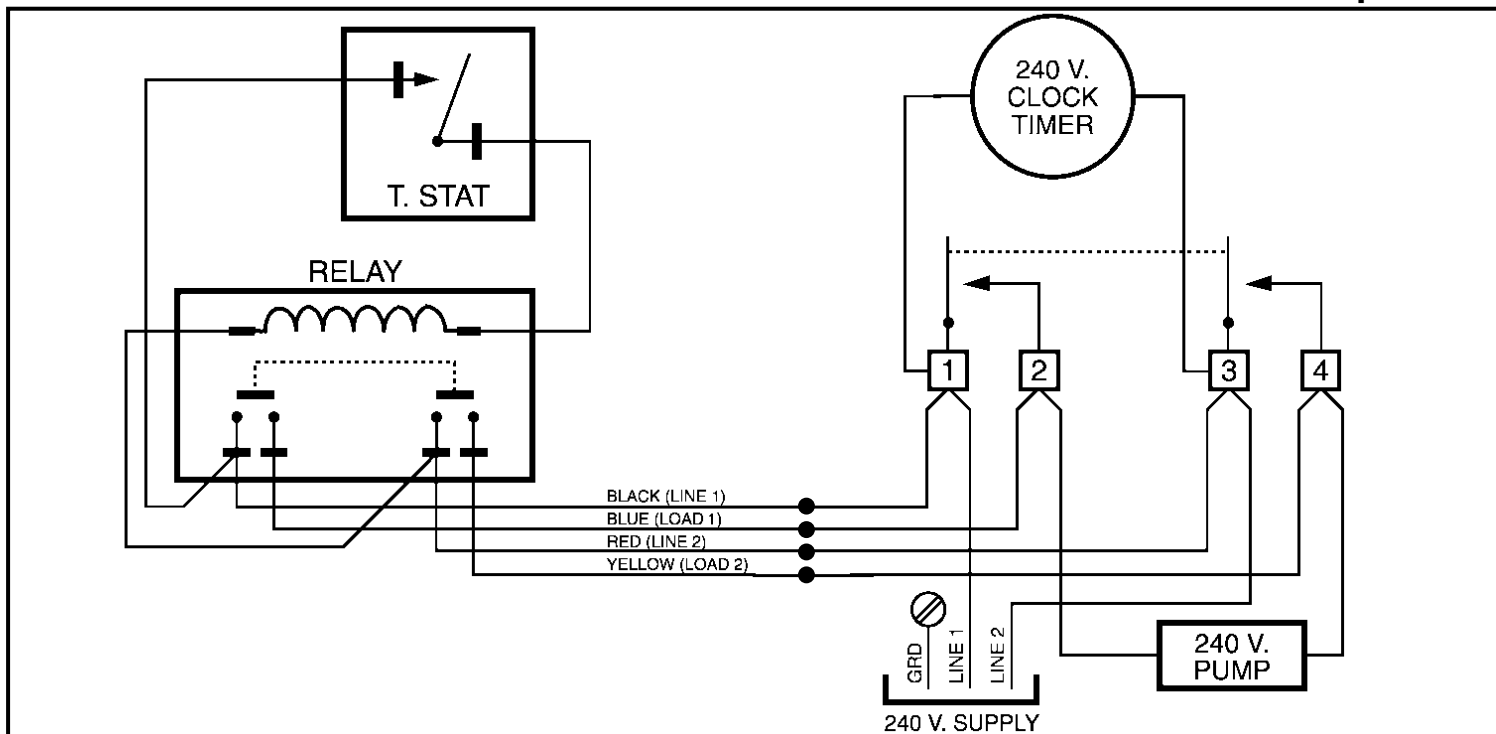
- **TO OPERATE SWITCH MANUALLY:** Move MANUAL LEVER below CLOCK-DIAL left or right as indicated by arrows. This will not affect the next operation.
- **FOR MORE THAN ONE DAILY ON-OFF OPERATION:** Place additional tripper pairs on CLOCK-DIAL (order 156T1978A).
- **IN CASE OF POWER FAILURE:** Reset CLOCK-DIAL to proper time of day. See step 2 above.

# TROUBLESHOOTING

SYMPTOM	CAUSE(S)	CORRECTIVE ACTION
1. Time Switch will not keep time - dial is turning.	1a. Frequent power outages 1b. Wrong voltage/cycle 1c. Loose clock motor connections	Reset dial Change clock motor Check connections
2. Time Switch Dial stops at ON or OFF tripper.	2a. Loose tripper 2b. Bent dial 2c. Defective motor	Check/change tripper Check/change mechanism Change clock motor
3. Load is ON at all times-- dial is turning.	3a. Welded contacts 3b. Two ON-trippers on dial 3c. Defective mechanism	Change mechanism Change tripper Change mechanism
4. Dead clock motor. (Clock motor gears do not rotate.)	4a. Defective clock motor (open coil due to lightning or surge) 4b. Loose clock motor connections 4c. Wrong voltage	Change clock motor Check connections Change clock motor
5. Filter Pump will not start when temp. is below 32°F.	5a. Defective thermostat 5b. Defective relay 5c. Faulty wiring 5d. Power outage	Replace thermostat Replace relay Check wiring Install stand-by power

# 240 VOLT WIRING

## Interconnecting wiring diagram between Model PF1102 or PF1102M Freeze Protection Control and a 240 volt Time Switch and 240 volt Filter Pump



### LIMITED ONE YEAR WARRANTY

If within the warranty period specified, this product fails due to a defect in material or workmanship, Intermatic Incorporated will repair or replace at its sole option, the unit free of charge. This warranty applies only to the original purchaser and is not transferable. This warranty does not apply to: (a) damage caused by accident, abuse, mishandling, dropping, acts of God, or any negligent use; (b) units which have been subject to unauthorized repair, opened, taken apart, or otherwise modified; (c) units not used in accordance with instructions; (d) damages exceeding the cost of the product. Some states do not allow a limitation of damages, so the foregoing limitation may not apply to you. This warranty gives you specific legal rights and you may have other rights that vary from state to state.

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This warranty service is available by either (a) returning the product to the dealer from whom the unit was purchased, or (b) mailing the product, along with proof of purchase, postage prepaid to the authorized service center listed below. This warranty is made by: Intermatic Incorporated/After Sales Service, 7777 Winn Rd., Spring Grove, IL 60081-9698/Telephone: 815-675-7000 <http://www.intermatic.com> Please be sure to wrap the product securely when mailing to avoid shipping damage.

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