



ET700 SERIES

INCLUDING MODELS:

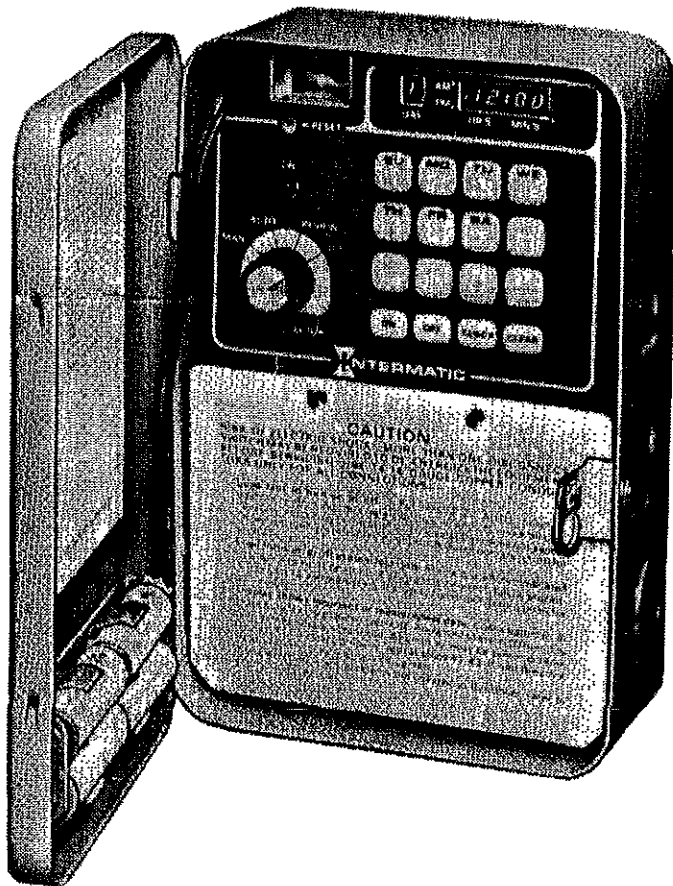
ET715C
ET718C
ET728C
ET798C
ET799C

Electronic Seven Day Time Switch

() With Battery Powered Carry-Over

OWNER/INSTALLER INSTRUCTION MANUAL

ATTENTION: READ CAREFULLY BEFORE ATTEMPTING TO INSTALL YOUR INTERMATIC TIMER! FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSON, INJURY AND/OR PROPERTY DAMAGE! RETAIN FOR FUTURE REFERENCE.



Description

The Intermatic Electronic Seven Day Time Switch automatically switches loads (5 amps maximum each) according to a preset weekly schedule. This timer is not designed to directly switch loads over 5 amps or tungsten (lamp) or other high inrush current loads. For use as a control timer in applications requiring seven day programming such as heating and airconditioning systems, pumps, etc. Up to 28 points (14 on/14 off) can be preset. Even more flexibility achieved when repeat daily cycling is utilized.

Specifications

CLOCK VOLTAGE: 120 VAC; 60 Hz.
POWER CONSUMPTION: 2.5 Watts Max.
CONTACT CONFIGURATION: See Door Label.
CONTACT RATING: 5 Amps. Resistive @ 24-240 VAC
75 VA Pilot Duty @ 24 VAC,
125 VA Pilot Duty @ 120/240 VAC
SET POINTS ("On" or "Off"): 28 Total
BATTERY POWERED CARRYOVER: 24 hours.
MIN. "ON" or "OFF" TIME: 1 Minute
MAX. "ON" or "OFF" TIME: 6 Days 23 hours 59 min.
SHIPPING WEIGHT: 2.7 Lbs. (1.2 Kg)
CASE: Drawn steel; 7 $\frac{3}{8}$ " (19.7 cm) high, 5" (12.7 cm) w
3" (7.6 cm) deep; gray finish w/lockable spring hasp
KNOCKOUTS: Combination 1/2 - 3/4" (one on back
each side, two on bottom)

FULL ONE YEAR WARRANTY

If within one (1) year from the date of purchase, this product fails due to a defect in material or workmanship, Intermatic Incorporated will repair or replace it free of charge.

The warranty does not apply to: (a) damage caused by accident, abuse, mishandling, dropping; (b) units which have been subject to unauthorized repair, opened, taken apart; (c) units not used in accordance with directions; (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 also have other rights which vary from state to state.

This warranty service is available by either (a) returning the product to the dealer from whom the unit was purchased, or (b) mailing postage prepaid to the nearest authorized service station listed. Please be sure to wrap the product securely when mailing to avoid damage. This warranty is made by Intermatic Incorporated, Intermatic Plaza, Spring Grove, Illinois 60081. Ph. 815-675-2321.

AUTHORIZED SERVICE STATION: INTERMATIC INCORPORATED, 4700 West Montrose Avenue, Chicago, Illinois 60641.

General Safety Information

WARNING: Disconnect all power before installing or servicing this timer or its connected loads.

1. Follow all local electrical and safety codes, as well as the National Electrical Code (NEC), and the Occupational Safety and Health Act (OSHA).
2. If the power disconnect point is out of sight, lock it in "OFF" position and tag it to prevent unexpected activation of power.
3. This timer must be grounded.
4. Do not exceed the maximum current carrying capacity of this timer.
5. Always replace the plastic insulator covering the terminal before turning power "ON".

Installation

WARNING: DISCONNECT THE POWER TO THE TIMER AND THE LOADS BEFORE INSTALLING THIS TIMER.

1. Remove the mechanism from the case by depressing the catch at the top of the case and pulling out. (See Fig. 2) **CAUTION: DO NOT TOUCH CIRCUIT BOARD COMPONENTS.**
2. Mount the timer in the desired location (three holes for mounting are located on the back). (See Fig. 1)
3. Replace the mechanism in the case.
4. Lift left side of insulator off of retaining post and pivot it up and away to expose the terminal strip.
5. Strip supply and load wires by removing 1/2" of insulation. (Do not use aluminum wire.) Insert the wire ends under the proper terminal plates and tighten the screws firmly. (See Note Below)
6. Replace the plastic insulator.
7. Be sure that the battery clip is connected to the battery holder. The batteries are factory installed.
8. Place the selector switch in the "MAN" position.
9. Re-apply power to the timer.
10. Wait until the display is lit steadily, then press "RESET" for two seconds. The display will now show: 1 '10:00. The timer is now ready for programming.

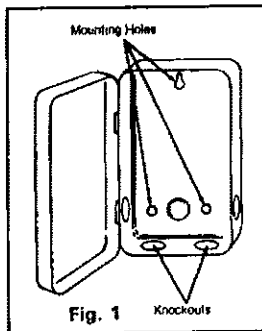
NOTE:

For Inductive Loads, it is necessary to install a surge suppressor across the time switch contacts. For 120 VAC nominal loads, use Intermatic part No. 176ET9A. For 24 VAC nominal loads, use Intermatic part No. 176ET8A. For 240 VAC nominal loads, use Intermatic part No. 176ET10A. Surge suppressors are marked 9A, 8A or 10A respectively. Where excessive electrical noise (transients) is generated elsewhere in the load circuit an isolation relay may be required in addition to the surge suppressor or additional surge suppressors may be required on external contacts.

STEP 1. Insert load wire under one side of pressure plate and insert surge suppressor lead under other side of pressure plate.

STEP 2. Securely tighten the terminal screw.

Be certain that the body of the surge suppressor is at least 1/2 inch from the timer switch case. Insert surge suppressor(s) across each contact switching an inductive load. Do not use surge suppressors on both the normally open and normally closed side of the same output relay.



General Information (See Fig. 3)

MODE SELECTOR switch has four settings:

"MAN"-The automatic operation is bypassed while in this position. Load(s) can be manually switched "ON" or "OFF".

"AUTO" - Normal position for automatic operation. Load(s) can be manually switched "ON" or "OFF". The timer will resume automatic operation beginning with the next set point.

"SET" - To set or modify the clock, and program.

"REVIEW" - To check the program, or clear entries for program modification.

ON INDICATOR LIGHT:

Flashes when the selector switch is set in "REVIEW" or "SET".

Glow steadily when normally "open" contacts are "closed" during automatic or manual operation.

Does not glow when normally "open" contacts are "open" during automatic or manual operation.

RESET BUTTON:

Resets the microprocessor before programming or to erase the entire program.

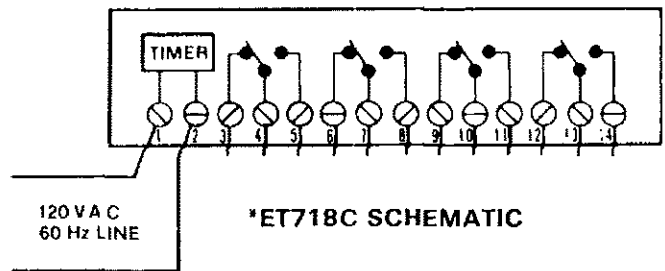
CLEAR BUTTON:

Clears the displayed entry in "SET" or "REVIEW".

CLOCK BUTTON:

Sets the time of day.

ON AND OFF BUTTONS:



TIMER SCHEMATIC: Turn off power at fuse box or circuit breaker. Use approved #18 to #14 gauge solid or stranded copper wire.

***SEE PAGE 4 FOR OTHER WIRING SCHEMATICS.**

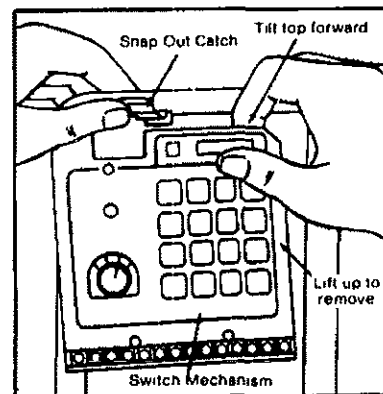


Figure 2

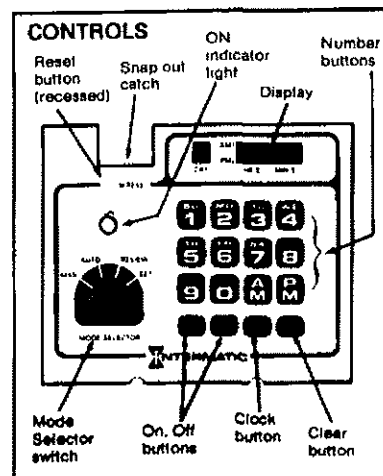


Figure 3

Programming Steps

WARNING: DO NOT PRESS RESET BUTTON WHILE PROGRAMMING OR THE ENTIRE PROGRAM WILL BE LOST.

SET OR MODIFY THE TIME OF DAY:

- Turn selector switch to "SET"
- Press the numbered button corresponding to the day.
For example, if the day is Monday, press the "2" button.
- Enter the current time of day. For example, if the time is 8:00 AM press 800 and press "AM".
- For our example, the display will show: "2 8:00".
- Press "CLOCK" button.
- The display will now show: "--:--."
- To verify that the correct time is set, turn the selector switch to "AUTO" or "MAN". If the time is incorrect repeat steps 1-6.
- Turn selector switch to "SET".

PREPARE "ON" AND "OFF" SET POINTS FOR PROGRAMMING:

- List all desired ON and OFF set points as shown in the example.

Example: Load to be "On" Monday at 8:00 AM
Load to be "On" Thursday at 12:15 PM
Load to be "Off" Monday at 8:05 AM.

Prepare your list:

| DAY | TIME | AM/PM | ON/OFF |
|-----|-------|-------|--------|
| 2 | 8:00 | AM | ON |
| 5 | 12:15 | PM | ON |
| 2 | 8:05 | AM | OFF |

Complete the above list for all on/off set points.

- Now list all days to be repeated (exactly) from days already programmed.

Example: Tuesday to repeat Monday events.
Wednesday to repeat Monday events

Prepare your list:

| DAY TO REPEAT | ON | DAY BEING REPEATED |
|---------------|------|--------------------|
| 3 | "ON" | 2 |
| 4 | "ON" | 2 |

NOTES:

- Any day can repeat any programmed day.
- If a day already has a program, it cannot repeat another days cycle unless the scheduled events for that day are removed.
- If a day being repeated has a program change, the day repeating it will recognize that change **AUTOMATICALLY.**

ENTER THE PROGRAM

- Enter the program in the exact order:
Day; Time; AM/PM; ON/OFF
Example: for listing on/off set pts.

Press 5 1215 PM ON
Display 5 ---:--- 5 12:15 5,12:15 ---:---

Press 2 800 AM ON
Display 2 ---:--- 2 8:00 2 8:00 ---:---

Press 2 805 AM OFF
Display 2 ---:--- 2 8:05 2 8:05 ---:---

NOTE: AM is indicated as " " flashing.

PM is indicated as " " flashing.

- Enter the program for repeat cycles.

Example: for listing repeat cycles:

Press 2 2 ON 1
Display 2 ---:--- 2 ---:--- ---:---
flashing ↑

Press 3 3 ON 1
Display 3 ---:--- 3 ---:--- ---:---
flashing ↑

- The program is now complete. It is suggested that program be reviewed before activating the loads. Follow the procedures shown in "REVIEW"

REVIEW

- Turn the selector switch to "REVIEW".
- Press the button corresponding to the day be reviewed.
- The display will show one of the following:
 - Example: Press 3 3 -2:--- (Tuesday "3" repeat Monday "2")
 - or
 - Example: Press 2 ---:--- (Monday events can be viewed). In the second example, each time the "C" button is pressed, the correct time for that operation will appear. Likewise each time "OFF" is pressed, off time will be displayed.

To modify a set point, that set point must first appear the display. Next, the clear button is pressed. Turn selector button to "SET" and enter the new information in the correct order (day; time; AM/PM; ON/OFF).

COUNTING SET POINTS

Count each on and off set point. Our example would total 28 on or off: Do not count repeat daily schedules. Up to 28 on or off: points can be programmed. The display would show "E EE:EE" if you tried to program the 29th set point.

OPERATION (Automatic)

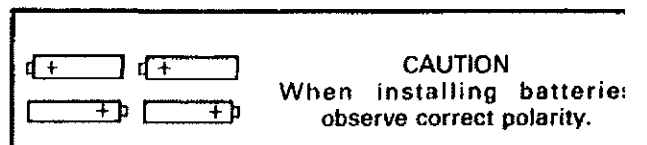
- Turn selector switch to "AUTO".
 - Apply voltage to loads
- NOTE: When in automatic operation, if the "ON" or "OFF" buttons are pressed, the loads will activate accordingly. The load will stay in this condition until the next programmed event.

BATTERY POWERED CARRYOVER

If the power goes out, the batteries will maintain the program and keep the correct time to within .01%, for a period of 24 hours. In order to achieve 24 hours of carryover, the batteries need to have been charged for at least 24 hours. Battery recharging is automatic when the timer is operation.

CAUTION: USE ONLY NICKEL CADMIUM RECHARGEABLE BATTERIES, AA SIZE RATED 1.25 VOLTS. DO NOT USE ANY OTHER TYPE OF BATTERY.

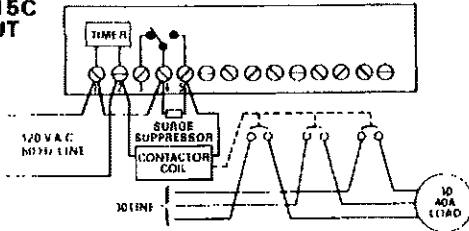
While under battery power, normally "open" loads will not activate. The timer will recognize the set points and keep the time of day. As batteries are depleted, the display will dim and go out, but the program and time may still be maintained. Once power returns, if the display shows the correct time, the time and program have been retained. If not, reset the time of day, refer to the section SET TIME OF DAY.



Trouble Shooting

| SYMPTOM | POSSIBLE CAUSE(S) | CORRECTIVE ACTION |
|--|--|--|
| Load does not turn on or off. | <ol style="list-style-type: none"> 1. Mode selector not in AUTO. 2. Fault in wiring 3. Load power is out. | <ol style="list-style-type: none"> 1. Turn to AUTO or MAN Press ON then OFF 2. If ON indicator light switches on and off, but load stays off, check connections and wiring to load 3. If ON indicator does not switch on and off power may be out. Check power supply to timer and load. If power is on remove batteries. If light still does not operate, return for servicing. |
| Load turns on and off at the wrong time. | <ol style="list-style-type: none"> 1. Time and day of week on display read-out incorrect. 2. Program is in error. | <ol style="list-style-type: none"> 1. If wrong, set correct time. If correct, review set points (switching times.) See *. 2. Review set points. If set points are correct, return for servicing. |
| Display does not light up or shows dim, erratic or meaningless data. | <ol style="list-style-type: none"> 1. Power supply deficient. | <ol style="list-style-type: none"> 1. Check power supply. If power supply is OK, check batteries. Try removing batteries. Discharged or faulty batteries may drain unit of power even with power on. Check polarity and seating. Let stand 10 minutes or more with the power on to charge batteries. Reset timer RESET clears the stored program and sets the clock to Sun 10 a.m. Turn to AUTO or MAN Press recessed RESET button with pen or pencil and hold for two seconds. While pressing ON indicator light will be lit and display will show a colon. When released, display should show 10:00. If unit does not clear properly, try resetting with batteries removed and timer power on. Check battery voltage defective cells will measure less than .2 volt. If unit does not clear properly, return for servicing. |
| Timer gains time on regular basis. | <ol style="list-style-type: none"> 1. Spikes on power line cause extra counts. | <ol style="list-style-type: none"> 1a. Change to quieter line. b. Put in line filter or isolation transformer c. Check for good grounds. |
| Timer loses time | <ol style="list-style-type: none"> 1. Timer power out. 2. Timer faulty. | <ol style="list-style-type: none"> 1. Correct fault 2. Return for repair |
| *Timer set points or time of day are altered sporadically. | <ol style="list-style-type: none"> 1. Electrical noise from timer contacts. 2. Electrical noise on contacts from other sources on controlled line. | <ol style="list-style-type: none"> 1a. Use surge suppressors b. Use isolation relay 2a. Use surge suppressors on contacts elsewhere. b. Use RFI line filter c. Use isolation relay |
| Timer loses program during power outage. | <ol style="list-style-type: none"> 1. Battery(s) defective. 2. Batteries not seated | <ol style="list-style-type: none"> 1. Unclip battery connection from timer, check battery pack voltage. Pack should measure approx 5 volts or 1.25 volts per cell. Replace defective cell(s). 2. Check for battery seating and connections |

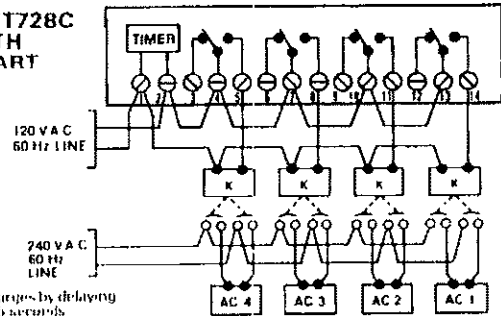
MODEL ET715C SPDT OUTPUT



For controlling 3-phase loads using a 3-pole contactor

Refer to INSTALLATION for use of surge suppressors

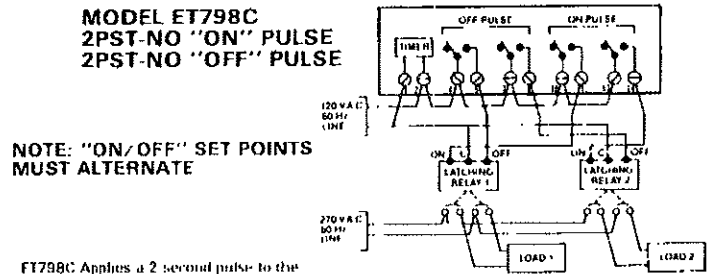
MODEL ET728C 4PDT WITH SOFT START



ET728C limits power surges by delaying each load switching 3-5 seconds.

Refer to INSTALLATION for use of surge suppressor

MODEL ET798C 2PST-NO "ON" PULSE 2PST-NO "OFF" PULSE

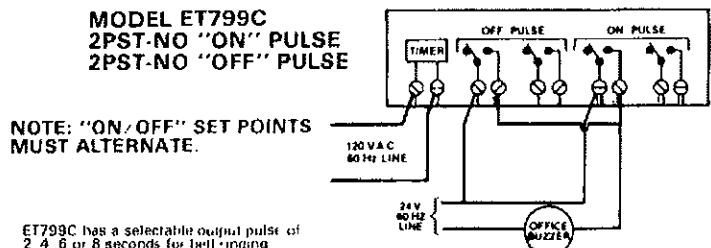


NOTE: "ON/OFF" SET POINTS MUST ALTERNATE

ET798C Applies a 2 second pulse to the loads at the ON and OFF set points

Refer to INSTALLATION for use of surge suppressors.

MODEL ET799C 2PST-NO "ON" PULSE 2PST-NO "OFF" PULSE

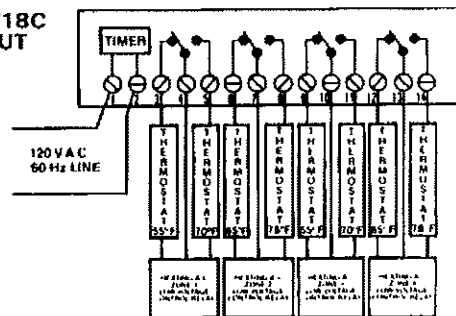


NOTE: "ON/OFF" SET POINTS MUST ALTERNATE.

ET799C has a selectable output pulse of 2, 4, 6 or 8 seconds for bell ringing

Refer to INSTALLATION for use of surge suppressors

MODEL ET718C 4PDT OUTPUT



Switching set-up/set-back thermostats for Heating and Air Conditioning for up to 4 different zones

INTERNATIC INCORPORATED
SPRING GROVE, ILLINOIS 60081

ET700 SERIES EASY-SET BASIC PROGRAMMING

RESET TIME SWITCH:

1. Set rotary dial in the **AUTO** position.
2. Press the **RESET** switch for 3-5 seconds to reset the microprocessor memory and clear all programmed information. The display should now show day 1 and 10:00 AM.

NOTE: Do not press the RESET switch after programming has begun or you will lose all of your programmed information.

TO SET PRESENT TIME AND DAY OF WEEK:

1. Place the rotary dial in the **SET** position.
2. Press the touch pad for the present day of week.
3. Press the hour and minute for the current time of day.
4. Press **AM** or **PM** button.
5. Press **CLOCK** button.
6. To verify that the correct time and day is set, set rotary dial to the **AUTO** position and current time and day should be displayed.

NOTE: If the current time and day are incorrect, repeat steps 2-6.

TO PROGRAM TIMES:

1. Place the rotary dial in the **SET** position.
2. Press the touch pad button for the first day to be programmed.
3. Press the hour, minute, **AM** or **PM** for the first on time.
4. Press the **ON** button.
5. Press the hour, minute, **AM** or **PM** for the first off time.
6. Press the **OFF** button.
7. Continue to program each day of the week repeating steps 2-6.
8. When finished set the rotary dial to the **AUTO** position.

NOTE: If you wish to copy a days on and off times to another day after step 6 make sure the rotary dial is turned to the **SET** position, press the touch pad for the day copied to eg. (Monday day 2) press 2, press the **ON** button, then press the touch pad for the day copied from eg. (Sunday day 1) press 1, so press 2 **ON** 1, 3 **ON** 1, 4 **ON** 1 etc.

TO REVIEW PROGRAMMED TIMES:

1. Place the rotary dial to the **REVIEW** position.
2. Press the touch pad button corresponding to the day being reviewed.
3. Press the **ON** button to display the on programmed time(s).
4. Press the **OFF** button to display the off programmed time(s).

NOTE: If you review a day that was copied from another day when you perform step #2, the display will show – 1. eg. You want to review day 2 Monday which you copied from day 1 Sunday so you press the touch pad 2 to review and the display will show 2 – 1.

TO CHANGE PROGRAMMED TIMES:

1. Review the program as previously explained until the time is displayed you want to change.
2. Press **CLEAR**.
3. Then place the rotary dial to the **SET** position.
4. Now depress the touch pad day button, press the new hour, minute, AM or PM.
5. Then depress the **ON** or **OFF** button.
6. When finished return the rotary dial to the **AUTO** position for normal operation.

TO DELETE A PROGRAMMED TIME:

1. Review the program as previously explained until the time is displayed you want to delete.
2. Press **CLEAR**.
3. Return the rotary dial to the **AUTO** position.

TO OVERRIDE PROGRAM:

Program can be overridden at any time by placing the rotary dial to the **Manual** position. Programmed set times will be maintained but will not operate the controlled load automatically.

TO MANUALLY OPERATE LOAD:

1. Place the rotary dial to either the **AUTO** or **MANUAL** position.
2. Press the **ON** or **OFF** button.
3. The red indicator lamp will illuminate for ON or extinguish for OFF.

TO OPERATE TIMER:

Place the rotary dial to the **AUTO** position.

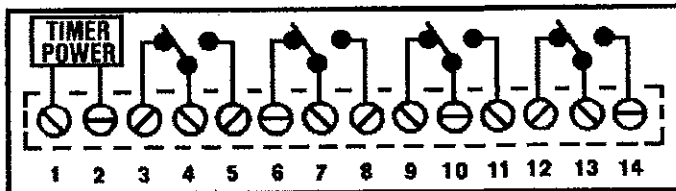
NOTE: When finished programming you may have to toggle your load ON or OFF depending on the state it should be in at that time of day by depressing the **ON** or **OFF** button.

NOTE: For assistance please contact Intermatic Technical Services at 815-675-7000.

TIMER SUPPLY:
120 V.A.C. 60 Hz. 4.5 Watts maximum
SWITCH RATING:

MODEL: ET718C

- 1mA-5A Resistive 24, 120, 240V A.C., 60 Hz.
- 75 V.A. Pilot Duty 24V A.C., 60 Hz. •125 V.A. Pilot Duty 120/240V A.C. 60 Hz.



ELECTRONIC 7 DAY TIME SWITCH (single pole double throw) with battery powered carryover. For inductive loads refer to installation manual. Up to 28 on/off set points.

1. SET CLOCK or CHANGE TIME (Mode selector in SET mode)

Note: if "EE:EE" appears press CLEAR and recheck programming steps

- Press Day keypad 1 thru 7 (SUnday thru SATurday)
- Press numbered keypads for time, leading zero not required examples. . . 800 for 8:00AM or PM and 1100 for 11:00 AM or PM
- Press AM or PM as required.
- Press CLOCK keypad. . display shows all dashes when entered.
- Time programmed can be checked in AUTO or MAN mode

2. SET ON/OFF SWITCHING TIMES (Mode selector in SET mode)

- Repeat first 3 steps for SET CLOCK by entering DAY, TIME and AM or PM
Note: These steps must be repeated for each set point to be programmed.
- Enter program set point by pressing the ON keypad for an ON time and pressing the OFF keypad for an OFF time.
- Display shows all dashes when data has been entered.

3. COPY A DAY To any other day(s) (Mode selector in SET mode)

- Note: Cannot COPY TO a day which has been previously programmed
- Press Day keypad 1 thru 7 to select COPY TO day
- Press ON keypad
- Press Day keypad 1 thru 7 to select COPY FROM day
- Example: TUESday repeats MONday. . .press "3 ON 2". . .TU is COPY TO day
Copies ALL ON and OFF set points as well as future changes to MONday

4. REVIEW PROGRAM (Mode selector in REVIEW mode)

- Press Day keypad 1 thru 7 to select day to be reviewed
If display shows for example "3-2" this means "day 3 copies day 2"
- If display shows all dashes press ON and OFF keypads in any sequence to review ON/OFF times for that day. Repeat for all days as desired.
- Press CLEAR keypad only if copy or displayed set point is to be removed from program.

5. AUTOMATIC or MANUAL SWITCHING (Mode SELECTOR IN AUTO OR MAN)

- AUTO allows program to operate. MAN disables program operation.
- Press ON or OFF in either mode to manually switch load on or off.



CAUTION: Wrong battery polarity may damage batteries and timer. GE AA 1000 or equivalent NI Cd rechargeable batteries. Do not use alkaline batteries, they may burst or explode when recharged.

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SPRING GROVE, ILLINOIS 60081-9698
158ET10961



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41G6



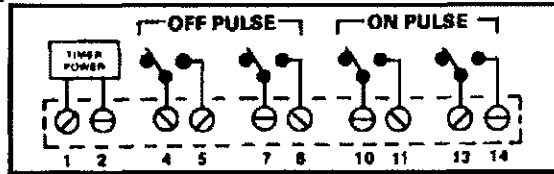
LR3730

TIMER SUPPLY:

120 V.A.C. 60 Hz. 4.5 Watts maximum

SWITCH RATING: (4PST)

- 1mA-5A Resistive 24,120,240V A.C., 60 Hz.
- 75 V.A. Pilot Duty 24V A.C., 60 Hz.
- 125 V.A. Pilot Duty 120/240V A.C. 60 Hz.

MODEL: ET799C

ELECTRONIC 7 DAY TIME SWITCH (2 pole single throw ON pulse 2 pole single throw OFF pulse) with battery powered carryover. For pilot duty/small loads (maximum 5 Amps.) For inductive loads refer to installation manual. Up to 28 on/off set points. Momentary Contact Output pulse adjustable for 2 4 6 or 8 seconds.

1. SET CLOCK or CHANGE TIME (Mode selector in SET mode)

Note: if "EE:EE" appears press CLEAR and recheck programming steps

- Press Day keypad 1 thru 7 (SUnday thru SATurday)
- Press numbered keypads for time, leading zero not required examples. . . 800 for 8:00AM or PM and 1100 for 11:00 AM or PM
- Press AM or PM as required.
- Press CLOCK keypad. . display shows all dashes when entered.
- Time programmed can be checked in AUTO or MAN mode

2. SET ON/OFF SWITCHING TIMES (Mode selector in SET mode)

- Repeat first 3 steps for SET CLOCK by entering DAY, TIME and AM or PM
- Note: These steps must be repeated for each set point to be programmed.
- Enter program set point by pressing the ON keypad for an ON time and pressing the OFF keypad for an OFF time.
- Display shows all dashes when data has been entered.

3. COPY A DAY To any other day(s) (Mode selector in SET mode)

- Note: Cannot COPY TO a day which has been previously programmed
- Press Day keypad 1 thru 7 to select COPY TO day
- Press ON keypad
- Press Day keypad 1 thru 7 to select COPY FROM day
- Example: TUESday repeats MOnday. . .press "3 ON 2". . .TU is COPY TO day
- Copies ALL ON and OFF set points as well as future changes to MOnday

4. REVIEW PROGRAM (Mode selector in REVIEW mode)

- Press Day keypad 1 thru 7 to select day to be reviewed
- If display shows for example "3-2" this means "day 3 copies day 2"
- If display shows all dashes press ON and OFF keypads in any sequence to review ON/OFF times for that day. Repeat for all days as desired.
- Press CLEAR keypad only if copy or displayed set point is to be removed from program.

5. AUTOMATIC or MANUAL SWITCHING (Mode SELECTOR IN AUTO OR MAN)

- AUTO allows program to operate. MAN disables program operation.
- Press ON or OFF in either mode to manually switch load on or off.

| | |
|--|--|
| | CAUTION: Wrong battery polarity may damage batteries and timer. GE AA 1000 or equivalent NI Cd rechargeable batteries. Do not use alkaline batteries, they may burst or explode when recharged. |
|--|--|

INTERMATIC INCORPORATED
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 158ET10825

