http://waterheatertimer.org/Paragon-timers-and-manuals.html#EC

Best Replacement timers

http://waterheatertimer.org/Intermatic-ET-series-timers-and-manuals.html#ET1700

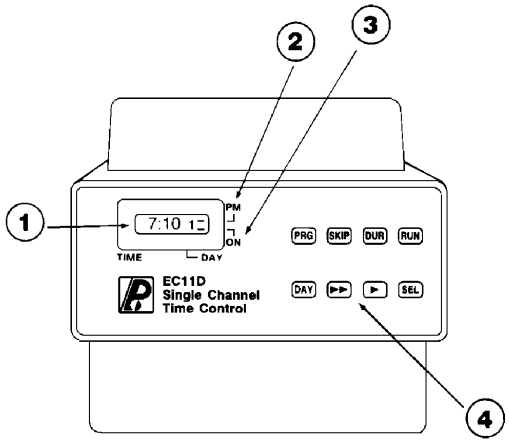
http://waterheatertimer.org/Din-rail-timers-and-manuals.html

EC11D
Electronic Time Control

The EC11D is an easy-to-program, single-channel, 24-hour electronic timer designed to control loads on a time of day schedule. The program is repeated on a daily basis. Any day(s) can be skipped by programming the skip-a-day feature. Up to 288 setpoints (ON, OFF or momentary ON events) are available per day. Setpoints are programmable to 5-minute intervals; e.g., 8:00 AM, 8:05 AM, 8:10 AM, etc.

These controls are used in applications that require a 24-hour cycle and numerous operations per day, such as duty cycling. The adjustable momentary ON event (from 1-59 seconds) is provided for ringing bells in factories and schools or for flushing urinals.

Note: The control can be programmed on battery power prior to permanent installation. See back page for battery installation.



FRONT PANEL DESCRIPTION

1. **Time/Day Indicator** - displays hours, minutes and day of week (1= Sun, 2= Mon, 3= Tues, 4= Wed, 5= Thurs, 6= Fri, 7= Sat).
2. **AM/PM Indicator** - displays whether time is AM or PM (12-hour format). An upper bar (-) appears during PM hours. The bar disappears during AM hours.
3. **ON/OFF Indicator** - displays whether load is ON or OFF. A lower bar (_) appears when load is ON. The bar disappears when load is OFF.
4. **Keypad** - includes:

PRG	- initiates setpoint programming or review
SKIP	- programs skip-a-day
DUR	- programs momentary duration
DAY	- selects day of week
‰	- slow advance
‰ ‰	- fast advance
SEL	- selects type of event (ON, OFF or momentary ON)
RUN	- enters programmed information and restores normal operation

TO SET THE CLOCK AND PROGRAM DAY-OF-WEEK

The EC11D offers 12-hour or 24-hour clock format. The 12-hour AM/PM format utilizes a PM indicator to distinguish PM hours. See NO. 2, Front Panel Description, above. The 24-hour format displays 0:00 at midnight and 23:00 at 11:00 PM.

STEP	KEY	DESCRIPTION
1.		Install battery/power. Control displays 12 Hr.
2.	**SEL**	Toggles to 24-hour format. Displays 24 Hr. Press key again to revert to 12-hour format.
3.	**RUN**	Enters 12-hour or 24-hour format. Displays 12:00 1 or 0:00 1 (colon flashing).
4.	‰	Advances the clock minute by minute. To set the time more quickly, use the ‰ ‰ key, which will advance the clock by seven-minute intervals.
5.	**DAY**	Advance to current day. (1= Sun, 2= Mon, 3= Tue, 4= Wed, 5= Thu, 6= Fri, 7= Sat).
6.	**RUN**	Enters time and day (colon flashing). Time and day displayed.

These instructions depict the timer immediately following power-up. The control begins to keep time as soon as power is applied; if six minutes pass before any keys are pressed, 12:06 will be displayed instead of 12:00. Note: If you are programming on battery power and receive an irregular display, the battery may be either weak or loose. Make sure the battery is snapped tightly in place.

TO PROGRAM A DURATION

STEP	KEY	DESCRIPTION
1.	**DUR**	Displays 01, indicating pre-programmed duration of 1 second.
2.	‰	Advances from 1-59 seconds. Use ‰ ‰ to advance quickly.
3.	**RUN**	Enters duration into memory. Time and day displayed (colon flashing).

TO PROGRAM SETPOINTS

A setpoint defines the type of event as well as the time of the event. There are 288 setpoints available per day (one every five minutes).

STEP	KEY	DESCRIPTION
1.	**PRG**	Displays 12:00 or 0:00 indicating midnight.
2.	‰	Advances to next available setpoint; e.g., 12:05 AM or 0:05. Repeated pressings advance to 12:10, 12:15, 12:20, etc. Press ‰ ‰ to advance quickly.
3.	**SEL**	n appears, indicating an ON event. Press key again to select an OFF event. Displays F for OFF. Press key again to select a momentary ON. Displays P for pulse or momentary ON. No symbol appears when SEL is pressed again, indicating no event. If you mistakenly pass the desired type of event, continue to press SEL in order to repeat the cycle of n, F and P.
4.		Repeat Steps 2-3 to program additional setpoints.
5.	**RUN**	Enters setpoints into memory. Time and day displayed (colon flashing).

TO REVIEW SETPOINTS

Press the **PRG** key. The first setpoint will be displayed, with the time followed by the type of event. Advance through setpoints by repeatedly pressing PRG. Press RUN to restore normal operation.

TO CHANGE SETPOINTS

Advance through setpoints using the Review procedure above. If the type of event is incorrect for a certain setpoint or time slot, press SEL to change it. The cycle of n, F and P will be repeated through continued pressings of SEL. Press RUN to enter programming changes and restore normal operation.

TO PROGRAM SKIP-A-DAY

STEP	KEY	DESCRIPTION
1.	**SKIP**	1 is displayed, indicating Sunday.
2.	**SEL**	SCP is displayed, indicating Skip. Press SEL again to remove SCP. Repeated pressings toggle between skip-a-day and no-skip.
3.	‰	Advances to next day.
4.		Repeat Steps 2-3 to skip additional days.
5.	**RUN**	Enters skipped days into memory. Time and day displayed (colon flashing).

OVERRIDE

Manual override temporarily reverses the current output state. Loads that are ON turn immediately OFF; loads that are OFF turn immediately ON. Override remains in effect until programming is overridden again or until the next setpoint is reached.

TO INITIATE OVERRIDE - Press **SEL.**
Output state is verified by the ON/OFF Indicator - see No. 3, Front Panel Description. Example - 3:54 1 _ load is ON; 3:54 1 load is OFF

TO CANCEL OVERRIDE - Press **SEL** again. Output reverts to previous state.

APPLICATIONS

BELL RINGING

Determine the length of time you want the bell to ring; for example, three seconds. Program a duration of three seconds.

Determine the times at which the bell should ring - e.g., 8:00 AM, 8:50 AM, 9:00 AM, 9:50 AM, etc. Program a momentary ON (control displays P) for each of these times.

If the bell should not ring on Saturday and Sunday, for example, then program skip-a-day to skip days 1 and 7.

DUTY CYCLING

Say, for example, that you want to cycle a fan during high-kilowatt demand hours in order to reduce your electric bill (kWh and kW charges). You need the fan to operate from 8:00 AM until 5:00 PM, so you would program an ON event at 8 AM. Electricity, however, becomes more expensive between 11:00 AM and 5:00 PM, so you would like to cycle the fan between those hours. Program an OFF at 11:00 AM, an ON at 11:15 AM, an OFF at 11:30 AM and so on, repeating the 15-minute ON/OFF cycle until 5:00 PM, when the fan will be turned OFF for the remainder of the day.

SPECIFICATIONS

PROGRAMMING CAPABILITIES

- **24-Hour Programming** - provides 288 setpoints (one event every five minutes).
- **Variety of Events** - ON, OFF, momentary or no event can be programmed for each setpoint.
- **Programmable Momentary Duration** - from 1-59 seconds.
- **Resolution** - one minute for time of day; five minutes for programmed events.
- **Skip-A-Day** - allows schedule to be skipped for an entire day or days.
- **Selectable Clock Format** - 12-hour AM/PM or 24-hour clock format.
- **Manual Override** - temporarily reverses current output state...loads that are OFF turn ON and loads that are ON turn OFF. Begins immediately and remains in effect until override is reset or until the next setpoint is reached.

ELECTRICAL

Power Requirements

MODEL	VOLTAGE	HERTZ	VA REQ.
EC11D/120	100-120 Vac	50/60	4
EC11D-200-240	200-240 Vac	50/60	4

Output - 1 SPDT relay with dry contacts as follows:

VOLTAGE	RESISTIVE	INDUCTIVE	PILOT DUTY
120 Vac	15A	15A	345 VA
240 Vac	10A	10A	450 VA

Wiring - Terminals can accommodate 12 to 24 AWG wire.

POWER OUTAGE CARRY-OVER

Program and Time-of-Day Backup - 100 hours of carry-over with a 9-volt alkaline battery. 275 hours of carry-over with a 9-volt lithium battery (Kodak U9VL). Battery not provided. During a power outage, the time and program are maintained, but the output relays remain de-energized.

ACCURACY

Time-of-day - Maintained time is as accurate as line frequency.

Resolution - One minute for time-of-day; five minutes for programmed ON/OFF events.

ENVIRONMENTAL

The control should be mounted indoors in an environment that is free from excessive contaminants such as oil, moisture and dirt.

PHYSICAL

Mounting
Surface or DIN-rail (35mm, DIN-EN50022) with plug-in base

Weight - Approximately 1 lb. 3 oz. (0.54 kg)

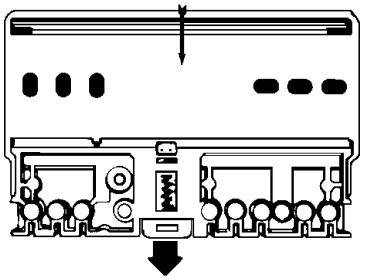
Dimensions - Width 10.5 cm (4-1/8")
Height 10.2 cm (4")
Depth 7.6 cm (3")

INSTALLATION

Surface Mounting

1. Remove back mounting plate by releasing the bright red spring-loaded catch. See Back View drawing below.
2. Install back mounting plate in a vertical or horizontal position. Utilize the mounting holes on the back mounting plate. (Screws are not provided.)
3. Snap control onto back mounting plate.

BACK MOUNTING PLATE



DIN Rail Mounting

1. Remove back mounting plate by releasing spring-loaded catch. (See Back View drawing above).
2. Snap base connection block onto DIN-rail.

110-701B

BATTERY

Installation - Purchase a 9-volt alkaline or lithium battery (Kodak U9VL).

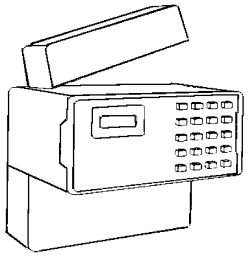
Remove battery cover by pressing sides together and pulling left or right. Snap battery into battery clip. Replace battery cover.

Replacement -

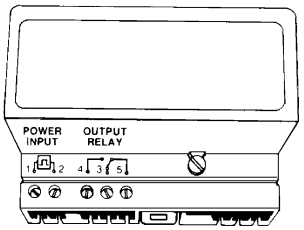
Alkaline, approximately every 2 years

Kodak's U9VL, approximately every 5 years

A battery log is provided inside the battery cover to record battery replacement dates.



Removal of Battery Cover



Input and Output Terminals

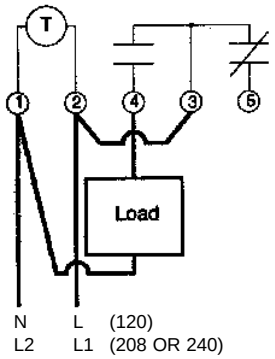
WIRING

1. Loosen terminal cover screw and set terminal cover aside. The screw is captive to the control. Wiring access for power input and relay output is provided at bottom of terminal block. Terminals can accommodate 12 to 24 AWG wire.
2. Wire 120 or 240 Vac to terminals 1 and 2 for the model selected.

CAUTION: Damage will occur to unit if incorrect voltage is applied. Application of incorrect input voltage will void warranty. See product label to make sure you are applying the correct voltage.

3. Connect output wiring as required for the particular application. See wiring diagram below.
4. Cut out terminal cover for wiring. Cutting guides are molded in the inside bottom of the cover.
5. Replace terminal cover and tighten terminal screw.

Typical Wiring Diagram



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