## Introduction

Timers are used in applications where time itself is the main focus. These include simple knowledge of how long a machine has been running to determine machine maintenance, for example, (elapsed time) to knowing when to change an elevator cable (cable life and safety). Timers generally have the ability to stop and then to continue on from the point at which they stopped. Timer Relays are used in applications where an output is required to make something happen at a predetermined point in time (to stop or start the process).

## Application Examples

■ Elapsed time indication for interval maintenance of construction and agricultural equipment
■ Usage metering for determining charges on rental equipment
■ Controlled process timing for adhesive application/curing equipment

## Timers/Hour Meters Product Family Overview

**Table 62. Product Family Overview**

| Product Family | Characteristics | Panel Cutout in Inches (mm) | Page Number |
|---|---|---|---|
| **E5-224-C** | ■ Non-replaceable battery (min. 8-yr. life)<br>■ Compact, low cost and high efficiency<br>■ 8-Digit LCD timer<br>■ Manual or electrical reset<br>■ Various timing modes (Hr/Min/Sec) | 0.870 x 1.772 (22 x 44) | 63 |
| **E5-_24-E** | ■ Compact device with bright, LED display<br>■ Multiple functions available: count, time, rate, multifunction, double-function<br>■ 24V DC Power | 0.870 x 1.772 (22 x 44) | 24 |
| **E5-248-C** | ■ Panel-mount, battery powered time relay<br>■ 8 timing modes, 9 time ranges<br>■ 3 programmable activation modes<br>■ 8A relay contacts (N.O. or N.C.) | 1.772 x 1.772 (45 x 45) | 68 |
| **E5-496-E** | ■ Economical, multifunction display<br>■ Large, LED characters<br>■ AC or DC power options | 1.772 x 3.622 (45 x 92) | 27 |
| **Hour Meters** | ■ Compact, low-cost LCD and electromechanical elapsed time meters<br>■ Various power options for almost any power supply | Various | 65 |
| **E42DP55** | ■ DIN Rail-mount, battery-powered time relay<br>■ 8 timing modes<br>■ 1 million operations or 10 years<br>■ 10A contact rating | N/A | 70 |

**Battery-Powered LCD Time Control, 48 x 48 mm — Eaton**

*Cat. No. E5-248-C1420*

## Features

- No external voltage supply, because of internal replaceable lithium battery
- High contrast, 2-line LCD display, 5-digit with many symbols for easy operation and reading
- 9 programmable time ranges from 0.20 seconds up to 99.999 hours
- Resolution up to 0.01 seconds
- Inputs for start and reset; universal inputs for 12 – 260V AC/DC
- 8 timing modes —
  - ON Delay, OFF Delay, One Shot and Single Shot
  - Repeat cycle modes: Delay, Cycle, Symmetrical delay
- 3 programmable activation modes
- Relay contacts rated at 8A programmable to NO or NC
- Protection IP65
- Plug-in connector

## Standards and Certifications

- CE Marked

## Technical Data and Specifications

- Voltage Supply: 2 x 3V, 1/2AA replaceable lithium battery, service life > 10 years or 500,000 relay charges
- Timing and Reset Inputs: 12 – 260V AC/DC, impedance 180 kΩ, min. impulse 20 mS (optocoupler)
- Display —
  - Time: 5-digit LCD display, 0.26 Inch (6.5 mm) high
  - Set Time Mode: 5-digit LCD display, 0.14 Inch (3.5 mm) high
- Accuracy: +50/-20 mS respectively 0.5% of setting time (higher value counts)
- 0.3% of setting time
- Operating Temperature: 14 to 122°F (-10 to 50°C)
- Storage Temperature: -4 to 158°F (-20 to 70°C)
- Relative Humidity: 80% max. up to 89°F (31°C); decreasing to max., 50% to 104°F (40°C)
- Protection: IP65 with delivered seal

- Output Relays —
  - Contact connection: SPTST voltage free contacts programmable as NO or NC
  - Contact rating:
    250V AC at 8A; cos ø = 1
    250V AC at 5A; cos ø = 0.4
    30V DC at 8A; cos ø = 1
- Reaction Time: < 20 mS
- Expected Life: 2A ohm's load 1,000,000 switching cycles
- EMC: CE-conform to EC-guideline 89/36/EWG
- Electromagnetic Radiation: EN 61000-6-4/EN 55011 Class B
- Electromagnetic Immunity: EN 61-000-6-2
- Weight: Approx. 2.8 oz (80 g)
- Time Ranges —
  - 1 – 99999 sec; 0.2 - 9999.9 sec; 0.02 – 999.99 sec
  - 1 – 99999 min; 0.1 - 9999.9 min; 0.01 – 999.99 min
  - 1 – 99999 hour; 0.1 – 9999.9 hour; 0.01 – 999.99 hour
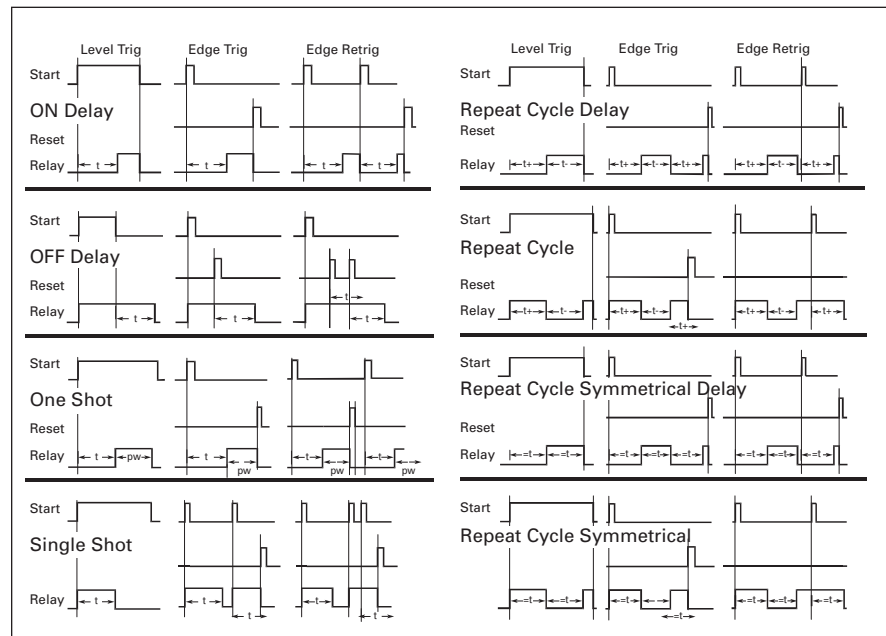
## Timing Modes



**Figure 61. Timing Modes**

## Product Selection

**Table 68. Product Selection — Battery-Powered Time Control**

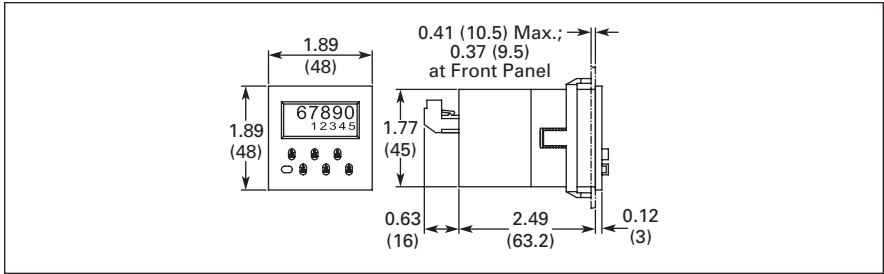| Description | Catalog Number | * |
|---|---|---|
| Battery-Powered LCD Time Control, 1.89 x 1.89 Inch (48 x 48 mm) | **E5-248-C1420** | |

## Dimensions



**Figure 62. Battery-Powered LCD Time Control, 48 x 48 mm — Approximate Dimensions in Inches (mm)**
**Note:** Panel Cut-Out is 177 + 0.02 Inch Sq. (45 +0.6 mm Sq.).

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