

Solid-State  
Electronic Coin-Operated Meter  
P/N KA-COIN-M-TH-1003

# Quartermaster



User Manual

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## Table of Contents

Product Description .....	3
Standard Features .....	4
Hardware Diagrams .....	5
Main Board .....	5
Features.....	6
Connectors.....	6
Connector Pinouts .....	7
Display Board .....	10
Features.....	11
Interfacing to the Quartermaster .....	12
Safety First .....	12
USB Devices .....	13
A/C Appliances .....	15
Figure 7: Wiring Diagram for A/C Appliance Hook-Up Software	
Configuration .....	18
Software Configuration.....	19
Configuration Basics.....	19
Modes .....	20
States .....	21
Technical Specifications.....	23
Disclaimers.....	24
Software License.....	25

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## Product Description

This unit allows you to turn virtually any computer or appliance into a pay-as you go service.

Plug your keyboard, mouse, or game system controller into the Quartermaster. Plug the Quartermaster into your PC or game system. It's as simple as that.

It can easily accept a variety of coins (both domestic and foreign) and tokens of your choosing. You can also decide the amount and rate of service each coin buys.

The Quartermaster is ideal for use in consumer (i.e. café) environments and commercial systems. This is an amazing way to use a PC or appliance as a money-making machine.

Convert these every-day household and consumer service items into money machines:

- Personal computers (set up your own Internet café!)
- Game systems -- must use USB wired controllers
  - XBOX
  - XBOX 360
  - PlayStation 3
- Appliances (washers, dryers, etc.)
- Wireless router access points
- Televisions
- . . . and much, much more!

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## ***Standard Features***

- Fully self-contained -- no additional software or PC support required
- Compatible with virtually any Windows/Linux/Mac computer
- Fully configurable with the push of a button:
  - How much time each coin buys (minutes, hours, days)
  - Pay rate
  - How much money to start a cycle
- Accepts both domestic and foreign coins, as well as tokens
- LED display
  - High-brightness, easily read in daytime lighting conditions
  - Assists the user with functionality
  - Shows the user:
    - Number of coins deposited
    - Time remaining until meter expiration
    - OPTIONAL display of current time
- Security feature: Display show to authorized personnel:
  - Number of coins deposited since last collection
  - Number of coins deposited over life of meter
  - Helps to eliminate employee error
- Microprocessor-based design
- Low-voltage operation

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## Hardware Diagrams *Main Board*

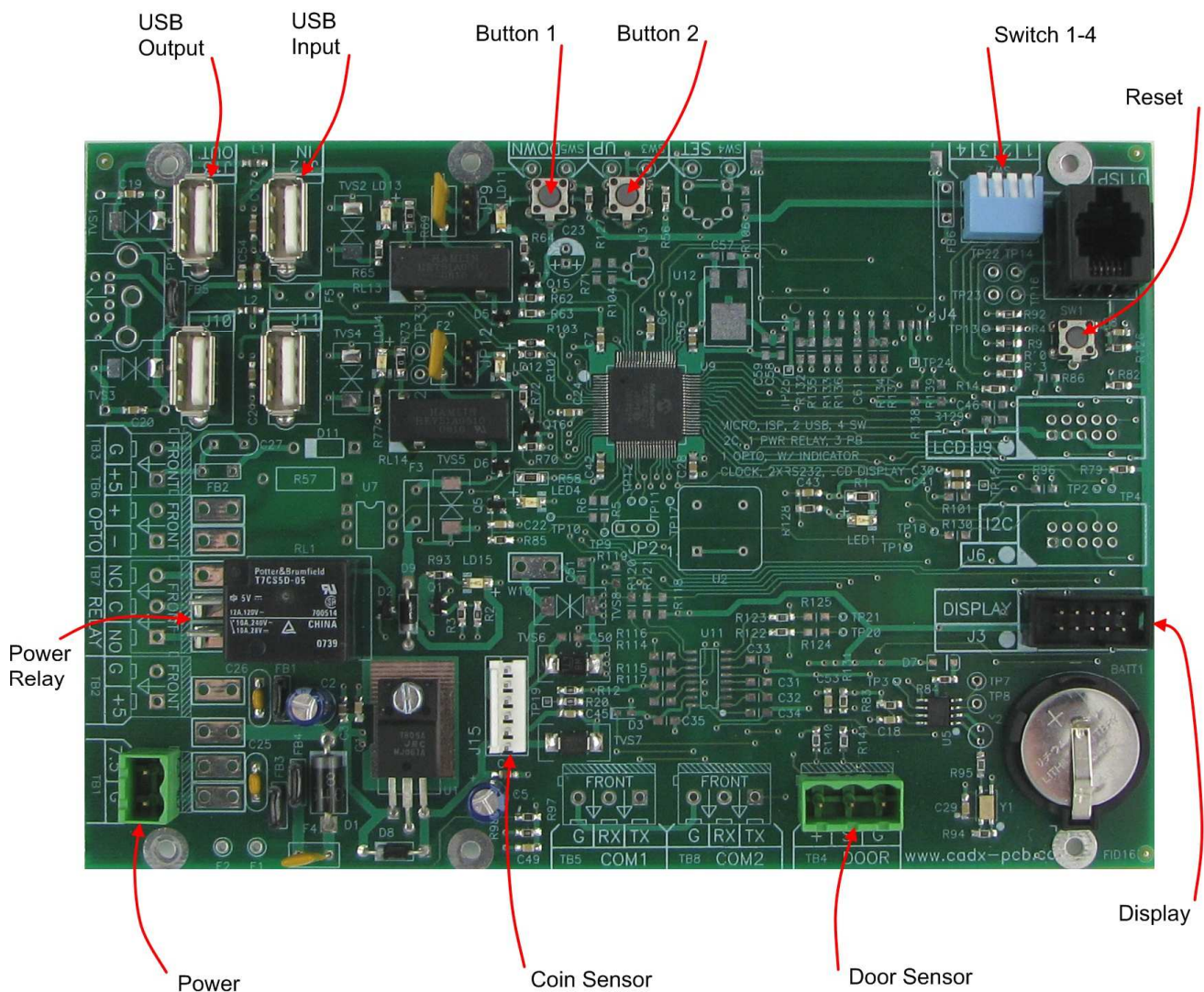


Figure 1

**This board is mounted to the top of the enclosure.**

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## Features

### Switches and Buttons

- Switch 1-4 (SW2) – 4-position DIP switch, allows you to select one of three settings to change as detailed in Software Configuration

**The standard mounting for the Main Board has Switch 1-4 on the edge of the board nearest you when you open the enclosure.**

- Button 2 (SW3) – Push-button used to increase the value of the setting currently being changed
- Button 1 (SW5) – Push-button used to decrease the value of the setting currently being changed

**The standard mounting for the Main Board has Button 2 and Button 1 on the edge of the board nearest you when you open the enclosure.**

- Reset (SW1) – Push-button used to reset the unit, equivalent to removing and restoring power.

## Connectors

- Power (TB1) – Plug-in connector used to bring power into the Main Board – Screw-down terminal block, takes 14-22AWG wire
- USB port 1 input (J12) – Located closest to the board edge

# Solid-State Electronic Coin-Operated Meter

## P/N KA-COIN-M-TH-1003

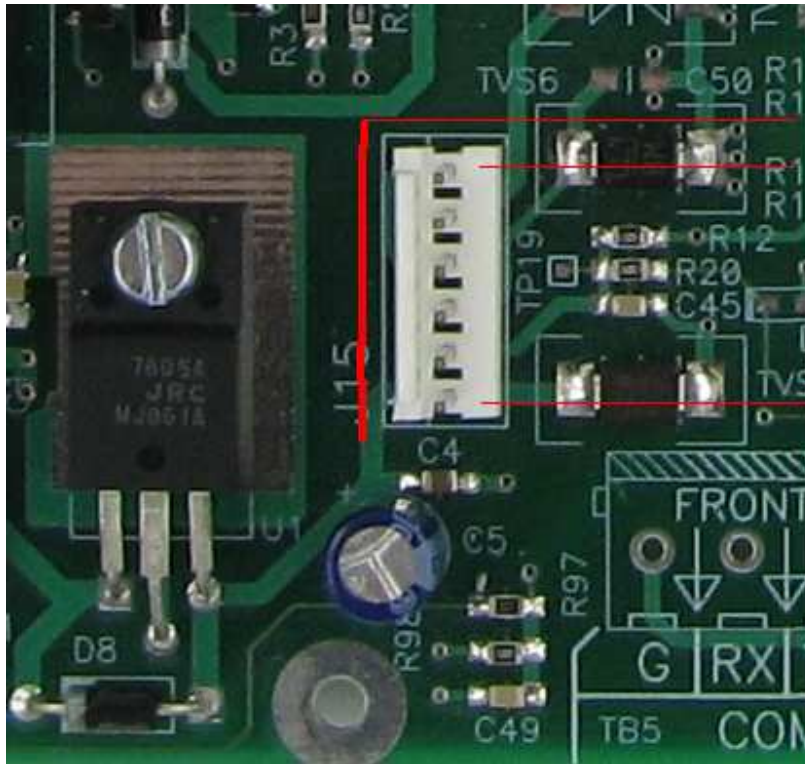
- USB port 2 input (J11) – Located beneath port 1 input
- USB port 1 output (J13) – Located closest to the board edge
- USB port 2 output (J10) – Located beneath port 1 output
- Coin Sensor (J15) – Connector used to interface the Main Board to the coin acceptor unit
  - P/N 640454-6
  - Mating P/N 3-640620-6
- Display (J3) – Mate to J2 on the Display Board, IDC 2x5-pin 0.1” male connector
- Power Relay (TB7) – Screw-down terminal block, takes 14-22AWG wire
- Door sensor (TB4) – Screw-down terminal block, takes 14-22AWG wire

## Connector Pinouts

Some of the connector pinouts are generally obvious, as the function of the pin is explicitly labeled in silkscreen next to the part. The remainder are described here.

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003



**Rear of Connector  
Pin 1**

**Pin 6**

1. GND
2. SW 12V
3. GND
4. 12V RAW
5. COIN
6. 5V

Figure 2 : J15



# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

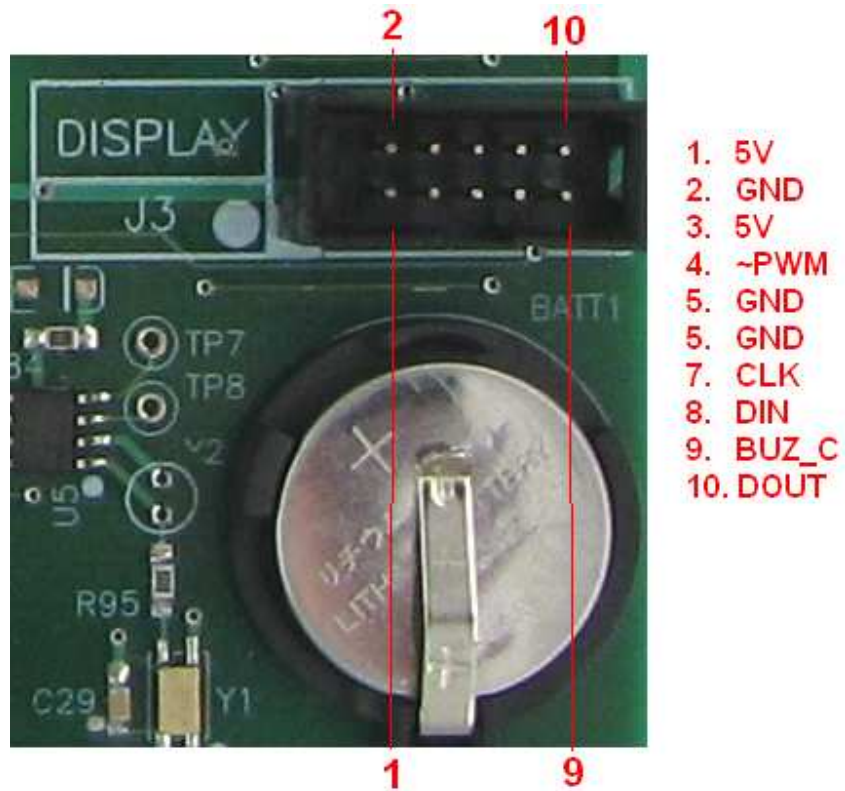


Figure 3 : J3

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## ***Display Board***

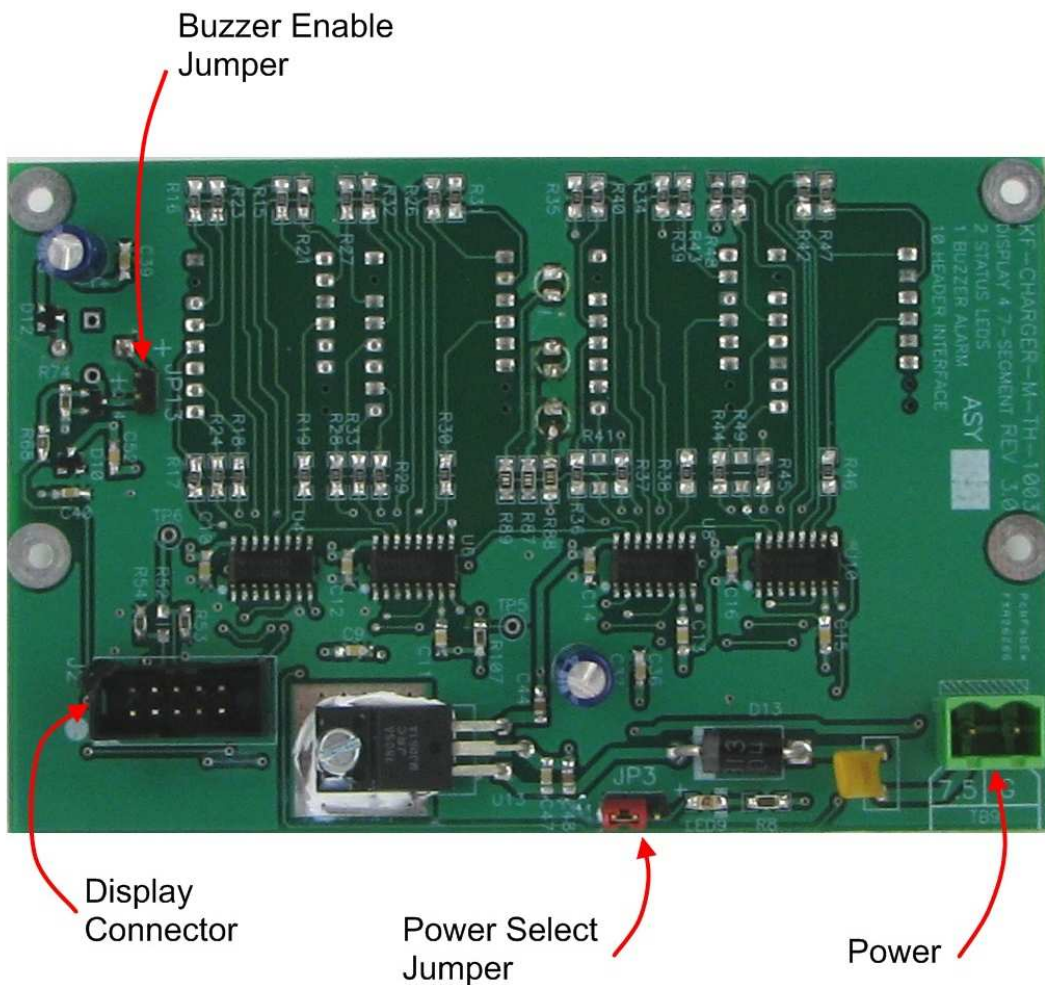


Figure 4

**This board is mounted inside the front-end of the enclosure.**

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## Features

- Power (TB9) – Plug-in connector used to bring power into the Main Board – Screw-down terminal block, takes 14-22AWG wire
- Display (J2) – Mate to J3 on the Main Board, IDC 2x5-pin 0.1” male connector
- Power Select Jumper (JP3) – Selects between external power from TB9 and power from Main Board via J2/J3
  - P/N TSW-103-07-T-S
  - Mating P/N AKSNT-G-BLK
- Buzzer Enable Jumper (JP13) – Shorting this jumper gives the Quartermaster the ability to sound an audio alarm buzzer when necessary
  - P/N TSW-102-15-G-S
  - Mating P/N AKSNT-G-BLK

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## Interfacing to the Quartermaster

### *Safety First*

We kept connecting the Quartermaster to your devices and appliances as simple and straightforward as possible. Even so, there are some basic safety steps which everyone should observe when working with the Quartermaster:

1. Make certain that the Quartermaster and ANY devices or appliances you wish to connect to the Quartermaster are **TURNT OFF COMPLETELY**. The simplest way to achieve this is to make sure nothing is plugged into a wall outlet or any kind of power supply.
2. Be sure that you understand and follow the instructions in the following sections to the letter. If you have any questions or doubts, ask us – we're here to help.
3. Secure the Quartermaster's main access door when any installation or removal process is complete, or when leaving the unit unattended. Unit security will be compromised otherwise.
4. Power for the Quartermaster must be plugged securely into the socket in the back. All other wires must be fed out through the wire hatch on the side of the unit.
5. Do **NOT** close the main access panel on wires, or else a short may occur, resulting in injury and damage to property.

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## ***USB Devices***

Devices like PCs and some game consoles have USB-compatible control devices (the keyboard, the mouse, game console controllers).

In addition to setting up the values of the three main settings (see Software Configuration), you will need to take the following steps to dispense service from devices which use USB:

1. Open the wire hatch on the side of the Quartermaster.
2. Feed up to 2 of the USB cables leading from the devices (like the keyboard) into the Quartermaster via the wire hatch on the side.
3. Open the main access door on the side of the Quartermaster.
4. Plug one cable into the USB port 1 input connector, J12. J12 is the input USB connector sitting nearest the edge of the Main Board.
5. If there is a second device, plug that one into the USB port 2 input connector, J11. J11 sits just beneath J12.
6. Locate the included USB male-male Type A cable for each device.
7. Plug one Type A cable into the USB port 1 output connector, J13. J13 is the output USB connector sitting nearest the edge of the Main Board.
8. If there is a second device, plug a second Type A cable into the USB port 2 input connector, J10. J10 sits just beneath J13.
9. Feed the Type A cable(s) out through the wire hatch on the side of the Quartermaster.

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

10. Connect the USB male-male type A cables into the PC or game console.
11. Make certain that you do not cross the input of USB port 1 with the output of USB port 2.

The controllers that come with the XBOX 360 and PlayStation 3 game consoles are wireless by default. You will need to purchase the following USB-style controllers in order to use the Quartermaster to turn these gaming consoles into moneymakers:

- XBOX 360: P/N **B000B6MLTQ**
- PlayStation 3: P/N **8984556805925**

Both of these controllers are available at Amazon and many other online retailers.

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## ***A/C Appliances***

The Quartermaster can be integrated with heavy-duty appliances like washers and dryers very easily. You will need one additional piece of hardware called a “solid-state relay:”



Figure 5

This device allows the much lower-power Quartermaster to turn a heavy-duty appliance on and off without being damaged by the appliance.

# Solid-State Electronic Coin-Operated Meter

## P/N KA-COIN-M-TH-1003

As you can see from Figure 7, there are only 4 connection points to worry about. Here is how you wire them appropriately:

1. Open the wire hatch on the side of the Quartermaster.
2. Open the main access door on the side of the Quartermaster.
3. Expose and secure one end of a length of red 14 AWG wire to TB7 “NO” (see Figure 6).
4. Expose and secure one end of a length of black 14 AWG wire to TB7 “NC” (see Figure 6).
5. Feed the red and black wires out of the Quartermaster through the wire hatch.
6. Expose and secure the other end of the red wire to the “+” terminal to the relay input (see Figure 5).
7. Expose and secure the other end of the black wire to the “-” terminal to the relay input (see Figure 5).
8. Expose and secure one end of the second length of red 14 AWG wire to the “+” terminal of the relay output (see Figure 5).
9. Expose and secure one end of the second length of black 14 AWG wire to the “-” terminal of the relay output (see Figure 5).
10. Expose and secure the other end of the second length of red 14 AWG wire to 14 (see Figure 7).
11. Expose and secure the other end of the second length of black 14 AWG wire to 14 (see Figure 7).
12. Secure the solid-state relay inside the washer.



# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

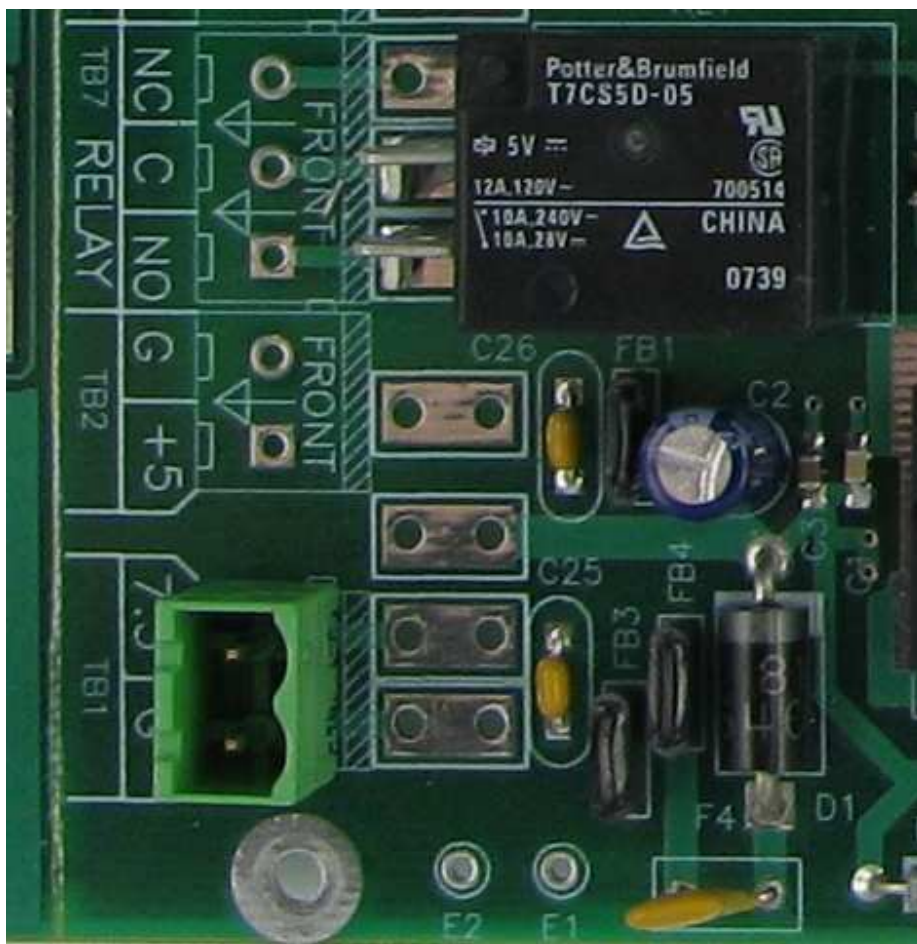


Figure 6: Wiring Locations for A/C Appliance Hook-Up on Main Board

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003



**Figure 7: Wiring Diagram for A/C Appliance Hook-Up**

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## Software Configuration

### *Configuration Basics*

There are three settings which the user can configure:

- Minimum Tokens – The number of Tokens that must be entered before the Quartermaster allows service to begin
- Token Value – The amount of time, in minutes and seconds, purchased by each Token
- Time – The current time

The system thinks in terms of “Tokens.” A Token is whatever coin the coin acceptor is configured to take as payment. The default Token is the United States quarter (\$0.25USD). To use a different Token, replace the quarter in the side of the coin acceptor with it.

The above three settings are adjusted by:

- Flipping the appropriate switch on the SW2 switch array to “**OFF**”
- Adjust the value UP or DOWN using Buttons 1 and 2
- Flipping the switch on SW2 to “**ON**”

The locations of Switches 1-4, Button 1, and Button 2 are three of the features illustrated in Figure 1.

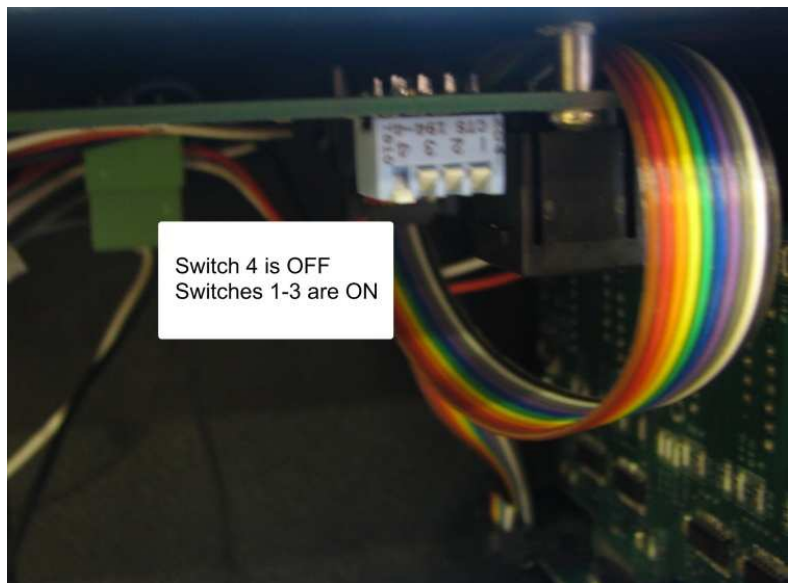
# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## ***Modes***

**Set Time** - Entered when Switch 4 is **OFF**. Enables LED1 and LED2 and displays current time in 12 hour format. Button 1 increases current hour by one. Button 2 increases current minute by one. Writes value to memory immediately. Exits when Switch 4 is set to **ON**.

**Set Minimum Tokens** - Entered when Switch 2 is **OFF**. Enables LED2 and displays minimum number of tokens required to enter Countdown mode. Button 1 decreases value by one. Button 2 increases value by one. Minimum value of one. Maximum value of 99. Writes value to memory on exit. Exits when Switch 2 is set to **ON**.



**Set Token Value** - Entered when Switch 3 is **OFF**.

Enables LED1 and displays amount of time each token provides in minutes and seconds. Button 1 decreases value by one. Button 2 increases value by one. Value change speed increases if button held for count of 10. Minimum value of one second. Maximum value of one hour. Writes value to memory on exit. Exits when Switch 3 is set to **ON**.

**Note:** If minimum tokens to start multiplied by token value exceeds 32768 seconds, both values will be reset to their default state and buzzer will sound three times.

# Solid-State

## Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

### ***States***

**Idle** - Default state. Displays current time of day (12 hour clock) when Switch 1 is **ON**, displays spinning lights when Switch 1 is **OFF**.

**Countdown** - Entered when minimum tokens to start is reached. Length of countdown is determined by token value multiplied by number of tokens inserted. Displays time remaining: minutes and seconds if less than one hour; hours and minutes if one hour or more. Maximum time of 32768 seconds (just over nine hours). Each additional token inserted increases time remaining by token value. If additional tokens cause time remaining to exceed 32768 seconds, time remaining is set to nine hours and LED1 is enabled. Relay is enabled when timer starts, disabled when timer expires. Buzzes when timer expires. Clears LED1 when timer expires. Exits after timer expires.

**Insufficient Tokens** - Entered when tokens are inserted but minimum tokens to start has not been reached. Displays cumulative value of tokens currently inserted: minutes and seconds if less than one hour; hours and minutes if one hour or more. Exits when minimum tokens to start has been reached.

**Display Token Totals** - Entered when money door is opened. Enables LED1 when in day mode, enables LED2 when in life mode. Displays number of tokens inserted since last reset in day mode. Displays number of tokens inserted over entire lifetime in life mode. Button 1 switches between day and life mode (defaults to day mode). Day mode counter is reset when money door is closed. Writes tokens since last reset to memory upon reset (effectively zero). Exits when money door is closed.

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

**Note:** There is no way to view token totals of either mode without opening the money door and thus triggering a counter reset when the door is closed.

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## Technical Specifications

Operating humidity	10-80% RH non-condensing
Ambient Temperature	0 to 50 C (with no icing)
Unit Weight	About 120 grams (4.3oz)
Form Factor	13"H x 6"W x 9"L
Voltage	12VDC @ 1A max
Short-Circuit Protection	1.5A with resettable PTC fuse
Power Indicator	Red LED

# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## **Disclaimers**

THIS PRODUCT IS PROVIDED "AS-IS," "AS AVAILABLE," AND ALL WARRANTIES, EXPRESS OR IMPLIED, ARE DISCLAIMED (INCLUDING BUT NOT LIMITED TO THE DISCLAIMER OF ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE). THE SOLE AND ENTIRE MAXIMUM LIABILITY OF CADX SERVICES, INC., FOR ANY REASON, AND BUYER'S SOLE AND EXCLUSIVE REMEDY FOR ANY CAUSE WHATSOEVER, SHALL BE LIMITED TO THE AMOUNT PAID BY THE CUSTOMER FOR THE PARTICULAR ITEMS PURCHASED. CADX SERVICES, INC. AND ANY OF ITS AFFILIATES, DEALERS OR SUPPLIERS ARE NOT LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF BUSINESS, LOSS OF PROFITS, LITIGATION, OR THE LIKE), WHETHER BASED ON BREACH OF CONTRACT, BREACH OF WARRANTY, TORT (INCLUDING NEGLIGENCE), PRODUCT LIABILITY OR OTHERWISE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE LIMITATIONS OF DAMAGES SET FORTH ABOVE ARE FUNDAMENTAL ELEMENTS OF THE BASIS OF THE BARGAIN BETWEEN CADX SERVICES, INC. AND BUYER. THIS PRODUCT WOULD NOT BE PROVIDED WITHOUT SUCH LIMITATIONS. SOME STATE STATUTES MAY APPLY REGARDING LIMITATION OF LIABILITY.



# Solid-State Electronic Coin-Operated Meter

P/N KA-COIN-M-TH-1003

## **Software License**

By making use of the software included in this kit (“Software”), you are agreeing to be bound by the following:

### **Use**

You can use the Software for anything you like.

### **Distribution**

If you want to distribute the Software, you must include in the distribution everything that you got when you received the Software (including this license agreement) and give first credit to CADX Services, Inc.

### **Derivative Works**

If you modify the Software or use all or a portion of the Software in your own work, you must give credit to CADX Services, Inc. for the original work.

### **Liability**

If anything goes wrong as a result of the use or modification of the Software, or the use or modification of derivative works created from the Software, it is solely your responsibility.

We’ve worked hard to include the highest quality software with this product; nevertheless, the Software, this product and this documentation are provided “as-is.”