# Series 423

## 1/16 DIN Bar Graph Display Timer


## *FEATURES*

- Digital Setting with 0.1% Accuracy
- Unique LED Bargraph Indicates Time Cycle in 20% Increments
- Instantaneous and Delayed Relay (SPDT) Version
- Delayed Relay Version (DPDT)
- Output Contacts Rated 10A at 120/240 VAC and 30 VDC
- Timing Ranges: 0 to 9.99, 99.9 and 999 sec., min., and hours
- Universal Power Supply: 24-240 VAC and 24 VDC
- 48mm² DIN Standard Housing
- Round (Octal) Socket Mount or Mount in Panel Cutout
- Range Switches are Tamper Proof When Panel Mounted
- EEPROM Memory Available as an Option for Applications Requiring Memory
- Optional Pulsed Output Version Available

## *PRODUCT HIGHLIGHTS*

### UNIVERSAL POWER SUPPLY

The 423 can be powered using 24-240 VAC or 24 VDC power, greatly simplifying ordering and inventory management of replacement units.

### 48mm² DIN HOUSING

The 48mm² (1/16 DIN) housing is compact. The 423 is mounted in an 8-pin round (octal) socket. With an optional mounting clip, the 423 can be panel mounted.

Positive indication of the setpoint is shown on the front of the 423. Each digit can be changed by rotating the setting knobs. The decimal point and sec./min./hr/ range are also clearly displayed.

The decimal point and sec./min./hr. select switches are located on the side of the unit, so that when panel mounted, these switches are not accessible to the operator. This tamper proof feature prevents unauthorized or hazardous changes to the timing range from being made.

### CYCLE PROCESS INDICATION

The 423 LED bargraph indicator provides a unique and effective method of cycle progress indication. Off before timing, the first of five LED's blinks for the first 20% of the timing cycle. After the first 20%, this LED stays on and the next LED blinks. This operation continues for all 5 LED's until the timing cycle is complete. When timed out, all 5 LED's remain on providing positive indication to the operator.

### MEMORY AND PULSED OUTPUT OPTIONS

As options, the 423 can be ordered with EEPROM memory or a pulsed output. The EEPROM memory option allows the 423 to retain its position in the timing cycle when power is removed.

The Pulsed Output option provides a 250ms pulse using the 423's delayed relay(s). This provides a short, momentary signal at the end of a timing cycle.

### DIGITAL SETTING

The 423 is set digitally by rotating each setting knob. This digital setting allows exact, accurate and repeatable timing cycles.

### HIGH ACCURACY

The 423 utilizes a crystal controlled oscillator which provides 0.1% timing accuracy across all rated voltages and temperatures.

### INSTANTANEOUS AND DELAYED RELAY VERSIONS

A version of the 423 is available with one set of SPDT instantaneous contacts and one set of SPDT delayed contacts. The instantaneous contacts transfer as soon as the timer is powered. The delayed contacts transfer at time out. This contact arrangement can be used to replace many conventional timers.

### TWO DELAYED RELAY VERSION

A version of the 423 is available with a set of DPDT output contacts. Both delayed contacts transfer at time out.

### APPROVALS

See Agency Listing on page 391.

## OPERATION

Timing begins when power is applied to terminals 2 & 7.

The 423's microcontroller accumulates counts from a crystal oscillator until the target number of counts, as determined by the setting knobs, the decimal point switch and the sec/min/hours switch on the front of the unit is reached. During timing 5 LED's illuminate indicating the current position in the timing cycle. For the first 20% of the timing cycle, the first LED blinks. For the second 20% of the timing cycle, the second LED blinks while the first stays on. The bargraph continues to fill with illuminated LED's until 100% of the timing cycle is complete. The entire LED bargraph remains illuminated after time out.

The timing cycle resets to 0 if power is removed. For 423 models with the memory option, the current position in the timing cycle is stored before power is lost. Upon restoration of power, the timing cycle continues from where it was left off.

Note: The only way to reset a 423 model with memory is to allow it to time out first and then remove power.

### MODEL...F10XX or...F10MX

The instantaneous contacts (3-1-4) transfer immediately after power is applied to terminals 2 & 7. The delayed contacts (6-8-5) transfer after the timing cycle is complete. Both contacts remain transferred until the unit is reset by removing power.

### MODEL...F20XX or...F20MX

At time out, the DPDT relay transfers its contacts. These contacts remain transferred until power is removed. The 432A then resets and is ready for another cycle.

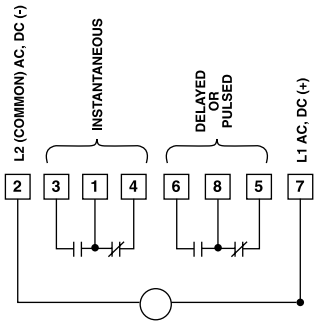
### MODEL...F15XX or...F15MX

The instantaneous contacts (3-1-4) transfer immediately after power is applied to terminals 2 & 7. The pulsed contacts (6-8-5) transfer for 250 ms upon completion of the timing cycle. The instantaneous contacts remain transferred until the unit is reset by removing power.

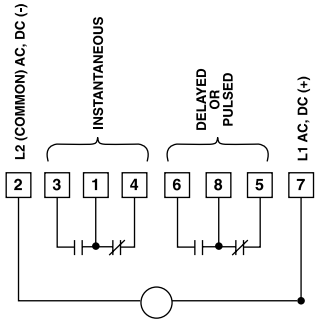
### MODEL...F25XX or...F25MX

At time out, the pulsed DPST relay transfers its contents for 250ms. The unit remains timed out until power is removed. The 423A is then reset and is ready for another cycle.

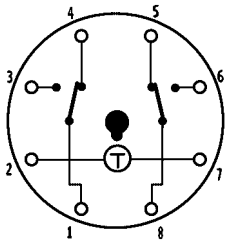
## WIRING




**Model 423A...F10...X**
**423A...F15...X**

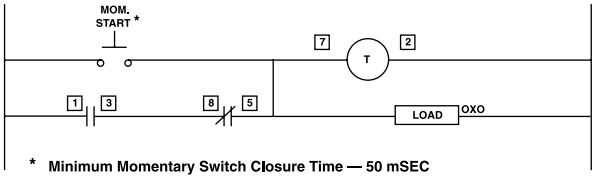



**Model 423A...F20...X**
**423A...F25...X**

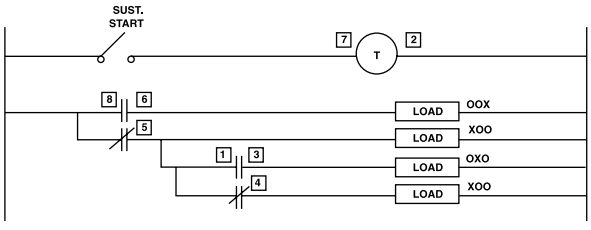


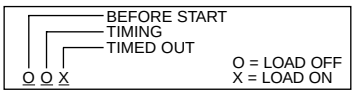

**Bottom View of Timer**

## TYPICAL CIRCUITS 423A...F10...X



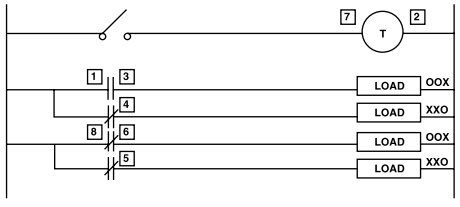

* Minimum Momentary Switch Closure Time — 50 mSEC



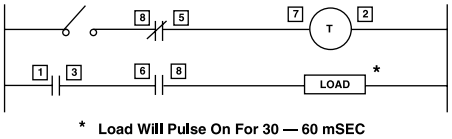

**Note: For Pulsed Relay models, Timed Out State is active for only 250 ms.**

## TYPICAL CIRCUITS 423A...F20...X

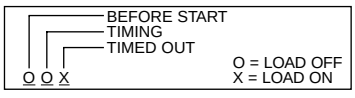



* For Interval Operation With A Momentary Start Switch, Jumper 7 & 3

For Repeat Cycle Pulse Operation




* Load Will Pulse On For 30 — 60 mSEC




**Note: For Pulsed Relay models, Timed Out State is active for only 250 ms.**

## SPECIFICATIONS

**MODELS**

**Four Types-**

On Delay with Instantaneous and Delayed Relays

On Delay with Instantaneous and Pulsed Relays

On Delay with Two Delayed Relays

On Delay with Two Pulsed Relays

All types available with EEPROM Memory as an option

**CONTACT RATING**

Rated 10 AMPS resistive at 30 VDC or 250 VAC (or less)
1/8 HP @ 120 VAC
1/4 HP @ 240 VAC
240 VA @ 240 VAC

LIFE: 10 million operations with no load
100,000 operations with:
10 AMPS at 30 VDC (or less) or
10 AMPS at 250 VAC (or less)
@ 50°C

CONTACT MATERIAL:
Cadmium Silver Oxide

**TEMPERATURE RATING**

-18°C to 60°C (0 to 140°F)

**NOISE IMMUNITY**

Showering ARC per NEMA ICS 2-230. In addition, the 423A will withstand a voltage surge of 4500 volts for 50 usec. without damage.

**MOUNTING**

Plug-in octal base; mounts in any position with retaining clips.

Options: Surface mounting
DIN mounting socket
Panel-mounting adapter kit
Plug-on socket kit

**POWER REQUIREMENTS**

Universal power supply - reverse polarity protected

Unit will accept power from
24 to 240 VAC, 50 or 60 Hz, (+10%, -20%)
24 VDC (+20%, -20%)
**AC:** Inrush - 1.5 Amps
Power required - 1.2 watts
**DC:** Maximum ripple @ 100 Hz - 10%
Current required - 50 mA
Power required - 1.2 watts
"F" option - Peak inrush current= 2 AMPS @ 24 VDC
"N" option - Peak inrush current= 150 mA @ 24 VDC

**REPEAT ACCURACY**

±0.1% over all rated voltages (crystal controlled)

**RESET**

a. 0 to 20 msec power interruption: guaranteed no reset.
b. 20 to 65 msec; it may reset (40 msec typical reset)
c. Over 65 msec guaranteed to reset.

The TDR will reset properly and not start timing when subjected to an open start switch leakage of 1.5 mA or less. (Prox. switch and Triac drive applications)

**MEMORY (optional)**

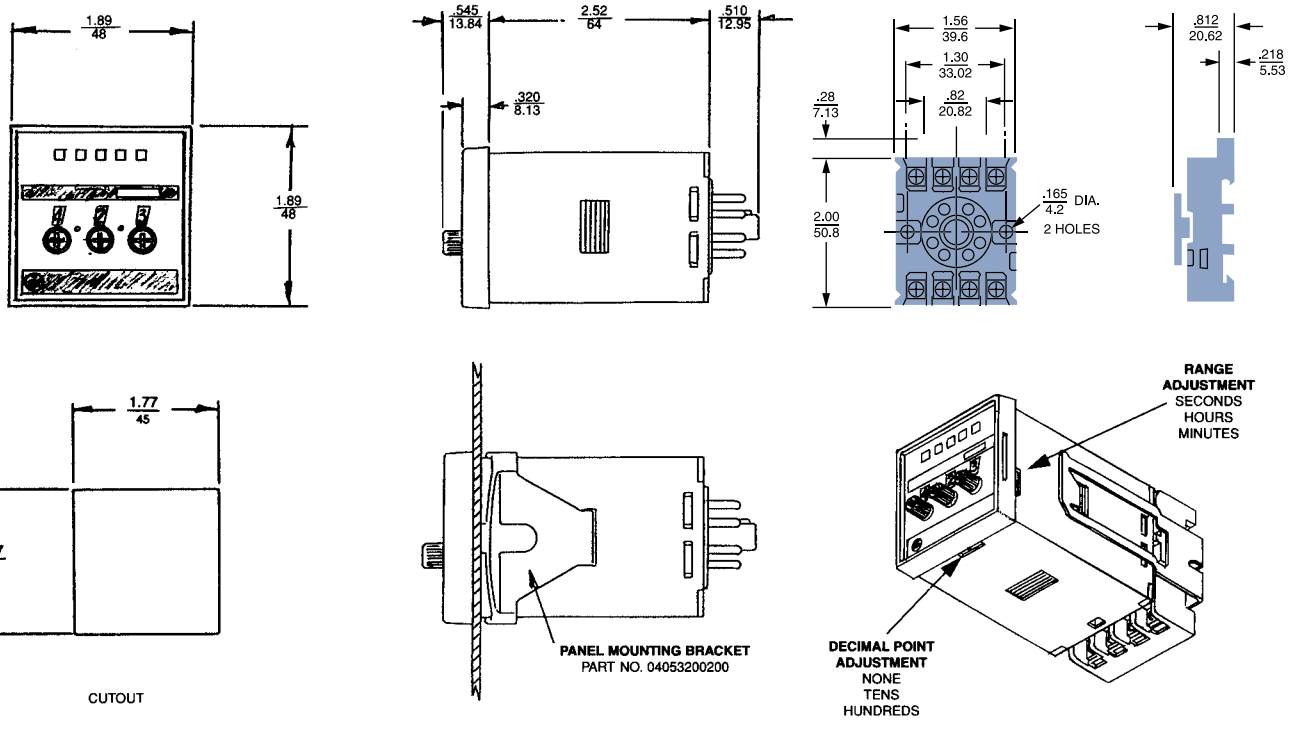
EEPROM 100,000 read/write cycles

**WEIGHT**

5 oz., (140 g)

## DIMENSIONS

**INCHES**
**MILLIMETERS**




Before starting your design, read the safety statement on the inside back cover of the ATC catalog.

## ORDERING CODE

423A 300 F 10 X X

**BASIC TYPE**

**RANGE**
**300** 0 to 9.99 or 99.9 or 999 sec., min., hr.

**VOLTAGE & FREQUENCY**
**F** 24 to 240 VAC (50/60 Hz) or 24 VDC
**N** 24 VDC (low inrush current for short circuit protected sensors)

**OUTPUT ARRANGEMENT**
**10** Instantaneous Relay (SPDT), Delayed Relay (SPDT)
**20** Delayed Relay (DPDT)

**MEMORY**
**X** Standard-No Memory
**M** With Memory (EEPROM)

**FEATURES**
**X** Standard
**K** Special

### ACCESSORIES

**0000-825-85-00:** 8-Pin surface/DIN rail socket
**0405-025-07-00:** Hold down for above socket
**0405-320-02-00:** Panel mounting bracket
**0319-261-45-00:** Plug-in socket kit (8-pin)
**0000-825-87-00:** 8-Pin panel socket w/rear facing terminals

For prices and further information, consult factory.