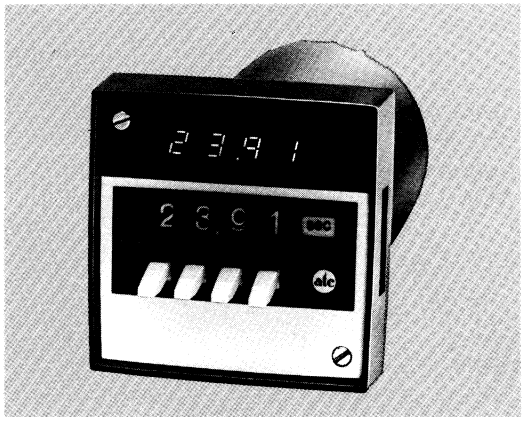
**BUILT AROUND ATC'S OWN LSI/MOS CHIP, THE SHAWNEE 335 USES A UNIQUE DIGITAL LOGIC CIRCUIT TO ACHIEVE A REPEAT ACCURACY OF ± 10 MILLISECONDS AT ALL SETTINGS AND RANGES, REGARDLESS OF CHANGES IN TEMPERATURE, VOLTAGE AND RESET TIME. A RUGGED TIMER BUILT TO WITHSTAND DIFFICULT INDUSTRIAL ENVIRONMENTS, IT HAS EXCELLENT NOISE IMMUNITY AND IS MUCH MORE RELIABLE THAN TRADITIONAL ELECTRONIC TIMERS... YET COSTS LESS THAN THEY DO.**

SERIES
# atc 335 SHAWNEE
## IC DIGITAL GP RESET TIMER



## PRODUCT HIGHLIGHTS

### OUTSTANDING REPEAT ACCURACY

Unsurpassed among industrial timers regardless of cost, the Shawnee has a repeat accuracy of ± 10 milliseconds on any setting within its overall range of 999.9 *min,* even in the face of wide swings in temperature or voltage and regardless of the amount of reset time between cycles.

### EASY TO SET AT ALL TIMES

The Shawnee timer is easily and accurately set even with work gloves on. Push any of its four toggle levers in any sequence until the number you want appears above it. You can decrease as well as increase each number by pushing the levers *up* or *down.* You can change the setting at any time, even during a cycle.

### APPROVALS

335B: U.L. Recognized
335D: U.L. Recognized, CSA

### CYCLE PROGRESS INDICATION

The Shawnee 335D indicating timer provides cycle progress indication on a four-digit display of high-intensity yellow LED's located immediately above the digital setting number wheels. While the 335B does not provide true cycle progress indication, its pilot light can be wired so that it is **on** during the timing cycle.

### PLUG-IN AND DUST-TIGHT

All 335 timers feature true plug-in design and can be replaced in seconds without disturbing the housing or disconnecting the wiring. The dial assembly is gasketed so that the timer body is dust-tight from the front of panel; an optional transparent rubber boot makes the face of the timer fully dust and water-tight.

### SOLID-STATE RELIABILITY

Because it has no moving parts in its logic circuitry, the solid-state 335 has a practically unlimited life expectancy. Even its plug-in load relays are rated for 100,000,000 mechanical operations, and are easily replaced if they ever wear out.

### NOISE IMMUNITY

The 335 does not have to be shielded: its transformer power supply, full-wave bridges, buffered logic and other design characteristics render it immune to the electrical noise that is encountered in typical industrial environments.

### WIDE RANGE

Each Shawnee 335B timer covers the overall span of 0.01 *sec* to 99.99 *min* in two field-convertible ranges. The 335D indicating timer also offers two additional field-convertible ranges of 0.1-999.9 *sec* or *min.*

## OPERATION

The Shawnee 335 operates on a digital logic circuit with three main elements: a *clock* which uses utility line frequency of 50 or 60 Hz as its time base; a *read-only-memory* (ROM) whose output is set by the timer's digital setting number wheels; and a *comparator* that continuously examines the outputs of the clock and ROM.

When power is applied (start signal **on**), two things happen simultaneously: the instantaneous DPDT relay is energized transferring both sets of contacts, and the clock circuit begins to count each cycle of the utility line frequency. Translating this count into hundredths of a second, the clock accumulates it and feeds it continuously to the comparator. When clock output exactly equals the output of the ROM, the comparator causes the 335 to time out.

At this point, (1) the DPDT delay relay is energized, immediately transferring both sets of contacts and (2) the clock turns itself off automatically. Since the clock stops counting even if the *start* signal remains **on**, it is not necessary to tie up one of the 335's delayed contacts to do this job.

To reset the Shawnee 335, power must be removed from terminal 1 (L1) for 75 milliseconds or more. The 335 operates in the **on delay** mode only, always resetting whenever there is a power outage and starting a new cycle when power is restored.

CYCLE PROGRESS INDICATION (335D ONLY.)

When the timer is in the reset condition, the LED display is blank. During the timing cycle, the display counts up from zero, thus always indicating the amount of time that has elapsed since the start of cycle. At time-out, the display shows total elapsed time and exactly equals the numbers on the digital setting wheels. (Model 335B does NOT have cycle progress indication.)

### SWITCHING SEQUENCE*

| RELAY | CONTACTS | Before Start | During Cycle | End of Cycle |
|---|---|---|---|---|
| INSTANTANEOUS | 14-9/6-8 | | | |
| | 14-10/6-7 | | | |
| DELAYED ($D_2$) | 11-12/4-5 | | | |
| | 11-13/4-3 | | | |

*Assumes a sustained **closed** start signal (i.e. longer than the setting on the digital display).

RED — Circuit Closed

GRAY — Circuit Open

## TYPICAL INSTALLATIONS

### KEY SYMBOLS

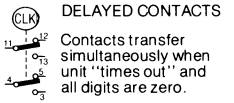
- PS POWER SUPPLY
- CLK CLOCK
- INDEPENDENT LOADS
- DEPENDENT LOADS
- MOMENTARY STARTING CONTACT
- SUSTAINED STARTING CONTACT
- X LOAD ENERGIZED
- O LOAD DEENERGIZED

All timers shown in "before start" position. Diagrams shown with power off unless otherwise marked.

Maximum load current through any load carrying contact is 5 amperes.

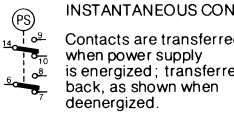
Pilot light leads are brought out to terminal block. Pilot light can be wired to show practically any desired function: timer energized, cycle running, instantaneous or delayed switch closed, etc.

ON DELAY: Reset on power failure.



DELAYED CONTACTS

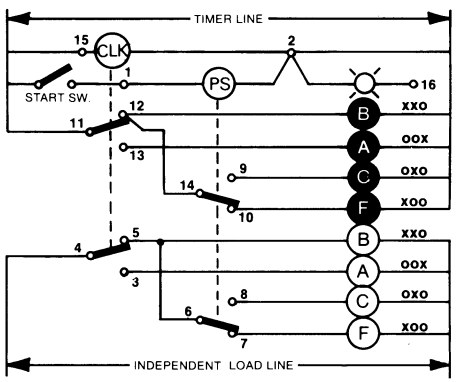
Contacts transfer simultaneously when unit "times out" and all digits are zero.



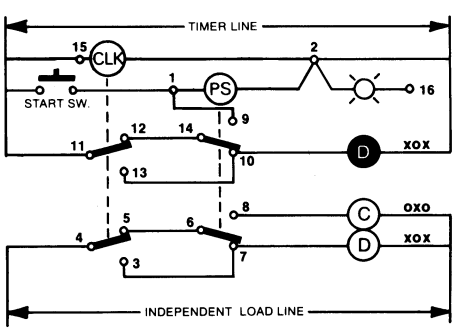
INSTANTANEOUS CONTACTS

Contacts are transferred when power supply is energized; transferred back, as shown when deenergized.

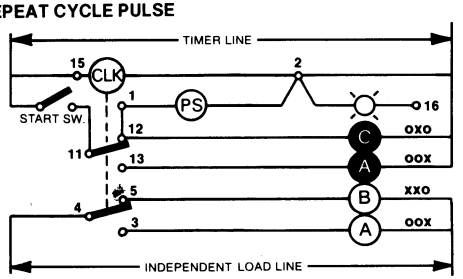
**SUSTAINED START**




**MOMENTARY START**

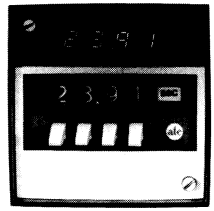



**REPEAT CYCLE PULSE**




Load A pulses **on** for approximately 50 mS.

# IC DIGITAL GP RESET TIMER



## 335B (without display)

**ORDERING CODE** 335B 351 A 10 P X

**BASIC TYPE**

**RANGE** **

| | |
|---|---|
| **351** | 99.99 Sec. |
| **352** | 99.99 Min. |
| **000** | Special |

**VOLTAGE AND FREQUENCY****

| | |
|---|---|
| **A** | 120/60 |
| **B** | 240/60 |
| **C** | 120/50 |
| **D** | 240/50 |
| **K** | Special |

**ARRANGEMENT**

| | |
|---|---|
| **10** | On-delay (resets on power interruption) |
| **00** | Special |

**FEATURES**

| | |
|---|---|
| **P** | Basic plug-in unit, with receptacle |
| **S** | Surface mounted plug-in unit with front-facing terminals |
| **X** | Standard unit |
| **K** | Special |

## 335D (with display)

**ORDERING CODE** 335D 346 A 30 P X

**BASIC TYPE**

With display

**RANGE****

| | |
|---|---|
| **346** | 999.9 Sec. |
| **347** | 999.9 Min. |
| **351** | 99.99 Sec. |
| **352** | 99.99 Min. |
| **000** | Special |

**VOLTAGE AND FREQUENCY****

| | |
|---|---|
| **A** | 120/60 |
| **B** | 240/60 |
| **C** | 120/50 |
| **D** | 240/50 |
| **K** | Special |

**ARRANGEMENT**

| | |
|---|---|
| **30** | On-delay (resets on power interruption) |
| **00** | Special |

**FEATURES**

| | |
|---|---|
| **P** | Basic plug-in unit, with receptacle |
| **S** | Surface mounted plug-in unit with front-facing terminals |
| **X** | Standard unit |
| **K** | Special |

**ACCESSORIES**

| | |
|---|---|
| **03252602600** | Surface mounting brackets (without terminals) one pair required per timer |
| **03252606200** | Surface mounting bracket and housing with front-facing terminals, less timer |
| **03252605500** | Boot kit |

**AUTOMATIC TIMING & CONTROLS COMPANY, INC.**