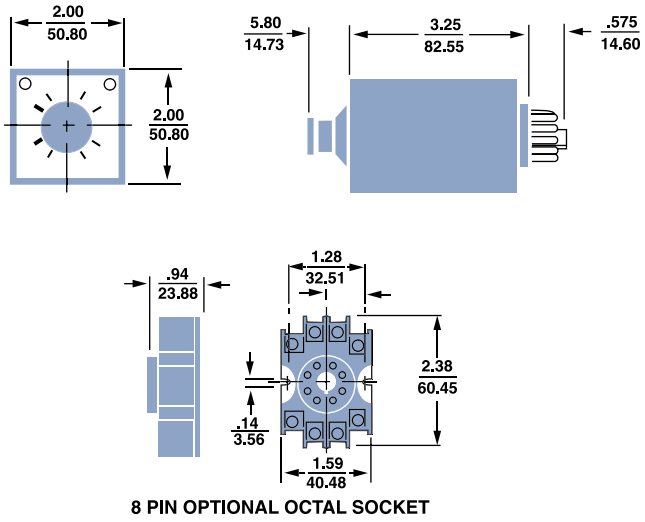
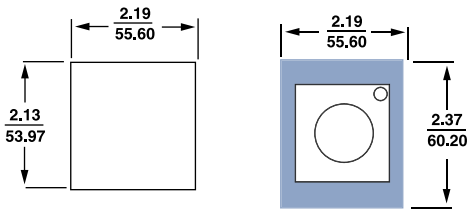
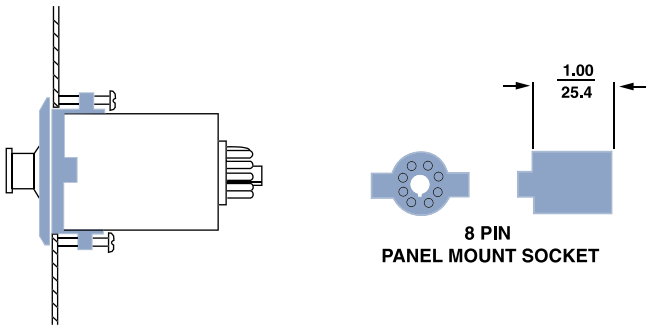
DIMENSIONS
INCHES
MILLIMETERS



8 PIN OPTIONAL OCTAL SOCKET



PANEL MOUNT BEZEL



8 PIN
PANEL MOUNT SOCKET

Series 319

Plug-In Adjustable AC/DC TDR

An economical solid-state TDR with octal plug-in base, the ATC 319 maintains excellent repeat accuracy despite wide voltage and temperature variations, even after long periods of down-time. One model has five dial-selected adjustable ranges and provides any timing period between 0.02 SEC and 30 MIN; Lower-cost models incorporate three dial-selected ranges or a single adjustable range.

PRODUCT HIGHLIGHTS

WIDE CHOICE OF RANGES

In addition to the short ranges expected of an electronic TDR, the 319 is also available with ranges as long as 100 minutes, for AC or DC operation. An unusually versatile model, the 319D five ranger has five dial-selected ranges—from 0.3 sec to 30 min—and provides any dial-adjustable timing period between 0.02 seconds and 30 minutes; a lower priced option (model 319D three ranger) has three dial-selected ranges in two models (1, 10 and 100 sec and 1, 10, and 100 min). A single 319D model thus accommodates the needs of a wide range of applications, allowing the user to select—easily and precisely—an appropriate range to permit optimum setting accuracy. The dial face automatically displays the selected range. The 319B offers a choice of five dial-adjustable fixed ranges between 1 sec. and 30 sec.

CYCLE PROGRESS INDICATION

MODEL 319D

All options incorporate a light-emitting diode (LED) which is **on** during the time cycle, **off** at the end of timing. The 5-range option also includes a second LED which separately indicates the status of the output relay: **on** when energized, **off** when de-energized.

Model 319B

A pilot light clearly indicates the control action: it is **on** during the time cycle, **off** at the end of timing.

HIGH ACCURACY

The 319's timing circuit is not subject to the large *plus* error that plagues many electronic TDRs after long periods of down-time: it maintains rated accuracy regardless of reset time variations, provided that there is at least 0.1 sec between cycles for Model 319D; or at least 10 sec between cycles for Model 319B. All models hold unusually high repeat accuracy in the face of wide voltage and temperature swings.

APPROVALS

See Agency Listing on page 391.

SPECIFICATIONS

For All Models

MODELS Choice of two:
(319D--AC or DC; 3 or 5 dial-selected adj. ranges)
(319B--AC; single adj. range)
All models operate in **on-delay** mode only

LOAD RELAY
TYPE: DPDT (2 Form C)
LIFE: AC: 50,000,000 operations (no load)
DC: 100,000,000 operations (no load)
CONTACT RATING:
AC: 7A resistive at 120 or 240V
DC: 3A at 30V

TEMPERATURE RATING
0° to 70°C (32° to 158°F)

WEIGHT
NET: 6 oz.
SHIPPING: 10 oz.

MOUNTING
Plug-in octal base; mounts in any position.
OPTIONAL:surface-mounting socket; panel-mounting bezel kit and plug-on socket kit for Model 319D.

HOUSING
Dust, moisture and impact-resistant molded plastic case.

SETTING ACCURACY
10% at full scale

For Model 319D
RANGES AND MINIMUM SETTING

Model 319D-016:
five dial-selected ranges:
0.02 sec — 0.3 sec
0.07 sec — 3.0 sec
0.6 sec — 30.0 sec
3.5 sec — 3.0 min
35.0 sec — 30.0 min

Model 319D-134:
three dial-selected ranges:
0.04 — 1.0 sec
0.2 — 10.0 sec
2.0 — 100.0 sec

Model 319D-360:
three dial-selected ranges:
2.5 sec. — 1 min.
23.0 sec. — 10 min.
3.0 min. — 100 min.

REPEAT ACCURACY
Varies as a function of line voltage and temperature but not of reset time (see Recycle Characteristics):
± 1% of range or 2.0 ms (whichever is greater), when temperature is constant and line voltage is constant or varies within limits*
± 4% of range or 2.0 ms (whichever is greater), when line voltage is constant and temperature varies within limits*
± 6% of range or 2.0 ms (whichever is greater), when line voltage and temperature vary within limits*
*Variations of line voltage must be within 95 and 132V; of temperature between 0° and 70°C (32° and 158°F)

RECYCLE CHARACTERISTICS
When 0.1 sec or longer of reset time is allowed after time-out or after power interruption, the next cycle is timed at full repeat accuracy; when only 0.07 sec is allowed, the next cycle is shortened by as much as 1%.

RESET
5 ms if power is interrupted any time *after* time-out; 70 ms if power is interrupted *during* timing.

POWER REQUIREMENTS
120 VAC: 95 to 132V, 50/60 Hz, 0.011A
240 VAC: 190 to 264V, 50/60 Hz, 0.011A
24 VAC: 21 to 28V, 50/60 Hz, 0.05A
24 VDC: 21 to 28V, 0.05A, 5% ripple max.

For Model 319B
RANGES AND MINIMUM SETTING

Choice of five ranges:
0.15 — 1 sec
0.2 — 3 sec
0.2 — 6 sec
0.3 — 10 sec
0.5 — 30 sec

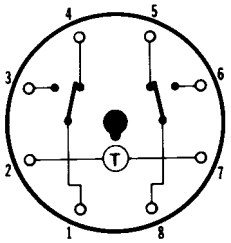
REPEAT ACCURACY
Varies as a function of line voltage, temperature and reset time*;
± 1% of setting or 15ms, when all three conditions are constant
± 4% of setting or ± 1% of range, when one condition varies.
± 6% of setting or ± 3% of range, when two operating conditions vary.
± 8% of setting or ± 3% of range, when all three conditions vary.
*Variations of line voltage must be within 102 and 132V; of temperature between 75° and 150°F; of reset time between 10 sec and 10 min.

RECYCLE CHARACTERISTICS
When 10 seconds or more of reset time is allowed after time-out or after power interruption, the next cycle is timed at full repeat accuracy; when only 5 seconds is allowed, the next cycle is shortened by as much as 1.5%; when only 0.5 sec, by as much as 5.0%.

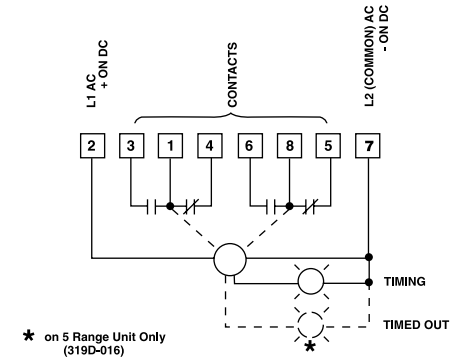
RESET
20 ms if power is interrupted at least 0.1 sec *after* timeout; 100 ms if power is interrupted *during* timing.

POWER REQUIREMENTS;
120V AC: 95 to 132V, 50/60 Hz, 0.01A
240V AC: 190 to 264V, 50/60 Hz, 0.005A

TERMINAL WIRING



WIRING



OPERATION

Model 319D

Timing begins when the *start* switch is closed. At the same time, the *Timing* LED goes **on** and a relaxation oscillator starts to run at a rate determined by the dial adjustment. The 319D times out--and the *Timing* LED turns **off**--when the oscillator count is equal to the level set by the range switch.

At time-out, the load relay is energized, transferring its contacts, and the timing circuit is automatically de-energized. Reset occurs when the *start* switch is opened or when power is interrupted.

With Model 319D-016, a second LED (labeled *Timed Out*) turns **on** when the load relay is energized at time-out; and **off** when the start switch is opened or power is interrupted.

Model 319B

Timing begins when the *start* switch is closed, and a capacitor immediately begins to accumulate a charge through a fixed resistor.

The 319B times out when the capacitor reaches a voltage level which is determined by the position of the dial adjustment. At time-out, the relay is energized, transferring its contacts, and the timing circuit is automatically de-energized. Reset occurs when the *start* switch is opened, or power is interrupted.

ORDERING CODES

319 B 001 Q 1 X

BASIC TYPE

AC MODEL

RANGE
001 – 1 Sec.
349 – 3 Sec.
101 – 6 Sec.
003 – 10 Sec.
006 – 30 Sec.

VOLTAGE & FREQUENCY
Q – 120V, 50/60 Hz
R – 240V, 50/60 Hz
K – Special

ARRANGEMENT
1 – On-delay
0 – Special

FEATURES
X – Standard
K – Special

ACCESSORIES
0000-825-85-00 Surface/DIN rail mounting socket
0000-825-64-00 Surface mounting socket
0319-025-06-00 Retaining clip for mounting socket

319D 016 Q 1 C

BASIC TYPE

RANGE
016 – Five dial-selected ranges (0.3 sec., 3 sec., 30 sec., 3 min., 30 min.)
134 – Three dial-selected ranges (1 sec., 10 sec., 100 sec.)
360 – Three dial-selected ranges (1 min., 10 min., 100 min.)
000 – Special

VOLTAGE & FREQUENCY
Q – 120V, 50/60 Hz
R – 240V, 50/60 Hz
T – 24V, 50/60 Hz
H – 24/28 V DC (319D-016 Model only)

ARRANGEMENT
1 – On-delay
0 – Special

FEATURES
C – Standard
K – Special

ACCESSORIES
0000-825-85-00 Surface/DIN rail mounting socket
0000-825-64-00 Surface mounting socket
0319-025-06-00 Retaining clip for mounting socket
0319-261-44-00 Panel mount bezel kit
0319-261-45-00 Panel mount socket kit, 8-pin