The ESDR Series offers independent time adjustment of both delay periods. Adjustment options include fixed, onboard or external adjust. The ESDR is recommended for air drying, automatic oiling, life testing, chemical metering and automatic duty cycling. This series is designed for general purpose commercial and industrial applications where a small, cost effective, reliable, solid-state timer is required. The factory calibration for fixed time delays is ≤±5%. The repeat accuracy, under stable conditions, is 0.1% of the selected time delay. This series is designed for input voltages of 12VDC to 230VAC in five ranges. Time delays of 0.1 seconds to 1000 minutes are available in six ranges. The output is rated 1A steady and 10A inrush. The modules are totally solid state and encapsulated to protect the electronic circuitry.

Features

- ON/OFF recycling with independent adjustment of both the on and off periods
- Factory fixed, onboard or external adjust
- 0.1s to 1000m in 6 ranges
- ±0.1% repeat accuracy
- ± 5% factory calibration
- Available in AC or DC voltages

Approvals: CE UL CSA

Auxiliary Products:

- **External adjust potentiometer:**
  P/N: P1004-95
  P/N: P1004-95-X
- **Female quick connect:**
  P/N: P1015-64 (AWG 14/16)
- **Quick connect to screw adaptor:**
  P/N: P1015-18
- **Versa-knob:** P/N: P0700-7
- **Mounting bracket:** P/N: P1023-6
- **DIN rail:** P/N: C103PM (Al)
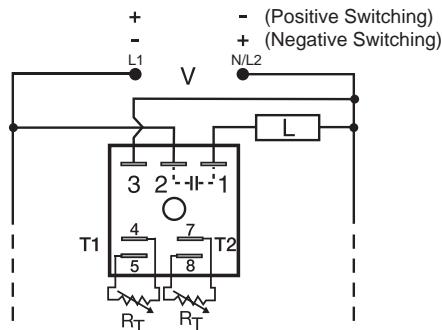- **DIN rail adaptor:** P/N: P1023-20

Connection:

V   = Voltage
L   = Load
T1 = ON Time
T2 = OFF Time

R_T is used when external adjustment is ordered. A knob is supplied for adjustment on the unit; terminals for external adjustment.

Operation (Recycling - ON Time First):
Upon application of input voltage, the output energizes and the T1, ON time begins. At the end of the ON time, the output de-energizes and the T2, OFF time begins. At the end of the OFF time, the output energizes and the cycle repeats as long as input voltage is applied.
Reset: Removing input voltage resets the output and time delays, and returns the sequence to the first delay.

Operation (Recycling - OFF Time First):
Upon application of input voltage, the T2 OFF time begins. At the end of the OFF time, the output energizes and the T1 ON time begins. At the end of the ON time, the output de-energizes and the cycle repeats as long as input voltage is applied.
Reset: Removing input voltage resets the output and time delays, and returns the sequence to the first delay.

For more information see:
Appendix A, pages 156-164 for function descriptions and diagrams.
Appendix B, page 165, Figure 1 for dimensional drawing.

In Secs. or Mins.

R_T = External Timing Resistor in Kilohms
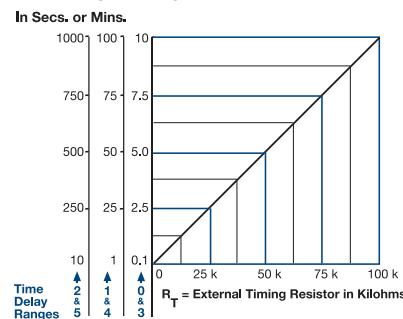
This chart applies to externally adjustable part numbers.
The time delay is adjustable over the time delay range selected by varying the resistance across the RT terminals; as the resistance increases the time delay increases.
When selecting an external RT, add the tolerances of the timer and the RT for the full time range adjustment.
Examples: 1 to 50 S adjustable time delay, select time delay range 1 and a 50 K ohm RT. For 1 to 100 S use a 100 K ohm RT.

Available Models:

ESDR120A0P	ESDR420A1
ESDR120A1P	ESDR420A4
ESDR120A4P	ESDR420B1
ESDR120B3P	ESDR420B4
ESDR121A2P	ESDR421A1
ESDR121A3P	ESDR421A4
ESDR123A0P	ESDR421B1
ESDR123B4P	ESDR423A4
ESDR124A0P	ESDR423B1
ESDR125A5P	ESDR424A0
ESDR152B1P	ESDR424A4
ESDR221A2	ESDR450A1
ESDR221B5	ESDR452B1
ESDR224B4	ESDR620B3
ESDR310.7SA10SP	ESDR621A1
ESDR320A0P	ESDR650A1
ESDR320A3P	

If desired part number is not listed, please call us to see if it is technically possible to build.

Order Table:

ESDR	X	X		X	X	X	X
	Input Voltage	**External Adjust**		**T1 ON Time***	**Operating Sequence**	**T2 OFF Time***	**Switching Mode (VDC Only)**
	1 - 12VDC	1 - Both Times Fixed	6 - ON Time External Adj. OFF Time Fixed	0 - 0.1 - 10s	A - ON time first	0 - 0.1 - 10s	P - Positive
	2 - 24VAC	2 - Both Times Onboard Adj.	7 - ON Time Fixed OFF Time External Adj.	1 - 1 - 100s	B - OFF time first	1 - 1 - 100s	N - Negative
	3 - 24VDC	3 - ON Time Onboard Adj. OFF Time Fixed	8 - ON Time Onboard Adj. OFF Time External Adj.	2 - 10 - 1000s		2 - 10 - 1000s	
	4 - 120VAC	4 - ON Time Fixed OFF Time Onboard Adj.	9 - ON Time External Adj. OFF Time Onboard Adj.	3 - 0.1 - 10m		3 - 0.1 - 10m	
	6 - 230VAC	5 - Both Times External Adj.		4 - 1 - 100m		4 - 1 - 100m	
				5 - 10 - 1000m		5 - 10 - 1000m	

*If fixed delay is selected, insert delay (**0.1 - 1000**) followed by (**S**) sec. or (**M**) min.

Specifications

Time Delay
Range. . . . . .0.1s - 1000m in 6 adjustable ranges or fixed
Repeat Accuracy . . . .±0.1% or 20ms, whichever is greater
Tolerance (Factory Calibration). . . . .≤ ± 5%
Time Delay vs Temp. & Voltage . . . .≤ ±2%
Reset Time. . . . .≤ 150ms
Input
Voltage. . . . . .12 or 24VDC; 24, 120, or 230VAC
Tolerance . . . .±20%
Power Consumption . . . . .AC ≤ 2VA; DC ≤ 1W
AC Line Frequency / DC Ripple. . . . . .50/60 Hz / ≤ 10%
Output
Type. . . . . .Solid state
Maximum Load Current. . . . . .1A steady state , 10A inrush at 60°C

OFF State Leakage Current . . . . .AC ≅ 5mA @ 230VAC; DC ≅ 1mA
Voltage Drop . . . . .AC ≅ 2.5V @ 1A; DC ≅ 1V @ 1A
Protection
Circuitry . . . . .Encapsulated
Dielectric Breakdown . . . .≥ 2000V RMS terminals to mounting surface
Insulation Resistance. . . . .≥ 100 MΩ
Polarity . . . . .DC units are reverse polarity protected
Mechanical
Mounting . . . . .Surface mount with one #10 (M5 x 0.8) screw
Dimensions. . . . . .2 x 2 x 1.21 in. (50.8 x 50.8 x 30.7 mm)
Termination . . . . .0.25 in. (6.35 mm) male quick connect terminals
Operating / Storage Temperature . . . .-40° to 75°C / -40° to 85°C
Humidity. . . . . .95% relative, non-condensing
Weight. . . . .≅ 2.4 oz (68 g)