

# Motor Control Timers

- Compact 17.5mm wide
- Brown Out Timer with 2 Functions: ON Delay, Interval
- Detects Voltage Dips and Momentary Loss of Supply & Resets the control panel
- Low Power Consumption
- Fast Response Time
- LED indications for Healthy & Unhealthy conditions
- Excellent Noise Immunity to the latest IEC standards



## Ordering Information

Cat. No.	Description
17UDT0	230 VAC, Brown Out Timer (ON Delay), 1 C/O
17UDT1	230 VAC, Brown Out Timer (Interval), 1 C/O
13UDT0	110 VAC, Brown Out Timer (ON Delay), 1 C/O
13UDT1	110 VAC, Brown Out Timer (Interval), 1 C/O
1FUDT0F	110 VAC, Brown Out Timer (Normally Energized / ON Delay Mode), Fast Response (5 msec max), 1C/O
1FUDT1F	110 VAC, Brown Out Timer (Momentary / Pulse Mode), Fast Response (5 msec max), 1C/O
1FUDT2F	110 VAC, Brown Out Timer (Normally De-energized / Pulse Mode), Fast Response (5 msec max), 1C/O

# Motor Control Timers



Cat. No.	17UDT0	13UDT1
<b>Parameters</b>	<b>Brown Out Timer</b>	
Timer Description	<b>Brown Out Timer</b>	
Modes	ON Delay	Interval
Functional Diagram		
Supply Voltage (φ)	230 VAC	110 VAC
Supply Variation	-30% to +10%	
Frequency	50 Hz	60 Hz
Power Consumption (Max.)	10 VA	
Timing Range	0.3s to 30s	
Initiate Time	Max. 100 ms	
Trip Voltage	168 V (± 5 V)	82 V (± 5 V)
Recovery Voltage	Trip Voltage + 14 V (± 5 V)	Trip Voltage + 14 V (± 5 V)
Response Time	25 ms (Max.) (Voltage Dips & Interruptions)	
Setting Accuracy	± 10% @ 30s & ± 20% @ 0.3s	
Repeat Accuracy	± 1%	
Output	Relay Output	1 C/O
	Contact Rating	5A @ 240 VAC / 28 VDC (Resistive)
	Electrical Life	1x10 <sup>5</sup>
	Mechanical Life	1x10 <sup>7</sup>
Utilization Category	AC - 15	Rated Voltage (Ue): 120/240 V, Rated Current (Ie): 3.0/1.5 A
	DC - 13	Rated Voltage (Ue): 24/125/250 V, Rated Current (Ie): 2.0/0.22/0.1 A
Operating Temperature	-10°C to +55°C	
Storage Temperature	-15°C to +60°C	
Humidity (Non Condensing)	80% (Rh)	
LED Indication	Green	Healthy
	Red	Relay ON
Enclosure	Flame Retardant UL94-V0	
Dimension (W x H x D) (in mm)	17.5 X 58.5 X 90	
Weight (unpacked)	70 g	
Mounting	Base / DIN rail	
Certification		
Degree of Protection	IP 20 for Terminals, IP 40 for Enclosure	

## EMI / EMC

Harmonic Current Emissions	IEC 61000-3-2
ESD	IEC 61000-4-2
Radiated Susceptibility	IEC 61000-4-3
Electrical Fast Transients	IEC 61000-4-4
Surges	IEC 61000-4-5
Conducted Susceptibility	IEC 61000-4-6
Voltage Dips & Interruptions (AC)	IEC 61000-4-11
Conducted Emission	CISPR 14-1
Radiated Emission	CISPR 14-1

## Environmental

Cold Heat	IEC 60068-2-1
Dry Heat	IEC 60068-2-2
Vibration	IEC 60068-2-6
Repetitive Shock	IEC 60068-2-27
Non-Repetitive Shock	IEC 60068-2-27

## BROWN OUT

A dip in voltage causes electro-mechanical devices such as relays and contactors to drop out and electronic devices such as Timers, Programmable Relays, PLC's remain energized. As a result of this the switch sequence of the panel is lost. This can lock out all or a part of the control system causing the entire system to malfunction.

## BROWN OUT TIMER

The 'Brown-Out' Timer also known as 'Mains restoration auto restart timer' is used for detection of voltage dips or momentary loss of supply known as 'Brown out' and initiation of a control panel reset following the Brown out.

# Motor Control Timers

- Brown Out Timer with 3 Functions: ON Delay, Interval, Pulse
- Detects Voltage Dips and Momentary Loss of Supply & Resets the control panel
- Low Power Consumption
- Fast Response Time
- LED indications for Healthy & Unhealthy conditions
- Excellent Noise Immunity to the latest IEC standards



## Ordering Information

Cat. No.	Description
23UDT0	110 VAC, Brown Out Timer, 1 C/O
27UDT0	240 VAC, Brown Out Timer, 1 C/O

# Motor Control Timers



Cat. No.	23UDT0	27UDT0
<b>Parameters</b>		
Timer Description	<b>Brown Out Timer</b>	
Modes	ON Delay, Interval, Pulse	
Functional Diagram	<p style="text-align: center;">ON DELAY</p>	<p style="text-align: center;">INTERVAL</p>
Supply Voltage (Φ)	110 VAC	240 VAC
Supply Variation	- 40% to +10% (of Φ)	- 40% to +10% (of Φ)
Frequency	50/60 Hz	50 Hz
Power Consumption (Max.)	6 VA	10 VA
Timing Range	0.3s to 30s	0.3s to 30s
Initiate Time	Max. 200 ms	Max. 200 ms
Trip Voltage	81 V (± 6 V)	168 V (± 6 V)
Recovery Voltage	96 V (± 4 V)	184 V (± 4 V)
Response Time	15 ms (Max.)	
Voltage Interruptions	30 ms (Max.)	
Voltage Dips	30 ms (Max.)	
Setting Accuracy	± 5% of Full scale	
Repeat Accuracy	± 1%	
Output	Relay Output	1 C/O
	Contact Rating	5A @ 240 VAC / 28 VDC (Resistive)
	Electrical Life	1x10 <sup>5</sup>
	Mechanical Life	1x10 <sup>7</sup>
Utilization Category	AC - 15	Rated Voltage (U <sub>e</sub> ): 120/240 V, Rated Current (I <sub>e</sub> ): 3.0/1.5 A
	DC - 13	Rated Voltage (U <sub>e</sub> ): 24/125/250 V, Rated Current (I <sub>e</sub> ): 2.0/0.22/0.1 A
Operating Temperature	-10°C to +55°C	
Storage Temperature	-10°C to +60°C	
Humidity (Non Condensing)	95% (Rh)	
LED Indication	Healthy Condition: Flashing, Unhealthy Condition: Blinking	
	Colour	Amber
Enclosure	Flame Retardant UL94-V0	
Dimension (W x H x D) (in mm)	22.5 X 75 X 100.5	
Weight (unpacked)	130 g	
Mounting	Base / DIN rail	
Certification		
Degree of Protection	IP 20 for Terminals, IP 40 for Enclosure	

## EMI / EMC

Harmonic Current Emissions	IEC 61000-3-2
ESD	IEC 61000-4-2
Radiated Susceptibility	IEC 61000-4-3
Electrical Fast Transients	IEC 61000-4-4
Surges	IEC 61000-4-5
Conducted Susceptibility	IEC 61000-4-6
Voltage Dips & Interruptions (AC)	IEC 61000-4-11
Conducted Emission	CISPR 14-1
Radiated Emission	CISPR 14-1

## Environmental

Cold Heat	IEC 60068-2-1
Dry Heat	IEC 60068-2-2
Vibration	IEC 60068-2-6
Repetitive Shock	IEC 60068-2-27
Non-Repetitive Shock	IEC 60068-2-27

# Motor Control Timers

- Single phase Motor Restart Control Timer with Memory Time
- Under Voltage Trip and ON Delay



## Ordering Information

Cat. No.	Description
22LDT0	240 VAC, Motor Restart Control Timer, 1 C/O
23LDT0	110 VAC, Motor Restart Control Timer, 1 C/O

UL Approval not applicable for Cat No. 23LDT0

# Motor Control Timers



Cat. No.	22LDT0	23LDT0
<b>Parameters</b>		
Timer Description	Motor Restart Control Timer	
Functional Diagram	<p style="text-align: center;">t: Power Fail Time; Td: Delay Time; Tm: Memory Time</p>	
Supply Voltage ( $\phi$ )	240 VAC	110 VAC
Supply Variation	- 20% to +10% (of $\phi$ )	
Frequency	50/60 Hz	
Power Consumption (Max.)	4 VA	
Timing Ranges	Memory Time (Tm): 0.2 to 6s, Delay Time (Td): 0.2 to 60s	
Trip Voltage	176 VAC, ( $\pm$ 6VAC)	80 VAC, ( $\pm$ 6VAC)
Hysteresis	4 VAC to 10 VAC	
Reset Time	200 ms (Max.)	
Setting Accuracy	$\pm$ 5% of Full scale	
Repeat Accuracy	$\pm$ 1%	
Output	Relay Output	1 C/O
	Contact Rating	5A @ 240 VAC / 28 VDC (Resistive)
	Electrical Life	$1 \times 10^5$
	Mechanical Life	$1 \times 10^7$
Utilization Category	AC - 15	Rated Voltage (Ue): 120/240 V, Rated Current (Ie): 3.0/1.5 A
	DC - 13	Rated Voltage (Ue): 24/125/250 V, Rated Current (Ie): 2.0/0.22/0.1 A
Operating Temperature	-15°C to +60°C	
Storage Temperature	-20°C to +70°C	
Humidity (Non Condensing)	95% (Rh)	
LED Indication	Green LED $\rightarrow$ Power ON, Red LED $\rightarrow$ Relay ON	
Enclosure	Flame Retardant UL94-V0	
Dimension (W x H x D) (in mm)	22.5 X 75 X 100.5	
Weight (unpacked)	130 g	
Mounting	Base / DIN Rail	
Certification		
Degree of Protection	IP 20 for Terminals, IP 40 for Enclosure	

## EMI / EMC

Harmonic Current Emissions	IEC 61000-3-2
ESD	IEC 61000-4-2
Radiated Susceptibility	IEC 61000-4-3
Electrical Fast Transients	IEC 61000-4-4
Surges	IEC 61000-4-5
Conducted Susceptibility	IEC 61000-4-6
Voltage Dips & Interruptions (AC)	IEC 61000-4-11
Conducted Emission	CISPR 14-1
Radiated Emission	CISPR 14-1

## Environmental

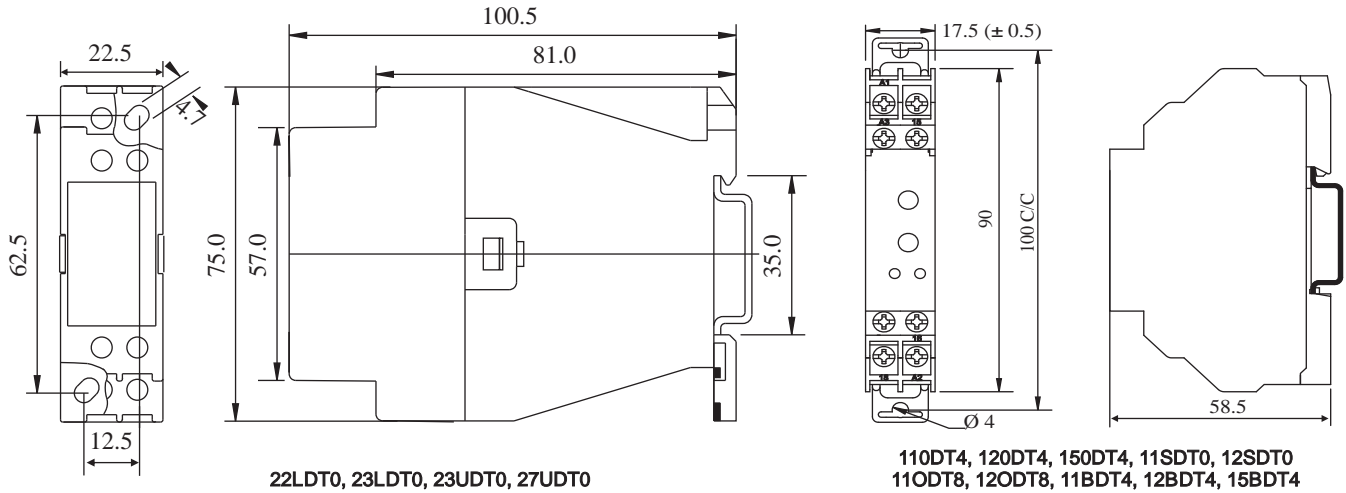
Cold Heat	IEC 60068-2-1
Dry Heat	IEC 60068-2-2
Vibration	IEC 60068-2-6
Repetitive Shock	IEC 60068-2-27
Non-Repetitive Shock	IEC 60068-2-27

## WORKING

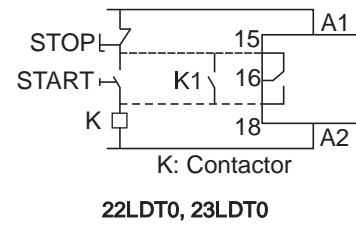
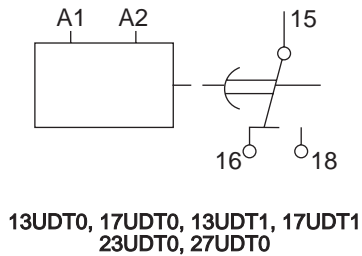
The timer is used for instantaneous or delayed motor startup after a short-time power failure (max. 6 sec). The start occurs immediately if power supply is disrupted for less than 0.2 sec. If the power failure lasts longer, the relay activates its memory for a time that can be set to 0.2 to 6 sec, after which no automatic restart is possible. If power supply is restored while the memory period is elapsing, the relay commands a motor restart with a delay time from power supply restoration that can be set to 0.2 to 60 sec. A system stop cancels the memory function after 50 ms, and therefore the stop signal should be on for at least this time. The relay is non-sensitive to any control voltage fluctuation or disruption during or after the motor stop.

# Motor Control Timers

## MOUNTING DIMENSION (mm)



## CONNECTION DIAGRAM



## TERMINAL TORQUE & TERMINAL CAPACITY

	Torque - 0.6 N.m (5.3 Lb.in) Terminal screw - M3
	Solid Wire - 1 X 1...4 mm <sup>2</sup>
AWG	1 X 18 to 10

22LDT0, 23LDT0, 23UDT0, 27UDT0

	Torque - 0.6 N.m (5.3 Lb.in) Terminal screw - M3.5
	Solid Wire - 2 X 0.2...2.5 mm <sup>2</sup>
AWG	1 X 24 to 10

13UDT0, 17UDT0, 13UDT1, 17UDT1