



# RTE-P1, -P2, -B1, -B2 ALL MULTI-TIMERS INSTRUCTION SHEET

Read this instruction sheet to make sure of correct operation before starting installation, operation, maintenance, and inspection of the RTE series timers. The end user should keep this instruction sheet for future reference.

## TIME RANGE Determined by Time Range Selector and Dial Selector

Dial Range	0-1	0-3	0-10	0-30	0-60
s	0.1sec - 1sec	0.1sec - 3sec	0.2sec - 10sec	0.6sec - 30sec	1.2sec - 60sec
min	1.2sec - 1min	3.6sec - 30min	12sec - 10min	36sec - 30min	1.2min - 60min
h	1.2min - 1hr	3.6min - 3hr	12min - 10hr	36min - 30hr	1.2hr - 60hr
10h	12min - 10hr	36min - 30hr	2hr - 100hr	6hr - 300hr	12hr - 600hr

## GENERAL SPECIFICATIONS

Operation System	Solid-state CMOS circuit			
Operation Type	Multi-Mode			
Time Range	0.1sec to 600hours			
Pollution Degree	2 (IE60664-1)			
Over voltage category	III (IE60664-1)			
Rated Operational Voltage	AF20	100-240V AC(50/60Hz)		
	AD24	24V AC(50/60Hz)/24V DC		
	D12	12V DC		
Voltage Tolerance	AF20	85-264V AC(50/60Hz)		
	AD24	20.4-26.4V AC(50/60Hz)/21.6-26.4V DC		
	D12	10.8-13.2V DC		
Input off Voltage	Rated Voltage × 10% minimum			
Ambient Operating Temperature	-20 to +65°C (without freezing)			
Ambient Storage and Transport Temperature	-30 to +75°C (without freezing)			
Relative Humidity	35 to 85%RH (without condensation)			
Atmospheric Pressure	80kPa to 110kPa (Operating) 70kPa to 110kPa (Transport)			
Reset Time	100msec maximum			
Repeat Error	±0.2%, ±20msec*			
Voltage Error	±0.2%, ±20msec*			
Temperature Error	±0.5%, ±20msec*			
Setting Error	±10% maximum			
Insulation Resistance	100MΩ minimum (500V DC)			
Dielectric Strength	Between power and output terminals: 2000V AC, 1 minute Between contacts of different poles: 2000V AC, 1 minute Between contacts of the same pole: 1000V AC, 1 minute			
Vibration Resistance	10 to 55Hz amplitude 0.5mm 2 hours in each of 3 axes			
Shock Resistance	Operating extremes: 98m/sec <sup>2</sup> (10G) Damage limits: 490m/sec <sup>2</sup> (50G) 3 times in each of 3 axes			
Degree of Protection	IP40 (enclosure), IP20 (socket) (IEC60529)			
Power Consumption (Approx.)	TYPE	RTE-P1, -B1	RTE-P2, -B2	
		AF20 120V AC/60Hz	6.5VA	6.6VA
	AD24(AC/DC)	240V AC/60Hz	11.6VA	12.1VA
		D12	3.4VA/1.7W	3.5VA/1.7W
Mounting Position	Free			
Dimensions	RTE-P1, P2	40H × 36W × 77.9D mm		
	RTE-B1, B2	40H × 36W × 74.9D mm		
Weight (Approx.)	RTE-P1	RTE-P2	RTE-B1, -B2	
	87g	89g	85g	

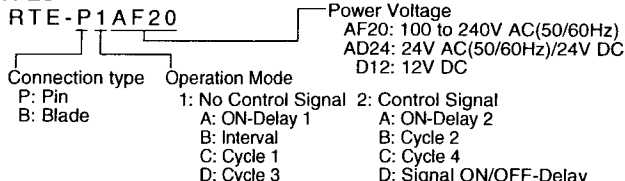
\* For the value of the error against a preset time, whichever the largest applies.

## APPLICABLE STANDARDS

UL508, CSA C22.2 No.14, IEC61812-1, EN61812-1  
EMC

Electrostatic Discharge	level 3 Contact ±6.0kV, Air ±8.0kV	IEC61000-4-2 EN61000-4-2
Electromagnetic Field	level 3 10V/m, AM 80%, 80M-1000MHz	IEC61000-4-3 EN61000-4-3
Fast Transient/Burst	level 3 Power Supply: ±2.0kV	IEC61000-4-4 EN61000-4-4
Surge	AF20 level 3 Power Supply: Line to Line ±1.0kV Line to Ground ±2.0kV	IEC61000-4-5 EN61000-4-5
	AD24 D12 level 2 Power Supply: Line to Line ±0.5kV Line to Ground ±1.0kV	
Radiated Emission	Group 1 Class A	CISPR 11 EN55011

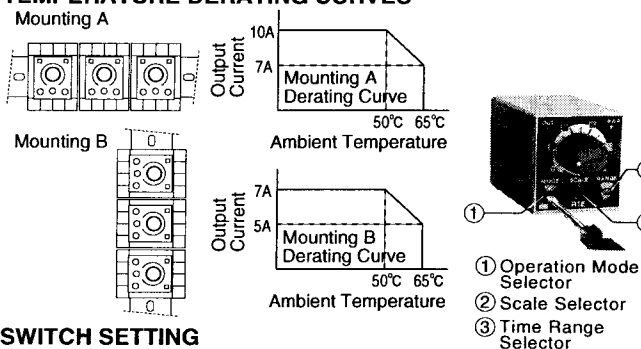
## TYPES



## CONTACT RATINGS

Contact Configuration	2 Form C, DPDT (Delay output)	
Allowable Voltage / Allowable Current	240V AC, 30V DC / 10A	
Maximum Permissible Operating Frequency	1800 cycles per hour	
Rated Load	Resistive	10A 240V AC, 30V DC
	Inductive	7A 240V AC, 30V DC
	Horse Power Rating	1/6 HP 120V AC, 1/3 HP 240V AC
Conditional Short Circuit	Fuse 10A, 240V	
Life	Electrical	500,000 op. minimum (Resistive)
	Mechanical	50,000,000 op. minimum

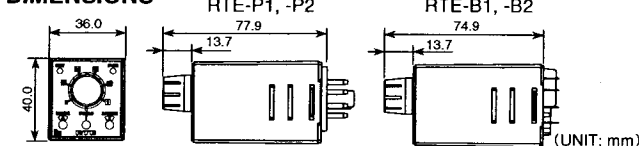
## TEMPERATURE DERATING CURVES



## SWITCH SETTING

- Turn the selectors securely using a flat screwdriver 4mm wide maximum. Note that incomplete setting may cause malfunction. Do not turn the selectors beyond the limits.
- Since changing the setting during timer operation may cause malfunction, turn power off before changing the setting.

## DIMENSIONS



## Safety Precautions

Special expertise is required to use the Electronic Timer.

- All Electronic Timers are manufactured under IDEC's rigorous quality control system, but users must add a backup or fail safe provision to the control system using the Electronic Timer in applications where heavy damage or personal injury may be caused in case the Electronic Timer should fail.
- Install the Electronic Timer according to instructions described in this instruction sheet and the catalog.
- Make sure that the operating conditions are as described in the catalog. If you are uncertain about the specifications, contact IDEC in advance.
- In this instruction sheet, safety precautions are categorized in order of importance to Warning and Caution.



Warning notices are used to emphasize that improper operation may cause severe personal injury or death.

- Turn power off to the Electronic timer before starting installation, removal, wiring, maintenance, and inspection on the Electronic Timer. Failure to turn power off may cause electrical shocks or fire hazard.
- Do not use the Electronic Timer for an emergency stop circuit or interlocking circuit. If the Electronic Timer should fail, a machine disorder, breakdown, or accident may occur.



Caution notices are used where inattention might cause personal injury or damage to equipment.

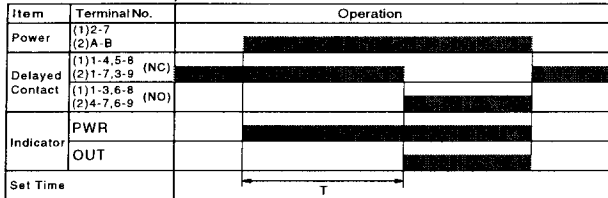
- The Electronic Timer is designed for installation in equipment. Do not install the Electronic Timer outside equipment.
- Install the Electronic Timer in environments described in this instruction sheet and the catalog. If the Electronic Timer is used in places where the Electronic Timer is subjected to high-temperature, high-humidity, condensation, corrosive gases, excessive vibrations, and excessive shocks, then electrical shocks, fire hazard, or malfunction will result.
- Use an IEC60127-approved fuse and circuit breaker on the power and output line outside the Electronic Timer.
- Do not disassemble, repair, or modify the Electronic Timer.
- When disposing of the Electronic Timer, do so as an industrial waste.

# OPERATION CHART

## RTE-P1, -B1

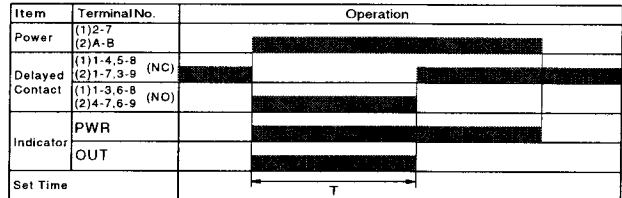
### A: ON-Delay 1 (power start)

Set timer for desired delay, apply power to coil. Contacts transfer after preset time has elapsed, and remain in transferred position until timer is reset. Reset occurs with removal of power.



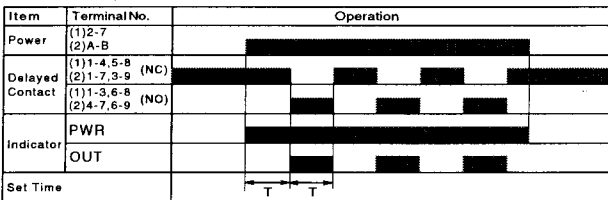
### B: Interval (power start)

Set timer for desired delay, apply power to coil. Contacts transfer immediately, and return to original position after preset time has elapsed. Reset occurs with removal of power.



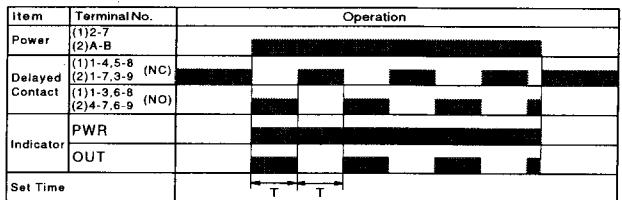
### C: Cycle 1 (power start, OFF first)

Set timer for desired delay, apply power to coil. First transfer of contacts occurs after preset delay has elapsed, after the next elapse of preset delay contacts return to original position. The timer now cycles between on and off as long as power is applied (duty ratio 1:1).



### D: Cycle 3 (power start, ON first)

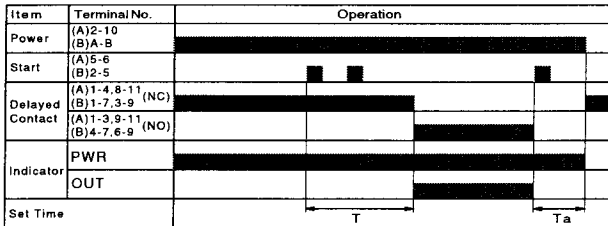
Functions in same manner as Mode C, with the exception that first transfer of contacts occurs as soon as power is applied. The ratio is 1:1. Time On = Time Off



## RTE-P2, -B2

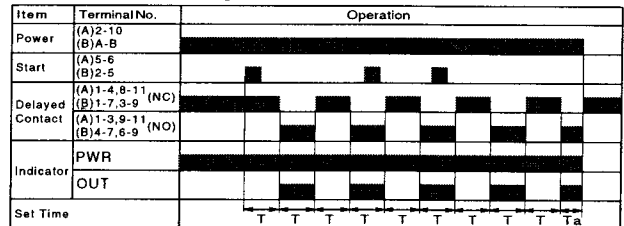
### A: ON-Delay 2 (signal start)

When a preset time has elapsed after the start input turned on while power is on, the NO output contact goes on.



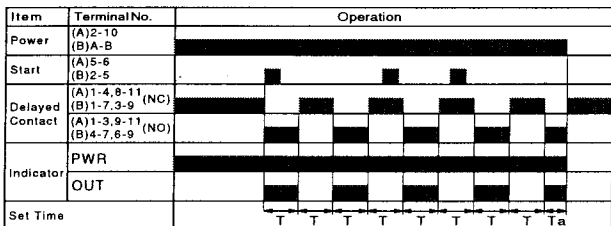
### B: Cycle 2 (signal start, OFF first)

When the start input turns on while power is on, the output oscillates at a preset cycle (duty ratio 1:1), starting while the NO contact off.



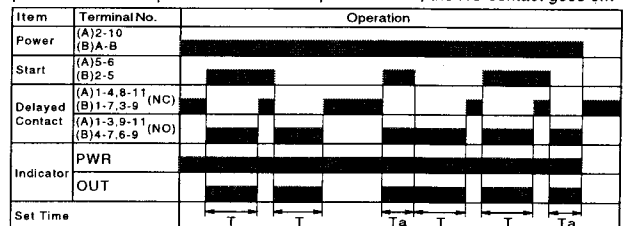
### C: Cycle 4 (signal start, ON first)

When the start input turns on while power is on, the NO contact goes on. The output oscillates at a preset cycle (duty ratio 1:1).



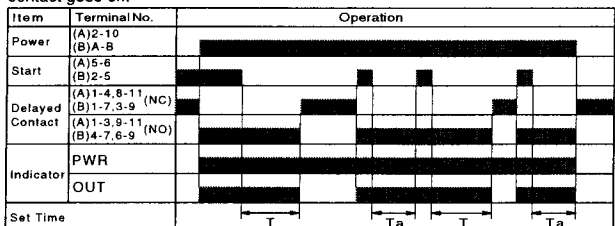
### D: Signal ON/OFF-Delay

When the start input turns on while power is on, the NO output contact goes on. When a preset time has elapsed while the start input remains on, the output contact goes off. When the start input turns off, the NO contact goes on again. When a preset time has elapsed after the start input turned off, the NO contact goes off.



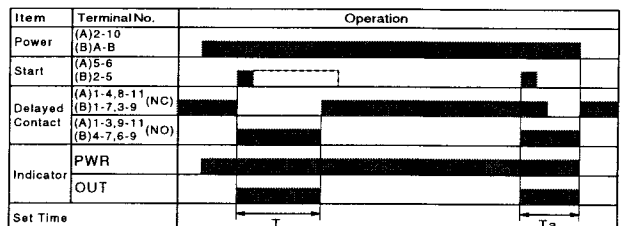
### E: Signal OFF-Delay

When power is turned on while the start input is on, the NO output contact goes on. When a preset time has elapsed after the start input turned off, the NO output contact goes off.



### F: One-Shot (signal start)

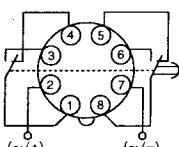
When the start input turns on while power is on, the NO output contact goes on. When a preset time has elapsed, the NO output contact goes off.



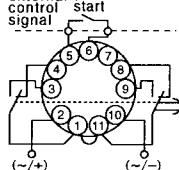
Note: T=Set Time, Ta=Shorter than set time, (1): RTE-P1, (2): RTE-B1, (A): RTE-P2, (B): RTE-B2

## INTERNAL CONNECTIONS

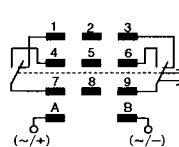
### RTE-P1



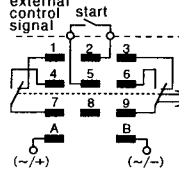
### RTE-P2



### RTE-B1



### RTE-B2



### CAUTION:

RTE-P2: Do not apply voltage to terminals #5, #6 and #7.  
RTE-B1, -B2: Do not apply voltage to terminals #2, #5 and #8.

NOTE: RTE series are UL Listed when used in combination with following IDEC's sockets:

RTE-P1: SR2P-06\* pin type socket.

RTE-P2: SR3P-05\* pin type socket.

RTE-B1, -B2: SR3B-05\* blade type socket.

(\*-May be followed by A,B,C or U)

The socket to be used with these timers are rated:

-Conductor Temperature Rating 60°Cmin.,

-Use 14AWG max.(2mm<sup>2</sup>max.) Copper conductors only,

-Terminal Torque 9 to 12lb.-in (1.0 to 1.3 N·m)



# RTE-P1, -P2, -B1, -B2 ALL MULTI-TIMERS INSTRUCTION SHEET

Read this instruction sheet to make sure of correct operation before starting installation, operation, maintenance, and inspection of the RTE series timers. The end user should keep this instruction sheet for future reference.

## TIME RANGE Determined by Time Range Selector and Dial Selector

Dial Range	0-1	0-3	0-10	0-30	0-60
s	0.1sec - 1sec	0.1sec - 3sec	0.2sec - 10sec	0.6sec - 30sec	1.2sec - 60sec
min	1.2sec - 1min	3.6sec - 30min	12sec - 10min	36sec - 30min	1.2min - 60min
h	1.2min - 1hr	3.6min - 3hr	12min - 10hr	36min - 30hr	1.2hr - 60hr
10h	12min - 10hr	36min - 30hr	2hr - 100hr	6hr - 300hr	12hr - 600hr

## GENERAL SPECIFICATIONS

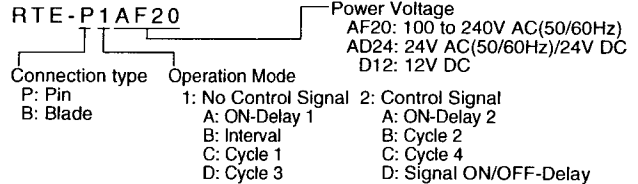
Operation System	Solid-state CMOS circuit			
Operation Type	Multi-Mode			
Time Range	0.1sec to 600hours			
Pollution Degree	2 (IE60664-1)			
Over voltage category	III (IE60664-1)			
Rated Operational Voltage	AF20	100-240V AC(50/60Hz)		
	AD24	24V AC(50/60Hz)/24V DC		
	D12	12V DC		
Voltage Tolerance	AF20	85-264V AC(50/60Hz)		
	AD24	20.4-26.4V AC(50/60Hz)/21.6-26.4V DC		
	D12	10.8-13.2V DC		
Input off Voltage	Rated Voltage × 10% minimum			
Ambient Operating Temperature	-20 to +65°C (without freezing)			
Ambient Storage and Transport Temperature	-30 to +75°C (without freezing)			
Relative Humidity	35 to 85%RH (without condensation)			
Atmospheric Pressure	80kPa to 110kPa (Operating) 70kPa to 110kPa (Transport)			
Reset Time	100msec maximum			
Repeat Error	±0.2%, ±20msec*			
Voltage Error	±0.2%, ±20msec*			
Temperature Error	±0.5%, ±20msec*			
Setting Error	±10% maximum			
Insulation Resistance	100MΩ minimum (500V DC)			
Dielectric Strength	Between power and output terminals: 2000V AC, 1 minute Between contacts of different poles: 2000V AC, 1 minute Between contacts of the same pole: 1000V AC, 1 minute			
Vibration Resistance	10 to 55Hz amplitude 0.5mm 2 hours in each of 3 axes			
Shock Resistance	Operating extremes: 98m/sec <sup>2</sup> (10G) Damage limits: 490m/sec <sup>2</sup> (50G) 3 times in each of 3 axes			
Degree of Protection	IP40 (enclosure), IP20 (socket) (IEC60529)			
Power Consumption (Approx.)	TYPE	RTE-P1, -B1	RTE-P2, -B2	
		AF20 120V AC/60Hz	6.5VA	6.6VA
	AD24(AC/DC)	240V AC/60Hz	11.6VA	12.1VA
		D12	3.4VA/1.7W	3.5VA/1.7W
Mounting Position	Free			
Dimensions	RTE-P1, P2	40H × 36W × 77.9D mm		
	RTE-B1, B2	40H × 36W × 74.9D mm		
Weight (Approx.)	RTE-P1	RTE-P2	RTE-B1, -B2	
	87g	89g	85g	
	* For the value of the error against a preset time, whichever the largest applies.			

## APPLICABLE STANDARDS

UL508, CSA C22.2 No.14, IEC61812-1, EN61812-1  
EMC

Electrostatic Discharge	level 3 Contact ±6.0kV, Air ±8.0kV	IEC61000-4-2 EN61000-4-2
Electromagnetic Field	level 3 10V/m, AM 80%, 80M-1000MHz	IEC61000-4-3 EN61000-4-3
Fast Transient/Burst	level 3 Power Supply: ±2.0kV	IEC61000-4-4 EN61000-4-4
Surge	AF20 level 3 Power Supply: Line to Line ±1.0kV Line to Ground ±2.0kV	IEC61000-4-5 EN61000-4-5
	AD24 D12 level 2 Power Supply: Line to Line ±0.5kV Line to Ground ±1.0kV	
Radiated Emission	Group 1 Class A	CISPR 11 EN55011

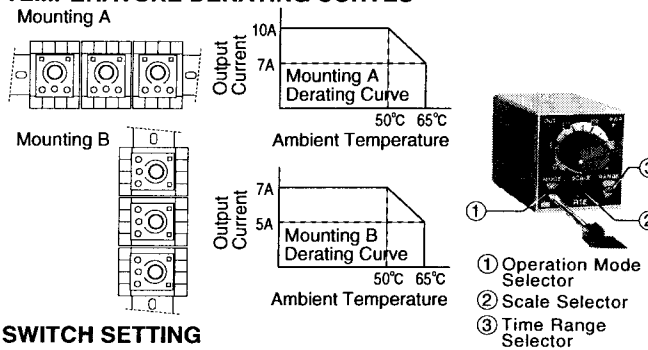
## TYPES



## CONTACT RATINGS

Contact Configuration	2 Form C, DPDT (Delay output)	
Allowable Voltage / Allowable Current	240V AC, 30V DC / 10A	
Maximum Permissible Operating Frequency	1800 cycles per hour	
Rated Load	Resistive	10A 240V AC, 30V DC
	Inductive	7A 240V AC, 30V DC
	Horse Power Rating	1/6 HP 120V AC, 1/3 HP 240V AC
Conditional Short Circuit	Fuse 10A, 240V	
Life	Electrical	500,000 op. minimum (Resistive)
	Mechanical	50,000,000 op. minimum

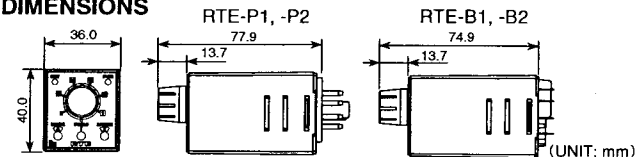
## TEMPERATURE DERATING CURVES



## SWITCH SETTING

- Turn the selectors securely using a flat screwdriver 4mm wide maximum. Note that incomplete setting may cause malfunction. Do not turn the selectors beyond the limits.
- Since changing the setting during timer operation may cause malfunction, turn power off before changing the setting.

## DIMENSIONS



## Safety Precautions

- Special expertise is required to use the Electronic Timer.
- All Electronic Timers are manufactured under IDEC's rigorous quality control system, but users must add a backup or fail safe provision to the control system using the Electronic Timer in applications where heavy damage or personal injury may be caused in case the Electronic Timer should fail.
  - Install the Electronic Timer according to instructions described in this instruction sheet and the catalog.
  - Make sure that the operating conditions are as described in the catalog. If you are uncertain about the specifications, contact IDEC in advance.
  - In this instruction sheet, safety precautions are categorized in order of importance to Warning and Caution.
- Warning** Warning notices are used to emphasize that improper operation may cause severe personal injury or death.
- Turn power off to the Electronic timer before starting installation, removal, wiring, maintenance, and inspection on the Electronic Timer. Failure to turn power off may cause electrical shocks or fire hazard.
  - Do not use the Electronic Timer for an emergency stop circuit or interlocking circuit. If the Electronic Timer should fail, a machine disorder, breakdown, or accident may occur.

- Caution** Caution notices are used where inattention might cause personal injury or damage to equipment.

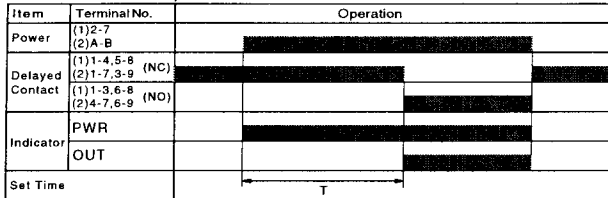
- The Electronic Timer is designed for installation in equipment. Do not install the Electronic Timer outside equipment.
- Install the Electronic Timer in environments described in this instruction sheet and the catalog. If the Electronic Timer is used in places where the Electronic Timer is subjected to high-temperature, high-humidity, condensation, corrosive gases, excessive vibrations, and excessive shocks, then electrical shocks, fire hazard, or malfunction will result.
- Use an IEC60127-approved fuse and circuit breaker on the power and output line outside the Electronic Timer.
- Do not disassemble, repair, or modify the Electronic Timer.
- When disposing of the Electronic Timer, do so as an industrial waste.

# OPERATION CHART

## RTE-P1, -B1

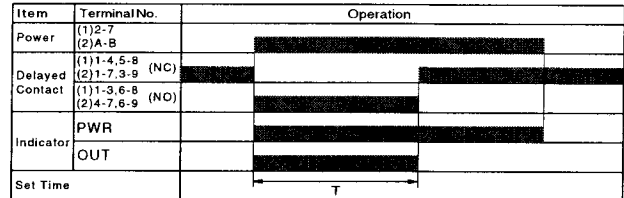
### A: ON-Delay 1 (power start)

Set timer for desired delay, apply power to coil. Contacts transfer after preset time has elapsed, and remain in transferred position until timer is reset. Reset occurs with removal of power.



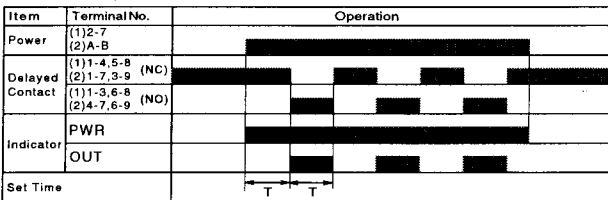
### B: Interval (power start)

Set timer for desired delay, apply power to coil. Contacts transfer immediately, and return to original position after preset time has elapsed. Reset occurs with removal of power.



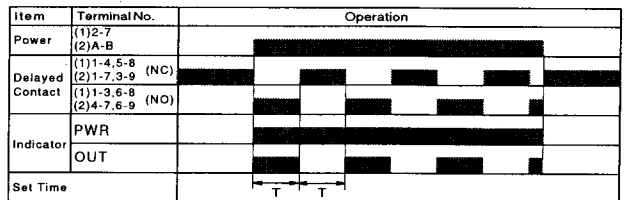
### C: Cycle 1 (power start, OFF first)

Set timer for desired delay, apply power to coil. First transfer of contacts occurs after preset delay has elapsed, after the next elapse of preset delay contacts return to original position. The timer now cycles between on and off as long as power is applied (duty ratio 1:1).



### D: Cycle 3 (power start, ON first)

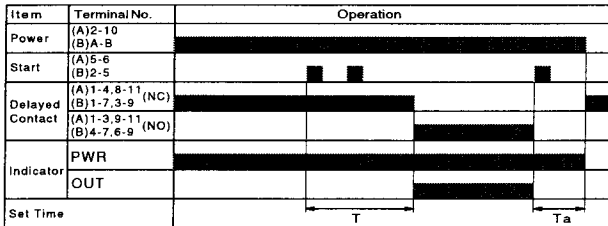
Functions in same manner as Mode C, with the exception that first transfer of contacts occurs as soon as power is applied. The ratio is 1:1. Time On = Time Off



## RTE-P2, -B2

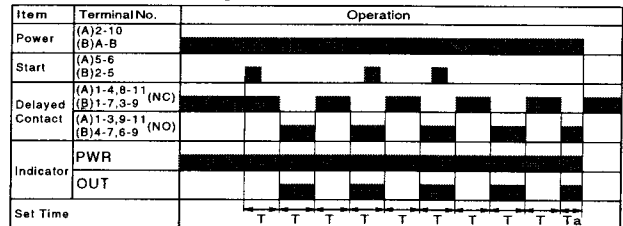
### A: ON-Delay 2 (signal start)

When a preset time has elapsed after the start input turned on while power is on, the NO output contact goes on.



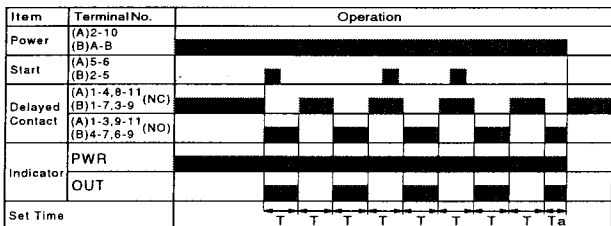
### B: Cycle 2 (signal start, OFF first)

When the start input turns on while power is on, the output oscillates at a preset cycle (duty ratio 1:1), starting while the NO contact off.



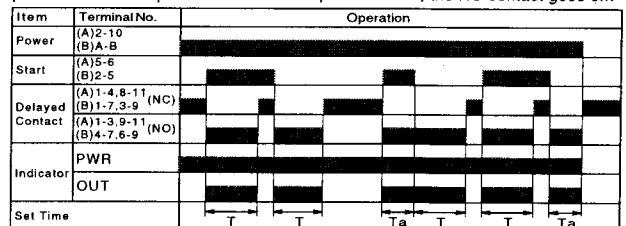
### C: Cycle 4 (signal start, ON first)

When the start input turns on while power is on, the NO contact goes on. The output oscillates at a preset cycle (duty ratio 1:1).



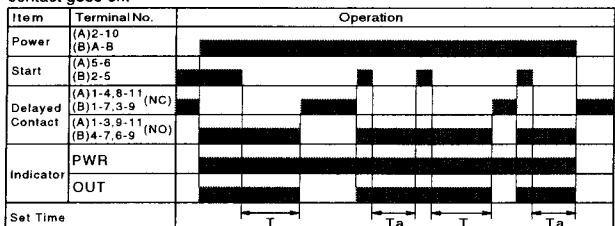
### D: Signal ON/OFF-Delay

When the start input turns on while power is on, the NO output contact goes on. When a preset time has elapsed while the start input remains on, the output contact goes off. When the start input turns off, the NO contact goes on again. When a preset time has elapsed after the start input turned off, the NO contact goes off.



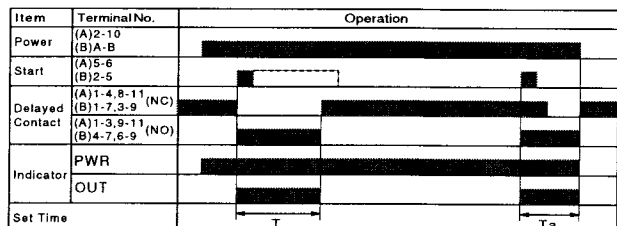
### E: Signal OFF-Delay

When power is turned on while the start input is on, the NO output contact goes on. When a preset time has elapsed after the start input turned off, the NO output contact goes off.



### F: One-Shot (signal start)

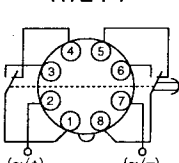
When the start input turns on while power is on, the NO output contact goes on. When a preset time has elapsed, the NO output contact goes off.



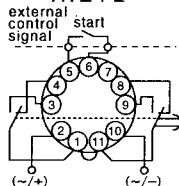
Note: T=Set Time, Ta=Shorter than set time, (1): RTE-P1, (2): RTE-B1, (A): RTE-P2, (B): RTE-B2

## INTERNAL CONNECTIONS

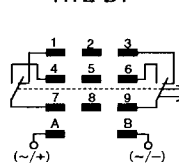
### RTE-P1



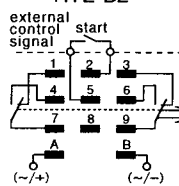
### RTE-P2



### RTE-B1



### RTE-B2



### CAUTION:

RTE-P2: Do not apply voltage to terminals #5, #6 and #7.  
RTE-B1, -B2: Do not apply voltage to terminals #2, #5 and #8.

NOTE: RTE series are UL Listed when used in combination with following IDEC's sockets:

RTE-P1: SR2P-06\* pin type socket.

RTE-P2: SR3P-05\* pin type socket.

RTE-B1, -B2: SR3B-05\* blade type socket.

(\*May be followed by A,B,C or U)

The socket to be used with these timers are rated:

-Conductor Temperature Rating 60°Cmin.,

-Use 14AWG max.(2mm<sup>2</sup>max.) Copper conductors only,

-Terminal Torque 9 to 12lb.-in (1.0 to 1.3 N·m)