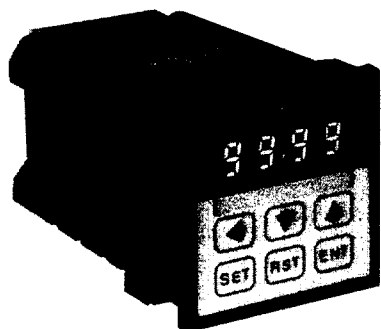


# TIME CONTROL



## SX410 and SX430 SERIES DUAL SETPOINT DIGITAL TIMERS WITH TIME INHIBIT



The SX410 and the SX430 are dual setpoint timers featuring an inhibit function that allows the timing operation of the units to be stopped without resetting the timed value or the outputs.

The many operating modes and the four time ranges are programmed using rocker switches on the back of the unit. This programming method provides both simplicity and security. The front panel display has a prompted programming routine that shows the user how to program variables such as setpoints and the display cycle progress direction.

Some of the other features of the SX410 and the SX430 Timers include:

- NEMA 4 Hosedown Test rated.
- Eight output operating modes programmable for one or both outputs.
- Programmable Early Trip prewarn operation.
- Setpoint to zero or zero to setpoint cycle progress indication.
- LED indicators for output status.
- Time inhibit input.
- Front panel and remote reset inputs.
- Keypad lock function.
- Nonvolatile memory (NOVRAM) for program and data retention.
- Removable terminal blocks for wiring connections.
- +12 VDC, 75 milliamp sensor power supply.

## SPECIFICATIONS

### Time Ranges

#### SX410

SYM.	MAXIMUM RANGE	MINIMUM SETTING
1	99.99 Sec	.01 Sec
2	999.9 Sec	.1 Sec
3	99 Min:59 Sec	1 Sec
4	99 Hr:59 Min	1 Min

#### SX430

SYM.	MAXIMUM RANGE	MINIMUM SETTING
1	99.99 Min	.01 Min
2	999.9 Min	.1 Min
3	99.99 Hour	.01 Hr
4	999.9 Hour	.1 Hr

### Setting Accuracy

± 0.05% of setting or 50ms, whichever is larger

### Repeat Accuracy

± 0.001% of setting or 35ms, whichever is larger

### Programmed Pulse

.01 to 99.99 Seconds

### Power On Response

200 milliseconds maximum

### Reset Time

15 milliseconds

### Operating Temperature

+32° to +122°F (0° to 50°C)

### Operating Voltage/Frequency

SYMBOL	VOLTAGE & FREQUENCY
A6	120 VAC 50/60 Hz
B6	240 VAC 50/60 Hz

### Sensor Power Supply

+12 VDC, 75 milliamps

### Output Rating

Relay: 5 Amp (resistive), 10 to 264 VAC

### Vibration

Unit function is unaffected by 2.5g sinusoidal vibration magnitude in both directions of the perpendicular mounting axes imposed from 10 to 100 Hz.

### Static Discharge

Unit operation unaffected by a constant 3600 volt peak, 60 Hz discharge applied to the grounded front plate of the unit at a relative humidity of less than 25%.

### Transient Protection

Immune to 2500 volts peak transients up to 50 microseconds in duration.

## DANAHER CONTROLS

1675 Delany Road  
Gurnee, Illinois 60031-1282  
Phone: 708/662-2666  
Fax: 708/662-6633

# TIME CONTROL



## CONTROL INPUT FEATURES

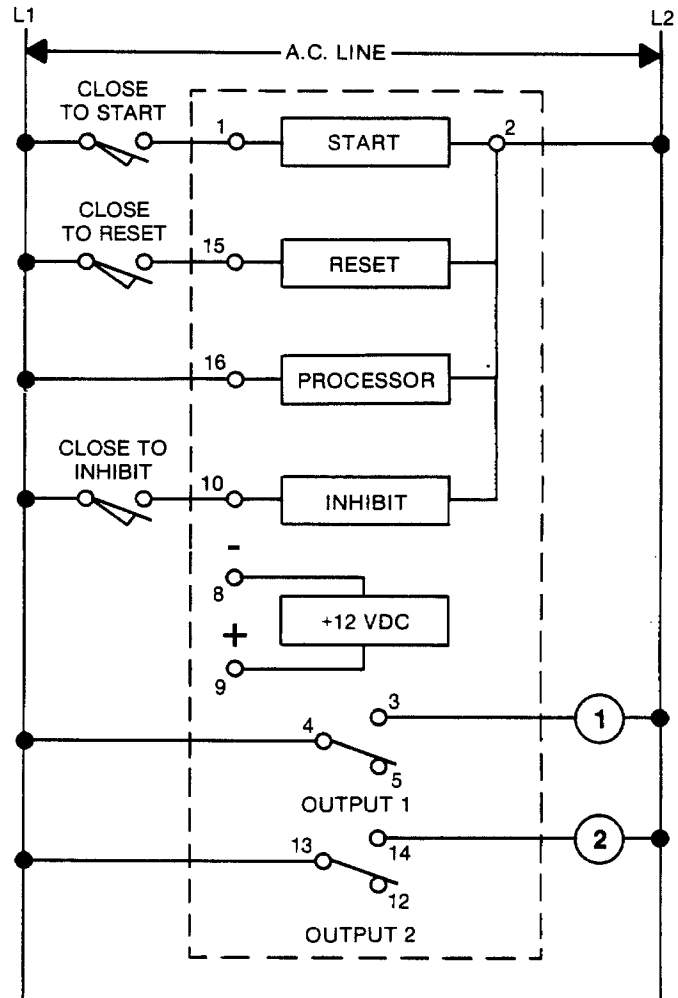
The SX410 and the SX430 Timers use all line voltage control inputs for high noise immunity.

The start input enables the timer and initiates the programmed output sequences. This allows the timer operation to be started independently of when power is applied to the unit. This input can be set up to respond to sustained or momentary inputs.

When power is applied to the inhibit input the time cycle stops and the outputs are held in their last state. The inhibit condition will continue as long as power is applied to the inhibit input or until the unit is reset.

When power is applied to the reset input, the timer resets and the outputs are de-energized. The reset and output de-energized state will continue as long as power is applied to the reset inputs.

All inputs are optically isolated and designed to respond in 15 milliseconds or less.



## OUTPUT FEATURES

The SX410 and the SX430 Timers have two 5 amp SPDT outputs. These relays are socket mounted for easy service. LED indicators on the display indicate when the outputs are energized.

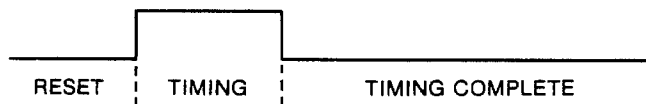
### Output 1 Operating Modes

Output 1 is programmable for eight operating modes.

**1. ON Delay** — Output 1 is energized at the end of the timing cycle.

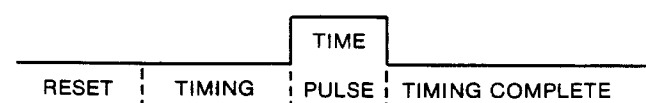


**2. Interval** — Output 1 is energized during the timing cycle.



**3 & 4.** The ON Delay and Interval modes are also available with totalization. In these modes the display will continue to indicate time registered after the timing cycle is complete.

**5. Timed Pulse Output** — Output 1 is energized for a programmable pulse time up to 99.99 seconds at the end of the timing cycle.

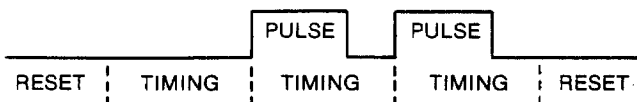


# TIME CONTROL

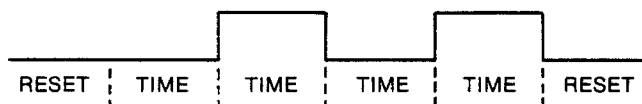


SX410 and SX430

**6. Timed Pulse and Repeat** — Output 1 is energized for a programmable pulse time up to 99.99 seconds at the end of the timing cycle, with the time cycle automatically repeating.

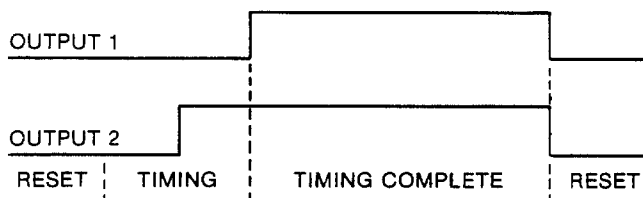


**7 & 8. Repeat Cycle, ON or OFF Time Cycle First** — Output 1 is energized and deenergized in repeating operation with either the ON or OFF time period first. The time periods are equal length. Unequal length time intervals can be obtained using the Early Trip prewarn output.



## Output 2 Operating Modes

Output 2 can be programmed to operate in parallel with Output 1, providing DPDT relay operation from the two SPDT relays, or it can be programmed as an Early Trip prewarn output that is energized at a predetermined time before the end of the cycle. An example of Early Trip prewarn operation with the ON Delay mode for Output 1 is shown here for reference.



## RESET OPERATION

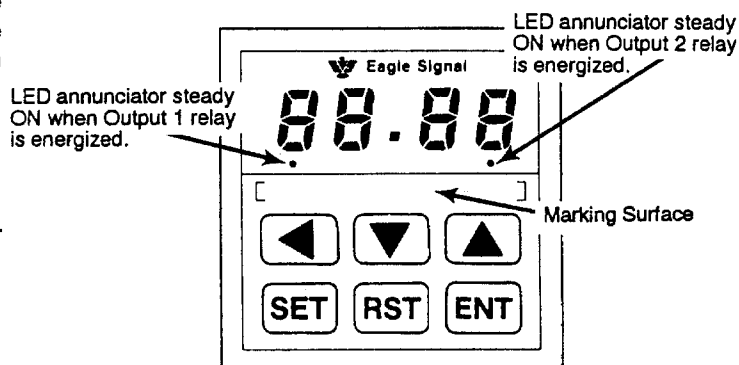
The SX410 and the SX430 Timers are programmable to either reset on power interruption and start over when power is reapplied or to retain its actual cycle progress value and continue with the cycle when power is reapplied.

## CYCLE PROGRESS INDICATION

The time progress display can be programmed either to cycle DOWN from the setpoint to zero or to cycle UP from zero to the setpoint.

## FRONT PANEL PROGRAMMING

The SX410 and the SX430 Timers use a sealed front panel keypad for entry of variable data such as setpoints.



Pressing the SET key calls the main setpoint to the display. The setpoint is displayed with the least significant digit flashing. The position of the flashing digit is controlled using the ◀ key. The ▲ and ▼ keys increment and decrement the value of the flashing digit. The ENT key enters any setpoint changes into memory.

In addition to changes to the main setpoint, the front keypad is also used to change the Early Trip setpoint for Output 2, the timed pulse output length, and the display time range. This programming is done with a prompted set-up routine. The SET key is used to scroll through the prompts and variables. To enter the prompted set-up routine it is necessary to press and hold the SET key for at least 5 seconds. This prevents inadvertent entry into the set-up routine.

The RST key on the front panel is a manual reset. Pressing the RST key resets the timer and holds the outputs in their normal, deenergized state until the key is released.

A keypad lock function is provided for security. Pressing and holding the ENT key for about five seconds will alternately lock and unlock the front keypad. When locked, the SET key will call all variables, but the ◀, ▲, and ▼, and RST keys will be inoperative.

# TIME CONTROL



## SWITCH PROGRAMMING

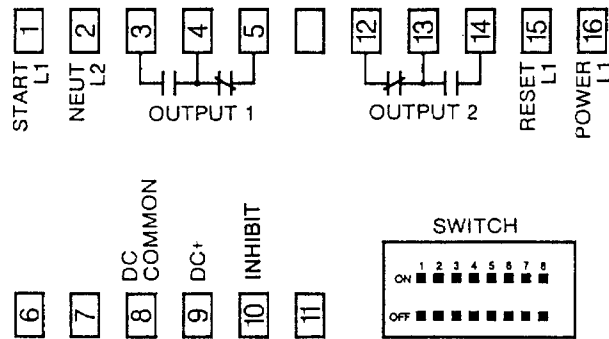
The SX410 and the SX430 Timers use eight miniature rocker switches on the back of the unit to program the operating modes as follows:

X = Switch ON    O = Switch OFF    Blank = Does Not Apply

SYM	OPERATING MODE	SWITCH NUMBER							
		1	2	3	4	5	6	7	8
<b>OUTPUT 1 OPERATION</b>									
1	ON Delay	O	O	O					
2	ON Delay & Totalize	O	O	X					
3	Interval	X	O	O					
4	Interval & Totalize	X	O	X					
5	Timed Pulse	O	X	O					
6	Timed Pulse & Repeat	X	X	O					
7	Repeat - OFF First	O	X	X					
8	Repeat - ON First	X	X	X					
<b>OUTPUT 2 OPERATION</b>									
1	Same as Output 1				O				
2	Early Trip Prewarn				X				
	<b>SX410</b>	<b>SX430</b>							
1	99.99 Seconds	99.99 Minutes					O	O	
2	999.9 Seconds	999.9 Minutes					X	O	
3	99 Min: 59 Sec	99.99 Hours					O	X	
4	99 Hr: 59 Min	999.9 Hours					X	X	
<b>RESET OPERATION</b>									
1	Reset on Power Interruption								O
2	Non-Reset on Power Interruption								X
<b>START OPERATION</b>									
1	Sustained Start Input								O
2	Momentary Start Input								X

## TERMINAL ASSIGNMENTS

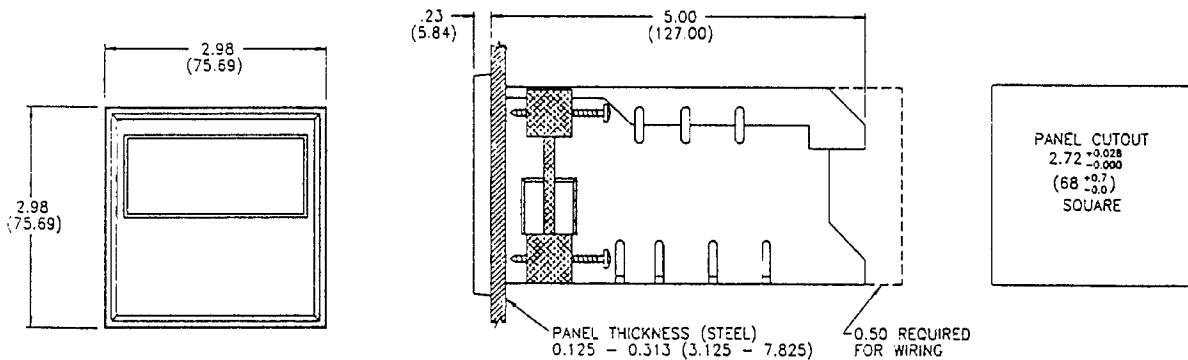
The SX400 Timers use two removable terminal blocks to provide wiring connections, with the following terminal assignments.



For more information, refer to the SX410 and SX430 Instruction Manual, publication number 5005-806.

## MOUNTING

The SX400 Timers use two removable mounting clips with adjustable screws to mount the enclosure in a panel as shown below.



## ORDERING INFORMATION

### OUTPUT TYPE

SYMBOL	DESCRIPTION
10	Time Ranges: 99:99 Seconds, 999.9 Seconds, 99 Min: 59 Sec, 99 Hr: 59 Min
30	Time Ranges: 99.99 Minutes, 999.9 Minutes, 99.99 Hours, 999.9 Hours

SX4 10 A6

### VOLTAGE & FREQUENCY

SYMBOL	DESCRIPTION
A6	120 VAC 50/60 Hz
B6	240 VAC 50/60 Hz

## Dynapar, Veeder Root, and Eagle Signal Brands:

Sales, Repair, and Application Support:  
1675 Delany Rd.  
Gurnee, IL. 60031  
847-662-4150 Sales/Order Entry Fax  
847-782-5277 Applications Support Fax  
800-873-8731 Sales/Order Entry  
800-234-8731 Applications Support

## NorthStar Brand:

Sales, Repair, and Application Support:  
1675 Delany Rd.  
Gurnee, IL. 60031  
847-782-5288 Sales/Order Entry Fax  
847-782-5277 Applications Support Fax  
800-326-6216 Sales/Order Entry  
800-326-6216 Applications Support

## Partlow, West, Rustrak, and LFE Brands:

Sales, Repair, and Application Support:  
1675 Delany Rd.  
Gurnee, IL. 60031  
847-662-4150 Sales/Order Entry Fax  
847-782-5277 Applications Support Fax  
800-873-8731 Sales/Order Entry  
800-866-6659 Applications Support

Please disregard all phone numbers and addresses in this manual. The phone numbers and address on this page are the correct phone number and addresses to use for sales, repair, and application support.