

Product Group: SG2 Programmable Relay
 Number: AN-SG2-018

Date Issued: 08/16/2017
 Revision: A

Title: Timer Instruction Modes

Summary: Timer Instruction modes, definitions, and common inputs will be reviewed.

We will be using the SG2 Client V3.4 software and Windows 7. Examples will be shown using the Ladder Logic program with the SG2-12HR-D model.

Procedure:

1.0 Using the SG2 Client software, duplicate the program as shown in **Figure 1** below.

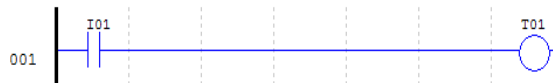


Figure 1

2.0 Double-click on T01 for the Edit Contact/Coil screen.

- 2.1 Select Timer Instruction Number:** *31 timer instructions available*
- 2.2 Select Output Type:** *2 options available (-) General, (P) Mode 7 Flash Timer 3*
- 2.3 Select Mode:** *8 operational modes available: (internal coil, On-Delay, On-Delay, Off-Delay, Off-Delay 2, Flash Timer, Flash Timer 2, Flash Timer 3*
- 2.4 Select Time Base:** *4 modes available: (0.01SEC, 0.1SEC, 1SEC, 1MIN)*
- 2.5 Select Preset Type:** *Several options are available, including DR (Data Register), A (Analog Input), etc.*
- 2.6 Select Preset Value:** *Range 00.00-99.99 (0.01 sec)
 Range 000.0-999.9 (0.1 sec)
 Range 0000-9999 (1 sec)
 Range 0000-9999 (1 min)*

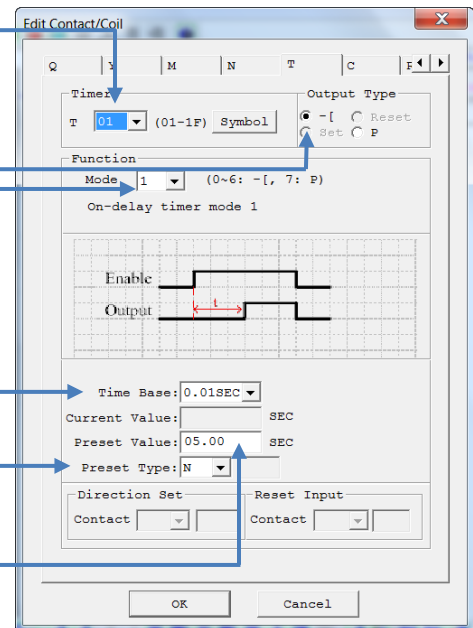


Figure 2

Information herein is provided by FactoryMation Technical Support "as is" with no guarantee of any kind. Customer is solely responsible for validating application, operation, maintenance, and code compliance and other information and data relating to the installation, operation, safety and maintenance of all components. FactoryMation does not guarantee that this information is suitable for your application, nor does FactoryMation assume any responsibility for your product design, installation, testing, or operation.

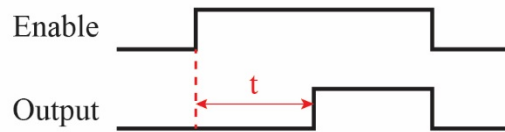


The following Mode examples are for instructional purposes only. Mode selection and input data will vary with differing applications. Refer to Figure 2 for setting up the Timer Instruction Examples below.

Timer Instruction Examples

Example 1: Mode 1 (On-Delay)

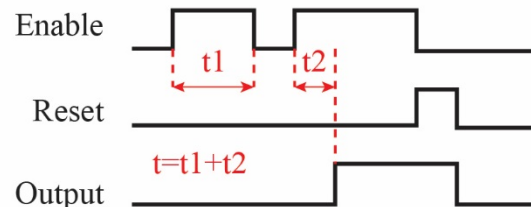
Mode: 1
Time Base: 0.01 SEC
Preset Type: N (Numeric Constant)
Preset Value: 5 seconds (Shown as 05.00)



T01 (Timer Instruction) begins timing up when the Input Signal (I01) is given to T01. T01 (Timer Coil) will activate once 5 seconds has elapsed. It will remain active until I01 is taken away. If I01 is taken away before the 5 seconds elapse, T01 will reset itself and await the next Input Signal.

Example 2: Mode 2 (On-Delay 2)

Mode: 2
Time Base: 0.01 SEC
Preset Type: N (Numeric Constant)
Preset Value: 5 seconds (Shown as 05.00)
Reset Input: I02

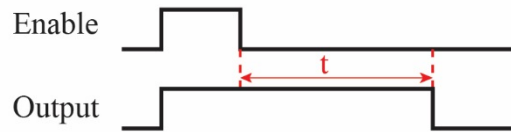


T01 (Timer Instruction) begins timing up when the input is given to T01. T01 will maintain the accumulated time when I01 is taken away. It will begin timing up from the accumulated time value once the Input Signal is given again. T01 (Timer Coil) will activate once the total elapsed time equals 5 seconds. The T01 coil will remain activated until I02 (Reset Signal) is given to T01. T01 will reset and await the next Input Signal.

Information herein is provided by FactoryMation Technical Support "as is" with no guarantee of any kind. Customer is solely responsible for validating application, operation, maintenance, and code compliance and other information and data relating to the installation, operation, safety and maintenance of all components. FactoryMation does not guarantee that this information is suitable for your application, nor does FactoryMation assume any responsibility for your product design, installation, testing, or operation.

Example 3: Mode 3 (Off-Delay)

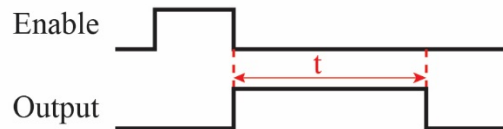
Mode: 3
Time Base: 1 SEC
Preset Type: N (Numeric Constant)
Preset Value: 5 seconds (Shown as 0005)
Reset Input: I02



T01 (Timer Instruction) begins timing up when the Input Signal is taken away. T01 (Timer Coil) will activate when the Input Signal is given to T01, this is known as “rising edge”. The T01 coil will remain activated until the timer has reached the 5 seconds preset in N (Numeric Constant) or until I02 (Reset) is pressed. Upon receiving the Reset Signal (I02), T01 will reset and await next Input Signal.

Example 4: Mode 4 (Off-Delay 2)

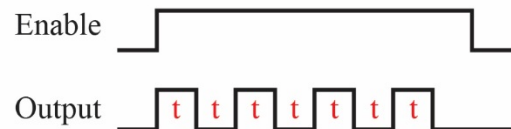
Mode: 4
Time Base: 1 MIN
Preset Type: N (Numeric Constant)
Preset Value: 1 minute (Shown as 0001)
Reset Input: I02



T01 (Timer Instruction) begins timing up once the Input Signal is taken away. The T01 (Timer Coil) does not activate until the Input Signal has been taken away, this is known as “falling edge”. The T01 coil remains active until it reaches the 1 minute preset value then returns to its’ normal state. If I02 (Reset) is given during the timing process the T01 will reset and return to its’ normal state.

Example 5: Mode 5 (Flash Timer)

Mode: 5
Time Base: 1 SEC
Preset Type: N (Numeric Constant)
Preset Value: 10 seconds (Shown as 0010)

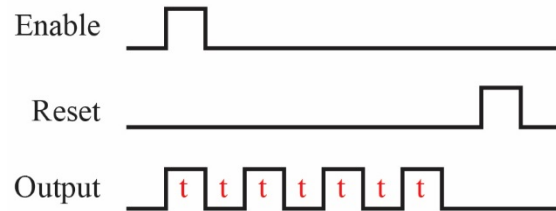


T01 (Timer Instruction) begins timing up when the Input Signal is given. The T01 (Timer Coil) will be active for preset value of 10 seconds and then will be off for the same 10 seconds preset value. This on/off pattern will continue until the Input Signal is taken away.

Information herein is provided by FactoryMation Technical Support “as is” with no guarantee of any kind. Customer is solely responsible for validating application, operation, maintenance, and code compliance and other information and data relating to the installation, operation, safety and maintenance of all components. FactoryMation does not guarantee that this information is suitable for your application, nor does FactoryMation assume any responsibility for your product design, installation, testing, or operation.

Example 6: Mode 6 (Flash Timer 2)

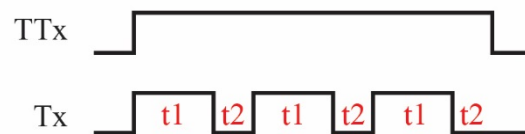
Mode: 6
Time Base: 1 SEC
Preset Type: N (Numeric Constant)
Preset Value: 2 seconds (Shown as 0002)
Reset Input: I02



T01 (Timer Instruction) begins timing up when the Input Signal is given. The T01 (Timer Coil) will be active for preset value of 2 seconds and then will be off for the same 2 seconds preset value. This on/off pattern will continue until I02 (Reset) has been given.

Example 7: Mode 7 (Flash Timer 3)

Mode: 7
Output Type: P
Time Base: T01: 1 SEC
 T02: 1 SEC
Preset Type: N (Numeric Constant)
Preset Value: T01: 2 seconds (Shown as 0002)
 T02: 1 second (Shown as 0001)



The Mode 7 function will automatically be set when Output Type P is selected in the T01 (Timer Coil) edit: contact/coil settings. The T01 (Timer Instruction) begins timing up when the Input Signal is given. T01 (Timer Coil) will be active for T01 preset value of 2 seconds and then will be off for T02 preset value of 1 second. This on/off pattern will continue until the Input Signal has been taken away.

Information herein is provided by FactoryMation Technical Support "as is" with no guarantee of any kind. Customer is solely responsible for validating application, operation, maintenance, and code compliance and other information and data relating to the installation, operation, safety and maintenance of all components. FactoryMation does not guarantee that this information is suitable for your application, nor does FactoryMation assume any responsibility for your product design, installation, testing, or operation.