



# Andhra Pradesh State Skill Development Corporation



The image is a composite of two parts. On the left, there is a teal-colored graphic illustrating a Learning Management System (LMS). It features a central computer monitor displaying the 'LMS' logo, surrounded by various icons and labels: 'courses', 'documentation', 'tracking', 'e-learning management', 'education', 'system', 'software', and 'courses'. On the right, there is a photograph of three individuals (two men and one woman) wearing headsets and working on desktop computers in what appears to be a call center or customer service environment.

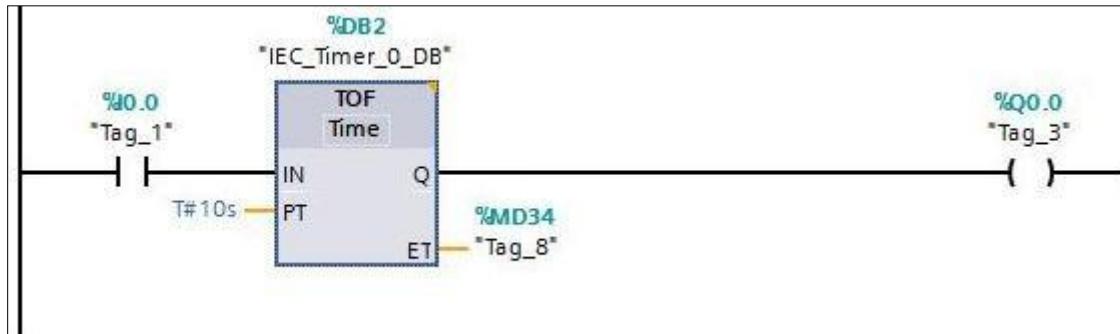
## Basics of PLC

**Off Delay timer and Time accumulator**



## TOF: Generate off-delay

You can use the "Generate off-delay" instruction to delay resetting of the Q output by the programmed duration PT. The Q output is set when the result of logic operation (RLO) at input



IN changes from "0" to "1" (positive signal edge). When the signal state at input IN changes back to "0", the programmed time PT starts. Output Q remains set as long as the duration PT is running. When duration PT expires, the Q output is reset. If the signal state at input IN changes to "1" before the PT time duration expires, the timer is reset. The signal state at the output Q continues to be "1".

The current time value can be queried at the ET output. The time value starts at T#0s and ends when the value of duration PT is reached. When the time duration PT expires, the ET output remains set to the current value until the IN input changes back to "1". If input IN switches to "1" before the duration PT has expired, the ET output is reset to the value T#0s.

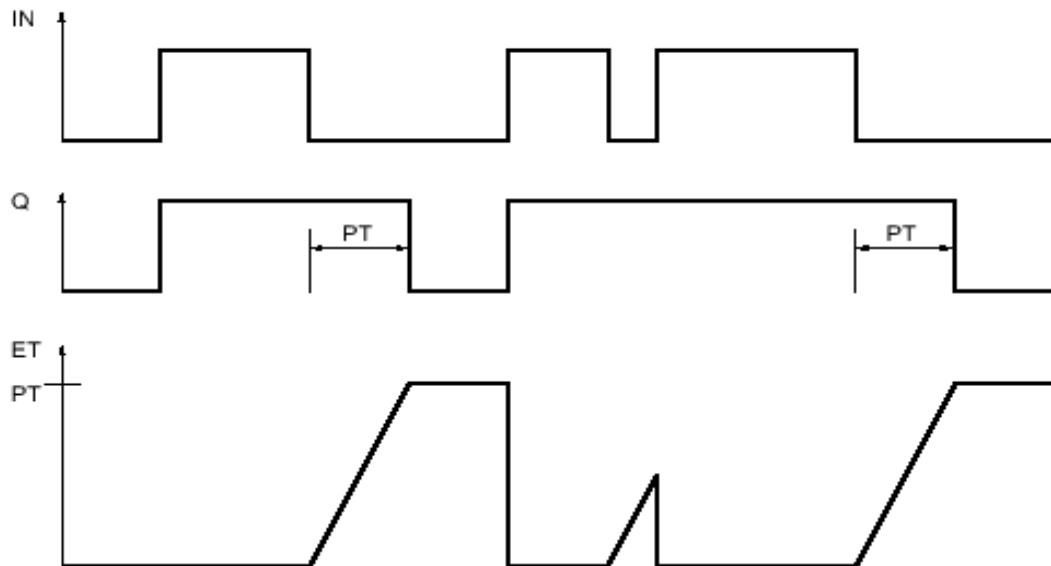
### Parameters

Parameter	Declaration	Data type	Description
IN	Input	BOOL	Start input



### Pulse timing diagram

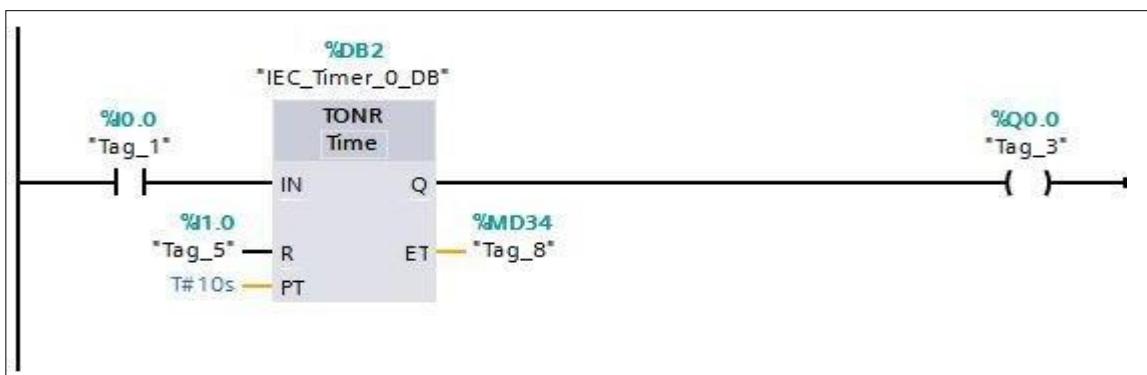
The following figure shows the pulse timing diagram of the "Generate off-delay" instruction:



PT	Input	TIME	Duration of the off delay. The value of the PT parameter must be positive.
Q	Output	BOOL	Output that is reset when the timer PT expires.
ET	Output	TIME	Current time value

### TONR: Timeaccumulator

The "Time accumulator" instruction is used to accumulate time values within a period set by the PT parameter. When the signal state at input IN changes from "0" to "1"





(positive signal edge), the instruction executes and the duration PT starts. While the duration PT is running, the time values are accumulated that are recorded when the IN input has signal state "1". The accumulated time is written to output ET and can be queried there. When the duration PT expires, the output Q has the signal state "1". The Q parameter remains set to "1", even when the signal state at the IN parameter changes from "1" to "0" (negative signal edge). The R input resets the outputs ET and Q regardless of the signal state at the start input.

## Parameters

Parameter	Declaration	Data type	Description
IN	Input	BOOL	Start input
R	Input	BOOL	Reset input
PT	Input	TIME	Maximum duration of time recording. The value of the PT parameter must be positive.
Q	Output	BOOL	Output that is set when the time PT expires.
ET	Output	TIME	Accumulated time