



# Andhra Pradesh State Skill Development Corporation



## Basics of induction Motors

**Tasks of SIMOCODE - RDOL**  
**Connection and over load fault**

## Over Load/Unbalance/Stalled protection of SIMOCODE in TIA portal:

Overload/unbalance/stalled rotor

**Overload protection**

**Set current Is1**

Set current Is1: 0.30 A

☐ Transformation ratio - active

Class: 5

Response to trip level: Trip

Cooling down period: 60.0 s

Pause time: 0.0 s

Type of load: tri-phase

Response to prewarning level ( $I > 115\% I_s$ ): warn

Delay prewarning ( $I > 115\% I_s$ ): 0.0 s

Reset: Manual

Over load protection can be done for different tripping classes and different ranges.

## Upper/Lower current limit violation of SIMOCODE in TIA portal:

**Current limits**

**I > (higher limit)**

Trip level: 200 % of Is

Response to trip level: Trip

Trip delay: 0.0 s

Warning level: 0 % of Is

Response to warning level: warn

Warning delay: 0.0 s

**I < (lower limit)**

Trip level: 0 % of Is

Response to trip level: deactivated

Trip delay: 0.5 s

Warning level: 0 % of Is

Response to warning level: deactivated

Warning delay: 0.5 s

Upper/Limit current violation will give signal/warning/Tripping when current limit is violated.

## Indication LEDs:

Basic unit

BU - output 1:	<input type="text" value="Protection/Control - 1 QE1"/>	<input type="button" value="LED"/>
BU - output 2:	<input type="text" value="Protection/Control - 2 QE2"/>	<input type="button" value="LED"/>
BU - output 3:	<input style="background-color: #007bff; color: white;" type="text" value="Protection/Control - QLE&gt; (ON&gt;)"/>	<input type="button" value="LED"/>

Digital module 1

DM - output 1:	<input type="text" value="Protection/Control - QLA (OFF)"/>	<input type="button" value="LED"/>
DM - output 2:	<input style="background-color: #007bff; color: white;" type="text" value="Protection/Control - QLE&lt; (ON&lt;)"/>	<input type="button" value="LED"/>

The LEDs will glow depending on the condition of the motor (ON/OFF)

## Flashing/Flickering:

Flashing

> Flashing 1

Flashing - input:	<input style="background-color: #f0f0f0;" type="text" value="Protection/Control - QLE&gt; (ON&gt;)"/>
-------------------	---

> Flashing 2

Flashing - input:	<input type="text" value="Protection/Control - QLA (OFF)"/>
-------------------	---

> Flashing 3

Flashing - input:	<input style="background-color: #007bff; color: white;" type="text" value="Protection/Control - QLE&lt; (ON&lt;)"/>
-------------------	---

The LEDs will flash depending on the condition of the motor (ON/OFF)

Flicker

> Flicker 1

Flicker - input: Protection/Control - QLE> (ON>)

> Flicker 2

Flicker - input: Protection/Control - QLA (OFF)

> Flicker 3

Flicker - input: Protection/Control - QLE< (ON<)

The LEDs will flicker depending on the condition of the motor (ON/OFF)

## Timer:

> Timer 1

Timer - input: BU inputs - input 1

Timer - reset: BU inputs - test/reset button

Timer - type: with closing delay

Timer - limit value: 10.0 s

## Counter:

> Counter 1

Counter - input +: BU inputs - input 1

Counter - input -: BU inputs - input 3

Counter - reset: BU inputs - test/reset button

Counter - limit value: 5



## TruthTable:

> Truth table 1 3I/1Q

Truth table - Input 1: BU inputs - input 3

Truth table - Input 2: BU inputs - input 2

Truth table - Input 3: BU inputs - input 1

Truth table 1 3I/1Q:

I1	I2	I3	O1
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	0

## Calculator:

> Calculator 1

Formula Editor

1

×

Current I<sub>L1</sub> (% of I<sub>s</sub>) - Current I<sub>L1</sub>

+

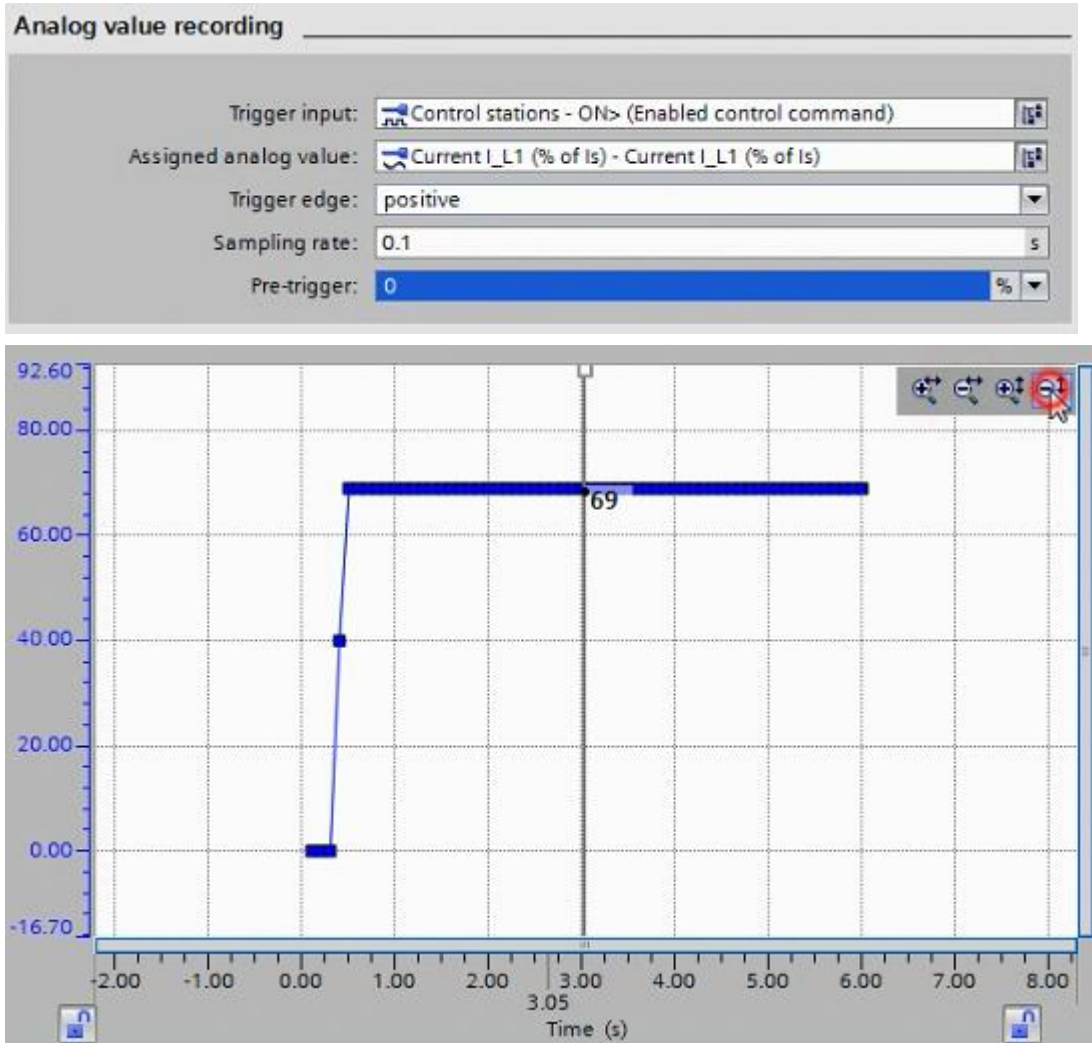
0

=

1

Using timers/counters/truth tables/calculators in SIMOCODE with different logics and configurations can be applied to attain different applications of motors.

## Parameter Recording:



Recording current value as a percentage in SIMOCODE Pro