TYPE TESTING REPORT

INTERNSHIP REPORT

By DHRUV TYAGI

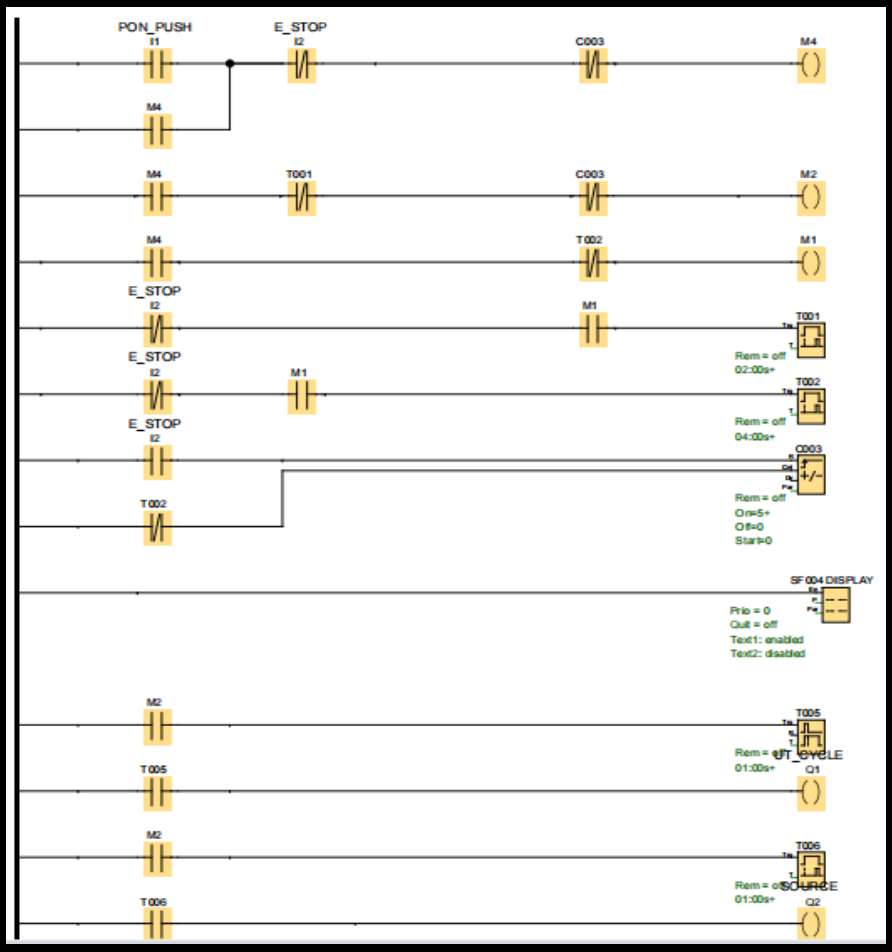
MENTOR NAME:

MR. AKASH BANDIVDEKAR

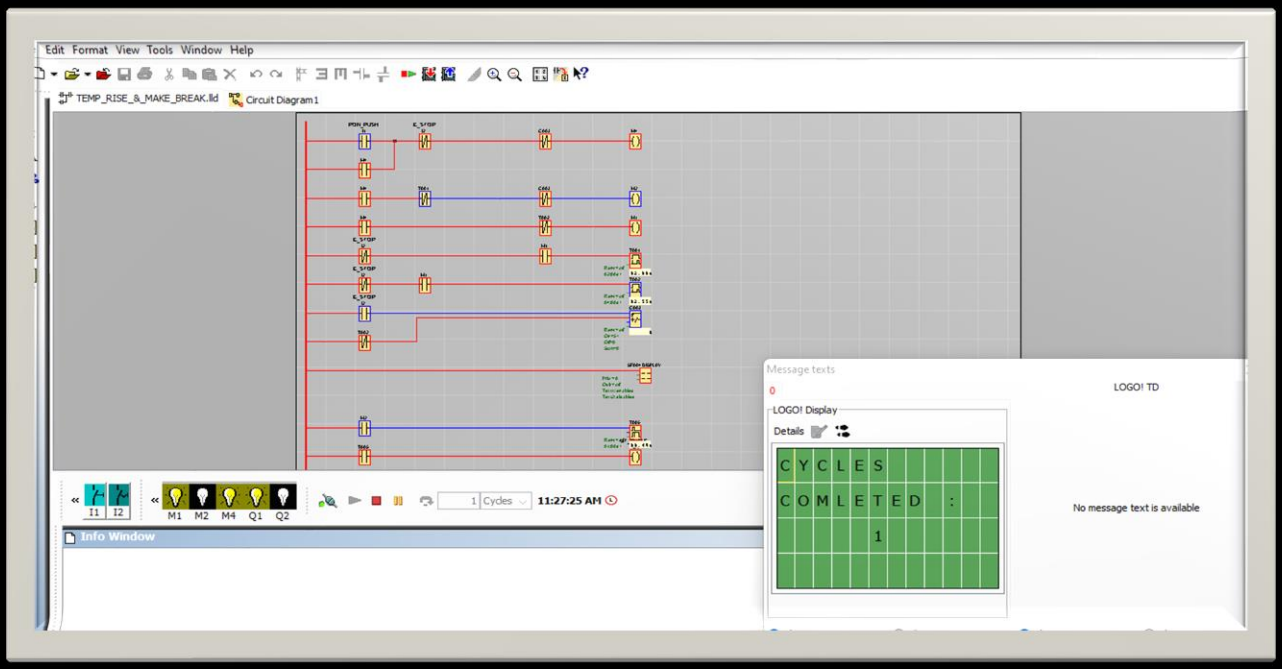
TEMPERATURE RISE TEST

'IT IS A TEST WHICH IS USED TO FIND THE RISE OF TEMPERATURE IN THE PRODUCT AND ITS SURROUNDINGS ON PASSING THE RATED CURRENT FOR A PERIOD OF TIME TILL THE CHANGE IN TEMPEARTURE GETS SATURATED. IT HELPS TO KNOW IF ANY WILL INTERFERE OR NOT WITH WORKING OF OTHER PRODUCTS IN ITS ENVIRONMENT.'

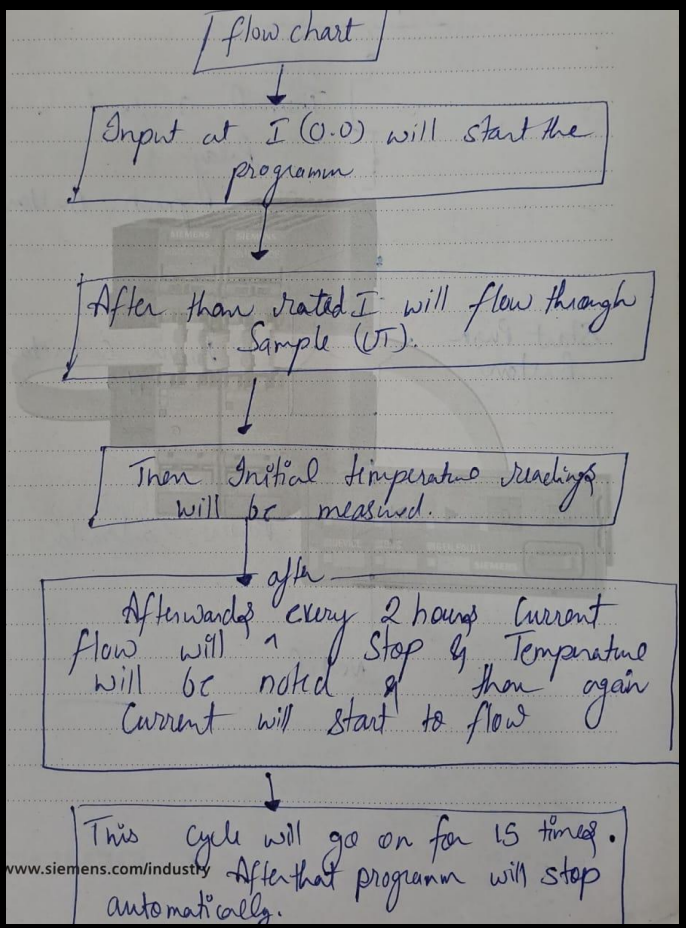
LOGO LADDER LOGIC



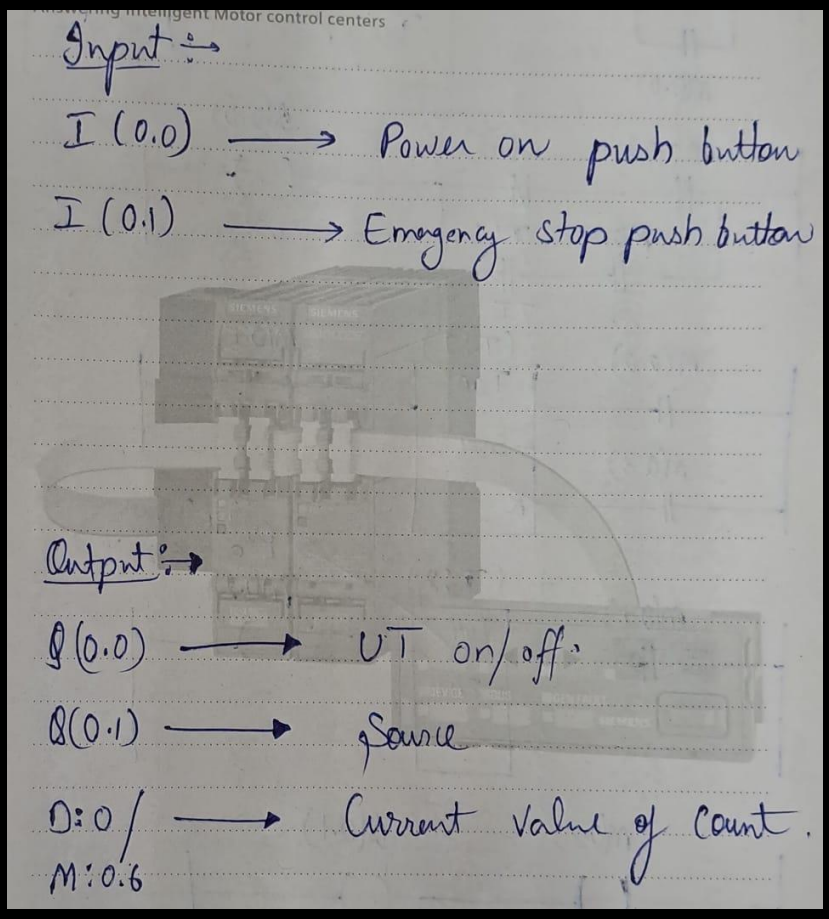
LOGO LADDER LOGIC OUTPUT



FLOW CHART OF TR TEST



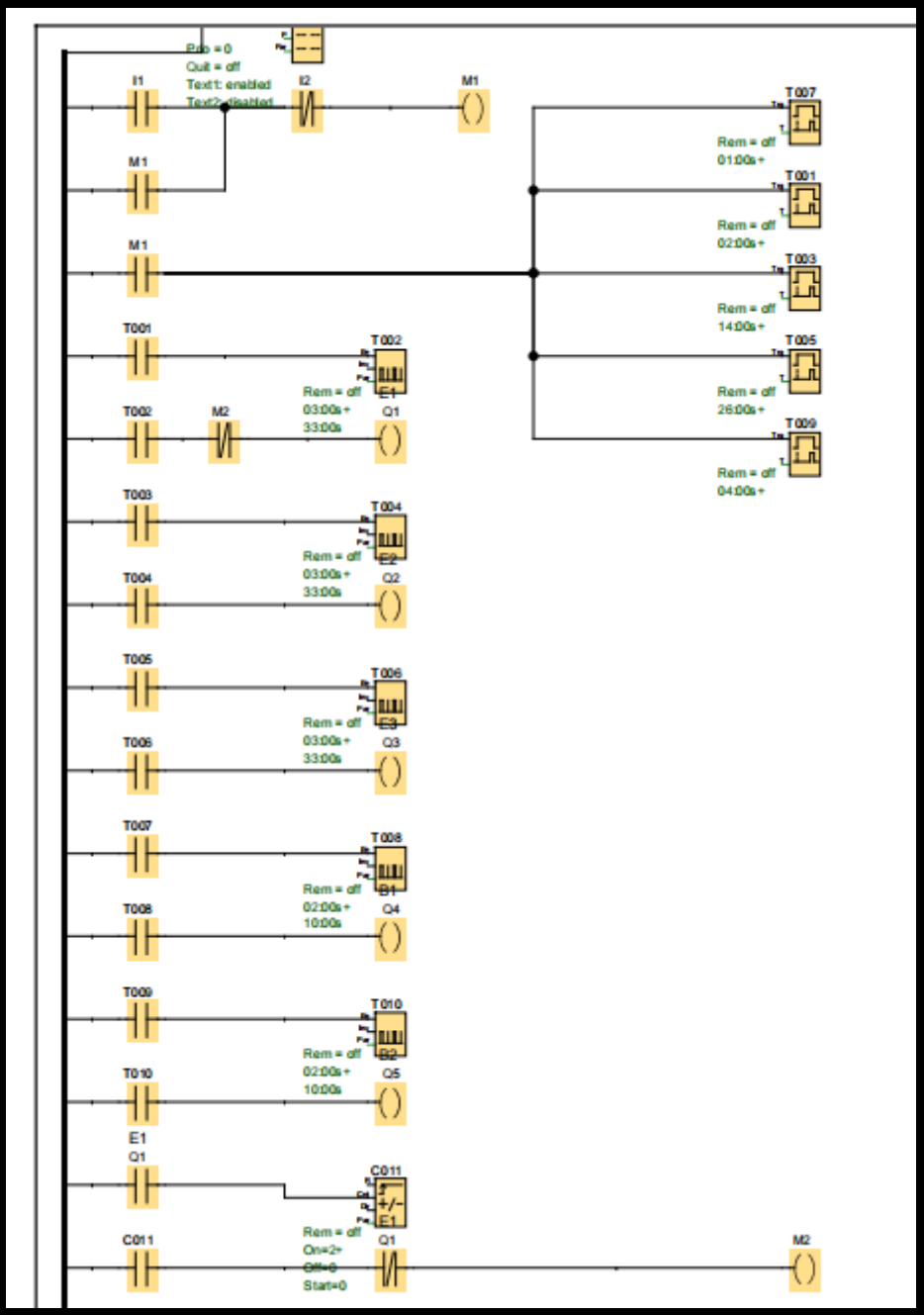
INPUT AND OUTPUT MODULES OF TR TEST.



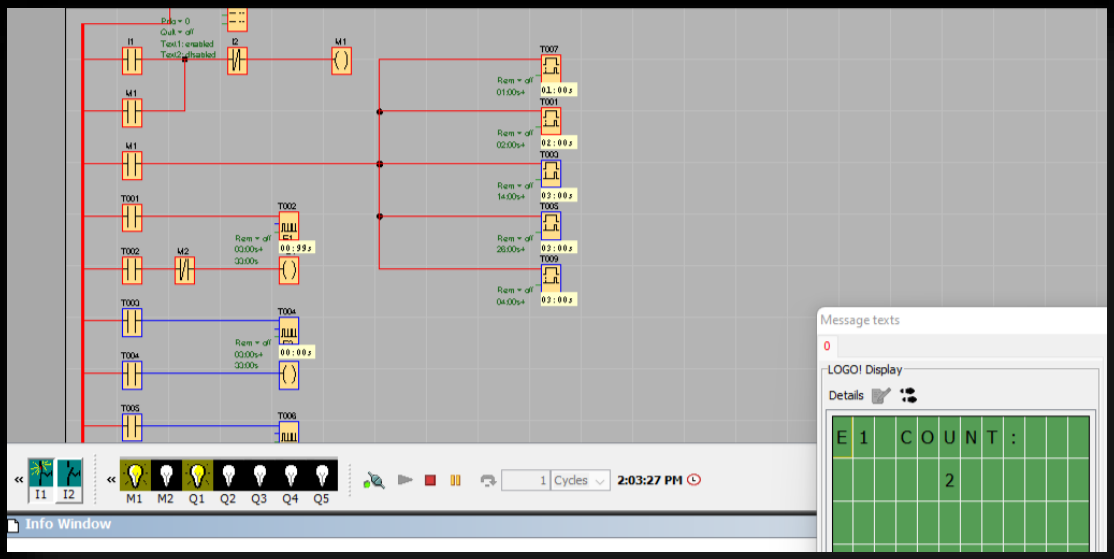
ELECTRICAL ENDURANCE TEST (AC3)

'The test is conducted on the EUT with two backup supplies- one for providing the making current and the other for providing the breaking current. The parameters measured in the Electrical endurance test are the making and breaking current. This test is conducted to evaluate the electrical life of a product.'

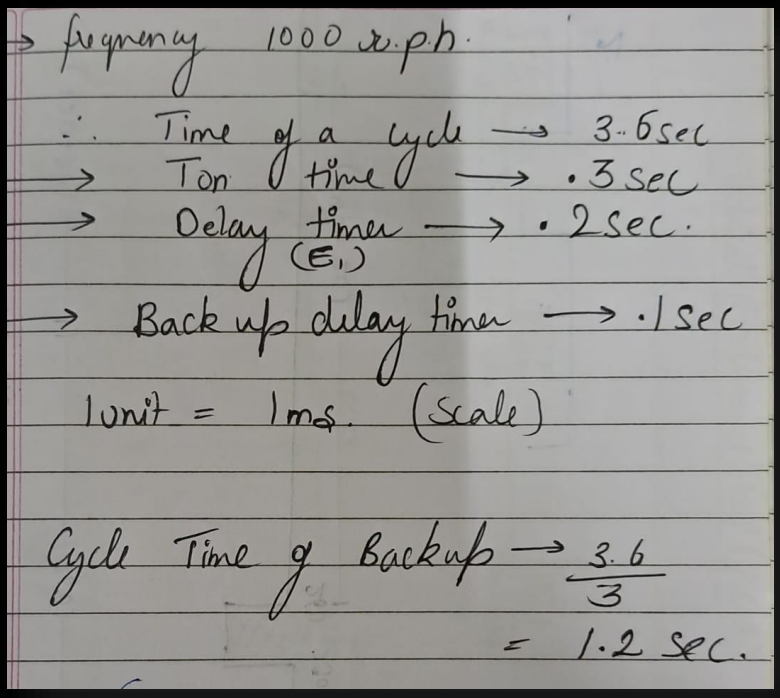
LOGO LADDER LOGIC FOR AC3 EET

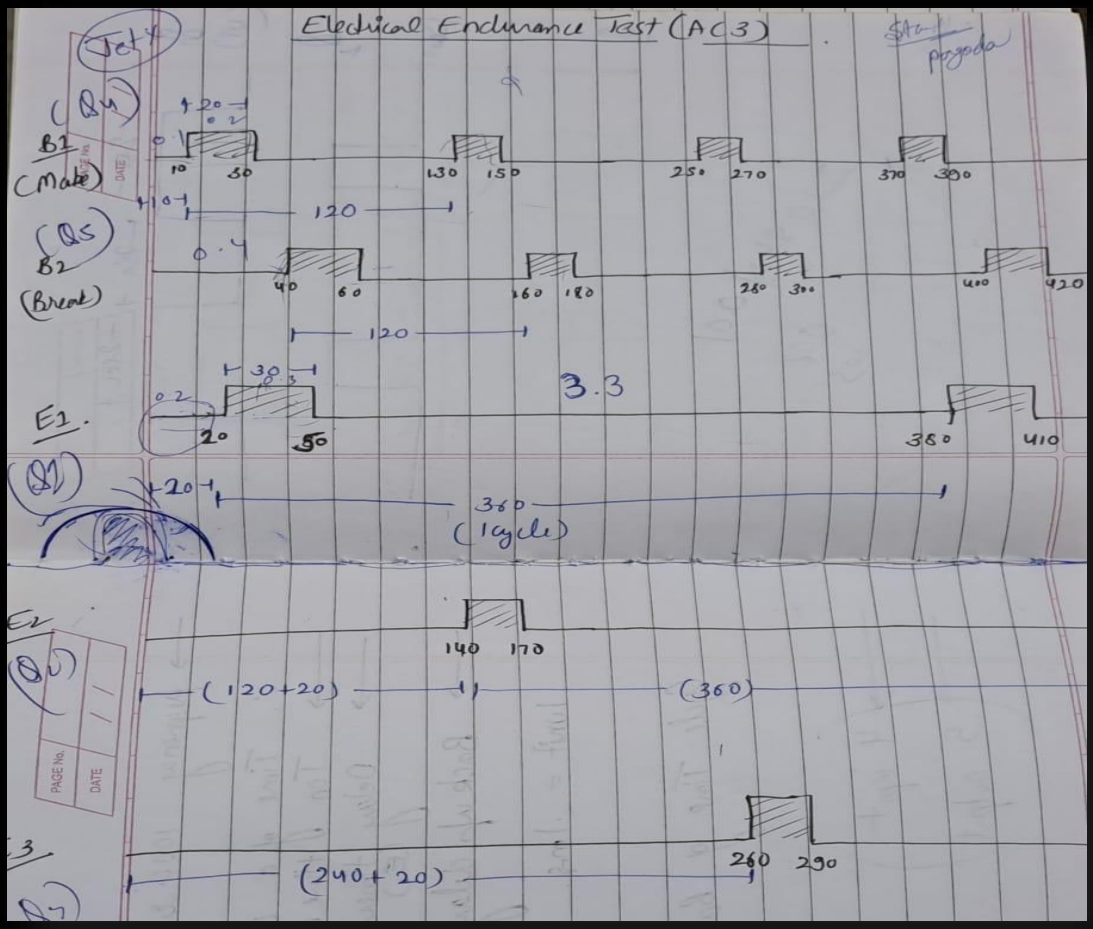


OUTPUT OF LADDER LOGIC PROGRAMM



CYCLE DIAGRAM WITH GIVEN PARAMETERS



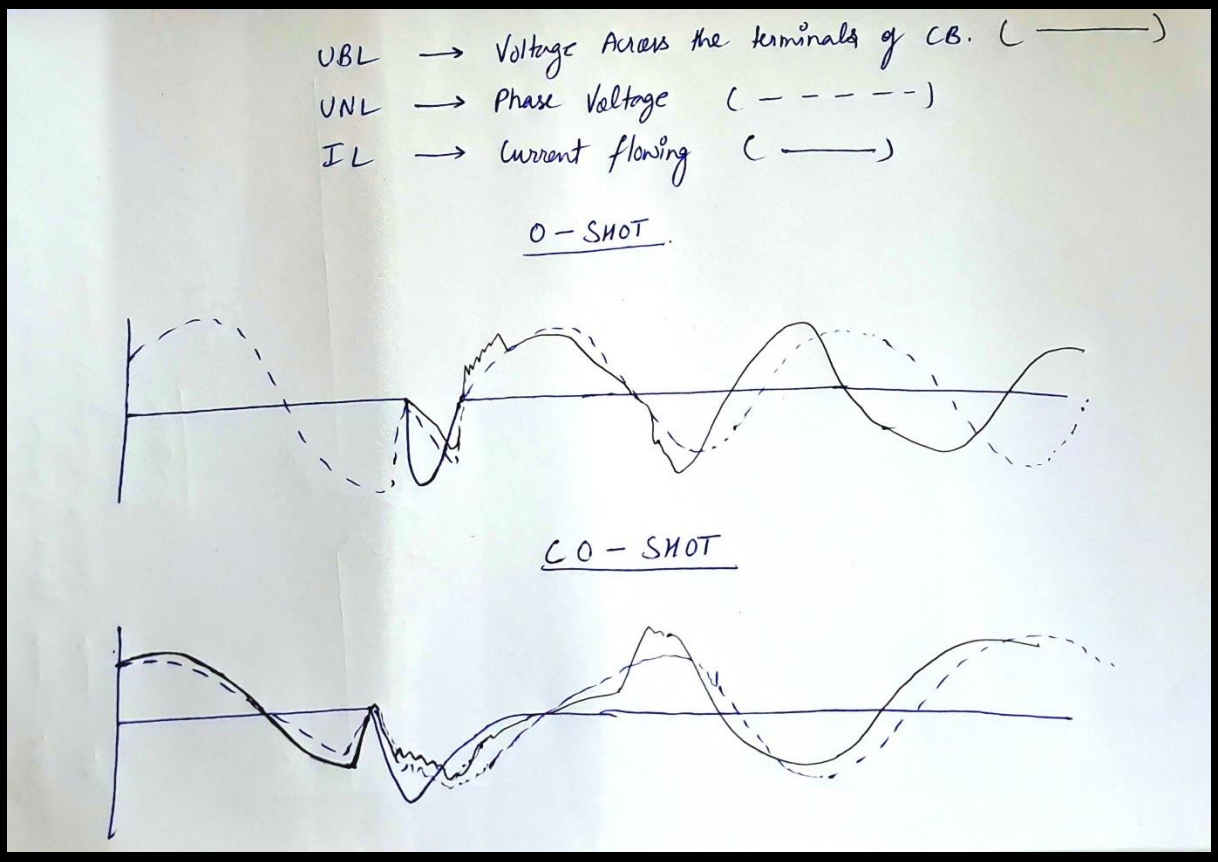


SHORT CIRCUIT TEST

Short Circuit tests are used for verification of CBs ability to limit the size of current which is set for testing circuit.

The sequence of operation is of three types:

- **O (Operation of opening, CB is initially closed.)**
- **CO (operation of closing followed by automatic opening, CB is initially opened.)**
- **T (time interval between 2 consecutive operations must take 3 min or longer in a given switching.)**



MAKE AND BREAK TEST

Its main objective is to check the electrical durability at different current conditions.

- **Make and Break condition**

I = 8 times of Rated current
No of cycles = 50

Power factor = 0.45 (for rated I <= 100 A), 0.35 (for rated I > 100 A)

- **Make condition**

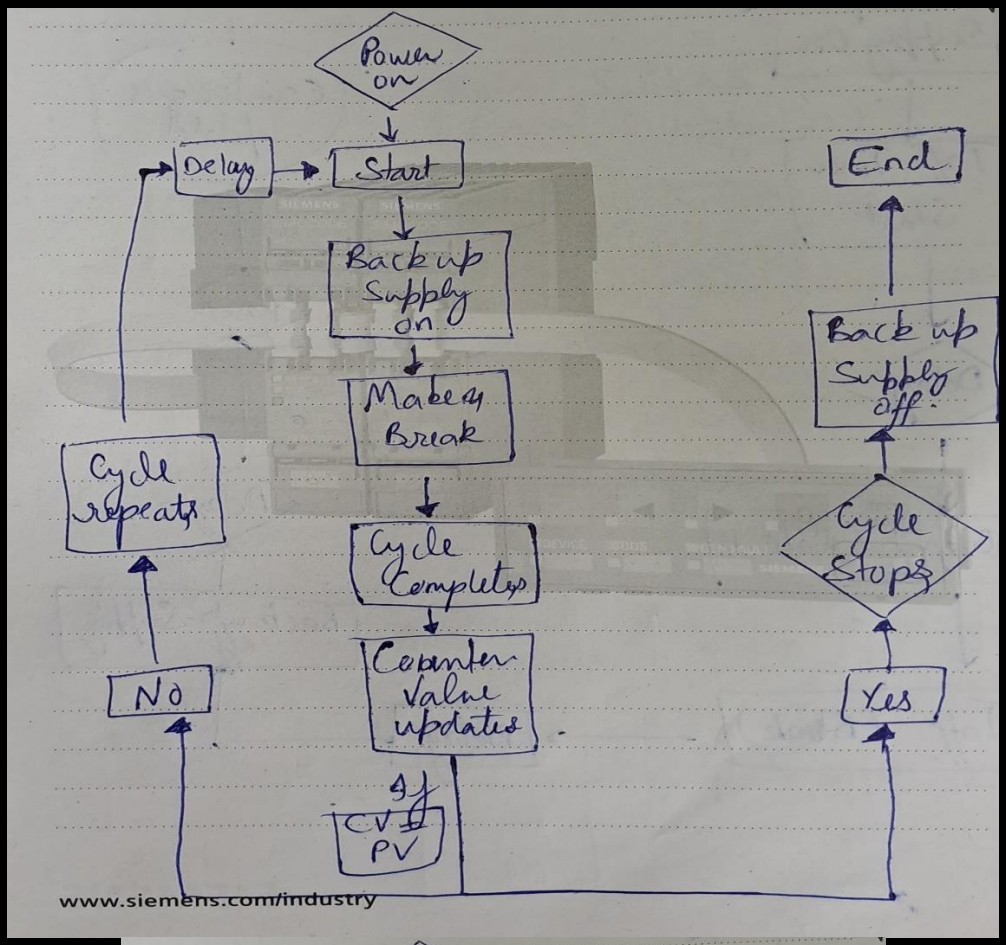
I = 10 times of Rated current
No of cycles = 50

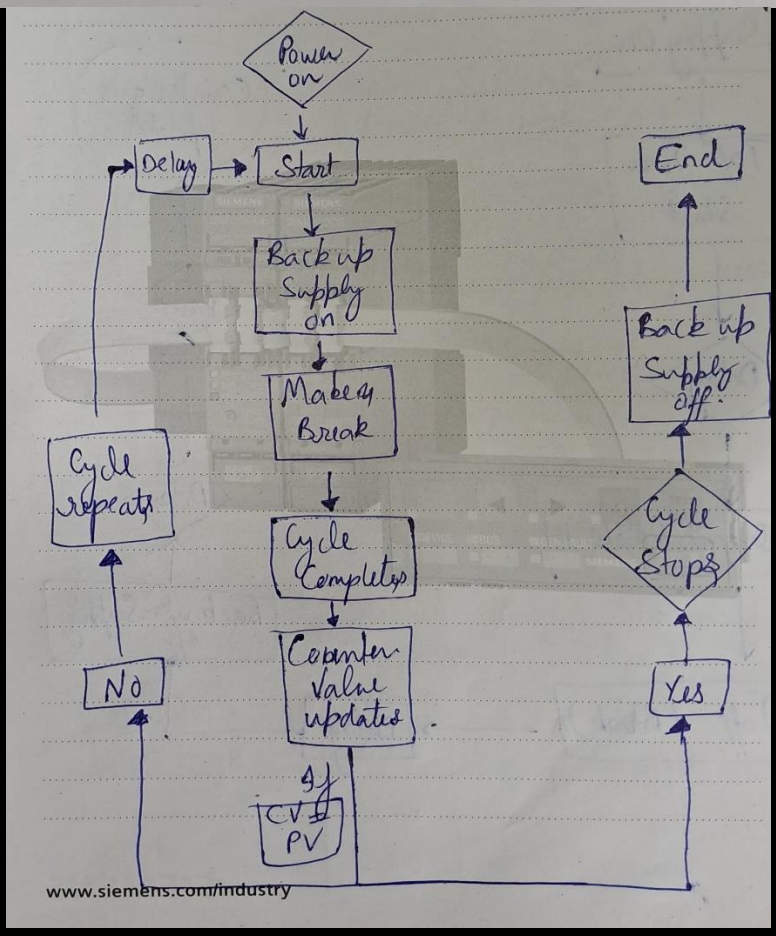
Power factor = 0.45 (for rated I <= 100 A), 0.35 (for rated I > 100 A)

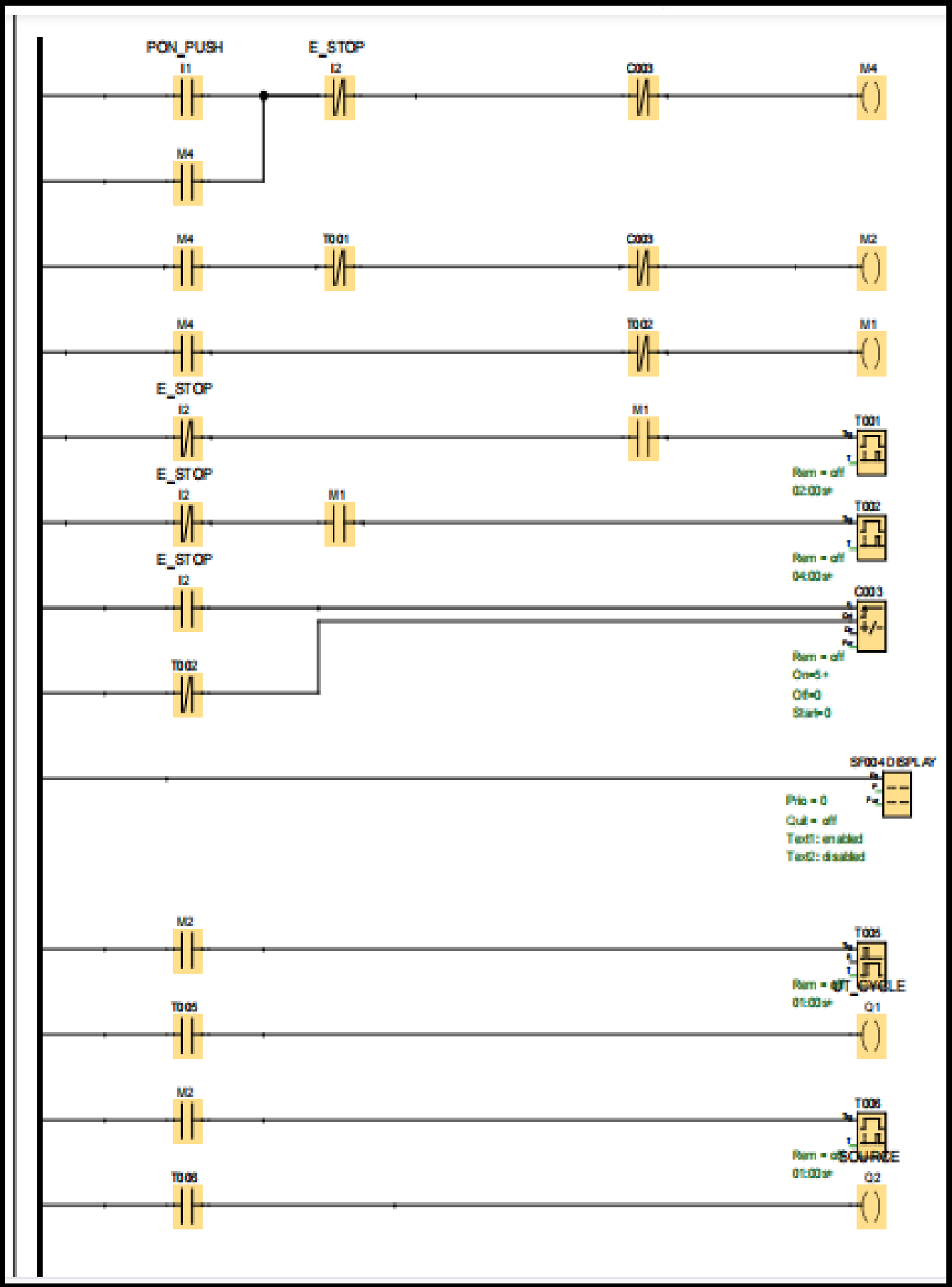
- **Conventional Operational Performance (COP)**

I = 2 times of Rated current
No of cycles = 6000

MAKE AND BREAK LOGO LADDER LOGIC AND OUTPUT


Power on
Delay
Start
Back up Supply on
Make & Break
Cycle Completes
Counter Value updates
If CV = PV
No
Cycle repeats
Yes
Cycle Stops
Back up Supply off
End
www.siemens.com/industry

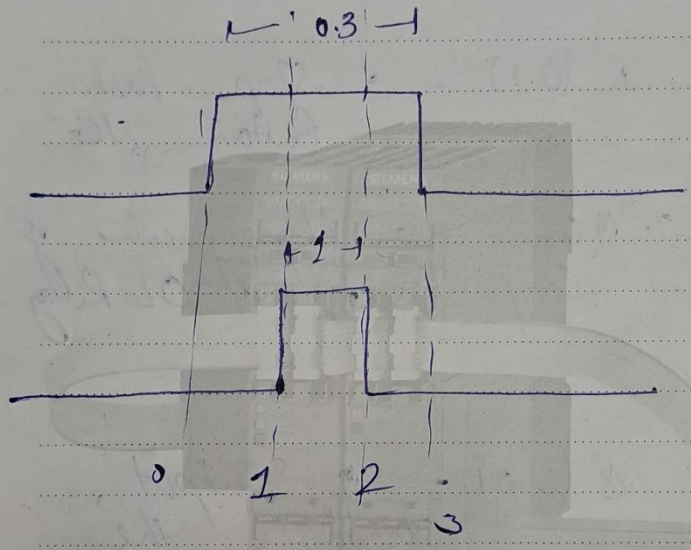

Power on
Delay
Start
Back up Supply on
Make & Break
Cycle Completes
Counter Value updates
If CV = PV
No
Cycle repeats
Yes
Cycle Stops
Back up Supply off
End
www.siemens.com/industry


PON_PUSH
I1
E_STOP
I2
C003
M4
M4
M4
T001
C003
M2
M4
T002
M1
E_STOP
I2
M1
T001
Rem = off
02:00 hr
E_STOP
I2
M1
T002
Rem = off
04:00 hr
E_STOP
I2
C003
Rem = off
On=5
Off=0
Start=0
T002
SF004DISPLAY
Prio = 0
Out = off
Text1: enabled
Text2: disabled
M2
T005
Rem = off
01:00 hr
T005
Q1
M2
T006
Rem = off
01:00 hr
T006
Q2

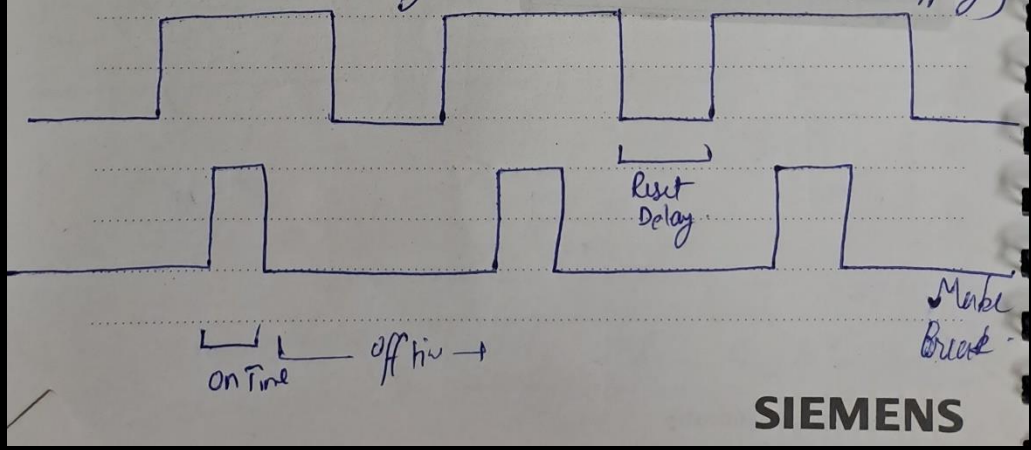
• Make break circuit Emul- Visual Representation

Example in Consideration →

- Back up power supply will be on for 3 ms
- UT will make break in 1 ms.



• Make Break Cycle :→



SIEMENS

ENVIRONMENTAL TEST

THE OBJECTIVE OF THIS TEST IS TO CHECK WHETHER THE PRODUCT CAN WITHSTAND THE ENVIRONMENTAL CONDITIONS AS SPECIFIED BY THE MAKERS.

IN THIS VARIOUS CLIMATIC CONDITIONS ARE STIMULATED IN A CHAMBER IN WHICHN PRODUCTS ARE KEPT FOR A SPECIFIC TIME.

THEN THE PRODUCTS BEFORE AND AFTER CONDITIONS ARE COMPARED AND IS JUDGED ON THE BASIS OF THE STANDARDS.

INGRESS PROTECTION (IP) TEST

Ingress Protection testing, or IP testing, determines a product's susceptibility to solid particle ingress (sand or dust) as well as water ingress.

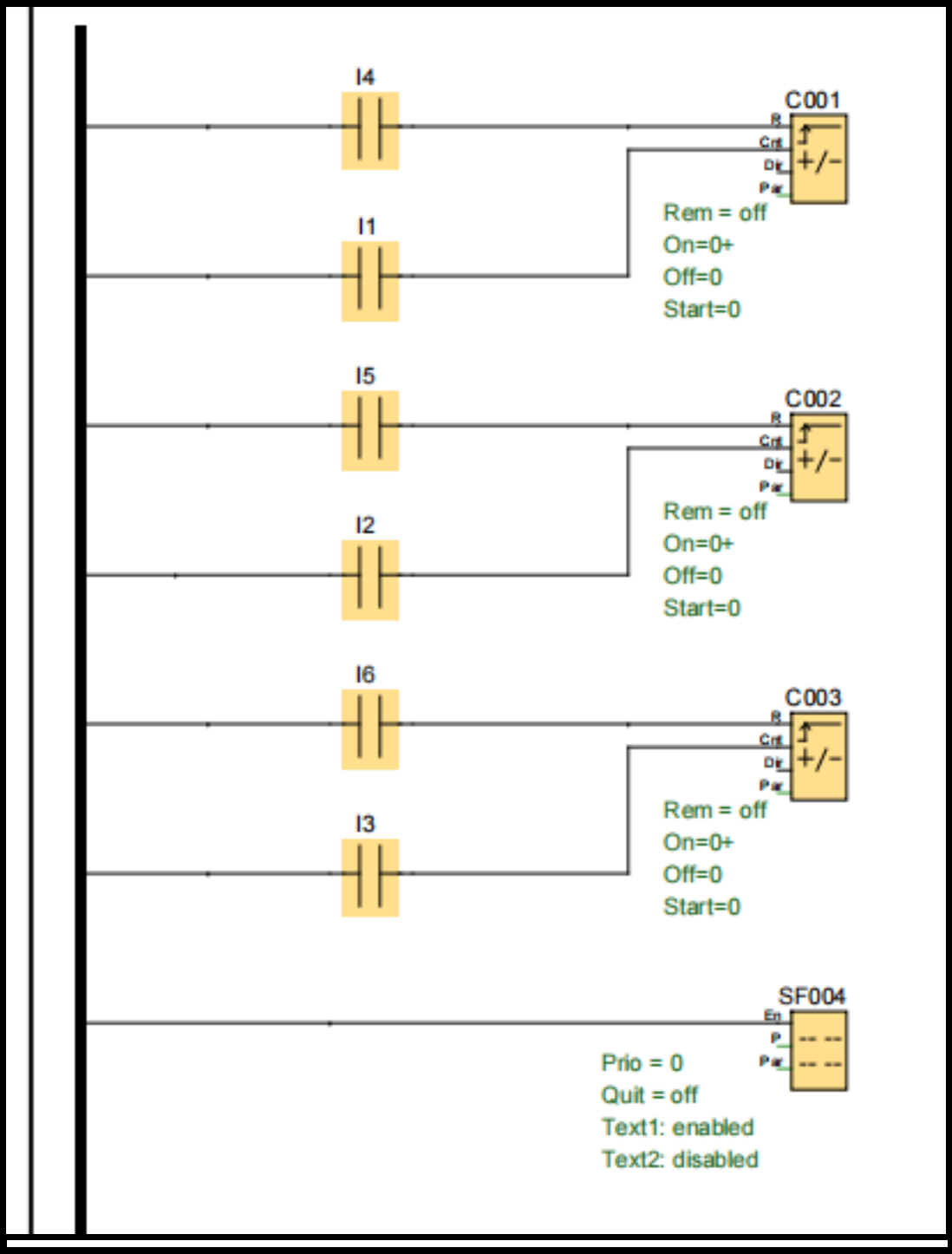
An IP rating is made up of two parts: the first part is solid particle protection which indicates the level of protection the enclosure has from ingress of solid foreign objects and dust. The second part is water ingress protection which designates the level of protection the enclosure provides against the ingress of water. The more effective the protection of the enclosure, the higher the IP rating.

IP68 ratings occupy the very top of the IP rating scale. Both digits are at their maximum level:

- **A 6 for total protection against solid ingress.**
- **An 8 for total protection against water ingress, up to and including complete submersion below one meter and for more than 30 minutes.**

MECHANICAL DURABILITY TEST

LOGO LADDER LOGIC



Durability Testing is a Performance testing technique used to determine the characteristics of a system under various load conditions over time.

It is mostly done on products like Emergency Stop Button. Currently, 6050 manual operations are done in the testing of Stop Buttons.

DL 850 YOKOGAWA SCOPE CODER

1) IT IS USED FOR HIGH SPEED MEASUREMENT WHILE ENCORPORATING LONG RANGE OF RECORDING.

2) IT HAVE UPTO 15 CHANNELS (INPUT MODELS) WITH HIGH RESOLUTION AND LOW NOISE.

3) ALL TYPES OF MEASUREMENTS CAN BE DONE INCLUDING TEMP., VOLTAGE, CURRENT, ACCELERATION , PHYSICAL PARAMETERS , ETC. AND CAN BE USED TO TUNE FREQUENCY OVER TIME.

4) IT HAVE VARIOUS ADDITIONAL OPTIONS FOR SETTING RANGE FROM COLOR TO TUNING , CHANGING COUPLING, VERTICAL RESOLUTION BANDWIDTH, ETC.

5) IT HAVE **HS 100 M 12** HIGH SPEED MODULES UPTO 100 MEGA SAMPLES PER SECOND, WITH A RANGE OF RESOLUTION OF 12 TO 16 BITS.