

LAB WORK REPORT

One report per group. Attach the program listing printed from STEP 7-Micro/WIN. The “Initials” boxes are signed by the instructor during the session. Grey italic text is an example: replace it.

LAB TITLE		LAB NO. 0 · 1 · 2 · 3 · 4 · 5 · 6
GROUP	BENCH NO.	SESSION DATE
INSTRUCTOR		CPU AND FIRMWARE READ

PREPARATION	PROGRAM	BENCH	REPORT	TOTAL
..... / 3	 / 6	 / 6	 / 5	 / 20

0 THE GROUP

FULL NAME	STUDENT ID	ROLE AT THE BENCH	SIGNATURE
		Programmer / Tester / Reporter	
		Programmer / Tester / Reporter	
		Programmer / Tester / Reporter	

Roles: programmer, tester (operates the bench and fills in the log), reporter. Swap roles from one lab to the next.

1 PREPARATION (/ 3)

Done before the session. For each preparation question: the answer, the working, the value and its unit.

QUESTION	ANSWER OR WORKING	VALUE	UNIT
<i>P1</i>	<i>Preset of T37 for 5 s, 100 ms base: 5 / 0.1</i>	<i>50</i>	<i>× 100 ms</i>

2 FUNCTIONAL ANALYSIS

2.1 INPUT / OUTPUT AND SYMBOL TABLE

ADDRESS	SYMBOL	BENCH DEVICE	NO / NC	COMMENT
I0.1	STOP_NC	STOP switch	NC	1 at rest, 0 when pressed or wire broken

A stop, emergency-stop or safety limit device is wired NC: at rest the input reads 1, and a broken wire makes it 0.

2.2 GRAFCET

GRAFCET

Draw or paste the GRAFCET here (numbered steps, transition conditions written with the symbols, actions to the right of the steps).

- ☐ One initial step (double square)
- ☐ Every transition has a condition
- ☐ Timers are written t/Xi/duration
- ☐ Stored actions have their reset

GRAFCET APPROVED BEFORE PROGRAMMING · INITIALS

2.3 INTERNAL RESOURCES USED

RESOURCE	ADDRESS	PURPOSE
<i>Timer</i>	<i>T37</i>	<i>Duration of step 1 (5 s)</i>

3 PROGRAM (/ 6)

Attach the ladder listing and the symbol table printed from Micro/WIN. Here, the map of the program: one network per row.

NETWORK	NETWORK TITLE	STEP OR FUNCTION
<i>1</i>	<i>Initialisation on the first scan (SM0.1)</i>	<i>Step 0, safety, display...</i>

- ☐ Every network has a title and a comment
- ☐ Symbols are used everywhere, no bare addresses
- ☐ Each output is written only once
- ☐ Safety conditions (stop, limit switches) act outside the steps

4 TEST LOG

Write the expected result before the test, then what you observe on the bench.

NO.	ACTION OR CONDITION	EXPECTED	OBSERVED	OK?	INITIALS
1	Press START, STOP at rest	Q0.0 = 1 and stays at 1			

SIGNED CHECKPOINTS

CHECKPOINT	EXPLAINED BY	TIME	INITIALS
PC - CPU communication		10:40	

The instructor signs after a group member who did not program the network explains it.

5 FAULT INJECTION (bench / 6)

Every fault listed in the lab sheet is really provoked. A fault must stop the machine, never start it.

FAULT PROVOKED	HOW	EXPECTED SAFE STATE	OBSERVED	SAFE?	FIX	INITIALS
<i>STOP wire broken</i>	<i>I0.1 to OFF, motor running</i>	<i>Q0.0 = 0, no restart on its own</i>				

6 DISCUSSION (/ 5)

ANSWERS TO THE LAB QUESTIONS

DIFFICULTIES MET AND HOW YOU SOLVED THEM

POSSIBLE IMPROVEMENTS

GROUP DECLARATION

☐ We declare that this report and the attached program are our group's own work. Any outside help (classmates, documents, AI tools) is listed below.

HELP AND SOURCES USED

SIGNATURE, MEMBER 1

SIGNATURE, MEMBER 2

SIGNATURE, MEMBER 3

✓ MARKING GRID (instructor)

PART	WHAT IS ASSESSED	MARK
Preparation	I/O table and GRAFCET correct before the session, preparation calculations	 / 3
Program	Behaviour; symbols, SCR steps, comments	 / 6
Bench demonstration	Functions shown; every fault-injection test ends in a safe state	 / 6
Report	Complete, clear, tables filled in and signed, answers justified	 / 5
Total		 / 20

INSTRUCTOR'S REMARKS