



# STAND ELECTRO-PNEUMATIC CONTROLAT PRIN PLC

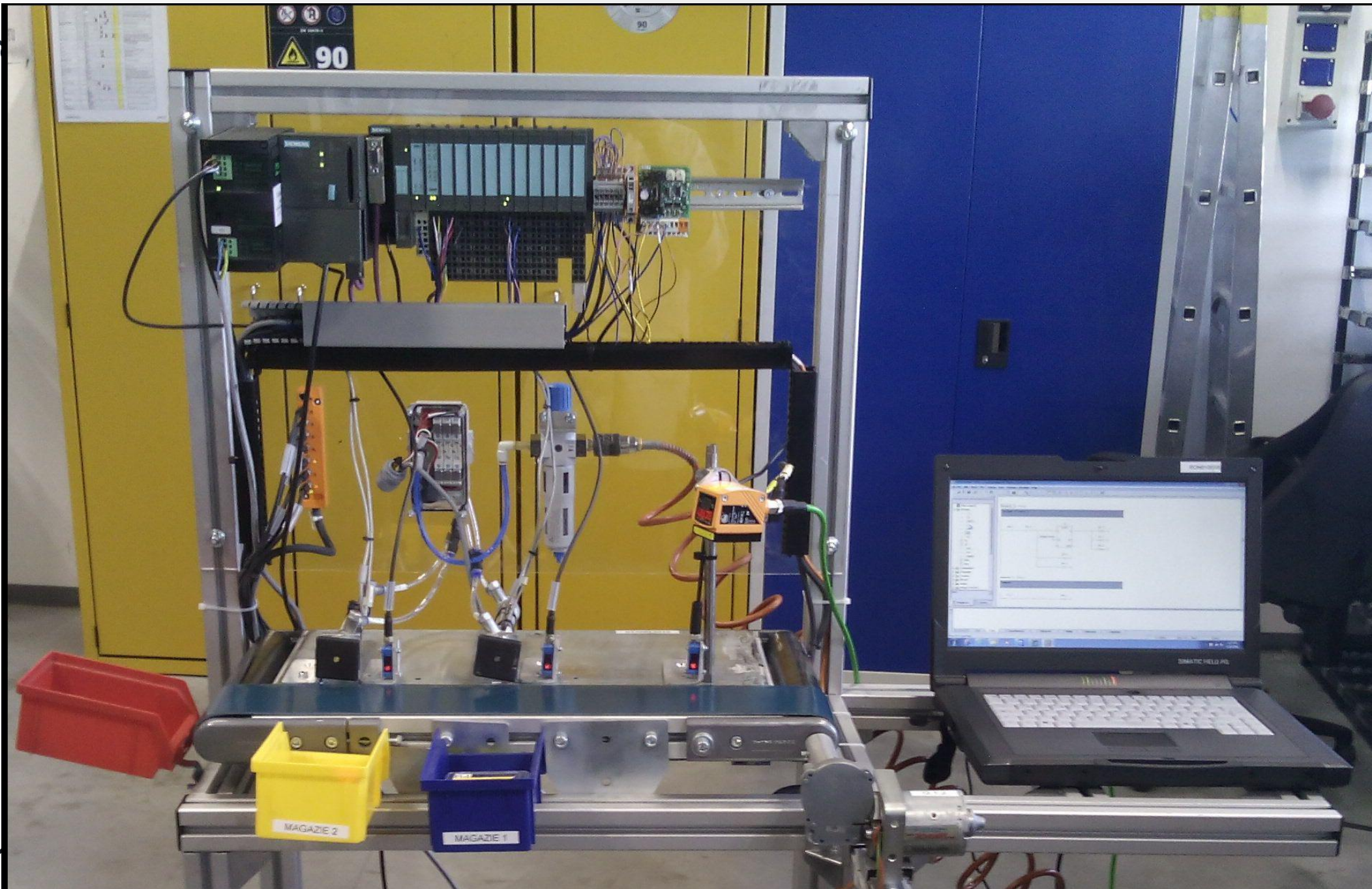
COORDONATORI:

Ș.L. DR. ING. Valentin CIUPE

Ș.L. DR. ING. Cristian MOLDOVAN

STUDENT:

Liviu Ilie COSTEA



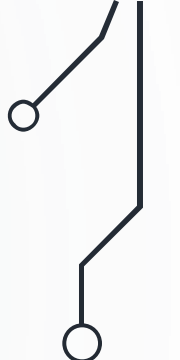


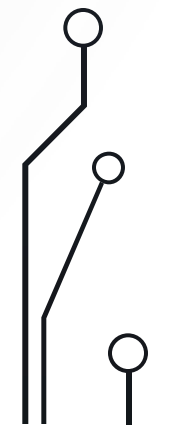
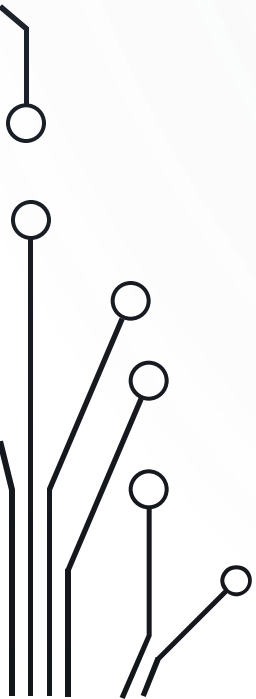
# CONȚINUT:

- Scopul lucrării
- Schema electrică a standului
- Programare PLC
- Programare Camera
- Concluzii

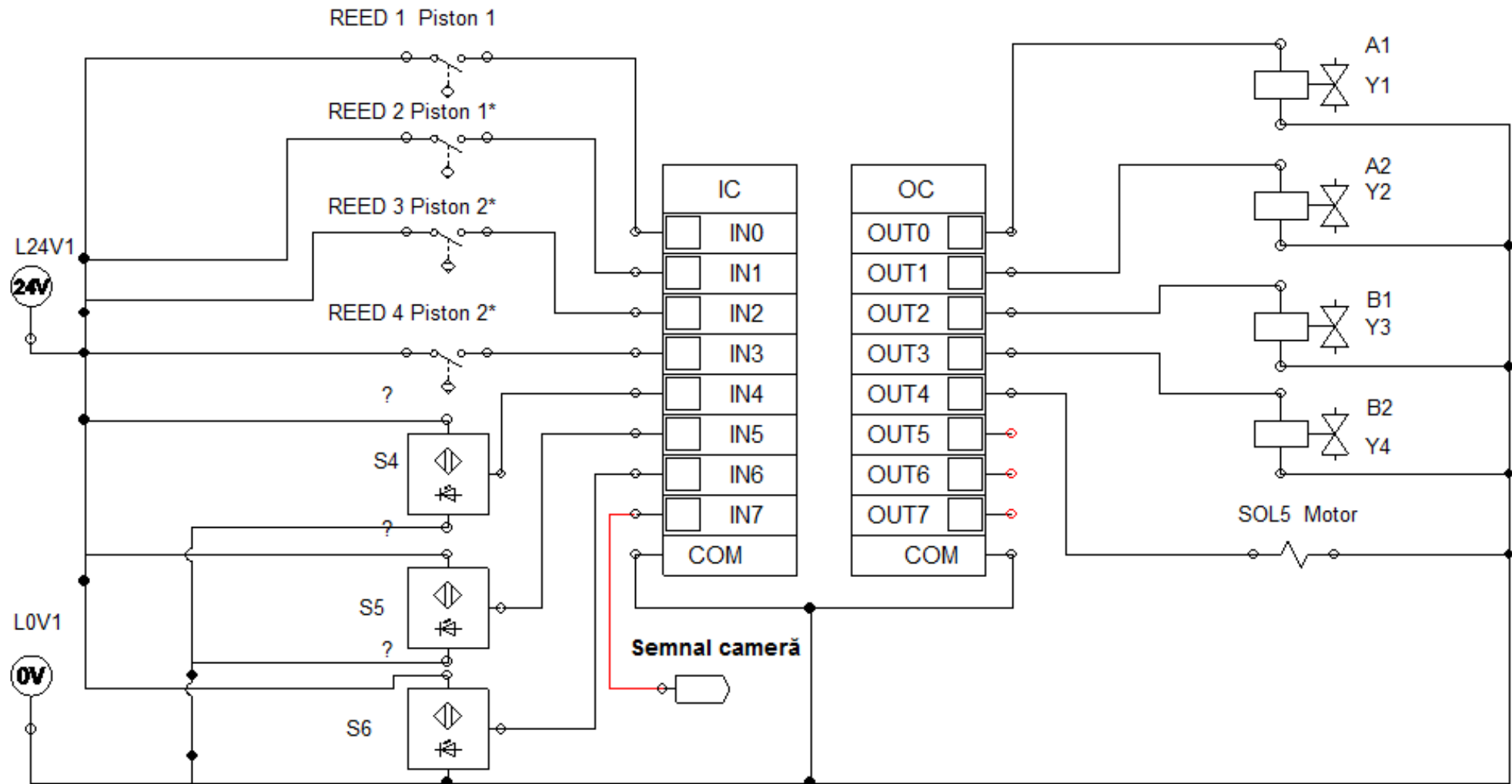


# SCOPUL LUCRĂRII

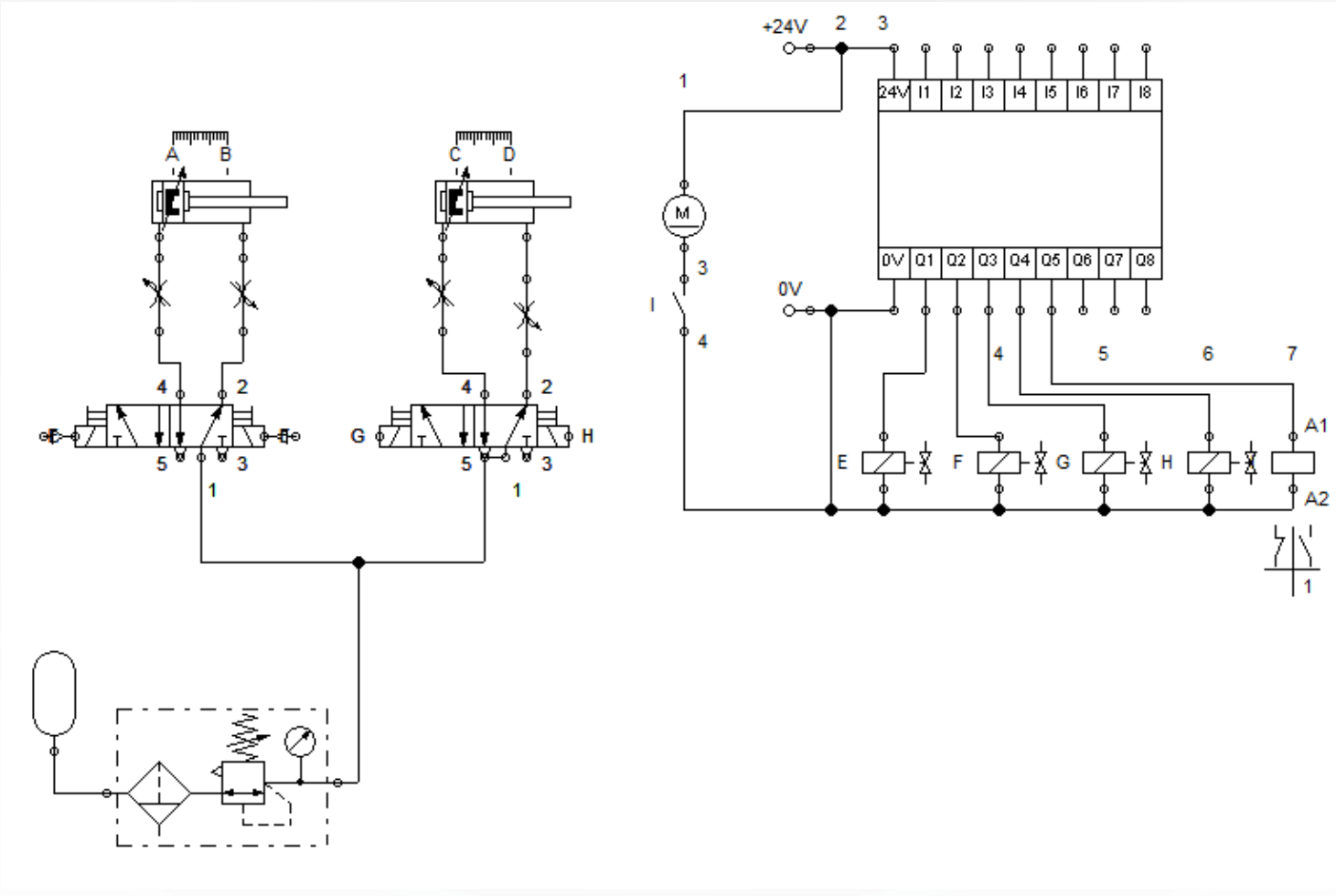
- Realizarea unei lucrări care să fie utilă și folosită în HELLA.
  - Crearea unui stand care să fie disponibil pentru a testa echipamente și a testa programe fără să fie afectată producția.
- 



# SCHEMA ELECTRICĂ A SISTEMULUI DE AUTOMATIZARE



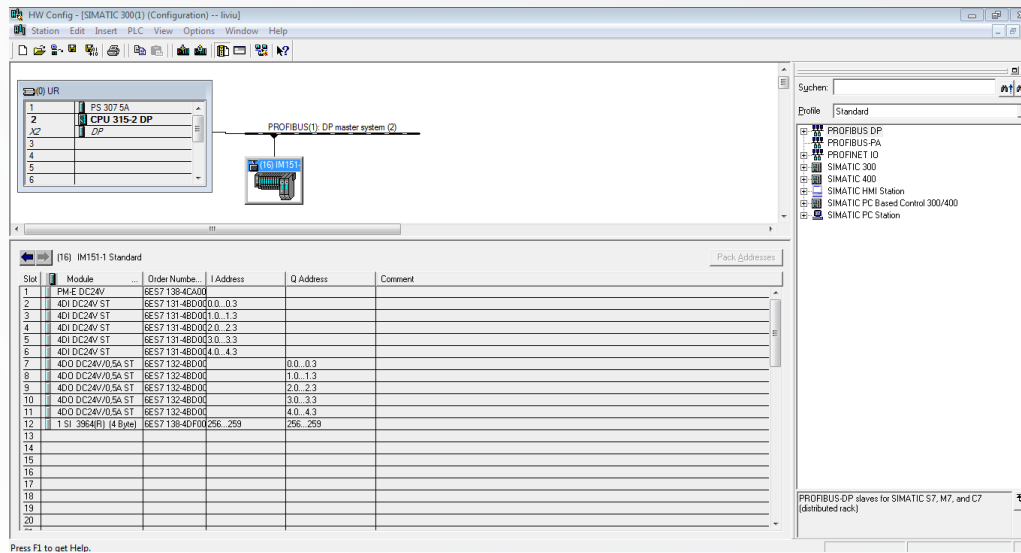
# SCHEMA ELECTRO-PNEUMATICĂ



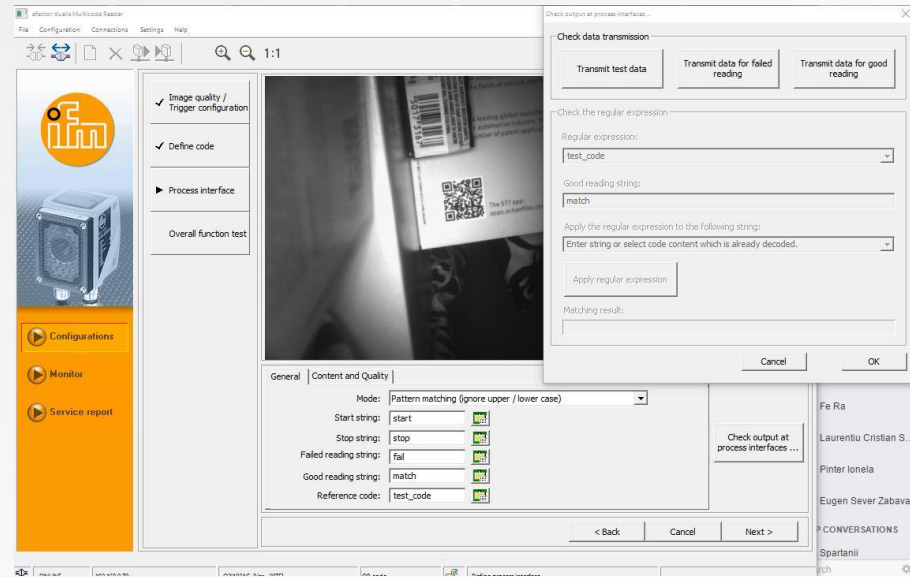
# PROGRAMARE STAND

Programul se implementează la nivel de:

PLC controller cu logică programabilă



CAMERA cititor de coduri 1d si 2d



# PROGRAMARE CONTROLLER STAND Conectarea





# PROGRAMARE CONTROLLER STAND

## Selectarea componentelor din program

The screenshot displays the HW Config interface for a SIMATIC 300(1) system. The main window shows a rack configuration with the following components:

- Slot 1: PS 307 5A
- Slot 2: CPU 315-2 DP
- Slot 2.2: DP
- Slot 3: (Empty)
- Slot 4: (Empty)
- Slot 5: (Empty)
- Slot 6: (Empty)

A PROFIBUS(1): DP master system (2) is connected to the DP module in slot 2.2. Below the rack configuration, a detailed view of the (16) IM151-1 Standard module is shown, including a table of module specifications:

Slot	Module	Order Numbe...	I Address	Q Address	Comment
1	PM-E DC24V	6ES7 138-4CA00			
2	4DI DC24V ST	6ES7 131-4BD00	0.0..0.3		
3	4DI DC24V ST	6ES7 131-4BD00	1.0..1.3		
4	4DI DC24V ST	6ES7 131-4BD00	2.0..2.3		
5	4DI DC24V ST	6ES7 131-4BD00	3.0..3.3		
6	4DI DC24V ST	6ES7 131-4BD00	4.0..4.3		
7	4DO DC24V/0.5A ST	6ES7 132-4BD00		0.0..0.3	
8	4DO DC24V/0.5A ST	6ES7 132-4BD00		1.0..1.3	
9	4DO DC24V/0.5A ST	6ES7 132-4BD00		2.0..2.3	
10	4DO DC24V/0.5A ST	6ES7 132-4BD00		3.0..3.3	
11	4DO DC24V/0.5A ST	6ES7 132-4BD00		4.0..4.3	
12	1 SI 3964(R) (4 Byte)	6ES7 138-4DF00	256...259	256..259	
13					
14					
15					
16					
17					
18					
19					
20					

At the bottom of the interface, there is a note: "PROFIBUS-DP slaves for SIMATIC S7, M7, and C7 (distributed rack)".

Press F1 to get Help.

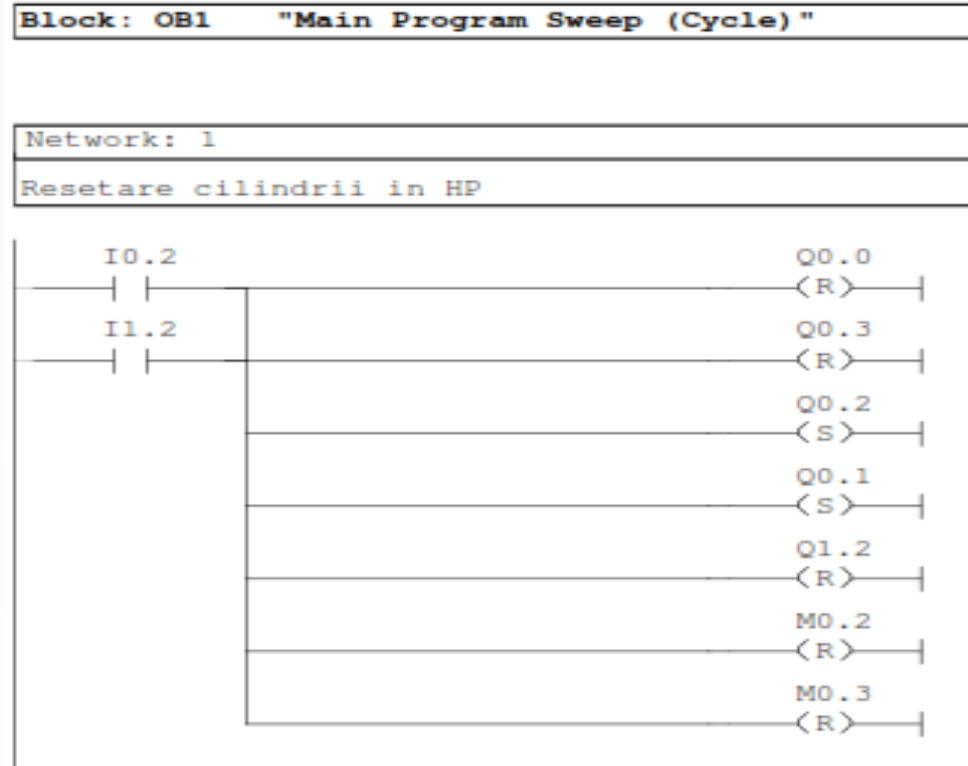
# PROGRAMARE CONTROLLER STAND

## Alocarea porturilor de I/O

Nr. Crt	Denumire	Adresă I/O/M
1	Piesa a ajuns la Cilindru 2	%M5.3
2	Piesa a ajuns la Cilindru 1	%M5.1
3	Tag_1	%M0.3
4	Piesa spre magazia 2	%M0.2
5	Piesa spre magazia 1	%M0.1
6	Motor DC	%Q1.2
7	Extinde cilindru 1	%Q0.3
8	Retrage cilindru 2	%Q0.2
9	Retrage cilindru 1	%Q0.1
10	Extinde cilindru 2	%Q0.0
11	COD OK	%I2.2
12	Piesa la Cilindru 2	%I1.3
13	Piesa la camera	%I1.2
14	Piesa la Cilindru 1	%I1.1
15	Cilindru 1 Extins	%I0.3
16	Cilindru 2 Extins	%I0.2
17	Cilindru 1 HP	%I0.1
18	Cilindru 2 HP	%I0.0

# PROGRAMARE CONTROLLER STAND

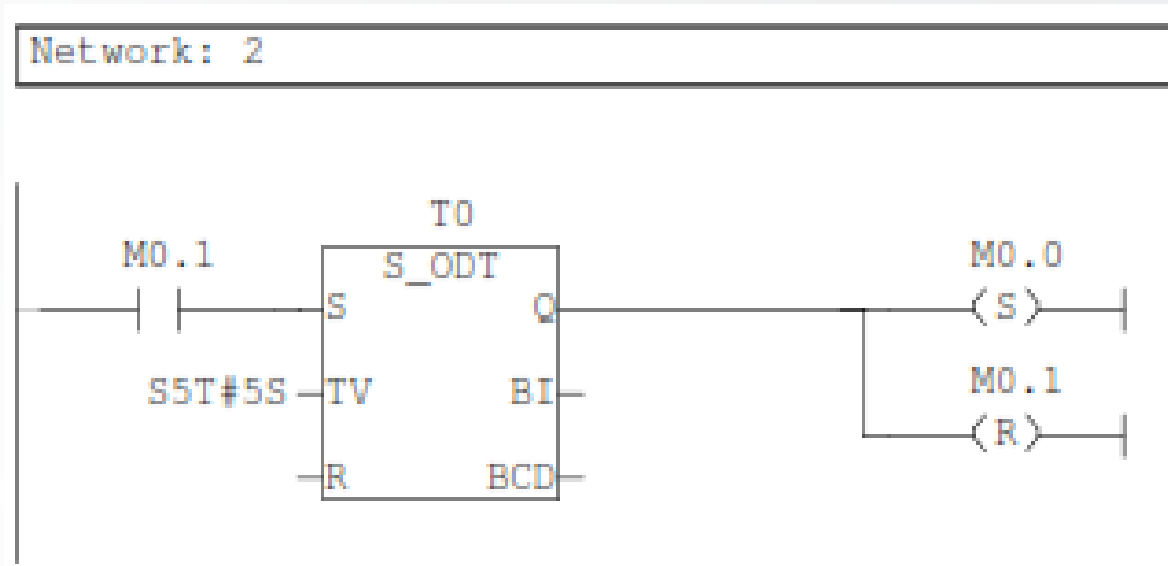
## Setarea poziției de bază



După ce este confirmată deplasarea unui cilindru, se comandă resetarea memoriei M0.3, M0.2 și revenirea cilindrilor în poziția de start prin setarea ieșirilor Q0.1, Q0.2 și resetarea ieșirilor Q0.0, Q0.3. Prin resetarea ieșirii Q1.2 se comandă oprirea motorului.

# PROGRAMARE CONTROLLER STAND

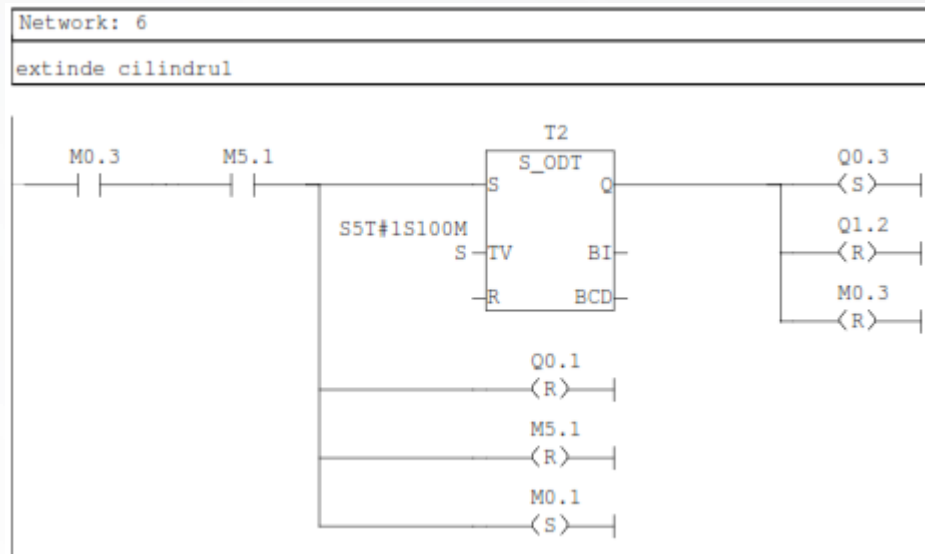
## Timpul din program



- M0.1 Bit de memorie care pornește cronometrul T0.
- M0.0 Bit pentru comandă cu întârziere.

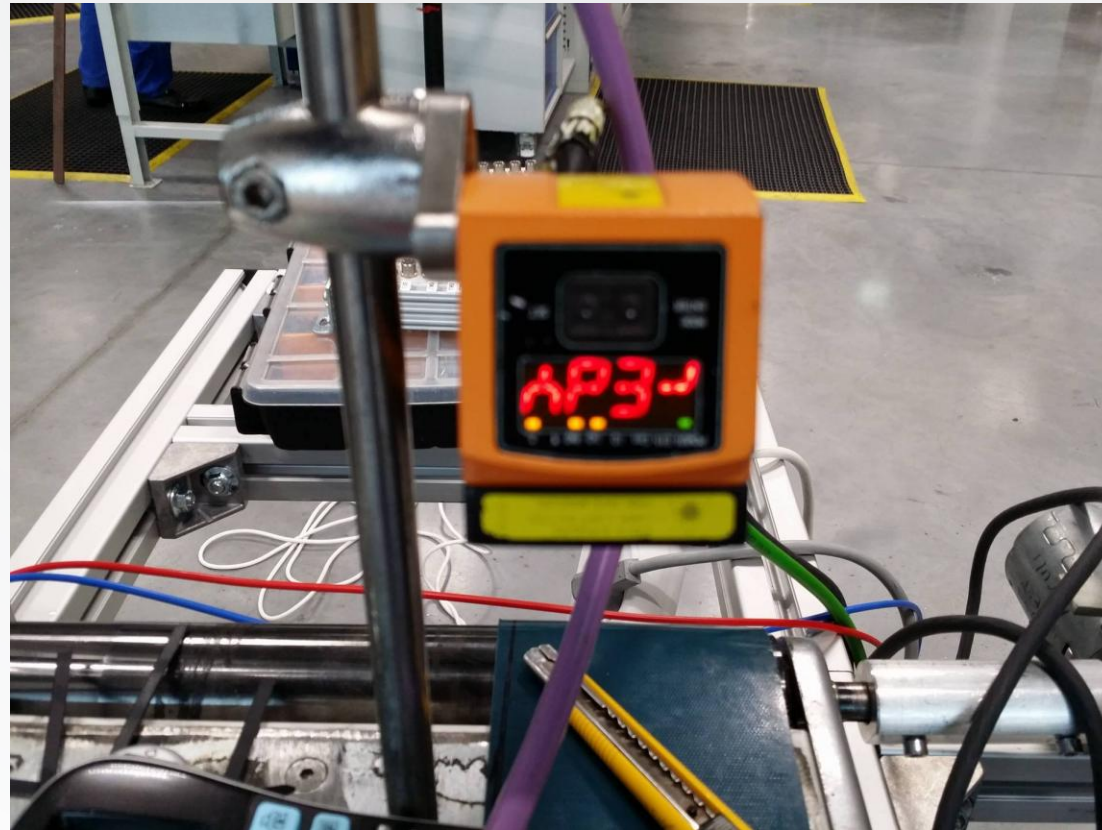
# PROGRAMARE CONTROLLER STAND

## Sincronizarea cilindrului 1 cu obiectul manipulat



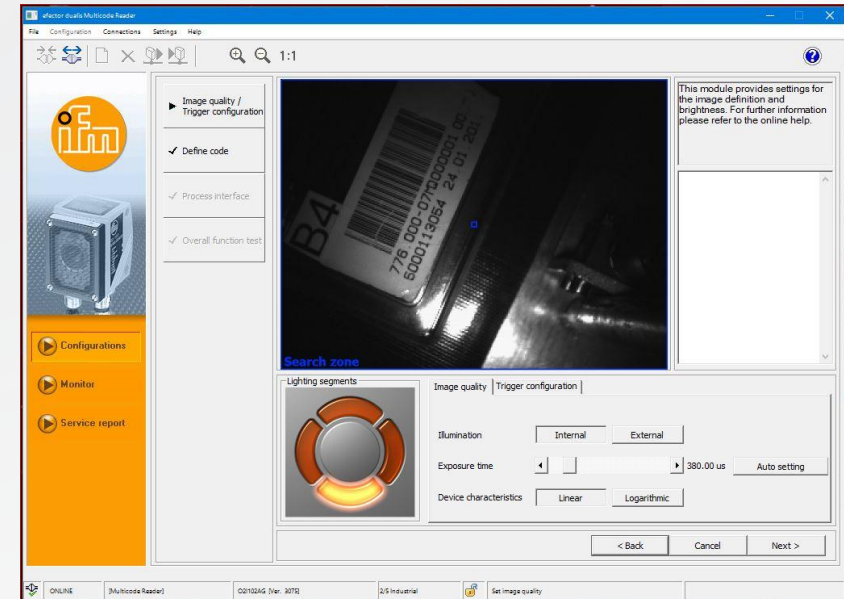
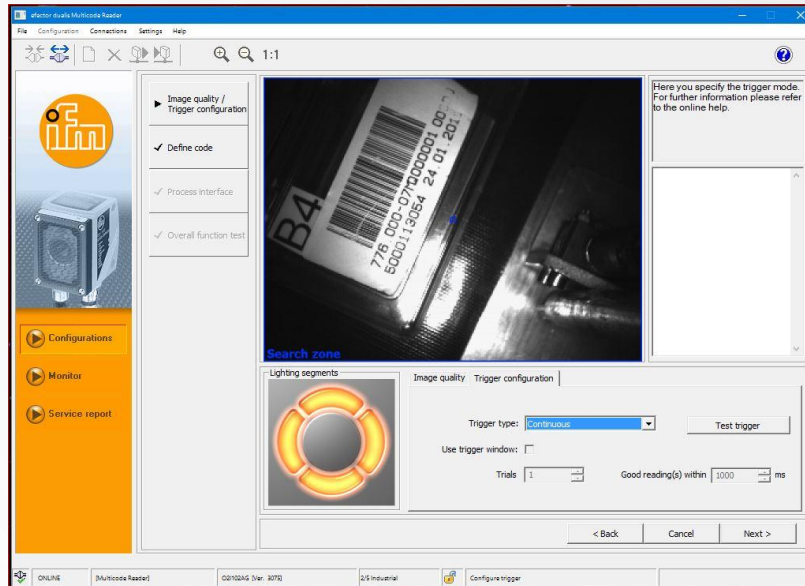
- M0.3 memorează comanda pentru sortare în magazia 1.
- M5.1 este memoria care confirmă că piesa a ajuns la cilindrul 1.
- T2 este un temporizator pentru a întârzia piesa să ajungă în fața cilindrului
- Q0.1 este resetat pentru a permite să comute distribuitorul
- Q0.3 comandă distribuitorul pentru a extinde cilindrul 1

# PROGRAMARE CAMERĂ

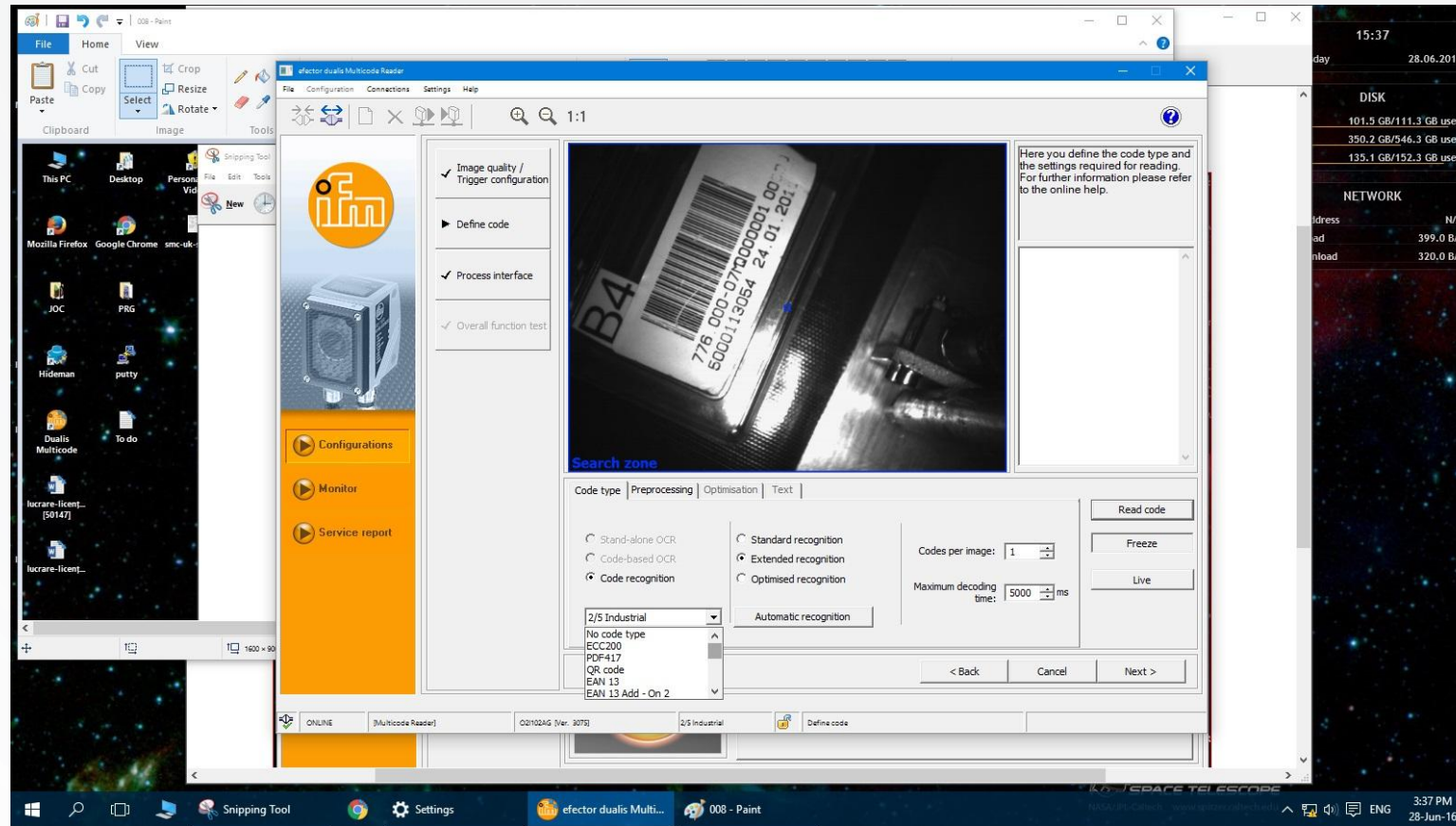


# 1. CALITATEA IMAGINII

Este dată de iluminarea internă/ din exterior,  
timpul de expunere, parametrii de procesare.

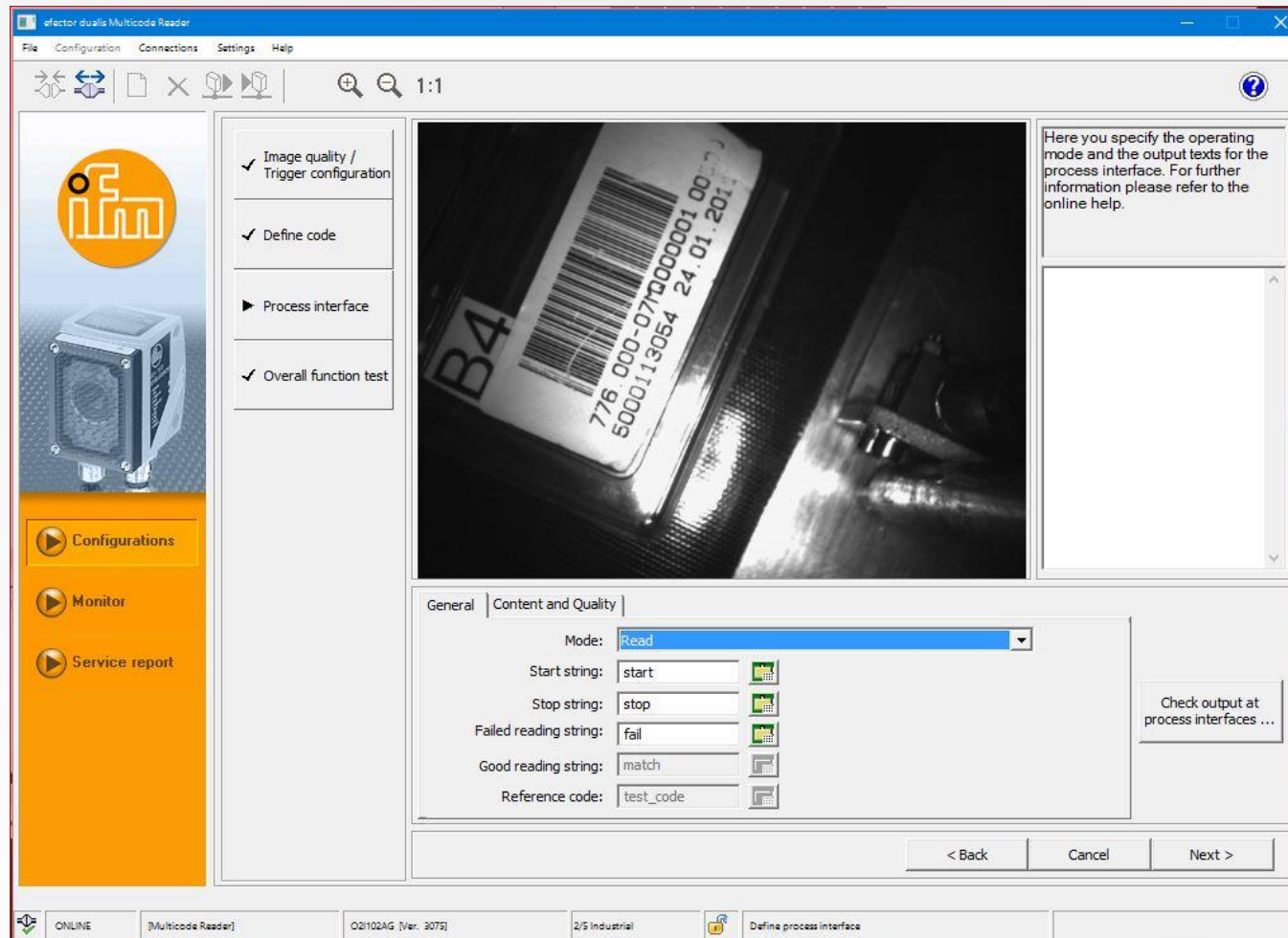


## 2. DEFINIREA CODULUI ȘI A ZONEI DE INSPECȚIE

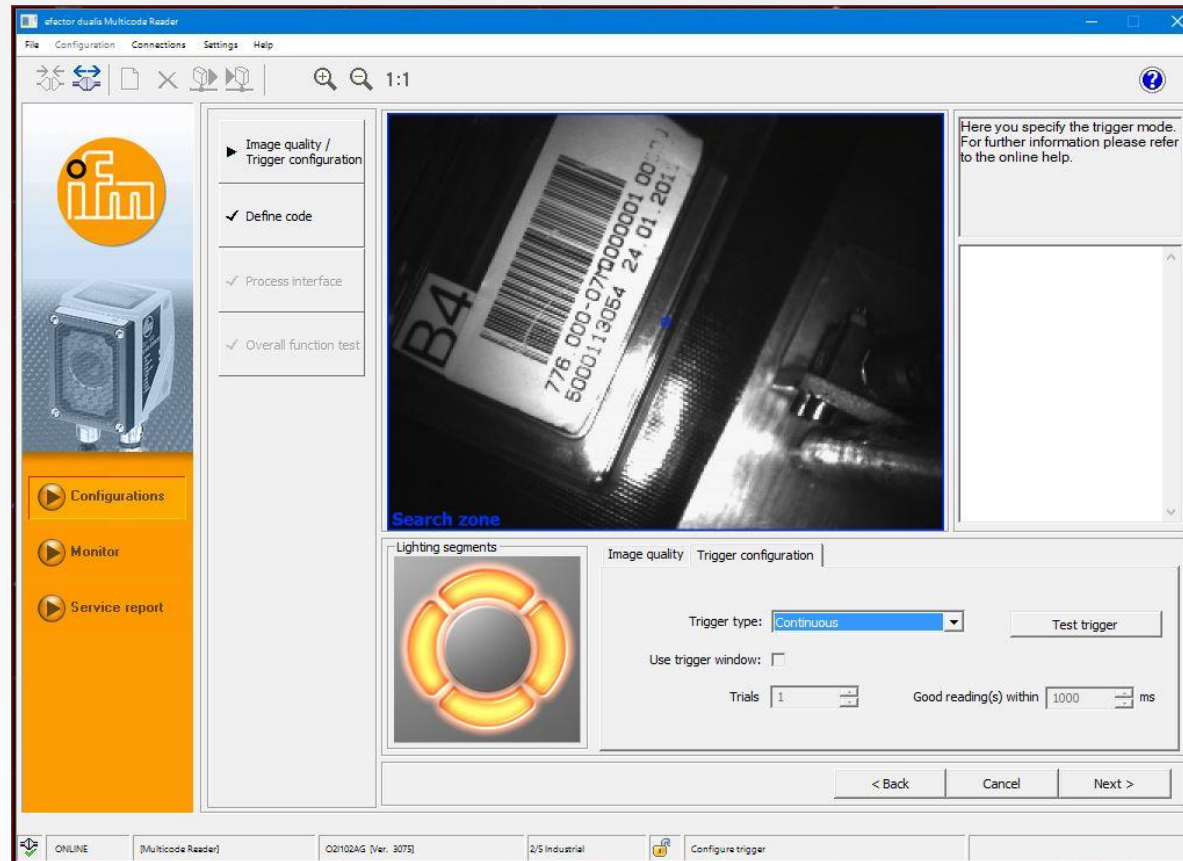




### 3. INFORMAȚII DESPRE DATELE DE PROCES. este definită acțiunea citește/ verifică sau caută șiruri de caractere.



# 4. CONFIGURAREA SETĂRIILOR PENTRU DECLANȘATOR (TRIGGER)



# 5. TESTAREA CONFIGURAȚILOR SETATE ANTERIOR

The screenshot displays the 'efactor dualis Multicode Reader' software interface. The main window shows a live camera feed of a QR code on a white surface, with the code identified as '01'. To the right of the camera feed, a text box provides instructions: 'In this mode you can observe the evaluations of the device. For further information please refer to the online help.' Below this, a scrollable area shows the following configuration details: '(06) Configuration : Found: 1 of 1 Code(s) 01: Facultatea de Mecanica [517ms] Total decoding time: 517 ms'. At the bottom of the interface, a 'Statistics' section displays the following data:

Category	Count	Percentage
Good readings	45	86.54 %
Failed readings	7	13.46 %
Number of readings	52	

Below the statistics table is a 'Reset statistics' button. To the right, the 'Display options' section includes buttons for 'Images', 'Search zones', and 'Results'. At the bottom of the window, there are navigation buttons: '< Back', 'Cancel', and 'Next >'. The status bar at the very bottom shows 'ONLINE', '[Multicode Reader]', 'O2i102AG (Ver. 3075)', 'Monitor mode', and 'Readings: 52'.

# RAPORT DE LUCRU

This module serves for diagnostic purposes. Create reports, statistical information as well as various images of the evaluations. For further information please refer to the online help.

(07) Configuration :  
Found: 1 of 1 Code(s)  
01: LPT [502ms]  
Total decoding time: 502 ms

\*\*\* Evaluation time: 18:23:43.845 \*\*\*

Time	Overall result	Configuration
18:21:35.502	passed	(06) Configurator
18:23:42.845	passed	(07) Configurator

Display options

Save service report ...  
Save the evaluation  
Save all evaluations ...  
Reset statistics

Images  
Search zones  
Results

All readings Failed readings

< Back Cancel Next >

ONLINE [Multicode Reader] Q2102AG (Ver. 3072) Service report mode Readings: 57

This module serves for diagnostic purposes. Create reports, statistical information as well as various images of the evaluations. For further information please refer to the online help.

(06) Configuration :  
Found: 1 of 1 Code(s)  
01: Facultatea de Mecanica [437ms]  
Total decoding time: 437 ms

\*\*\* Evaluation time: 18:20:49.559 \*\*\*

Time	Overall result	Configuration
18:20:49.559	passed	(06) Configurator
18:21:08.049	passed	(06) Configurator
18:21:35.502	passed	(06) Configurator

Display options

Save service report ...  
Save the evaluation  
Save all evaluations ...  
Reset statistics

Images  
Search zones  
Results

All readings Failed readings

< Back Cancel Next >

ONLINE [Multicode Reader] Q2102AG (Ver. 3072) Service report mode Readings: 26

# CONCLUZII

- Realizarea programelor pentru PLC
- Realizarea configurațiilor pentru cititorul de coduri 1D/2D
- Implementare în HELLA a standului pentru testare echipamente și exersare.





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