




Description		Evaluation	
Function to be checked using simulation box and wiring of the I/O Terminal for the station		Done	Max. Points
Preparation: Connect the simulation box to the I/O terminal (Output 0 – 7: signal 1 or 0); (Input 0 – 7: signal 1 or 0)			


Connector I/O	Comment			
<b>T1 (IN)</b>	<b>1 signal indicates</b>			
DI 0	DI 0: Gripper unit is in magazine position	YES		
DI 1	DI 1: Gripper unit is in slide 1 position	YES		
DI 2	DI 2: Gripper unit is in storage position	YES		
DI 3	DI 3: Gripper is up	YES		
DI 4	DI 4: Gripper is down	YES		
DI 5	DI 5: Workpiece in Gripper is not black	YES		
DI 6	DI 6: Workpiece is in magazine pickup position	YES		
DI 7	not used			

Connector I/O	Comment			
<b>T1 (OUT)</b>	<b>1 signal set</b>			
DO 0	DO 0: Gripper unit to right hand side (slide positions)	YES		
DO 1	DO 1: Gripper unit to left hand side (magazine)	YES		
DO 2	DO 2: Move Gripper down	YES		
DO 3	DO 3: Open Gripper	YES		
DO 4	DO 4: Ejecting arm push out workpiece	YES		
DO 5	DO 5: Signal lamp GREEN	YES		
DO 6	DO 6: Signal lamp YELLOW	YES		
DO 7	DO 7: Signal lamp RED	YES		

<b>SimuBox total T1</b>		<b>3</b>
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<b>I/O total</b>		
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Description / checked using PLC	Evaluation	
1. <b>Function Operation mode signals</b> 2. <b>Function of the production in general</b> 3. <b>Function Quality of production and signals</b> 	Done	Max. Points
Preparation: Connect the PLC board with the I/O terminal and the control panel, switch key to the position AUTO, start the PLC, no programming cable and no communication between PC and PLC, valve for air opened, Handling gripper unit between Magazine and slide 1 position. Magazine is empty. You will get time to check that before the evaluation!		

1. <b>Function Operation mode and signals</b>	Done	Max. Points
RED Signal lamp ON** and RESET lamp ON	½ mfe aspect	no eval. In T2
Switch key to the position MAN (Handling Station) and back to AUTO then YELLOW signal lamp ON**	YES	no eval. In T2
Press RESET button (Handling Station) then system moves to initial position	YES	no eval. In T2
If the system is in the initial position then RESET lamp OFF	YES	no eval. In T2
Switch key to the position MAN (Handling Station) and back to AUTO then GREEN signal lamp ON** and START lamp ON	½ mfe aspect	no eval. In T2
**At any time only one lamp of the signal column is ON	YES	no eval. In T2
<b>PLC board Operation mode total</b>		

2. <b>Function of the production in general</b>	Done	Max. Points
Competitor selects one workpiece for the evaluation and puts it into the magazine. Start with the Handling Station in initial position.		
Press the START button (Handling Station) then distribute workpiece out of the magazine	YES	no eval. In T2
Transport workpiece to the slide 1 or 2 and place workpiece correctly on the slide 1 or 2	½ mfe aspect	no eval. In T2
Handling unit moves to initial position	YES	no eval. In T2
<b>PLC board production in general total</b>		



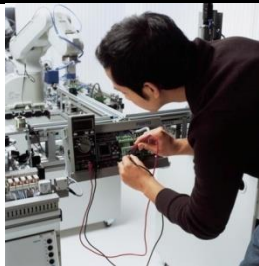
3. Function Quality of production and signals		Done	Max. Points
Put 3 workpieces into the magazine of the Handling Station*. Start from the initial positions. <b>Attention:</b> When the function stops with one of the workpieces in the station then the evaluation is finished. (no manual help allowed)			
GREEN signal lamp ON** and START lamp ON	½ mfe aspect		
<b>A:</b> Press the START button (HS) then START lamp OFF	½ mfe colour		
GREEN signal lamp flashing with 2 Hz.	½ mfe colour		
Distribute workpiece out of the magazine	½ mfe colour		
<b>If a workpiece is black: (STOP function check possible)</b>			
Transport workpiece to the slide 2 and Q2 signal lamp flashing with 2 Hz	½ mfe aspect		
Workpiece placed on slide 2 and after placing Q2 signal lamp OFF ==> <b>B:</b>	½ mfe aspect		
<b>If a workpiece is silver: (STOP function check possible)</b>			
Transport workpiece to the slide 1 and Q1 signal lamp flashing with 2 Hz	½ mfe aspect		
Workpiece placed on slide 1 and after placing Q1 signal lamp OFF ==> <b>B:</b>	½ mfe aspect		
<b>If a workpiece is red: (STOP function check possible)</b>			
Transport workpiece to the slide 1 and Q1 signal lamp flashing with 2 Hz	½ mfe aspect		
Workpiece placed on slide 1 and after placing Q1 signal lamp OFF ==> <b>B:</b>	½ mfe aspect		
<b>B:</b> After each process the stations move to initial position	½ mfe colour		
If the system is in initial position then START lamp ON	½ mfe colour		
Green signal lamp ON**	½ mfe colour		
Continue with <b>A:</b>	½ mfe colour		
<b>STOP funktion check:</b>			
<b>Press the STOP button when the the task: "transport workpiece to the slide ..." is active in any of the three tested workpieces</b>			
Then stop the process (no movement on the e-drive) and START lamp ON	½ mfe aspect		
Press the START button (HS) then START lamp OFF and continue the transport	½ mfe aspect		
**At any time only one lamp of the signal column is ON	YES		
<b>PLC board Function Quality of production and signals total</b>			<b>6</b>

\* Red, black or silver work piece will be chosen by the evaluation team



4. Function Error message and signals		Done	Max. Points
Magazine empty; Start from initial position			
GREEN signal lamp ON ** and START lamp ON	½ mfe aspect		
Press the START button (HS) then START lamp OFF	YES		
Green signal lamp flashing with 2 Hz.	no evaluation		
Identification that the magazine is empty:			
If magazine empty, START lamp ON and YELLOW signal lamp and Q1 and Q2 lamp flash with 2 Hz alternately	1/4 mfe aspect		
Put a workpiece into the magazine			
Press the START button (HS) then START lamp OFF and RED signal lamp flashing with 2 Hz. Also Q1 and Q2 OFF, distribute workpiece out of the magazine and workpiece placed on a slide	1/6 mfe aspect		
the station moves to Initial Position	YES		
PLC board production in general total			2,5



Description		Evaluation	Maximum evaluation
Professional practice / Judgment			
			
Judgment topic			
	1. Cleanliness of the workplace and the station while approval		
	Excellent: 3P; Professional: 2P; Optimization / rework necessary: 1P; not acceptable: 0P		
	2. Routing of tubes and cables on profiles and on the profile plate		
	Excellent: 3P; Professional: 2P; Optimization / rework necessary: 1P; not acceptable: 0P		
	3. Mechanical and pneumatical implementation		
*	Excellent: 3P; Professional: 2P; Optimization / rework necessary: 1P; not acceptable: 0P		
*	4. Electrical installation and wiring of the components		
*	Excellent: 3P; Professional: 2P; Optimization / rework necessary: 1P; not acceptable: 0P		
*	5. Special cases announced by experts and the overall impression		
*	Excellent: 3P; Professional: 2P; Optimization / rework necessary: 1P; not acceptable: 0P		
<b>Professional Practice total</b>			<b>1,5</b>

Description	Evaluation	Maximum
Component(s) was/were changed		
<b>Time evaluation (only if the maximum number of points is achieved for PLC and simulation box function and at least 1,0 points for professional practice and the component(s) was/were changed)</b>		
Points for time = (max. time – actual time) x max. points / (max. time – min. time) = (60.0 - ..... ) x 3 Points / (60.0 - ..... )		
<b>Time points with Maintenance total</b>		<b>4</b>

Description / Total evaluation Project 2:	Evaluation	Maximum evaluation
Operation based on simulation box		3
Operation based on PLC board: Function Operation mode and signals	not in Task 2	0
Operation based on PLC board: Function of the production in general	not in Task 2	0
Operation based on PLC board: Function Quality of production and signals		6
Operation based on PLC board: Error message and signals		2,5
Professional practice		1,5
Points for time evaluation / Maintenance		4
<b>Total points</b>		<b>17</b>