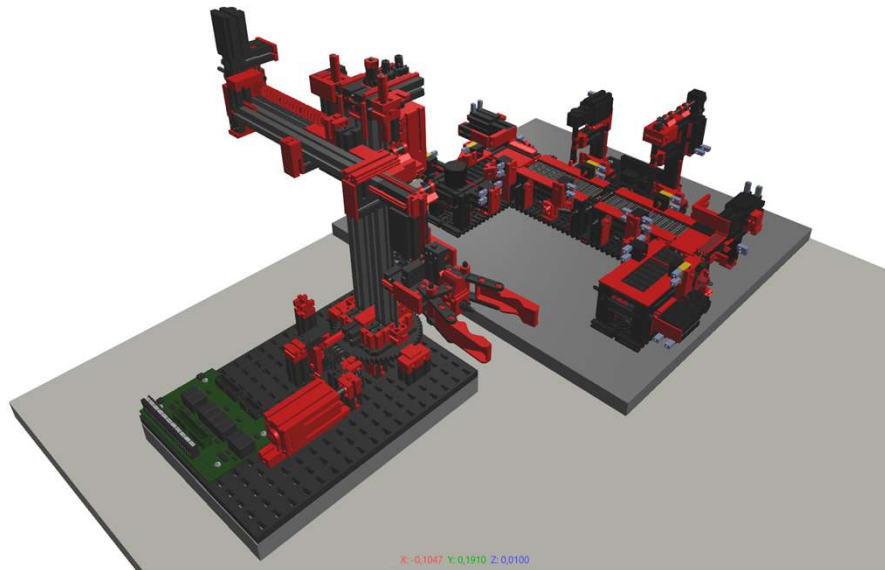


- Model Fischertechnik Indexing Line + Crane



Digfai Twin

- **Functional Description**

The Fischertechnik indexing line is a model of a real production plant with conveyor lines. Real processes are simulated as in a real industrial environment. In this example, a crane has been added to the cycle line, which consists of 4 conveyor lines, 2 ejectors, 5 light barriers, a milling station and a drilling station. The component is placed on the first conveyor line. By interrupting the first light barrier, the component is transported to the second light barrier. It is checked whether ejector 1 is free and transported to ejector 1 after release. If the milling station has given the release, the ejector 1 pushes the component onto the second conveyor line and the component is transported to the light barrier of the milling machine. The milling process is repeated 5 times and after the drilling station is released, the component is transported to the light barrier of the drilling station. There, the drilling process is also repeated 5 times. Once ejector 2 has been released, the component is conveyed to it. Ejector 2 then pushes the component to conveyor section 4. After the signal from light barrier 5, the component stops after a delay of one second. This releases the crane to pick up the component and place it back on conveyor section 1. The process is repeated.

## In/Output assignment

The in- and outputs of the model are assigned as follows (the designation input or output refers to the connected controller):

### Hardwarezone Indexing Line

GVL\_Indexing\_Line

| Input Nr.  | PLC-Variable name                |        | Specification                     |
|------------|----------------------------------|--------|-----------------------------------|
| 1          | g_DI_xPusher_1_extracted         | :BOOL; | Pusher 1 extracted                |
| 2          | g_DI_xPusher_1_retracted         | :BOOL; | Pusher 1 retracted                |
| 3          | g_DI_xPusher_2_extracted         | :BOOL; | Pusher 2 extracted                |
| 4          | g_DI_xPusher_2_retracted         | :BOOL; | Pusher 2 retracted                |
| 5          | g_DI_xLB2_Feeder_station         | :BOOL; | LB2 part present feeder station   |
| 6          | g_DI_xLB_Milling_station_not     | :BOOL; | LB part present milling station   |
| 7          | g_DI_xLB1_Feeder_station_not     | :BOOL; | LB1 part present feeder station   |
| 8          | g_DI_xLB_Drilling_station_not    | :BOOL; | LB part present drilling station  |
| 9          | g_DI_xLB_Unloading_station_not   | :BOOL; | LB part present unloading station |
| Output Nr. | PLC-Variable name                |        | Specification                     |
| 1          | g_DO_xPusher_1_retract           | :BOOL; | Pusher 1 retract                  |
| 2          | g_DO_xPusher_1_extract           | :BOOL; | Pusher 1 extract                  |
| 3          | g_DO_xPusher_2_retract           | :BOOL; | Pusher 2 retract                  |
| 4          | g_DO_xPusher_2_extract           | :BOOL; | Pusher 2 extract                  |
| 5          | g_DO_xDrive_Feeder_station_ON    | :BOOL; | Drive feeder station ON           |
| 6          | g_DO_xDrive_Milling_station_ON   | :BOOL; | Drive milling station ON          |
| 7          | g_DO_xDrive_Mill_ON              | :BOOL; | Drive milling ON                  |
| 8          | g_DO_xDrive_Drilling_station_ON  | :BOOL; | Drive drilling station ON         |
| 9          | g_DO_xDrive_Drill_ON             | :BOOL; | Drive drilling ON                 |
| 10         | g_DO_xDrive_Unloading_station_ON | :BOOL; | Drive unloading station ON        |

### Hardwarezone Industrial Crane

GVL\_Crane

| Input Nr.  | PLC-Variable name        |         | Specification             |
|------------|--------------------------|---------|---------------------------|
| 1          | g_DI_xRefSwitch_Gripper  | :BOOL;  | Reference Switch Gripper  |
| 2          | g_DI_xPulse_Gripper      | :BOOL;  | Pulse Gripper             |
| 3          | g_DI_xPulse_Arm          | :BOOL;  | Pulse Arm                 |
| 4          | g_DI_xRefSwitch_Vertical | :BOOL;  | Reference Switch Vertical |
| 5          | g_DI_xRefSwitch_Rotary   | :BOOL;  | Reference Switch Rotary   |
| 6          | g_DI_udiEncoder_Vertical | :UDINT; | Encoder Vertical          |
| 7          | g_DI_udiEncoder_Rotary   | :UDINT; | Encoder Rotary            |
| Output Nr. | PLC-Variable name        |         | Specification             |
| 1          | g_DO_xGripper_Open       | :BOOL;  | Open Gripper              |
| 2          | g_DO_xGripper_Close      | :BOOL;  | Close Gripper             |
| 3          | g_DO_xArm_Forward        | :BOOL;  | Arm Retract               |
| 4          | g_DO_xArm_Backward       | :BOOL;  | Arm Extract               |
| 5          | g_DO_xVertical_Up        | :BOOL;  | Move Arm Up               |
| 6          | g_DO_xVertical_Down      | :BOOL;  | Move Arm down             |
| 7          | g_DO_xRotary_Left        | :BOOL;  | Rotate Crane to Left      |
|            | g_DO_xRotary_Right       | :BOOL;  | Rotate Crane to Right     |

### Hardwarezone Industrial Crane

Additional GVL for VCOM with Twin

| Input Nr.  | PLC-Variable name        |        | Specification       |
|------------|--------------------------|--------|---------------------|
| 1          | g_Twin_rRotaryAxisPos    | :REAL; | Rotation Axis       |
| 2          | g_Twin_rGripperAxisPos_L | :REAL; | Gripper Axis Left   |
| 3          | g_Twin_rGripperAxisPos_R | :REAL; | Gripper Axis Right  |
| 4          | g_Twin_rArmAxisPos       | :REAL; | Arm Horizontal Axis |
| 5          | g_Twin_rVerticalAxisPos  | :REAL; | Arm Vertical Axis   |
| Output Nr. | PLC-Variable name        |        | Specification       |
| 1          | g_DO_xGripper_Open_R     | :BOOL; | Open Gripper Right  |
| 2          | g_DO_xGripper_Close_R    | :BOOL; | Close Gripper Right |