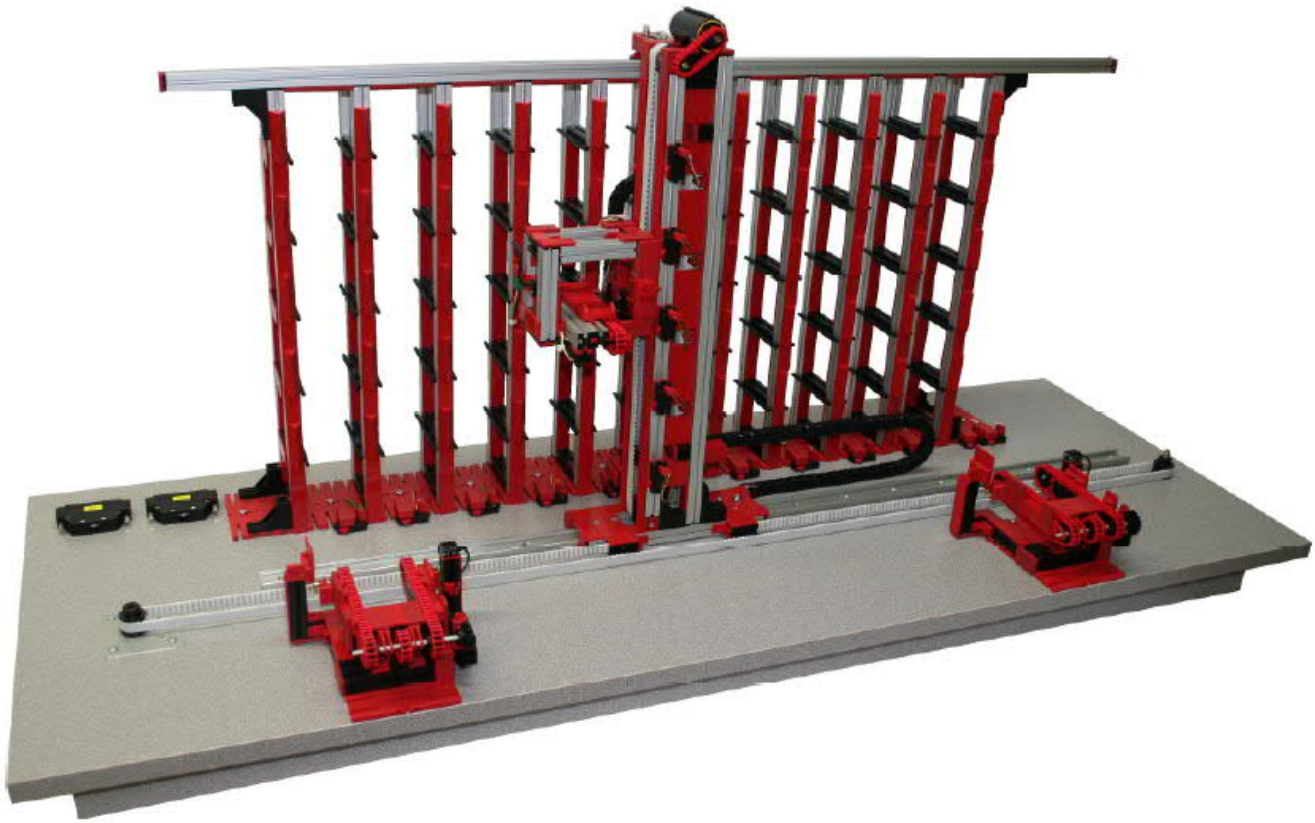
Storage Warehouse



The High Level Storage Warehouse simulates an automatically working high-level-storage system as used for example in many industrial branches. The model consists of a rack, being divided up in 5 x 10 storage places, a warehouse operating device, being portable in left-right-direction, and two charge / discharge stations. A cage being portable up and down and including a telescopic palette carrier, that is portable forwards and backwards, is attached to the warehouse operating device. The simulated process shows palettes being stored and withdrawn from the high-level storage: In case of one charge station being occupied by a palette, the telescopic palette carrier moves to the station and takes over the palette. This is recognized by a reflection light switch. Following this, the warehouse operating device brings the palette to the intended storage place in an optimized manner by moving left/right and up/down at the same time. Occupying a storage place is recognized by software. In order to enable a quick movement to the storage place on the one hand and a safe lay-in-movement on the other hand, the horizontal rack positions are equipped with advanced mechanical switches that allow retarding the warehouse operating device before reaching the intended position. Withdrawing palettes occurs in the same manner, done in inverse chronological order. In cause of bolting the forward-backward-axes against the two others moving the palette carrier in the other directions is only possible, if the palette carrier is in its middle position. Moreover, the left-right-axes is equipped with a hardware end position switch to prevent the whole warehouse system from fatal mistakes in using the conveyor or programming the control unit. The High-level-storage warehouse is fit to be combined with further modules and standard models in order to automate the periphery of the warehouse.

Inputs / Sensors

Variable	Name	Direction
x0	X-Axis at position 1	Input
x1	X-Axis at position 2	Input
x2	X-Axis at position 3	Input
x3	X-Axis at position 4	Input
x4	X-Axis at position 5	Input
x5	X-Axis at position 6	Input
x6	X-Axis at position 7	Input
x7	X-Axis at position 8	Input
x8	X-Axis at position 9	Input
x9	X-Axis at position 10	Input
x10	Y-Axis at front	Input
x11	Y-Axis in the middle	Input
x12	Y-Axis at the back	Input
x13	Z-Axis above pos. 1	Input
x14	Z-Axis below pos. 1	Input
x15	Z-Axis above pos. 2	Input
x16	Z-Axis below pos. 2	Input
x17	Z-Axis above pos. 3	Input
x18	Z-Axis below pos. 3	Input
x19	Z-Axis above pos. 4	Input
x20	Z-Axis below pos. 4	Input
x21	Z-Axis above pos. 5	Input
x22	Z-Axis below pos. 5	Input
x23	Rack feeder engaged	Input
x24	right I/O station empty	Input
x25	left I/O station empty	Input

Outputs / Actuators

Variable	Name	Direction
y0	Drive left	Output
y1	Drive right	Output
y2	Drive slowly	Output
y3	Drive downwards	Output
y4	Drive upwards	Output
y5	Drive foward	Output
y6	Drive backwards	Output
y7	Right I/O station drive backwards	Output
y8	Right I/O station drive forward	Output
y9	Left I/O station drive forward	Output