

# ADVANCED MANUFACTURING SYSTEM SIMULATOR V2

## TECHNICAL DATA SHEET



# AMTEC

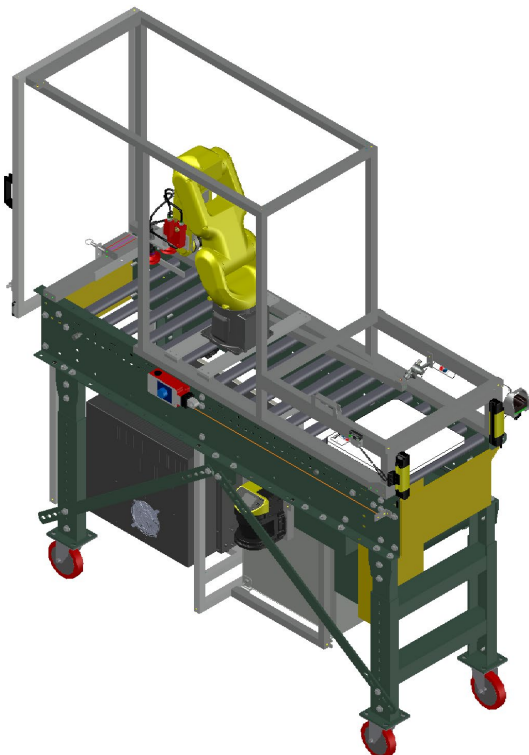


*ADVANCED MANUFACTURING TECHNICAL EDUCATION COLLABORATIVE*

AMTECWORKFORCE.ORG



## LOAD CONVEYOR



### SAFETY

- Light Curtain
- Gate Switch
- Pull Cord
- Laser Scanner
- Remote In / Out Block

### ETHERNET

- In / Out Block

### SENSORS

- Laser Photo Eye
- Diffuse RetroReflective Photo Eye
- Optical Touch Cycle Start Button

### LIGHT

- Ok to Load Puck

### CONVEYOR

- Electric Motor
- Gear Reducer
- Chain / Sprocket
- Speed Controlled with Variable Frequency Drive

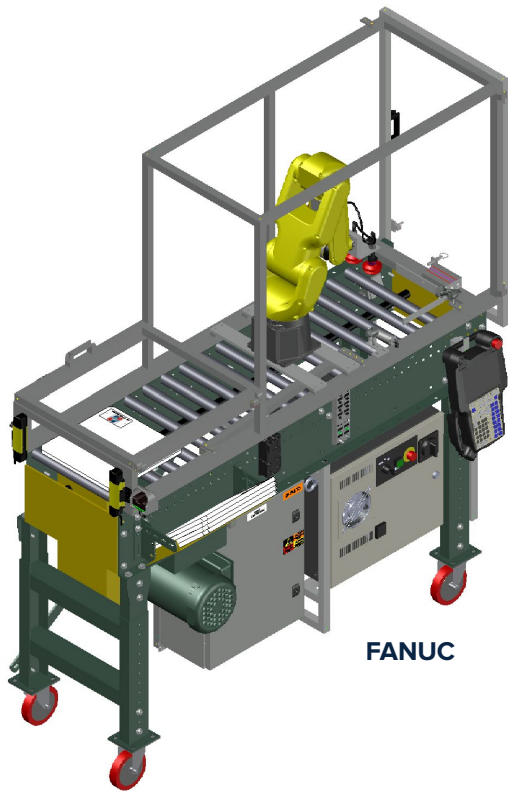
### PUCK STOP

- Pneumatic
- Rod Cylinder with Spring Return
- Reed Position Switch

### TRANSFER PUSHER (For Use When Robot Bypassed)

- Electric Cylinder with Ball Screw
- Position Switches

### PUCK STORAGE



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## ROBOT

### SAFETY

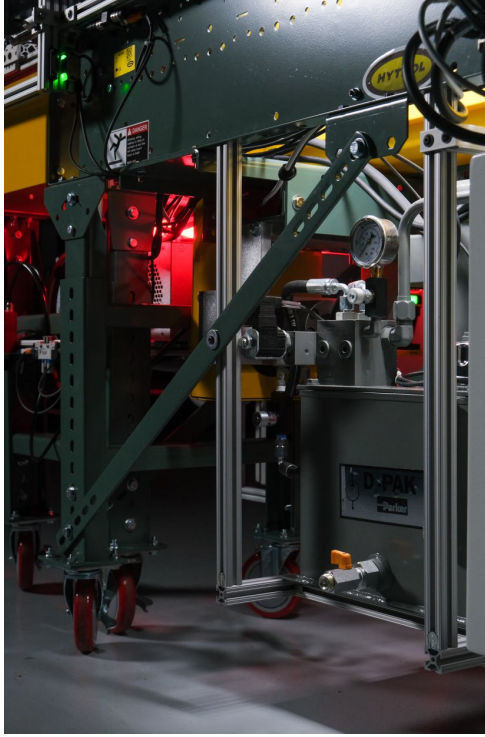
- Junction Box
- Safety I/O
- Circuit Breakers
- Terminals
- Bulkhead Connectors
- Gate Switch

### ROBOT

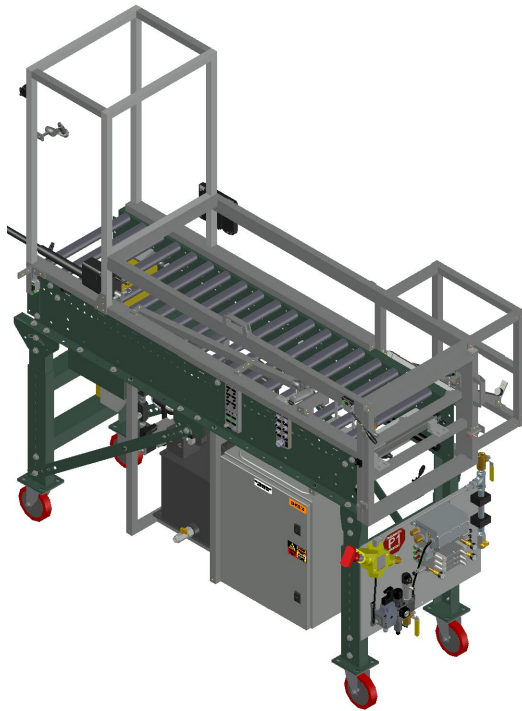
- 6 Axis
- Controller
- Teach Pendant

### ROBOT END EFFECTOR

- Vacuum Generator
- Puck Present Vacuum Sensor
- Spring Compensation Vacuum Cups



## UNLOAD CONVEYOR



### SAFETY

- Gate Switches

### ETHERNET

- In / Out Block

### REMOTE I/O JUNCTION BOX

- Ethernet I/O
- Ethernet Switch
- Circuit Breakers
- Vision Controller
- Terminals
- Bulkhead Connectors

### DISTRIBUTION BLOCK

- Multi-Port In / Out

### HYDRAULIC POWER UNIT

- Run Solenoid
- Tank Low Level Switch
- Tank Hi Temperature Switch
- Pressure Reducing Valve

### HYDRAULIC MOTOR

- with Chain / Sprocket

### UNLOAD PART CATCHER

### VISION

- Sensor & Control Panel Display

### SENSORS

- Laser Photo Eye
- Diffuse RetroReflective Photo Eye
- Ferrous Proximity Switch

### PUCK STOP

- Pneumatic
- Rod Cylinder with Spring Return
- Reed Position Switch

### PNEUMATIC PANEL

- Safety Lockout Valve
- Drip Leg with Lockable Venting Ball Valve
- Dump Valve (Electrically Operated)
- Pressure Regulator with Gage
- Valves with Pressure Regulators
- Pressure Switch with Analog Output

### UNLOAD PUSHER

- Pneumatic Rodless Cylinder
- Magnetic Position Switches
- Mechanical Interference Device



## MAIN CONTROL PANEL

### SAFETY

- Lockable Fused Main Electrical Disconnect
- Lockable Non-Fused Safety Switch
- Lockout / Tagout Signage
- Programmable Safety Controller
- Safety Rated Relay

### HUMAN MACHINE INTERFACE (HMI) ENCLOSURE

- Handles
- Swivel
- 10.4" Color HMI with Touch screen
- Fault Control via HMI
- Lighted Pushbuttons
- Selector Switches
- Emergency Stop Pushbutton
- Stack Light with Audible Alarm

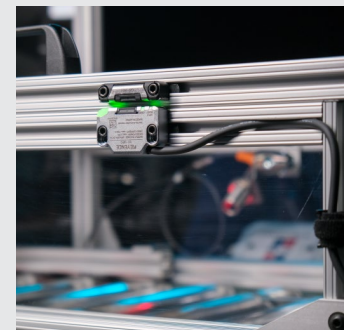
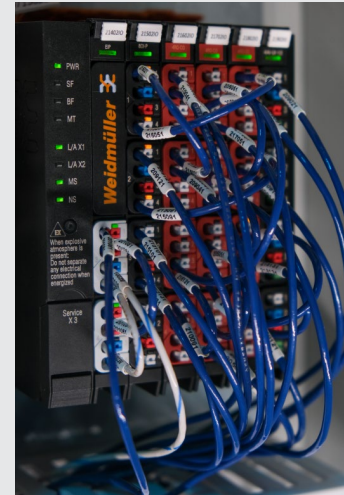
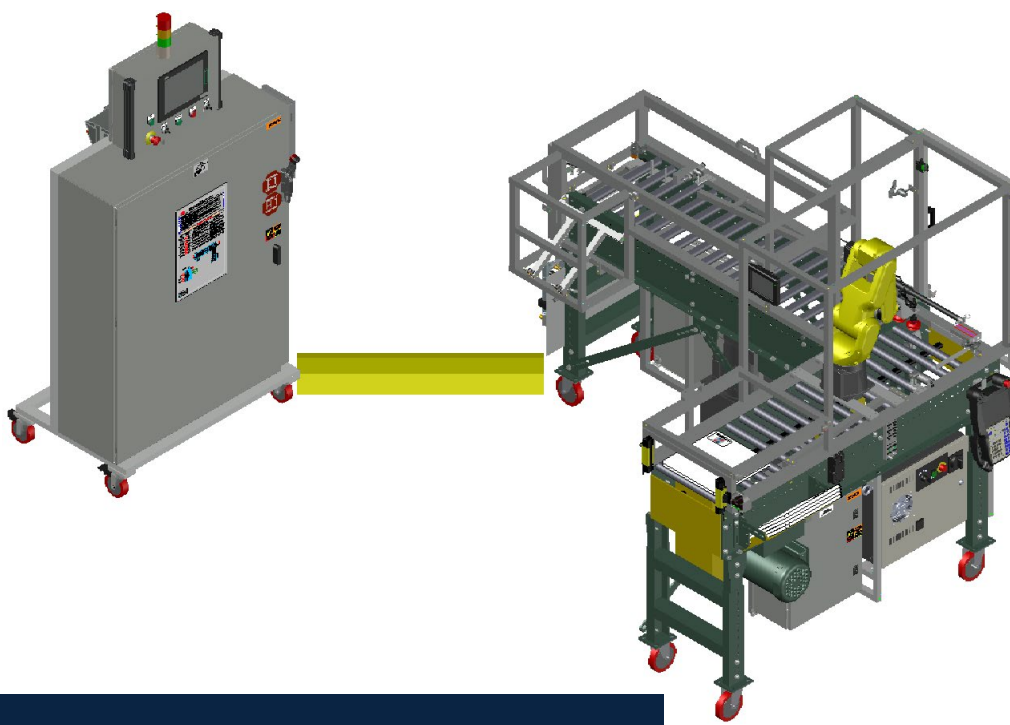
### MAIN PANEL

- 24VDC Control Power
- 220 VAC Single Phase Transformer
- Power Distribution Block
- Bus Bar Power Distribution
- Motor Circuit Protectors
- Contactors Utilizing Auxiliary Contacts
- Variable Frequency Drive with Analog Speed Control & Digital I/O Interface
- Industrial Ethernet Switch
- Ethernet Network
- Plug in Terminal Relays
- Terminals
- Wire / Cable Identification
- Component Identification Tagging
- Removable / Swappable PLC Din Rail with Connectors

### POWER DISTRIBUTION QUICK DISCONNECTS

- Lockable
- Color Coded
- Keyed





## SYSTEM WIDE FEATURES

### SAFETY

- Enclosed Guarding
- Clear Vision of Mechanisms
- Safety Gate Switches
- Interlock Hinged Access Doors

### ENERGY CONTROL & POWER LOCKOUT - ECPL

- Lockout Placard
- Lockout Identification Tags
- OSHA Compliant
- Electrical Energy Lockout
- Hydraulic Energy Lockout
- Pneumatic Energy Lockout
- Robot Energy Lockout

### DESIGN

- Industry Approved Components
- Allen Bradley PLC
- Networked Device Communications
- Pre-Programmed Faults – Fault List Provided
- Multiple Wiring Methodologies
- Simulator Comprised of 3 Sections
- Simulator on Casters for Ease of Movement
- Simulator Sections Electrically Plug In
- 220 VAC, 25 Amps, 3 Phase Power Requirement
- 80 PSI Pneumatic Drop Requirement

### CONVEYORS

- Drive Shafts with Bearings
- Band Driven Rollers
- 5 LB Maximum Drive

### INDUSTRIAL CABLE PROTECTOR

### SCHEMATICS

- Electrical / Pneumatic / Hydraulic

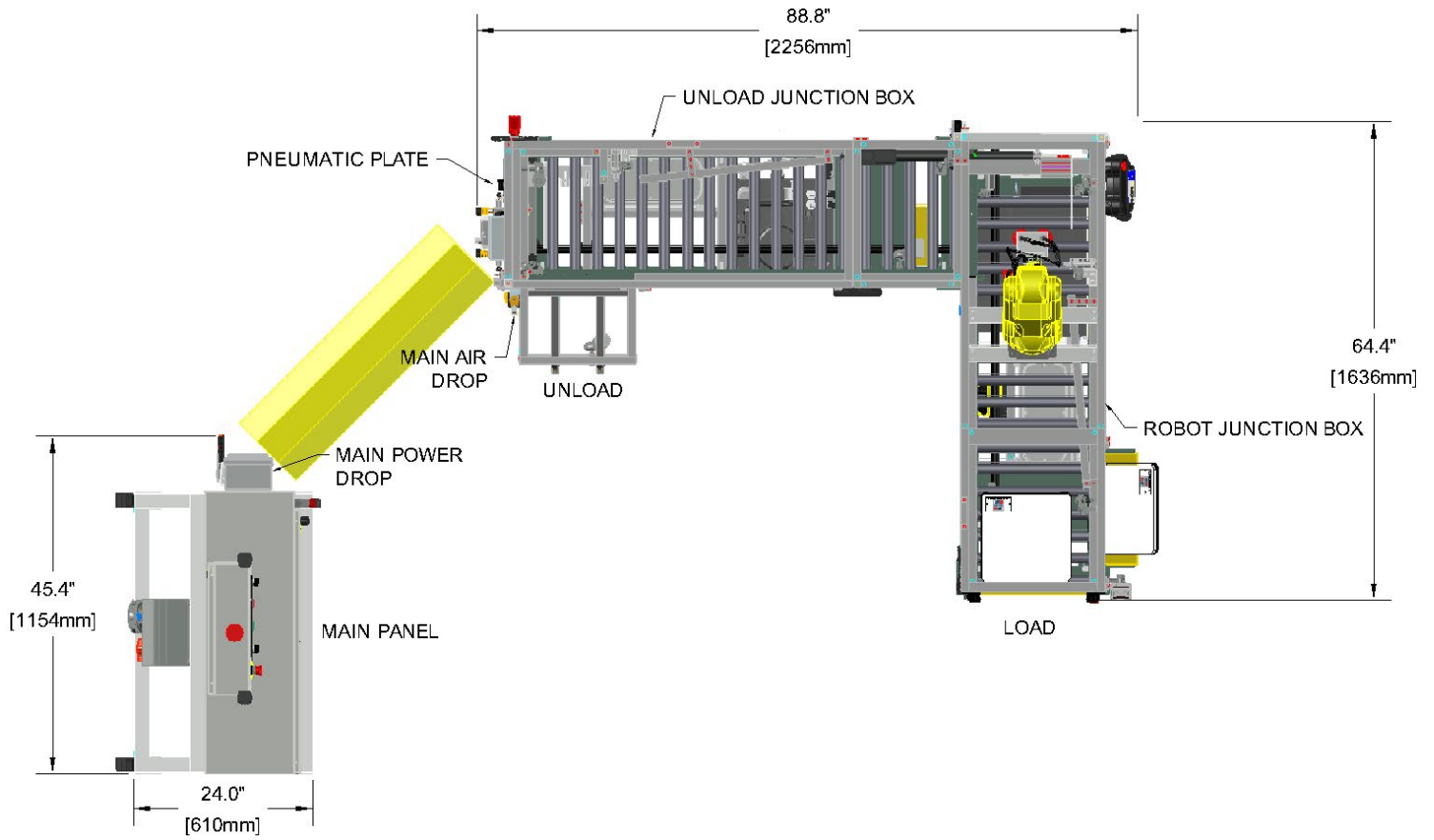
### PUCKS

- Metal / Plastic Colored Tags
- Vision Sensor Challenge Tag

### USB STICK

- Component Literature
  - Cutsheets
  - Manuals
  - MSDS
- Schematics – PDF Files
  - Electrical
  - Pneumatic
  - Hydraulic
- Programs
  - Safety Controller
  - Safety Scanner
  - HMI
  - PLC
  - VFD
  - I/O
  - Vision
  - Fault List

# SYSTEM OVERALL DIMENSIONS





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