



YASKAWA

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Yaskawa TR88/PackML Update

Doug Meyer

Presenter



Doug Meyer
Global Motion Project Manager
Yaskawa America, Inc.
doug_meyer@yaskawa.com

Outline

- Successes
- Implementation Updates
- Training Program
- Future

Successes

- 400+ machines in the field based on the Yaskawa PackML Template
 - Case Packer
 - Case Erector
 - Combination Erector/Packer
 - Auxilliary equipment for VFFS Bagger

Successes

- Locations
 - US/Canada
 - Mexico
 - Greece
 - Brazil
- Working on new Case Packer Design with new template expected to add 100 machines per year. Installations in Europe and China

Tools and Guides

- PackML Toolbox
 - PackML State Machine function block
 - Function blocks for Command distribution to EMs and CMs and Status returns from EMs and CMs
 - Event Handlers
 - Timestamps and Event History
 - Custom Event descriptions and category assignment
 - Built-in Lookups for Servopack and Controller Alarms and motion function block ErrorIDs
 - Mode and State Time tracking used for OEE calculations

Tools and Guides

- PackML Template
 - Base program supports up to 16 EMs, each with up to 16 CMs
 - Support for PackTags with UN structure
 - PMLc commands
 - PMLs status
 - PMLa administration information
 - UN_Control_Inputs worksheet for users to hook into the command structure (LD)

Tools and Guides

- PackML Template, cont.
 - CMxx_ControlOutputs worksheet for users to set the desired criteria for state completion (LD)
 - [Unxx_Modules](#) Global Tag tracks all PackML and Status elements for easier debugging.
 - Example from Demo Machine in Yaskawa Booth #C-4243

Example screen from Yaskawa Demo #C-4243

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Mode **State** Description

TR88 Completion Status

This page indicates which Equipment Modules and Control Modules are NOT DONE transitioning to the next TR88 State.

<input checked="" type="checkbox"/> MH12 Robot (EM0)	<input checked="" type="checkbox"/> TBot (EM1)	<input checked="" type="checkbox"/> Conveyors (EM2)	<input checked="" type="checkbox"/> Safety (EM3)
<input checked="" type="checkbox"/> MH12 (MLX200)	<input checked="" type="checkbox"/> TBot X&Z	<input checked="" type="checkbox"/> Infeed A (Squares)	<input checked="" type="checkbox"/> Phx SafetyBridge PLC
<input checked="" type="checkbox"/> MH12 Gripper	<input checked="" type="checkbox"/> TBot Gripper	<input checked="" type="checkbox"/> Infeed B (Rectangles)	<input checked="" type="checkbox"/> MH12 Op Station
	<input checked="" type="checkbox"/> TBot Theta	<input checked="" type="checkbox"/> Outfeed	<input checked="" type="checkbox"/> TBot Op Station

Login Clear

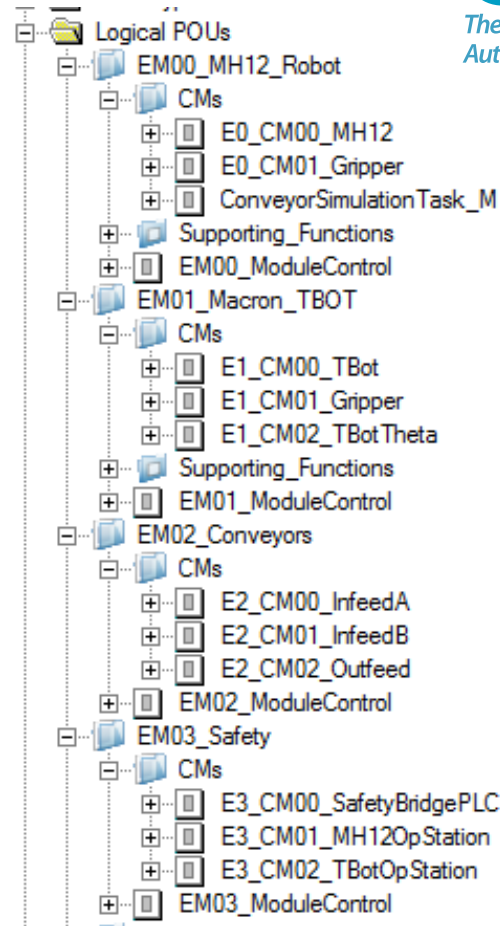
Pattern TBot MH12 Conveyors OEE Data Settings Safety

Implementation Updates

- New version of PackML Toolbox for 2015
 - Conforms to the latest TR88.00.02 document submitted to ISA committee
 - Auto mode changes to Production Mode
 - PackTag structure and datatypes → UN.PMLc, etc.
 - PackML vs TR88???
 - Supports the minimum set of PackTags by default, other tags optional

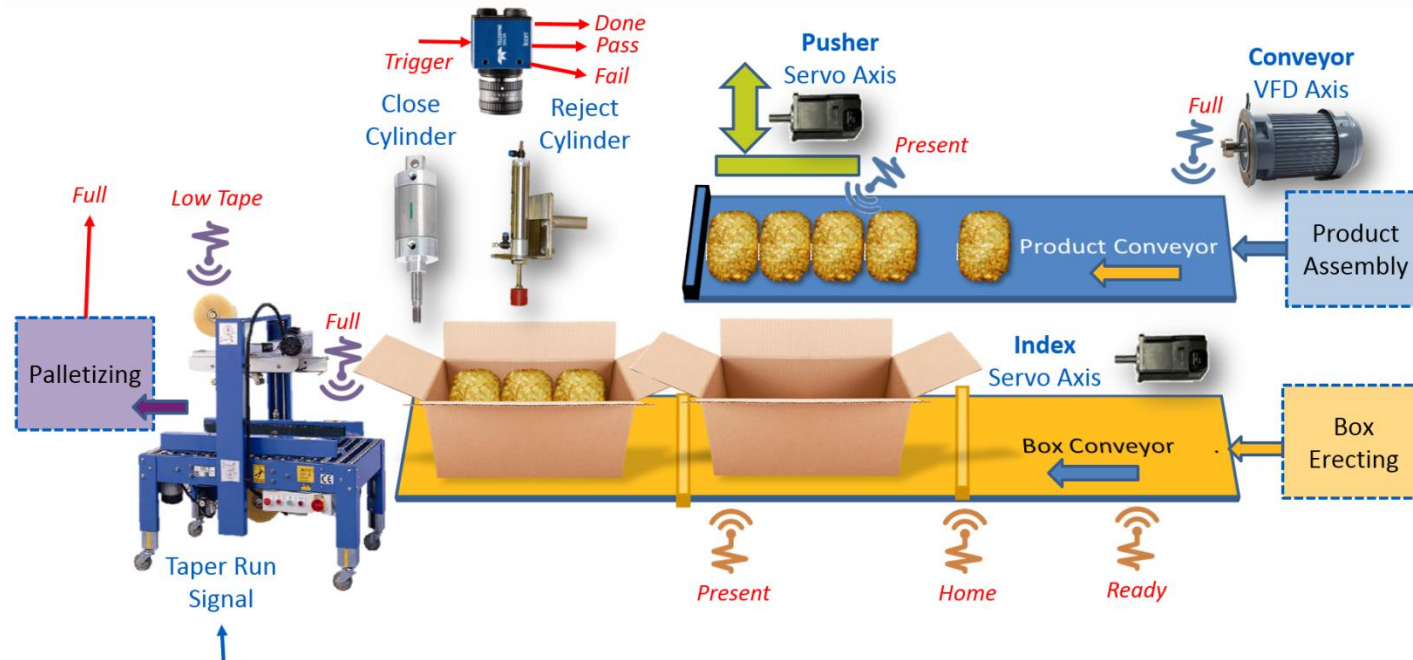
Implementation Updates

- New version of PackML Template
 - More use of local variables to ease customization/expandability and improve debug



Training Program

- Example of a Case Packing Operation



Training Program

- Hands-on class designed provide customers with a simple example of TR88/PackML implementation
 - Trial runs now, full availability in early 2016
 - Overall Program architecture and EM/CM planning
 - How to link TR88 state machine to Production sequencing
 - Certain puzzles still exist
 - Suggestions for **what** happens **when** in **which** state
 - Examples of data collection and OEE calculation
 - Event handling

Future

- Tools for EM/CM configuration and building of the base program
- Additional pre-built HMI screens
- Continue to build the collection of supporting documentation based on customer experiences
- OPC/UA interface for improved communication and support for PackConnect



Thank You

Doug Meyer – YASKAWA America, Inc.