SIEMENS

TR88.00.02 / PackML Solutions

F&B APC / English / 2015-08

OMAC
The Organization for Machine Automation and Control

OMAC PackML

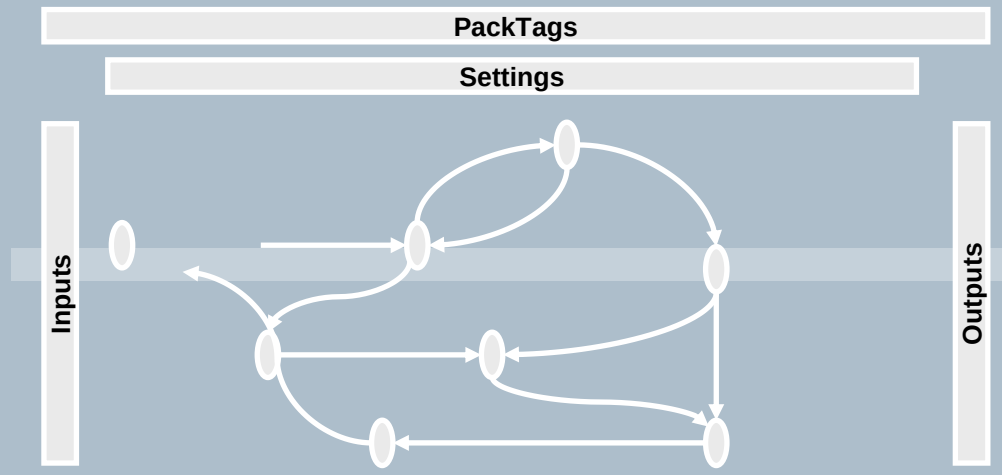
TR88.00.02 / PackML Planning Concepts

Two possible cases can occur at the OEM:

1

Application with existing code and data

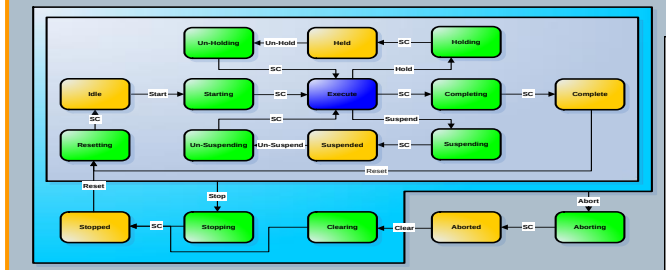
(PackTags only)



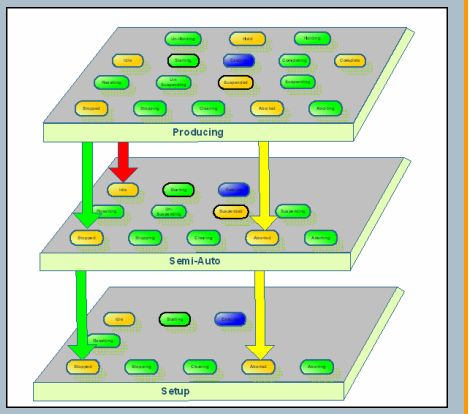
2

Starting from scratch

(Full PackML implementation)

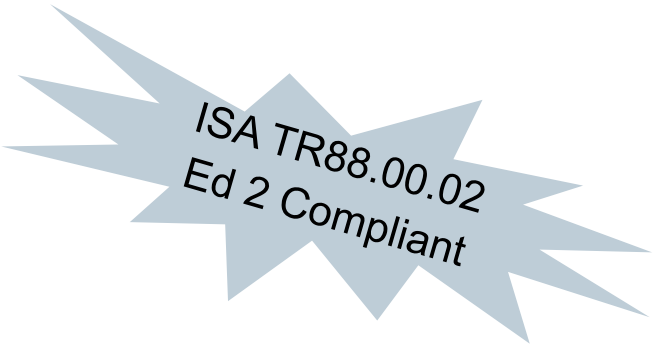


Prefix	Tag Name[2]	Tag Descriptor	Data Type	Units	Range
PML	Cur_Mode	Current_Mode	Integer		
PML	Mode_Time	Mode_Time	Time		HH:MM:SS.SS
PML	Cum_Time_Modes	Cumulative_Time_In_All_Modes	Structure		
PML	Cur_State	Current_State	Integer		
PML	State_Time	State_Time	Time		HH:MM:SS.SS
PML	Cum_Time_States	Cumulative_Time_In_All_States	Structure		
PML	State_Transition	State_Transition	Structure		
PML	Ext_Trigger	External_Trigger	Structure		
PML	Cur_Mach_Spd	Current_Machine_Speed	Real	Packs/Min	
PML	Mach_Design_Spd	Machine_Design_Speed	Real	Packs/Min	
PML	Prod_Processed	Number_Products_Processed	Integer	Products	
PML	Pack_Processed	Number_Packages_Processed	Integer	Packs	
PML	Defect_Prod	Number_Defective_Products	Integer	Products	
PML	Defect_Pack	Number_Defective_Packages	Integer	Packs	
PML	Prod_Ratio	Ratio (products per package)	Integer	Products/Pack	
PML	Mach_Cycle	Machine_Cycle	Integer		
PML	Mat_Ready	Materials_Ready	Boolean		
PML	Mat_Runout	Material_Runout	Boolean		



TR88.00.02 / PackML Design Approaches for a Full TR88 Solution 2
Available Templates

1. Basic Template (LPMLV30 library):
   - TR88 (PackML) Mode Manager / State Model Function Block (FB) & PackTags Data Block (DB)
   - HMI Template
   - Programming language independent (i.e. LAD, ST/SCL,…)
   - Available for SIMATIC S7-300/400, S7-1200/1500, SIMOTION
   - Globally available via Siemens Service & Support website (https://support.industry.siemens.com/cs/ww/en/view/49970441)



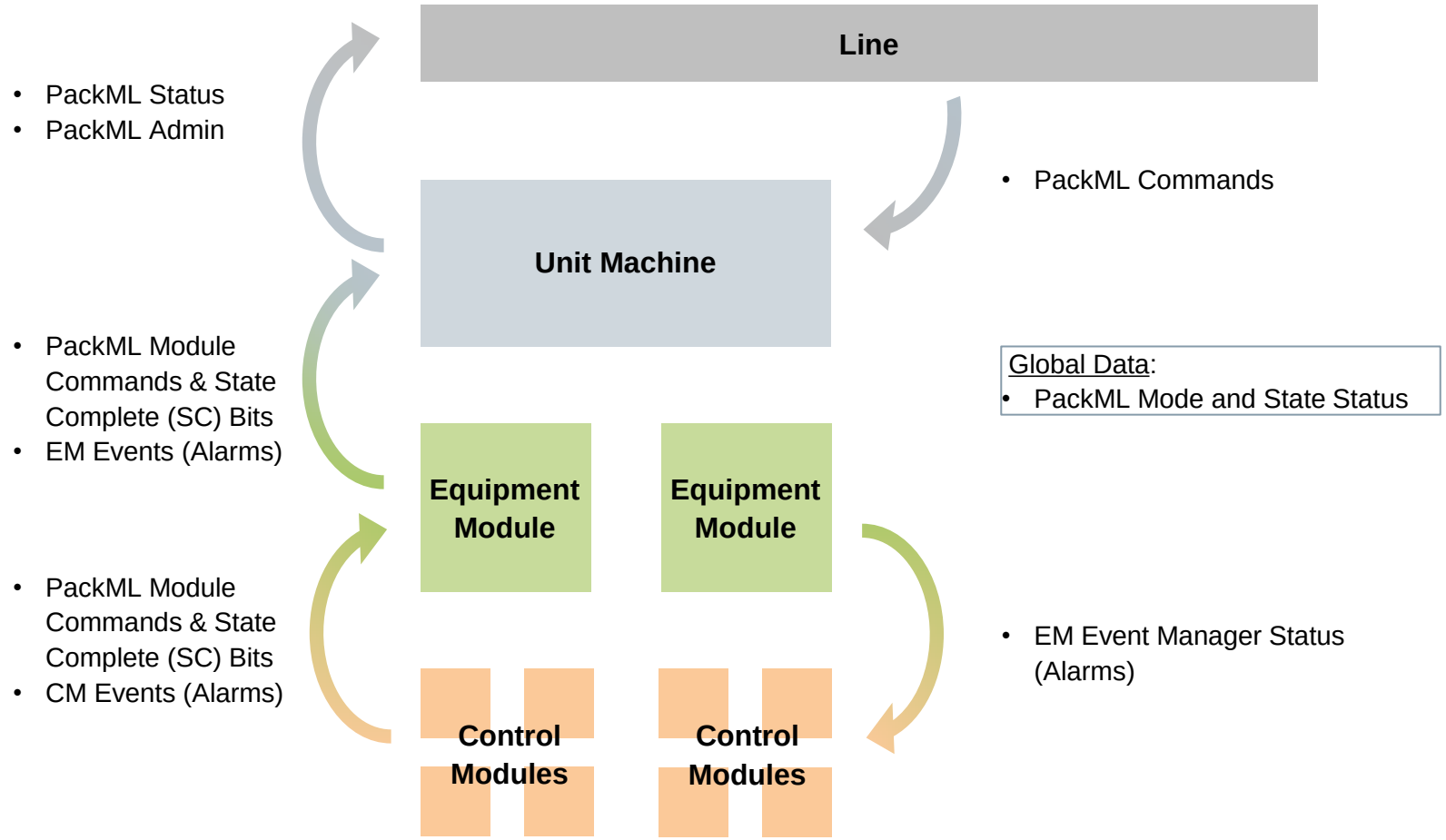
2. CPG Template:
   - Based upon open source template from global CPG Co. (based upon LAD)
   - Builds upon “Basic Template” (LPMLV30 library) with the following added features:
     - HMI Template (CPG philosophy)
     - Integrated Alarms & Warnings (Code and HMI)
     - Integrated PackML command / status philosophy (Code)
     - S88/Make2Pack Equipment Module (EM) & Control Module (CM) Support
     - OEE (based upon TR88.00.02) (Code and HMI)
     - Multi-Lingual support (up to x Western languages, Unicode support pending)
   - Available for SIMATIC S7-300/400, S7-1200/1500, SIMOTION

TR88.00.02 / PackML Design Approaches for a Full TR88 Solution 2
Available Documentation & Training

1. Basic Template:
   - Mode Manager / State Model FB User's Manual (PDF)
   - HMI Style Guide User's Manual (PDF)

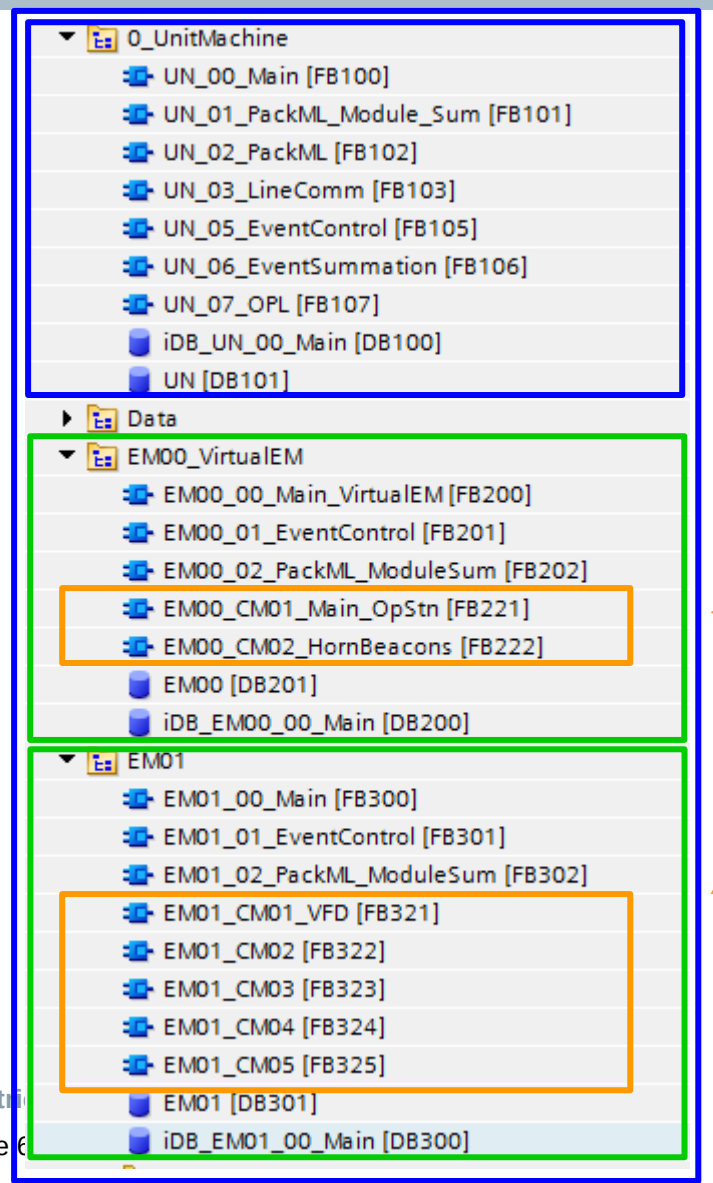
2. CPG Template:
   - Solution / PackML Implementation Guide
   - PackML Planning Guide
   - PackML FB's (used for CPG)
   - Event Handling (alarm, warnings, operator guidance)
   - Troubleshooting / Maintenance

Machine Template Overview*
Data Flow



* Based up P&G PackML Template (open source)

Machine Template Overview*
Modular Programming Structure



Unit Machine

Equipment Module(s)

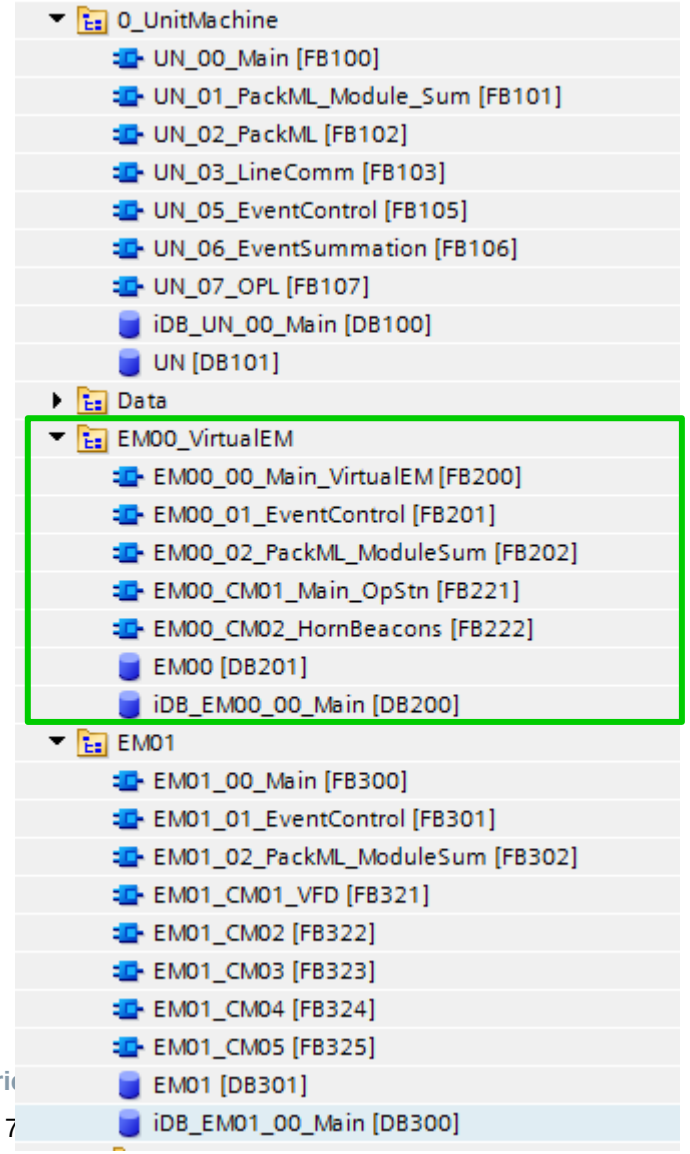
Control Module(s)

Version shown:

- TIA Portal version for SIMATIC S7-1500 PLC's
- Other versions vary

* Based up P&G PackML Template (open source)

Machine Template Overview*
Modular Programming Structure



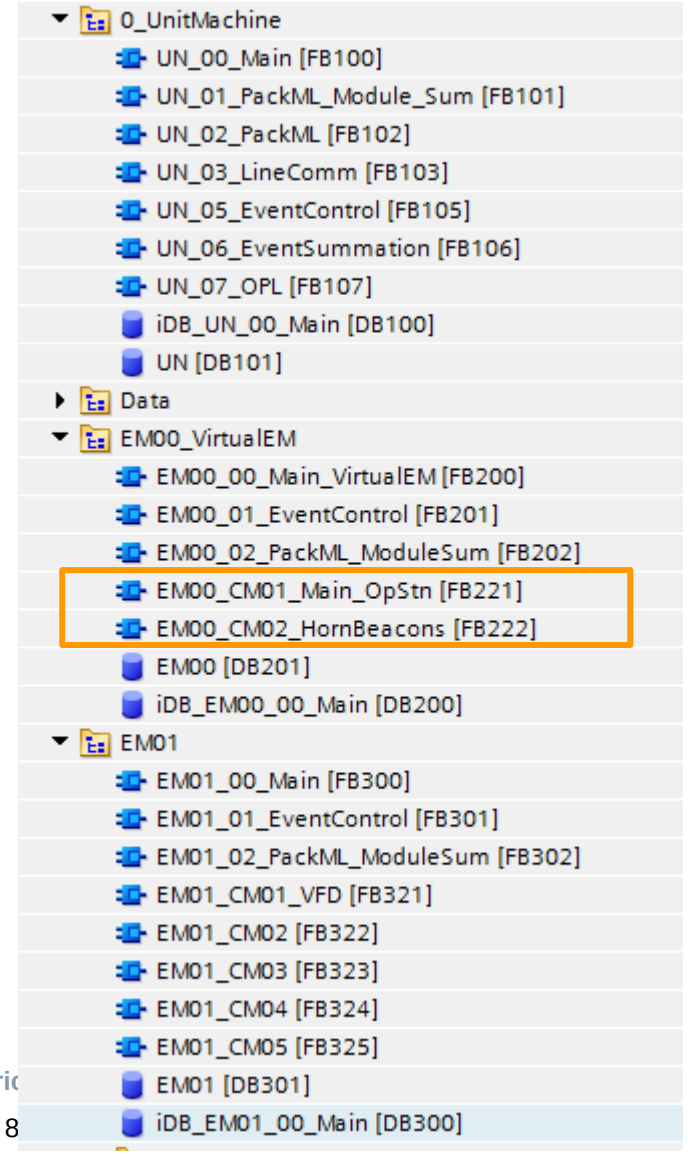
Equipment Module(s)

- Summarizes PackML commands and state completes from all control modules
- Summarizes events (alarms and warnings) from all control modules

- CPG Template consist of 3 EM's configure
- *CPG Library* consist of 12 configured EM's

* Based up P&G PackML Template (open source)

Machine Template Overview*
Modular Programming Structure



Control Module(s)

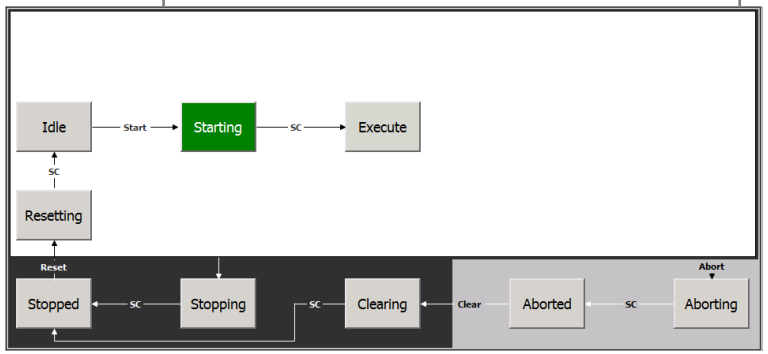
- All programming related to control module exists within the 1 folder
  - Logic
  - Event Handling (Alarms and Warnings)
  - PackML Command and Status
- CPG Template consist of 10 CM's configured per EM.

* Based up P&G PackML Template (open source)

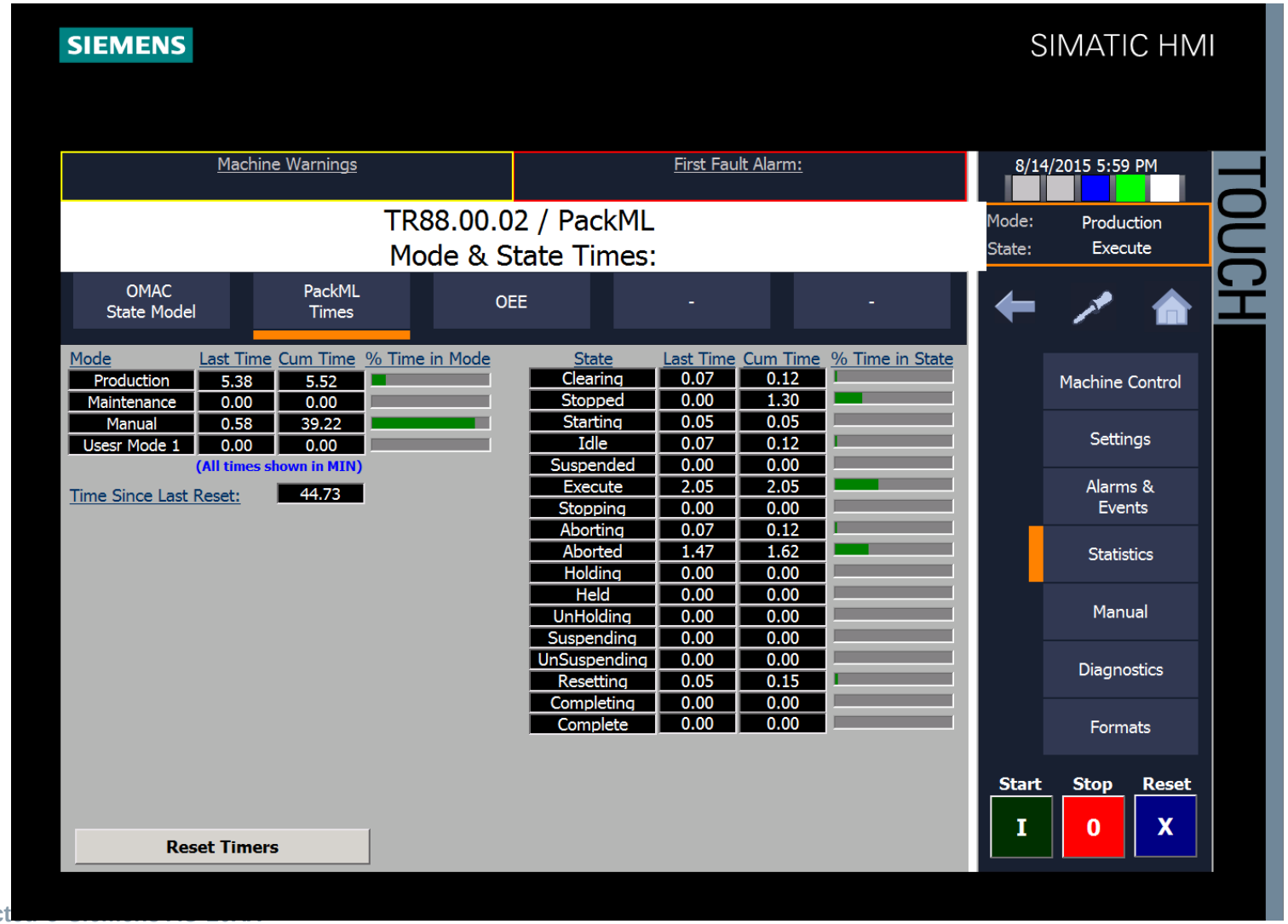
HMI
State Model Overview

PackML

- Dynamic State Model Animation (based upon configuration of the selected mode)
- PackML Diagnostics Messages (operator action feedback)



HMI
PackML Mode and State Times

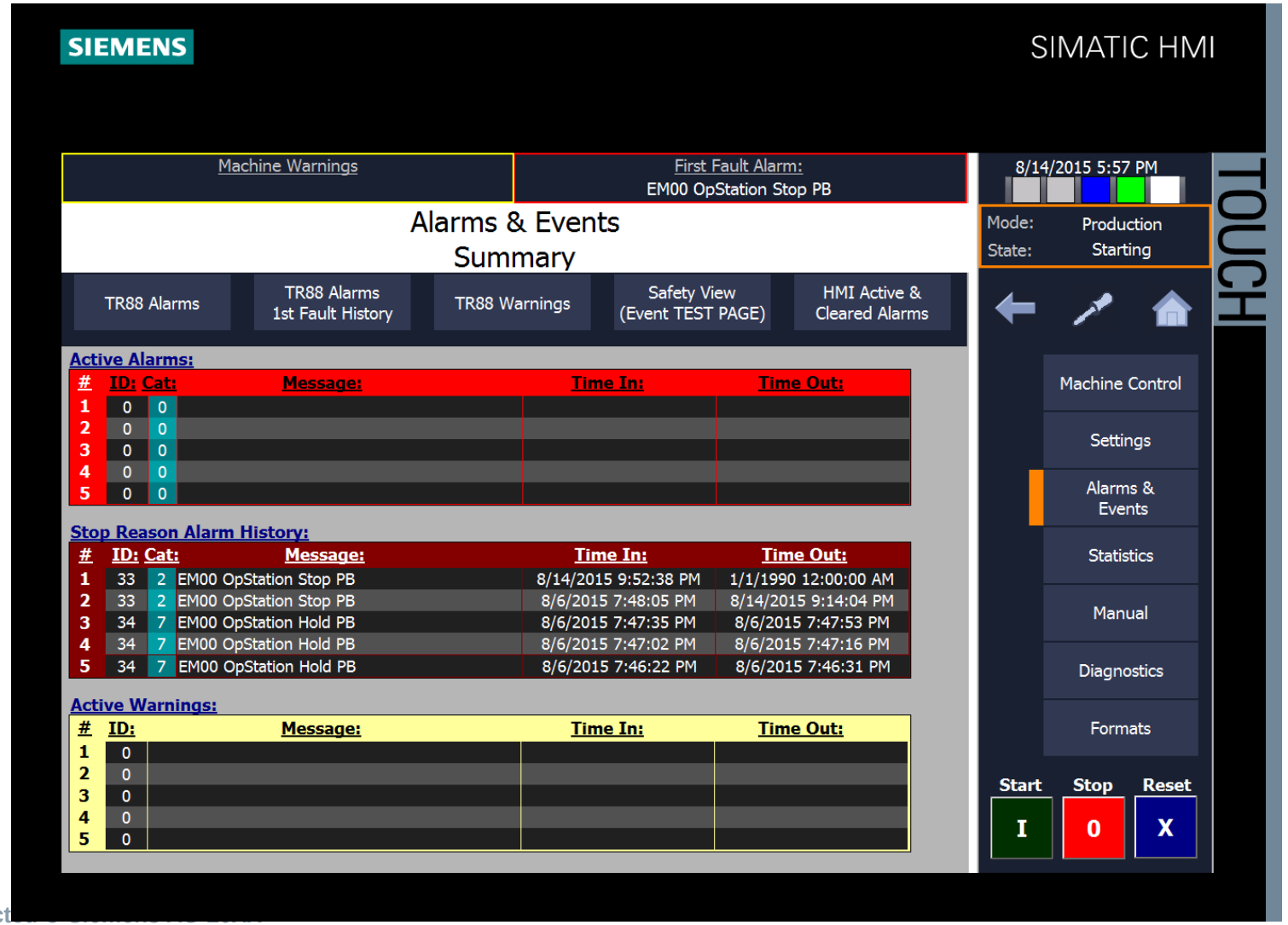


Times

- Preconfigured
- Dyanic status of active PackML State
- Current & Cummulative time values
- Bar Graph - % time of each state

* Based up P&G PackML Template (open source)

HMI
PackML Alarms & Warnings

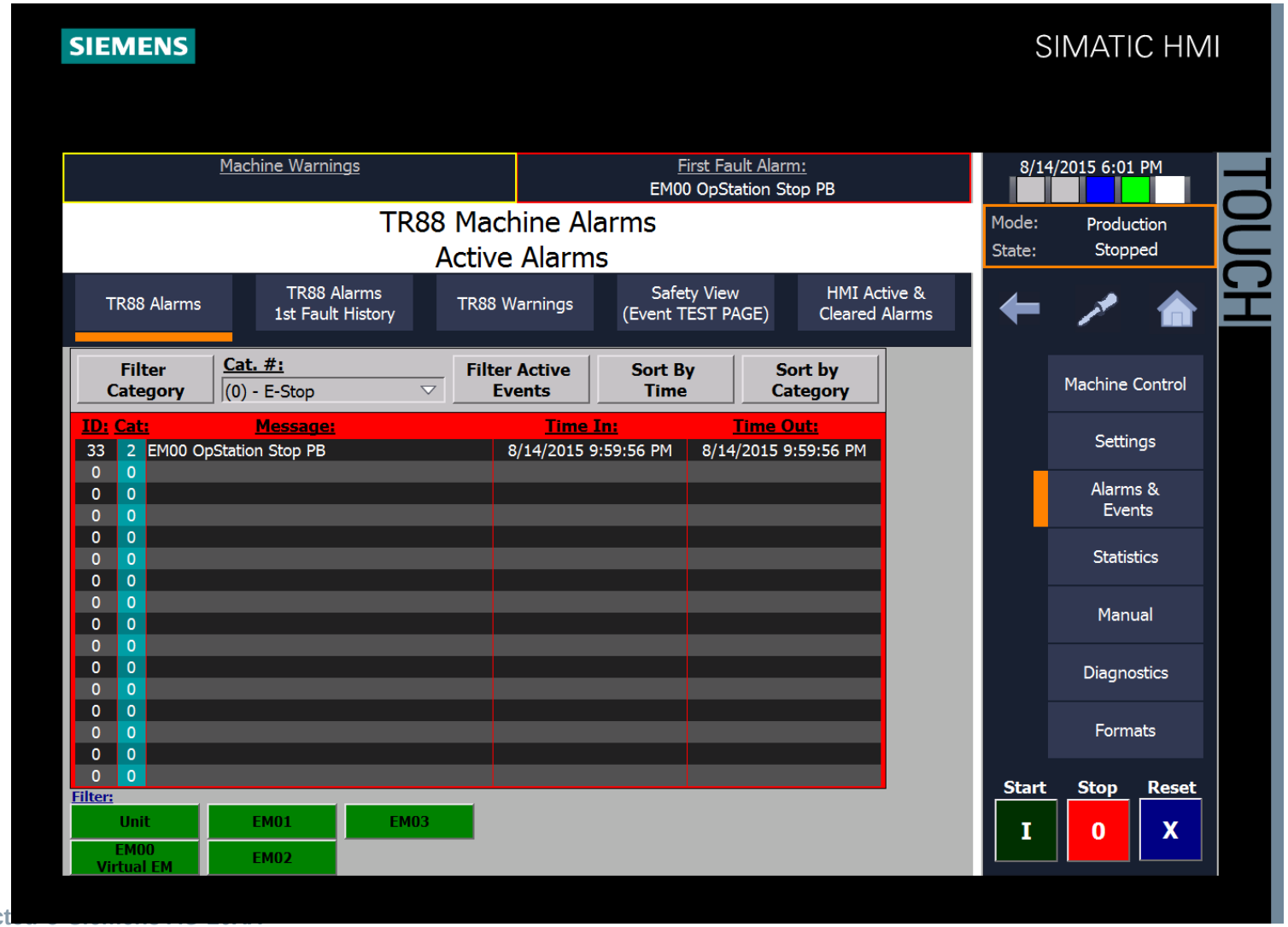


Alarms / Warnings

- Preconfigured
- Seperate Alarm,
  Stop Reason Alarm History,
  and Warning sections

* Based up P&G PackML Template (open source)

HMI
PackML Alarms & Warnings - Filtering



Alarms / Warnings

- Filtering by:
  - Active / Cleared
  - Category
  - Time
- Dynamic EM Filtering
  - Operator Selectable

* Based up P&G PackML Template (open source)

TR88.00.02 / PackML Solutions
Contact Information

Mike Pieper
Industry Manager - Packaging
Siemens US DF FA APC

4620 Forest Ave.
Cincinnati, OH, USA 45212

Phone: +1 (513) 841-3452

E-mail:
mike.pieper@siemens.com

Ajay S Rana
Business Developer –Packaging
Siemens US DF FA PMa

5300 Triangle Parkway, Norcross,
GA, USA 30092
Cellular: +1 (678) 910-6393

E-Mail:
ajay.rana@siemens.com