IPC-HERMES-9852

The global standard for "M2M" in SMT assembly

We should be all online,
please present your company name and yourself in the chat

WELCOME

to

15th The Hermes Standard Initiative meeting

Productronica & Online, November 17th, 2025

Markus Mittermair

Chair of The Hermes Standard Initiative

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Agenda

15th The Hermes Standard Initiative meeting

Productronica & Online, November 17th, 2025

The Hermes Standard Initiative meeting @ Productronica & Microsoft Teams		
Welcome • Introduction of new initiative members • Recap 14th Meeting in November 2024	Markus Mittermair Chair of the Initiative	13:00
• Feedback from the IPC Standards European Committee and Task Group Meetings in Munich this October	Thomas Marktscheffel ASMPT	13:20
Internal feedback from the members	All participants	13:40
Alternative approach and preferred way to cover Machine Inlet Control Loop with Hermes	Thomas Marktscheffel ASMPT	14:00
Technical issues & decisions – Version 1.7 1 SendWorkOrderInfo missing Action attribute	Markus Mittermair Chair of the Initiative	14:30
Extend Hermes to THT production / Additional optional attribute "FrameID	Markus Mittermair Chair of the Initiative	14:45
Organizational issues & decisions • Next meeting	Markus Mittermair Chair of the Initiative	15:00
Wrap-up and end of meeting @ 15:15	All participants	15:15

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The Hermes Standard Initiative
Start simple & grow fast

16 — 2017 — Successful Multi-vendor test in real production environment

28 — 2018 — Products available & start customer field-tests by Q1 2018

39 — Next 5 extensions amended to the standard v1.1

50 — 2019 — Next 7 extensions amended to the standard v1.2

58 — 2020 — Published as IPC-HERMES-9852

60 — 2021

61 — Loader/unloader IPC-CFX use case update v1.3

62 — 2022 — Route & Action SubBoards v1.4

66 — Next extension amended to the standard V1.5

67 — 2023

68 — 2024 — Minor changes V1.6

75

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The Hermes Standard Initiative
A broad foundation across the entire industry assures global acceptance

4IR.UK BRITISH SYSTEMS	BESI	E-FLEX SMT Microsystems	Hayawin	Keysight Technologies	MYCRONIC	PEMTRON	Shenzhen Yongxinde	SYNEO	YAMAHA MOTOR EUROPE
6TL Engineering	Bright Machines	Essemtec	HB Automation	KIC	NMTONICS	Rehm Thermal Systems	SICK	SYSTECH Europe GmbH	YJ LINK
ACHAT5 Engineering	BTU	EUNIL	Heller Industries	KOH YOUNG Technology	Nordson ASYMTEK	REJOINT	SIEMENS	TAKAYA Corporation	YXLON
allSMT	Cencorp	eXelsius	IBL-Löttechnik	kolb Cleaning Technology	Nordson Test & Inspection	RG Elektrotechnologie	SMT Thermal Discoveries	Test Research Inc. (TRI)	
Amtest	CKD	FAMECS	ILJIN	KULICKE & SOFFA	NSW Automation	SAKI Corporation	SolderStar	Universal Instruments	
ASMPT SMT Solutions	CTI Systems	FENIX	Innomelt	KURTZ ERSA	NUTEK	Scheid IT	Sonic Technology	Vanstron	
Asscon	CTS	FLEXLINK	IPTE	LPKF Laser&Electronics	OMRON	SEHO Systems	SPEA S.p.A.	VISCOM	
Assembly-Tek	Digitaltest	GKG	ITW EAE	Magic Ray Technology	ORBIT MERRET	SEICA	STPGroup	ViTrox	
ASYS Automatisierungss	ECD	Göpel electronic	JAPAN UNIX	Masmec SPA	OSAI	SEICA automation	Sunsda Technology Co., Ltd.	WEC	
AUTOMOCION	Ecopmin Technologies	HANWHA	JOT Automation	MIRTEC	PARMI	Shenzhen Desen	Sunjsong Techonology	Whitt	

☐ Existing members ☐ To join

Current 75 members of the initiative as per November 2024

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Welcome

new members

1. Whitt
2. E-FLEX SMT MICROSYSTEMS

Company Background Overview

e-flex SMT microsystems

POWERED BY Whitt

CORE TECHNOLOGY

- e-Flex SMT Microsystems supplies a range of innovative and reliable SMT (Surface Mount Technology) equipment and electronic devices manufactured in East Asia. Since its inception in 2011, our business has expanded globally, always prioritizing customer satisfaction and providing cost-effective solutions. Powered by Whitt, which is our factory established in the same year, we continuously research and improve existing equipment to maintain technological leadership. Our full range of equipment and accessories can meet the diverse needs of our customers' SMT production lines. We provide solutions for our customers' various needs at highly competitive prices.

- Our mission is to "improve efficiency for customers and promote intelligent manufacturing." With "innovation, quality, and service" as our core values, we are committed to providing customers with the best products and services to promote industry progress and sustainable development.

Pursuit of Excellence

Innovation leads the future

Company size

150+

Serving staff

Our employees possess extensive industry experience and expertise. Our R&D team comprises 20 experienced engineers with extensive technical expertise in the design and development of automated conveying equipment. We also regularly offer technical training and career development programs to help our employees continuously enhance their skills and knowledge.

6000+ units

Production capacity per year

The company has implemented the lean production management mode, strengthening project management to ensure efficient operation at every stage of production.

These advantages have enabled us to significantly improve production efficiency while maintaining high quality. Currently, the annual production capacity has reached over 3,000 units, enabling to meet the demands of large-scale orders.

About 9000m²

Geographical location

The head office located in Wan Chai, the core area of HK. Our factory occupies approximately 9,000 square meters and located in the Shenzhen Industrial Park.
Easy for logistics and visit for both domestic and global customers.

Close to highway and airport, our entire facility is well-planned and fully functional, reflecting our commitment to efficient production and development.

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What happened since last meeting

Productronica 2024 Munich

Version History

The last vote from “The Hermes Standard” Initiative at the Apex April 2024 planed as version 1.5.1, has been released as official IPC-Hermes **Version 1.6**.

The last vote from “The Hermes Standard” Initiative at the Nepcon, November 2024 planed as IPC-Hermes Version 1.7 isn’t released yet.
The **Version 1.7** will be released soon, but it will include the vote results from Nepcon November 2024 and the vote results from Productronica Munich November 2025.
The specification is provided and finally released by the IPC.

The Hermes Standard Initiative WEB side

New version of the Best Practise document 1.2,
with a few adjustments from the last meeting regarding wording.

I've made all The Hermes Standard versions available for download on the public website , because so many people have asked me about them.

The site is under cyber attack and we are receiving a large number of spam emails. It's possible that a request might get lost.

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Feedback IPC Hermes European Task Group Meeting

Thomas Marktscheffel, Independent Consultant

IPC-HERMES-9852 European Task Group Meeting

IPC-HERMES-9852 European Task Group Meeting, October 27th, 2025 in Munich / Germany

Good Mixture of Audience:
About half of the participants were SMT Manufacturers, other half were Machine Vendors

Summary

- fruitful discussion and feedback
- Vitesco is using Hermes in 5..6 of their factories, working ok
  Siemens is using Hermes in their factories
- Where is the communication between Machine Vendors and SMT Manufacturers ?
- Shouldn’t the “Hermes Best Practices” be reviewed with respect to SMT Manufacturer’s feedback ?

IPC-HERMES-9852 European Task Group Meeting: Hermes Usage

Many SMT Manufacturers are already using Hermes or plan to do so

Problems:

- Simple board-handover does not work, both machine vendors claim compliance with The Hermes Standard
  → who takes responsibility to resolve this problem ? The machine vendors ? The manufacturer ?
  → how reliable are the Hermes implementations of different machine vendors ?
- Hermes can offer a lot of benefit, but it is difficult to find out about the possible solutions
  → who can help designing a Hermes-automation solution ? Which Hermes version is needed ?
  → what are the necessary manufacturer's requirements to the machine vendor' quotes ?

Does The Hermes Standard Initiative need a Hermes qualification program ?

IPC-HERMES-9852 European Task Group Meeting: Communication & Feedback

Only little to no Communication between SMT Manufacturers and The Hermes Standard Initiative

Problems:

- Missing Forum for communication between SMT Manufacturers and Machine Vendors
  → feedback goes from SMT Manufacturer to specific Machine Vendor in case of problems with Hermes
  → where can new ideas for new Hermes-based solutions be discussed
- No communication between the Hermes Work Group and The Hermes Standard Initiative in between Hermes members meetings
  → how do the Hermes members know what is going on in the Hermes Work Group ?
  → how can Hermes members or SMT Manufacturers submit requirements to the Hermes Work Group ?

➔ Hermes members can submit requirements in the Hermes Members Forum

➔ Members of the IPC Hermes Task Group can submit requirements via news feed

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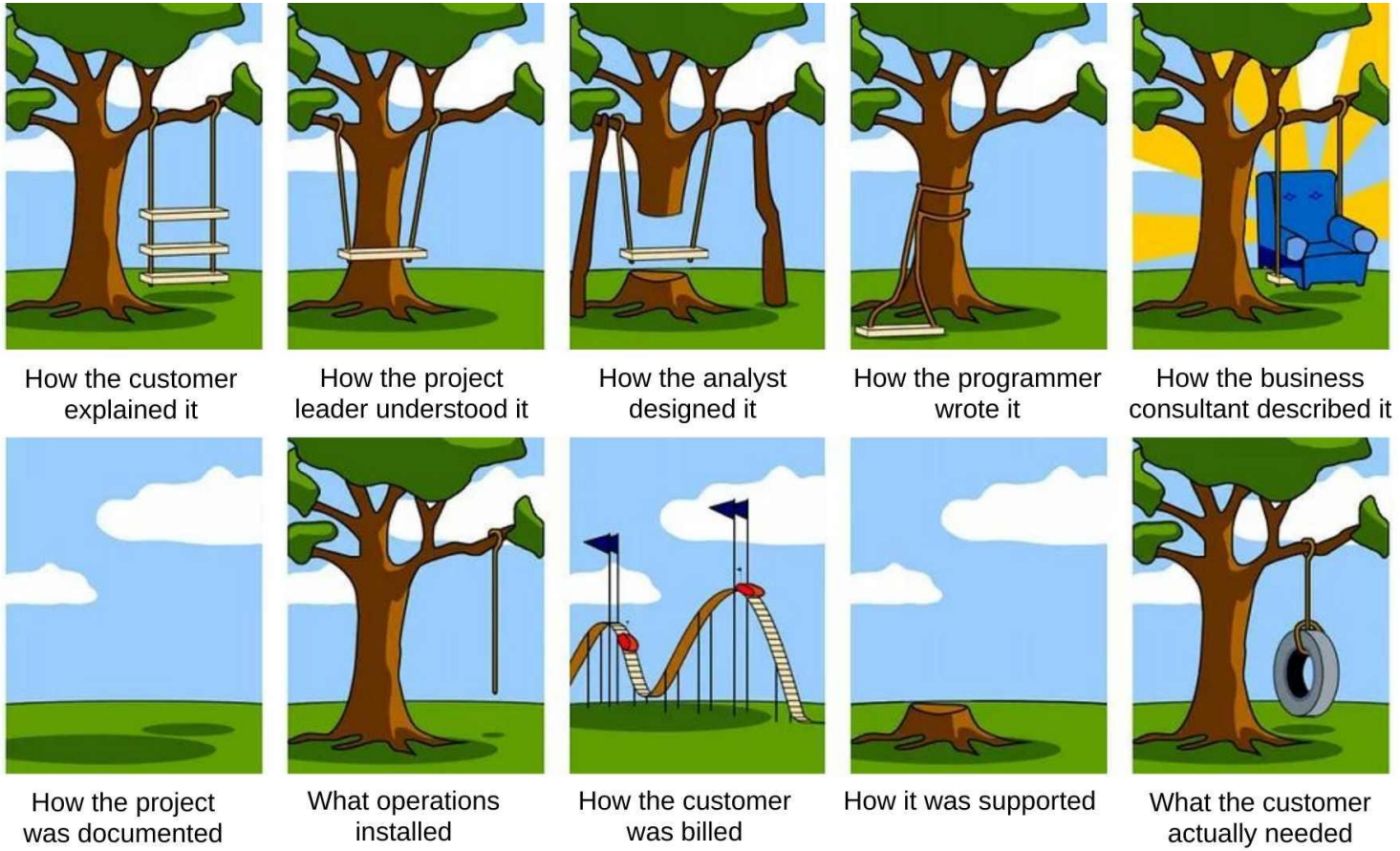
Internal feedback from the members

Markus Mittermair, Rehm Thermal Systems GmbH

Internal feedback from the members

Common Problem Today

- What has the customer ordered
- What has manufacturer delivered
- What is documented
- How are the problems communicated?
- What the customer needed



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Alternative approach and preferred way to cover Machine Inlet Control Loop with Hermes

Work Group:

Hermes Use Cases

Thomas Marktscheffel, Independent Consultant

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Active Working Group Hermes Use Cases
guided by Thomas Marktscheffel ASMPT

3 Meetings 10.04, 08.05, 12.06

ASMPT	Tom Marktscheffel
ASYS	Kai Kammers
ERSA	Moritz Floder
Nano Dimension / Essemtec	Bruno Müller
IPTE	Tom Geurts
Mycronic	Peter Sundström
Rehm	Markus Mittermair
Scheid IT	Markus Scheid
Sick	Paul Langenbacher
MMT / SYNEO	Vincent Levannier

Objectives of Workgroup “Hermes Use Cases”

The Hermes Standard specifies machine-to-machine communication for transferring Boards and associated data

The transferred data comprises a lightweight Digital Twin of the Board

The Hermes Standard ensures consistency of this lightweight Digital Twin along the entire SMT Line

Hence, this lightweight Digital Twin is an ideal basis for additional workflows for this SMT Line

The Workgroup “Hermes Use Cases” prepares recommendations for using Hermes and for implementation of Use Cases using Hermes Data

Machine Inlet Control Loop

Current Situation

- Today, the buffer after the oven can send a Command message to the oven to lock the oven's input conveyor

Problem

- Buffer needs to know how many boards the oven can take: Different board length → different number of boards

Ideas

1) Use Command message to send "number of available positions" to the oven
2) Use a new message
3) Extend the Command message with new attributes to manage the Oven Control Loop

Preferred Way to cover Machine Inlet Control Loop with Hermes

Use Command message with Machine Inlet Control Loop – specific agreement for command value range

- (?) compatible with existing Hermes versions, but may cause conflicts with other usage of Command

➔ **This is the fastest track towards getting a solution – we will add this to Hermes Best Practices**

Use a new message ?

- (+) “clean” approach without workarounds or topic-specific agreements
- (-) requires a new version of The Hermes Standard, this could pose an implementation barrier

➔ **This requires a new Hermes version – we don’t do this now, and in the future only if necessary**

Extend Command message with new attributes ?

- (+) “clean” approach without workarounds or topic-specific agreements
- (-) requires a new version of The Hermes Standard, this could pose an implementation barrier

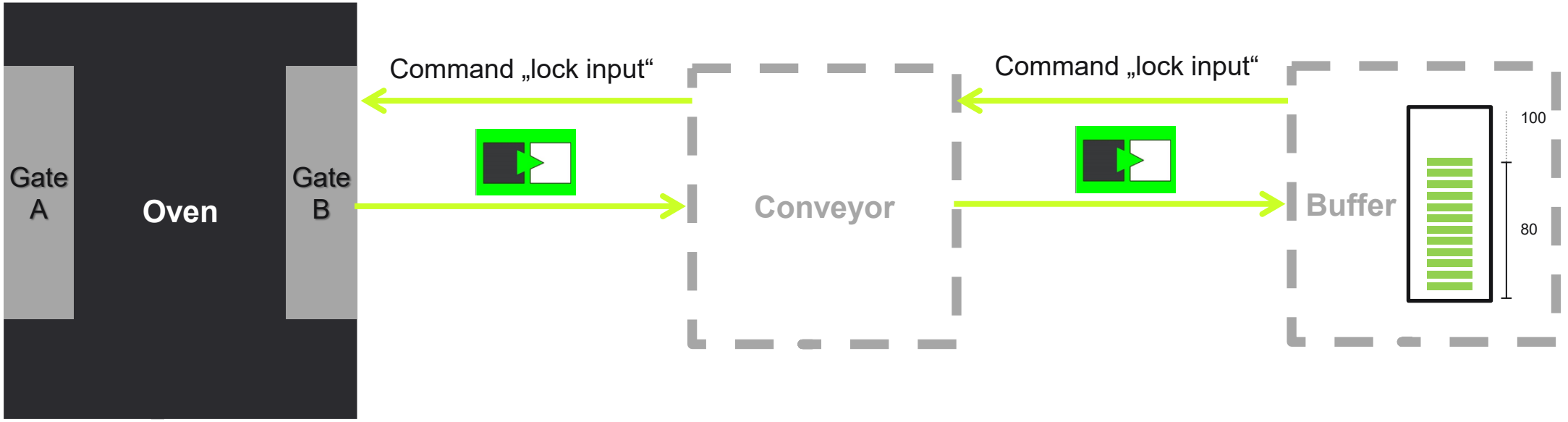
➔ **This requires a new Hermes version – we don’t do this now, but consider this for a future version**

Previous Approach for Machine Inlet Control Loop with Hermes

Buffer needs to know how many boards Oven and Cool-Down Conveyor can hold

Buffer uses this maximum number of boards to determine when to send a Command “lock input”

Problem: How does the buffer know this number ? Does it need to be configured ?



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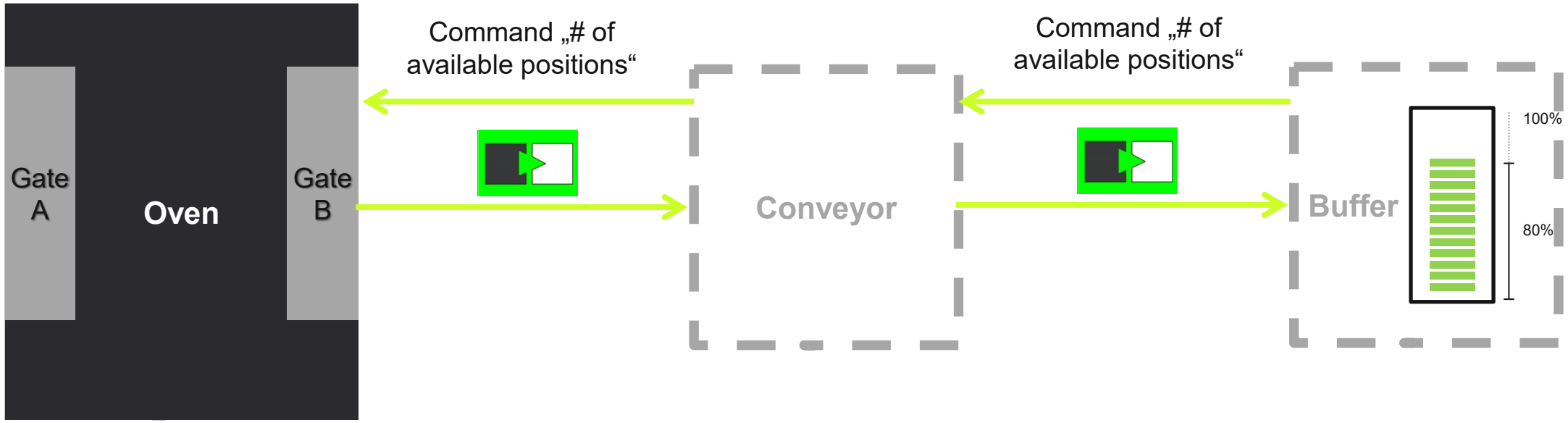
Improved Approach for Machine Inlet Control Loop with Hermes

Oven knows number of boards inside and uses Command attribute to decide whether lock inlet or not.

Conveyor needs to be configured to
1) don't react
2) add positions
3) deduct positions

Buffer sends a *Command* message with "number of available positions"



Workflow for Improved Approach for Machine Inlet Control Loop with Hermes

The Buffer uses Command message to send “number of available slots” to the oven

The `Command` attribute in the *Command* message is an `int`, and the range from 1000 onwards is available for customer defined commands: We propose to use the range 1000 … 1999 to indicate the number of available slots in the Buffer.

The cool-down Conveyor, or more general the machine(s) between Buffer and Oven, need to be configured for three different scenarios:

1) don’t react — the in-between machine cannot hold any boards and hence passes on the received Command attribute unmodified (default scenario)
2) add positions — the in-between machine uses the additional buffer space to unload the oven
3) deduct positions — boards in the in-between machine have to be unloaded to the buffer

Oven compares the received number of available slots in the Buffer with the number of boards inside the Oven and decides whether to lock its inlet or not.

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Technical issues & decisions – Version 1.7
SendWorkOrderInfo missing Action attribute

The Hermes Standard Initiative:

Proposal

Markus Mittermair, Rehm Thermal Systems GmbH

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SendWorkOrderInfo missing Action attribute

Description:

Currently it is not possible to communicate the attribute “Action=1” (edit board, e.g., flip, mark) with SendWorkOrderInfo. Both FlippedBoard and Action can be communicated horizontal but not vertically!

Use cases:

Board is top side and should be processed only on top without turning FlippedBoard=1, Action=0

Board is top side and should be processed on top and bottom with turning FlippedBoard=1, Action=1

New / changed XML messages:

Adding the Action attribute to SendWorkOrderInfo

V1.6 mistake in section 2.3.8 Handling of Attribute ‘Action’. SendBoardInfo is misssing from the collection because Action is already inside there.

Proposed changes to standard:

The vertical messages and the horizontal message with BoardAvailable
(SendBoardInfo, BoardArrived, BoardDeparted, SendWorkOrderInfo)
should be equal regarding attributes!

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Let’s Vote

Proposed Amendments to the HERMES Standard

Yes

Add Action attribute to SendWorkOrderInfo
To Version 1.7

No, we will not

Add to chat
Company xxxxx, Name xxxx, Yes / No

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Extend Hermes to THT production / Additional optional attribute “FrameID”

The Hermes Standard Initiative:

Proposal

Markus Mittermair, Rehm Thermal Systems GmbH

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Optional attribute “FrameID”

Proposal:

Furthermore, there might be missing attributes to take care about PCB Assembly and Soldering frames to identify the Frame-ID and corresponding PCBs mounted at the frame. Hermes shall take care about Solder-Frame ID

New / changed XML messages:

Change of the messages BoardAvailable, MachineReady, BoardArrived, BoardDeparted and maybe BoardForecast either in description or with additional optional attribute “FrameID”.

Optional attribute “FrameID”

A frame or carrier is used in both THT and SMT electronic production. They are also often used in vapor-phase or contact soldering processes. The carrier or frame ID usually cannot be connected to the MES, because it is only a tool that is used many times with different products inside. Technically, the process of linking a board to a carrier and removing it again is called marriage and divorce.

The levels of distinction can be defined as:

1. Carrier / Frame
2. Panel (multiple PCBs)
3. Board (single PCB)

Making a clear distinction between all **three** levels would help to avoid confusion and make communication more precise,

but it would also mean that the systems must be able to recognize and handle these level correctly.

What isn't mentioned here is the magazine. The magazine number needs to be communicated so that the PCB’s end up in the same magazine again.

Beyond Carrier, Mazazine, FrameID. Do we have even more tools here?

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Organizational issues

Overview of action item

Open activities

- Hermes Use Cases workgroup - continued work
- Organize 16th meeting - Hermes Chair

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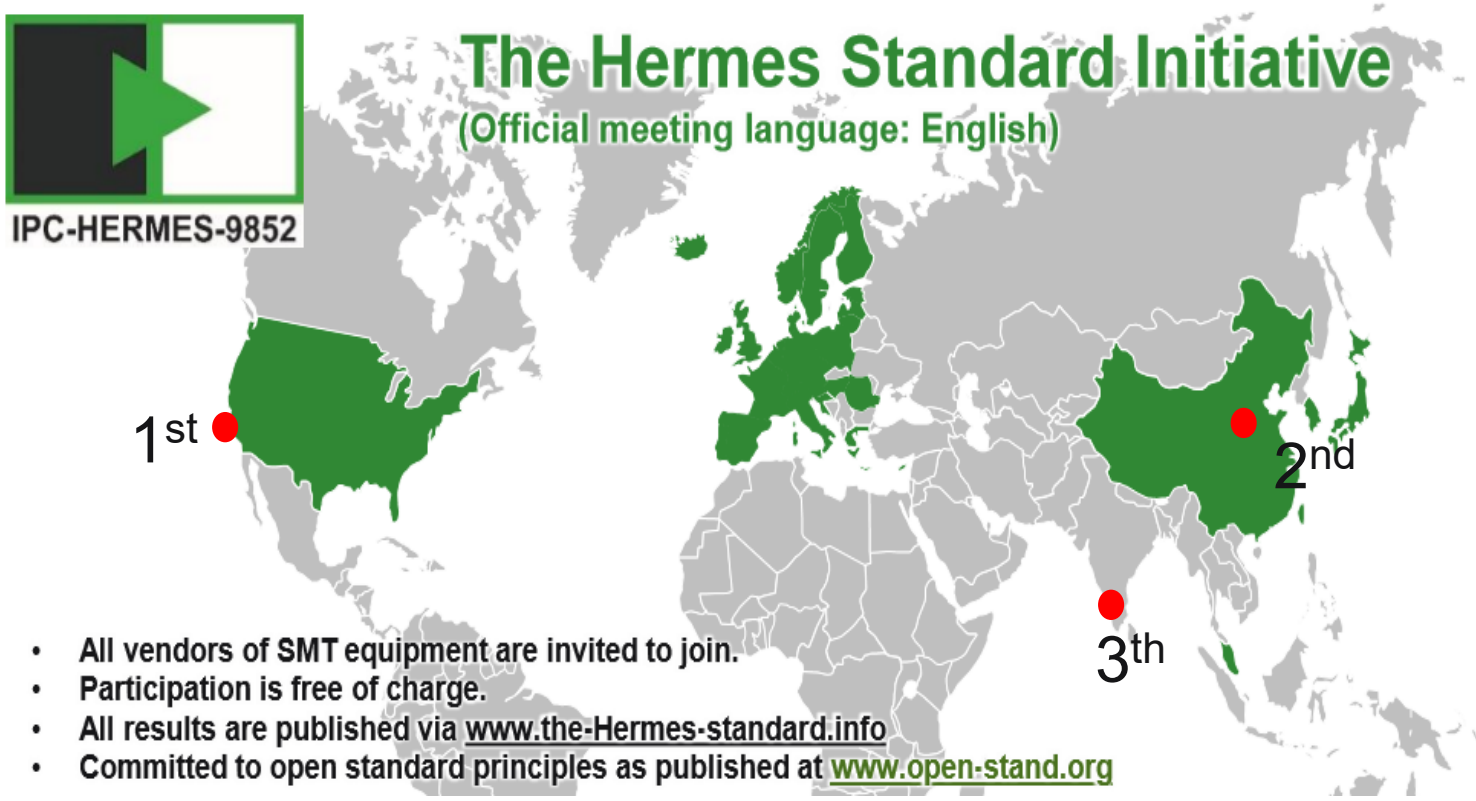
Next meeting

organizational issues and decisions

Markus Mittermair

Chair of The Hermes Standard Initiative

The Hermes Standard initiative
Location and timing for 16th meeting



Suggestions for next meeting 2026

1) Apex Expo Anaheim USA March 15-20

2) Productronica China Shanghai March 25-27

3) Productronica India September 16-18

Other suggestions, do we need an exhibition?

Where and when should next meeting take place?

The initiative decided (x yes/x no) to hold the next meeting …

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Let’s Vote

Where and when should next meeting take place

Who is for xxxxx .

Add to chat
Company xxxxx, Name xxxx

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Wrap-up

End of the meeting

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Let´s simplify the life of our customers!

The Hermes Standard Initiative

The Hermes Standard for vendor independent machine-to-machine communication in SMT Assembly.