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The Global Standard for Machine-to-Machine Communication in SMT Assembly

Supersedes IPC-HERMES-9852, Version 1.4
February 2022

Developed by The Hermes Standard Initiative and approved by IPC

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IPC-HERMES-9852

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Users of this publication are encouraged to participate in the development of future revisions.

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1 SCOPE

The aim of this specification is to create a state-of-the-art communication protocol for handling board transfers and associated data at surface-mount technology (SMT) production lines. Therefore, this new communication protocol has to cope with the following:

- Replace the electrical SMEMA interface as specified in IPC-SMEMA-9851
- Extend the interface to communicate:
  - Unique identifiers for the handled printed circuit boards (PCBs)
  - Equipment identifiers of the first machine noticing a PCB
  - Barcodes
  - Conveyor speed and intended board route
  - A lightweight digital twin of the product containing, e.g.,
    - Product type identifier
    - Length
    - Width
    - Thickness
    - Board state

With respect to version numbers The Hermes Standard adheres to the rules of Semantic Versioning 2.0.0 [SemVer_2.0.0].

Hints on naming:

- Wherever a feature is described by the word “**shall**” it is mandatory.
- The word “machine” is used for any equipment which can be found in a SMT production line (e.g., printers, placement machines, ovens, AOIs, transport modules, shuttles, stackers).
- The term “PCB” may also refer to carriers transporting PCBs.
- The word “Hermes” is used as abbreviation for “The Hermes Standard”.
- “The Hermes Standard” and IPC-HERMES-9852 are synonyms for the standard specified in this document and might be used interchangeably.