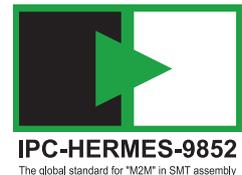# "THE HERMES STANDARD"
NETWORKING OF MACHINES

New interface to replace SMEMA – Hermes networking now possible with Rehm systems

The VisionXP+ from Rehm Thermal Systems is ready for "The Hermes Standard".

IPC-HERMES-9852
The global standard for "M2M" in SMT assembly

In Greek mythology Hermes, messenger of the gods, brings messages from the gods to mortals. With his speed and sophistication he moves freely between the two worlds. So it is no wonder, then, that his name should have been chosen for a new type of interface communication: the "Hermes Standard". This is the successor to the SMEMA interface. In a possible combination with the IPC-CFX interface it ensures that important assembly information is transmitted reliably, spontaneously, simply and in full from machine to machine and to overarching systems – regardless of the manufacturers of the machines in question. Hermes, SMEMA and CFX: an overview of the current interface communication spectrum.

Efficiency, simplicity, adaptability to demand, networking – these are the defining buzzwords for today's industry. In a smart factory it is essential for the entire production system to be networked and able to access all process and assembly data at any time – this is the only way that Industry 4.0 can work. And it is important for SMT lines made up of systems from different manufacturers that such networking is guaranteed to be manufacturer-independent. All of this can be achieved easily with the "Hermes Standard".

The Hermes Standard offers fast, network-based communication between the individual machines of an SMT line. This was not possible with the previous SMEMA standard. For this reason, an independent group of leading SMT equipment manufacturers, including Rehm Thermal Systems, has come together to develop a new interface: the Hermes Standard. At present this initiative involves over 50 electronics manufacturing companies, and the IPC has also recently officially recognised the Hermes Standard. As the successor to the SMEMA interface (IPC-SMEMA-9851), it bears the name IPC-HERMES-9852.

With the SMEMA interface, communication from individual machines was reduced to digital signals. This meant that the machines could not communicate with each other directly; instead, the circuit-board data was held in the MES systems at a higher level. A scanner was required to identify the data. The MES system then communicated with the individual machines, but adequate synchronisation of the machines could not be achieved.

By contrast, the Hermes Standard links the individual machines together using a direct form of horizontal
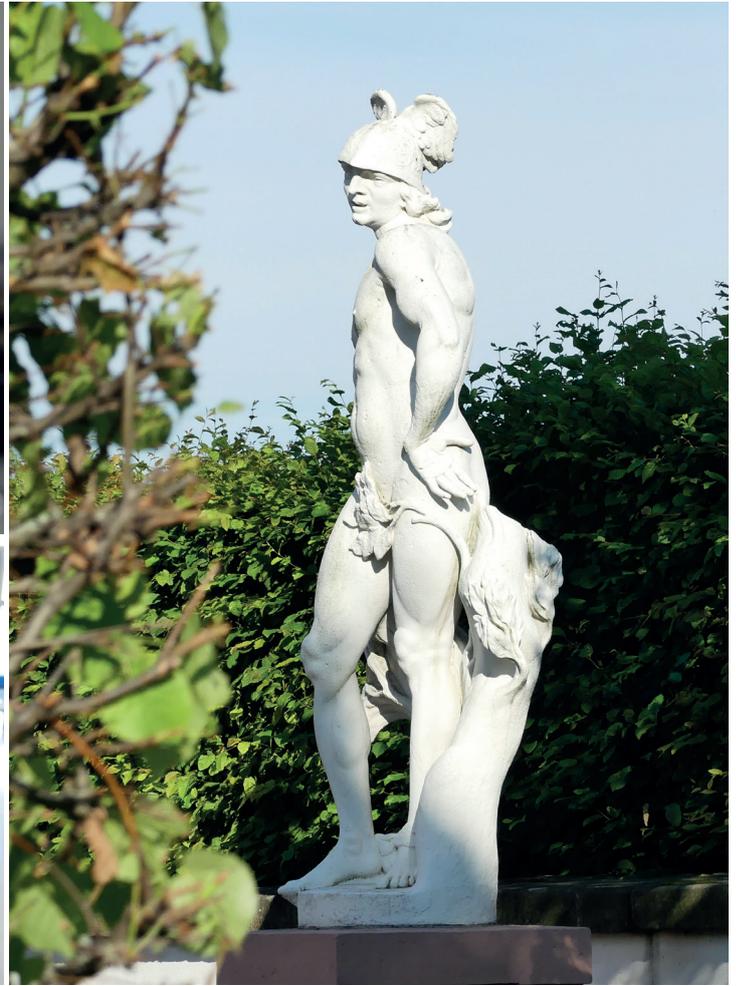
"The Hermes Standard" offers fast, network-based communication between the individual machines of an SMT line.

communication. Data is exchanged throughout the entire SMT line, directly from machine to machine (M2M), and the data packets move through the machine together with the PCBs: At the start of the production line there is a scanner that uniquely identifies each board. The machine uses this information to create the Hermes data packet that is then passed on from machine to machine. This is not, however, done by means of digital signals but rather via a network. This new form of interface communication uses a TCP/IP and XML-based protocol and standardised cables and data formats. This simplifies the integration process and reduces costs. In addition to the barcode of the assembly, various other data is stored and communicated.

Customers of Rehm Thermal Systems seeking Hermes interface communication for the VisionXP+ can choose between two versions: one with a scanner on the outfeed conveyor and one without. Without the scanner on the outfeed conveyor it is not possible to manually reinsert a board. This reduces the risk of data being lost or being assigned to the wrong assemblies. If a scanner is present on the outfeed conveyor, boards can be removed after soldering and reinserted as the user requires. This is particularly

important if a visual inspection is performed manually or if random samples are to be taken for quality assurance purposes. The correct assignment of data to the correct board is nevertheless preserved.

The Rehm Vision systems are also CFX-ready. With the CFX interface (IPC-CFX), communication is vertical and network-based. While the Hermes Standard is used primarily for M2M communication, the CFX is used for data uploading and downloading and for data analysis. The combination of horizontal Hermes communication and vertical CFX communication is absolutely necessary for a smart factory in the long run and represents a further step towards standardisation.