



INVITE - Digital Plant Showcase Center with SIMATIC PCS neo and MTP

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INVITE GmbH in CHEMPARK in Leverkusen runs a Digital Plant Showcase Center to enable the quick, straightforward testing of promising new digital technologies on a plant. The idea behind the Center is to build a bridge between technology scouting and implementation in actual production. It combines two benefits: The plant maps a production process to minimize the effort involved in transferring to actual operation. It also gives the operator the same degree of flexibility and capabilities as a pilot plant. Initial experience can be gathered and compatibility for actual production can be evaluated.

From a technical point of view, the "Digital Plant" is the centerpiece of the Digital Plant Showcase Center (see Figure 1). The Digital Plant is designed and implemented in a modular fashion in terms of its process, engineering and automation. This makes it flexible in design and open to expansion. Furthermore, standardized communication interfaces enable the straightforward integration of digital technologies.

Each process step is implemented by a module. There are five modules for the Digital Plant:

- 3 dosing modules
(short designation BP11, BP12, and BP13)
- 1 mixing/heating module
(short designation CM14)
- 1 storing/stirring module
(short designation RP23)



Figure 1: INVITE, Digital Plant



The Digital Plant shows that it is possible to commission a module or a package unit within 10 minutes in terms of automation.

Mr. Wittenbrink

Project manager at INVITE

Module Type Package (MTP). In this specific case, the MTP modules were integrated in SIMATIC PCS neo using the OPC UA communication protocol. Initially, this pilot project worked with limited MTP scope in terms of visualization and operator control in accordance with VDI 2658, on which work is still in progress.

In the case of the MTP module with SIMATIC S7-1500, the SIMATIC MTP (APL) Library was used before it was actually released. The SIMATIC Module Type Package Library (MTP) provides blocks and face-plates based on Advanced Process Library (APL) for the modular automation of various applications.

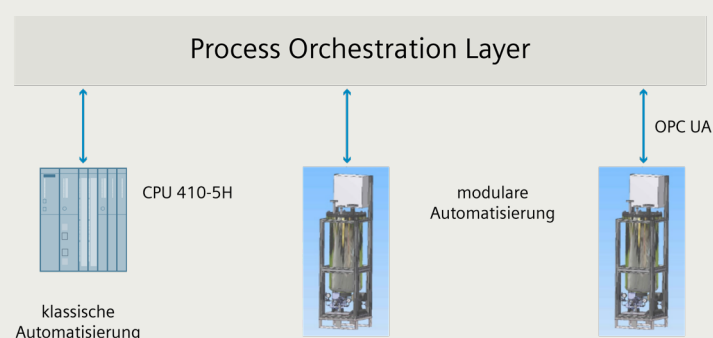
In order to highlight the fact that MTP is not dependent on a particular manufacturer, a module was also integrated that featured Festo SE & Co. KG control technology. The integration of the MTPs from third-party vendors was also successful. The operators of the Digital Plant noticed no difference between traditional automation, Siemens MTP or Festo MTP.

However, the major benefit of the MTP is in the engineering. "The Digital Plant shows that it is possible to commission a module or a package unit within 10 minutes in terms of automation," says Mr. Wittenbrink. This is possible because the module's visualization and signal interconnection

are already contained in the MTP. Once the MTP package file has been successfully imported in the POL, the contents only need to be sorted into the plant hierarchy and the communication configured via OPC UA, with the result that the "plug and produce" philosophy is realized by means of MTP.

INVITE has already held online presentations on the Digital Plant with SIMATIC PCS neo and MTP for several Bayer plants and other companies. The web-based approach and the possibility of quickly integrating modules or package units via MTP were two features that particularly impressed these audiences, even though some SIMATIC PCS neo V3.0 functionalities that are necessary for the pharmaceutical and processing industries are still undergoing development. The development of SIMATIC PCS neo is being pursued with particular focus on production plants in which SIMATIC PCS 7 is already in use. A further focal issue is the conversion of plants with SIMATIC PCS 7 to SIMATIC PCS neo. The two systems' shared hardware platform and application architecture is of great advantage here.

Figure 3: Process Orchestration Layer (POL)



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Invite is continuing to expand its portfolio of digitalization showcases. Currently a pilot setup featuring NAMUR Open Architecture (NOA) can be seen in addition to SIMATIC PCS neo and MTP. This gives a concrete demonstration of how semantically unique and vendor-neutral data from HART-enabled field devices can be used in cloud applications with very little engineering input.

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