

VIRTUAL COMMISSIONING OF A ROBOTIC CELL USING TECNOMATIX PROCESS SIMULATE

Nicolae-Adrian DUMITRAȘCU¹,
Alexandru DINCĂ², Nicolae PREDINCEA³,

Rezumat. *Conceptul de Virtual Commissioning (VC) cunoscut în România ca punerea în funcțiune virtuală, a devenit o etapă esențială în dezvoltarea și simularea proceselor de fabricație automate și robotizate. Prin crearea copiei digitale a echipamentelor din producție, companiile au astfel posibilitatea de a testa mai multe scenarii complexe cu roboți și echipamente complicate, reducând în acest mod timpul fizic de punere în funcțiune. Această lucrare prezintă conceptul punerii în funcțiune virtuale și descrie toate resursele necesare realizării cu succes a acestei etape.*

Abstract. *The concept of Virtual Commissioning (VC) has become one of the most essential phases in the development and simulation of automated manufacturing processes. By creating a digital copy of the real system installment, companies have the ability to test out more complex scenarios with robots and complicated mechatronics design, greatly decreasing the startup time of the plant and shortening the product's time to the market, while increasing the overall quality at the same time. This paper presents the core concepts of VC and all the required resources and technologies that are involved in the development of a state-of-the-art manufacturing process.*

Keywords: Industry 4.0, Virtual Commissioning, Process Simulate

1. Introduction of Virtual Commissioning

In current trends, the leading aspect that drives the competitive market of the manufacturing business is being first to launch a product to the market. In order to have short launch time it is important that all phases of the manufacturing process, from the initial design to the physical installation of the plant. The last step, in particular, can be greatly aided by using powerful tools such as Virtual Commissioning, as it allows a company to sort out any bugs in the PLC programme before even connecting to any real equipment.

Also, due to the fact that manufacturing processes tend to be extremely complex, dealing with tensor hundreds of different types of devices constantly communicating with each other, it is of the utmost importance to use a technology that permits high flexibility and great precision for the models it can create and simulate.

¹PhD Student, Eng., Digital Manufacturing Manager, ADA Computers, Bucharest, Romania (e-mail: adrian.dumitrascu@adacomputers.ro).

²Eng., Virtual Commissioning Consultant, ADA Computers, (alexandru.dinca@adacomputers.ro).

³PhD, Eng., Prof., Department of Machines and Manufacturing Systems, University "Politehnica" of Bucharest, Romania.
