In this paper an approach to support the development process of closed-loop control software for Programmable Logic Controllers (PLC) is shown. To enhance the development process, a fast and reliable data transfer between different tools and models used during different design phases is realized by model transformation. A core model created using the Systems Modeling Language (SysML) and a corresponding model editor based on the Unified Modeling Language (UML) in combination with a newly realized model transformation from the SysML parametric diagram to the Simulink block diagram is used to integrate the information from different engineering tools and models involved during automation engineering design phases. Hence, a consistent process for the development of closed-loop control software is realized.