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Development of G-Code Interface Using Microsoft Visual Basic for AB L63 Control System

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Abstract. This paper discusses the development and implementation process for a user interface to translate G- Code (ISO6983) using Microsoft Visual Basic 2010, and OPC communication protocol. This interface was developed in three modules, the first one verifies syntaxes and lexicon, the second is a command converter for a Programmable Logic Controller Allen Bradley L63 using a SERCOS interface card and servo drive ULTRA 3000, and the last one executes motion control instructions. The interface is used for a profile milling process, on a XY plane and using G00, G01, G02 and G03 codes generated in a Fanuc postprocessor 3XMILL. The interface shows errors detected in the verification module according to the parameters established and identifies the corresponding line; monitors the XY position in real time, The interface allows line by line execution or in automatic mode. The interface does not call information for cutting speed, tool advance speed, and spindle speed or tool compensation from the NC program. The interface was also developed using incremental and reuse oriented methodologies.

Keywords: Interface, G- Code, Programmable Logic Controller, Milling process, servo drive, communication protocol.