

Press Release

Lean commands for Industry 4.0

Bosch Rexroth provides software development kit for the script language Lua for Open Core Interface

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With the simple script language Lua, putting robots into operation is quick and easy with Lua.

The engineering framework Open Core Engineering by Rexroth now also supports the script language Lua. This gives users another option for bringing more intelligence into production. The simple and understandable syntax of Lua has proven itself on a global level. Bosch Rexroth is now also making the advantages, which for example are used in controlling complex figures in computer games, available to the automation industry. Lua can be used to control robotics or program axial movements. The end user can optimize its machine program itself with simple software tools – without needing to program one single line of PLC code.

Lua is ideally suited for the use in small networked devices and control units, as the size of the script interpreter is very small – less than half of one megabyte. In modular production, Lua scripts stored on the component carrier via RFID chip can contain complete work instructions. Machines in a M2M network or higher-level product systems generate scripts independently in order to control other processes and machines – as a basis for integrated machine intelligence. In light of the diverse possible uses in the Industry 4.0

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environment, Rexroth integrated the Lua interpreter into the Open Core Interface of its IndraMotion MLC control units. OEMs thus create solutions in a combination of Lua and PLC code, where the customer-specific components are integrated into the script. This significantly reduces the effort required for adjustment for technological development.

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Easier programming and commissioning of robotics

The flexibility of Lua allows for user-specific command interfaces with which axial movements of robotics and other machines can very easily be defined. For example, Rexroth has a simple function library for the programming language Robot Control Language (RCL), which facilitates the transition. As a replacement for RCL, the control system IndraMotion MLC then uses the Lua script.

Today, design engineers no longer require elaborate tools and development environments to represent a pick-and-place process in Lua. They merely write a simple script in a common text editor, and then transfer the file to the control unit. Subsequent expansion stages then promise the browser-based editing and testing of the control unit's integrated web server.

Once the application-specific PLC code has been shifted into simple, easily accessible Lua scripts, the logic becomes transparent, understandable, and adaptable for the end customer. With regard to fast commissioning, the end user quickly loads the script from the control unit into the text editor and completes programming of the axial movement. The service effort on site is also reduced if future adjustments are performed remotely by the customer or an engineer.

The software development kit (SDK) for the script language Lua for the Open Core Interface can now be downloaded for free from Rexroth's engineering network. The Lua development toolkit (LDT), which is also available free of charge, serves as a development environment.

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**The preliminary sales figure disclosed for 2014 does not include the former joint ventures BSH Bosch und Siemens Hausgeräte GmbH (now BSH Hausgeräte GmbH) and ZF Lenksysteme GmbH (now Robert Bosch Automotive Steering GmbH), which have since been taken over completely.*

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