

**METHODOLOGY FOR TESTING THE SOFTPLC MODULE AS PART OF THE "АксиОМА Контрол"
CNC SYSTEM**

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Annotatsiya

Ushbu maqolada ishlab chiqilgan metodologiya asosida "АксиОМА Контрол" SoftPLC moduli sinovdan o'tkaziladi va muhokama qilinadi.

Kalit so'zlar: avtomatlashtirish, dasturiy ta'minot, apparat, boshqaruv tizimlari, sinov, vazifalarni tahlil qilish, operativ xotira bilan kompyuterlashtirilgan raqamli boshqaruv, muhandislik hisob-kitoblarini boshqarish, dasturlashtiriladigan kontrollerlar, dasturiy ta'minot arxitekturasi.

Аннотация. На основе методики, разработанной в данной статье, тестируется и обсуждается модуль SoftPLC «АксиОМА Контрол».

Ключевые слова: Автоматизация, программное обеспечение, аппаратное обеспечение, системы управления, тестирование, анализ задач, компьютеризированное числовое управление с оперативной памятью, управление инженерными вычислениями, программируемые контроллеры, архитектура программного обеспечения.

Annotation

Based on the methodology developed in this article, the SoftPLC module "АксиОМА Контрол" is tested and discussed.

Keywords: Automation, Software, Hardware, Control systems, Testing, Task analysis, Random access memory computerised numerical control, control engineering computing, programmable controllers, software architecture.

Consider testing a logical control system as the process of detecting errors in the software and hardware parts by executing the program code on the computing resources of the system with an input set of test data.

When testing control flows due to the base, the composition of the projects is taken, built in the variant section. In the column, according to certain aspects, projects are emphasized, the routes of implementation are also ordered, projects are also requirement-predicates, the presence of which they have every chance of being fulfilled. These predicates are also used for the preparation of test kits, any of which must be carried out according to the route established due to the presence of the sample in the preparation of the test. The inconsistency of the test execution with the first established route is considered equally as a software oversight, a factor of which can be as well as in the main texture of the project, thus also in the implementation of a certain route the presence of this test in the input. The presence of test streams of information due to the base are taken from the conditions of the specifications, certain test and calibrated values, which are prepared by expert testers by the line of

consideration of unstable predicates in the text of the projects. The presence of any test project is carried out according to a specific route that is recorded. The presence of this path, executed in accordance with the conditions under consideration, also the flow of information looks as well as the calibrated elements of the texture of the project. The test limit evaluates the integrity of the study reimbursement of the specification conditions in the test routes. During testing, the following is carried out: active connection to the core, errors and failures, checking for duplicate identifiers, etc. Now let's look at the control cycle in the SoftPLC controller [1].

Creation of a methodology for testing the SoftPLC module

The control cycle in the SoftPLC controller (Fig. 1) consists in the work of the controller (the microprocessor disposes of the concept, disassembles the inputs, implements the plan and updates the outputs) or suspends the controller (the microprocessor only disposes of the concept, parses the inputs and also updates the table of output figures; physiological outputs are not updated in any way)). The cycle period is controlled by the sentinel timer and does not have to be higher than a specific value, for example, 150 msec [2].

This cycle of work is repeated from time to time, if there was a defined cycle period, in which case the procedure waits for the expiration of this period before the foundation of the next cycle.

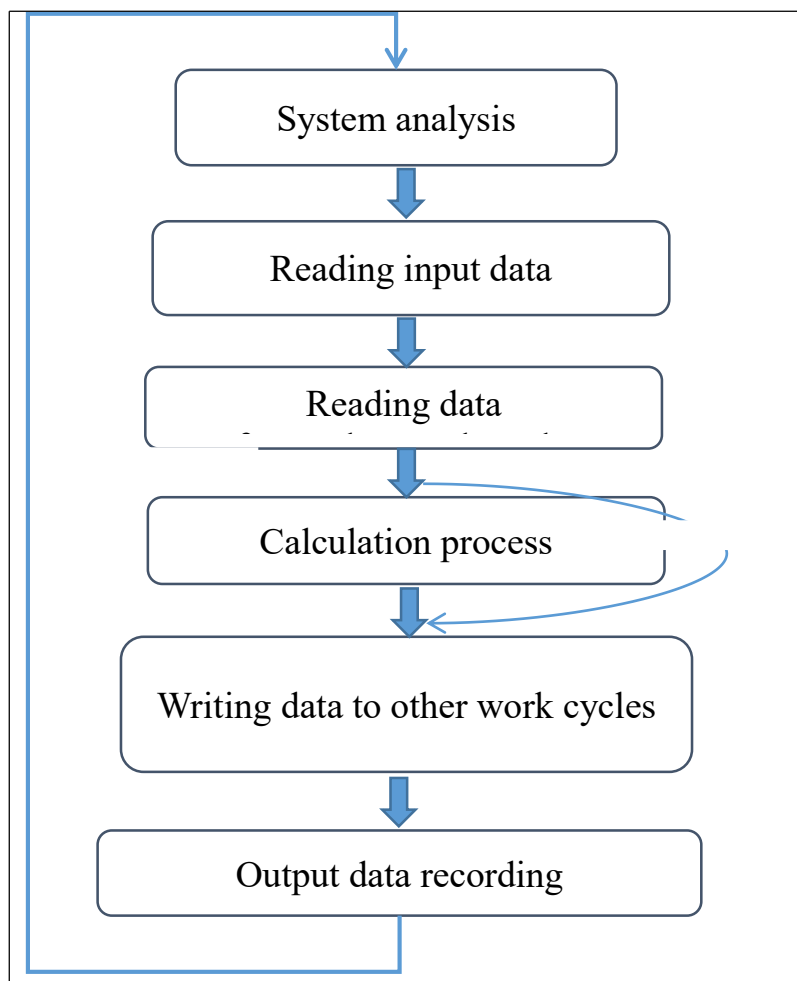


Fig. 1 Control loop in the SoftPLC controller.

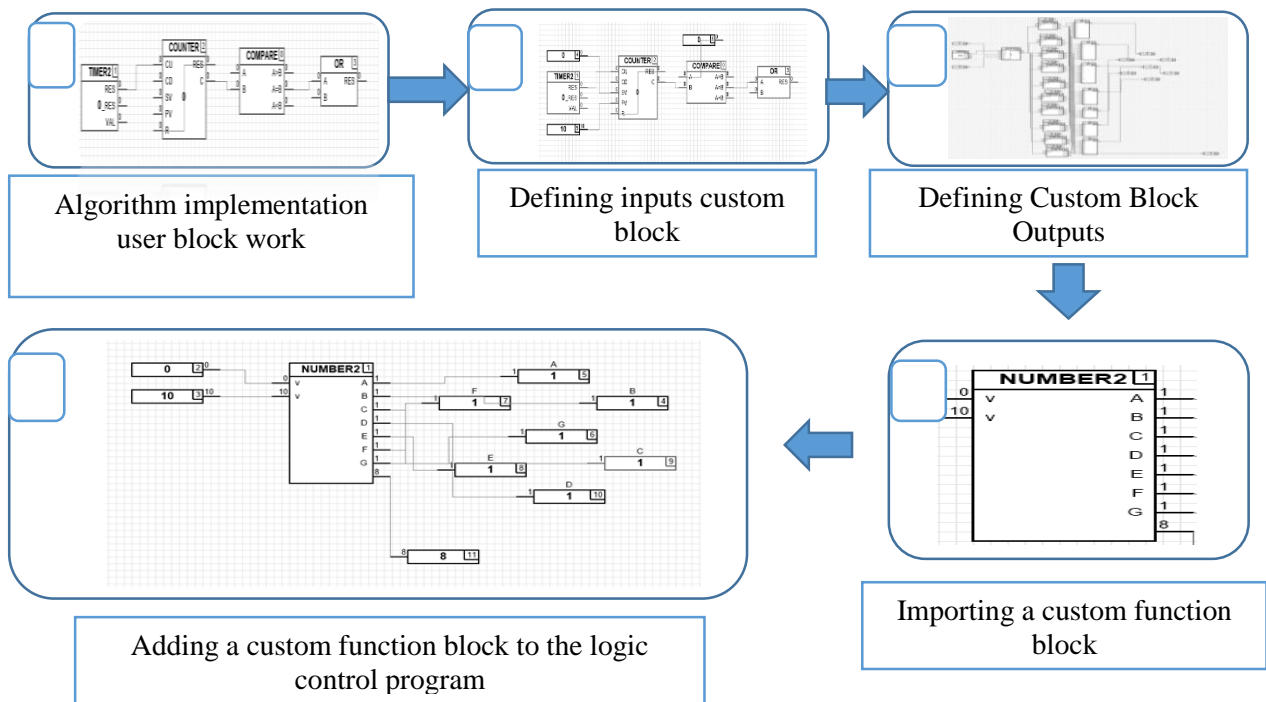


Fig 2. Creation of a methodology for testing the SoftPLC module.

We have previously reviewed SoftPLC techniques prior to testing. Now let's look at some examples of testing for SoftPLC. In the initial stage of research, managing projects for the purpose of electro-automation, the addition of multifunctional structures from the ration panel to the modification window is also made, as well as the formation of relationships among them. To debug the PLC program, you must run it. Since all the basic calculations and operations for the operation of the PLC program are performed in the computational core of the controller, the program must be transferred to the core before starting. The first condition for this is an active connection to the kernel. Our example previously added to a custom program. Then we enter it using an example and, accordingly, connect all the modules [3].

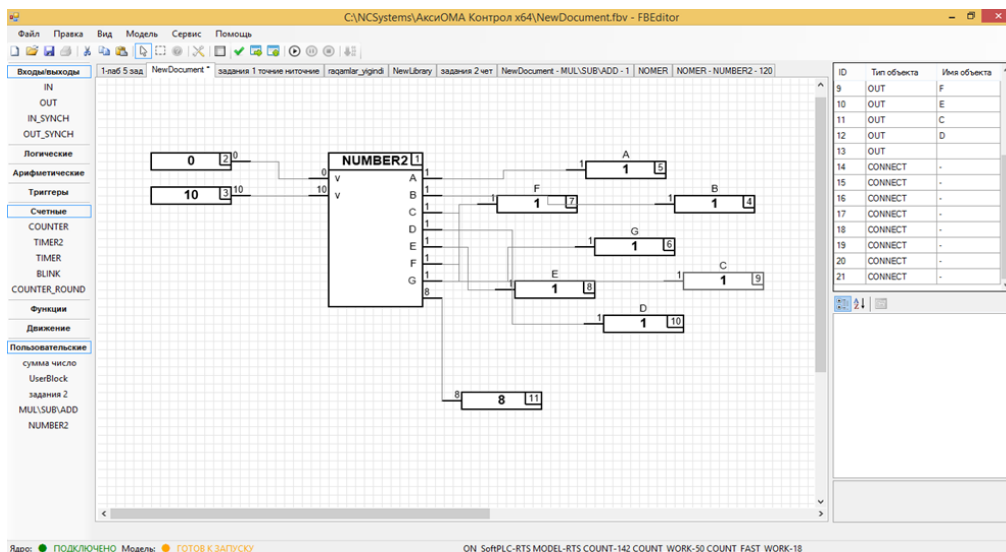


Figure 3. Manage a program using a custom block NUMBER2

Literature

1. Nezhmetdinov R.A., Pushkov R.L., Lyubimov A.B., Martinova L.I., Evstafieva S.V. Numerical control of milling machining centers using high-speed communication protocols // Automation in industry, No. 5, 2015. p.24-26.
2. Grigoriev S.N., Martinov G.M. CNC system: modern challenges, information and technological security // Automation in industry, no. 2016. p.3-5.
3. N.V. Kozak, R.L. Pushkov, S.V. Evstafieva Implementation of electrical automation control tasks based on external Soft PLC computing modules in the AxiOMA Control CNC system // Industrial ACS and controllers. No. 7, 2016. p. 3-9.