Application Technique

Original Instructions

Kinetix 5100 EtherNet/IP Indexing Servo Drive Automatic Device Configuration

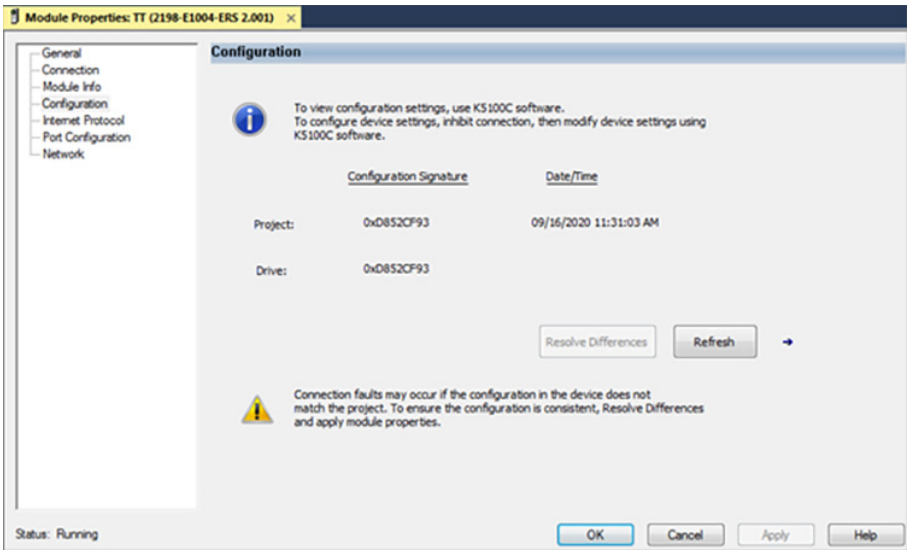
Catalog Numbers 2198-E1004-ERS, 2198-E1007-ERS, 2198-E1015-ERS, 2198-E1020-ERS, 2198-E2030-ERS, 2198-E2055-ERS, 2198-E2075-ERS, 2198-E2150-ERS, 2198-E4004-ERS, 2198-E4007-ERS, 2198-E4015-ERS, 2198-E4020-ERS, 2198-E4030-ERS, 2198-E4055-ERS, 2198-E4075-ERS, 2198-E4150-ERS

Automation Device Configuration

Automatic Device Configuration (ADC) function is supported in Kinetix® 5100 firmware revision 2 and later. You can download the configuration data from one Kinetix 5100 drive to another Kinetix 5100 drive through the ADC function. Add-on Profile (AOP) version 2 and later adds the 'Configuration' page to resolve the difference between the configuration data stored in the controller and the Kinetix 5100 drive.

IMPORTANT Automatic Device Configuration (ADC) does not support induction and linear motor parameters.

Figure 1 - Configuration Screen

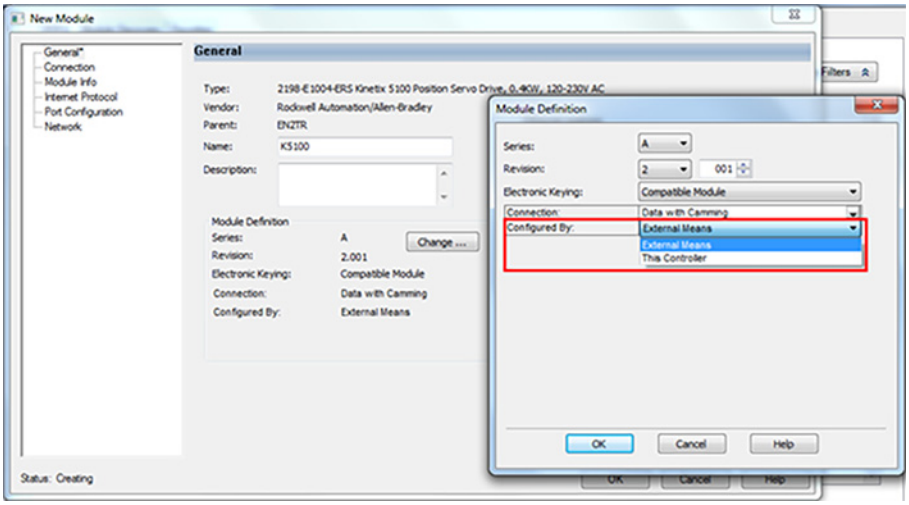


Get Started

Version 2 and later of the AOP and the Kinetix 5100 drive firmware lets you choose either 'Configured By External Means' or 'Configured By This Controller'. When you choose 'Configured By This Controller', the controller delivers a Kinetix 5100 drive configuration script by using the Ethernet/IP™ network connection.

While an I/O connection exists between the controller and the Kinetix 5100 drive, configuration of the Kinetix 5100 drive parameters is not permitted. An I/O connection is only established when the drive configuration and the controller configuration are kept in-sync. The ADC function is only supported for I/O mode when the control mode parameter ID 117 (P1.001) value is 0X0C.

Figure 2 - Module Configuration

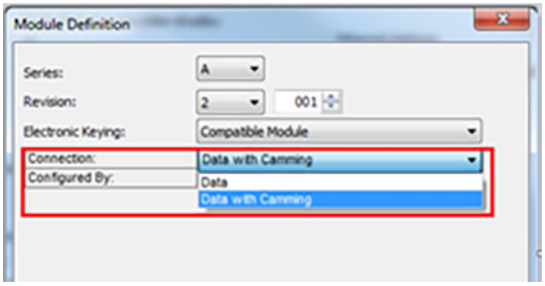


'Configured By External Means' lets you use KNX5100C software to create the configuration and download it to the Kinetix 5100 drive via the Kinetix 5100 drive USB port.

The different values in the 'Connection' field determines the assembly output instance and motion function.

- If you select Data with Camming: you use the Add-On Instruction with the name prefix 'rac_*xxx*_'.
- If you select Data: in the Add-On Instruction version 1 folder, use Add-On Instruction MAG, MAT, and structure AssemblyOutIOM; in the Add-On Instruction version 2 folder, you can use any Add-On Instruction.

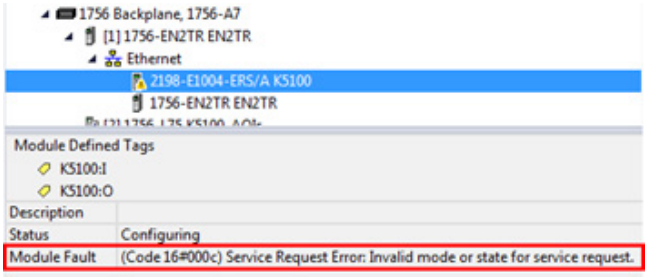
Figure 3 - Module Definition



Compare the Configuration Data

If the configuration data in the controller and the Kinetix 5100 drive are different, the I/O connection cannot be established. The Kinetix 5100 drive shows 0x0c Service Request Error: Invalid mode or state for service request.

Figure 4 - Configuration Compare Error

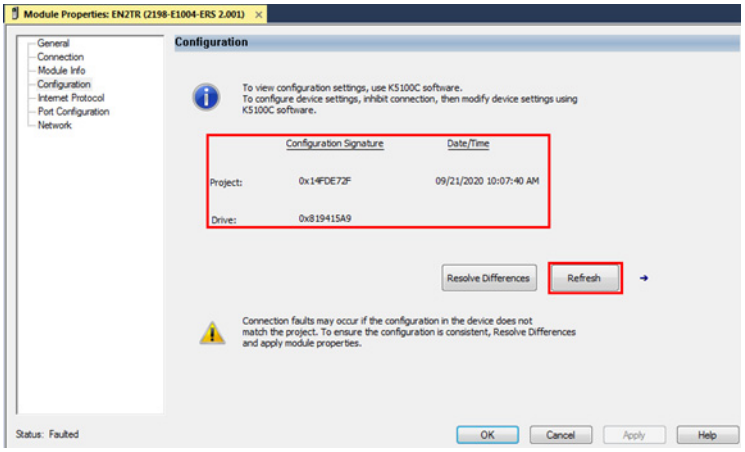


You can check the signature in the Configuration dialog box to determine whether the configuration data in the controller and the Kinetix 5100 drive are different. The signature and date/time in the controller are stored when one of the following occurs:

- The module is created in the Studio 5000® project. The value is based on default project values, which may (or may not) match the drive default values. To view these default values, use the KNX5100C software after resolving differences via 'Overwrite'.
- When you click 'Upload' in the 'Resolve Differences' dialog box to upload the configuration data into the project.
- When you click 'Overwrite' in the 'Resolve Differences' dialog box.

The signature of the drive is automatically read from the Kinetix 5100 drive when you click 'Refresh'. If the signature in the controller and the Kinetix 5100 drive are different, the I/O connection cannot be established.

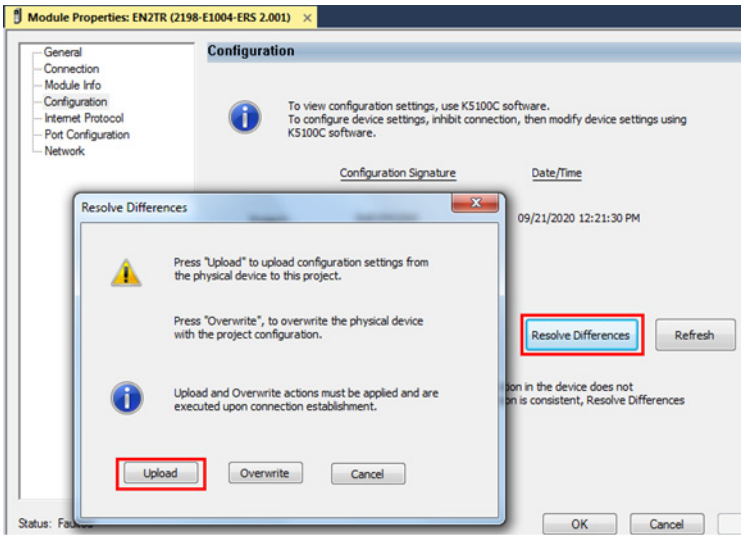
Figure 5 - Configuration Signature



Upload the Configuration Data

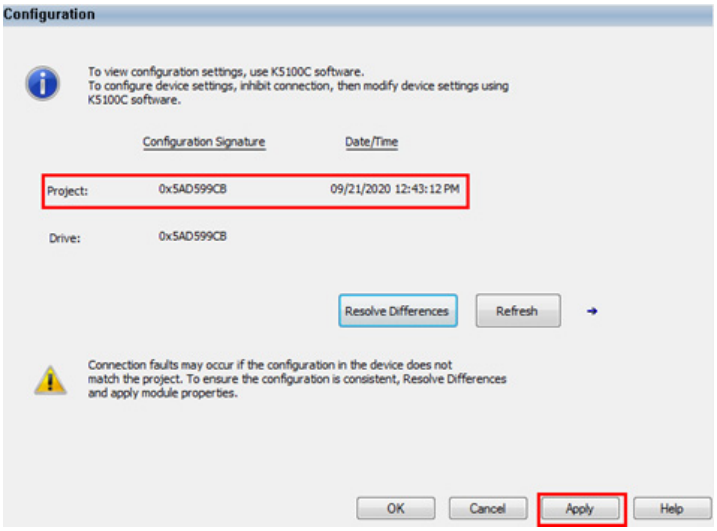
Click 'Upload' in the 'Resolve Differences' dialog box to upload the configuration data from the Kinetix 5100 drive into the project.

Figure 6 - Upload Configuration Data



After the upload is complete, the Configuration Signature and Date/Time in the controller is updated. The Signature is the same as the one in the Drive, and the Date/Time is the time that Upload is clicked. After you click 'Apply', the Configuration data is saved in the Studio 5000 project and the controller. These configuration settings are delivered by the controller when an I/O connection is established.

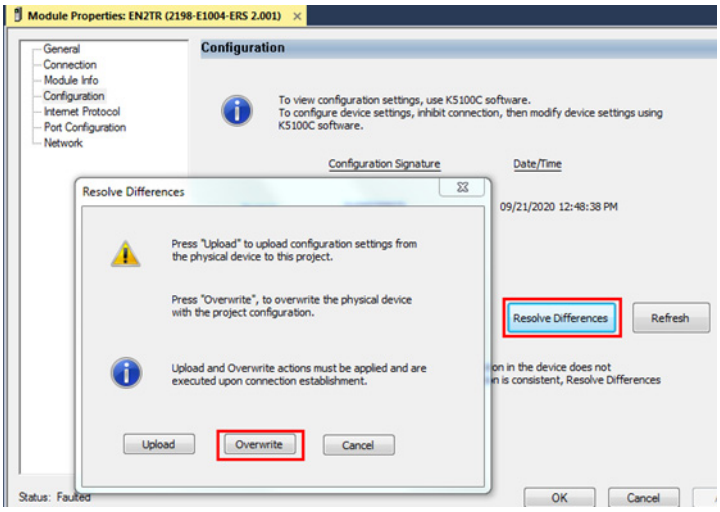
Figure 7 - Apply Configuration Data



Overwrite the Configuration Data

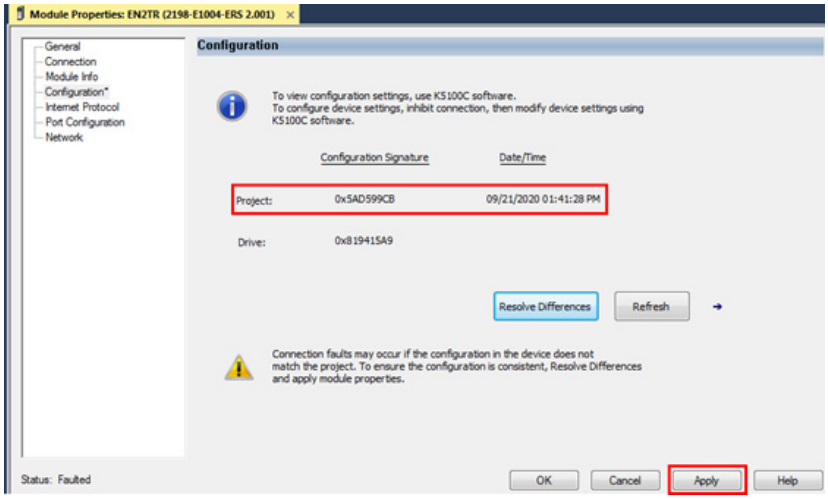
To overwrite the configuration data in the Kinetix 5100 drive with the settings stored in the Studio 5000 project and controller, click 'Overwrite' in the 'Resolve Differences' dialog box.

Figure 8 - Overwrite the Configuration Data



After you click 'Overwrite', the Date/Time of the configuration data is stored in the Studio 5000 project and controller, giving their current configuration settings the latest time stamp of approval. After you click 'Apply', the Configuration data with the newer timestamp is saved in the Studio 5000 project and controller.These configuration settings are delivered by the controller when an I/O connection is established.

Figure 9 - Apply Controller Configuration Data



Replace a Drive

When you replace a drive, Automatic Device Configuration (ADC) requires the following modifications to the new (replacing) drive:

1. Modify the new drive network settings to match the settings of the drive being replaced.

   See 'Edit Settings From the Display' in Chapter 6 of the Kinetix 5100 EtherNet/IP Indexing Servo Drives User Manual, publication 2198-UM004 for instructions on how to modify the network settings of the drive by using the drive keypad interface.

2. Modify the drive Control Mode parameter, by setting it to IO mode.

   See 'Select Operation Mode and Direction Control' in Chapter 10 of the Kinetix 5100 EtherNet/IP Indexing Servo Drives User Manual, publication 2198-UM004 for instructions on how to modify the drive Control Mode parameter by using the drive Keypad Interface.

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
Kinetix 5100 Single-axis EtherNet/IP Servo Drives User Manual, publication 2198-UM004	Information on installing, configuring, startup, troubleshooting, and applications for your Kinetix servo drive system.
Rockwell Automation Product Selection website, rok.auto/systemtools	Online product selection and system configuration tools, including AutoCAD (DXF) drawings.
Motion Analyzer System Sizing and Selection Tool website https://motionanalyzer.rockwellautomation.com/	Comprehensive motion application sizing tool used for analysis, optimization, selection, and validation of your Kinetix Motion Control system.
Rockwell Automation Industrial Automation Glossary, publication AG-7.1	A glossary of industrial automation terms and abbreviations.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, rok.auto/certifications.	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at rok.auto/literature.

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	rok.auto/support
Knowledgebase	Access Knowledgebase articles.	rok.auto/knowledgebase
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

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