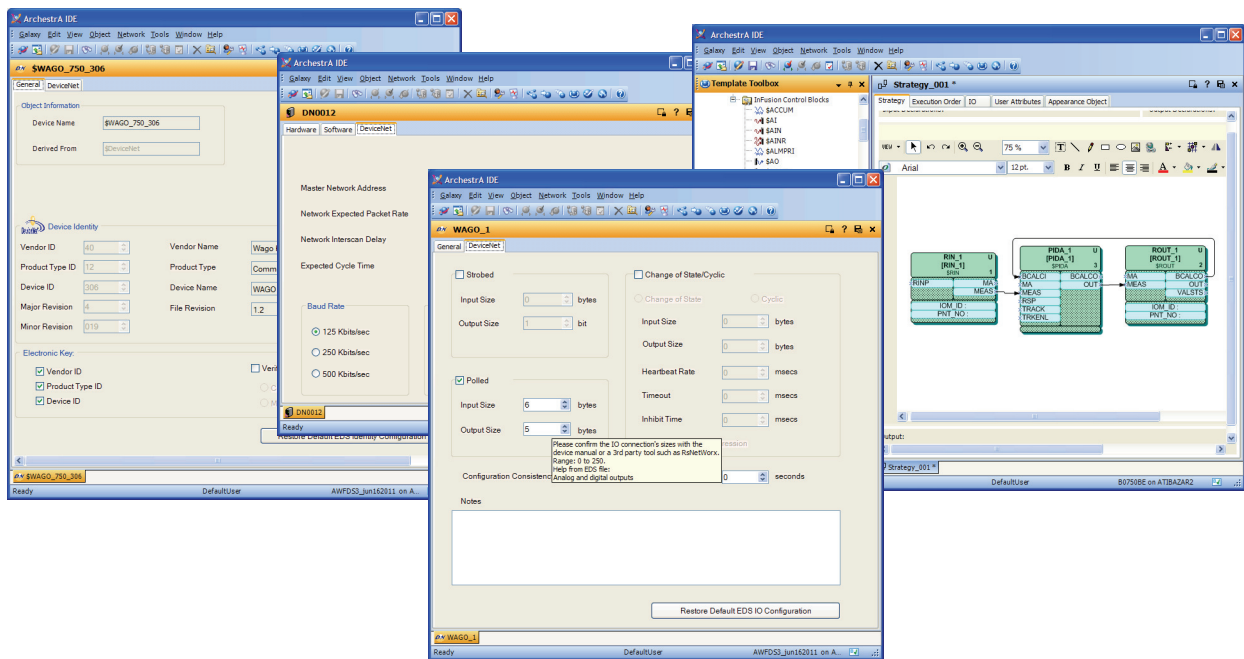


Foxboro® Control Software Field Device Editor for DeviceNet™



Achieve significant productivity and operational savings when configuring DeviceNet™ networks with the Foxboro® Control Software (FCS) Configuration Tools with Field Device Editor for DeviceNet.

FEATURES

Key features of the FCS Field Device Editor for DeviceNet include:

- ▶ Integration of the device configuration into the control database
- ▶ EDS-informed editing tools for device I/O configuration
- ▶ Configuration of the FBM229 as a DeviceNet Master, including definition of the FBM229 scan list
- ▶ Device templates that enable re-use of engineering for multiple tags of the same device type

- ▶ Convenient links to editors for the host control station and fieldbus module
- ▶ Integrated with the Network view and other application windows in FCS Configuration Tools, which enable quick creation, assignment, tagging and deployment of devices.

OVERVIEW

FCS Field Device Editor for DeviceNet (Field Device Editor) is a software application that adds on to the FCS Configuration Tools to provide system configuration for DeviceNet slave devices and integration of DeviceNet networks into the I/A Series® system.

The slave devices are connected to the control system via the FBM229 (described in PSS 21H-2Z29 B4 *FBM229, DeviceNet™ Communication Interface Module*). The FBM229 operates as a DeviceNet master exchanging I/O messages with the slave devices for process value updates. Devices are individually configured to use one of four I/O modes to connect to the FBM: Strobed, Polled, Change of State or Cyclic. The FBM229 also supports explicit message connections for acquiring device diagnostic and maintenance data.

The Field Device Editor's graphical user interface opens inside FCS Configuration Tools, and provides easy-to-use tools for selecting the I/O mode and specifying device verification criteria, based on the device's Electronic Data Sheet (EDS) file. The device configuration is maintained in an FCS galaxy database, where it is integrated with other control system elements such as control strategies and Distributed Control Interface (DCI) blocks.

TEMPLATES

Field Device Editor is EDS-based. The user imports an EDS file into a copy of a DeviceNet device template. The EDS file, which is bound to the template, provides device identity information and defines the device's supported I/O modes and data sizes.

The user then opens the device template in Field Device Editor, which displays the device identity information extracted from the EDS file (Figure 1), including:

- ▶ Vendor name and vendor DeviceNet ID
- ▶ Device type
- ▶ Product name and product DeviceNet ID
- ▶ Device revision (major and minor)
- ▶ Revision level of the EDS file.

The editor allows the user to edit descriptive text strings that are not used in device verification.

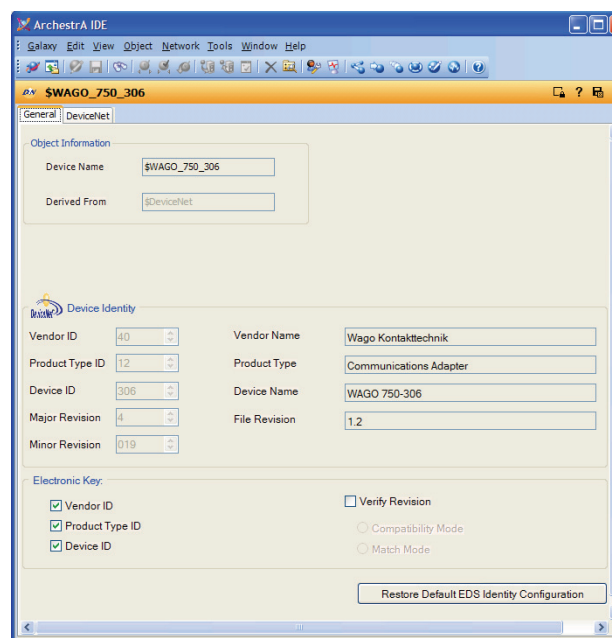


Figure 1. General Tab for a Template Shows Device Identity and Electronic Key Options

The check boxes in the Electronic Key group in the lower portion of the display specify the criteria the FBM229 will use to verify the identity of an instance of the device type at a specific address on the DeviceNet network.

The editor's DeviceNet tab (Figure 2) enables the user to select the predefined I/O mode (Strobed, Polled, Change of State or Cyclic) to be used with the device, specify the input and output data sizes, and configure mode-specific timing parameters such as Heartbeat Rate for Change of State mode and Send Rate for Cyclic mode.

The device template provides the ability to engineer a typical field device type once, and propagate the I/O configuration to each tag of the same device type. At the same time, the editor allows the user to edit individual device configurations, overriding selections copied from the template. The revised configurations

are always device-appropriate as the configuration remains linked to the EDS file for device description.

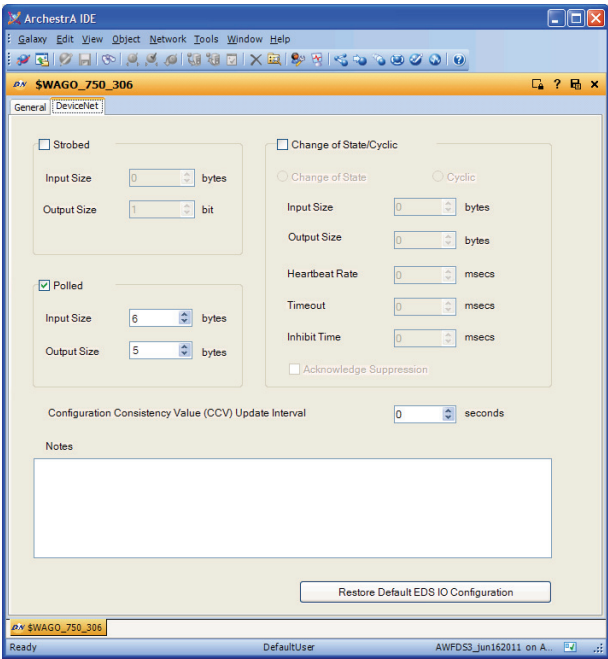


Figure 2. The I/O Mode Selection Made in the Template Can be Edited at the Device Level

DEVICE CREATION

To begin configuration of a DeviceNet slave device in FCS, the user simply drags the appropriate device template to the FCS Network view (Figure 3), where the device is named and assigned to an FBM229.

NOTE

The Field Device Editor deals only with the device information that the FBM229 requires to communicate with the slave device using the desired I/O mode. Use Rockwell Automation's RSNetWorx® for DeviceNet (or a similar ODVA compliant configuration tool) to configure device parameters and commission the device.

The user then double-clicks the new device to open it in the Field Device Editor (Figure 4), enters the address that was configured for the device during

device preparation, and then views and modifies the I/O configuration copied from the template (Figure 5).

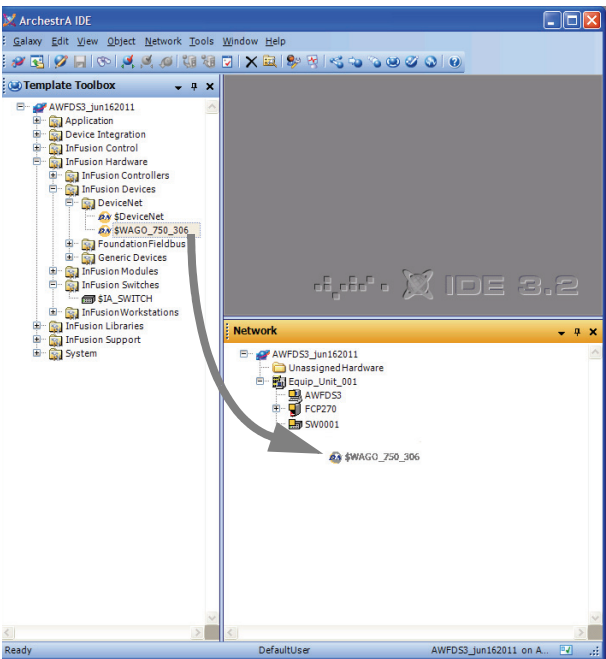


Figure 3. Adding a Slave Device

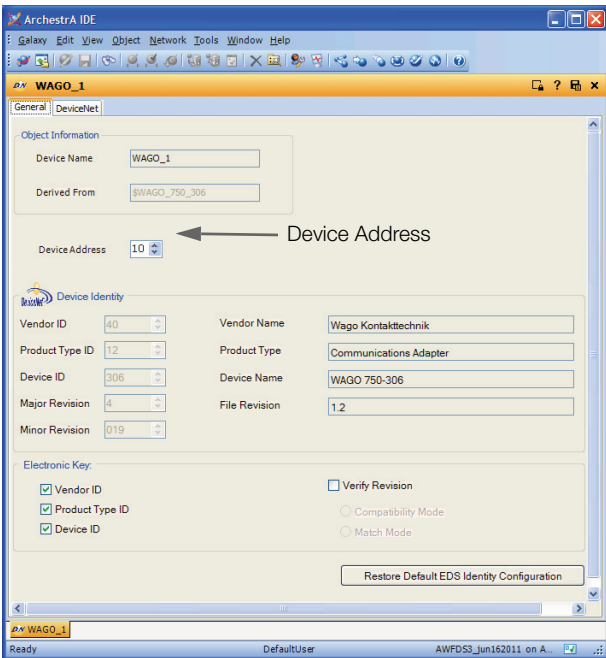


Figure 4. Setting the Device Address

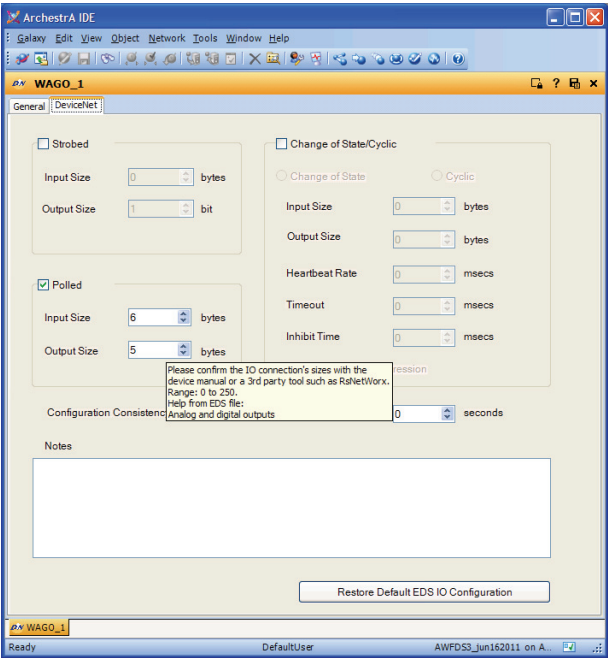


Figure 5. Editing I/O Configuration

When the slave device is deployed its I/O configuration is downloaded to the FBM229 to build the FBM scan list. For example, with the configuration shown in Figure 4 and Figure 5, the FBM229 will poll the slave device at address 10 (WAGO_1) each scan cycle, writing 5 bytes of data to the device and reading 6 bytes of input data.

As part of the device creation, FCS sets up an equipment control block (ECB201) that represents the device in the I/A Series® system control software. The device's context menu in the Network view provides a link to an editor for the device ECB, where the user can specify block display settings, configure parameters for collection by FCS History, and set runtime access permissions.

CONTROL CONFIGURATION

DeviceNet slave devices are connected to I/A Series control blocks using Distributed Control Interface (DCI) blocks. DCI block types include input and output blocks for common data types such as integer and floating point.

The FCS Strategy Editor (Figure 6) provides graphical tools for adding DCI blocks to a control strategy, linking them to control blocks, and specifying how the DCI blocks will parse the data in the DeviceNet I/O messaging for use in the control scheme.

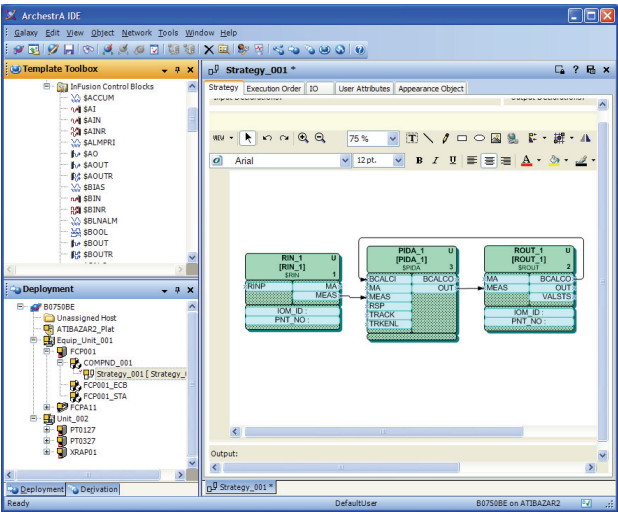


Figure 6. DCI Blocks in a PID Strategy Provide Input from and Output to DeviceNet Slave Devices

FBM229 MASTER CONFIGURATION

The Field Device Editor is also used to configure the the FBM229 as a DeviceNet master (Figure 7), including setting the FBM229 DeviceNet address, selecting the baud rate for the DeviceNet segment, and configuring scan-cycle parameters such as Network Expected Packet and Interscan Delay.

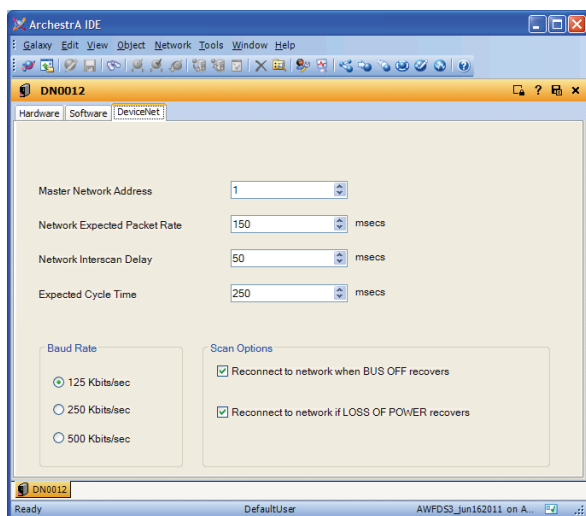


Figure 7. Configuring the FBM229 as a DeviceNet Master

DEPLOYMENT

The device configurations are deployed to the I/A Series system as part of a control database deployment, which also downloads the host FBM229 configuration and the DCI and control blocks contained in the various control strategies. The FBM229 uses the downloaded configurations to initialize the connected devices and message exchange between the devices and the control station. After the initial deployment, FCS provides a more selective deployment in which later changes to the device configurations can be made with minimal interruption to the process.

HARDWARE AND SOFTWARE REQUIREMENTS

Computer Requirements

- ▶ Should be installed on a P91 or P92 I/A Series workstation running Foxboro Control Software Configuration Tools, Version 3.1 or greater

System Hardware Requirements

- ▶ The MESH control network-connected station committed as AW70 or WP70 at Version 8.7 or later
- ▶ ZCP270 or FCP270 at Version 8.7 or greater, with FBM229

Media

- ▶ Foxboro Control Software - DeviceNet Software V1.0 Media Kit

Licenses

- ▶ Foxboro Control Software Configuration Tools software requires user license S46, S47 or S48

Sizing Guidelines

The Field Device Editor for DeviceNet along with the FBM229 provide the following capacity limits:

- ▶ 64 nodes per DeviceNet network (including the FBM229 master, slave devices and RSNetWorx host PC), per ODVA specification
- ▶ 1,000 DCI blocks per FBM
- ▶ 150 ECBs per compound

RELATED PRODUCT SPECIFICATION SHEETS

PSS Number	Description
PSS 21H-2W1 B3	DIN Rail Mounted FBM Subsystem Overview
PSS 21H-2Z29 B4	FBM229, DeviceNet™ Communication Interface Module

RECOMMENDED OPEN DEVICE VENDOR ASSOCIATION DOCUMENTS

Publication Number	Title
PUB00026R1	DeviceNet Technical Overview
PUB00027R1	Planning and Installation Manual: DeviceNet Cable System
PUB00147R0	Plant Floor Troubleshooting Guide

