

PYRAMIDSOLUTIONS

VISIONARY SOLUTIONS ▲ EXCEPTIONAL RESULTS



Quick Start Configurations for J1939 System Checkout

Part No. BW4031
Revision: 1.01
May 18, 2018

Pyramid Solutions, Inc.
30200 Telegraph Road, Suite 440
Bingham Farms, MI 48025

www.pyramidsolutions.com | P: 248.549.1200 | F: 248.549.1400

Table of Contents

- Overview.....2**
- Configurations.....2**
- Using the Quick Start Configuration3**
 - Configure the BridgeWay Module3**
 - Connect the BridgeWay to the Controller3**
 - Connect the BridgeWay to the J1939 Network.....3**
 - Monitoring the J1939 Data.....3**
- Quick Start Configuration NAME and Address4**
- Transmitted Parameter Data5**
- Received Parameter Data5**
- Support.....7**
 - Technical Product Assistance7**
 - Contact Information7**

Overview

The “Quick Checkout” configurations are designed to provide a small example configuration that can be used to easily verify the interconnections in a system. Each configuration provides monitoring of a few common J1939 parameters that are typically available in most heavy-duty equipment systems.

Configurations

The collection of configurations provides a file for each type of BridgeWay 2.0 module.

The specific parameters that are monitored in the configurations are listed in the Produced and Consumed Parameter Data sections at the end of this document.

The following table lists the configuration files and the type of BridgeWay and controller required by each.

Configuration File	Description	BW Type	Controller Type
QuickStartEIP. bwnxg	Quick Start configuration for EtherNet/IP	BW4031	ControlLogix, Pyramid Solutions EIPScan, or other EtherNet/IP Scanner
QuickStartTCP. bwnxg	Quick Start configuration for Modbus TCP	BW4031	Modbus TCP Master (Ethernet)
QuickStartRTU. bwnxg	Quick Start configuration for Modbus RTU	BW2031	Modbus RTU Master (RS485)

Using the Quick Start Configuration

Running a BridgeWay with a Quick Start configuration is as simple as loading the configuration into a BridgeWay module and establishing communications to it from the required controller.

Configure the BridgeWay Module

- 1) Power on the BridgeWay module.
- 2) Connect the USB cable from the PC to the Bridgeway and start BWConfig 2.0.
- 3) Load the desired configuration file into BWConfig 2.0 using the File->Open menu.
- 4) Set the network configuration of the BridgeWay to enable the Scanner / Master (“controller”) device to monitor the system.
- 5) Download the configuration into the BridgeWay.

Connect the BridgeWay to the Controller

- 1) Make the required connections to attach the BridgeWay to the controller (Modbus RTU 2 wire RS485 or Ethernet).
- 2) Establish communications with the BridgeWay from the controller. Refer to the *Interfacing to J1939 with... .pdf* document for examples and tips on how to set up communications for the controller that is being used.

Connect the BridgeWay to the J1939 Network

- 1) Make the network connections required to attach the BridgeWay to the J1939 network.
- 2) Verify that the module is online with no errors (Green J1939 status LED and no errors shown in BWConfig 2.0).

Monitoring the J1939 Data

- 1) Using the controller, monitor the input data at the data table locations or register addresses specified in the Consumed Parameter Data section below. This will be the data that has been transmitted in the associated PGN messages by the ECU on the J1939 network.

Quick Start Configuration NAME and Address

The J1939 NAME and address is set in the Quick Start configuration to allow the BridgeWay to join the J1939 network with little probability of address contention with other devices. The configuration uses Arbitrary Address capability with 3 addresses.

NAME

Industry Group	0 (Global)
Function	255
Function Instance	1
Vehicle System	0
Vehicle System Instance	1
ECU Instance	1
Manufacturer Code	2047
Identity Number	255
Arbitrary Address Capable	Yes

Network Addresses

128
129
130

Transmitted Parameter Data

The Quick Start configuration does not include any transmitted parameters.

Received Parameter Data

The following table lists the parameters that will be received by the Quick Start configuration along with the data table locations and register addresses where the parameter data can be monitored by the various controllers.

Parameter	Modbus Register BW2031	Modbus Register BW4031	Data Table Offset BW4031 (bytes)	PGN	Offset (byte.bit)	Length (byte.bit)	Rx Timeout	Scaling
Engine Speed	30001	30003	4	61444	3.0	2.0	0	0.125 RPM/bit 0 RPM offset
Coolant Temperature	30002	30004	6	65262	0.0	1.0	0	1 DegC/bit -40 DegC offset
Engine Oil Pressure	30003	30005	8	65263	3.0	1.0	0	4 kPa/bit 0 kPa offset
Engine Oil Temperature	30004	30006	10	65262	2.0	2.0	0	0.03125 DegC/bit -273 DegC offset
Engine Hours	30005-30006	30007-30008	12	65253	0.0	4.0	5s	0.05 hours/bit 0 hours offset

The data table offsets are set up on 16-bit word boundaries to line up easily with Modbus register addresses. Parameter data that is less than 2 bytes in length will be stored in the first byte of the word. Parameter data less than 1 byte in length will be stored in the low order bits of the first byte.

The parameter data will hold the last value that was received from the J1939 network. If the associated PGN message has not been received, the data will remain at 0. (with the exception of Engine Hours)

The Engine Hours parameter is in a PGN that is not periodically broadcast; it must be requested. The Rx Timeout field has been set to 5

seconds, which will be the time between requests for the data. If the data is not received within 5 seconds, the data will be set to 0xFFFFFFFF. This can be used as an indication that the BridgeWay is not communicating with the ECU.

Support

Technical Product Assistance

If you require BridgeWay product technical support by phone:

- Call 248-549-1200
- Dial 0 for the Operator
- Ask for BridgeWay Support

If you require support by email:

- productsupport@pyramidsolutions.com
- Subject: "BW4031 Support Request"
- Provide a detailed explanation of your question or issue in the email text.

You can also obtain BW4031 files and information online at the following URL:

<http://pyramidsolutions.com/support/network-connectivity-support/>

Contact Information

Pyramid Solutions, Inc.
30200 Telegraph Road
Suite 440
Bingham Farms, Michigan 48025

Phone: 1-248-549-1200
Toll free: 1-888-PYRASOL
Fax: 1-248-549-1400
Website: www.pyramidsolutions.com