Pub. 43003-046B

GAI-TRONICS® CORPORATION
A HUBBELL COMPANY

Navigator Output Control Module Field Installation Kit

Model XCP0600B

Confidentiality Notice

General Information

The Model XCP0600B Output Control Module Kit for the ICP9000 Series Navigator Console includes the hardware and software necessary for plug and play installation, providing up to 32 output controls. This kit is only intended for use with the ICP9000 Series Navigator Console and includes the following components:

Qty	Description
1	USB to RS-485 Converter Module, No. 69275-029
1	25-foot DB9 to Control Module Interface cable, No.61504-106
1	Navigator Software CD
1	Output Control Module, No. 12584-001
2	Mounting screws, No. 28096-001

⚠ **ATTENTION** ⚠ **Information in this manual supersedes information included in Pub. 42004-359 packaged with the No. 12584-001 Control Module included in this kit.**

The No. 12584-001 Output Control Module provides 32 digital outputs. The control module requires a 12 to 24 volt dc power supply. The control module is equipped with an RS-485 serial data interface for communication and control by a Navigator PC.

Installation

Mechanical

The XCP0600B Output Control Module Kit includes 25-feet of cable with a DB9 connector on one end. The other end of the cable can be spliced with standard telephone wire to extend the length to a maximum of 5,000 feet. Use this cable to connect the USB to RS-485 Converter Module No. 69275-029 to the No. 12584-001 Output Control Module.

Use the included USB Type-A to USB Type-B interface cable to connect the customer's PC to the No. 69275-029 USB to RS-485 Converter Module.

Mount the No. 12584-001 Output Control Module to any wooden or prepared metal surface (pilot holes are required) using the #8 × 3/4-inch screws provided in the kit.

The USB to RS-485 Converter Module No. 69275-029 does not require any special mounting, (rubber bumper feet are provided) but it should be placed near the PC in a convenient location.

Electrical

⚠**WARNING**⚠ —Do not apply power until all the connections have been wired.

NOTE: The USB to RS-485 Converter Module No. 69275-029 requires configuration prior to being placed into service.

Warning: Observe precautions for handling electrostatic sensitive devices.

⚠**WARNING**⚠ —Connect only to a UL-listed Class 2 power source.

The typical interconnection diagram shown in Figure 1 should be reviewed prior to beginning the installation.

NOTE: It is important to download and install the software before connecting any of the equipment.

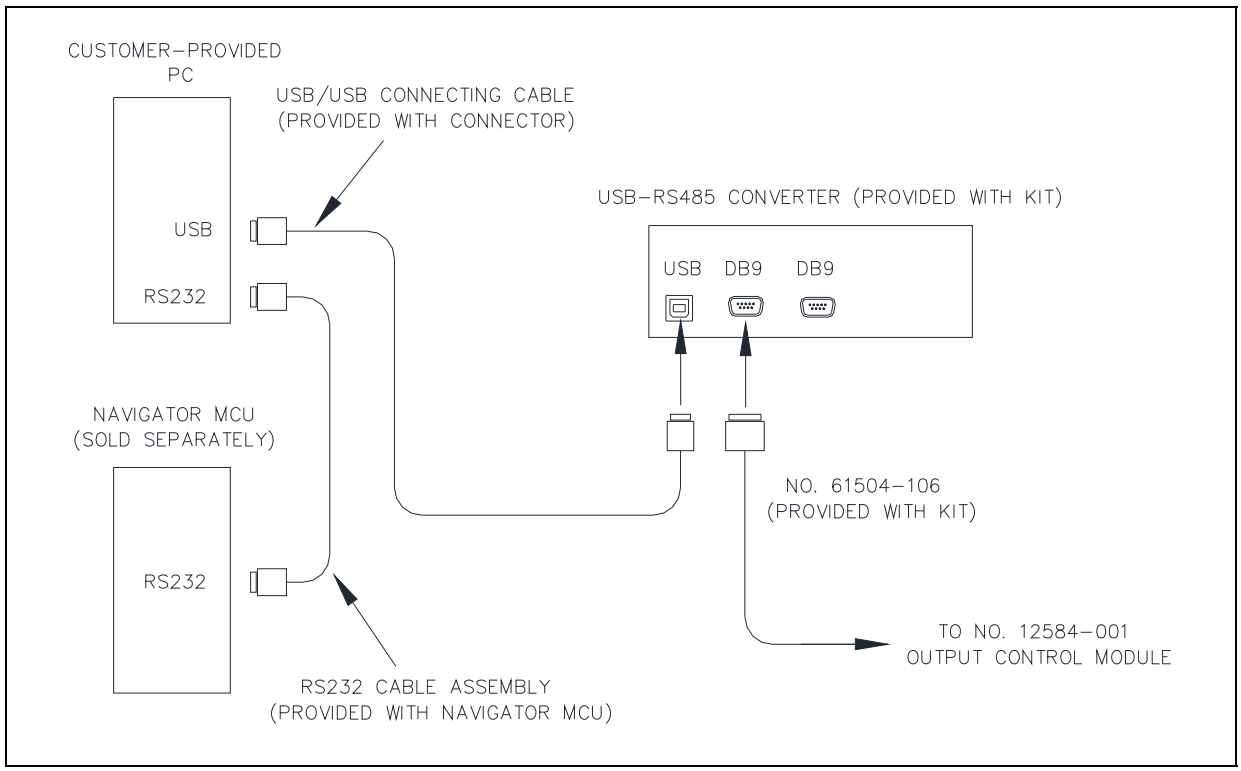


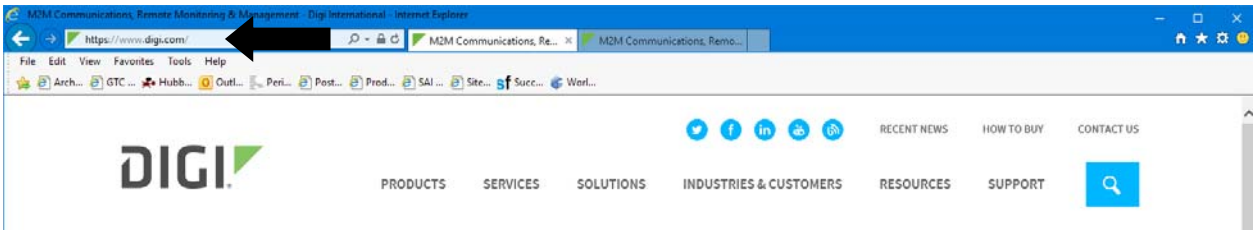
Figure 1. Typical Installation Block Diagram

Required Software

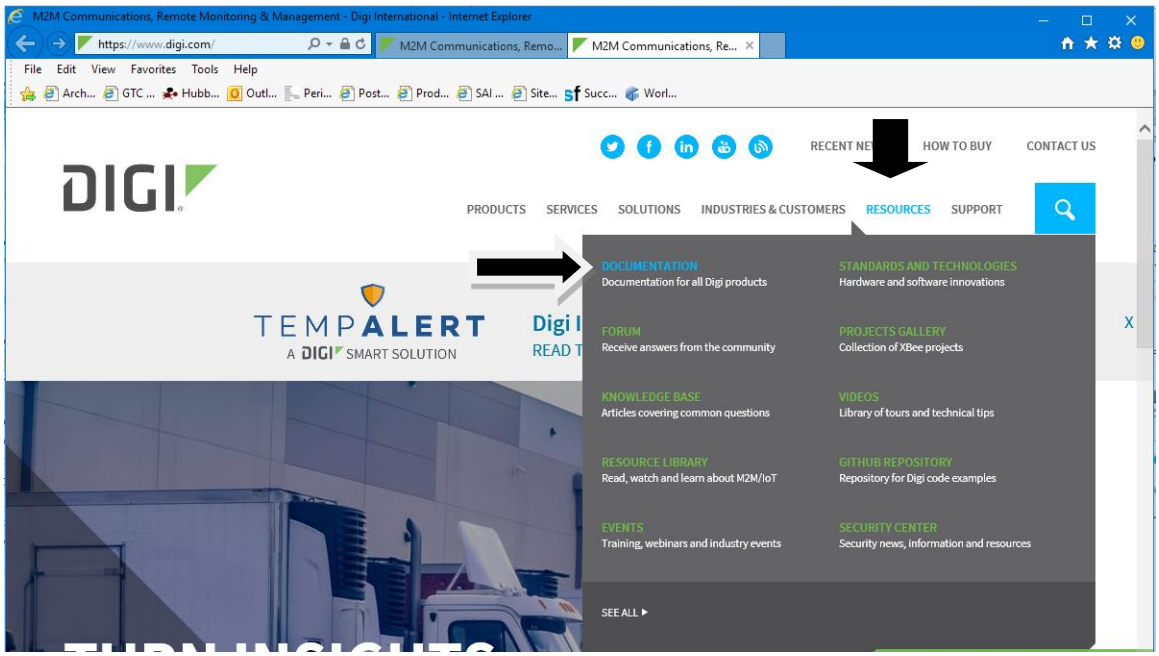
Download the driver and software

The PC used with the Model XCP0600B Navigator Output Control Module must have Internet access to download the drivers and configuration program file from Digi Corporation. Windows administrative privileges are necessary to install the driver and software. The drivers and configuration program must be downloaded and installed before making any installation connections to the USB to RS-485 converter module.

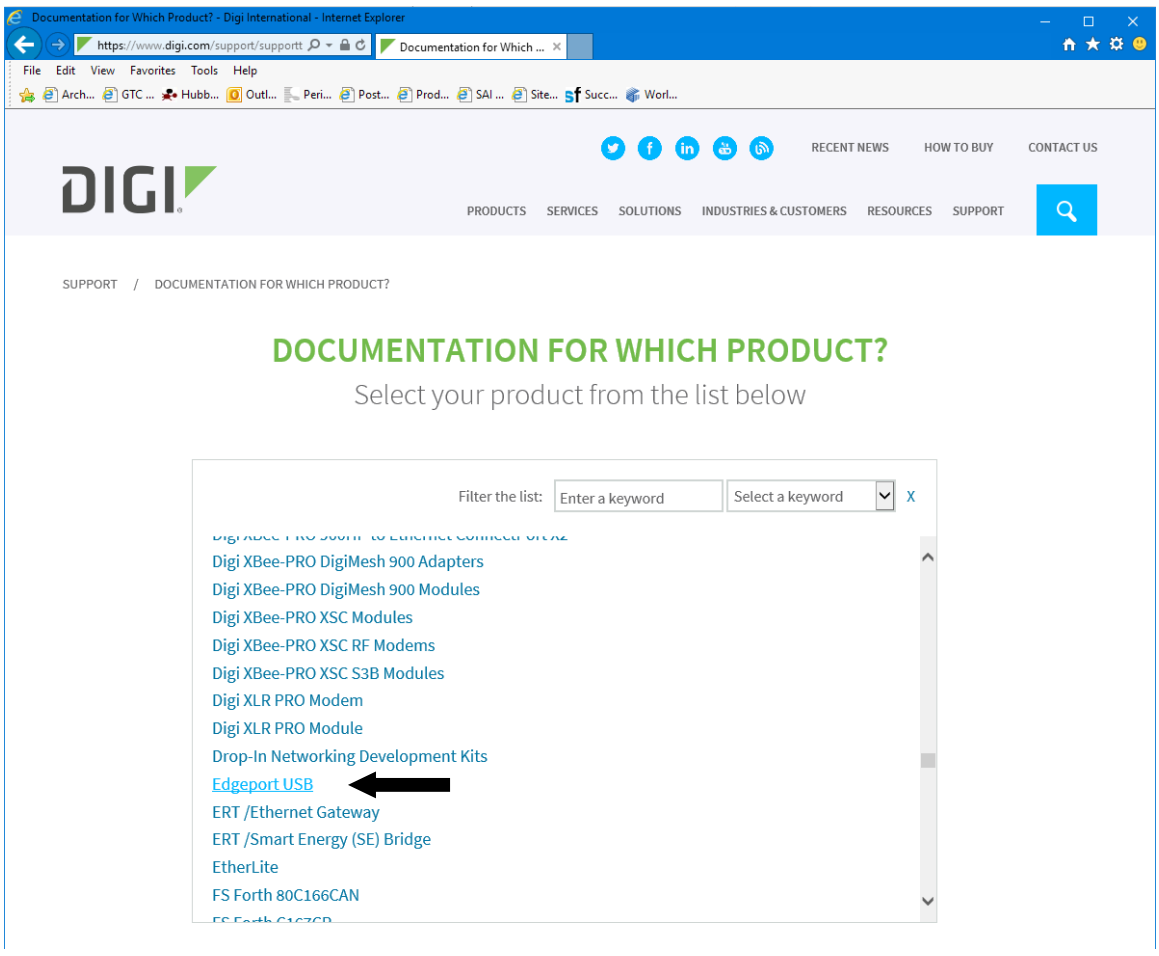
1. Using a web browser, go to Digi web site, http://www.digi.com, as shown below. The steps shown here were performed using Internet Explorer®.



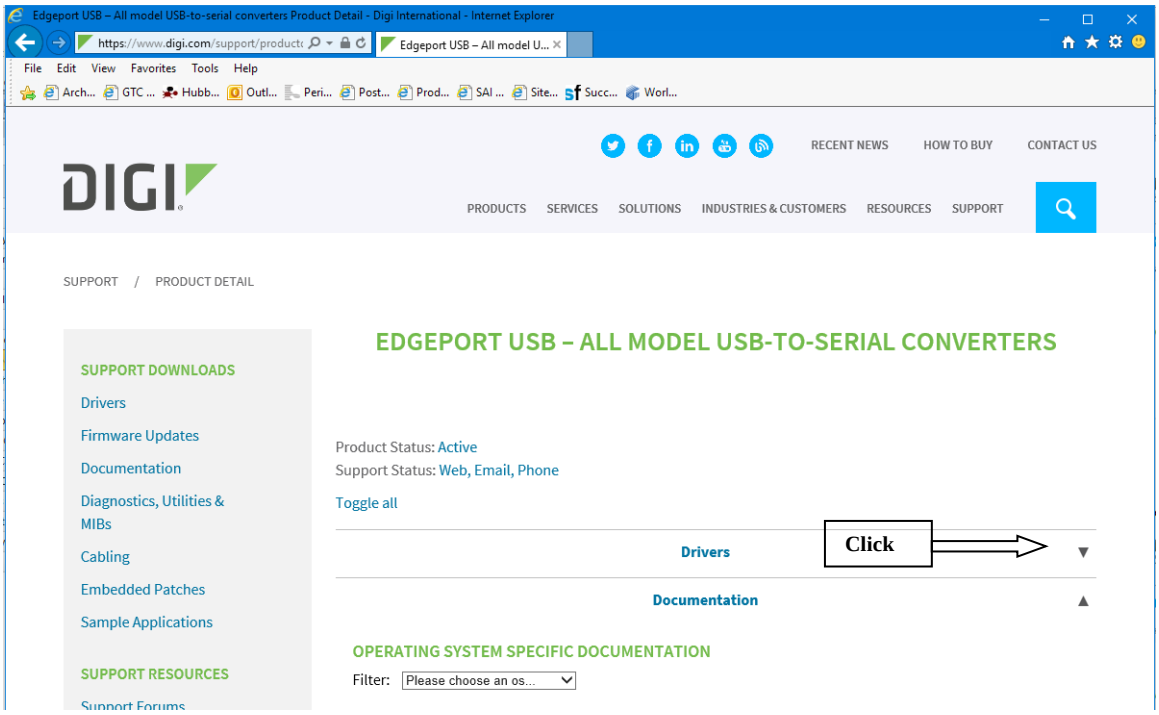
2. Move the cursor over the RESOURCES link and a drop down menu will appear. Select the "DOCUMENTATION" link.



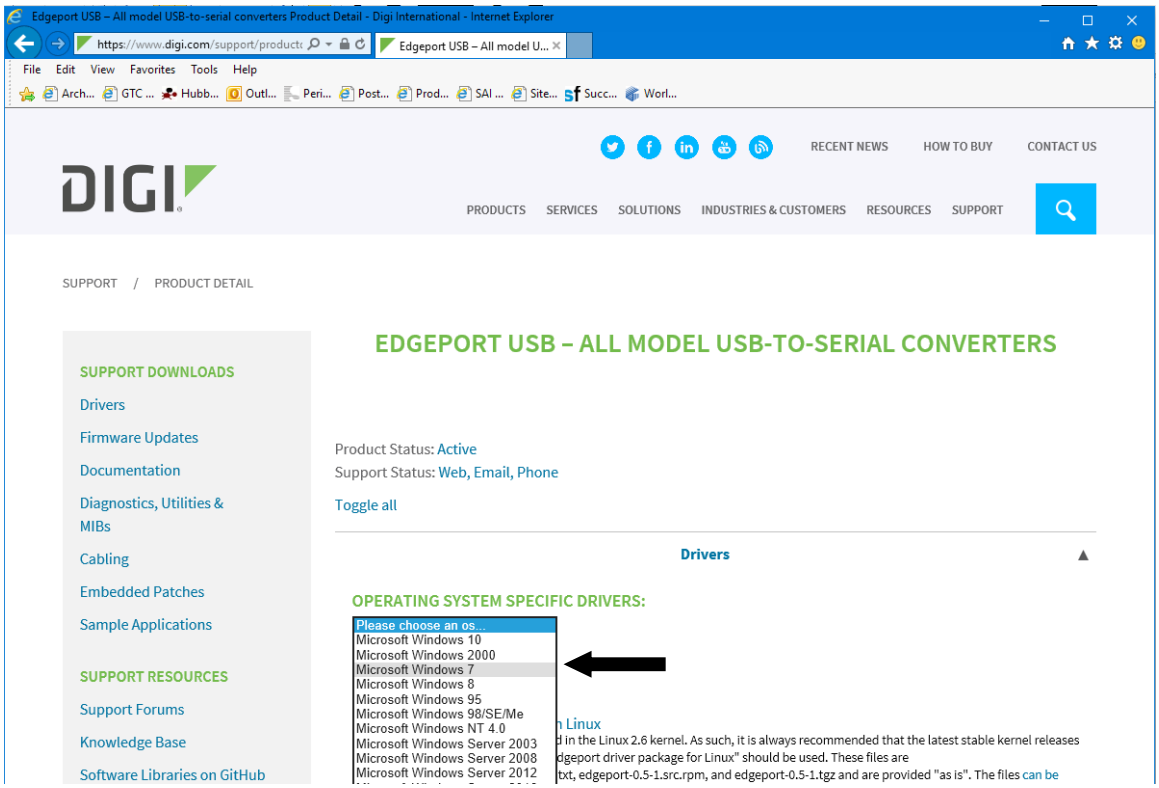
3. Scroll thru the alphabetical list to find the EDGEPORT USB link on the following screen. Click the EDGEPORT USB link.



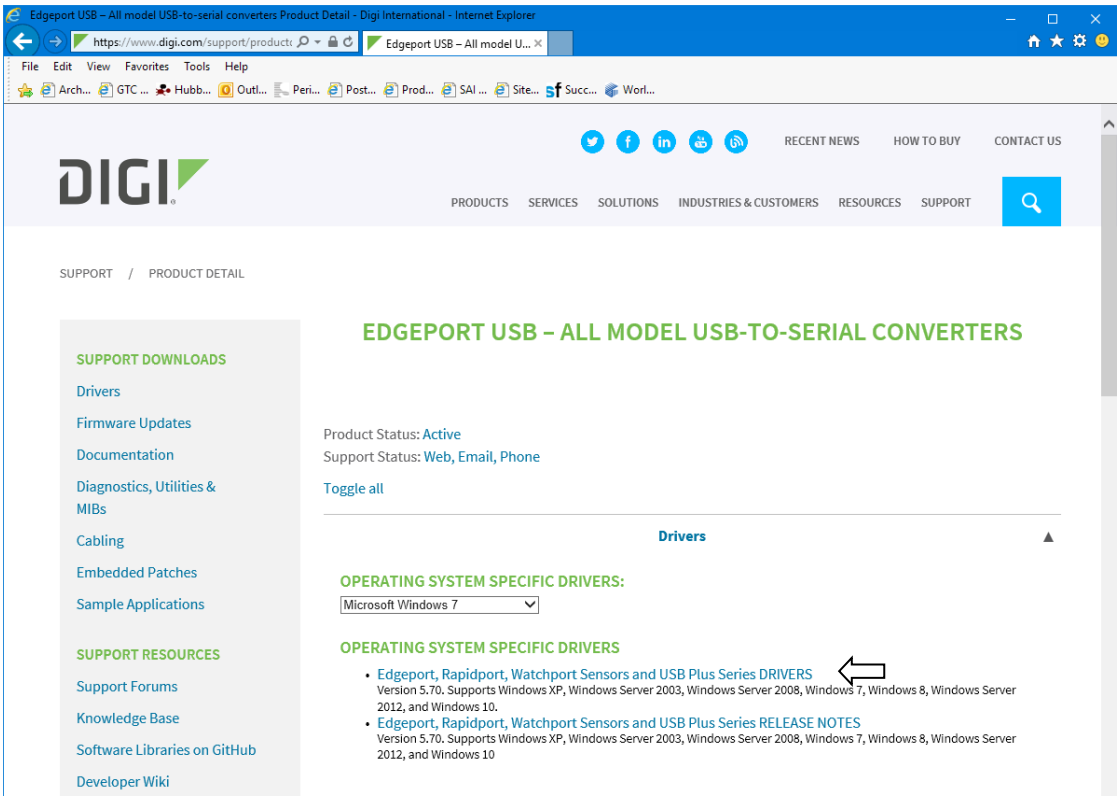
4. Click the drop down indicator to the right of the DRIVERS heading. A dropdown box to select the appropriate operating system is displayed.



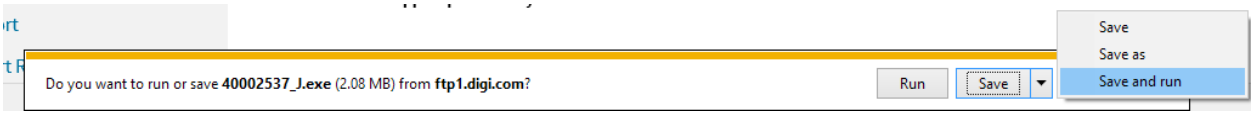
5. Select the appropriate operating system. This example uses Windows® 7 as the operating system.

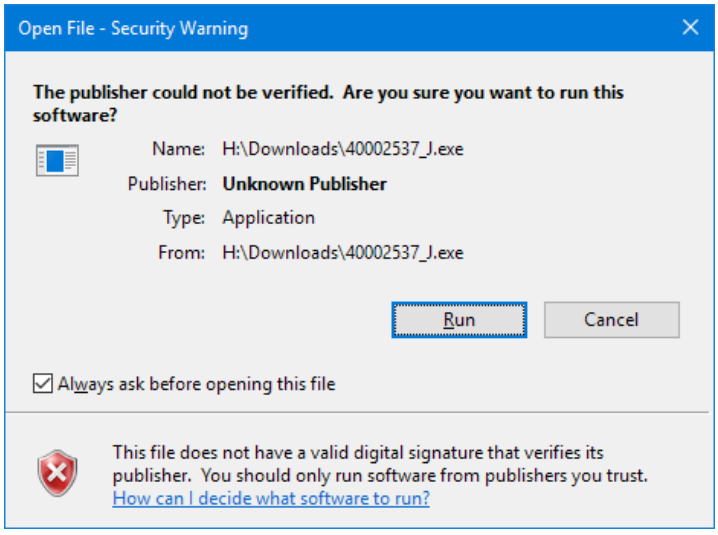


6. Click on the EDGEPORT, RAPIDPORT, WATCHPORT SENSORS AND USB PLUS SERIES DRIVERS link.



7. A popup will appear at the bottom of the screen (Internet Explorer® browser). Select SAVE & RUN from the SAVE dropdown list. After the download completes, the OPEN FILE—SECURITY WARNING dialog box will appear.



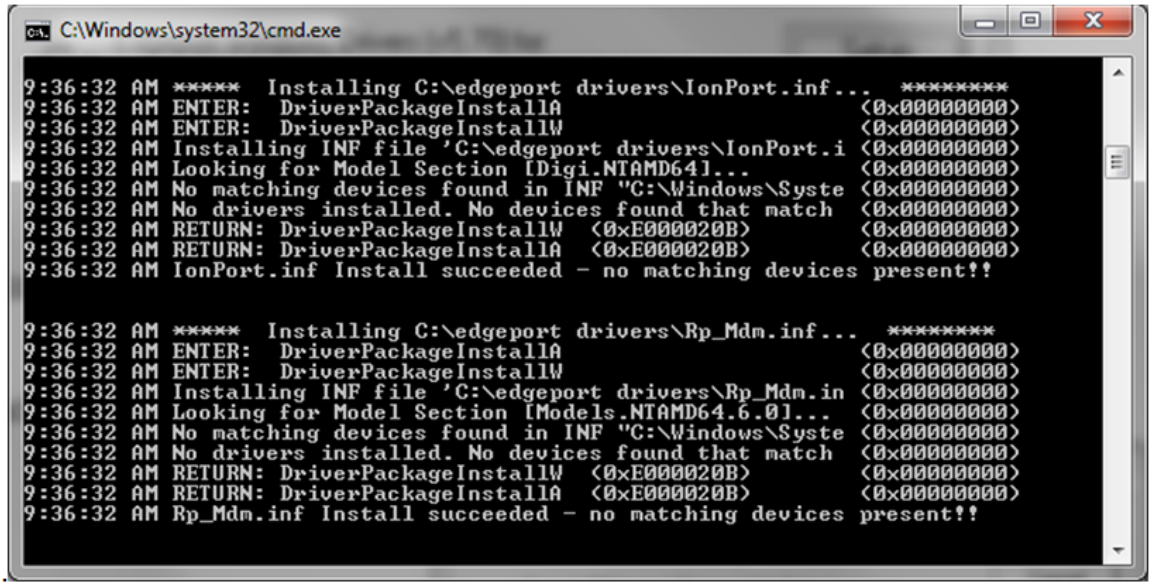


If using a different web browser, you will have to save the file and then execute it after it is downloaded.

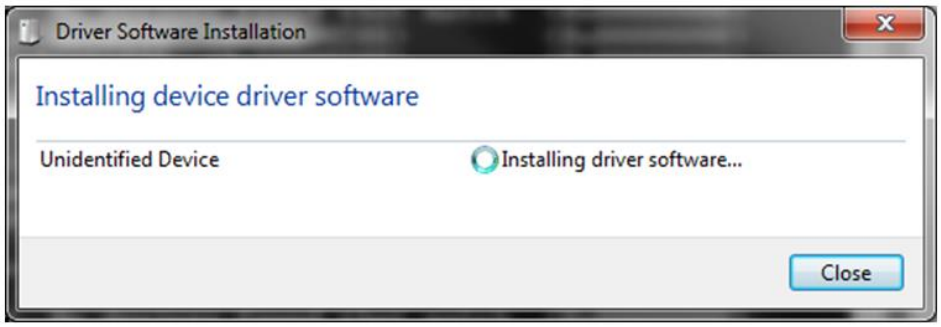
Install the Driver and Software

1. Select RUN in the Security Warning dialog box (shown above) and the EDGEPORT DRIVERS V5.70 window will appear:

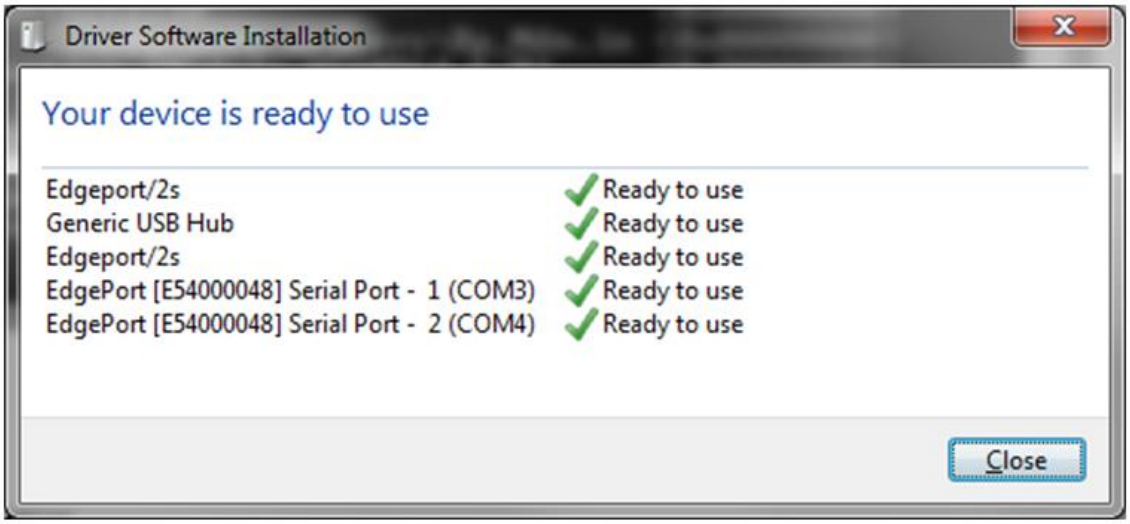
2. Select SETUP. A popup command window (as shown below) will appear and vanish quickly!



3. Remove the No. 69275-029 Converter Module from its packaging. Plug the USB Type-B end of the provided USB cable into the rear of the converter module. Plug USB Type-A end of the USB cable into a USB port on the PC. Once the PC recognizes the Edgeport® USB Converter, the following popup will appear. Click on the title bar of the pop up window to keep it from vanishing:



The computer will continue to install the driver and the Edgeport® configuration program. When it completes, the following screen will be displayed.

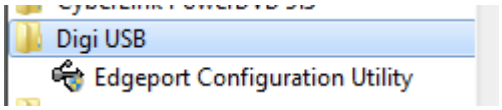


NOTE: The COM ports assigned will likely differ from what is shown above.

4. Click CLOSE.

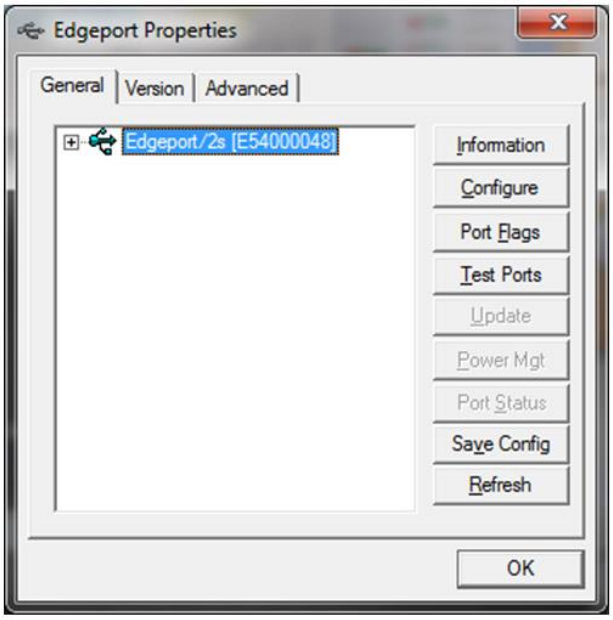
Run the Edgeport Configuration Utility

1. Locate the Edgeport Configuration Utility in the "Digi USB" folder on the Start Menu.

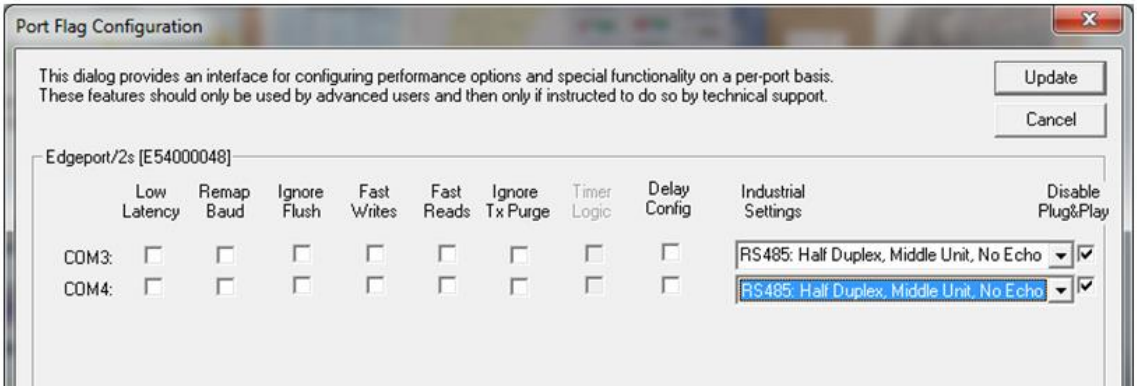


2. Right click on the "Edgeport Configuration Utility" icon and select "Run as Administrator".

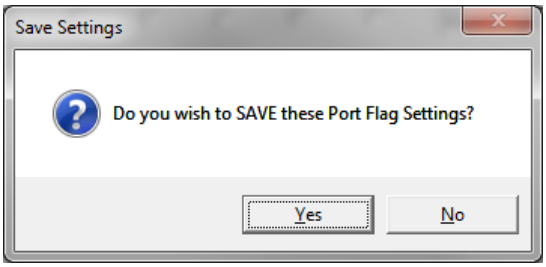
3. The Edgeport Properties dialog box will appear. Click the PORT FLAGS button.



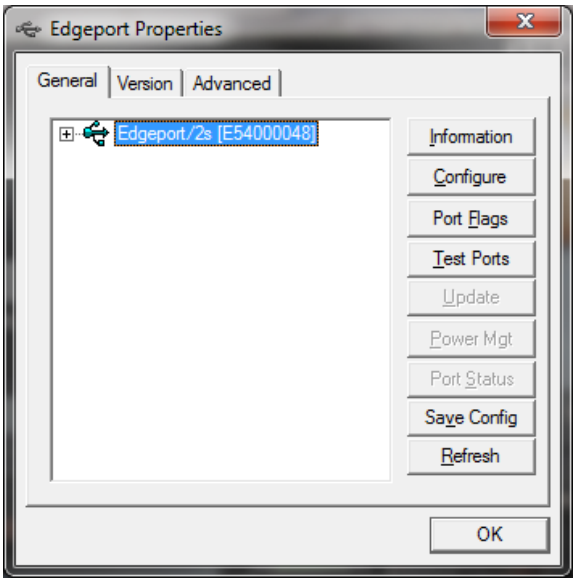
4. In the PORT FLAG CONFIGURATION window change the "INDUSTRIAL SETTINGS" for each port to "RS485: HALF DUPLEX, MIDDLE UNIT, NO ECHO" using the drop down list, as shown below. Click the check boxes to DISABLE PLUG & PLAY to the right of each port, then click UPDATE.



5. The SAVE SETTINGS dialog box appears. Click YES to save your settings.



6. The EDGEPORT PROPERTIES screen shown below appears. Click OK to close it.



The USB to RS-485 Converter is now configured and the EDGEPORT PROPERTIES screen will close.

Control Module Configuration and Connections

Jumper Configuration

The output control module supports both RS-485 and RS-232 data connections. Jumper J6 is provided for selecting either RS-485 or RS-232 data communications. **Make certain that jumper J6 located next to the RS-232 connector is positioned between pins two and three for RS-485 operation** (see Figure 2). The RS-485 data connections are made directly to terminal block TB2, terminals one and two. It is not required to observe polarity.

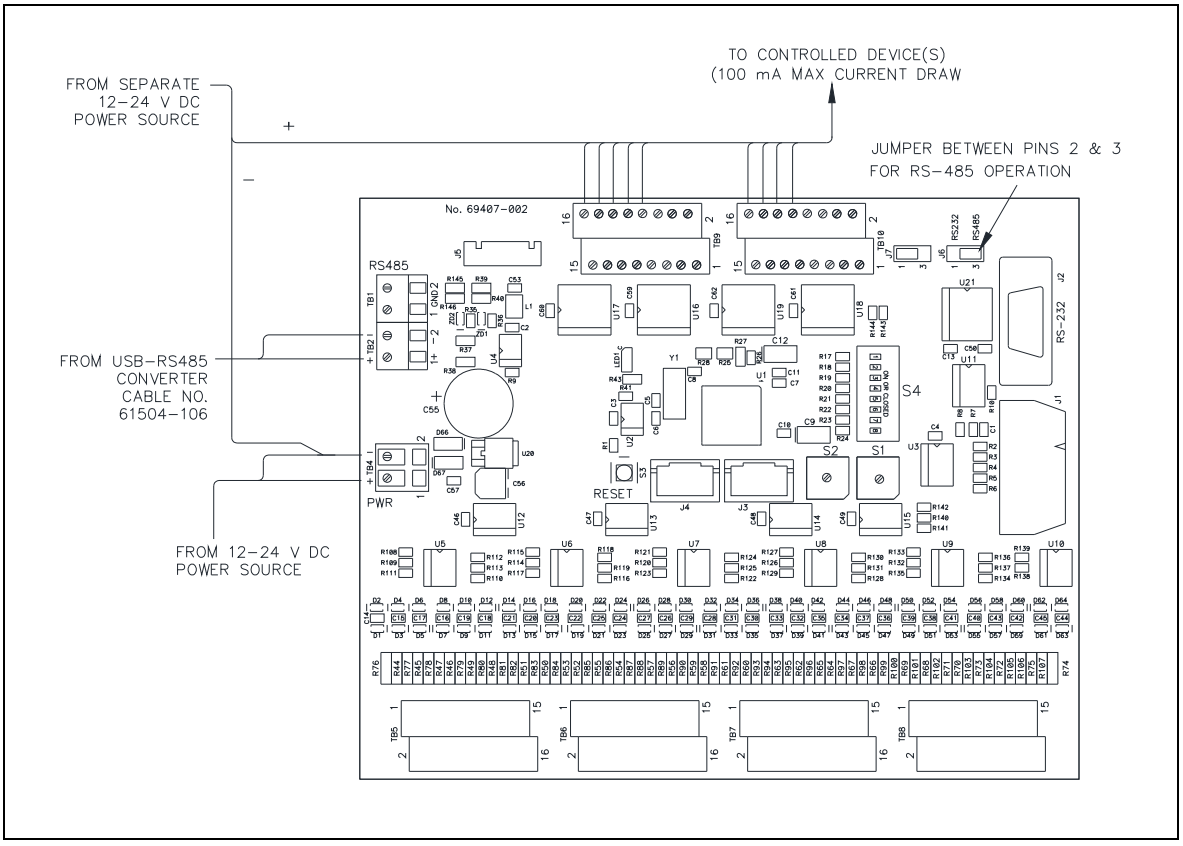


Figure 2. Model 12584-001 Output Control Module

Power Connections

The output control module requires a dc power supply with output voltage between 12 and 24 V dc. Terminal block TB4 is used for the dc power input connection. Refer to the Table 1 and Figure 3 below for dc power input termination information.

NOTE: The USB to RS-485 Converter Module No. 69275-029 is powered by the USB Port on the PC.

Table 1. Power Connections at TB4

Terminal	Labeled	Description	Function
TB4-1	+	Power (+)	12 to 24 V dc power supply positive terminal
TB4-2	–	Power (-)	12 to 24 V dc power supply negative terminal

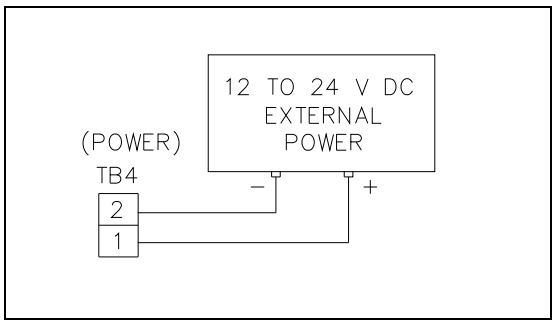


Figure 3. Power connections at TB4

Digital Output Connections

Connectors TB9 and TB10 each provide 16 digital (common ground) output connections designed to drive externally-mounted relays or other indicating circuits. Each output can sink up to 100 mA of current. External circuitry such as relays, indicators, etc. must be powered from the same power supply as the output control module or from an external power supply with the exact same voltage (12 to 24 V dc). The ground or dc common terminals of the external power supply must be tied to terminal block TB4 pin two if separate power sources are used (see Figure 2).

Table 2. Digital Output Connections

Terminal	Labeled	Function	Type
TB10-1 to TB10-16	**OUT-1 TO 16**	Digital output	Idle = +V dc, active (low) = sink100 mA maximum
TB9-1 to TB9-16	**OUT-17 TO 32**	Digital output	Idle = +V dc, active (low) = sink100 mA maximum

Each output corresponds to the control push button on the Navigator control screen with the same number.

Address Switch Configuration

S1 and S2 are hexadecimal switches that are used to set the I/O controller's address. If the system contains more than one I/O controller, each device must be configured with a different address. Each device's address should be set in sequential order starting with address 01. Switch S2 sets the first digit and switch S1 sets the second digit (see Figure 4).

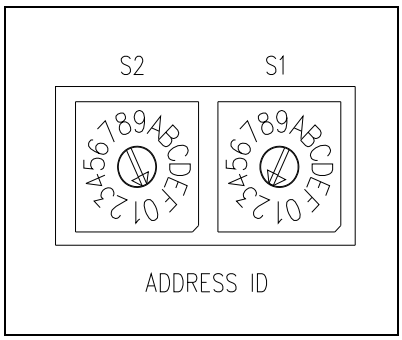


Figure 4. Hex Switches S2 and S1

Example:
Address 01: S2 = 0, S1 = 1
Address 02: S2 = 0, S1 = 2
Address 03: S2 = 0, S1 = 3

NOTE: After changing the board address, the RESET button must be momentarily pressed for the new address to take effect.

Table 3 provides the default address settings for switches S1 and S2.

Table 3. Default Hex Address Switch Settings

Hex Switch No.	Function	Settings
S1 and S2	Board address	S1 = 2 S2 = 0

DIP Switch S4

An 8-position DIP switch block S4, is used to set the various data and operation parameters of the I/O Controller (refer to Figure 5). Tables four and five provide the position and corresponding function for each switch. DIP switch S4 positions 1-2 set the serial data line baud rate as follows:

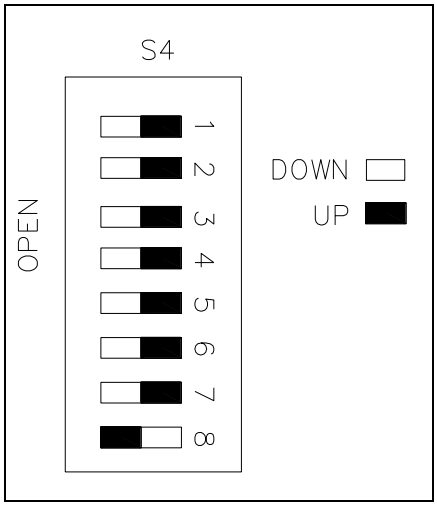


Figure 5. DIP Switch S4

Table 4. DIP Switch S4 Positions 1–2: Baud Rate

Switch S4-1	Switch S4-2	Baud Rate
Closed	Closed	2400
Open	Closed	4800
Closed	Open	9600
Open	Open	19200

Table 5. DIP Switch S4 Positions 3–8 Operating Parameters

DIP Switch Position	Function	Settings
S4-3	None—Not used	N/A
S4-4	None—Not used	N/A
S4-5	None—Not used	N/A
S4-6	Automatic input response	**Closed**—will wait for a poll request from master controlling device before sending an input activation data message. **Open**—will automatically send a data message when an active input is detected. The controller will NOT wait for poll request from the master controlling devise.
S4-7	Address return	**Closed**—will NOT return the controller's address (set by hex switch S1 and S2) when sending a data message to the master controlling device. **Open**—will return the controller's address (set by hex switch S1 and S2) when sending a data message to the master controlling device.
S4-8	Data default indication	**Closed**—if data communication is lost with the master controlling device, all outputs will remain in their current state until data communication is restored. **Open**—if data communication is lost with the master controlling device, all outputs will flash on/off.

Table 6 provides the default DIP switch settings for S4

Table 6. DIP Switch S4 Default Settings

DIP Switch S4	Function	Settings
S4-1	Baud rate = 19.2 k	Open
S4-2		Open
S4-3	N/A	Open
S4-4	N/A	Open
S4-5	N/A	Open
S4-6	Wait for poll request from master	Open
S4-7	Return address to master controller	Open
S4-8	Do not signal data fault with master	Closed

Reset Switch

A small push-button switch is provided to restart the I/O controller's microprocessor. Momentarily press the button to initiate the reset sequence.

Specifications

Power Supply Requirements

Connection to a 12 to24 V dc (UL listed) Class 2 power source ..... 600 mA minimum
Power consumed ..... 7 W maximum
Auxiliary outputs ..... sink 100 mA maximum, per output to circuit common and pulled up to the power input voltage

Mechanical

Enclosure ..... steel body and cover; black fine-textured paint finish
Mounting ..... wall or shelf
Dimensions ..... 1.02 H × 7.50 W × 5.625 D in (26 × 191 × 143 mm)
Weight ..... 2 lb (0.902 kg)

Environmental

Temperature range ..... +32 ºF to +122 ºF (0 ºC to +50 ºC)

Warranty

Equipment. GAI-Tronics warrants for a period of one (1) year from the date of shipment, that any GAI-Tronics equipment supplied hereunder shall be free of defects in material and workmanship, shall comply with the then-current product specifications and product literature, and if applicable, shall be fit for the purpose specified in the agreed-upon quotation or proposal document. If (a) Seller's goods prove to be defective in workmanship and/or material under normal and proper usage, or unfit for the purpose specified and agreed upon, and (b) Buyer's claim is made within the warranty period set forth above, Buyer may return such goods to GAI-Tronics' nearest depot repair facility, freight prepaid, at which time they will be repaired or replaced, at Seller's option, without charge to Buyer. Repair or replacement shall be Buyer's sole and exclusive remedy. The warranty period on any repaired or replacement equipment shall be the greater of the ninety (90) day repair warranty or one (1) year from the date the original equipment was shipped. In no event shall GAI-Tronics warranty obligations with respect to equipment exceed 100% of the total cost of the equipment supplied hereunder. Buyer may also be entitled to the manufacturer's warranty on any third-party goods supplied by GAI-Tronics hereunder. The applicability of any such third-party warranty will be determined by GAI-Tronics.

Services. Any services GAI-Tronics provides hereunder, whether directly or through subcontractors, shall be performed in accordance with the standard of care with which such services are normally provided in the industry. If the services fail to meet the applicable industry standard, GAI-Tronics will re-perform such services at no cost to buyer to correct said deficiency to Company's satisfaction provided any and all issues are identified prior to the demobilization of the Contractor's personnel from the work site. Re-performance of services shall be Buyer's sole and exclusive remedy, and in no event shall GAI-Tronics warranty obligations with respect to services exceed 100% of the total cost of the services provided hereunder.

Warranty Periods. Every claim by Buyer alleging a defect in the goods and/or services provided hereunder shall be deemed waived unless such claim is made in writing within the applicable warranty periods as set forth above. Provided, however, that if the defect complained of is latent and not discoverable within the above warranty periods, every claim arising on account of such latent defect shall be deemed waived unless it is made in writing within a reasonable time after such latent defect is or should have been discovered by Buyer.

Limitations / Exclusions. The warranties herein shall not apply to, and GAI-Tronics shall not be responsible for, any damage to the goods or failure of the services supplied hereunder, to the extent caused by Buyer's neglect, failure to follow operational and maintenance procedures provided with the equipment, or the use of technicians not specifically authorized by GAI-Tronics to maintain or service the equipment. THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES AND REMEDIES, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Return Policy

If the equipment requires service, contact your Regional Service Center for a return authorization number (RA#). Equipment should be shipped prepaid to GAI-Tronics with a return authorization number and a purchase order number. If the equipment is under warranty, repairs or a replacement will be made in accordance with the warranty policy set forth above. Please include a written explanation of all defects to assist our technicians in their troubleshooting efforts.

Call 800-492-1212 (inside the USA) or 610-777-1374 (outside the USA) for help identifying the Regional Service Center closest to you.