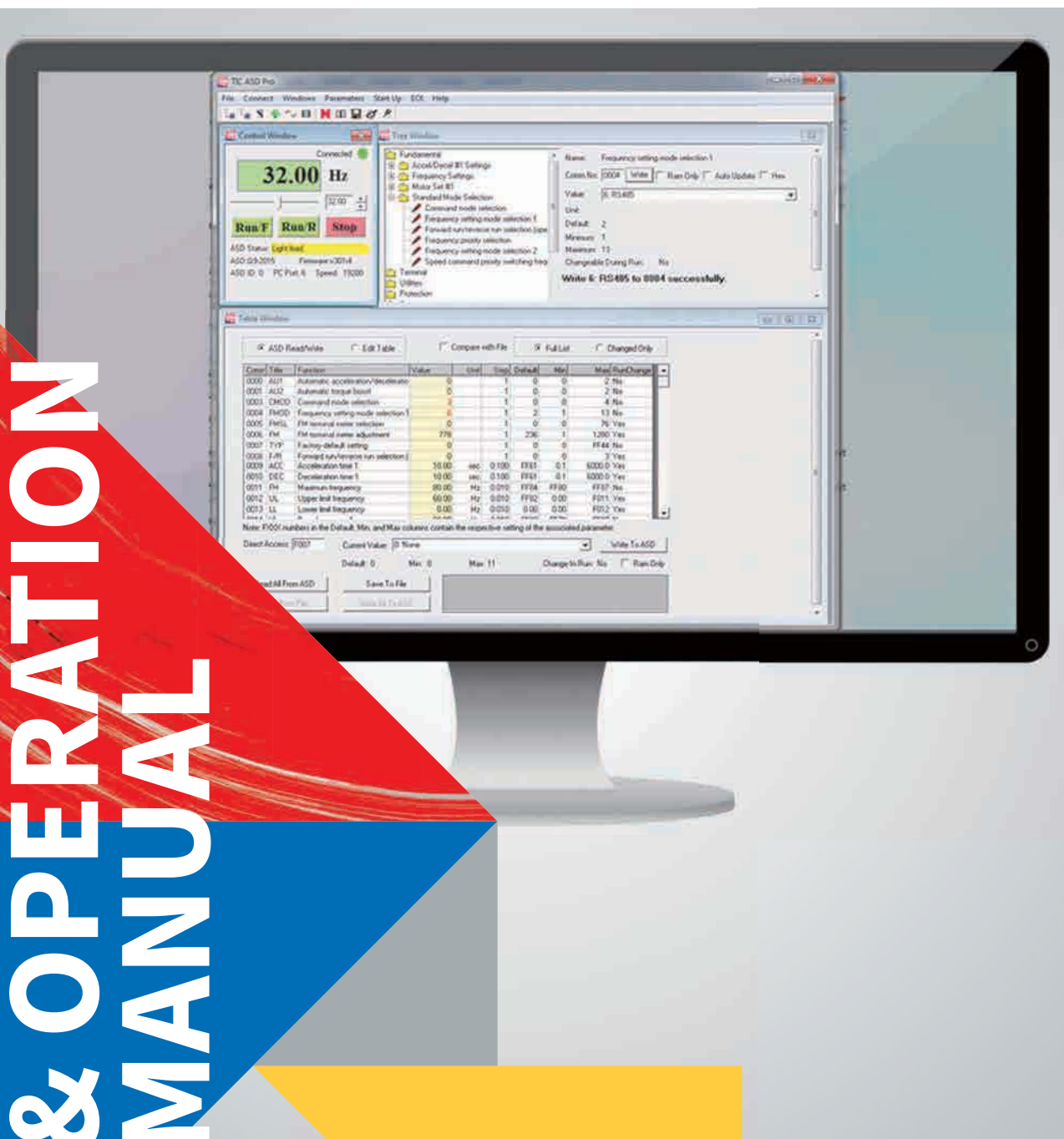


ADJUSTABLE SPEED DRIVES

ASD Pro DN-59443-003

INSTALLATION & OPERATION MANUAL



ASD Pro Software Installation & Operation Manual

Document Number: 59443-003

Date: April, 2020



Introduction

Congratulations on receiving the **ASD Pro Software** from Toshiba International Corporation!

This product may be used for demonstration purposes as well as for system setup and troubleshooting.

And now has Wireless compatibility!

Monitored parameter settings and motor control programmed settings of an ASD, as well as system performance variables, may be displayed and adjusted in real time or stored in a file for reference at a later time. Setup configurations are also transferable to other ASDs as required.

The user-friendly Control and Monitoring windows are easy to read and collapsible when not required.

Because we are continuously updating our products to meet the constantly changing needs of our customers, visit our web site to ensure that you have the latest release of the **ASD Pro Software** and this manual.

To maximize the abilities of your new **ASD Pro Software**, a working familiarity with this manual will be required. This manual and the **ASD Pro Software** has been prepared for the 7-Series and the 9-Series ASD installer, software user, and maintenance personnel. This manual may also be used as a reference guide or for training. With this in mind, use this manual to develop a system familiarity before attempting to install or operate the software.

About This Manual

This manual was written by the Toshiba Technical Publications Group. This group is tasked with providing technical documentation for the **ASD Pro Software**. Every effort has been made to provide accurate and concise information to you, our customer.

At Toshiba we're continuously searching for better ways to meet the constantly changing needs of our customers. E-mail your comments, questions, or concerns about this publication to Technical-Communications-Dept@toshiba.com.

Manual's Purpose and Scope

This manual provides information on how to download, install, and operate the **ASD Pro Software**. The information provided in this manual applies to the **ASD Pro Software** and how the software is used with related Toshiba products.

Safe and proper operation of the **ASD Pro Software** will require that the user be familiar with the contents of this manual and the contents of the manual of the ASD for which the **ASD Pro Software** is to support.

The **ASD Pro Software** is designed to support the 7-Series and 9-Series family of ASDs. Because of the inherent differences in the ASD types, there may be some accessible parameters for a given ASD for which there will be no function. An example would be as with the **My Function** feature and its related parameters of the 9-Series family — when connected to a 7-Series ASD, the related parameters will have no function.

This operation manual provides information on the various features and functions of this software, including

- Acquisition,
- Installation,
- Operation,
- Configuration instructions, and
- Menu options.

Included is a section on general safety instructions. Read the manual completely before installing or operating the software.

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Contacting Toshiba's Customer Support Center

Toshiba International Corporation's Customer Support Center can be contacted to obtain help in resolving any **Adjustable Speed Drive** system problem that you may experience or to provide application information.

The Support Center is open from 8 a.m. to 5 p.m. (CST), Monday through Friday. The Center's toll free number is US (800) 231-1412/Fax (713) 937-9349 CAN (800) 872-2192 MEX 01 (800) 527-1204.

For after-hours support follow the directions in the outgoing message when calling.

You may also contact Toshiba International Corporation by writing to:

Toshiba International Corporation
13131 West Little York Road
Houston, Texas 77041-9990
Attn: ASD Product Manager.

For further information on Toshiba International Corporation's products and services, please visit our website at www.toshiba.com/tic/.

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Important Notice

The instructions contained in this manual are not intended to cover all details or variations in equipment types; nor may it provide for every possible contingency concerning the installation, operations, or maintenance of this equipment. Should additional information be required, contact the Toshiba Customer Support Center.

The contents of this manual shall not become a part of or modify any prior or existing agreement, commitment, or relationship. The sales contract contains the entire obligation of Toshiba International Corporation. The warranty contained in the contract between the parties is the sole warranty of Toshiba International Corporation and any statements contained herein do not create new warranties or modify the existing warranty.

Any electrical or mechanical modifications to this equipment without the prior written consent of Toshiba International Corporation may void all warranties and may void the UL/CSA listing or other safety certifications. Unauthorized modifications may also result in a safety hazard or equipment damage.

Misuse of this equipment could result in injury and/or equipment damage. In no event will Toshiba International Corporation be responsible or liable for direct, indirect, special, or consequential damage or injury that may result from the use or misuse of this equipment.

Warranty Information

Toshiba Industrial Corporation (TIC) warrants that the received goods will be free of defects in materials and workmanship.

The complete Toshiba warranty for this equipment is located at the [Toshiba.com/tic](https://www.toshiba.com/tic) website.

Activating the TIC Warranty

To activate the TIC warranty for the received equipment go the Toshiba General Warranty & Product Registration site listed below:

<https://www.toshiba.com/tic/service-warranty/general-warranty-product-registration>.

Complete all of the required fields of the form and click Submit.

A confirmation of the enacted warranty will be mailed to the registered contact entity.

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General Safety Information

DO NOT attempt to install, operate, or maintain this software until you have read and understood all of the product safety information and directions that are contained in this manual and the manual of the connected ASD.

Safety Alert Symbol

The **Safety Alert Symbol** is comprised of an equilateral triangle enclosing an exclamation mark. This indicates that a potential personal injury hazard exists.



Signal Words

Listed below are the signal words that are used throughout this manual followed by their descriptions and associated symbols. When the words **DANGER**, **WARNING**, or **CAUTION** are used in this manual they will be followed by important safety information that must be carefully adhered to.

The word **DANGER** preceded by the safety alert symbol indicates that an imminently hazardous situation exists that, if not avoided or if instructions are not followed precisely, will result in serious injury to personnel or loss of life.



The word **WARNING** preceded by the safety alert symbol indicates that a potentially hazardous situation exists that, if not avoided or if instructions are not followed precisely, could result in serious injury to personnel or loss of life.



The word **CAUTION** preceded by the safety alert symbol indicates that a potentially hazardous situation exists that, if not avoided or if instructions are not followed precisely, may result in minor or moderate injury.



The word **CAUTION** without the safety alert symbol indicates a potentially hazardous situation exists that, if not avoided or if instructions are not followed precisely may result in equipment and property damage.

CAUTION

Special Symbols

To identify special hazards, other symbols may appear in conjunction with the **DANGER**, **WARNING**, or **CAUTION** signal words. These symbols indicate areas that require special and/or strict adherence to the procedures to prevent serious injury to personnel or loss of life.

Electrical Hazard Symbol

A symbol that is comprised of an equilateral triangle enclosing a lightning bolt that indicates a hazard of injury from electrical shock or burn.



Explosion Hazard Symbol

A symbol that is comprised of an equilateral triangle enclosing an explosion that indicates a hazard of injury from exploding parts.



Read Manual

A symbol that is comprised of an encircled manual that indicates that the user shall read and understand the Installation and Operation Manual before attempting to install, operate, perform maintenance, or dispose of the equipment.



Qualified Personnel

Installation, operation, and maintenance operations shall be performed by **Qualified Personnel Only**. A qualified person is one that has the skills and knowledge relating to the installation, operation, and maintenance of the equipment and software and has received safety training on the hazards involved (refer to the latest edition of NFPA 70E for additional safety requirements).

Qualified Personnel shall:

- Have carefully read the entire software operation manual and the Installation and Operation Manual of the connected ASD.
- Be familiar with the construction and function of the ASD, the equipment being driven, and the hazards involved.
- Be able to recognize and properly address hazards associated with the application of motor-driven equipment.
- Be trained and authorized to safely energize, de-energize, ground, lockout/tagout circuits and equipment, and clear faults in accordance with established safety practices.
- Be trained in the proper care and use of protective equipment such as safety shoes, rubber gloves, hard hats, safety glasses, face shields, flash clothing, etc., in accordance with established safety practices.

For additional information on workplace safety visit www.osha.gov.

Equipment Inspection

- Before connecting the PC to the target equipment, inspect the equipment for damage and/or missing parts.
- **DO NOT** energize equipment that has been damaged. Damaged equipment may fail during operation resulting in further equipment damage or injury to personnel.
- Ensure that the rated capacity and the model number specified on the nameplate conforms to the parameters being downloaded to the equipment.
- Modification of this equipment is dangerous and is to be performed by factory trained personnel. When modifications are required contact your Toshiba Sales Representative.
- Perform any system or application inspections required to avoid personnel exposure to high voltage.

ASD Pro Software Precautions

Software Installation Precautions

- **ONLY** qualified personnel should install the software.
- **DO NOT** attempt to install this software until you have read and understood all of the user directions that are contained in this manual and the directions that are contained in the Installation and Operation Manual of the connected ASD.
- Equipment connected to the PC is to be installed in a secure and upright position in a well-ventilated area.



WARNING



- It is the responsibility of the ASD installer/maintenance personnel and the software user to ensure that all of the required safety and precautionary measures are in place and that the **ASD Pro Software** setup will not cause an unexpected startup of the motor.

Software Operation Precautions



WARNING



- **ONLY** qualified personnel should operate the software and equipment.
- Read and understand the section titled [General Safety Information on pg. 1](#) before operating the ASD, loading the **ASD Pro Software**, or making parameter changes.
- The **ASD Pro Software** was designed and is intended to be used for the temporary diagnostics and monitoring of demonstration units or permanently-connected equipment **ONLY**.
- **DO NOT** use the software for permanent or long-term command and/or control functions. The **ASD Pro Software** is not intended for permanent field use.
- **DO NOT** attempt to operate this software until you have read and understood all of the user directions that are contained in this manual and the directions that are contained in the Installation and Operation Manual of the connected ASD.
- ASDs produced by TIC are installed as part of a larger system and may present hazards to equipment or personnel if programmed improperly. **ONLY** qualified personnel should make changes to the parameters of the ASD using the **ASD Pro Software**.
- The software shall be operated with the connected equipment in a secure and upright position in a well-ventilated area. Any connecting cables must be routed away from high voltages.
- Understand and document any changes being made to the connected equipment while using the **ASD Pro Software**.
- By using a demo ASD with the **ASD Pro Software**, the motor may be connected and disconnected easily and various configurations may be tested easily and safely.
- When using serial communication to control an ASD, care must be taken to ensure the safe operation of the ASD, which may include restoring the system to the starting configuration upon completion of the **ASD Pro Software** diagnostics.
- For additional information on the ASD parameters that may be monitored and controlled by the **ASD Pro Software**, see the Installation and Operation Manual of the connected ASD.

ASD-to-PC Connectivity Precautions

ASD-to-PC connectivity may be carried out via the **Toshiba NetPac Wireless System** or via the USB-to-RJ45 cable. The content of this manual will cover the RJ45 cable connection method as the primary means of connectivity for software use. The **Toshiba NetPac Wireless System** is discussed only as it applies to the **Network Window** of the software that is used to manage the connected nodes of the **Toshiba NetPac Wireless System**.

Note: See the *NetPac Wireless System Installation and Operation Manual* for specifics on the setup, installation, and use of the wireless system.

Connecting a personal computer (PC) to an ASD via a communication cable is potentially very dangerous. When using a communication cable, ensure that the cable is not in contact with any energized part of the ASD.

Ensure that all personnel are in a safe location and that the equipment connected to the ASD will not cause equipment damage or injury to personnel from any sudden or unexpected starting or stopping of the motor.

ASD parameter changes made using the **ASD Pro Software** may cause unexpected starting or stopping of the connected motor. Always turn off ASD power and then turn it on again before the final checkout. This ensures that parameters are written to the ASD memory correctly.



DANGER

DO NOT use a cable that is frayed or that shows any signs of damage when connecting the PC to the ASD.

The routing of the cable through the ASD is critical. Avoid areas of the ASD where electrical noise may be induced into the cable. The cable must be routed and secured to avoid any areas where high voltages may be present. High voltage entering the cable may result in equipment damage, injury to personnel or loss of life.



WARNING

DO NOT exert any force on the RJ45 wires or connections. Tension from pulling on RJ45 cables may damage the connections within the connector shell. Damaged wires can result in intermittent communication or no communication.

DO NOT plug an EOI/keypad into an energized ASD. The ASD should always be Off prior to removal or installation of an EOI/keypad.

The **ASD Pro Software** enhances the programmability of TIC's ASDs. ASDs produced by TIC are installed as a part of a larger system and may present hazards to equipment or personnel if improperly programmed.

If using the **Toshiba NetPac Wireless System** to connect the ASD to the PC, once connectivity is established, **DO NOT** swap the routers of the connected ASDs.

If using the **Toshiba NetPac Wireless System** to connect the ASD to the PC, set the ASD **Communications Time Out Time** and the **Communications Time Out Action** parameters to a disposition in the event of a loss of communication.

ONLY qualified personnel should make changes to the parameters of the ASD.

System Protection

- Ensure that primary protection exists for the input wiring to the equipment. This protection must be able to interrupt the available fault current from the power line. The equipment may or may not be equipped with an (optional) input disconnect.
- Improper programming of the **ASD Pro Software** can result in loss of control. Ensure that the **Emergency Off** braking system of the ASD is properly set up. The function of the **Emergency Off** braking function is to remove output power from the drive in the event of an emergency. A supplemental braking system may also be engaged in the event of an emergency.

***Note:** A supplemental emergency stopping system should be used with the ASD. Emergency stopping should not be a task of the ASD alone.*

- Follow all warnings and precautions and do not exceed equipment ratings.

ASD Setup Requirements



- When using the **ASD Pro Software** as an integral part of a larger system, it is the responsibility of the ASD installer/maintenance personnel and the software user/installer to ensure that there is a fail-safe in place (i.e., an arrangement designed to switch the system to a safe condition if there is a fault or failure).
- System safety features should be employed and designed into the integrated system in a manner such that system operation, even in the event of system failure or programming error, will not cause harm or result in system damage or injury to personnel (i.e., E-Off, Auto-Restart settings, System Interlocks, etc.).
- The programming setup and system configurations of the **ASD Pro Software** may allow it to start the motor unexpectedly. A familiarity with the Auto-Restart and system protection settings are a requirement to use this product.
- Improperly designed or improperly installed system interlocks, or improper system settings may render the motor unable to start or stop on command. Know and understand the parameter values and settings that are being changed.
- Use of the built-in system protective features of the **ASD Pro Software** is highly recommended (i.e., E-Off, Overload Protection, etc.).
- It is the responsibility of the ASD installer/maintenance personnel and the software user/installer to know the outcome of changes made to the ASD parameters while using the **ASD Pro Software**.

ASD Pro Software and Serial Comm

Getting Started

The **ASD Pro Software** (P/N 59073) enhances the programmability of the 7-Series and the 9-Series families of ASDs by allowing the user to control the ASD, and monitor parameter settings and performance variables from a PC via serial communication.

Using serial communication via the **Toshiba NetPac Wireless System** or the **ASD-CAB-USB** cable, the **ASD Pro Software** may be used to control and monitor all of the ASD functions that are accessible via serial communication.

The **TIC_USB_RS485** driver must first be installed onto the PC in order to use the **ASD Pro Software**.

The **ASD Pro Software** and the **TIC_USB_RS485** driver may be acquired from the CD received with the ASD system or from the Toshiba web site and loaded onto the PC as described below.

The **ASD Pro Software**, used in conjunction with the **ASD-EOI-HH-G9** assembly (see [Figure 18 on pg. 54](#)), may also be used to program (flash) the display modules of the 7-Series and 9-Series ASDs that may require flashing as a program update.

Load the ASD Pro Software

The **ASD Pro Software** may be acquired via 1) the www.toshiba.com/ind web site, 2) the All Products CD (P/N 60652) supplied with the ASD system, or 3) a complimentary copy may be acquired from the [Customer Support Center](#).

Downloading from the Toshiba Web Site

1. From the www.toshiba.com/ind web site click Drives ⇒ G9 LV Severe Duty Industrial ⇒ Setup Software (tab) ⇒ **ASD Pro Software Zip File**.
2. Sign in to download from the web site when prompted and click **ASD Pro Software Zip File**.
3. At the resulting dialog box either click **Cancel** to return to the Toshiba web site, click **Open** to unzip the zipped file, or click **Save** and follow the subsequent prompts to store the **ASD Pro Software Zip File**. Once unzipped, the application may be launched from the resulting **ASD Pro Software** desktop shortcut.

Loading from the All Products CD

1. Place the CD into the CD ROM drive.
2. At the home page of the CD under the **Quick Links** section, click **Features**.
3. From the expanded listing, click **ASD Pro Software**.
4. At the resulting **ASD Pro Software** screen, within the final sentence of the page, click the word “here” within the sentence: Click [here](#) to download the **ASD Pro Software Zip File**.

Remove Older ASD Pro Software Version (if Required)

1. Launch the **Setup.exe** file of the unzipped files.
Should there be an existing version of **ASD Pro Software** loaded onto the PC, continue to [step 2](#). If a first-time install, go to the section titled [Install the New ASD Pro Software Version on pg. 8](#).
2. Click the radio button **Remove** and then click **Next** (see [Figure 1 on pg. 8](#)).

Figure 1. Modify, Repair, or Remove Dialog Box.



3. When queried **Do You Want To Completely Remove The Application And All Of Its Features?** click **OK**.
4. Upon completion of the removal, click **Finish** at the **Maintenance Complete** screen. The older version has been successfully removed from the PC.
5. Continue to the next section to [Install the New ASD Pro Software Version](#).

Install the New ASD Pro Software Version

1. Launch the **Setup.exe** file (of the unzipped file group) to start the program installation.
2. Click **Next** at the **Welcome** screen.
3. Read the **License Agreement** and click **Yes**.
4. Enter the appropriate information at the customer information fields and select **All Users**.
5. Click **Next**.
6. When prompted to **Choose Destination Location** for the installation, note the default location and click **Next**, or click **Browse** to select a different location and click **Next** — this will be the location from which the application may be launched once installed. The setup file will also place a shortcut on the desktop of the PC which may also be used to launch the **ASD Pro Software** application.
7. Click **Next** to open the **Start Copying Files** dialog box.
8. At the **Start Copying Files** dialog box, click **Next** to start the file copy process.
9. Upon completion of the copy process, select **No, I Will Restart My Computer Later** and click **Finish**.

The **ASD Pro Software** is now loaded onto your computer.

Load the Driver Software

In conjunction with the **ASD Pro Software**, the **TIC_USB_RS485** software driver is required for ASD-to-PC serial communication.

Loading the driver is required during the initial setup only and need not be repeated for subsequent uses.

Follow the procedure below to load the ASD-to-PC serial communication driver.

1. From the web site <http://toshiba.com/ind/special/download.jsp>, click the link **Click here to download the Toshiba Inter Corp USB Driver Ver 2.06 zip file**.
2. From the subsequent dialog box, click **Save** to download the file.
3. Select the destination of the saved files for subsequent extraction.
4. From the saved location, unzip/extract the downloaded file.
5. Plug in the **ASD-CAB-USB** cable into an unused USB port of the PC.
6. The **Found New Hardware Wizard Welcome** dialog box appears.
7. Click the radio button **Install From A List Or Specific Location (Advanced)** and click **Next**.
8. The **Found New Hardware Wizard Search** dialog box appears.
9. From the **Search** box click **Browse** and path to the location selected in step 3 — default settings are to remain unchanged. Click **Next**.

Note: Depending on your PC system, the **Hardware Installation** screening dialog box may appear. If so, click **Continue Anyway**.

Note: Depending on your PC system, the search phase of the installation may take approximately one minute or longer. Allow the search to complete.

10. If queried for the driver location, path to the location selected in step 3. Click **Next**.
11. Click **Finish** at the subsequent dialog box.
12. The **Found New Hardware Wizard Welcome** dialog box appears.
13. Click the radio button **Install From A List Or Specific Location (Advanced)** and click **Next**.
14. The **Found New Hardware Wizard Search** dialog box appears.
15. From the **Search** box click **Browse** and path to the location selected in step 3. Leave default settings as they are and click **Next**.

Note: Depending on your PC system, the search phase of the installation may take approximately one minute or longer. Allow the search to complete.

16. Click **Finish** to complete the port installation.

Verify Port Installation and Connection

1. From the desktop of the PC, right-click on the **My Computer** icon and select **Properties**.
2. At the subsequent dialog box and depending on the Windows operating system being used, click either the **Device Manager** selection, or click the **Hardware** tab and then click the **Device Manager** button.
3. Expand the line item **Ports** and see a listing of the configured ports.
4. The port to which the **ASD-CAB-USB** cable is connected will display the following text: **Toshiba Inter. Corp. USB to RS485 (COMX)**.

***Note:** Where “X” is the numbered port identifier (i.e., 3, 4, etc.).*

ASD-to-PC Connection

Setup and Connection Requirements

This manual is written for the 7- and 9-Series ASD systems. The requirements for use with the 7-Series ASD and the 9-Series ASD are the same except where noted. See the Installation and Operation Manual of the connecting ASD for specifics on the referenced connection requirements within this manual.

The **ASD-CAB-USB** cable provides a bidirectional communication link between the RS485 I/O signal of the ASD and the USB I/O signal of the PC which is required for **ASD-to-PC** communication.

The communication settings of the **ASD Pro Software** must correspond to the settings of the connecting ASD. See the Installation and Operation Manual of the connecting ASD for the applicable parameter numbers of the communication settings.

The required communication settings include the following:

- Command Mode Selection,
- Frequency Mode Selection,
- ASD Number, and
- Communication Protocol.

For the 9-Series ASD set SW200 to Off (4-Wire setting).

If using the **Toshiba NetPac Wireless System** or the **ASD-CAB-USB** cable for connectivity, set the port selection of the **ASD Pro Software** to the port setting of [Step 4 on pg. 10](#).

If using the **Toshiba NetPac Wireless System** for connectivity, set the **ASD Pro Software** baud rate to **19200** and the parity setting to **Even**.

For all **ASD-CAB-USB** cable connected sessions, ensure that the settings of the **ASD Pro Software** correspond to the ASD settings.



WARNING

THE ASD-CAB-USB CABLE IS DESIGNED AND INTENDED FOR MONITORING AND DOWNLOADING PARAMETERS ONLY!

CRITICAL START AND STOP OF CONTROL APPLICATIONS ARE NOT TO BE ATTEMPTED USING THE ASD-CAB-USB CABLE.

Note: Stop the motor and close the **ASD Pro Software** application before removing the **ASD-CAB-USB** cable from any of the ASD/PC system components.

Note: *Disabling the PC-to-ASD communication link while the **ASD Pro Software** is running and/or if the motor is running removes user-control of the connected motor. An **Emergency Off** command (double-press Stop at the EOI) will halt the motor at the programmed deceleration rate or by the rate allowed by the load inertia — whichever is greater.*



DANGER

DO NOT TERMINATE THE PC-TO-ASD COMMUNICATION LINK OR REMOVE THE ASD-CAB-USB CABLE WHILE THE MOTOR AND/OR THE ASD PRO SOFTWARE IS RUNNING!

STOP THE MOTOR USING THE ASD PRO SOFTWARE AND THEN CLOSE THE ASD PRO SOFTWARE APPLICATION BEFORE REMOVING THE ASD-CAB-USB CABLE.

PC-to-ASD Connection Procedure



Note: The following connection procedure uses the **USB** setting of the **ASD Pro Software** — application-specific communication ports may be selected as required.

1. Remove all power sources from the ASD (lockout and tagout).
2. Disconnect the motor to prevent unexpected motor responses during the ASD setup or during the preliminary testing phase.
3. Open or remove any covers, doors, or guards to gain access to the ASD and the I/O connectors/terminals (requirements are typeform- and model-specific).
4. Connect the RJ45 end of the **ASD-CAB-USB** cable to the terminal board connector **S4** of the 9-Series ASD, or **CNU1** of the 7-Series ASD.
5. Close all PC applications that are not required.
6. Connect the USB end of the **ASD-CAB-USB** cable to the USB port of the PC referenced in [Step 5 on pg. 9](#).
7. Turn on the PC and allow the PC to complete the boot sequence. If the PC is already on, ensure that the **ASD Pro Software** is not running.
8. Apply power to the ASD — the motor is to remain disconnected until the final testing phase (i.e., programming has been confirmed as safe for the application).
9. Click the desktop shortcut to start the **ASD Pro Software** application — **DO NOT** move the **ASD-CAB-USB** cable from one ASD to another or from one PC to another while the **ASD Pro Software** is running — **DO NOT HOT SWAP**.

Connect-to-ASD Selections

Launch the **ASD Pro Software** and the **Connect to ASD** dialog box appears (see [Figure 2](#)).

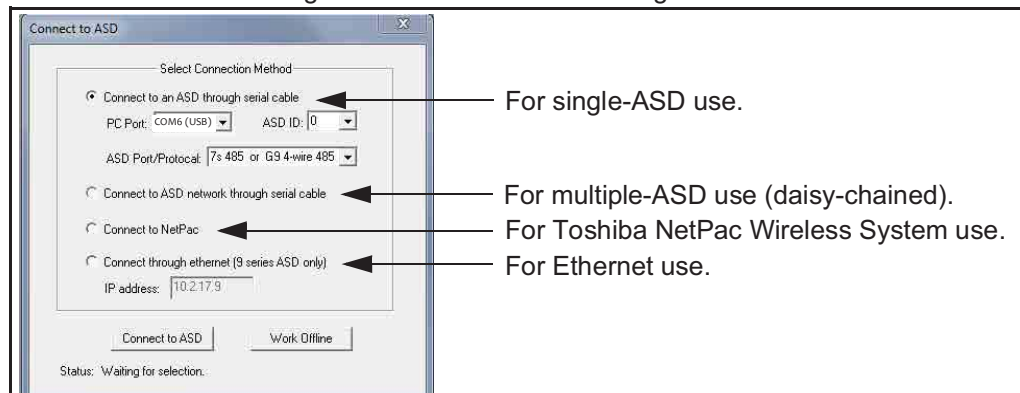
To connect an ASD while the **ASD Pro Software** is running, from the **Connect** pull-down menu, select **Connect ASD** to access the **Connect to ASD** dialog box.

At the **Connect to ASD** dialog box, click the appropriate means of connectivity as shown in [Figure 2](#).

Note: For USB use, select the PC Port COMX. Where “X” is the numbered USB port identifier defined in [Step 4 on pg. 10](#) (i.e., 3, 4, etc.)

At the **Control Window** the **Connected/Comm Lost** image switches from red to green to indicate a successful connection.

Figure 2. Connect to ASD Dialog Box.



ASD Pro Software Operation

From the **ASD Pro** main screen the **ASD Pro Software** can be used to easily control and monitor all of the ASD functions that can be accessed via serial communication.

Using the ASD Pro Software

The Following Procedure Is To Be Performed By Qualified Personnel ONLY.

Note: A properly configured ASD is required to perform the following procedure (ST to CC, F to CC, etc.).

Use the following procedure to set up and run the ASD using the **ASD Pro Software**.



DANGER

UPON THE COMPLETION OF THE ASD PRO SOFTWARE SETUP A CONNECTED MOTOR MAY TURN ON AND RUN UNEXPECTEDLY.

1. Disconnect the motor from the ASD. Connect the motor **ONLY** after testing the ASD program changes and confirming that the ASD program changes have been performed correctly and function as expected and as required for the application.
2. From the **Table Window**, record and store the existing ASD parameter settings before making any changes (see the section titled [Read All From ASD](#) for information on saving ASD parameter settings).
3. Place the ASD in the **Remote** mode (Local/Remote LED off).

Note: The settings of steps 4 and 5 may also be carried out from the EOI of the connected ASD.

4. From the **Tree Window**, click **PID Setup** ⇒ **Command Mode Selection**. The existing setting appears in the pull-down **Value** field. Set the pull-down **Value** field to **3: 4-Wire RS485**.
5. Click the **Write** button to transfer the new setting to the ASD.

Note: With each write-to-ASD function, an indication of a successful write will appear (e.g., Write 3: RS485 to 0003 successfully). An unsuccessful write attempt should be investigated for a systemic anomaly and corrected before continuing.

6. From the **Tree Window**, click **PID Setup** ⇒ **Frequency Setting Mode Selection 1**. Set the pull-down **Value** field to **6: 4-Wire RS485**.
7. Click the **Write** button to transfer the new setting to the ASD.
8. From the **Control** window, provide a frequency command in the **Frequency Input** field (see [Figure 4 on page 18](#)).
9. Click the **Run/F** or the **Run/R** button and the motor will run at the commanded frequency.

From the **Control** window, the output frequency may be changed while running using either of the following three methods:

1. Click, hold, and slide the slide-cursor of the **Frequency Control Window**,
2. Click the **Up/Down Frequency Control Arrow** buttons, or
3. Enter a new value into the **Frequency Input** field.

4. Click the **Run/F** or **Run/R** button and the motor will run at the programmed speed.

***Note:** The frequency controls are limited to the range of the **Lower Limit** to **Upper Limit** settings of the ASD.*

5. Click the **Stop** button of the **ASD Pro Software** to halt the motor.

***Note:** Using the **E-Off** function at the ASD EOI will terminate the ASD output — however, only the **Stop** button of the **ASD Pro Software** should be used to stop the motor while using the **ASD Pro Software**.*

ASD Pro Menu Navigation and Icons

Menu Items

Table 1 lists the **ASD Pro Software** menu items and their paths.

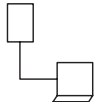
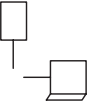
Table 1. ASD Pro Software Menu Navigation.

ASD Pro Software Menu Items		
Pull-Down Menu	Pull-Down Menu Items	Description
FILE	Save Window Configuration	Stores the opened windows as they are displayed when the ASD Pro Software application is closed. Re-opens the saved windows at the next session.
	Exit	Closes the ASD Pro Software application.
CONNECT	Connect ASD	Opens the Connect-to-ASD dialog box.
	Disconnect ASD	Disconnects all connected ASDs from the PC.
WINDOWS	Control Window	Speed/direction control and read only typeform information.
	Monitor Window	Graphing, logging, trip/alarm information, and parameter monitoring.
	Tree Window	Read from and write to the ASD parameter locations.
	Table Window	Manage parameter read/write functions.
	Network Window	Wireless system monitoring support (for NetPac Wireless System).
PARAMETERS (Table Window functions)	Read All From ASD (to Table)	Reads and displays the parameter settings of the ASD in the Table Window.
	Save (from Table) To File	Saves the Table Window parameter settings to a CSV file.
	Load From File (to Table)	Loads the parameter settings from a CSV file to the Table Window (Edit Table mode only).
	Write All To ASD (from Table)	Writes the contents of the Table Window into the ASD (Edit Table mode only).
START UP	Acc/Dec Settings	Accel/Decel settings may be viewed or changed.
	Pattern Run Settings	The Pattern Run settings may be viewed or changed.
	PID Settings	PID settings may be viewed or changed.
	Preset Speed Setting	Preset Speed settings may be viewed or changed.
	Terminal Settings	Discrete and Analog I/O terminal settings may be viewed or changed.
	Torque Settings	Torque Control settings may be viewed or changed.
	My Function Settings	My Function settings maybe viewed, or setup and run.
VLP	P9 VLP Setup Wizard	Contact the Toshiba Customer Support Center.
EOI	EOI FPWizard	Used to update (flash) the EOI memory (EOI Flash Docking Station required).
	EOI Reading	Reads the EOI memory (EOI Flash Docking Station required).
HELP	About ASD Pro Software	ASD Pro Software version and release information.
	7S	Provides parameter descriptions and usage assistance for the 7-series ASD.
	9S	Provides parameter descriptions and usage assistance for the 9-series ASD.
	Manuals	Provides the Installation and Operation Manuals for the 7-series and 9-series families of ASDs.

Icons

The icons of the top section of the **ASD Pro Software** main screen provide quick access to some of the most commonly used pull-down menu items. The icons and functions are listed below.

Figure 3. ASD Pro Software Icons.

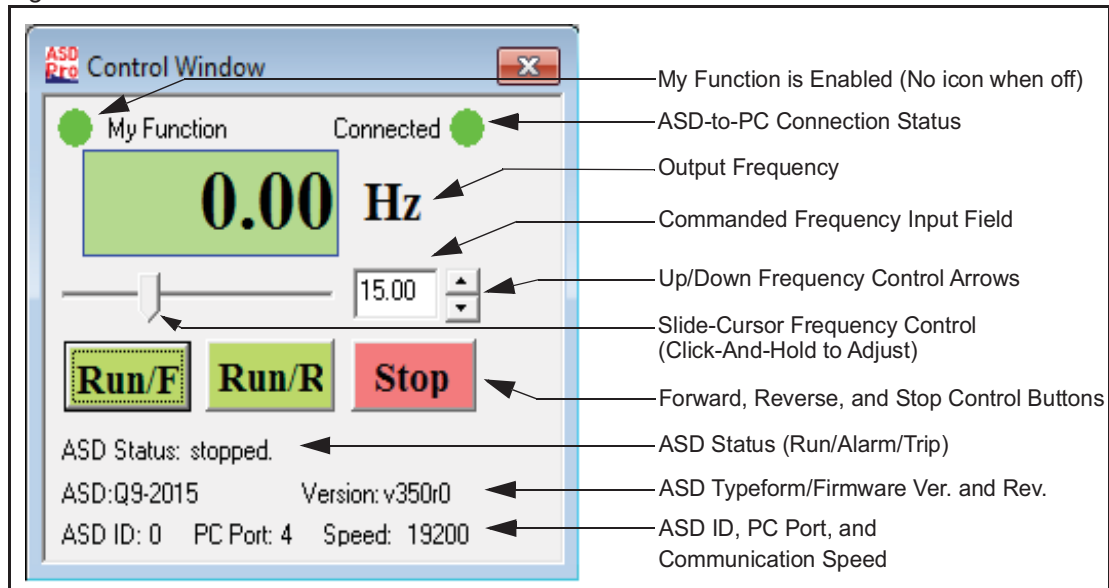
<u>Icon Function</u>	
	— Connect ASD
	— Disconnect ASD(s)
	— Open Control Window
	— Open Tree Window
	— Open Monitor Window
	— Open Table Window
	— Open Network Window
	— Read All from ASD to Table
	— Save Parameters from Table to File
	— Load Parameters from File to Table
	— Write All from Table to ASD

Windows

Control Window

The **Control Window** is accessed via the pull-down menu Windows ⇒ **Control Window** and provides access to the 7-series and 9-series ASD controls and monitors as shown in [Figure 4](#).

Figure 4. Control Window.



My Function Enabled — Green while the **My Function** feature is enabled — No icon when off (see F977).

ASD-to-PC Connection Status — Green while connected to the PC — Red while not connected.

Output Frequency — Displays the output frequency of the ASD in Hz.

Commanded Frequency Input Field — The desired frequency command may be keyed into this field and run by clicking the **Run/F** or the **Run/R** button.

Up/Down Frequency Control Arrows — Increments/decrements the commanded frequency 0.01 Hz per click.

Slide-Cursor — Use the left mouse button to click-and-hold the slide-cursor. Move the cursor either to the left or right to change the commanded frequency. The resulting commanded frequency is displayed in the **Commanded Frequency Input Field**.

Run/F and Run/R — Click the appropriate button to execute a **Run Forward** or **Run Reverse** frequency as keyed in at the **Commanded Frequency Input Field**.

Stop — Click the **Stop** button once to terminate the ASD output. The motor will stop at the programmed deceleration rate or at the rate determined by the inertia of the load (whichever is greater). Double-click either the **Stop** button of the **Control Window** or the **Stop** button of the ASD EOI to execute an **Emergency Off** or, if tripped, to return the ASD to the ready-to-run condition.

ASD Status — Displays the run status of the ASD — Running forward, running reverse, stopped, or alarm/trip status.

ASD Typeform/Firmware Ver. and Rev. — ASD type and software version and revision.

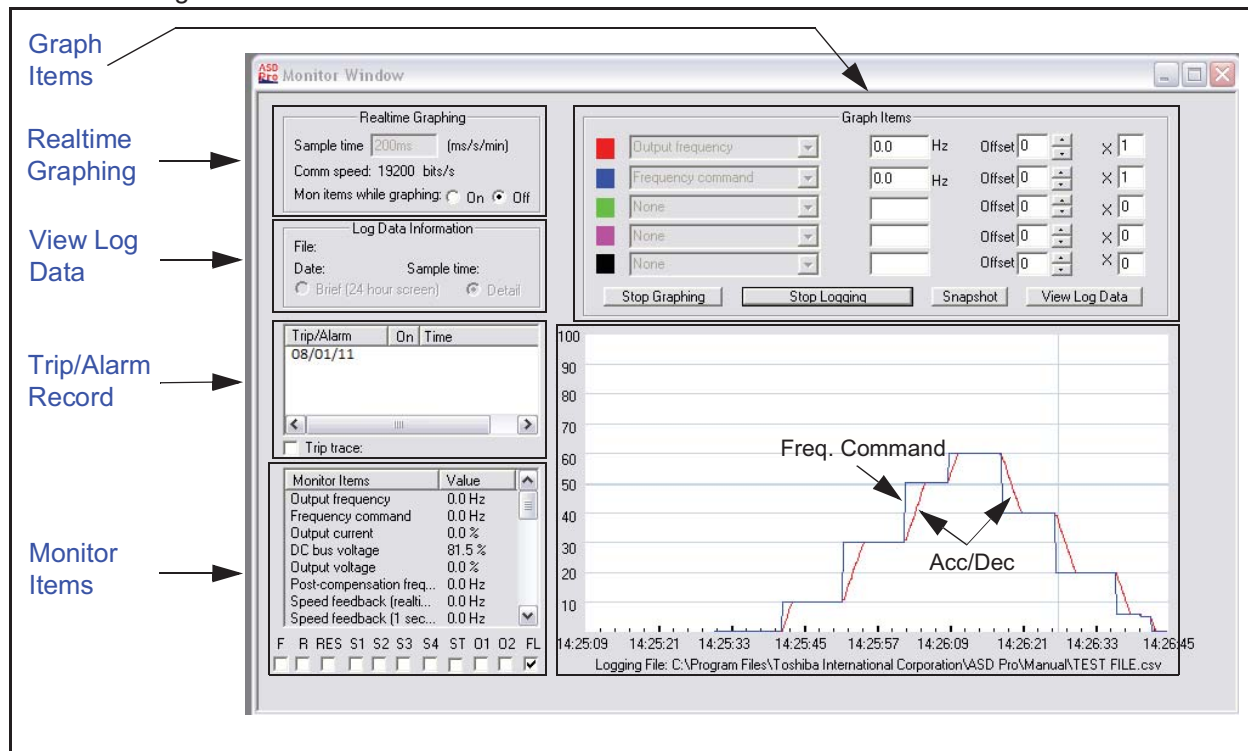
ASD Identification, Port, and Comm. Speed — Displays the connected ASD ID, the PC connection port being used, and the serial communication speed of the ASD.

Monitor Window

The **Monitor Window** is accessed via the pull-down menu Windows ⇒ **Monitor Window**. The **Monitor Window** (see Figure 5) allows the user to display the **ASD Monitor** parameters and to simultaneously plot up to five user-selected **ASD Monitor** parameter values to the PC screen. **Monitor Window** data may be saved as a file and recalled as required for analysis.

The **Monitor Window** is comprised of five sections: **Realtime Graphing**, **Graph Items**, **View Log Data**, **Trip/Alarm Record**, and the **Monitor Items** sections.

Figure 5. Monitor Window.



Realtime Graphing

The **Sample Time** setting (time between each sample) is set from the **Realtime Graphing** section and is used to scale the real-time graphical display. The unit of measurement for the sample time may be entered as milli seconds, seconds, or minutes — however, if the unit is milli seconds, the entered value must be a multiple of 10. Values entered that are not a multiple of 10 will be reduced to the next lower multiple of 10 (e.g., 119mS entered becomes 110mS).

The minimum time between samples is 20mS. The unit of measure must be entered along with the numerical value with no spaces (key in ms, s, or min).

Graph Items

The **Graph Items** section contains the on-screen controls required to graphically display and log the activity of user-selected parameters. The on-screen controls allow for up to five parameter items to be simultaneously displayed in real time. Only the first of duplicate parameter items will be monitored and updated. A log of the parameter items may be recorded as a file and recalled for viewing as required.

Listed below are the on-screen controls and the read-only monitored items along with a description of each. See [Figure 5 on pg. 19](#) for the on-screen location of each item.

Start/Stop Graphing

The **Start Graphing** button initiates the on-screen display of up to five user-selected parameters on the **Monitor Window** graph. The label of the **Start Graphing** button toggles to **Stop Graphing** once activated.

The **Start Graphing** function is enabled for activation by providing at least one user-selected parameter to appear on the graph. Click any of the pull-down menus of the **Graph Items** section to select an item from the listing to be monitored in the graph section. If **None** is selected or if blank for each, there will be no response when clicking the **Start Graphing** button.

Click **Start Graphing** to initiate graphing of the selected item(s). Click **Stop Graphing** when finished. The **Start Graphing** function only provides a display on the **Monitor Window Graph**; no logging file is created.

The sample graphed image of [Figure 5 on pg. 19](#) shows the ASD response to the Commanded Frequency of 10 Hz, 30 Hz, 50 Hz, 60 Hz, 40 Hz, 20 Hz, 5 Hz, and then to off.

The **blue** trace (**Horz./Vert.**) is set to display the **Frequency Command**. The **red** trace (**diagonal**) is set to the (actual) **Output Frequency** and depicts the **Acc/Dec** setting response.

Graph/Trace Color

The graph background color may be changed by double-clicking the graph. Click the desired color from the resulting palette and click **OK**.

The color of the trace for a given parameter trace display may be changed by double-clicking the color box adjacent to the applicable **Graph Item**. Click the desired color from the resulting palette and click **OK**.

Start/Stop Logging and Graphing

The **Start Logging and Graphing** button allows the user to record and save the displayed parameter data of a running ASD to a log file. Activating the **Start Logging and Graphing** button toggles the button label to **Stop Logging** and toggles the **Start Graphing** button label to **Stop Graphing** (as shown in [Figure 5 on pg. 19](#)).

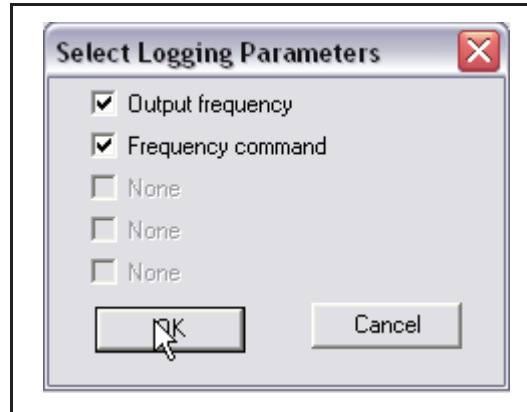
The **Start Logging and Graphing** function is enabled by providing at least one user-selected parameter to appear on the graph by selecting a parameter from the **Graph Items** section pull-down selections.

Click **Start Logging and Graphing** to initiate the logging and graphing functions. The selected **Graph Item(s)** will appear in the resulting **Select Logging Parameters** dialog box — the item(s) to be included in the log file must be selected.

Parameters that are selected at the **Graph Items** pull-down menu that are not selected at the **Select Logging Parameters** dialog box *will* be displayed on the **Graph Items** graph, but *will not* be included in the saved log file.

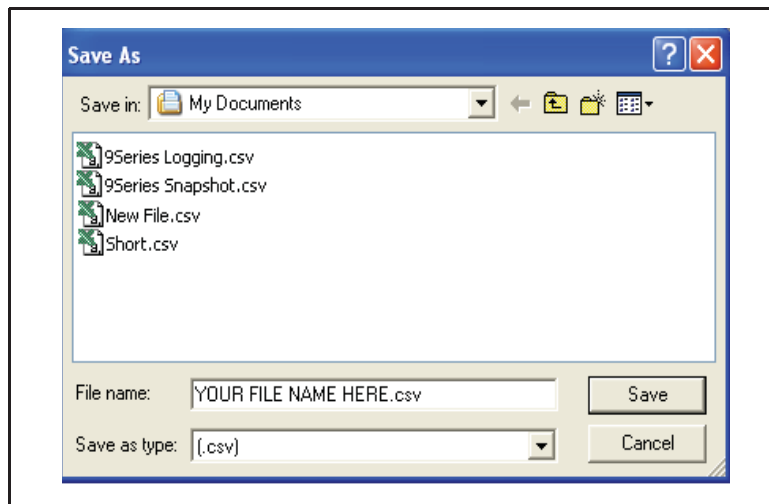
Place a check in the appropriate box of the **Select Logging Parameters** dialog box. Checked parameters will be recorded in the log file. Click **OK** when finished.

Note: If the items listed in the **Select Logging Parameters** dialog box (below) do not match the user selections of the [Graph Items](#) section, a selection table from a previously run ASD may still be loaded. From the **Connect** pull-down menu, disconnect the ASD and then reconnect the ASD to load the correct table.



Select a location for the saved Comma-Separated Value (CSV) file. Select a unique file name and a location to store the log file and click **Save**. Duplicate file names will be overwritten when saved.

CSV files may be opened using MS Excel®.



Snapshot

The **Snapshot** feature records the readings of the selected **Graph Items** and saves the information as a log file. **Snapshots** are used to produce brief recordings of ASD activity.

Click **Start Graphing** or click **Start Logging and Graphing** to enable the **Snapshot** feature. Click the **Snapshot** button to record the **Graph Item(s)**. A **Snapshot** is comprised of 480 samples of the selected **Graph Item(s)**.

The recorded entries are input to the file at the rate set by the **Sample Time** field of the **Monitor Window** — thus, the time length of the recorded **Snapshot** will be a function of the **Sample Time** setting of the **Realtime Graphing** section (i.e., a higher sample rate will result in a shorter Snapshot file — 480 samples over a shorter period).

The saved **Snapshot** file may be opened and displayed in the **Monitor Window**. Duplicate **Snapshot** file names will be overwritten when saved.

Unit of Measure

The field adjacent to the measured value of the user-selected parameter displays the associated unit of measure for the reading. Click **Start Graphing** or click **Start Logging and Graphing** to update the unit of measure for the current graphing/logging event.

The unit of measure is not affected by the A/V setting of parameter **F701**.

Offset

The **Offset** setting is useful if the displayed parameter has a positive and a negative property. This function may be used to change the position of the measured quantity on the graph. By default, the zero reference is zero and the **Offset** is set to -50 when displaying bipolar values.

The **Offset** may be changed for a given parameter using the up/down arrows to raise or lower the display of the measured quantity. This feature is also useful when viewing two values that have the same amplitude on a given axis. The **Offset** of either may be changed to provide non-overlapping traces on the display.

***Note:** The measured value remains unchanged. This setting affects how the value is displayed only.*

Multiplication Factor (X)

The **Multiplication Factor (X)** is used to display data that would otherwise exceed the range of the graph (greater than 100 or outside of the -50 to +50 range). The **Multiplication Factor** is selected automatically and is not user-selectable. The **Multiplication Factor** scales the reading to fit the **Monitor Window** screen. A reading of 150 is displayed as 75 with a multiplication factor of **2** in the **X** field.

View Log Data

The **View Log Data** button allows the user to select and display previously recorded log and **Snapshot** files. The resulting file data is displayed in the **Monitor Window** graph as the **Graph Items** that were selected for logging or selected for a **Snapshot** when saved.

***Note:** Items that were not selected at the **Select Logging Parameters** dialog box when saved will not be included in the log or **Snapshot** file.*

The log file name, date that the log file was created, and the sample time are displayed in the **View Log Data** section of the **Monitor Window**. The **Brief** and **Detail** radio buttons of the **View Log Data**

section scale the **Monitor Window** graph display. The **Brief** and **Detail** buttons are only enabled and used while viewing recorded log and **Snapshot** files.

The graph view may be set to **Brief** or **Detail** to view only a section of a saved file or to view the entire saved file, respectively. The **Brief** button displays the data log of 24 hours. The **Detail** button displays approximately 90 seconds of the data log per screen.

***Note:** Because the logs are created using the time clock of the PC as a time stamp, ensure that the PC clock is set to the correct time and date before starting a log.*

To view log data, click the **View Log Data** button of the **Graph Items** section. From the **Open** dialog box, path to the recorded log or **Snapshot** file to be viewed, and click **Open**. The **Detail** button of the **Log Data View** section will be used for most log views. However, to locate the start of a log that is less than a few hours long may require using the **Brief** view.

Trip/Alarm Record

Any trip and/or alarm events are recorded and listed in this section for the active session. To clear this information, stop the motor, close the **ASD Pro Software**, and then restart the **ASD Pro Software**.

Save Trip/Alarm to File

Click the **Save Trip/Alarm to File** button to record the trips and alarms for the active session. The record is saved as a CSV file. Give the file to be saved a unique name and note the destination of the saved file — the destination is user-selectable. Duplicate file names will be overwritten when saved.

Trip Trace (9-Series ONLY)

Place a check in the box to enable the **Trip Trace** function. This feature is used to monitor and store up to four ASD output waveform data points. The data may be read from the ASD and stored as a function of a trip (At Trip) or it may be initiated by the activation of a discrete terminal activation (At Trigger). The path of the stored **Trip Trace** file is displayed adjacent to the **Trip Trace** box.

The **Trip Trace** feature is set up and operates in accordance with the settings of parameter **F740** — **F745** of the connected ASD.

See the Installation and Operation Manual of the connected 9-Series ASD for more information on this feature.

Monitor Items

The **Monitor Items** list contains all of the ASD monitored parameters and is updated at 2-second intervals. The **Monitor Items** section is read-only and provides the status of ASD input, ASD output, and control/system variables.

The **Update Mon While Graphing** On/Off radio buttons are used to enable or disable updates of the **Monitor Items** list. While off, with the exception of the output frequency value, the listed items are neither monitored nor updated.

Disabling the **Monitor Items** list terminates **Monitor Items** updates and is effective in providing better throughput of ASD-to-PC read/write data for the graphing functions.

***Note:** Graph quality is dependent upon the speed and features of the PC being used. Turning off the **Update Mon While Graphing** radio button, closing all other windows, and using a shorter sample time will improve the graph resolution.*

Terminal Status

The **Terminal Status** section shows the status of the discrete input and discrete output terminals. When configuring a discrete *output* terminal (from the Tree Window), **NC** is used as a suffix to denote **Normally Closed**. No suffix is used to denote **Normally Open**.

The **Terminal Status** display is updated at 2-second intervals. The **Terminal Status** section is updated regardless of the **Update Mon While Graphing** setting.

***Note:** FL indicator is on when terminal FLC-to-FLA is closed.*

Tree Window

The **Tree Window** (see [Figure 6](#)) is accessed via the pull-down menu Windows ⇒ **Tree Window** and is used to read from or to write to all of the ASD memory locations that are accessible via serial communication.

Clicking a parameter from the **Tree Window** reads the current value (or setting) for the selected parameter and displays it in the **Value** field. The **Value** field may be changed for the parameter of the communication number displayed in the **Comm. No.** (Communication Number) field.

Click another parameter to exit without loading the new value (or setting) into the ASD or click the **Write** button to accept the change.

Note: Clicking the **Write** button updates the [Table Window](#) and the EOI display of the connected ASD for the changed parameter.

Note: To display changes made via the EOI of the ASD at the **Tree Window**, click the changed parameter at the **Tree Window**. If the communication number of the changed parameter is displayed at the **Tree Window Comm No.** field during the EOI change, the updated value (or setting) may not appear. Click to another parameter of the **Tree Window** and then back to the changed parameter to update the changed parameter at the **Tree Window Value** field.

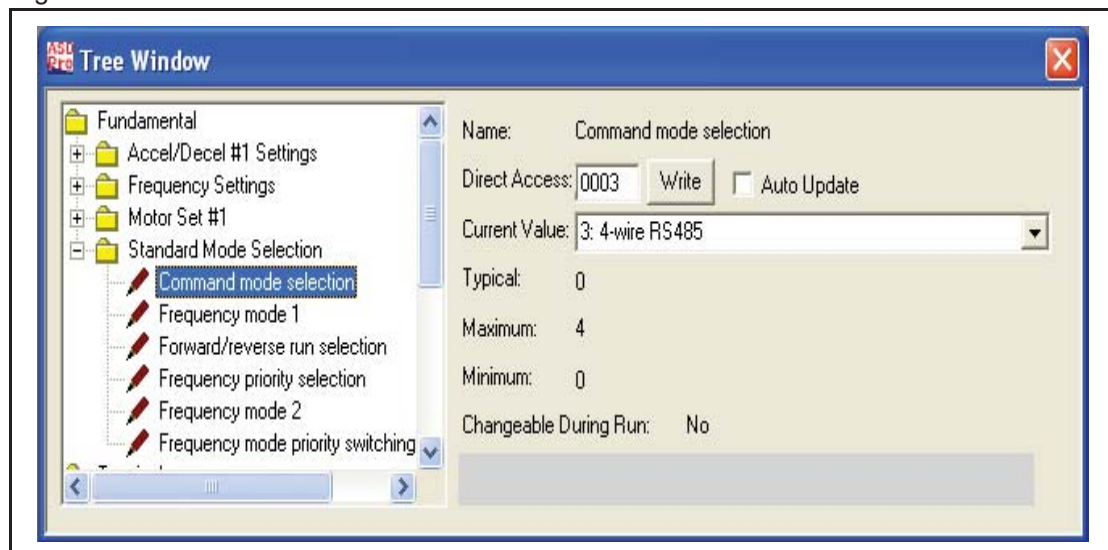
A known communication number may also be keyed into the **Comm No.** field to view or change the setting of the parameter entered (four digits are required for the Communication Number field, i.e., 0009, 0109, etc.). Once changed, click the **Write** button to transfer the new setting to the ASD. Otherwise, the changed setting will not be written to the ASD.

To use either method to change a parameter value (or setting), the **Communication Number** of the parameter must appear in the **Comm No.** field. The desired parameter value may then be keyed in or selected from the **Value** field pull-down menu.

Exit the **Tree Window** to discard any changes or click the **Write** button to load the new value (or setting) into the ASD memory.

Note: For additional information on the parameters of the **Tree Window**, see the *Installation and Operation Manual of the connected ASD*.

Figure 6. Tree Window.



Tree Window Items

Name — Selected parameter name.

Comm No. — Communication Number of the selected parameter.

Write — Click to transfer a new setting to the ASD.

RAM Only — When the **RAM Only** box is checked, any values (or settings) written to the ASD will be used, but are only stored in the ASD RAM. Upon the conclusion of the active **ASD Pro Software** session, or if the ASD is reset, the RAM contents will be erased and the pre-existing values (or settings) will be used.

Auto Update — This function, when enabled (box checked), allows for parameter changes made from the **Table Window** or from the EOI of the ASD to be conveyed to the associated **Tree Window** field without user intervention. The **Tree Window** becomes read-only and is disabled for input of parameter changes while the **Auto Update** feature is enabled.

The **Auto Update** function requires that the user click the item from the **Tree Window** list to display the updated parameter value (or setting) in the **Value** field of the **Tree Window**.

Changes made to a parameter via the EOI of the connected ASD will update the **Table Window** for that parameter without user intervention. **Table Window** updates in this manner require that the **ASD Read/Write** feature of the **Table Window** be enabled (radio button checked).

If the **Auto Update** feature is not enabled, click the **Value** field of a given parameter of the **Table Window** to display/update ASD parameter changes made via the EOI.

Hex — The **Hex** check box is used to convert the numerical contents of the **Value** field from decimal to hex when required. Because the bits of a word may be easier to identify if using $C1_H$ (i.e., $1100\ 0001_B$) as opposed to 193_D . The requirement to use this feature is that the **Value** field contain a whole number and that the parameter setting not be of a selection listing.

Value — Current value or setting of the selected parameter.

Unit — Unit of measure for the selected parameter.

Default — Factory default parameter value (or setting).

Minimum — Minimum value to which the selected parameter may be set.

Maximum — Maximum value to which the selected parameter may be set.

Changeable During Run — Parameter changeability-while-running status. Parameters that are NOT changeable while running will return a **Write Error** if, while running, a write-to-ASD is attempted. Stop the ASD and retry.

Table Window

The **Table Window** (see [Figure 7](#)) is accessed via the pull-down menu Windows ⇒ **Table Window**. The **Table Window** allows the user to read from or to write to all ASD memory locations that are accessible via serial communication.

The **Table Window** is a file creation, editing, and transfer mechanism that may be used to create or edit a transferable ASD configuration (e.g., group-transfer of one or more parameter changes or settings). All of the parameter changes or settings of the **Table Window** may be saved as a file, recalled, and applied to an ASD as required or transferred to multiple ASDs of the same typeform.

Double click the **CommNo**, **Title**, or **Function** field of a given parameter row for **Help** information on the selected parameter.

The **Table Window** must be populated with the parametric profile of a given system type as a starting point to perform any **Table Window** file transfer functions.

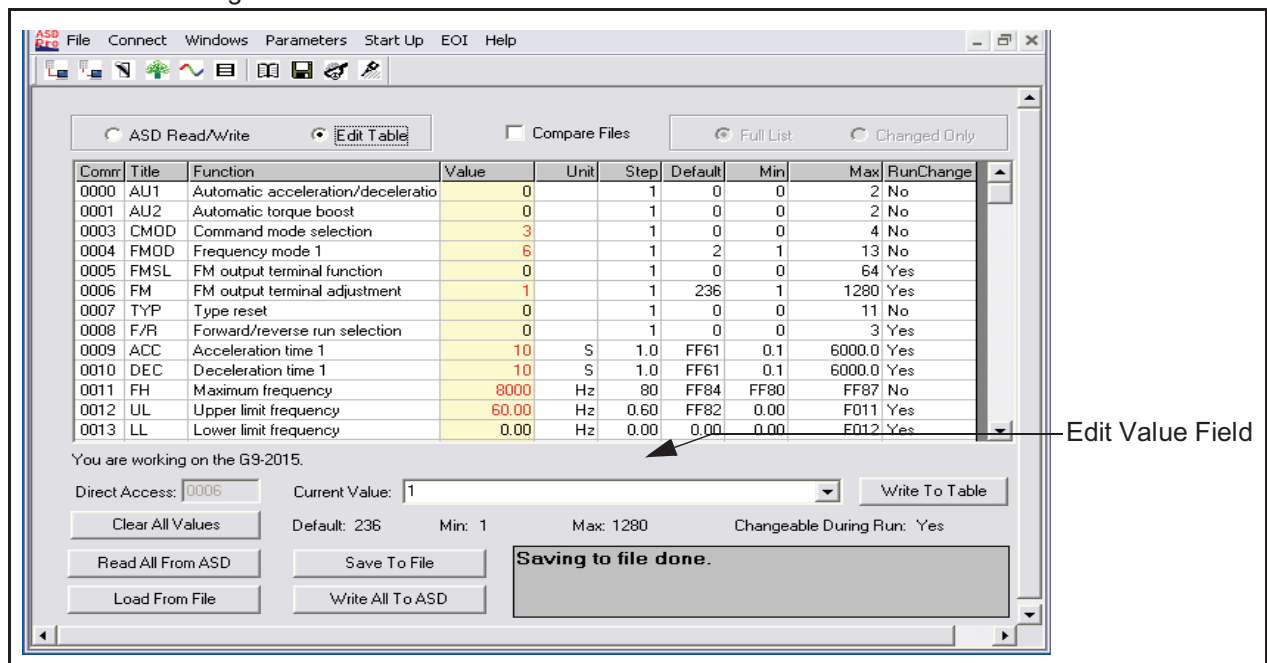
Populate the Table Window

The **Table Window** may be populated via either of the following methods:

- Click the **Read All From ASD** button (if connected to an ASD),
- Click the **Load From File** button (Edit Table mode and path to an existing CSV file), or
- Click the **Connect** (pull-down) ⇒ Connect ASD ⇒ **Work Offline** ⇒ Select Parametric Profile (G7, G9, P9, etc.).

Either method will open and/or populate the **Table Window** with the parameters of the connected ASD or selected profile.

Figure 7. Table Window.



Using the Table Window

The following procedure is to be performed by qualified personnel **ONLY**.

1. A) If modifying the settings of a connected ASD, save the starting ASD configuration by clicking the **Read All From ASD** button of the **Table Window**. The **Value** column will then be populated with the current values (and settings) of the connected ASD for each item of the **Title** column (see the section titled [Read All From ASD on pg. 34](#) for information on reading from the ASD).

Click the **Save To File** button to save the starting configuration. Select the descriptive **Items To Save** from the resulting dialog box — all parameter additions/changes will be saved regardless of the dialog box selections. Selecting from the **Items To Save** list increases the information included in the saved file for each saved parameter.

If no items are selected (Comm Number and Value selections are fixed and may not be de-selected) the resulting file will include the communication number and the setting for each parameter only. Give the file to be saved a unique name. Duplicate file names will be overwritten when saved. The resulting file contains the starting parameter settings of the ASD and may be re-loaded into the ASD upon completion of the **ASD Pro Software** diagnostics, if required.

- B) If populating the table from a CSV file, click the **Edit Table** button (enabled), and then click the **Load From File** button. Path to the CSV file to be used to populate the table [see the section titled [Load From File \(to Table\)](#)].

The table may also be populated by clicking **Work Offline** at the **Connect to ASD** dialog box. At the subsequent **Select ASD Type** pull-down selection list, select the ASD type and click **OK**. No values are loaded to the table for this function. Only the parameters for the selected ASD type are loaded to the table.

- C) If creating a new CSV file from an existing file, upon completion of the additions/changes, click the **Save To File** button. And using a new file name, follow the **Save To File** instructions of [Step 1A](#) above.

2. Single parameter changes made to the table may be transferred to the ASD individually or accumulated and transferred as a group. Click the **Write To ASD** button to transfer the individual setting displayed at the **Table Window Value** field to the ASD or click **Write All To ASD** to transfer the entire table to the ASD.

Click the **RAM Only** check box to write to the ASD RAM. When the **RAM Only** box is checked, any values (and settings) written to the ASD will be used, but are only stored in the ASD RAM. Upon the conclusion of the active **ASD Pro** session, or if the ASD is reset, the RAM contents will be erased and the pre-existing values (and settings) will be used.

3. Perform the **ASD Pro Software** diagnostic functions on a running ASD as required (see [ASD Pro Menu Navigation and Icons on pg. 16](#) for operational information).
4. The starting ASD parameter settings saved at [Step 1A](#) may be restored to the ASD upon completion of the diagnostics by clicking **Load From File** (**Edit Table** mode required). Path to the saved file of [Step 1A](#) and click **Open**.

5. Once the saved file from [Step 1A](#) is opened (and has populated the displayed table), from the [Table Window](#) click **Write All To ASD** to load the original ASD configuration file into the ASD.



WARNING

Closing the ASD Pro Software program while the motor is running will NOT stop the motor. Stop the motor using the Stop button of the ASD Pro Software before closing the ASD Pro Software application.

6. Ensure that the motor is stopped.
7. Close the **ASD Pro Software** application.

***Note:** Only after the motor is stopped and the **ASD Pro Software** is closed at the PC should the power be removed from the ASD.*

8. Remove power from the ASD.
9. Disconnect the **ASD-CAB-USB** cable from the ASD and the PC or remove the **NetPac Wireless Router** and **Coordinator**.
10. Close or replace any ASD covers, doors, and/or guards.



WARNING

Only after Qualified Personnel have confirmed that the ASD operation is as expected and as required for the application should the motor be connected and final-tested.

11. Reconnect the system to the pre-test condition.
12. Re-apply ASD power and verify that the ASD operation is correct and as expected.

ASD Read/Write — Edit Table Functions

The ASD configuration may be loaded into the **Table Window** (**Read All From ASD**), changed, and then transferred back into the ASD or the new (or an old) configuration may be saved as a file to be loaded into other ASDs.

The **ASD Pro Software** operating modes, **ASD Read/Write** and **Edit Table**, are designed for specific **Table Window**/CSV file-to-ASD data management functions.

The available functions for either operating mode are shown in [Table 2](#).

Table 2. Operating Mode Functions.

Function Button	Mode Setting	
	ASD Read/Write	Edit Table
Full List	Available	Not Available
Changed Only	Available	Not Available
Write To ASD	Available	Not Available
Write to Table	Not Available	Available
Read All From ASD	Available	Available
Save To File	Available	Available
Load from File	Not Available	Available
Write All To ASD	Not Available	Available
Clear All Values	Not Available	Available

ASD Read/Write

The **ASD Read/Write** mode allows the ASD configuration to be read from the ASD, modified, saved as a CSV file, and then transferred back into the ASD or into multiple ASDs. In the **ASD Read/Write** mode the **Write To Table** button label changes to **Write To ASD** and is used to transfer parameter settings to the ASD individually.

Note: Click the **Value** field of a any **Table Window** parameter to update the table with changes that have been made from the EOI of the ASD.

The **Read All From ASD** function reads the parameter settings of the ASD, displays them in the table, and may be saved as a file to be used on other same-series ASDs and/or to be reloaded when finished editing the file. Because residual data from a previous session may be displayed and should be cleared, always perform a **Read All From ASD** before starting a new **ASD Read/Write** session.

Clicking an item within the **Value** column displays the **Communication Number** (Comm No field) and the **Value** of the item in the fields at the lower part of the screen. The value (or setting) may be changed by keying in a new value or selecting a new setting from the pull-down menu at the **Value** field and clicking the **Write To ASD** button. Repeat the process to change other parameter settings individually where required.

Note: The **Value** field information is preceded by the number used to select an item if creating a new **Parameter Table** or if using serial communication to write to a

parameter location in memory (e.g., F000 ⇒ 0:Manual, 1: Automatic Acc/Dec, 2:Automatic Acc Only, etc.).

Edit Table

The **Edit Table** mode is used to create a new **Parameter Table** or modify an existing **Parameter Table** and does not require that an ASD be connected to the PC to use. However, the table must be populated with the parameters of either an existing CSV file, a connected ASD, or an ASD type if operating offline (see the section titled [Populate the Table Window on pg. 27](#)).

Transfers of the new settings to the ASD are optional. See the section titled [Short Tables on pg. 35](#) for additional information on creating a new table.

In the **Edit Table** mode the **Write To ASD** button label changes to **Write To Table** and the **Clear All Values** button appears. The **Clear All Values** button clears all of the values from the **Table Window** and allows for the entry of values to be used for user-selected parameter items. The **Load From File** and the **Write All To ASD** buttons become available for use (undithered).

Create a CSV File

Click the **Edit Table** radio button (enabled). Click the **Read All From ASD**, the **Load from File** button, or select an ASD type if operating offline to populate the **Table Window** with the parameter fields from either a connected ASD, an existing CSV file, or a stored table, respectively.

Click the **Clear All Values** button. In the **Value** column, click the row of the parameter to be entered into the new **Parameter Table**.

In the lower part of the **Table Window** the **Default** value, **Minimum/Maximum** value, and the **Changeable During Run** status items appear for the selected parameter.

Input the required parameter value/setting in the **Value** field. Enter the numerical value for measured items (i.e., time, magnitude, etc.) or select a setting from the pull-down menu. Click in any other **Value** field to discard the change or click the **Write to Table** button to input the change into the table.

The **Selection Number** may also be entered into the **Value** field for items of a **Selection List** (i.e., **Command Mode Selection**: 0:Terminal Block, 1:Panel Keypad, 2:RS485 (2-wire), 3:RS485 (4-wire), 4:Communication Option Board). Click the down-arrow of the highlighted **Value** field to see the listing of the **Selection Numbers** for selectable parameters.

***Note:** See [Creating a Short Table File on pg. 35](#) for more information on creating CSV files.*

Modify a CSV File

To modify an existing CSV file click the **Edit Table** radio button, click the **Load From File** button, and path to the CSV file to be modified. Click **Open** and the values from the selected file will populate the **Value** column with the values of the selected CSV file.

Input the desired parameter **Value** change and click **Write to Table** after each change.

Upon completion of the **Value** changes, click **Save To File** and the modified file is saved with the changes. The modified file requires a unique name. Duplicate file names will be overwritten when saved.

For a more in-depth description of the file transfer buttons of the **Table Window** see the section titled [Parameters on pg. 34](#).

Compare Files

The **Compare Files** check box is used to compare the displayed **Value** column listing to a **Value** column listing of a saved file.

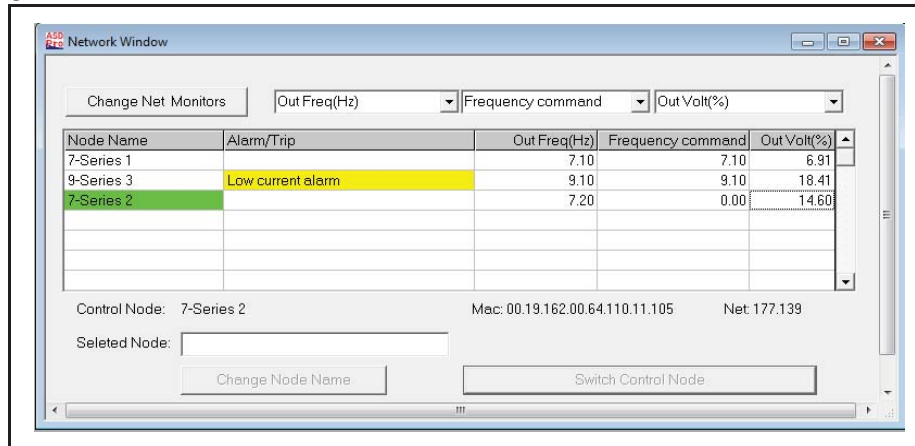
To use this feature click **Read All From ASD** or click **Load from File** to populate the **Value** column of the **Table Window**. Click the **Compare Files** check box and, from the resulting dialog box, path to the file that is to be compared to the **Value** column listing. Click **Open**.

The **Unit** column title changes to **CSV File**. The **CSV File** column lists the values/settings of the compared CSV file. Items that are different from the **Value** column listing are displayed in red text.

Network Window

The **Network Window** (see [Figure 8](#)) is accessed via the pull-down menu Windows ⇒ **Network Window**. The **Network Window** allows the user to view all connected nodes as detected by the PC-based coordinator. The **Network Window** also allows the user to perform system monitoring functions and to set or change the node names of all connected nodes.

Figure 8. Network Window.



Change Net(work) Monitors — The pull-down menus of the (three selectable) monitored parameters may be changed as required by clicking the pull-down arrow of each field and selecting a new parameter to be monitored. Click the **Change Net(work) Monitor** button to accept the new parameter item(s) to be monitored.

Note: *Parameter selections are set for all items of the **Node Name** column. If duplicate **Network Monitor** parameter selections are made, only the first field will be updated.*

Network Monitors (3) — Displays the user-selected monitored parameter field name(s) or **None**.

Node Name — Displays the network node(s) as detected by the PC-based coordinator.

Alarm/Trip — Displays active alarms or trips for the node of the row in which the alarm/trip is displayed.

Network Monitor Values — Displays the value(s) of the user-selected monitored parameter(s) of the **Network Monitor**.

Control Node — Displays the connected node.

Media Access Controller (MAC) Address — Displays the MAC address of the connected node.

Net(work Address) — Displays the Network address of the connected node.

Selected Node — Displays the selected node. The selected node may be affected by the **Change Node Name** or the **Switch To** buttons.

Change Node Name — Type text into this field to enable this button (if not enabled). Click this button to rename the selected node.

Switch To — From the **Node Name** column, click a connected node (the node name will appear in the **Selected Node** field). The **Switch To** button name is appended with the name of the **Selected Node**. Click the **Switch To** button to monitor the connected node and to connect all **ASD Pro Software** windows (Control, Monitor, etc.) to the **Selected Node**.

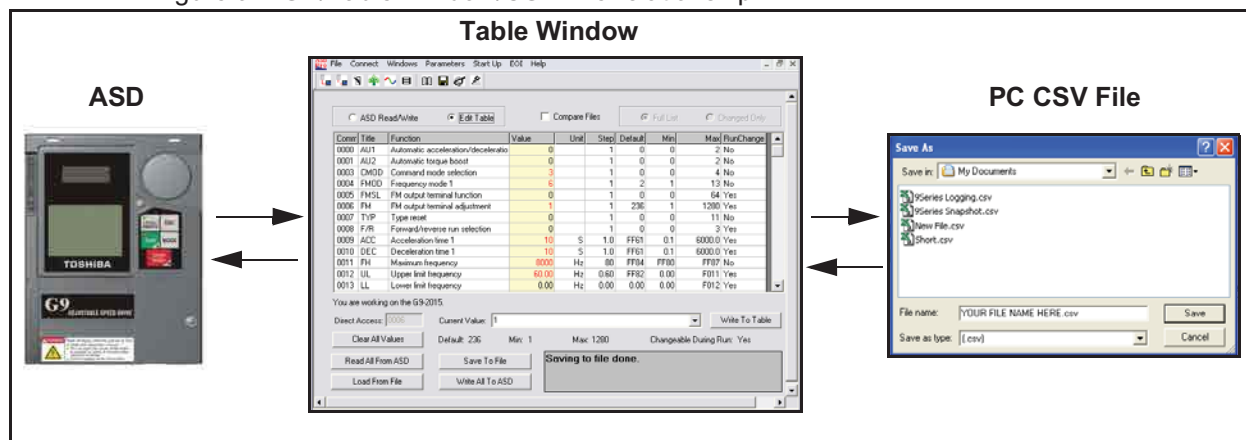
Note: *Only the connected node may have its parameters changed via the [Control](#), [Tree](#), or [Table Windows](#).*

The **Alarm/Trip Status** column displays the active alarms and/or trips as they are displayed in the **Control Window** for the connected ASD.

Parameters

The **Parameters** pull-down menu provides quick access to the read/write data transfer functions of the **Table Window**. The data transfer functions are to and from the ASD and the PC (via CSV file).

Figure 9. ASD/Table Window/CSV File relationship.



Read All From ASD (to Table)

The **Read All From ASD** pull-down selection opens the **Table Window** (if not opened). The parameter values of the connected ASD are read and displayed in the **Table Window**.

This function may be carried out in either the **ASD Read/Write** mode or the **Edit Table** mode. The **Table Window** information may be saved as a CSV file and loaded into another ASD or stored on the PC for future use.

The **ASD Pro Software** is not sensitive to versions or revisions of the different ASD software that may be loaded onto the connected ASD. The **ASD Pro Software** attempts to read all possible user parameters from the ASD.

Different versions of ASD firmware may have added or changed parameters. These parameters will not be read from some versions of the ASD software and will cause a **Reading Error** in the (shaded) message box of the **Table Window**. A **Reading Error** should be investigated for assurance that the cause is not harmful.

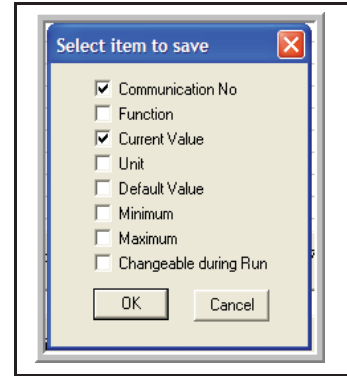
A **Reading Error** may also result when performing the **Read All From ASD** function if residual table information from a previous session was used to populate the table. To correct for this, from the **Connect** pull-down menu select **Disconnect ASD** and then reconnect to the ASD. This will populate the table with the parametric profile of the connected ASD.

If in doubt, contact the Toshiba Customer Support Center with the firmware release information of the connected ASD accompanied by a list of the associated parameter numbers of the **Reading Error**.

Save (from Table) To File

The **Save to File** function transfers the current **Table Window** parameter table file to the PC in the CSV format. The **Table Window** will not contain any data until the **Read All From ASD** function or the **Load From File** function has been executed for the current session (required to populate table)

Selecting the **Save to File** function prompts the user to select additional measurement properties to be contained within the CSV file to be saved. The default selections are **Communication Number** and **Current Value** (both are fixed and cannot be deselected). The default selected properties may not provide enough information in the resulting CSV file. Place additional check(s) in the adjacent boxes of the properties to be saved in the CSV file as required.



Click the **Cancel** button at the **Select Items To Save** dialog box to cancel the save operation or click **OK** to save the file. Create a file name and select the storage location when prompted at the subsequent **Save As** dialog box.

Note: Because no default file name is provided in the **Save As** file name field, using the word **Params** in the file name will differentiate the stored Parameter Tables from the stored Log files.

The saved file may be written to a parameter table (using the **Load From File** function) then loaded into other ASDs or reloaded in the existing ASD and run as required.

The resulting file created from the **Read All From ASD** function followed by a **Save to File** command causes hundreds of parameters to be saved to a user specified CSV file. Some applications will not require that the entire list of parameters (Long Table) be saved.

The creation of a **Short Table** provides for this condition and is described in the next section.

Short Tables

A **Long Table** is comprised of the complete list of parameters read and saved via the **Read All From ASD** function followed by the **Save To File** function. A **Short Table** is a subset of a **Long Table** and is comprised of only those parameters specific to a given application (user-selected). Short tables may be used when only specific parameters are required to be downloaded to various ASDs of the same type.

For instance, if it is required that all of the ASDs in an installation have acceleration and deceleration times of 63 seconds, a short table can be created as a template that will change only those two parameters and no others.

Before using the newly created short table, the table should be verified to be correct and after loading into an ASD, the correct operation of the ASD should then be verified. After loading any table into an ASD, turn off the ASD and allow the capacitors to discharge completely. Then turn on the ASD and check the ASD for correct operation.

This assures that the parameters have been loaded into the memory of the ASD and that the new settings are correct.

Creating a Short Table File

1. From the **Table Window** click the **Edit Table** radio button and the **Clear All Values** button appears.
2. Click the **Clear All Values** button. This will clear any residual values from a previous session that may be in the **Value** column of the table.

If the parameter that is being written to is a *measurable value* (current, voltage, etc.), go to step 6.

If the parameter that is being written to is of a *selection listing*, continue to step 3.

3. Click in the **Value** column within the row of the parameter to be used in the creation of the short table. Enter the number one (1) into the **Edit Value** field (see [Figure 7 on pg. 27](#) for the location of the **Edit Value** field) and click **Write To Table**.
4. Click in the **Value** column within the row of the parameter being written to. The pull-down menu listing for the parameter that is being written to will appear in the **Edit Value** field.
5. From the **Edit Value** field select the desired item from the pull-down menu and click **Write To Table** to enter the data into the table.

If the parameter being written to is of the measurable value type (current, voltage, etc.), do the following:

6. Enter the required value. The unit of measure will be as indicated in the **Unit** column of the table. Click the **Write To Table** button.
7. Repeat [Step 3 – 5](#), or [Step 6](#) if measurable, for each item to be added to the **Short Table File**. Click **Write To Table** for each new value/setting entry.
8. When prompted, provide a unique name and location for the saved file. Duplicate file names will be overwritten when saved.
9. After the last parameter is written to the table, click the **Save To File** button. When prompted, select the descriptive **Items To Save** from the resulting dialog box — all listed parameters will be saved regardless of the dialog box selections. Selecting from the **Items To Save** list increases the information included in the saved file for each parameter.

If no items are selected (Comm Number and Value selections are fixed and may not be de-selected) the resulting file will include the communication number and the setting for each added parameter. Give the file to be saved a unique name. Duplicate file names will be overwritten when saved.

10. Click the **Cancel** button at the **Select Items To Save** dialog box to cancel the save operation or click **OK** to save the file. Create a file name (i.e., *yourfilename.csv*) and, when prompted at the subsequent **Save As** dialog box, path to the storage location.

Note: *Because no default file name is provided in the **Save As** file name field, using the word **Params** in the file name will differentiate the stored Parameter Table from any stored Log files.*

The saved **Short Table** file may be loaded into other ASDs or reloaded into the existing ASD (using the **Load From File** function) and run as required. Only the parameters loaded in [Step 3 – Step 6](#) will be written to the ASD during the **Load From File** function. All other parameters remain unchanged.

Loading a Short Table File

1. Connect the PC loaded with the **ASD Pro Software** application to the target ASD and establish ASD-to-PC communication (see [ASD-to-PC Connection on pg. 11](#)).
2. From the **Table Window** click the **Edit Table** radio button.
3. Click **Load From File** and path to the saved short table *yourfilename.csv* file ([Step 10 at Creating a Short Table File](#) above).
4. Click **Write All To ASD** to write the contents of the short table to the ASD.

Note: *In the event that errors are detected during the writing process see the section titled [Write All To ASD \(from Table\) on pg. 37](#).*

5. Remove power from the ASD (see Charge LED go off) and then re-apply power to the ASD.
6. Verify the functionality of the ASD to ensure that the settings are correct and function as expected.

Load From File (to Table)

The **Load From File** function transfers the CSV file from the PC to the **Table Window**. The parameter table information may be transferred to the ASD by using the **Write All To ASD** function and run.

Click the **Full List** radio button or the **Changed Only** radio button to select the items that are used to populate the table listing. The **Full List** button allows for the display of the complete listing of all of the ASD parameters and the values that are available for loading within the loaded file.

The **Changed Only** button allows for the display of only those parameter settings of the **Table Window** that are different from the factory default settings of the ASD typeform displayed in the **Control Window**.

To avoid producing unexpected results, the new parameter table should be tested thoroughly before applying to groups of ASDs or being used to run a motor.

Once a CSV file is opened and loaded into the ASD, clicking a **Value** column parameter of the **Table Window** displays the value stored in the ASD (this also updates the displayed value if the parameter was changed via the EOI). To update the entire table click the **Read All From ASD** button of the **Table Window**.

The table may be modified and, using the **Save To File** function, saved to the PC in the CSV format. The modified file may be loaded into the ASD and run as required.

Write All To ASD (from Table)

The **Write All To ASD** function writes the complete **Table Window** listing of parameters into the connected ASD. This function may be carried out in the **Edit Table** mode only.

The **ASD Pro Software** is not sensitive to different releases of the ASD software that may be loaded onto the connected ASD. The **ASD Pro Software** attempts to write to a list of all possible user parameters to the ASD.

Different versions of ASD firmware may have added parameters. These added parameters will not write to some versions of ASDs and will cause a **Write Error** in the message box of the **Table Window**.

A **Write Error** should be investigated for assurance that the cause is not harmful. If in doubt, contact the Toshiba Customer Support Center with the firmware release information of the ASD and a list of the associated parameter numbers of the **Write Errors**.

It is recommended that after writing a table to an ASD that the following procedure be performed:

1. Stop the motor using the **Stop** button of the **ASD Pro Software** (if running).
2. Exit the **ASD Pro Software** and remove the PC-to-ASD connection.
3. Remove power from the ASD and allow the charge capacitors to discharge completely (ensure that the Charge LED is off).
4. Restore power and the PC-to-ASD connection.
5. From the **Table Window** click **Read All From ASD**.

Ensure that the parameter settings read from the ASD are correct and function as required.

Start Up

The **Start Up** pull-down menu provides quick access to the following commonly used parameters:

- [Acc/Dec Settings](#),
- [Pattern Run Settings on pg. 41](#),
- [PID Settings on pg. 43](#),
- [Preset Speed Setting on pg. 44](#),
- [Terminal Settings on pg. 45](#),
- [Torque Settings on pg. 47](#), and
- [\(Logic\) My Function Settings on pg. 49](#).

Acc/Dec Settings

The **Accel/Decel Settings** screen is comprised of two setup screens that are selectable via the top-edge Accel/Decel tabs: **Accel/Decel Pattern** and the **Accel/Decel Switching** screens.

The two screens are used to specify the time in seconds (rate) for the output of the ASD to go from 0.0 Hz to the **Maximum Frequency** (Acc) and from the **Maximum Frequency** to 0.0 Hz (Dec).

The Acc/Dec settings are also used to determine the acceleration and deceleration rates of the **UP/DOWN Frequency** functions.

Note: *An acceleration time shorter than the load will allow may cause nuisance tripping and mechanical stress to loads. **Automatic Accel/Decel, Stall, and Ridethrough** settings may lengthen the acceleration and deceleration times.*

Accel/Decel Pattern

Note: *The Acc/Dec S-Pattern feature is not available on all 9-Series system types.*

The **Acc/Dec Pattern** may be set to the **Linear**, **S-Pattern 1**, or **S-Pattern 2** profile. The default settings of either pattern may be adjusted to meet application-specific requirements.

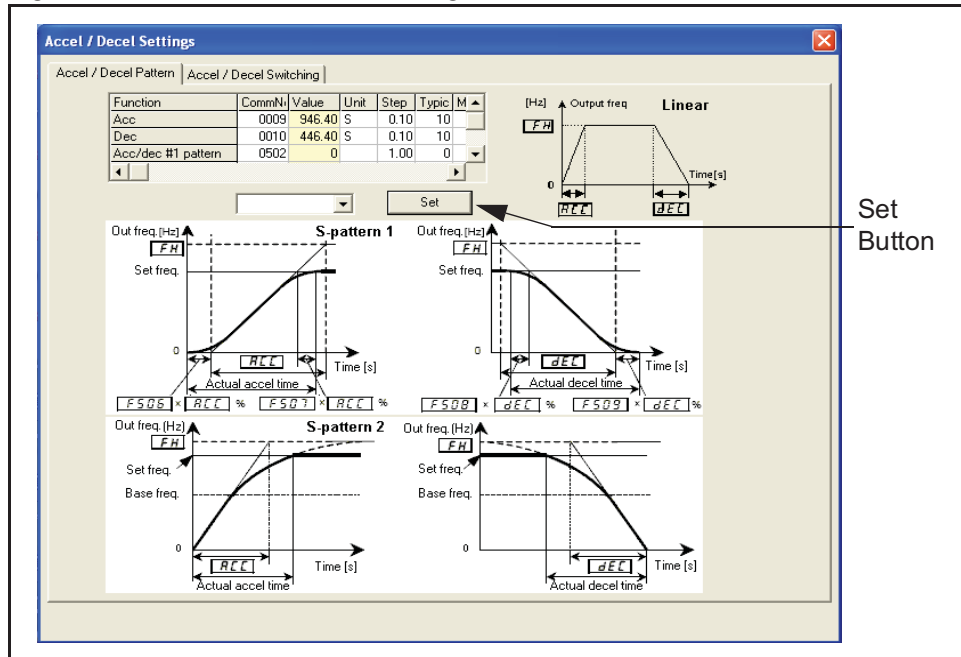
[Figure 10 on pg. 39](#) shows the Acc/Dec profile of the **Linear**, **S-Pattern 1**, and **S-Pattern 2** settings. See parameters **F009**, **F010**, **F502**, **F503**, **F506**, **F507**, **F508**, **F509**, **F512**, and **F516** of the ASD Installation and Operation Manual of the connected ASD for additional information on these settings.

Available setting types are either Numerical or of a Selection List (pull-down menu) and are parameter-number specific. To change the setting for either type, click the item in the **Function** column to enter the **Edit** mode for that item.

At the subsequent highlighted field, either key in a numerical value or select an item from the pull-down menu.

Press the **Escape** key or click another item from the **Function** column to exit without applying the change, or click the **Set** button to accept the new value/setting(s).

Figure 10. Accel/Decel Pattern Settings.



Accel/Decel Switching

Note: The Acc/Dec Switching feature is not available on all 9-Series system types.

The **Accel/Decel Switching** screen is used to configure the **Acc/Dec** control profile when multiple **Acc/Dec** times and patterns are required.

Up to four **Acc/Dec** profiles may be set up and run. The **Acc/Dec** profiles may be run individually or sequentially. Sequential profiles are switched from one profile to the next profile via user-set threshold output frequencies being reached or by using on/off combinations of two user-selected discrete input terminals.

When using output threshold frequency settings to switch the **Acc/Dec** rate, the ASD **Acc/Dec** rate switches to the next **Acc/Dec** profile upon reaching a user-set output frequency during acceleration or deceleration automatically (e.g., profile 1 to 2, 2 to 3, or 3 to 4 during acceleration).

When using discrete input terminals to control the **Acc/Dec** profile, set two discrete input terminals to **Accel/Decel Switching** and activate combinations of the two terminals as indicated in the table below to select a given **Acc/Dec** profile.

Table 3. Accel/Decel Switching.

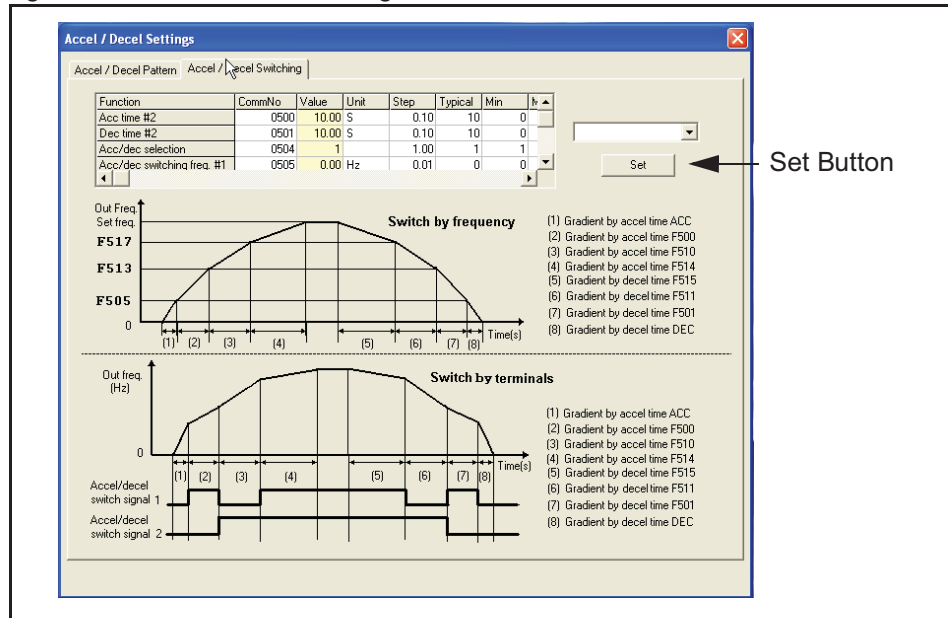
Accel/Decel Switching Discrete Terminal Status		ASD Acc/Dec Output
Terminal 2	Terminal 1	A/D Selection
0	0	1 — F009, F010, and F505 Setting.
0	1	2 — F500, F501, and F513 Setting.
1	0	3 — F510, F511, and F517 Setting.
1	1	4 — F514, F515, and F516 Setting.
Note: 1 = Connected to CC. 0 = Not Connected to CC. A/D Selection = Accel Time, Decel Time, and Pattern.		

Available setting types are either Numerical or of a Selection List (pull-down menu) and are parameter number specific. To change the setting for either type, click the item in the **Function** column to enter the **Edit** mode for that item.

At the subsequent highlighted field, either key in a numerical value or select an item from the pull-down menu.

Press the **Escape** key or click another item from the **Function** column to exit without applying the change, or click the **Set** button to accept the new value/setting(s).

Figure 11. Accel/Decel Switching Profiles.



Pattern Run Settings

Groups of configured **Preset Speeds** may be selected and run from this screen. The execution of grouped **Preset Speeds** in this manner is called a **Pattern Run**. See the Installation and Operation Manual of the connected ASD for detailed information on the **Pattern Run** setup and functionality.

Note: *Pattern Run settings **cannot** be changed while the ASD is running. Stop the ASD before making changes to the **Pattern Run** settings.*

The **Pattern Run** menu consists of the **Group 1 – 4** setup fields, **Speed # Settings** fields, and the **Pattern Run Control Settings** section. The **Control Settings** consists of fields **Pattern Run** enable, **Pattern Run Mode**, and **Preset Speed Mode** enable, and the **Set** button.

Figure 12. Pattern Run Settings Dialog Box.

	Group Repetition	Speed Sel 1	Speed Sel 2	Speed Sel 3	Speed Sel 4	Speed Sel 5	Speed Sel 6	Speed Sel 7	Speed Sel 8
Group 1	1	1	2	3	4	5	6	7	8
Group 2	1	9	10	11	12	13	14	15	0
Group 3	1	1	2	3	4	5	6	7	8
Group 4	1	9	10	11	12	13	14	15	0

Speed # =>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Continue Mode	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Operation Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pattern Run: Pattern Run Mode: Preset Speed Mode:

The first column of the **Group 1 – 4** setup field is labeled **Group Repetition** and the remaining eight columns are labeled **Speed Sel 1** through **Speed Sel 8**.

Click a cell of the **Group Repetition** column once to open the **Group Repetition** dialog box. Enter the number of times that the pattern group is to be executed and click **OK**.

Enter the number of times that the **Group 1 Pattern Run** is to be executed.

Enter 255 for continuous operation (repeat for Group 2 if required).

The **Speed Sel 1** through **Speed Sel 8** settings are used to configure **Group Speeds 1 – 4**. **Group Speeds** are comprised of up to 8 **Preset Speeds** that are selected from the available **Preset Speeds 1 – 15**. The **Preset Speeds** to be used are selected by clicking the **Speed Sel** column and then, from the resulting pull-down menu, select a preset speed number or select **Skip** to ignore a **Speed Sel** column of a group.

Note: *Skip is displayed as 0 (zero) in the **Group 1 – 4** setup fields.*

Each **Preset Speed** is configured individually — see the **Preset Speed** section of the Installation and Operation Manual of the connected ASD and the section titled [Preset Speed Setting on pg. 44](#) for **Preset Speed** setup information.

The **Speed # Settings** fields are used to set the run-time of the selected **Preset Speed**.

The **Pattern Run** pull-down menu is used to enable the **Pattern Run** function once the setup is complete.

***Note:** For the 7-Series family, the selection of run time in seconds or minutes is also required from the **Pattern Run** pull-down menu.*

The **Pattern Run Mode** selection is used to set a system disposition at the conclusion of the **Group 1 – 4 Pattern Run**.

The **Preset Speed Mode** setting is used to determine if only the speed setting of the setup is to be used for the selected **Preset Speed** (Disabled) or if the **Direction**, **Acc/Dec**, **V/f**, and the **Torque Limit** settings are to be used (Enabled) in the programmed **Pattern Run**.

Once the **Pattern Run** session is set up, activation of the user-assigned **Pattern Operation Group 1** discrete input terminal is required to enable **Pattern Group 1** for use. Activation of the user-assigned **Pattern Operation Trigger Signal** discrete input terminal starts the **Pattern Group 1** pattern run. Repeat discrete terminal setup requirements for **Pattern Group 2**, if required.

See the Installation and Operation Manual of the connected ASD for further information on the setup and operation of the **Pattern Run** feature.

PID Settings

The **PID Settings** screen allows for quick access to the PID setup parameters. Parameters **F359 – F373** are used to set the 9-Series ASD (F360 – F366 for the 7-Series) output deviation range, source and sensitivity settings of the control feedback, and to set limits on the degree that PID-control may affect the output of the ASD. See the Installation and Operation Manual of the connected ASD for additional information on PID settings.

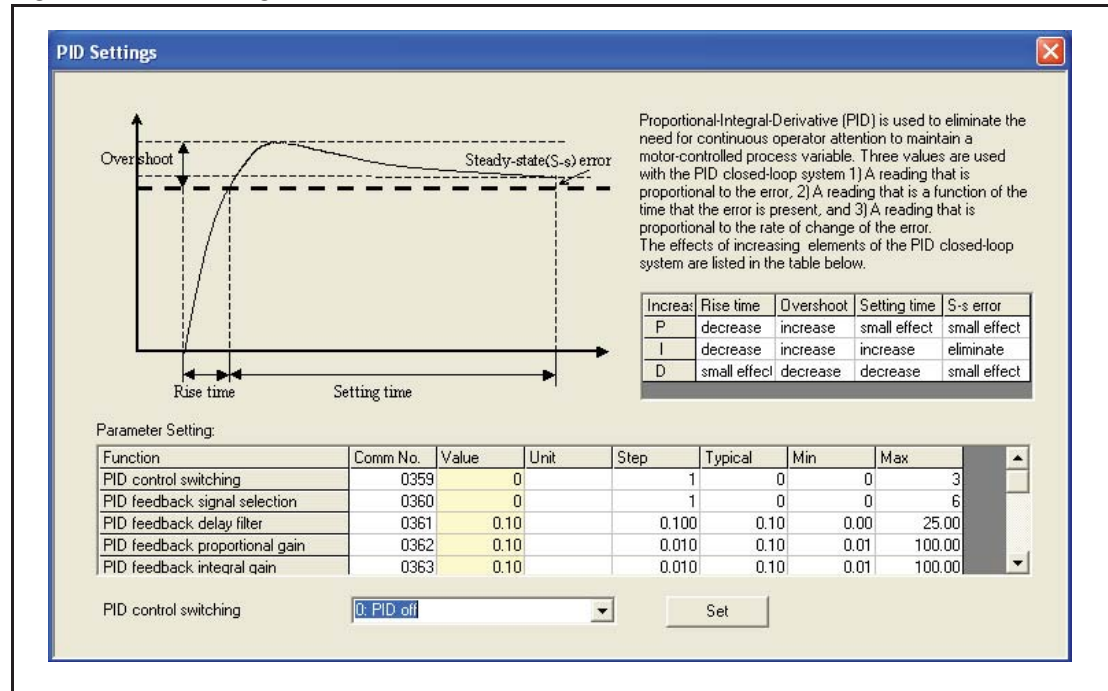
Note: See the Installation and Operation Manual for specifics on the connected ASD type.
PID setup parameter numbers may differ for the connected ASD.

Available setting types are either Numerical or of a Selection List (pull-down menu) and are parameter number specific. To change the setting for either type, click the item in the **Function** column to enter the **Edit** mode for that item.

At the subsequent highlighted field, either key in a numerical value or select an item from the pull-down menu.

Press the **Escape** key or click another item from the **Function** column to exit without applying the change, or click the **Set** button to accept the new value/setting(s).

Figure 13. PID Settings Screen for the 9-Series ASD.



Preset Speed Setting

The settings of **Preset speed #1 – #15** may be selected for viewing or may be changed from the **Preset Speed Setting** screen. Clicking any field of the table will display the associated **Preset Speed** number and settings in the **Preset Speed Status Bar** in the lower part of the window.

The **Preset Speed** parameters are **Speed, Direction, Acc/Dec, V/f, and Torque Limit**. Type in the desired speed into the **Freq (Hz)** field and use the pull-down menus to establish the subsequent settings. Click the **Set Change To Preset Speed** button to send the data to the ASD (for the item displayed in the **Preset Speed Status Bar** only).

Press the **Escape** key or click any other item within the table to exit without applying the change, or click the **Set Change To Preset Speed** button to accept the new value/setting(s).

Note: The **Preset Speed** settings for **Acc/Dec, V/f, and Torque Limit** values are set at their respective parameter numbers. See the *Installation and Operation Manual of the connected ASD* to acquire the parameter numbers of these settings.

Figure 14. Preset Speed Setting Screen.

The screenshot shows a window titled "Preset Speed Setting" with a table of 15 preset speeds. Below the table is a status bar for editing "Preset speed #7".

Name	Freq (Hz)	Direction	Acc/Dec #	V/f #	Torque limit #
Preset speed #1	1.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #2	2.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #3	3.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #4	4.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #5	5.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #6	6.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #7	7.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #8	8.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #9	9.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #10	10.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #11	11.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #12	12.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #13	13.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #14	6.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1
Preset speed #15	6.00	Forward	Acc/Dec #1	V/f #1	Torque limit #1

Preset speed #7 7.00 Forward Acc/Dec #1 V/f #1 Torque limit #1

Set change to Preset speed #7

Terminal Settings

The **Terminal Settings** window shown in [Figure 15 on pg. 46](#) is used to assign functions to the discrete input and output terminals, and to scale the analog input terminals.

Select the desired input or output terminal to be configured from one of the three tabs: **Input Terminals**, **Output Terminals**, or **Analog Input Terminal**.

To assign a function to an **Input** or **Output** terminal click the function field of the desired terminal and the current assignment is displayed in the field adjacent to the **Set** button. Click the pull-down arrow of this field and scroll up or down to select a new setting. Discrete terminal settings must also be set to **Normally Open** or **Normally Closed (NC)**.

Press the **Escape** key or click any other tab within the table to exit without applying the change(s), or click the **Set** button to accept the new setting(s).

Delay response times for the discrete input terminals are entered in milli-seconds and are set from the **Response Time** section of the **Input Terminals** tab. Click the **Set Time** button to transfer the milli-second delay time settings to the ASD.

Delay response times for the discrete output terminals are entered in milli-seconds and are set from the **Delay Time** section of the **Output Terminals** tab. **Hold Time** is also set from this tab. Click the **Set Time** button to transfer the milli-second time settings to the ASD.

Note: *Terminal Delay and Hold times are the times that the terminal will retain the existing status once the change-status criteria has been met.*

The **Analog Input Terminal** screen is used to scale the **V/I**, **RR**, or **RX** analog inputs. The required values may be entered into the **Input Reference Point #1** and **#2** fields or the values may be set using the line of the graphical display — left-click and hold the line to drag it to the desired location.

Close the **Terminal Settings** dialog box to exit without saving the change or click the **Set Points** button to transfer the new settings to the ASD.

See the Installation and Operation Manual of the connected ASD for additional information on configuring analog input terminals.

Note: *Clicking the **Set** button transfers the settings for the item in the edit field **ONLY**. Clicking the **Set** button from a given tab will not apply the untransferred changes made to any of the other tab screens (i.e., setting the **F** terminal to **Preset Speed 1** and clicking the **Set** button from the **Output Terminals** screen will not apply the **Preset Speed 1** function to the **F** terminal).*

Figure 15. Terminal Settings Screens.

Discrete Input Terminals — Select the new setting and click **Set** to transfer the new setting to the ASD.

Enter a new delay time in milli-seconds and click **Set Time** to transfer the new setting(s) to the ASD.

The screenshot shows the 'Terminal Settings' dialog box with the 'Input Terminals' tab selected. The 'Input Terminal Function Setting' section contains a table with the following data:

Name	Function
ON	0: No function is assigned
F	2: F: Forward run command
R	4: R: Reverse run command
ST	6: ST: Standby
RES	8: RES: Reset
S1	10: S1: Preset speed 1
S2	12: S2: Preset speed 2
S3	14: S3: Preset speed 3
S4	16: S4: Preset speed 4

Below the table, a dropdown menu shows 'ON' selected with the function '0: No function is assigned'. A 'Set' button is to the right. At the bottom, the 'Response Time (2~200ms)' section has input fields for F, R, ST, RES, and S1-S4, all set to '8'. A 'Typical: 8' label and a 'Set Time' button are also present.

Discrete Output Terminals — Select the new setting and click **Set** to transfer the new setting to the ASD.

Enter a new delay and/or hold time in milli-seconds and click **Set** to transfer the new settings to the ASD.

The screenshot shows the 'Terminal Settings' dialog box with the 'Output Terminals' tab selected. The 'Output Terminal Function Setting' section contains a table with the following data:

Name	Function
OUT1	4: Low-speed signal
OUT2	6: Acceleration/deceleration completion
FL	10: Failure FL (All trips)

Below the table, a dropdown menu shows 'OUT1' selected with the function '4: Low-speed signal'. A 'Set' button is to the right. At the bottom, the 'Delay Time (2~200ms)' and 'Hold Time (2~200ms)' sections have input fields for OUT1, OUT2, and FL, all set to 'N/A'. 'Set' buttons are present for each section.

Analog Input Terminals — Enter the new value into the input reference field(s) or drag and drop the line at the graph to change the analog input terminal scaling.

The screenshot shows the 'Terminal Settings' dialog box with the 'Analog Input Terminal' tab selected. The 'V/I input' dropdown is set to 'V/I input'. The 'Input reference point #1' is set to '0 %' and '0 Hz'. The 'Input reference point #2' is set to '100 %' and '80 Hz'. A 'Set Points' button is below these fields. On the right, a graph shows a linear scaling from '0Hz' at '0%' to '80.00Hz' at '100%'. The graph area is labeled '80.00Hz' at the top right.

Torque Settings

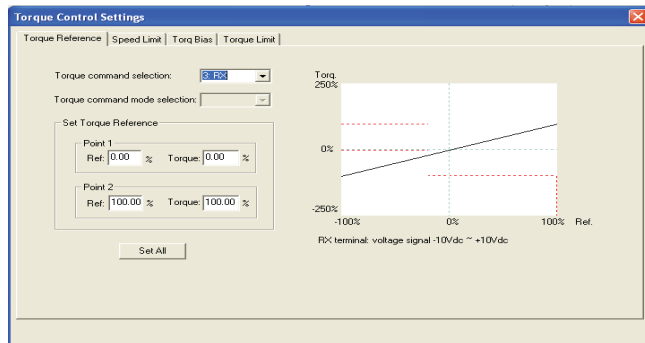
The **Torque Settings** screen allows for quick access to the **Torque Reference**, **Speed Limit**, **Torque Bias**, and the **Torque Limit** control settings via top-edge tabs.

Exit the **Torque Control Settings** dialog box to discard any changes or click the **Set All** button to load the new values (or settings) into the ASD memory for all torque settings fields.

Figure 16 Torque Control Settings Dialog Boxes.

Torque Reference — Selects a torque reference input (V/I, RR, or RX) and is used to perform the associated scaling of the selected input. The required values may be entered into the **Set Torque Reference** fields or the values may be set using the **Point 1** and **Point 2 Ref/Torque** line of the graphical display.

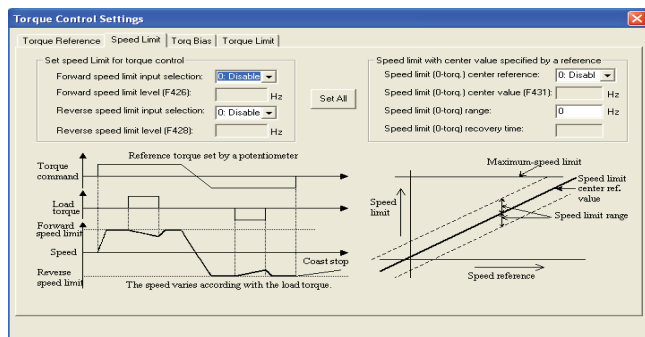
To set using the graphical display left-click the line and drag to the desired location. Click **Set All** when finished to transfer the final settings to the ASD from the tab section in which the change was made.



Speed Limit — Sets a Reverse and Forward speed limit that may not be exceeded in an attempt to maintain the output torque.

This limit level is set using the analog inputs (V/I, RR, or RX) or it may be fixed using the parameter **F426** setting.

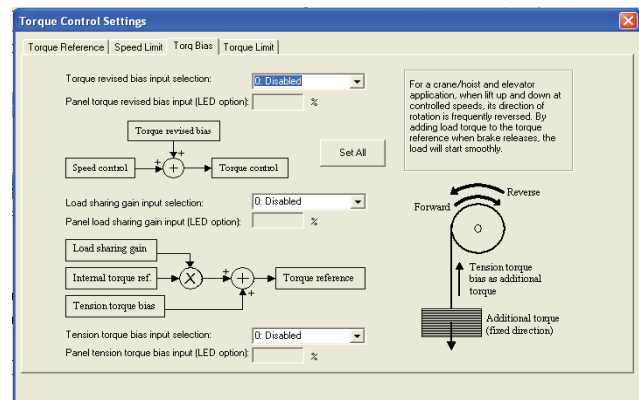
See parameters **F425**, **F426**, **F427**, and **F428** of the ASD Installation and Operation Manual for additional information on this setting.



Torque Bias — Sets the **Torque Bias** input.

Torque Bias aids in applications in which the load should not be allowed to force motor rotation while waiting for the output torque of the ASD to reach a sufficient level to maintain the load (e.g., hoists and elevators).

In a lifting application **Torque Bias** is used to add lifting torque to a load that is suspended when the brake is released or when the direction changes to provide a smooth lift. For heavier loads this value should be set higher for smoother operation.



Torque Limit — Sets the **Power Running Torque Limit** and the **Regenerative Torque Limit** for profile #1 and may be controlled by an analog input or fixed in accordance with the settings of **F441** and **F443**, respectively. Set **F441** and **F443** and/or select an analog input from this screen.

Torque Limit settings for profiles 2 – 4 are fixed in accordance with settings of this screen.

The screenshot shows the 'Torque Control Settings' dialog box with the 'Torque Limit' tab selected. The dialog has a blue title bar and a light beige background. It contains several settings for torque limits, each with a dropdown menu for selection and a text box for a percentage value. The settings are as follows:

Setting	Selection	Value	Unit
Power running torque limit #1 selection:	0: F441	250.00	%
Power running torque limit #1 (F441):		250.00	%
Regenerative torque limit #1 selection:	4: F443	250.00	%
Regenerative torque limit #1(F443):		250.00	%
Power running torque limit #2:		250.00	%
Regenerative torque limit #2:		250.00	%
Power running torque limit #3:		250.00	%
Regenerative torque limit #3:		250.00	%
Power running torque limit #4:		250.00	%
Regenerative torque limit #4:		250.00	%
Torque limit mode selection:			

At the bottom right of the dialog is a 'Set All' button.

(Logic) My Function Settings

Note: The *My Function* feature functions with the 9-Series ASD only.

The **My Function** feature is used to enhance the programmability of the ASD by performing two programmable functions: 1) the Combined Terminal Function, and 2) Logical Operations (i.e., PLC functions). The functions are carried out via Boolean expressions to produce a Boolean value (i.e., true or false outcome). Up to seven expressions may be loaded and executed.

Each expression (Unit) is created and populated with the appropriate values, constants, variables, operators, and functions. Up to seven **My Function** Units may be programmed and executed. Select the Unit number (1 – 7) by clicking the **Next Unit** button and complete the required programming to use each Unit. With each Unit selection the associated parameter numbers are displayed adjacent to the variable fields.

Parameters **F900** to **F977** are used to setup the **My Function** feature.

The **My Function** dialog box is shown below with a brief description of the dialog box fields. See the **My Function Instruction Manual** (DN E6581335) and the ASD Installation and Operation Manual of the connected ASD for additional information on the setup and operation of the **My Function** feature.

Figure 17. My Function Configuration Screen.

CommNo	Function	Value	Adjust Range
0111	F terminal	2	0 to 135
0112	R terminal	4	0 to 135
0113	ST terminal	6	0 to 135
0114	RES terminal	8	0 to 135
0115	S1 terminal	10	0 to 135

The flow lines of the **My Function** dialog box may require that the user adjust the PC monitor display settings to allow the lines to be displayed properly.

Right-click at Desktop ⇒ Display/Graphics Properties ⇒ Color Scheme - path is PC operating-system dependent.

Parameter Numbers
With each **Unit** selection the associated parameter numbers are displayed.

Logical Operators
See the Installation and Operation Manual for a listing of the available My Function Operator selections.

Function Status
An activated terminal or an asserted function reports **On** or **1**.

My Function Selections and Features



Because the ALWAYS ON setting or an activated MY FUNCTION WITH PERMISSION SIGNAL discrete input terminal setting enables the system and the motor to run upon the successful completion of the My Function setup, these settings are to be executed last when performing the My Function setup.

Disable — Click to turn off the **My Function** feature. The **Disable** radio button disables all configured units of the **My Function** feature. While disabled the **My Function** dialog box will display the outcome of the programmed operations, but will not apply the outcome to the ASD or to the motor.

My Function With Permission Signal — Once the **My Function** feature is setup via parameters **F900** to **F977**, click this radio button to enable **My Function** to be carried out as programmed via a discrete input terminal (set the terminal to **My Function Run** and activate).

Always On — Click this radio button for a continuous **My Function** enable. **Always On** enables the system and motor to run upon the successful completion of the **My Function** setup.

Next Unit — Click to select the next **Unit** to be configured or run. Once setup and enabled, all units are active and will produce the results of their programming. Ensure that all unused parameters of the unused units are set to **NOP** and **Deselect**. This will disable the unused unit(s) and ensure that the motor will not be activated unexpectedly via unused units.

Refresh — Click to update the screen contents after a programming change.

Unit 1 – Unit 7 Function and Settings

Unit 1 is used for the following **My Function** dialog box descriptions. **Units 2 – 7** are labeled and function identically using different parameter numbers.

The settings of the **My Function** parameters may be selected for viewing or may be changed from the **My Function** dialog box. Clicking any field of the **My Function** dialog box will display the parameter number of the displayed setting in the **My Function Status Bar** in the lower part of the dialog box.

Select the **My Function** setting from the **My Function Status Bar** pull-down menu and press **Write To ASD** (for each change) to transfer the new setting to the ASD and **Input Function Target** field.

Input Function Target 1 (F900) — Is used as an input terminal assignment (holder) that is set to a terminal label or to a system status and is used in the **My Function** equation. The value assigned to **Input Function Target 1** may be a user-set terminal assignment or it may be set to read a systemic operating status (e.g., output current condition, discrete terminal status, input voltage condition, etc.). In either case, the value of this terminal (On or Off) is used as a conditional input to be used to make the determination of the output of the **My Function** equation.

Input Function Target 2 (F902) — Is used as an input terminal assignment (holder) that is set to a terminal label or to a system status and is used in the **My Function** equation. The value assigned to **Input Function Target 2** may be a user-set terminal assignment or it may be set to read a systemic operating status (e.g., output current condition, discrete terminal status, input voltage condition, etc.). In either case, the value of this terminal (On or Off), in conjunction with the value of **Input Function Target 1** and an operator (CMD 1), is used as a conditional input to be used to make the determination of the output of the **My Function** equation.

CMD1 (Input Function Command 1) — Is used to assign a user-selected logical operator of two user-selected **Input Function Target** variables, enable a counter/timer function, or to perform a hold/reset function.

Input Function Target 3 (F904) — Is used as an input terminal assignment (holder) that is set to a terminal label or to a system status and is used in the **My Function** equation. The value assigned to **Input Function Target 3** may be a user-set terminal assignment or it may be set to read a systemic operating status (e.g., output current condition, discrete terminal status, input voltage condition, etc.). In either case, the value of this terminal (On or Off), in conjunction with the value of the **CMD 1** output and an operator (CMD 2), is used as a conditional input to be used to make the determination of the output of the **My Function** equation.

Output Function Assigned — Assigns the function of the **Output Function Assigned** data location to one of the functions listed in the **Input Setting** field of the **Discrete Output Terminal Assignments** listing. The listing for a given ASD type may be found in the ASD Installation and Operation Manual of the connected ASD.

My Function Sample Equation

Using the operators of [Table 4](#), the status of **Input Function Target 1 (On)** is Anded with **Input Function Target 2 (On)**. The outcome of that Anded function (1) is then Or'ed with the status of **Input Function Target 3 (Off)**.

Note: Terminals *F* and *R* are connected to CC. Terminal *S1* is open. Terminal *S2* is subjected to the outcome of the equation and is made to be virtually and effectively connected to CC.

The outcome of the Or function is then applied to the **Output Function Assigned (On)**. Thus, *S2* and its assigned function are activated.

Result:

Note: The *R/W* suffix of the terminal name denotes that terminal as being able to be read and written to.

The *Output Function Assigned* field (*S2*) was written to as a function of the sample Boolean expression. The function assigned to *S2* will be executed.

Logic My Function Setting

My Function Selection

☐ Disable ☐ My Function with Permission Signal ☒ Always On

Unit 1 Next Unit Refresh

CommNo	Function	Value	Adjust Range
0111	F terminal	2	0 to 135
0112	R terminal	4	0 to 135
0113	ST terminal	6	0 to 135
0114	RES terminal	8	0 to 135
0115	S1 terminal	0	0 to 135

Note: 1. Terminals L11 to L18, and B12 to B15 are on the extended terminal board which may not exist on your drive. 2. Outputs to physical terminals may only be used with the unit number for which it is configured.

F900 Input Function Target 1
1: F terminal (R/W) On

F902 Input Function Target 2
2: R terminal (R/W) On

F904 Input Function Target 3
5: S1 terminal (R/W) Off

F905 Output Function Assigned
6: S2 terminal (R/W) On

Write To Drive

Table 4. **My Function** Operator selections.

My Function Computational Selections		
Input Function Command	Function Name	Function Description
0	NOP (No Operation)	Disables the My Function feature.
1	ST	Execute data read/transfer. Transfers Input Target N value to Input Target N+1.
2	STN	Execute inverted data read/transfer. Inverse of ST function.
3	AND	Logical product of A AND B.
4	ANDN	Logical product of A AND $\overline{B}$.
5	OR	Logical sum of A OR B.
6	ORN	Logical sum of A OR $\overline{B}$.
7	EQ	Compares data — Outputs 1 if Equal; 0 if not Equal.
8	NE	Compares data — Outputs 0 if Equal; 1 if not Equal.
9	GT	Compares data — Outputs 1 if A>B; 0 if A≤B.
10	GE	Compares data — Outputs 1 if A≥B; 0 if A<B.
11	LT	Compares data — Outputs 1 if A<B; 0 if A≥B.
12	LE	Compares data — Outputs 1 if A≤B; 0 if A>B.
13	ASUB	Outputs absolute difference between A and B — A–B
14	ON (Timer)	Enables the On response time delay settings of My Function Time Data 1 – 5 (F928 – F932) for My Function Data .
15	OFF (Timer)	Enables the Off response time delay settings of My Function Time Data 1 – 5 (F928 – F932) for My Function Data .
16	COUNT1 (Timer)	Outputs a 1 upon reaching the pulse count setting of F933.
17	COUNT2 (Timer)	Outputs a 1 upon reaching the pulse count setting of F934.
18	HOLD	Outputs the peak output value since powering up or since the last reset.
19	SET	Sets data.
20	RESET	Resets data.

EOI

EOI FPWizard

The **EOI FPWizard** is accessed via the pull-down menu **EOI** ⇒ **FPWizard**. The **FPWizard** provides access to a 7-series and 9-series ASD EOI for updating the EOI Flash from a PC.

***Note:** The Q7, Q9, and P9 ASDs do not support nor require EOI flashing.*

The **ASD Pro Software** and the **ASD-EOI-HH-G9** docking station (see [Figure 18 on pg. 54](#)) are required to flash the display module. The **ASD-EOI-HH-G9** docking station may be acquired from your Toshiba Sales Representative.

Display Module Update Procedure

1. Remove power from the ASD.
2. Remove the display module to be flashed from the ASD (see the Installation and Operation Manual of the connected ASD for additional information on removing the module). Insert the display module into the docking station.
3. Connect the 9-pin D-type male-to-female connector from the docking station to the PC.
4. Apply +24 – +30 VDC to the docking station.
5. Start the **ASD Pro Software** application.
6. Establish PC-to-Docking Station connectivity. Close all sub-windows within the **ASD Pro Software** application (i.e., [Table Window](#), Control Window, etc.).
7. From the **EOI** pull-down menu of the **ASD Pro Software**, select **EOI FPWizard**. Click **Next** at the subsequent **Welcome** screen.
8. Click the **Yes** or **No** radio button at the **Choose EOI Version** dialog box and then click **Next**.
9. At the **Select Port and File** dialog box, browse to the hex file to be loaded into the display module and click **Next**.
10. Click **Start** at the **Loading Hex File to EOI** dialog box and the hex file download will begin.
11. Upon completion of the hex file download remove the power from the docking station.
12. Remove the display module from the docking station.
13. Install the updated display module into the EOI assembly of the ASD for which it is to be used.

Figure 18. **ASD-EOI-HH-G9** 9-Series EOI Flash Docking Station.



EOI Reading

This is a read-only feature that reads and displays the revision and version of the EOI flash for the 9-Series family of ASDs. This function is not available for the 7-Series ASDs.

Help

About ASD Pro Software

ASD Pro Software release information.

7S

Provides parameter descriptions and usage assistance for the 7-Series ASD.

9S

Provides parameter descriptions and usage assistance for the 9-Series ASD.

Manuals

The Installation and Operation Manuals of the hardware systems for which the **ASD Pro Software** may be used can be found at the TIC web site: www.tic.toshiba.com/ind.

Additional information on the systems and services provided by Toshiba may also be found at the TIC web site.

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