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# **ASD PRO SOFTWARE OPERATION MANUAL**

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**Document Number: 59443-000**

**Date: October, 2008**



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# Introduction

Congratulations on receiving the **ASD PRO Software** from Toshiba International Corporation (TIC). The software has been designed to be very easy to use and surprisingly powerful.

Because we are continuously updating our products to meet the constantly changing needs of our customers, visit our web site to ensure that your version and revision of the **ASD PRO Software** are of the latest release.

This product may be used for demonstration purposes as well as system setup and troubleshooting. 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 some later time — setup configurations are transferable to other ASDs as required.

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

Though the software is very simple to use, 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 9-Series and the 7-Series ASD installer, operator, and maintenance personnel — the new operator as well as for the seasoned veteran. 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.

If more information is required or if you have any ASD system related questions please feel free to contact our Customer Service Department.

## Important Notice

The instructions contained in this manual are not intended to cover all details or variations in equipment types. Nor may they provide for every possible contingency concerning the installation, operation, or maintenance of this equipment. Should additional information be required contact your Toshiba representative.

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# Manual's Purpose and Scope

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-Publications-Dept@TIC.TOSHIBA.COM](mailto:Technical-Publications-Dept@TIC.TOSHIBA.COM).

This manual provides information on how to safely download, install, and operate the **ASD PRO Software**. The information provided in this manual is applicable to the **ASD PRO Software** only.

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

- 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'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 center is open from 8 a.m. to 5 p.m. (CST), Monday through Friday. The Support Center's toll free number is US (800) 231-1412/Fax (713) 466-8773 — Canada (800) 527-1204.

You may also contact Toshiba by writing to:

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

For further information on Toshiba's products and services, please visit our web site at [www.toshiba.com/ind](http://www.toshiba.com/ind).



# Table of Contents

<b>General Safety Information .....</b>	<b>1</b>
Safety Alert Symbol .....	1
Signal Words .....	1
Special Symbols .....	2
Qualified Personnel .....	3
Equipment Inspection .....	3
<b>ASD PRO Software Precautions .....</b>	<b>4</b>
Software Installation Precautions .....	4
Software Operation Precautions .....	4
ASD-to-PC Connectivity Precautions .....	5
System Protection .....	6
ASD Setup Requirements .....	6
<b>ASD PRO Software and Serial Comm .....</b>	<b>7</b>
Getting Started .....	7
Load the ASD PRO Software .....	7
Load the TIC_USB_RS485 Driver Software .....	10
Verify Port Installation and Connection .....	10
ASD-to-PC Connections .....	11
Connect-to-Drive Requirements .....	12
<b>ASD PRO Software Operation .....</b>	<b>13</b>
Using ASD PRO Software .....	13
<b>ASD PRO Software Menu Navigation .....</b>	<b>14</b>
Menu Items .....	14
Windows .....	15
Control Window .....	15
Monitor Window .....	16
Tree Window .....	21
Table Window .....	23
Parameters .....	27
Read All From ASD (to Table) .....	27
Save (from Table) To File .....	27
Load From File (to Table) .....	29
Write All To ASD (from Table) .....	29
Start Up .....	30
Acc/Dec Settings .....	31
Pattern Run Settings .....	33
PID Settings .....	35
Preset Speed Setting .....	36
Terminal Settings .....	37
Torque Control Settings .....	39
My Function .....	41
EOI .....	44
EOI FPWizard .....	44
EOI Reading .....	45

Help .....	46
About ASD PRO Software .....	46
7S .....	46
9S .....	46
Manuals .....	46

# General Safety Information

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

Nor should the software be used until you have read and understood the manual of the ASD with which the software is to be used.

## Safety Alert Symbol

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



## 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** and **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, will result in death or serious injury to personnel.



The word **WARNING** preceded by the safety alert symbol indicates that a potentially hazardous situation exists that, if not avoided, could result in death or serious injury to personnel.



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



The word **CAUTION** without the safety alert symbol indicates a potentially hazardous situation exists which, if not avoided, may result in equipment and property damage.

**CAUTION**

## Special Symbols

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

### Electrical Hazard Symbol

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



### Explosion Hazard Symbol

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



# Qualified Personnel

Installation, operation, maintenance of the equipment, and this software shall be performed by **Qualified Personnel Only**. A **Qualified Person** is one that has the skills and knowledge relating to the construction, installation, operation, and maintenance of the electrical equipment 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 ASD being controlled.
- 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.
- Be trained in rendering first aid.

For further information on workplace safety visit [www.osha.gov](http://www.osha.gov).

# Equipment Inspection



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

Contact your Toshiba sales representative for assistance if required or if not sure about an installation or operation procedure.

# ASD PRO Software Precautions

## Software Installation Precautions

- Only **Qualified Personnel** should install the equipment and 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 ASD being controlled.
- The software is to be installed with the connected equipment in a secure and upright position in a well-ventilated area.



**WARNING**



- It is the responsibility of the person(s) energizing the equipment 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**



- 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**.
- The **ASD PRO Software** is **NOT** intended for permanent field use. The intended usage and the design specifications are for system diagnostics of permanently-installed systems and for use on demonstration units where a safe connection may be made to the RS-485 port. The connecting cable must be routed away from any high voltages.
- **DO NOT** use the software for permanent or long-term command and control functions.
- 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. Only **Qualified Personnel** should operate the equipment and software.
- **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 ASD being controlled.
- Drives produced by TIC are often installed as a 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 is to be operated with the connected equipment in a secure and upright position in a well-ventilated area.
- Clearly understand and document any changes being made to the connected equipment while using the **ASD PRO Software**.
- By using a demo ASD unit 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 communications 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 further information on the ASD parameters that may be monitored and controlled by the **ASD PRO Software**, see the installation and operation manual of the ASD being used.
- Our Customer Support Center may also be contacted for operational assistance or for application information if required.

## ASD-to-PC Connectivity Precautions

Connecting a personal computer to an ASD via a communications cable is potentially very dangerous. Ensure that the communications 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 cause personal injury from any sudden or unexpected starting and 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 to connect 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, or death.

### **WARNING**

Do not exert any force on the RJ-45 wires or connections. Tension from pulling on RJ-45 cables may damage the connections within the connector shell. Damaged wires can result in intermittent communications or no communications.

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 Toshiba International Corporation's (TIC) Adjustable Speed Drives (ASD). ASD's produced by TIC are often installed as a part of a larger system and may present hazards to equipment or personnel if improperly programmed.

**ONLY Qualified Personnel** should make changes to the parameters of the ASD.

Read and understand the section titled [General Safety Information on pg. 1](#) before operating the ASD or making parameter changes.

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



**DANGER**



- When using the **ASD PRO Software** as an integral part of a larger system, it is the responsibility of the software user 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 personnel injury or system damage (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 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 operator to know or to become familiar with the functional outcome of changes made to the ASD parameters while using the **ASD PRO Software**.
- Follow all warnings and precautions and do not exceed equipment ratings.



# ASD PRO Software and Serial Comm

## Getting Started

The **ASD PRO Software** (P/N 59073) enhances the programmability of the Toshiba International Corporation's (TIC) 7- and 9-Series families of Adjustable Speed Drives (ASD) by allowing the user to control the ASD and monitor parameter settings and performance variables from a personal computer (PC) via serial communication.

The **ASD PRO Software**, used in conjunction with the **ASD-EOI-HH-G9** assembly, may also be used to program (flash) the display module of a G9- or an H9-ASD.

Using serial communications via 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 Communications.

To use serial communications to run the **ASD PRO Software** the **TIC\_USB\_RS485** driver must first be installed onto the PC.

Acquire and load the **ASD PRO Software** and the **TIC\_USB\_RS485** driver onto the PC as described below.

## Load the ASD PRO Software

The **ASD PRO Software** may be acquired via 1) the [www.Toshiba.com/ind](http://www.Toshiba.com/ind) web site, 2) the 7- and the 9-Series families of ASDs CD that is shipped with each 7- and the 9-Series ASD, or 3) a complimentary copy may be acquired from the Toshiba Customer Support Center.

### Loading the ASD PRO Software from the Toshiba Web Site

1. From the **TIC.Toshiba.com\ind** web site click **Drives** ⇒ **G9 LV Severe Duty Industrial** ⇒ **Setup Software** (tab) ⇒ **ASD PRO Software zip file**.
2. At the resulting dialog box click **Open** or click **Save**.

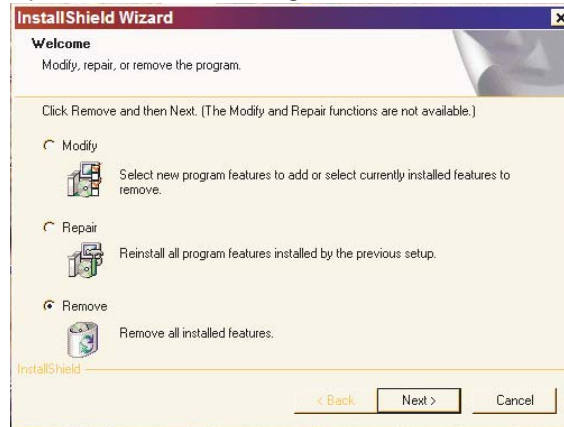
Either click **Open** to unzip the downloaded file or click **Save** and follow the prompts to select a location to store the zipped file.

Once unzipped, the application may be run by clicking the resulting desktop icon.

### Loading the ASD PRO Software from the Installation CD

1. Place the CD into the CD drive and the installation screen will appear on the PC screen.
2. If the installation screen does not appear, navigate to the file **Setup.exe** on the **Installation CD**. Double click the file **Setup.exe** to start the installation program.
3. If there is an existing version of the **ASD PRO Software** installed, the setup process will display the **Modify, Repair, or Remove** (the program) dialog box (see [Figure 1](#)). Click the radio button **Remove** and then click **Next**.

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



4. When queried **Do you want to completely remove the application and all of its features?** click **OK**.
5. Upon completion of the removal, click **Finish** at the **Maintenance Complete** screen.

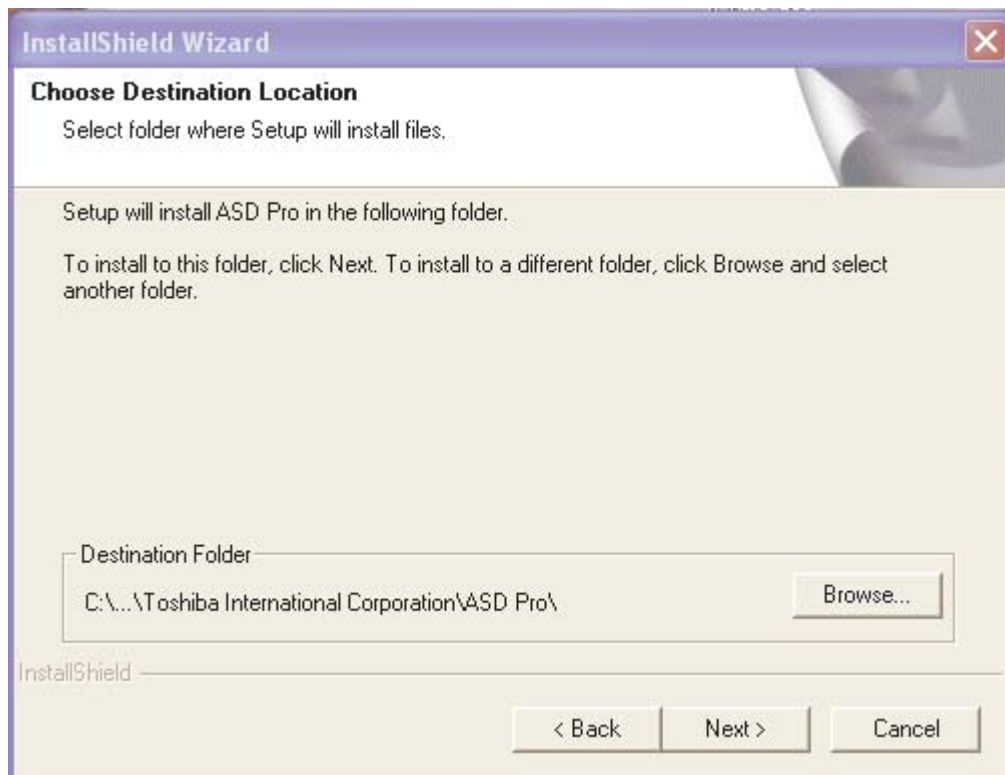
The older version has been successfully removed from the PC.

### Install the New Version

1. Restart the **Installation CD** or double click the file **Setup.exe** of the **Installation CD** to start the installation program.
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** (see [Figure 2 on pg. 9](#)) for the installation, note the default location or click **Browse** and select a different location; this will be a location from which the application may be launched once installed successfully. 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** at the **InstallShield Wizard** dialog box to open the **Start Copying Files** dialog box.
8. Click **Next** to begin the 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.

Figure 2. Choose a Destination Location.



## Load the TIC\_USB\_RS485 Driver Software

The **TIC\_USB\_RS485** software driver is required to use the **ASD-CAB-USB** cable for serial communications. Loading the driver is required during the initial setup and need not be repeated. The software loading procedure is described below.

1. From the site <http://toshiba.com/ind/special/download.jsp>, download the file **TIC\_USB\_RS485.zip**.
2. From the subsequent dialog box, click **Open** to download the file.
3. Unzip/Extract the downloaded file and select the location for which the files will be stored.
4. Plug in the **ASD-CAB-USB** cable into the serial port to be used for communication.
5. The **Found New Hardware Wizard Welcome** dialog box appears.
6. Click the radio button **Install from a list or specific location (Advanced)** and click **Next**.
7. The **Found New Hardware Wizard Search** dialog box appears.
8. From the **Search** box click **Browse** and path to the location selected in step 3 — default settings are to remain unchanged. Click **Next**.
9. Depending on your PC system the **Hardware Installation** screening dialog box may appear. If so, click **Continue Anyway**.
10. Depending on your PC system the search phase of the installation may take approximately one minute or longer. Allow the search to complete.
11. If queried for the location of the driver location, path to the location selected in step 3. Click **Next**.
12. Click **Finish** at the subsequent dialog box.
13. The **Found New Hardware Wizard Welcome** dialog box appears.
14. Click the radio button **Install from a list or specific location (Advanced)** and click **Next**.
15. The **Found New Hardware Wizard Search** dialog box appears.
16. From the **Search** box click **Browse** and path to the location selected in step 3. Leave default settings as they are and click **Next**.
17. Depending on your PC system the search phase of the installation may take approximately one minute or longer. Allow the search to complete.
18. Click **Finish** to complete the port installation.

## Verify Port Installation and Connection

1. Right-click on **My Computer** and select **Properties**.
2. At the **System Properties** dialog box left-click the **Hardware** tab.
3. Left-click **Device Manager**.
4. Expand the line item **Ports** (left-click “+” symbol) and see a listing of the configured ports.
5. The port to which the **ASD-CAB-USB** cable is connected will display the following text: **Toshiba Inter. Corp. USB to RS485**.

# ASD-to-PC Connections

## Setup and Connection Requirements

The **ASD-CAB-USB** cable is required for communication with the 7- and 9-Series ASDs. The **ASD-CAB-USB** cable provides bidirectional communication of 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 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.**

## CAUTION

*Note:* Stop the motor and close the **ASD PRO Software** application before disconnecting the **ASD-CAB-USB** cable.

*Note:* Disconnecting the **ASD-CAB-USB** cable from the PC while the **ASD PRO Software** is running removes user-control of the connected motor. An **Emergency Off** command (double-pressing Stop at the EOI) will halt the motor at the programmed decel rate or by the rate allowed by the load inertia (whichever is greater).

Read and Understand the [General Safety Information on pg. 1](#).



## Connection Procedure

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

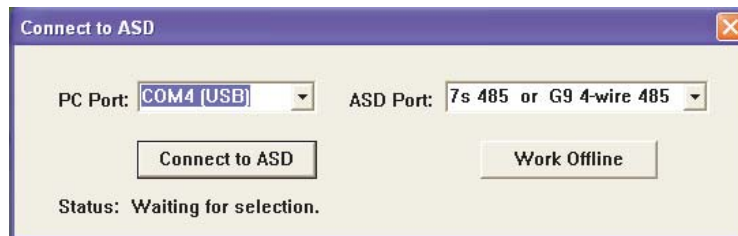
1. Remove all power sources from the ASD (lockout and tagout if required).
2. Disconnect the motor to prevent unexpected motor responses during the ASD setup or during the preliminary testing phase.
3. Open or remove any covers, doors, or guards to gain access to the ASD and the I/O connectors/terminals.
4. Using the **ASD-CAB-USB** cable, connect the USB end to a USB connector of the PC and connect the RJ45 end to the RJ45 connector of the ASD terminal board (S4).
5. 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 — **Do Not** move the **ASD-CAB-USB** cable connection from one ASD to another while the **ASD PRO Software** is running (hot swap).
6. Close all PC applications that are not required.
7. 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).
8. Click the desktop shortcut to start the **ASD PRO Software** application.

# Connect-to-Drive Requirements

The **Connect to ASD** dialog box (see [Figure 3](#)) appears when 1) the **ASD PRO Software** is run for the first time, 2) there is an ASD-to-PC connection problem, or 3) as a response to a request to connect via the **Connect** pull-down menu.

Subsequent startups will connect a properly configured and connected ASD automatically upon launching the **ASD PRO Software**.

Figure 3. Connect to ASD dialog box.



The **Connect to ASD** dialog box requires a user response before the program will continue.

*Note:* The ASD-CAB-USB cable must be connected from the PC to the ASD for the **USB** selection to appear as a selection item in the pull-down menu.

Select the appropriate **PC Port** and **Drive Port** (ASD/Connection type); set as indicated in [Figure 3](#) if using the ASD-CAB-USB cable.

The **Connect to ASD** button may be clicked to connect the ASD to the PC or click the **Work Offline** button to work offline.

## Work Offline

Click **Work Offline** to disable the ASD-to-PC communications. Select the ASD type from the subsequent dialog box. Working offline may be used to create or modify **Table Window** data (**Table Window** defaults to the **Edit Table** mode).

## Connect to ASD

Select the appropriate **PC Port** and **Drive Port** settings and click **Connect to ASD** for ASD-to-PC communications. Upon a successful connection the **Connect to ASD** dialog box will be cleared from the screen and the **Connected** indicator of the **Control** window will be green (see [Control Window on pg. 15](#)).

The **ASD PRO Software** will make the determination as to which ASD type is connected to the PC.

If the **Connect to ASD** attempt fails, the **ASD PRO Software** will attempt to use different combinations of baud rate, parity, etc. until the system times out or until the connection attempt is successful.

A subsequent failure to connect results in the error message: **Can Not Connect to the Drive**. If this condition persists see the section titled [Setup and Connection Requirements on pg. 11](#) and confirm that the connections requirements are as specified.

Once the ASD-to-PC communication is established, use the pull-down menus of the main screen to access the desired functions of the **ASD PRO Software**.

# ASD PRO Software Operation

From the **TIC 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 Communications.

## Using ASD PRO Software

The following procedure is to be performed by **Qualified Personnel** ONLY.

Use the following procedure to control and monitor the ASD.



1. Disconnect the motor from the ASD. Connect the motor **ONLY** after testing the ASD changes and confirming that the ASD program changes have been performed correctly and function as expected.

— Upon the successful completion of the ASD PRO Software setup a connected motor may turn on. —

2. From the **Table Window**, record the existing ASD parameter settings before making any changes (see the section titled [ASD Read/Write — Edit Table Functions on page 25](#) for information on saving ASD parameter settings).
3. Set the EOI of the ASD to **Remote** (Local/Remote LED off).
4. From the **Tree Window**, set Fundamental\Standard Mode Selection\**Command Mode Selection to 4-wire RS485** (from the **Current Value** field pull-down menu). Click the **Write** button to transfer the new setting to the ASD.
5. From the **Tree Window**, set the Fundamental\Standard Mode Selection\**Frequency Mode 1 to 4-wire RS485** (from the **Current Value** field pull-down menu). Click the **Write** button to transfer the new setting to the ASD.
6. From the **Control** window, provide a frequency command in the **Frequency Input** field (see [Figure 4 on page 15](#)).
7. Click the **Run/F** or the **Run/R** button of the **ASD PRO Software** 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 and hold the slide-cursor of the **Frequency Control Window**,
2. Click the **Up/Down Frequency Control Arrow** buttons, or
3. Enter a new number into the **Frequency Input** field and click the **Run/F** or **Run/R** button.

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

4. 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 Software Menu Navigation

## Menu Items

Table 1 lists the menu items and their paths.

Table 1.

ASD PRO Software Menu Items		
Pull-down Menu	Pull-Down Menu Items	Description
<b>FILE</b>	Save Window Configuration	Stores the opened windows as they are displayed when the <b>ASD PRO Software</b> application is closed and re-opens the saved opened windows at the next session.
	Exit	Closes the <b>ASD PRO Software</b> application.
<b>CONNECT</b>	Connect ASD	Connects the ASD to the PC.
	Disconnect ASD	Disconnects the ASD from the PC.
<b>WINDOWS</b>	Control Window	Opens the <a href="#">Control Window</a> .
	Monitor Window	Opens the <a href="#">Monitor Window</a> .
	Tree Window	Opens the <a href="#">Tree Window</a> .
	Table Window	Opens the <a href="#">Table Window</a> .
<b>PARAMETERS</b> (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 file.
	Load From File (to Table)	Loads the parameter settings from a PC 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).
<b>START UP</b>	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 Control Settings	Torque Control settings may be viewed or changed.
	My Function	My Function settings maybe viewed, or setup and run.
<b>EOI</b>	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).
<b>HELP</b>	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- and 9-series families of ASDs.

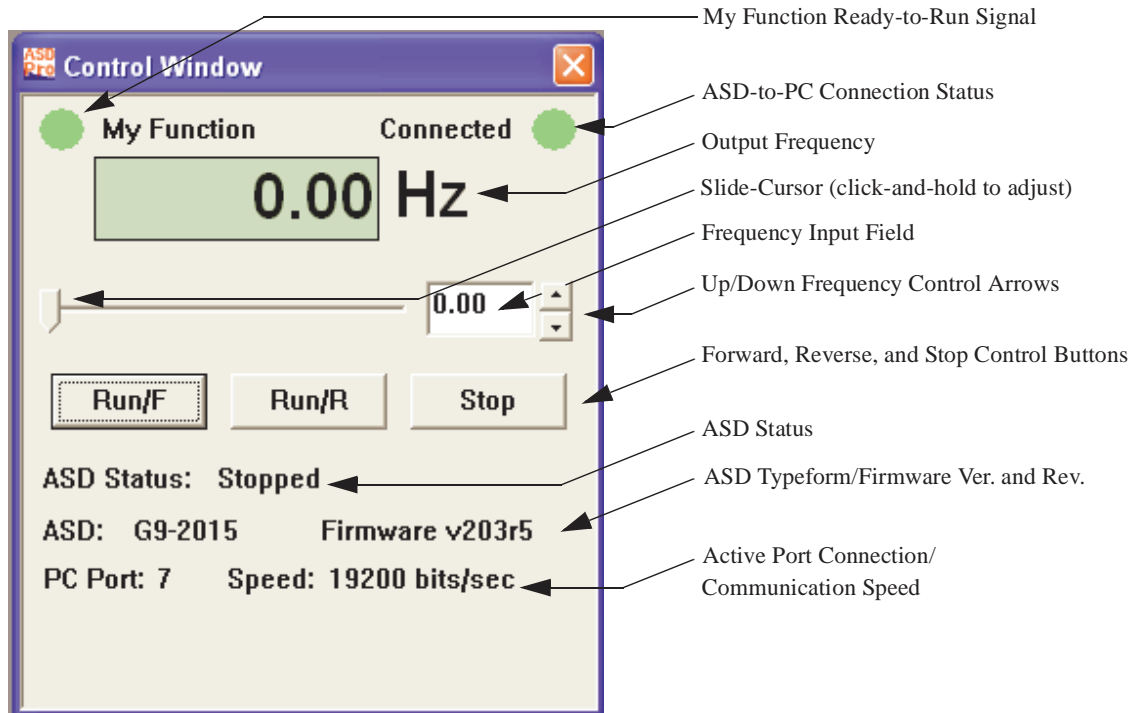


# Windows

## Control Window

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

**Figure 4. Control Window.**



**My Function Ready-to-Run Signal** — Green while **My Function** is enabled at **F977** (Always On or via Terminal Block).

**ASD-to-PC Connection Status** — Green while connected to the PC — Red if disconnected.

**Output Frequency** — Displays the output frequency of the ASD.

**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 **Frequency Input Field**.

**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).

**Forward/Reverse** — Click the appropriate button to execute a **Forward** or **Reverse** run command.

**Stop** — Click the **Stop** button once to terminate the ASD output. The motor will stop at the programmed decel rate or at the rate determined by the inertia of the load.

Double-click the **Stop** button to execute an **Emergency Off** command. **EOFF** is then displayed in the **Control Window** and **Emergency Off** is displayed on the EOI LCD of the ASD.

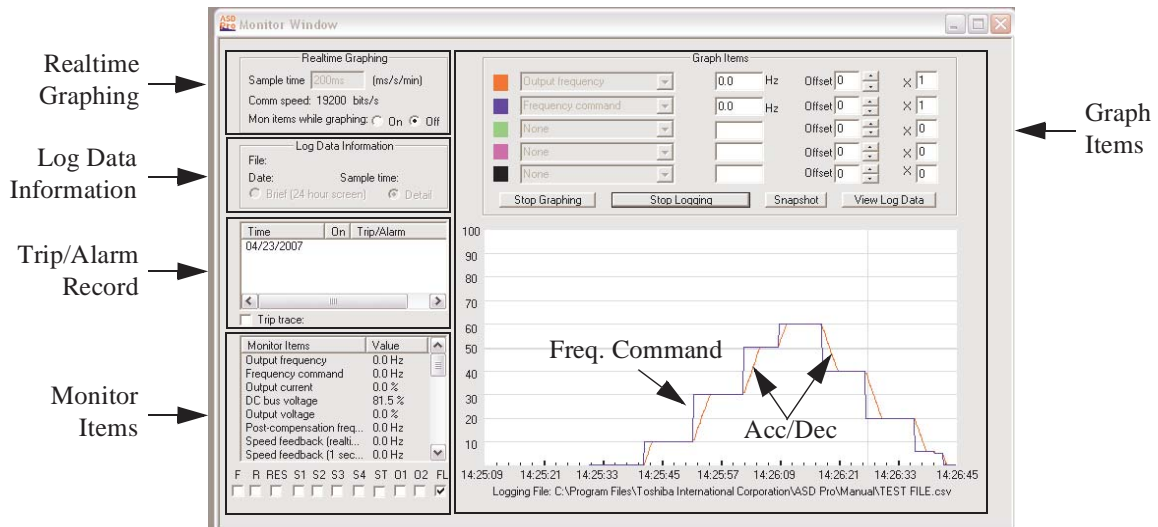
Click the **Stop** button of the **ASD PRO Software Control Window** once or double-click the **Stop** key of the ASD EOI to return the ASD to the ready-to-run condition.

# 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 subsections: **Realtime Graphing**, **Graph Items**, **Log Data Information**, **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 mS, seconds, or minutes — however, if the unit is mS, 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 20 mS. The unit of measure must be entered along with the numerical value with no spaces (key in ms, s, or min).

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

The **Communication Speed** is displayed as bits per second.

The **Mon Items While Graphing** radio On/Off 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.

While On, all parameters listed are updated at 2-second intervals.

## 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. A log of the parameter items may be recorded as a file, recalled, and viewed 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. 16](#) 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 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 done. 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. 16](#) 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 red trace (diagonal) is set to the (actual) **Output Frequency** — the blue trace (Acc/Dec) is set to display the **Frequency Command**. The slope of the red trace depicts the **Acc/Dec** setting response.

### Start/Stop Logging and Graphing

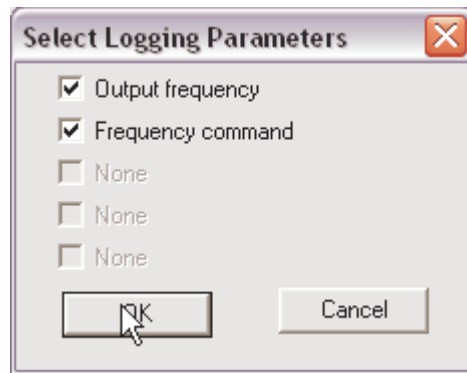
The **Start Logging and Graphing** button allows the user to record and save the displayed parameter data to a log file. Activating the **Start Logging and Graphing** button toggles the button label to **Stop Logging** and toggles the **Start Graphing** button label to **Stop Graphing** (as shown in [Figure 5 on pg. 16](#)).

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.

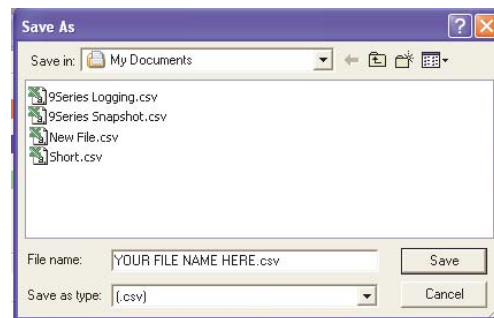
Click **Start Logging and Graphing** to initiate the logging and graphing functions. The selected **Graph Item(s)** will appear in the resulting **Select Logging Parameters** dialog box — the item(s) to be included in the log file must be selected.

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 done.



Select a location for the saved CSV file. Select a unique file name and a location to store the log file and click **Save**. Duplicate saved filenames will be overwritten.



## 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).

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

## Trace Color

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**.

## Unit of Measure

This field displays the associated unit of measure for the user-selected parameter. 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.

## 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 screen. A reading of 150 is displayed as 75 with a multiplication factor of **2** in the **X** field.

## Log Data Information

The **View Log Data** button allows the user to select and display previously recorded log and **Snapshot** files (see **Snapshot** on pg. 18). The resulting file data is displayed in the **Monitor Window** graph as the **Graph Items** that were selected for logging or for a **Snapshot** when saved.

The log file name and the date that the log file was created are displayed in the **Log Data Information** section of the **Monitor Window**. The **Brief** and **Detail** radio buttons of the **Log Data Information** section scale the **Monitor Window** graph display. The **Brief** and **Detail** buttons are only 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.*

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 close and then restart the **ASD PRO Software**.

### Trip Trace

Parameter **F740** must be set to **At Trip** to use this function.

The **Trip Trace** function is used to set the default storage location for saved trip data. Place a check in the **Trip Trace** box to open the **Save As** dialog box. Path to the desired storage location and click **Save**. The selected location will be used for all subsequent trip data saves. Duplicate saved filenames will be overwritten.

The saved file will be stored as **File Name.csv**. **CSV (Comma Separated Value)** files are of the format of a text file that can be read using the Microsoft Excel® application or a similar text processing program.

To change the location when required, uncheck the **Trip Trace** box and then re-check the **Trip Trace** box.

## Monitor Items

### 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 **Monitor Items** list may be disabled by setting the **Mon Items While Graphing** (see Realtime Graphing section of screen) radio button to **Off**. 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.

### 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 the setting to denote **Normally Closed**.

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

# 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 communications.

Clicking a parameter from the **Tree Window** reads the current value (or setting) for the selected parameter and displays it in the **Current Value** field. While the selected parameter number and parameter setting are displayed, the **Current Value** field may be changed to a new value. Click the **Write** button to load the changed value into the ASD memory.

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

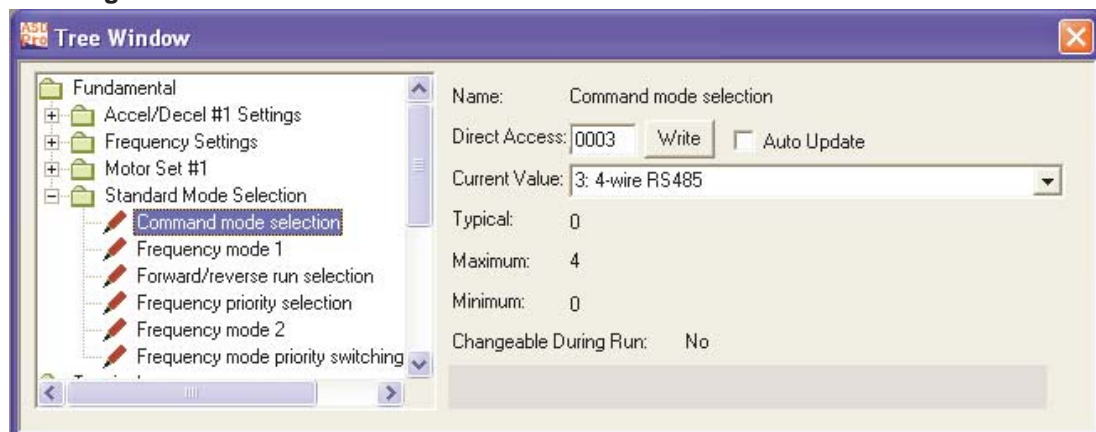
***Note:** To display changes made via the **EOI** of the ASD at the **Tree Window**, click the changed parameter at the **Tree Window**. If the changed parameter number is displayed at the **Tree Window** during the **EOI** change, click to another parameter of the **Tree Window** and then back to update the changed parameter.*

A known parameter number may also be keyed into the **Direct Access** field to view or change the setting of the parameter entered (four digits are required for the Direct Access field, i.e., 0009, 0109, etc.). Once changed, click **Write** to transfer the new settings to the ASD. Otherwise, the changed setting will not be written to the ASD.

To use either method to change a parameter value, the **Direct Access** number of the parameter must appear in the **Direct Access** field. The desired parameter value/setting may then be keyed in or selected from the **Current Value** pull-down menu. Click **Write** to load the new value into the ASD memory or exit the **Tree Window** without clicking the **Write** button to close the **Tree Window** and discard any changes.

***Note:** For further 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.

**Direct Access** — Direct Access number of the selected parameter.

**Write** — Click to transfer new settings to the ASD.

**Current Value** — Current value/setting of the selected parameter.

**Typical** — Default value.

**Maximum** — Maximum value to which the selected parameter may be set (if applicable).

**Minimum** — Minimum value to which the selected parameter may be set (if applicable).

**Changeable During Run** — Parameter changeability status while running.

**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/setting in the **Current 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.



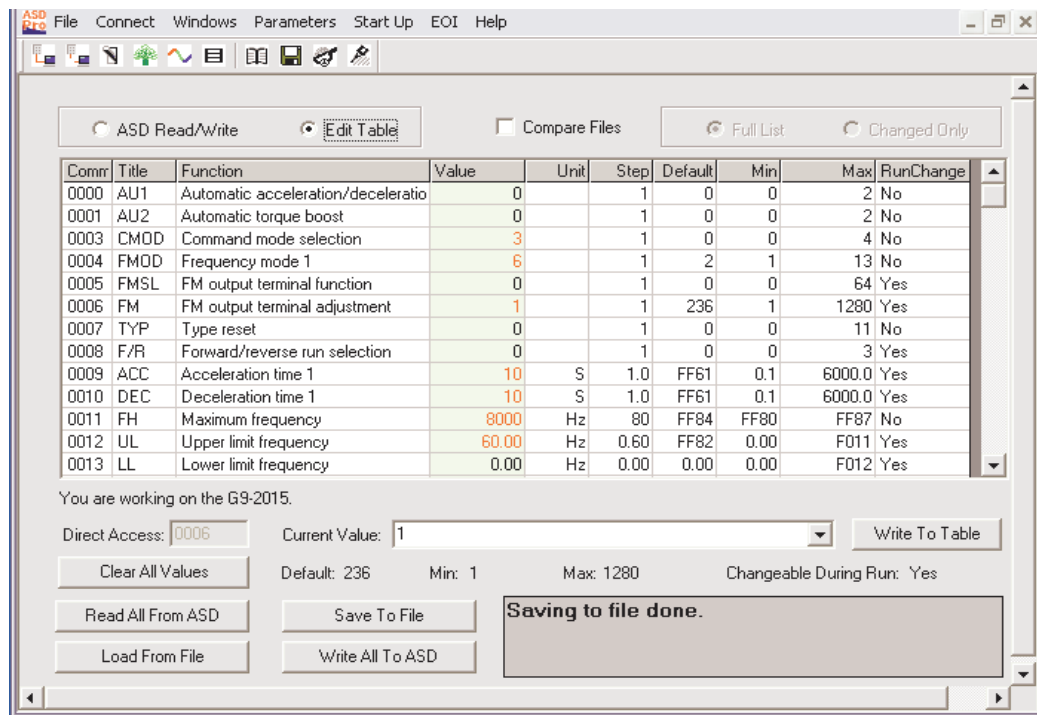
# Table Window

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 communications.

The **Table Window** is a file creation/editing/transfer mechanism that may be used to create or change 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.

Click the **Comm**, **Title**, or **Function** field of a given parameter for **Help** information on the selected parameter.

Figure 7. Table Window.



## Using the Table Window

The following procedure is to be performed by **Qualified Personnel ONLY**.

1. 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/settings of the connected ASD.
2. Upon completion, click the **Save to File** button. 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 descriptive **Items To Save** list increases the information included in the saved file for each parameter.

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

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.

3. Perform the **ASD PRO Software** diagnostic functions as required (see [ASD PRO Software Menu Navigation on pg. 14](#) operational information). Parameter changes made to the table may be transferred to the ASD individually or as a group.

Click the **Write To ASD** button to transfer the individual setting displayed at the **Table Window Current Value** field to the ASD. Or click **Write All To ASD** to transfer the entire table to the ASD.

4. The starting ASD parameter settings saved at [Step 2](#) 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 2](#) and click **Open**.
5. Once the saved file from [Step 2](#) is opened click **Write All To ASD** at the **Table Window** to load the original ASD configuration file into the ASD.
6. Close the **ASD PRO Software** application.

***Note:** Only after the completion of the **ASD PRO Software** closure should the power be removed from the ASD.*

7. Remove power from the ASD.
8. Disconnect the **ASD-CAB-USB** cable from the ASD and the PC. Close or replace any ASD covers, doors, 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.**

9. Re-apply ASD power and verify that the ASD operation is correct and as expected.

## ASD Read/Write — Edit Table Functions

From the **Table Window** the ASD configuration may be loaded into the **Table Window**, changed, and then transferred back into the ASD or the new configuration may be saved as a file to be loaded into other ASDs.

The **ASD PRO Software** may be set to **ASD Read/Write** or **Edit Table**. **ASD Read/Write** and **Edit Table** operations were designed for specific **Table Window/CSV** file-to-ASD data management functions as described below.

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

Table 2.

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 view changes 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-typeform ASDs and/or to be reloaded when done editing the file. Always perform a **Read All From ASD** before starting a new **ASD Read/Write** session with the **ASD PRO Software**. Residual data from a previous session may still be available and displayed and should be cleared.

Clicking the **Value** field of any of the line items in the table displays the **Direct Access Number** and the **Current Value** in the lower part of the screen. Individual **Current Value** setting may be changed by keying in a new value or selecting a new value from the pull-down menu and clicking the **Write To ASD** button. Repeat the process to individually change other parameter settings where required.

*Note:* The **Current Value** field information is preceded by the number used to select an item if creating a new **Parameter Table** or if using communications 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 to modify an existing **Parameter Table** and does not require that an ASD be connected to the PC — transfers of the new settings to the ASD are optional. See the section titled [Short Tables on pg. 28](#) for more 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.

To create a new **Parameter Table** file, click the **Edit Table** radio button and then 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 appears for the selected parameter.

Input the required parameter value/setting in the **Current Value** field. Enter the numerical value for measured items (i.e., time, magnitude, etc.) or select a setting from the pull-down menu and then click the **Write to Table** button. 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 parameter of interest in the **Function** column to see the listing of the **Selection Numbers**.

To modify an existing **Parameter Table** table 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(s) and click **Write to Table** after each change.

Click **Save to File** and the new CSV file is created or the modified file is saved with the changes. The new or modified file requires a unique name. Duplicate file names will be overwritten when saved.

The CSV file may also be opened using MS Excel<sup>®</sup> for further evaluation.

For a more in-depth description of the file transfer buttons of the **Table Window** see the section titled [Parameters on pg. 27](#).

## 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.

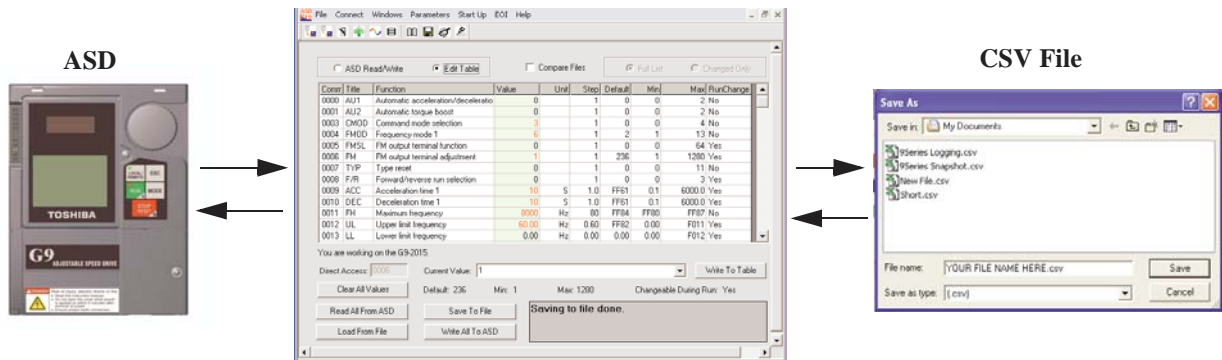
To use this feature click **Read All From ASD** or click **Load from File** to populate the **Value** column of the **Table Window**. Click the **Compare Files** check box and, from the resulting dialog box and path to the file that is to be compared to the **Value** column listing. Click **Open**.

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 listed in red text.

# Parameters

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

## Table Window



## Read All From ASD (to Table)

The **Read All From ASD** pull-down selection opens the **Table Window** and reads the parameter settings of the connected ASD and displays the results 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 parameters. These parameters will not read from some versions of the ASD software and will cause a **Reading Error** in the message box of the **Table Window**. A **Reading Error** should be investigated for assurance that the cause is not harmful. If in doubt, contact the Toshiba Customer Support Center with the firmware version and revision information of the ASD accompanied by a list of the parameters that caused the **Reading Error**.

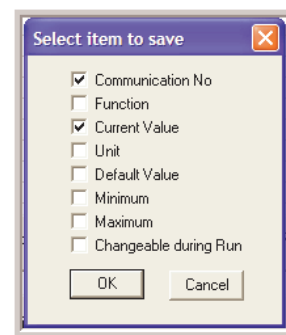
## Save (from Table) To File

The **Save To File** function transfers the current **Table Window** parameter table file to the PC in the CSV format. The saved file 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.

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 **Communications 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 **OK** to save the file. Create a file name and select the storage location when prompted at the subsequent **Save As**



dialog box. Or click the **Cancel** button at the **Select items to save** dialog box to cancel the save operation.

**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 then loaded into other ASDs 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 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 and 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 be verified. After loading the 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 radio button **Edit Table** radio button.
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.
3. Click the **Value** field of the first parameter to be used to create the short table. Enter the new parameter value in the **Current Value** field. Click **Write To Table** to enter the data into the table.
4. Repeat [Step 3](#) for each item to be added to the **Short Table File**. Click **Write To Table** for each new value/setting entry.
5. After the last parameter value is written to the table, click **Save To File**. When prompted, provide a unique name and location for the saved file (i.e., **yourfilename.csv**). Duplicate filenames will be overwritten.

### 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 communications (see [ASD-to-PC Connections 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 5 at Creating a Short Table File](#)).

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. 29.

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 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 ASD parameters and the values that are loaded into the ASD. The **Changed Only** button allows for the display of those parameter settings of the ASD that are different from the factory default settings only.

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 versions or revisions of the different 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 version and revision 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. Exit the **ASD PRO Software** and remove the PC connection to the ASD.
2. Remove power from the ASD and allow the charge capacitors to discharge completely (see Charge LED go off).
3. Restore power and reconnect the PC to the ASD.
4. From the **Table Window** click **Read All From ASD**.

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

# Start Up

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

- [Acc/Dec Settings on pg. 31,](#)
- [Pattern Run Settings on pg. 33,](#)
- [PID Settings on pg. 35,](#)
- [Preset Speed Setting on pg. 36,](#)
- [Terminal Settings on pg. 37,](#)
- [Torque Control Settings on pg. 39, and](#)
- [My Function on pg. 41.](#)



# 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

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.

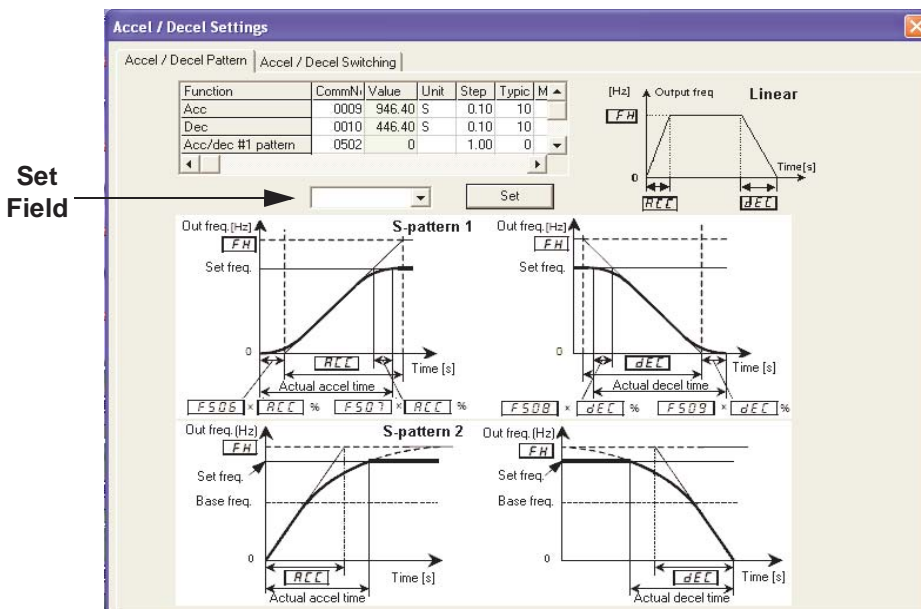
Figure 8 shows the Acc/Dec profile of the **Linear**, **S-Pattern 1**, and **S-Pattern 2** settings. See parameters F009, F010, F502, F503, F506, F507, F508, F509, F512, and F516 of the ASD installation and operation manual of the ASD being used for more information on these settings.

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

Either key in a numerical value or select an item from the selection listing.

Click another item from the **Function** column to exit the **Edit** mode without saving the change or click the **Set** button to save the new setting.

**Figure 8. Accel/Decel Pattern Settings.**



## Accel/Decel Switching

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 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.

Accel/Decel Switching Discrete Terminal Status		ASD Acc/Dec Output
Terminal 2	Terminal 1	A/D Selection
0	0	<b>1</b> — F009, F010, and F505 setting.
0	1	<b>2</b> — F500, F501, and F513 setting.
1	0	<b>3</b> — F510, F511, and F517 setting.
1	1	<b>4</b> — F514, F515, and F516 setting.

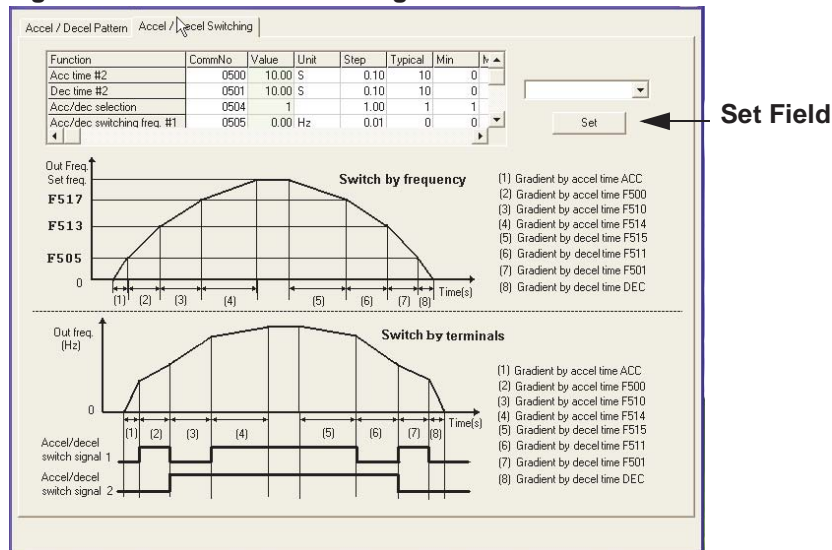
*Note: 1 = Connected to CC. 0 = Not connected to CC.  
A/D Selection = Accel Time, Decel Time, and Pattern.*

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

Either key in a numerical value or select an item from the selection listing.

Click another item from the **Function** column to exit the **Edit** mode without saving the change or click the **Set** button to save the new setting.

**Figure 9. Accel/Decel Switching Profiles.**



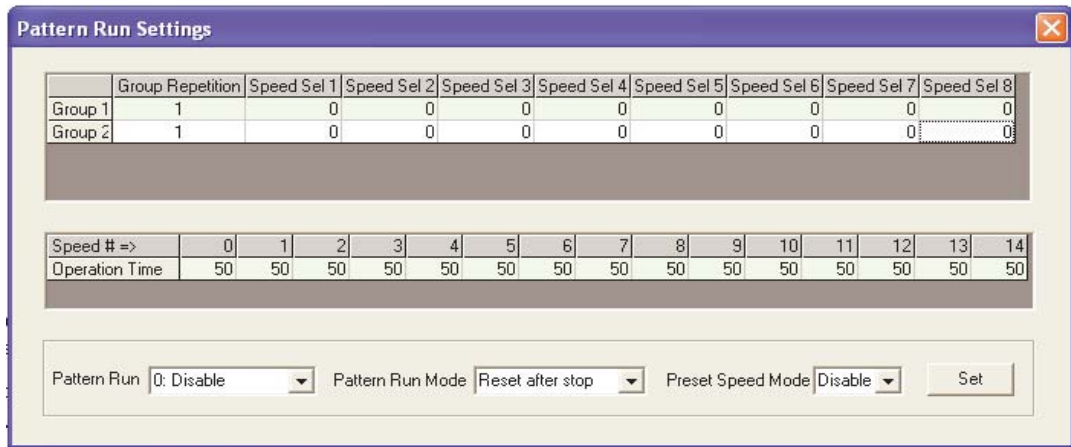
# Pattern Run Settings

**Note:** The Pattern Run function is not available on all ASD types. See the installation and operation manual or contact the Customer Service Department for more information on the Pattern Run function availability for your system type.

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 ASD being used for detailed information the **Pattern Run** setup and functionality.

The **Pattern Run** menu consists of the **Group 1/Group 2** setup fields, **Speed #/Operation Time** fields, and the **Pattern Run Control Settings** section. The **Control Settings** consists of **Pattern Run** run-time enable, **Pattern Run Mode**, **Preset Speed Mode** enable, and the **Set** button.

**Figure 10. Pattern Run Setup and Controls.**

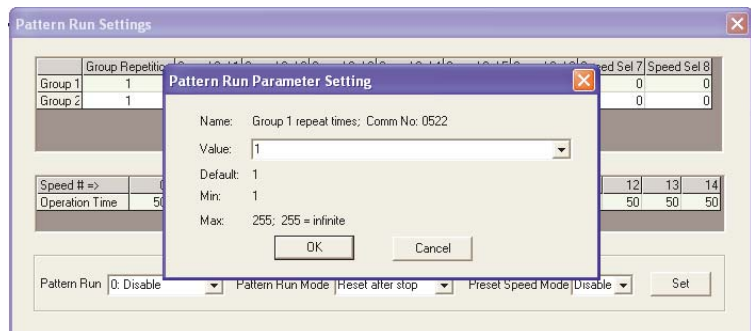


The first column of the **Group 1/Group 2** setup box is labeled **Group Repetition** and the other eight columns are labeled **Speed Sel 1** through **Speed Sel 8**.

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** and **2**. **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.

Each **Preset Speed** is configured individually — see the **Preset Speed** section of the ASD manual and the section titled **Preset Speed Setting on pg. 36** for **Preset Speed** setup information.

The **Speed #/Operation Time** box is used to set the run-time of the selected **Preset Speed**.

The **Pattern Run** field is used to enable the **Pattern Run** function once the setup is complete. The **Operation Time** unit of measure is also set here; select minutes or seconds.

The **Pattern Run Mode** selection is used to set the disposition of the system at the conclusion of the **Group1** and/or **Group 2 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**.

# PID Settings

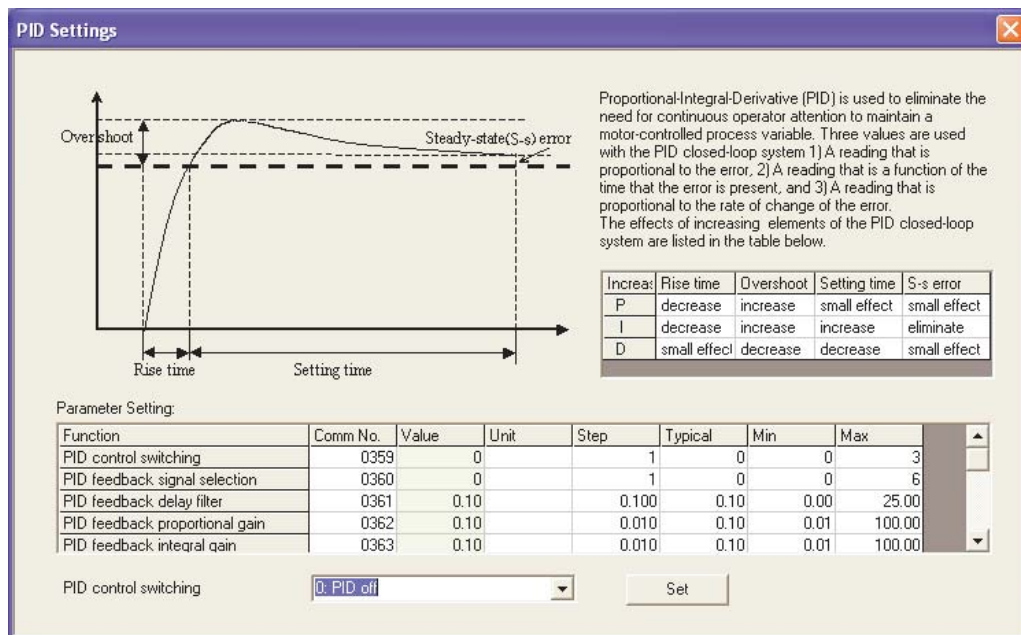
The **PID Settings** screen allows for quick access to the PID setup parameters. Parameters **F359 – F373** are used to set the ASD output deviation range, source and sensitivity settings of the control feedback, and to set limits on the degree that PID-control may affect the output of the ASD. See the installation and operation manual of the ASD being used for more information on PID settings.

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

Either key in a numerical value or select an item from the selection listing at the lower part of the screen.

Click another item from the **Function** column to exit the **Edit** mode without saving the change or click the **Set** button to save the new setting.

**Figure 11. PID Settings Screen.**



# Preset Speed Setting

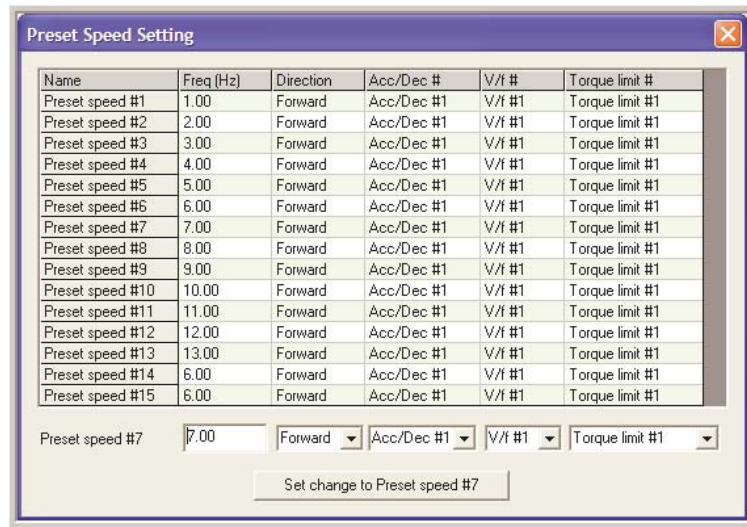
The settings of **Preset speed #1 – #15** may be selected for viewing or may be changed from the **Preset Speed Setting** screen. Clicking any field of the table will display the associated **Preset Speed** number and settings in the **Preset Speed Status Bar** in the lower part of the window.

The **Preset Speed** parameters are **Speed, Direction, Acc/Dec, V/f,** and **Torque Limit**. Type in the desired speed (Hz) 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).

Click any other field of this screen before pressing the **Set Change To Preset Speed** button to exit the **Edit** mode without saving the change or click the **Set Change To Preset Speed** button to save the new 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 for the ASD being used to acquire the parameter numbers of these settings.*

**Figure 12. Preset Speed Setting screen.**



# Terminal Settings

The **Terminal Settings** window shown in [Figure 13 on pg. 38](#) 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)**.

Exit the **Terminal Settings** window without clicking the **Set** button to close the **Terminal Settings** window and discard any changes or click the **Set** button to write the new terminal setting to the ASD.

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

***Note:** Clicking the **Set** button transfers the settings for the item in the edit field **ONLY**. Clicking the **Set** button 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).*

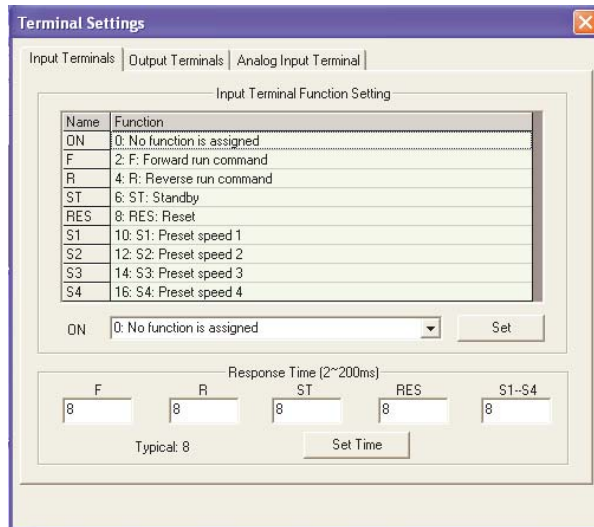
The **Analog Input Terminal** screen is used to scale the **VI/II**, **RR**, or **RX** inputs. The required values may be entered into the **Input Reference Point #1** and **#2** fields or the values may be set using the line of the graphical display. Left-click and hold the line to drag it to the desired location. Exit the **Analog Input Terminal** window without clicking the **Set Points** button to close the window and discard any changes or click the **Set Points** button to write the new settings to the ASD.

See the installation and operation manual for the ASD being used for more information on configuring analog input terminals.

**Figure 13. Terminal Settings Screens.**

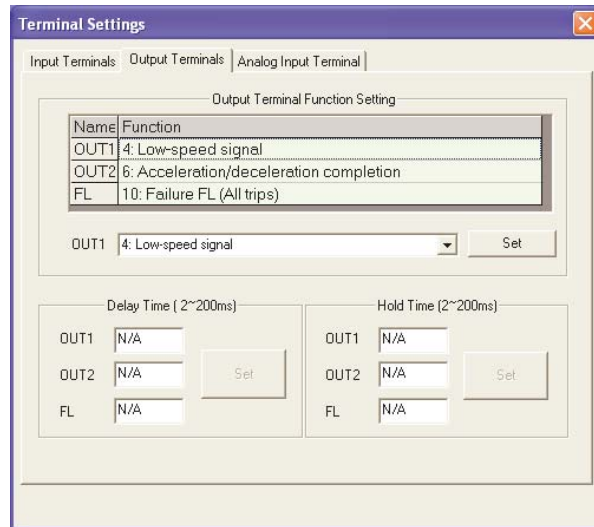
**Discrete Input Terminals** — Select the new setting and click **Set** to transfer the new setting to the ASD.

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

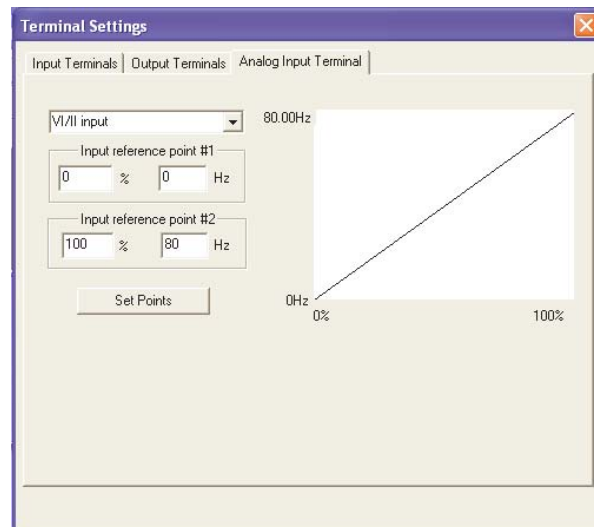


**Discrete Output Terminals** — Select the new setting and click **Set** to transfer the new setting to the ASD.

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



**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.





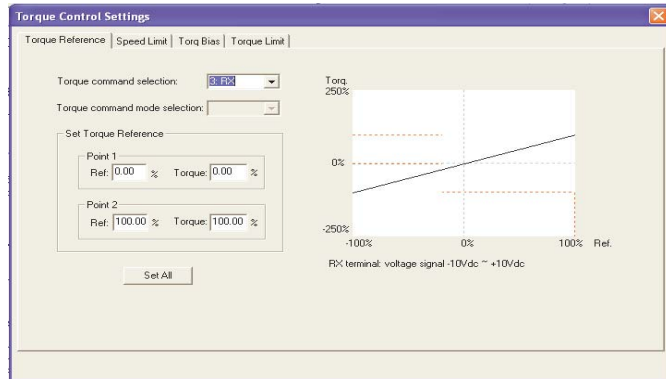
# Torque Control Settings

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

*Note:* The Torque Control Settings described here are not available on all ASD types. See the installation and operation manual for the ASD being used or contact the Customer Service Department for more information on torque-control settings.

**Torque Reference** — Selects a torque reference input (**VI/II**, **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.

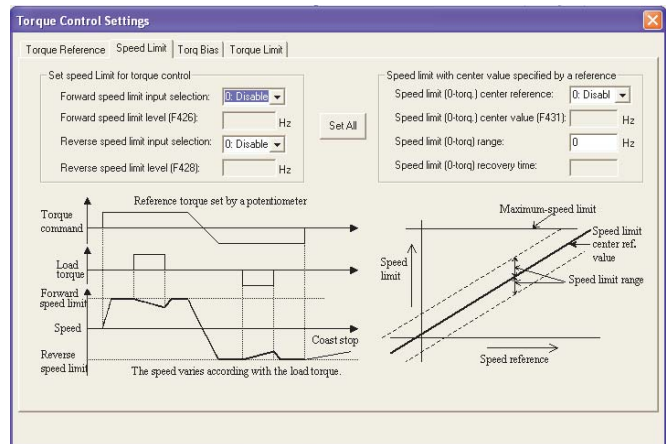
To set using the graphical display left-click the line and drag to the desired location. Click **Set All** when done to transfer the final settings to the ASD.



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

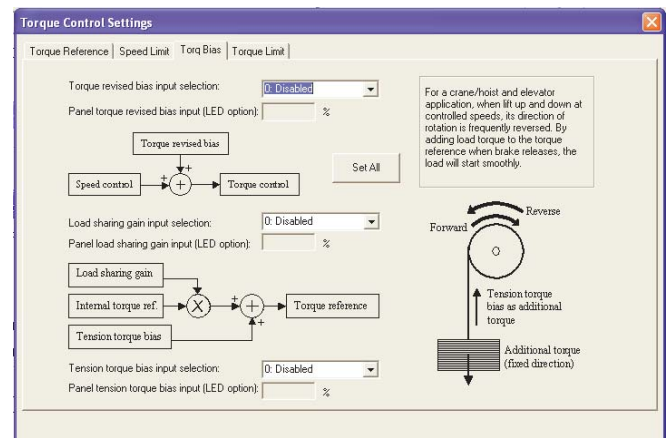
This limit level is set using the analog inputs (**VI/II**, **RR**, or **RX**) or it may be fixed using the parameter **F426** setting.

See parameters **F425**, **F426**, **F427**, and **F428** of the ASD installation and operation manual for more 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.

Setting	Value	Unit
Power running torque limit #1 selection:	4: F441	
Power running torque limit #1 (F441):	250.00	%
Regenerative torque limit #1 selection:	4: F443	
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:		

Set All

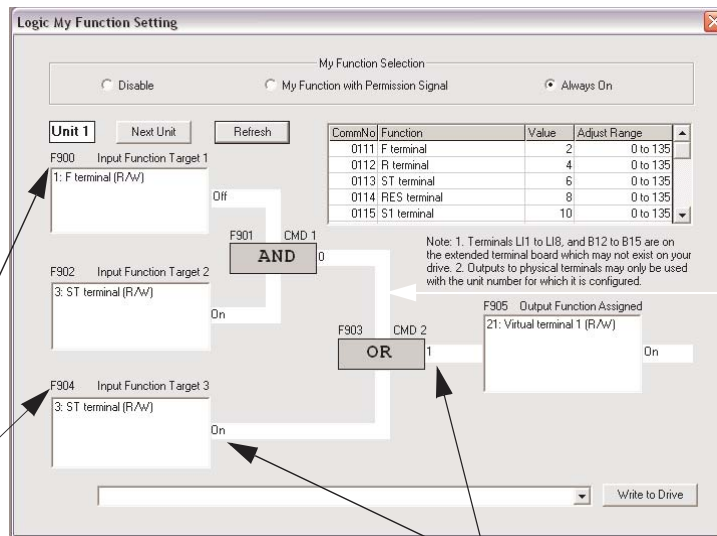
# My Function

The **My Function** feature is used to enhance the programmability of the G9 ASD by performing two programmable functions: 1) the Combined Terminal Function, and 2) Logic Operations (i.e., PLC functions).

Up to seven **My Function** operating profiles (Units) may be programmed and executed. Select the **Unit** (1–7) and complete the programming to use each **Unit**. With each **Unit** selection the associated parameter numbers are displayed.

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

The **My Function** dialog box is shown below along with a brief description of the fields of the dialog box. See the **My Function Instruction Manual** and the ASD installation and operation manual of the ASD being used for more information on the setup and operation of **My Function**.



The flow lines of the **My Function** dialog box may require that the user adjust the PC settings to allow the lines to be displayed properly (Right-click at Desktop ⇒ Properties ⇒ Appearance ⇒ Color Scheme).

## Parameter Numbers

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

## 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 completed last when performing the My Function setup.**

**Disable** — Click to turn off 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 Signal**).

**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** — Used to select the **Unit** to be run using **My Function**. 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.

## 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 associated settings 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.

**Input Function Target 1** — 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 a systemic operating variable (e.g., output current, discrete terminal status, input voltage, etc.). In either case, the value of this terminal 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** — 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 a systemic operating variable (e.g., output current, discrete terminal status, input voltage, etc.). In either case, the value of this terminal is used as a conditional input to be used to make the determination of the output of the **My Function** equation.

**Input Function Target 3** — 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 a systemic operating variable (e.g., output current, discrete terminal status, input voltage, etc.). In either case, the value of this terminal is compared with the outcome of the combined **Input Function Target 1** and **Input Function Target 2**. The outcome of the compare function is used to make the determination of the output of the **My Function** equation.

**Input Function Command 2** — Is used to assign a user-selected logical operator to two user-selected **Input Function Target** variables, enable a counter/timer function, or to perform a hold/reset function.

**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 ASD being used.

# EOI

## EOI FPWizard

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

The **ASD PRO Software** and the **ASD-EOI-HH-G9** docking station (see [Figure 14 on pg. 45](#)) 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 ASD for more 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. Once PC-to-Docking Station connectivity is established, close all sub-windows within the **ASD PRO Software** application (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 14. 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 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

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](http://www.tic.toshiba.com/ind).

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



# Index

## Numerics

7S, 46

9S, 46

## A

Acc/Dec Setting, 31

ASD PRO Software Operation, 13

ASD Read/Write, 25

ASD-to-PC Connections, 11

## C

Changed Only radio button, 29

Clear All Values, 26

Compare Files, 26

Concerns about this publication, 3

Connect, 14

Control Window, 15

Create a new Parameter Table, 26

Creating a Short Table File, 28

Customer Support, 4

## D

Direct Access field, 21

Disconnect, 14

## E

Edit Table, 26

Emergency Off, 6

Equipment Inspection, 3

Exit, 14

## F

Full List radio button, 29

## G

General Safety Information, 1

Getting Started, 7

Graph Items, 17

## H

help information, 23

## L

Load From File (to Table), 29

Load the ASD PRO Software, 7

Load the TIC\_USB\_RS485 Driver Software, 10

Loading a Short Table File, 28

Log Data Information, 19

## M

Manual's Purpose and Scope, 3

Manuals, 46

Menu Items, 14

Menu Navigation, 14

Modify an existing Parameter Table, 26

Monitor Item, 20

Monitor Window, 16

Multiplication Factor, 19

## O

Offset, 19

## P

Parameters, 27

Pattern Run Settings, 33

Preset Speed Settings, 36

## Q

Qualified Personnel, 3

## R

Read All From ASD (to Table), 27

Realtime Graphing, 16

## S

Save (from Table) To File, 27

Save Window Config., 14

Serial Comm, 7  
Short Table File, 28  
Snapshot, 18  
Software Licensing Agreement, 1  
Special Symbols, 2  
Start Up, 30  
Start/Stop Graphing, 17  
Start/Stop Logging and Graphing, 17  
Stop Graphing, 17  
Stop Logging and Graphing, 17  
System Protection, 6

## T

Table Window, 23  
Terminal Settings, 37  
Terminal Status, 20

Trace Color, 18  
Tree Window, 21  
Tree Window Items, 21  
Trip Trace, 19  
Trip/Alarm Record, 19

## U

Unit of Measure, 18

## W

Windows, 15  
Write All To ASD (from Table), 29  
Write To ASD, 24  
Write To Table, 25



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