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TOSHIBA

T300MVi

MEDIUM VOLTAGE

ADJUSTABLE SPEED MOTOR DRIVE

ELECTRONIC OPERATOR INTERFACE MANUAL

V2.0 Software A3TY06Ig & A3TY06Sg

December, 2009

TOSHIBA INTERNATIONAL CORPORATION

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Important Notice

The MVi-EOI is a component of the drive system. Refer to the drive instruction manual for further information and precautions.

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

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

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

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

Manual's Purpose and Scope

This manual provides information on how to safely operate the MVI-EOI. Refer to the drive instruction manual for further information and precautions. This manual includes a section of general safety instructions that describes the warning labels and symbols that are used throughout the manual. Read the manual completely before installing, operating, or performing maintenance on this equipment.

This manual and the accompanying drawings should be considered a permanent part of the equipment and should be readily available for reference and review. Dimensions shown in the manual are in metric and/or the English equivalent.

Toshiba International Corporation reserves the right, without prior notice, to update information, make product changes, or to discontinue any product or service identified in this publication.

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Printed in the U.S.A.

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 website at **www.tic.toshiba.com**.

General Safety Instructions

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

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 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.

DANGER

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.

WARNING

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.

CAUTION

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

Equipment Warning Labels

DO NOT attempt to install, operate, perform maintenance, or dispose of this equipment until you have read and understood all of the product labels and user directions that are contained in this manual.

Labels attached to the equipment are there to provide useful information or to indicate an imminently hazardous situation that may result in serious injury, severe property and equipment damage, or death if the instructions are not followed.

Qualified Personnel

Installation, operation, and maintenance 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 read the entire operation manual, as well as all other manuals supplied with this product.
- Be familiar with the construction and function of the ASD, the equipment being driven, and the hazards involved.
- 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.

Disposal

Never dispose of electrical components via incineration. Contact your state environmental agency for details on disposal of electrical components and packaging in your area.

System Integration Precautions

The following precautions are provided as general guidelines for the setup of the ASD within the system.

- The Toshiba ASD is a general-purpose product. It is a system component only and the system design should take this into consideration. Please contact Toshiba for application-specific information and for training support.
- The Toshiba ASD is part of a larger system and the safe operation of the device will depend on observing certain precautions and performing proper system integration.
- A detailed system analysis and job safety analysis should be performed by the systems designer and/or systems integrator before the installation of the ASD component. Contact Toshiba for options availability and for application-specific system integration information if required.

Personnel Protection

- Installation, operation, and maintenance shall be performed by **Qualified Personnel Only**.
- A thorough understanding of the ASD will be required before the installation, operation, or maintenance of the ASD.

 **WARNING** 

- Rotating machinery and live conductors can be hazardous and shall not come into contact with humans. Personnel should be protected from all rotating machinery and electrical hazards at all times.
- Insulators, machine guards, and electrical safeguards may fail or be defeated by the purposeful or inadvertent actions of workers. Insulators, machine guards, and electrical safeguards are to be inspected (and tested where possible) at installation and periodically after installation for potential hazardous conditions.
- Do not allow personnel near rotating machinery. Warning signs to this effect shall be posted at or near the machinery.
- Do not allow personnel near electrical conductors. Human contact with electrical conductors can be fatal. Warning signs to this effect shall be posted at or near the hazard.
- Personal protection equipment shall be provided and used to protect employees from any hazards inherent to system operation.

System Setup Requirements

WARNING

- The parameter settings affect how the drive operates. Only Qualified Personnel should set or change parameters.
- When using the ASD as an integral part of a larger system, it is the responsibility of the ASD installer or maintenance personnel 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, 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 configuration of the ASD may allow it to start the motor unexpectedly. A familiarity with the Auto-restart settings is a requirement to use this product.
- Improperly designed or improperly installed system interlocks may render the motor unable to start or stop on command.
- The failure of external or ancillary components may cause intermittent system operation, i.e.; the system may start the motor without warning.
- There may be thermal or physical properties, or ancillary devices integrated into the overall system that may allow for the ASD to start the motor without warning. Signs at the equipment installation must be posted to this effect.
- If a secondary magnetic contactor (MC) is used between the ASD and the load, it should be interlocked to halt the ASD before the secondary contact opens. If the output contactor is used for bypass operation, it must be interlocked such that commercial power is never applied to the ASD output terminals (U, V, and W).
- Power factor improvement capacitors or surge absorbers must not be installed on the output of the ASD.
- Use of the built-in system protective features is highly recommended (i.e., E-Off, Overload Protection, etc.).
- The operating controls and system status indicators should be clearly readable and positioned where the operator can see them without obstruction.
- Additional warnings and notifications shall be posted at the equipment installation location as deemed required by **Qualified Personnel**.

Operational and Maintenance Precautions

WARNING

- Turn off, lockout, and tagout the main power, the control power, and instrumentation connections before inspecting or servicing the drive, or opening the door of the enclosure.
- Turn off, lockout, and tagout the main power, the control power, and instrumentation connections before proceeding to disconnect or connect the power wiring to the equipment.
- The capacitors of the ASD maintain a residual charge for a period of time after turning the ASD off. The required time for each ASD typeform is indicated with a cabinet label and a **Charge LED**. Wait for at least the minimum time indicated on the label and ensure that the **Charge LED** has gone out before opening the door of the ASD once the ASD power has been turned off.
- **Do Not** attempt to disassemble, modify, or repair the ASD. Call your Toshiba sales representative for repair information.
- Do not place any objects inside of the ASD.
- Turn the power on only after attaching (or closing) the front cover and **Do Not** remove the front cover of the ASD when the power is on.
- If the ASD should emit smoke or an unusual odor or sound, turn the power off immediately.
- The heat sink and other components may become extremely hot to the touch. Allow the unit to cool before coming in contact with these items.
- Remove power from the ASD during extended periods of non-use.
- The system should be inspected periodically for damaged or improperly functioning parts, cleanliness, and to ensure that the connectors are tightened securely.
- Ensure that the **Run** functions (**F**, **R**, **Preset Speed**, etc.) of the ASD are off before performing a **Reset**. The post-reset settings may allow the ASD to start unexpectedly.
- In the event of a power failure, the motor may restart after power is restored.
- **Retry** or **Reset** settings may allow the motor to start unexpectedly. Warnings to this effect should be clearly posted near the ASD and motor.

DO NOT install, operate, perform maintenance, set up, adjust, or dispose of this equipment until you have read and understood all of the product warnings and user directions. Failure to do so may result in equipment damage, operator injury, or loss of life.

Table of Contents

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1.0 Introduction

The TOSVERT-300MVi Electronic Operator Interface (MVi-EOI) is comprised of a graphical LCD with tabs for the display of various functional data, 3 LED's, an encoder, and 8 keys. These items are described below along with a diagram showing their locations.

1.1 MVi-EOI Diagram

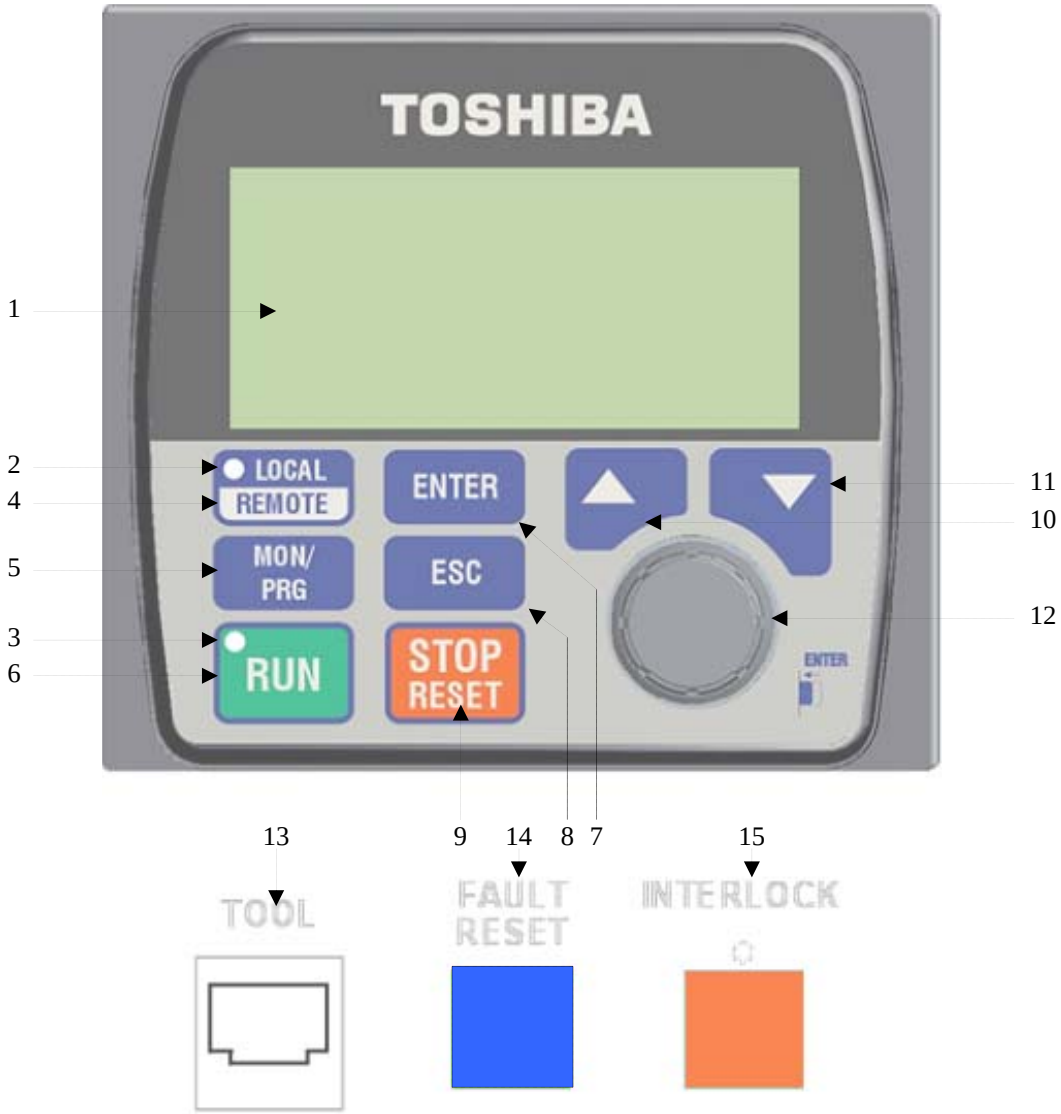


Figure 1.

1. Graphical LCD – Displays user information in text and numerical form.
2. LOCAL/REMOTE LED – This green LED is illuminated when in local mode, and extinguished while in remote mode.
3. Status LED:
   - Not ready and not running – Both Red and Green off.
   - Ready and not running – Green LED only (When set for “US standard”)
   - – Red LED only (When set for “European standard”)
   - Ready and running – Red LED only (When set for “US standard”)
   - – Green LED only (When set for “European standard”)
   - Fault – Fast blinking Red LED. (2.0 Hz).
   - Alarm – Slow blinking (0.67 Hz).
   - – Red, if running or Green, if not running (When set for “US standard”)
   - – Green, if running or Red, if not running (When set for “European standard”)
   - Test mode – Alternating red and green when in ready or running condition. (2.0 Hz).
4. LOCAL/REMOTE Key – Toggles between Local and Remote mode while the drive is not running. Press and hold the key for two seconds to toggle modes.
5. MON/PRG Key – This key will cycle through the tabs (see figure 2).
6. RUN Key – Initiates a start command when the ASD is in local mode, and the MVi-EOI is in the Main Tab.
7. ENTER Key – Selects a menu item to be changed or accepts and writes the changed data of a selected field. While in the Main Tab, press and hold this key for two seconds to toggle the direction of the motor.
8. ESC Key – This multi-function Escape key allows the user to cancel changes made to a programming field if pressed while the field is selected (highlighted), returns the user to the previous level of the menu tree, and cycles through the display tabs.
9. STOP key – This initiates a stop request when operating in local mode, and is functional in all screens. When double pressed within 1.5 seconds, it initiates a (gate block) coast to stop. This function may be disabled in the control board UV2 masking. The drive must be reset after a double-press stop.
10. UP key – Scrolls up a menu listing and increments a selected field’s parameter data.
11. DOWN key – Scrolls down a menu listing and decrements a selected field’s parameter data.
12. Encoder – This multi-function device scrolls up and down a menu listing, increments/decrements the data in a selected programming parameter field, and functions as the ENTER key when pressed.
13. Commissioning Tool Port – Ethernet port used for communication to the commissioning and support tool (Wi-Tool).
14. RESET Pushbutton – This pushbutton is used to clear inverter faults and alarms displayed on the LCD.
15. INTERLOCK Pushbutton – This pushbutton is used to disable the inverter via a hard-wired circuit. The pushbutton is illuminated while the inverter is interlocked, and extinguished for normal operation. Operating the INTERLOCK pushbutton will result in an inverter gate block and free-run deceleration of the load.

1.2 Installation and Connections

The MVi-EOI has three connectors; CNU1A, CNU2A, and CNU3. Connector CNU2A is not used. Connectors CNU1A and CNU3 are connected in parallel with CNU3 offering right angle connection capability. For normal operation CNU1A should be connected to CN1A of the interface board (Part # PC61910P114).

2.0 Interface

The MVi-EOI is an easy to use, yet powerful, interface to the Medium Voltage ASD. The following sections describe navigation through the various areas of the interface.

2.1 Moving Around

Immediately following ASD initialization, the user will be directed to the Main Tab. Movement to and from other tabs is accomplished via the MON/PRG and ESC keys. The MON/PRG key steps forward through the tabs while the ESC key steps in reverse. If a Fault or Alarm is indicated in the Main Tab, the ESC key can be used to proceed to the Preparation Display. See the navigation sequence diagram below:

2.1.1 Navigation Sequence

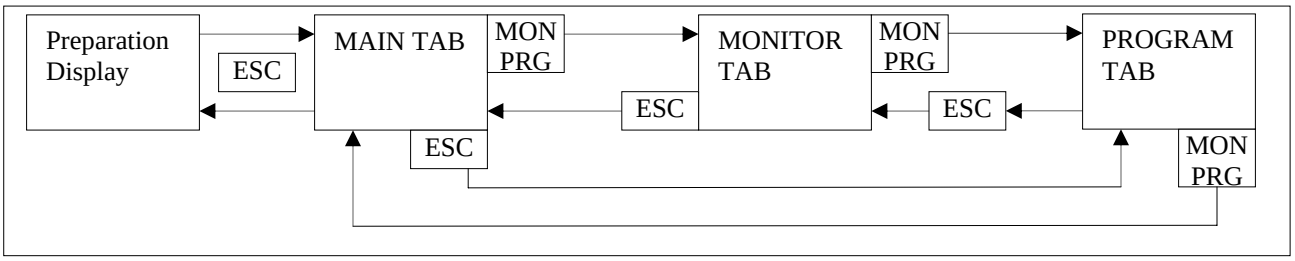


Figure 2. Navigation Sequence

2.2 Scroll Bar

When a window has more data that can be shown on the screen, the user will notice a one-pixel wide scroll bar on the right side of the window. This scroll bar indicates to the user, the position of the current window with respect to all items in the available list.

2.3 Links and Parameters

From the Program Tab, the user will notice several links that direct them to more windows. A link to a sub-window is identified by three dots (…) following the text. To access a sub-window, the user must first highlight the desired link using the UP/DOWN arrow keys or Encoder, and then select the link by pressing the ENTER key or Encoder knob. Once the user has reached the desired parameter, pressing the ENTER key or Encoder knob causes the parameter value highlight to change to a solid-fill box. The user can now use the UP/DOWN keys or Encoder to change the parameter to the desired value. Depressing the UP/DOWN arrow keys for a longer time causes the EOI CPU to accelerate the rate of change of the selected parameter data. Releasing the key will reset the rate-of-change. The Encoder utilizes the data acceleration feature as well. Turning the Encoder faster, results in a larger change in value. Once the desired value is reached, the new setting is written to memory by pressing the ENTER key or Encoder knob. Conversely, pressing the ESC key will deselect the parameter and keep the previous value.

If the user has performed a data value change, exiting the Program area causes the display of a popup window notifying the user of the option to leave the data in RAM (volatile) or write the data to EEPROM (non-volatile) memory. If the user requires that the changes be permanent, they must be written to EEPROM. Otherwise, the data will revert to the previously stored value upon the next ASD initialization (control power on-off-on).

Some data changes require re-initialization of the ASD control circuit in order to take affect. Please consult the TOSVERT-300MVi Parameter Setting Manual.

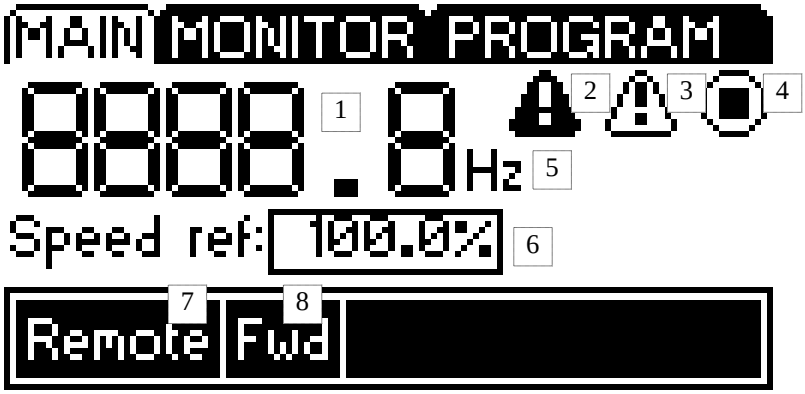
3.0 EOI Display Screens

This section describes the initialization, operation, monitoring, and programming display screens available in the EOI. A non-adjustable default splash screen is displayed during ASD power-up and initialization. The display screens available to the user during normal programming and or operation are organized in a tabular format allowing the user to select between the Main operational data and command tab, a tab displaying various data points Monitored during operation, and the Programming tab.

3.1 Initialization and Splash screen

The splash screen appears at power up only. While this screen is displayed the MVi-EOI is searching for the correct baud rate and parity. The MVi-EOI will also initialize the required start-up parameters from the drive and write the real time to the control board. When in this screen, it also verifies that the EOI program version stored in the drive control board is the same as in the keypad. If the version is different, it will load the software from the drive control board, else it will automatically go to the Main screen.

3.2 Main Tab



1. Motor frequency display.
2. Fault icon – Illuminated only during a fault.
3. Alarm icon – Illuminated only during an alarm.
4. Status icons – Four Status Icons are available as indicated in Section 2.3.
5. Motor speed units.
6. Inverter Speed Reference in percent. The display indicates a negative Speed Reference when in reverse.
7. Inverter local/remote mode status indication.
8. Motor rotation direction indication.

3.3 Status Icons

1. Not ready icon.
2. Ready and not running (stopped).
3. Ready and running forward.
4. Ready and running reverse.

3.4 Main Tab operation

The Main Tab is used to control the ASD and monitor the basic operating conditions. The user can start and stop the motor, toggle between local and remote mode, select the motor direction of rotation, and change the ASD speed reference.

- Starting the motor – Press the RUN key. Initiating a Run command from the keypad is valid only when the ASD keypad is in Local mode, and the display shows the Main Tab.
- Stopping the motor – Press the STOP key. Initiating a Stop command can be performed from any display tab while the ASD keypad is in Local mode.
- Toggle between Local and Remote mode – LOCAL/REMOTE selection is performed from the Main Tab with the motor stopped. Press and hold the LOCAL/REMOTE key for approximately 2 seconds. Remote mode has been enabled when the LOCAL/REMOTE LED is no longer illuminated and the status in the lower left corner of the Main Tab indicates Remote.
- Change motor direction – Fwd/Rev rotation selection is performed from the Main Tab with the motor stopped. To change the direction of rotation, press and hold the ENTER Key for approximately 2 seconds. If a non-zero speed reference has been applied, the text on the bottom center of the display will change from FWD to REV or vice-versa, and the numeric reference will change sign. If the speed reference is zero, the text will show FWD until a reference has been applied.
- Change speed reference – The ASD speed reference is modified by pressing the UP or DOWN keys, or turning the encoder either clockwise or counter clockwise. The speed reference will display a negative number when reverse (REV) has been selected. The ASD speed reference can be modified via the keypad in local mode only, however the display will indicate the speed reference in both local and remote modes.

3.5 Monitor Tab

The Monitor Tab provides the user a window to monitor real-time ASD performance data. The data is divided into five pages of data. The following data is available for viewing from the Monitor Tab:

Text	Symbol	Unit
Speed ref.	SP_REF_SCI	RPM
ASD Freq	MOT_FREQ_SCI	Hz
Motor speed	MOT_SPD_SCI	RPM
Motor volt	MOT_VOLT_SCI	V
Motor current	MOT_CUR_SCI	A
Motor kVA	VI_KVA	kVA
Motor kW	MOT_POWER_SCI	kW
Motor kVAR	VI_KVAR	kVAR
Motor pf	VI_PF_PCT	%
DC voltage	DC_VOLT_SCI	V
Input voltage	LINE_VOLT_SCI	V
Motor kWH	EVENT01	kWH
Motor kVAH	EVENT02	kVAH
Ctr Pwr On Time	EVENT03	Hrs
Run Time	EVENT04	Hrs
Speed ref	SP_REF_DSP	%
ASD Freq	MOT_FREQ_PCT	%
Motor speed	SP_F_DSP	%
Motor voltage	E1_R_T	%
Motor current	I1_F_DSP	%
Motor kVA	VI_KVA_PCT	%
Motor kW	MOT_POWER_PCT	%
Motor kVAR	VI_KVAR_PCT	%
Input voltage	VAC_FBK	%
DC voltage	VDC_F_DSP	%

3.6 Program Tab

The Program Tab provides a means to navigate through the ASD adjustable parameter list in the MVi-EOI. From this area, the user can read and modify parameters used to control the ASD operation. Parameters are displayed one per screen. Each screen consists of the group or subgroup tab, the parameter symbol, and a description of the parameter. This EOI is used for Synchronous Motor (SM) and Induction Motor (IM) drives. For IM drives, it is used for both Vector control and V/F control. Because of this, some parameters that are not used will be displayed. Also, some parameters can only be viewed. The table below lists the parameters that are available via the keypad. In this table, there are columns that indicate whether the parameter is read only (R), read/write (R/W), or not displayed (-). If a parameter is read only, it can not be selected by pressing the ENTER key.

3.6.1 Program Menu structure

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Fundamental	Accel/Decel		Acceleration Rate 1	CR_RATE_ACC	R/W	R/W	R/W	
			Deceleration Rate 1	CR_RATE_DEC	R/W	R/W	R/W	
	Equipment Ratings		Drive Input Voltage Rating	CS_AC_VOLT	R	R	R	
			Drive DC Voltage Rating	CS_DC_VOLT	R	R	R	
			Drive Output Current Rating	CS_EQUIP_CURR	R	R	R	
			Drive Output kVA Rating	CS_EQUIP_KVA	R	R	R	
			Drive Output Voltage Rating	CS_EQUIP_VOLT	R	R	R	
			Drive Frame Size	CS_FRAME_SIZE	R	R	R	
	Motor Ratings		Motor Current Rating	CS_MOTOR_CURR	R/W	R	R	
			Motor Frequency Rating	CS_MOTOR_FREQ	R/W	R	R	
			Motor Pole Number	CS_MOTOR_POLE	R/W	R	R	
			Motor RPM	CS_MOTOR_RPM	R/W	R	R	
			Motor Voltage Rating	CS_MOTOR_VOLT	R/W	R	R	
			Motor kW Rating	MA_MOTOR_KW	R/W	R	R	
Utilities *	EOI Access		Stop Button Mode Flag	FLG_STOP_MODE	R/W	R/W	R/W	
			EIO Access Privilege Level	(EOI Enable Flag) KPAD_PRIVILEGE	R/W	R/W	R/W	
	Version		Drive Software Number	(RTC_SOFTVER) INF_SOFTVER	R	R	R	
I/O	Analog I/O	Analog Input	Analog Input 1 Address	AIN1_AS	R/W	R/W	R/W	1
			Analog Input 1 Gain	AIN1_GS	R/W	R/W	R/W	
			Analog Input 1 Offset	AIN1_OS	R/W	R/W	R/W	
			Analog Input 1 Type	AIN1_TYPE	R/W	R/W	R/W	
			Analog Input 2 Address	AIN2_AS	R/W	R/W	R/W	1

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
I/O	Analog I/O	Analog Input	Analog Input 2 Gain	AIN2_GS	R/W	R/W	R/W	
			Analog Input 2 Offset	AIN2_OS	R/W	R/W	R/W	
			Analog Input 2 Type	AIN2_TYPE	R/W	R/W	R/W	
		Analog Output	Analog Output 1 Code	AOUT1_CODE	R/W	R/W	R/W	
			Analog Output 1 Optional Address	AOUT1_OP_AS	R/W	R/W	R/W	2
			Analog Output 1 Optional Gain	AOUT1_OP_GS	R/W	R/W	R/W	
			Analog Output 1 Optional Offset	AOUT1_OP_OS	R/W	R/W	R/W	
			Analog Output 2 Code	AOUT2_CODE	R/W	R/W	R/W	
			Analog Output 2 Optional Address	AOUT2_OP_AS	R/W	R/W	R/W	2
			Analog Output 2 Optional Gain	AOUT2_OP_GS	R/W	R/W	R/W	
			Analog Output 2 Optional Offset	AOUT2_OP_OS	R/W	R/W	R/W	
			Analog Output 3 Code	AOUT3_CODE	R/W	R/W	R/W	
			Analog Output 3 Optional Address	AOUT3_OP_AS	R/W	R/W	R/W	2
			Analog Output 3 Optional Gain	AOUT3_OP_GS	R/W	R/W	R/W	
			Analog Output 3 Optional Offset	AOUT3_OP_OS	R/W	R/W	R/W	
		D/A Analog Output	D/A1 Analog Output Address	DA1_AS	R/W	R/W	R/W	2
			D/A1 Analog Output Gain	DA1_GS	R/W	R/W	R/W	
			D/A1 Analog Output Offset	DA1_OS	R/W	R/W	R/W	
			D/A2 Analog Output Address	DA2_AS	R/W	R/W	R/W	2
			D/A2 Analog Output Gain	DA2_GS	R/W	R/W	R/W	
			D/A2 Analog Output Offset	DA2_OS	R/W	R/W	R/W	
			D/A3 Analog Output Address	DA3_AS	R/W	R/W	R/W	2
			D/A3 Analog Output Gain	DA3_GS	R/W	R/W	R/W	
			D/A3 Analog Output Offset	DA3_OS	R/W	R/W	R/W	
			D/A4 Analog Output Address	DA4_AS	R/W	R/W	R/W	2
			D/A4 Analog Output Gain	DA4_GS	R/W	R/W	R/W	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
I/O	Analog I/O	D/A Analog Output	D/A4 Analog Output Offset	DA4_OS	R/W	R/W	R/W	
			D/A5 Analog Output Address	DA5_AS	R/W	R/W	R/W	2
			D/A5 Analog Output Gain	DA5_GS	R/W	R/W	R/W	
			D/A5 Analog Output Offset	DA5_OS	R/W	R/W	R/W	
	Digital I/O	Digital I/O Masking	Digital Input Word EX1 Emergency Mask	MSK_DI_EMG	R/W	R/W	R/W	
			Digital Input Word EX4 Mask	MSK_DI_EX4	R/W	R/W	R/W	
			Digital Input Word EX5 Mask	MSK_DI_EX5	R/W	R/W	R/W	
			Digital Input Word EX1 Mask	MSK_DI1	R/W	R/W	R/W	
			Digital Input Word EX3 Mask	MSK_DI3	R/W	R/W	R/W	
			Digital Input Word EX3 Emergency Mask	MSK_DI3_EMG	R/W	R/W	R/W	
		Digital Input	Digital Input 1 Bit # Assignment	DI1_BN	R/W	R/W	R/W	
			Digital Input 1 Word # Assignment	DI1_IX	R/W	R/W	R/W	
			Digital Input 2 Bit # Assignment	DI2_BN	R/W	R/W	R/W	
			Digital Input 2 Word # Assignment	DI2_IX	R/W	R/W	R/W	
			Digital Input 3 Bit # Assignment	DI3_BN	R/W	R/W	R/W	
			Digital Input 3 Word # Assignment	DI3_IX	R/W	R/W	R/W	
			Digital Input 4 Bit # Assignment	DI4_BN	R/W	R/W	R/W	
			Digital Input 4 Word # Assignment	DI4_IX	R/W	R/W	R/W	
			Digital Input 5 Bit # Assignment	DI5_BN	R/W	R/W	R/W	
			Digital Input 5 Word # Assignment	DI5_IX	R/W	R/W	R/W	
			Digital Input 6 Bit # Assignment	DI6_BN	R/W	R/W	R/W	
			Digital Input 6 Word # Assignment	DI6_IX	R/W	R/W	R/W	
			Digital Input 7 Bit # Assignment	DI7_BN	R/W	R/W	R/W	
			Digital Input 7 Word # Assignment	DI7_IX	R/W	R/W	R/W	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
I/O	Digital I/O	Digital Input	Digital Input Data1 Selection Flag	FLG_DI_DATA1_SEL	R/W	R/W	R/W	
			External Reset Function Selection Flag	FLG_EXRST	R/W	R/W	R/W	
			Digital Input Standard Assignment Group	DI_G	R/W	R/W	R/W	
		Digital Output	Digital Output 0 Word Assignment	DO0_AS	R/W	R/W	R/W	3
			Digital Output 0 Bit # Assignment	DO0_BN	R/W	R/W	R/W	
			Digital Output 1 Word Assignment	DO1_AS	R/W	R/W	R/W	3
			Digital Output 1 Bit # Assignment	DO1_BN	R/W	R/W	R/W	
			Digital Output 2 Word Assignment	DO2_AS	R/W	R/W	R/W	3
			Digital Output 2 Bit # Assignment	DO2_BN	R/W	R/W	R/W	
			Digital Output 3 Word Assignment	DO3_AS	R/W	R/W	R/W	3
			Digital Output 3 Bit # Assignment	DO3_BN	R/W	R/W	R/W	
			Digital Output 4 Word Assignment	DO4_AS	R/W	R/W	R/W	3
			Digital Output 4 Bit # Assignment	DO4_BN	R/W	R/W	R/W	
			Digital Output 5 Word Assignment	DO5_AS	R/W	R/W	R/W	3
			Digital Output 5 Bit # Assignment	DO5_BN	R/W	R/W	R/W	
			Digital Output Standard Assignment Group	DO_G	R/W	R/W	R/W	
		Input Bit Sign Assignment	Digital Input Word EX3 Sign Assignment	SGN_DI_EX3	R/W	R/W	R/W	
			Digital Input Word EX4 Sign Assignment	SGN_DI_EX4	R/W	R/W	R/W	
			Digital Input Word EX5 Sign Assignment	SGN_DI_EX5	R/W	R/W	R/W	
			Digital Input Word EX1 Sign Assignment	SGN_DI1	R/W	R/W	R/W	
			Digital Input Word 3 Sign Assignment	SGN_DI3	R/W	R/W	R/W	
		Output Bit Assignment	Digital Output Sign Assignment	SGN_DOEX	R/W	R/W	R/W	
	I/O Board Type		I/O Board Type	XIO_TYPE	R/W	R/W	R/W	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Communication	Comm Addressing	Comm Read Addressing	Read Start Address	SCAN_R_ADRS	R/W	R/W	R/W	
			Number Of Words To Be Received	SCAN_R_SIZE	R/W	R/W	R/W	
			Read Word 1 Assignment	SCAN_RCV01_AS	R/W	R/W	R/W	4
			Read Word 2 Assignment	SCAN_RCV02_AS	R/W	R/W	R/W	4
			Read Word 3 Assignment	SCAN_RCV03_AS	R/W	R/W	R/W	4
			Read Word 4 Assignment	SCAN_RCV04_AS	R/W	R/W	R/W	4
			Read Word 5 Assignment	SCAN_RCV05_AS	R/W	R/W	R/W	4
			Read Word 6 Assignment	SCAN_RCV06_AS	R/W	R/W	R/W	4
			Read Word 7 Assignment	SCAN_RCV07_AS	R/W	R/W	R/W	4
			Read Word 8 Assignment	SCAN_RCV08_AS	R/W	R/W	R/W	4
			Read Word 9 Assignment	SCAN_RCV09_AS	R/W	R/W	R/W	4
			Read Word 10 Assignment	SCAN_RCV10_AS	R/W	R/W	R/W	4
		Comm Write Addressing	Write Start Address	SCAN_W_ADRS	R/W	R/W	R/W	
			Number of Words To Be Transmitted	SCAN_W_SIZE	R/W	R/W	R/W	
			Write Word 1 Assignment	SCAN_WR01_AS	R/W	R/W	R/W	5
			Write Word 2 Assignment	SCAN_WR02_AS	R/W	R/W	R/W	5
			Write Word 3 Assignment	SCAN_WR03_AS	R/W	R/W	R/W	5
			Write Word 4 Assignment	SCAN_WR04_AS	R/W	R/W	R/W	5
			Write Word 5 Assignment	SCAN_WR05_AS	R/W	R/W	R/W	5
			Write Word 6 Assignment	SCAN_WR06_AS	R/W	R/W	R/W	5
			Write Word 7 Assignment	SCAN_WR07_AS	R/W	R/W	R/W	5
			Write Word 8 Assignment	SCAN_WR08_AS	R/W	R/W	R/W	5
			Write Word 9 Assignment	SCAN_WR09_AS	R/W	R/W	R/W	5
			Write Word 10 Assignment	SCAN_WR10_AS	R/W	R/W	R/W	5
			Write Word 11 Assignment	SCAN_WR011_AS	R/W	R/W	R/W	5

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Communication	Comm Addressing	Comm Write Addressing	Write Word 12 Assignment	SCAN_WR12_AS	R/W	R/W	R/W	5
			Write Word 13 Assignment	SCAN_WR13_AS	R/W	R/W	R/W	5
			Write Word 14 Assignment	SCAN_WR14_AS	R/W	R/W	R/W	5
			Write Word 15 Assignment	SCAN_WR15_AS	R/W	R/W	R/W	5
			Write Word 16 Assignment	SCAN_WR16_AS	R/W	R/W	R/W	5
			Write Word 17 Assignment	SCAN_WR17_AS	R/W	R/W	R/W	5
			Write Word 18 Assignment	SCAN_WR18_AS	R/W	R/W	R/W	5
			Write Word 19 Assignment	SCAN_WR19_AS	R/W	R/W	R/W	5
			Write Word 20 Assignment	SCAN_WR20_AS	R/W	R/W	R/W	5
			Write Word 21 Assignment	SCAN_WR21_AS	R/W	R/W	R/W	5
			Write Word 22 Assignment	SCAN_WR22_AS	R/W	R/W	R/W	5
			Write Word 23 Assignment	SCAN_WR23_AS	R/W	R/W	R/W	5
			Write Word 24 Assignment	SCAN_WR24_AS	R/W	R/W	R/W	5
			Write Word 25 Assignment	SCAN_WR25_AS	R/W	R/W	R/W	5
	Comm Configuration		Communication Type	COMM_TYPE	R/W	R/W	R/W	
			Drive to Drive Comm Flag	FLG_DSCAN	R/W	R/W	R/W	
			Comm Fault Auto Reset Flag	FLG_FAULT	R/W	R/W	R/W	
			Comm Fault By HB Detection Flag	FLG_HB_DOWN	R/W	R/W	R/W	
			Selection Flag For Using DI_EX4 In Communication	FLG_MV_NET_DI	R/W	R/W	R/W	
			Comm Fault By HB Detection Time Delay	TIME_HB_DOWN	R/W	R/W	R/W	
			Transmission Cycle Time	TL_CYC_TIME	R/W	R/W	R/W	
			Drive to Drive Comm Read Start Address 1	TL_OP1_DT	R/W	R/W	R/W	
			Drive to Drive Comm Read Station Number 1	TL_OP1_ST	R/W	R/W	R/W	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Communication	Comm Configuration		Drive to Drive Comm Read Start Address 2	TL_OP2_DT	R/W	R/W	R/W	
			Drive to Drive Comm Read Station Number 2	TL_OP2_ST	R/W	R/W	R/W	
			Drive to Drive Comm Read Start Address 3	TL_OP3_DT	R/W	R/W	R/W	
			Drive to Drive Comm Read Station Number 3	TL_OP3_ST	R/W	R/W	R/W	
			Drive to Drive Comm Read Start Address 4	TL_OP4_DT	R/W	R/W	R/W	
			Drive to Drive Comm Read Station Number 4	TL_OP4_ST	R/W	R/W	R/W	
			Master Station Number	TL_PC_NO	R/W	R/W	R/W	
			Drive Station Number	TL_SELF_NO	R/W	R/W	R/W	
			MODBUS snapshot enable flag	SCAN_WR_YSS_EN	R/W	R/W	R/W	
	Comm Devicenet		Device Net Current Scale	CS_CURR_SCALE	R/W	R/W	R/W	
			Device Net Baud Rate	DNET_BAUD	R/W	R/W	R/W	
			Device Net Master MAC ID	DNET_M_MACID	R/W	R/W	R/W	
			Device Net Drive MAC ID	DNET_MACID	R/W	R/W	R/W	
			Device Net Fault Auto Reset Option	DNET_OPTION	R/W	R/W	R/W	
			Device Net Process Input Gain	DNET_PRC_GAIN	R/W	R/W	R/W	
			Device Net Process Output Gain	DNET_PRC_GAIN2	R/W	R/W	R/W	
			Device Net Process Input/Output Scale Factor	DNET_PRC_SCALE	R/W	R/W	R/W	
			Device Net Board Serial Number	DNET_SERIAL_NO	R/W	R/W	R/W	
			Device Net Speed I/O Scale	DNET_SP_SCALE	R/W	R/W	R/W	
			Device Net Torque I/O Scale	DNET_TR_SCALE	R/W	R/W	R/W	
	Comm Masking		Input Word 1 Mask	MSK_SERSEQ1	R/W	R/W	R/W	
			Input Word 2 Mask	MSK_SERSEQ2	R/W	R/W	R/W	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Protection	Current Limit		Total Current Limit	LMT_I1	R/W	R/W	R/W	
			Total Current Limit Via External Control	LMT_I1_EX	R	R/W	R/W	
			Low Frequency Total Current Limit	LMT_I1_LOWF	R/W	R/W	R/W	
			Low Frequency Total Current Limit Upper Frequency	LMT_I1_LOWF_H	R/W	R/W	R/W	
			Low Frequency Total Current Limit Lower Frequency	LMT_I1_LOWF_L	R/W	R/W	R/W	
			Base Speed Torque Current Limit	LMT_IQ_BAS	R	R/W	R/W	
			Torque Current Limit While Stopped	LMT_IQ_EXTOFF	R	R/W	R/W	
			Torque Current Limit During Regen	LMT_IQ_INV	R	R/W	R/W	
			Top Speed Torque Current Limit	LMT_IQ_TOP	R	R/W	R/W	
			Base To Top Speed Torque Current Limit Taper Speed	LMT_SP_BASE	R/W	R/W	R/W	
			Torque Reference Limit	LMT_TRQ	R	R/W	R/W	
			External Torque Reference Limit	LMT_TRQ_EX	R	R/W	R/W	
			Regeneration Torque Reference Limit	LMT_TRQ_INV	R	R/W	R/W	
			External Regeneration Torque Reference Limit	LMT_TRQ_INV_EX	R	R/W	R/W	
			Current Limit Fault Delay Timer	TIME_CL	R/W	R/W	R/W	
	Fuse Detection		Running Rectifier Fuse Fault Detection Setting	CP_VDC_FUS	R/W	R/W	R/W	
			Charging Rectifier Fuse Fault Detection Setting	CP_VDC_FUS_CHG	R/W	R/W	R/W	
	Ground Current		Ground Fault Trip Level	CP_GDI	R/W	R/W	R/W	
			Ground Fault Alarm Level	CP_GDI_A	R/W	R/W	R/W	
			Ground Fault Detection Filter	FLT_IGR	R/W	R/W	R/W	
			Ground Fault Delay Timer	TIME_GR	R/W	R/W	R/W	
	Input Voltage		Input Voltage Low Start Inhibit Level	CP_UV_SIL	R/W	R/W	R/W	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Protection	Input Voltage Fault Detection		Input Voltage Loss Fault Level	CP_UVA	R/W	R/W	R/W	
			Input Phase Loss Fault Level	CP_VAC_PH_LOSS	R/W	R/W	R/W	
	Miscellaneous		Analog Input Fault Time Delay	TIME_AIN_FAULT	R/W	R/W	R/W	
			Motor Cooling Fan Time Delay	TIME_MFAN	R/W	R/W	R/W	
			Spare 1 Input Fault Time Delay	TIME_SPA1	R/W	R/W	R/W	
			Spare 2 Input Fault Time Delay	TIME_SPA2	R/W	R/W	R/W	
			Spare 3 Input Fault Time Delay	TIME_SPA3	R/W	R/W	R/W	
			Spare 4 Input Fault Time Delay	TIME_SPA4	R/W	R/W	R/W	
			Number Of Motors Connected Fault Level	CP_N_IM_LL	R	R/W	-	
	Motor Temperature		Motor Temperature Input Gain	AD_GS22	R/W	R/W	R/W	
			Motor Temperature Input Offset	AD_OS22	R/W	R/W	R/W	
			Motor Temperature Trip Setting	CP_MOTOR_OH	R/W	R/W	R/W	
			Motor Temperature Sensor Type Selection Flag	FLG_MTMP_SEL	R/W	R/W	R/W	
			Motor Temperature Offset	MTMP_OS	R/W	R/W	R/W	
			Motor Temperature PT Sensor 200 Deg C Resistance	MTMP_PT_RMAX	R/W	R/W	R/W	
	Motor Temperature		Motor Temperature PT Sensor 0 Deg C Resistance	MTMP_PT_RMIN	R/W	R/W	R/W	
			Motor Temperature RTD Unit 5V Temperature	MTMP_RTD_MAX	R/W	R/W	R/W	
			Motor Temperature RTD Unit 0V Temperature	MTMP_RTD_MIN	R/W	R/W	R/W	
	Output Voltage		Drive Output Voltage Phase Loss Level	CP_VINV_PH_LOSS	R/W	R/W	R/W	
			Input Voltage Low Level For Output Voltage Reduction	CS_VAC_MIN	R/W	R/W	R/W	
			Time Constant Used For Output Voltage Reduction	FLT_FLX_LMT	R/W	R/W	R/W	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Protection	Overload		Motor 20 Minute RMS Overload Trip Setting	CP_RMS_20	R/W	R/W	R/W	
			Motor 5 Minute RMS Overload Trip Setting	CP_RMS_5	R/W	R/W	R/W	
			Motor 5 Minute RMS Overload Alarm Setting	CP_RMS_A	R/W	R/W	R/W	
			Motor 20 Minute RMS Overload Alarm Setting	CP_RMS_A20	R/W	R/W	R/W	
	Overspeed		Overspeed Trip Speed	CP_OSP	R/W	R/W	R/W	
			Overspeed Trip Frequency	CP_OSS_FO	R/W	R/W	R/W	
	Protection Masking		Critical Fault Word 1 Mask	MSK_BLR1	R/W	R/W	R/W	
			Critical Fault Word 2 Mask	MSK_BLR2	R/W	R/W	R/W	
			Critical Fault Word 3 Mask	MSK_BLR3	R/W	R/W	R/W	
			Critical Fault Word 4 Mask	MSK_BLR4	R/W	R/W	R/W	
			Critical Fault Word 5 Mask	MSK_BLR5	R/W	R/W	R/W	
			Critical Fault Word 6 Mask	MSK_BLR6	R/W	R/W	R/W	
			Heavy Fault Word 2 Mask	MSK_HFD1	R/W	R/W	R/W	
			Heavy Fault Word 1 Mask	MSK_HFD2	R/W	R/W	R/W	
			Alarm Word 1 Mask	MSK_LFD1	R/W	R/W	R/W	
			Alarm Word 2 Mask	MSK_LFD2	R/W	R/W	R/W	
			Ready Word 1 Mask	MSK_READY1	R/W	R/W	R/W	
			Ready Word 2 Mask	MSK_READY2	R/W	R/W	R/W	
			Start Interlock Word 1 Mask	MSK_SIL1	R/W	R/W	R/W	
			Stop Request Word 1 Mask	MSK_STPRQ1	R/W	R/W	R/W	
			Light Fault Word 1 Mask	MSK_UV1	R/W	R/W	R/W	
			Light Fault Word 2 Mask	MSK_UV2	R/W	R/W	R/W	
			Intermediate Fault Word 1 Mask	MSK_UVA1	R/W	R/W	R/W	
			Intermediate Fault Word 2 Mask	MSK_UVA2	R/W	R/W	R/W	
			Intermediate Fault Word 3 Mask	MSK_UVA3	R/W	R/W	R/W	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Protection	Protection Masking		Intermediate Fault Word 4 Mask	MSK_UVA4	R/W	R/W	R/W	
	Rotation Fault Detection		Reverse Rotation Detection Percent	CP_REV_ROT	R	R/W	R/W	
			Stalled Detection Speed Difference	CP_ROT_F_DIFF	R	R/W	R/W	
			Stalled Detection Minimum Speed	CP_ROT_F_EN	R	R/W	R/W	
			Stalled Detection Time Delay	TIME_ROT_F	R	R/W	R/W	
	Speed Limit/ Detection		Forward Speed Limit	LMT_SP_F	R/W	R/W	R/W	
			Regeneration Torque Current Limit Speed	LMT_SP_INV	R/W	R/W	R/W	
			Minimum Running Speed	LMT_SP_MIN	R/W	R/W	R/W	
			Reverse Speed Limit	LMT_SP_R	R/W	R/W	R/W	
			Zero Speed Detection Level	MA_ZERO_SP	R/W	R/W	R/W	
	Speed Reference Fault		Speed Reference Lost Detection Level	CP_SP_LOST	R/W	R/W	R/W	
			Speed Reference Lost Function Flag	FLG_SP_LOST_EN	R/W	R/W	R/W	
	Traceback	Long Traceback	Long Traceback Data 1 Assignment	TRB_L1_OP_AS	R/W	R/W	R/W	6
			Long Traceback Data 2 Assignment	TRB_L2_OP_AS	R/W	R/W	R/W	6
			Long Traceback Data 3 Assignment	TRB_L3_OP_AS	R/W	R/W	R/W	6
			Long Traceback Data 4 Assignment	TRB_L4_OP_AS	R/W	R/W	R/W	6
			Long Traceback Data 5 Assignment	TRB_L5_OP_AS	R/W	R/W	R/W	6
			Long Traceback Data 6 Assignment	TRB_L6_OP_AS	R/W	R/W	R/W	6
			Long Traceback Data 7 Assignment	TRB_L7_OP_AS	R/W	R/W	R/W	6
			Long Traceback Data 8 Assignment	TRB_L8_OP_AS	R/W	R/W	R/W	6
			Long Traceback Data Sample Rate	TRB_TIME_LONG	R/W	R/W	R/W	
			Traceback Trigger Mode	TRB_TRIG_MOD	R/W	R/W	R/W	
		Standard Traceback	Standard Traceback Data 1 Assignment	TRB01_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 2 Assignment	TRB02_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 3 Assignment	TRB03_OP_AS	R/W	R/W	R/W	7

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Protection	Traceback	Standard Traceback	Standard Traceback Data 4 Assignment	TRB04_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 5 Assignment	TRB05_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 6 Assignment	TRB06_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 7 Assignment	TRB07_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 8 Assignment	TRB08_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 9 Assignment	TRB09_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 10 Assignment	TRB10_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 11 Assignment	TRB11_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 12 Assignment	TRB12_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 13 Assignment	TRB13_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 14 Assignment	TRB14_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 15 Assignment	TRB15_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 16 Assignment	TRB16_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 17 Assignment	TRB17_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 18 Assignment	TRB18_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 19 Assignment	TRB19_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 20 Assignment	TRB20_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 21 Assignment	TRB21_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 22 Assignment	TRB22_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 23 Assignment	TRB23_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 24 Assignment	TRB24_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 25 Assignment	TRB25_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 26 Assignment	TRB26_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 27 Assignment	TRB27_OP_AS	R/W	R/W	R/W	7
			Standard Traceback Data 28 Assignment	TRB28_OP_AS	R/W	R/W	R/W	7

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Protection	Under -current		Undercurrent Zero % Speed Detection Level	CP_UL_L	R/W	R/W	R/W	
			Undercurrent Detection delay timer	TIME_UL	R/W	R/W	R/W	
			Undercurrent 100% Speed Detection Level	CP_UL_H	R/W	R/W	R/W	
Optional Speed Reference	DI Reference		UP/Down Input Ramp Rate	CR_RATE_MRH	R/W	R/W	R/W	
	EIO Reference		EOI Reference Clear When Stopped Flag	FLG_MRH_CLR	R/W	R/W	R/W	
	Jog	Jog Type Selection	Jog Type Selection Flag	FLG_MV_JOG	R/W	R/W	R/W	
		Sixteen Speed Jog	Jog Speed 1	CR_SP00	R/W	R/W	R/W	
			Jog Speed 2	CR_SP01	R/W	R/W	R/W	
			Jog Speed 3	CR_SP02	R/W	R/W	R/W	
			Jog Speed 4	CR_SP03	R/W	R/W	R/W	
			Jog Speed 5	CR_SP04	R/W	R/W	R/W	
			Jog Speed 6	CR_SP05	R/W	R/W	R/W	
			Jog Speed 7	CR_SP06	R/W	R/W	R/W	
			Jog Speed 8	CR_SP07	R/W	R/W	R/W	
			Jog Speed 9	CR_SP08	R/W	R/W	R/W	
			Jog Speed 10	CR_SP09	R/W	R/W	R/W	
			Jog Speed 11	CR_SP10	R/W	R/W	R/W	
			Jog Speed 12	CR_SP11	R/W	R/W	R/W	
			Jog Speed 13	CR_SP12	R/W	R/W	R/W	
			Jog Speed 14	CR_SP13	R/W	R/W	R/W	
			Jog Speed 15	CR_SP14	R/W	R/W	R/W	
			Jog Speed 16	CR_SP15	R/W	R/W	R/W	
		Three Speed Jog	Forward Jog Speed 1	CR_JOG_FJ1S	R/W	R/W	R/W	
			Forward Jog Speed 2	CR_JOG_FJ2S	R/W	R/W	R/W	
			Forward Jog Speed 3	CR_JOG_FJ3S	R/W	R/W	R/W	
			Reverse Jog Speed 1	CR_JOG_RJ1S	R/W	R/W	R/W	
			Reverse Jog Speed 2	CR_JOG_RJ2S	R/W	R/W	R/W	
			Reverse Jog Speed 3	CR_JOG_RJ3S	R/W	R/W	R/W	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Special Control	Automatic Restart	Automatic Reset	Maximum Number of Automatic Reset Attempts	RTRY_MAX	R/W	R/W	R/W	
			Automatic Reset Mask	RTRY_MSK	R/W	R/W	R/W	
			Automatic Reset Delay Timer	RTRY_INTVL	R/W	R/W	R/W	
			Automatic Reset Enable	RTRY_F_EN	R/W	R/W	R/W	
		Power Failure Restart	Power Failure Restart Time	CP_PSFRCV_TIME	R/W	R/W	R/W	
			Power Failure Restart Enable	FLG_PSFRCV	R/W	R/W	R/W	
	Drooping		Droop Function Band width	CR_DROOP_BAND	R	R/W	R/W	
			Droop Function Gain	CR_DROOP_GAIN	R	R/W	R/W	
			Droop Function High Speed	CR_SP_DROOP_H	R	R/W	R/W	
			Droop Function Low Speed	CR_SP_DROOP_L	R	R/W	R/W	
			Drooping Torque Reference Flag	FLG_LD_DROOP	R	R/W	R/W	
			Drooping Control Speed Filter	FLT_DROOP	R	R/W	R/W	
	Field Weakening		Motor Base Speed	CS_SP_BASE	R/W	R	R	
			Field Weakening Base to Top Speed Voltage Difference	MA_V_RATE	R/W	R	R	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Special Control	Flying Restart	IPLL Restart	IPLL Restart Enable Flag	FLG_IPLL_RESTART	R/W	R	R	
			IPLL Restart PLL Filter	FLT_IPLL	R/W	R	R	
			IPLL Restart Proportional Gain	IPLL_P	R/W	R	R	
			IPLL Restart Response Gain	IPLL_W1	R/W	R	R	
			IPLL Restart Minimum Voltage Level	LVL_VF_LOW	R/W	R	R	
			IPLL Restart Error Level	LVL_IPLL_DLTQ	R/W	R/W	R/W	
			IPLL Restart Voltage Detection Filter	SL_FLT_EDQFBK	R/W	R	R	
			IPLL Restart Gain Change Start Enable	LVL_IPLL_HIGAIN	R/W	R	R	
			IPLL Restart High Gain Filter	FLT_IPLL_HIGAIN	R/W	R	R	
			IPLL Restart High Gain Multiplier	IPLL_PI_MUL	R/W	R	R	
			IPLL Restart Low Voltage Filter	FLT_IPLL_VFBK	R/W	R	R	
			IPLL Restart Low Voltage Filter	FLT_IPLL_FLX	R/W	R	R	
			FSEEK Vector Control Field Current Recovery Rate	FSEEK_ID_RATE	R	R/W	R/W	
			FSEEK Minimum Detection Frequency	FSEEK_LOW_FREQ	R/W	R	R	
		Normal Flying Restart	Sensorless Vector Flying Restart Flag	FLG_RESTART	R	R/W	-	
			Flying Restart Top Search Speed	SL_SP_RESTART	R/W	R/W	-	
		V/F Speed Search Restart	V/F Flying Restart Speed Search Frequency Ramp Gain	VF_SRCH_SP_G	R/W	R	-	
			V/F Flying Restart Speed Search Voltage Ramp Rate	VF_SRCH_RATE	R/W	R	-	
			V/F Flying Restart Speed Search Mode	VF_SRCH_MODE	R/W	R	-	
			V/F Flying Restart Speed Search Total Current Deviation	VF_SRCH_I1_CMP	R/W	R	-	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Special Control	Flying Restart	V/F Speed Search Restart	V/F Flying Restart Speed Search Torque Reference	VF_SRCH_IQ_LV	R/W	R	-	
			V/F flying restart speed search torque recovery rate	VF_SRCH_IQ_RATE	R/W	R	-	
			V/F flying restart speed search torque recovery start	VF_SRCH_SP_END	R/W	R	-	
			V/F flying restart low speed search gain freq adjustment	VF_SRCH_F_ADJ	R/W	R	-	
			V/F flying restart low speed search gain adjustment	VF_SRCH_G_ADJ	R/W	R	-	
			V/F Flying Restart Speed Search Residual Voltage Interlock	CP_MOT_V_IL	R/W	R/W	-	
	Jump Frequencies		Jump Frequency 1 Bandwidth	CR_SP_JP_BAND1	R/W	R/W	R/W	
			Jump Frequency 2 Bandwidth	CR_SP_JP_BAND2	R/W	R/W	R/W	
			Jump Frequency 3 Bandwidth	CR_SP_JP_BAND3	R/W	R/W	R/W	
			Jump Frequency 1	CR_SP_JP1	R/W	R/W	R/W	
			Jump Frequency 2	CR_SP_JP2	R/W	R/W	R/W	
			Jump Frequency 3	CR_SP_JP3	R/W	R/W	R/W	
			Jump Frequency Operation Selection Flag	FLG_SP_R_JP	R/W	R/W	R/W	
	Output Current Balance		Output Current Balance Integral Gain	G_IBC_P	R/W	R/W	R/W	
			Output Current Balance Proportional Gain	G_IBC_I	R/W	R/W	R/W	
	Output Voltage Rotation		Output Voltage Phase Rotation Flag	FLG_WVU	R/W	R/W	R/W	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Special Control	Soft Stall	Normal Soft Stall	Soft Stall Reference Reduction Setting	CR_SOFT_STALL	R/W	R/W	R/W	
			Soft Stall Enable Flag	FLG_SOFT_STALL	R/W	R/W	R/W	
		V/F Optional Soft Stall	Optional Soft Stall Filter	VF_FLT_STL	R/W	R	-	
			Optional Soft Stall Limit	VF_LMT_STL	R/W	R	-	
			Optional Soft Stall Proportional Gain	VF_STL_P	R/W	R	-	
			Optional Soft Stall Response Gain	VF_STL_W1	R/W	R	-	
			Optional Soft Stall Current Level	VF_STLPOINT	R/W	R	-	
			Optional Soft Stall Start Speed	VF_STLONSP	R/W	R	-	
	Special Accel/ Decel		Quick Stop Rate	CR_RATE_QSTOP	R/W	R/W	R/W	
			Multiple Acceleration Rate 2	CR_RATE_ACC2	R/W	R/W	R/W	
			Multiple Acceleration Rate 3	CR_RATE_ACC3	R/W	R/W	R/W	
			Multiple Acceleration Rate 4	CR_RATE_ACC4	R/W	R/W	R/W	
			Multiple l Deceleration Rate 2	CR_RATE_DEC2	R/W	R/W	R/W	
			Multiple Deceleration Rate 3	CR_RATE_DEC3	R/W	R/W	R/W	
			Multiple Deceleration Rate 4	CR_RATE_DEC4	R/W	R/W	R/W	
			Speed For Multiple Accel/Decel Rate 2	CR_RATE_CHG2	R/W	R/W	R/W	
			Speed For Multiple Accel/Decel Rate 3	CR_RATE_CHG3	R/W	R/W	R/W	
			Speed For Multiple Accel/Decel Rate 4	CR_RATE_CHG4	R/W	R/W	R/W	
			Speed For Multiple Decel Rate 2	OP_DEC_CHG2	R/W	R/W	R/W	
			Speed For Multiple Decel Rate 3	OP_DEC_CHG3	R/W	R/W	R/W	
			Speed For Multiple Decel Rate 4	OP_DEC_CHG4	R/W	R/W	R/W	
			Optional Acceleration Rate	OP_RATE_ACC	R/W	R/W	R/W	
			Optional Deceleration Rate	OP_RATE_DEC	R/W	R/W	R/W	
			S Curve Rate End Time	CR_STYP_EN	R/W	R/W	R/W	
			S Curve Rate Start Time	CR_STYP_ST	R/W	R/W	R/W	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Special Control	Speed Low		Speed LOW Detection Level	CR_SP_LOW	R/W	R/W	R/W	
			Speed LOW Dead Band	CR_SP_LOW_BAND	R/W	R/W	R/W	
	Speed Reach/ Trace		Speed Reach/Trace Selection Flag	FLG_SP_RCH	R/W	R/W	R/W	
			Speed Reach Detection Speed	CR_SP_RCH	R/W	R/W	R/W	
			Speed Reach/Trace Dead Band	CR_SP_RCH_BAND	R/W	R/W	R/W	
			Speed Reach/Trace Delay Timer	TIME_SP_RCH	R/W	R/W	R/W	
	Speed Sensor		Pulse Generator Input Counts	CS_PGCNT	R/W	R/W	R/W	
			Pulse Generator Output Counts	CS_PGOUT	R/W	R/W	R/W	
			Resolver Filter	CS_RES_DGFLT	R/W	R/W	R/W	
			Resolver/PG Type	CS_RES_TYPE	R/W	R/W	R/W	
			Resolver Excitation Frequency Flag	FLG_RES_EX4	R/W	R/W	R/W	
	Miscellaneous Timers		Motor Stopped Detection Delay Timer	TIME_RNTD	R/W	R/W	-	
			Field Current Off Delay Timer	TIME_FOFF	R/W	R/W	-	
	V/F Advanced Control		Motor Field Current	MI_ID_BASE	R/W	R	-	
			Motor Winding Inductance	MI_L_CMP	R/W	R	-	
			Motor High Frequency Winding Resistance	MI_R1_SET	R/W	R	-	
			Motor Winding Resistance Change Frequency	MI_R1_SET_FREQ	R/W	R	-	
			Motor Low Frequency Winding Resistance	MI_R1_SET_LF	R/W	R	-	
			Motor Impedance Compensation Gain	VF_SP_TRQBST	R/W	R	-	
			Motor Impedance Compensation Speed	VF_TRQBST_GAIN	R/W	R	-	
	V/F DC Over Voltage Control	DC Voltage Control	DC Overvoltage Stall Anti-overshoot Gain	VF_VDCR_A	R/W	R	-	
			DC Overvoltage Stall Anti-overshoot Response Gain	VF_VDCR_AT	R/W	R	-	
			DC Overvoltage Stall Voltage Level	VF_VDCR_LV	R/W	R	-	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Special Control	V/F DC Over Voltage Control	V/F DC Over Voltage Control	DC Overvoltage Stall Response Gain	VF_VDCR_W1	R/W	R	-	
			DC Overvoltage Stall Proportional Gain	VF_VDCR_P	R/W	R	-	
		Regeneration Control	Regeneration Control Torque Level	VF_TQZ_LV	R/W	R	-	
			Regeneration Control Torque Feedback Filter	VF_FLT_TQZ	R/W	R	-	
			Regeneration Control Compensation Proportional Gain	VF_TQZ_P	R/W	R	-	
			Regeneration Control Compensation Response Gain	VF_TQZ_W1	R/W	R	-	
			Regeneration Control Anti-overshoot Gain	VF_TQZ_A	R/W	R	-	
			Regeneration Control Anti-overshoot Response Gain	VF_TQZ_AT	R/W	R	-	
	V/F Pattern		Five Point Pattern Frequency 1	CR_FP1	R/W	R	-	
			Five Point Pattern Frequency 2	CR_FP2	R/W	R	-	
			Five Point Pattern Frequency 3	CR_FP3	R/W	R	-	
			Five Point Pattern Frequency 4	CR_FP4	R/W	R	-	
			Five Point Pattern Frequency 5	CR_FP5	R/W	R	-	
			Five Point Pattern Voltage 1	CR_VP1	R/W	R	-	
			Five Point Pattern Voltage 2	CR_VP2	R/W	R	-	
			Five Point Pattern Voltage 3	CR_VP3	R/W	R	-	
			Five Point Pattern Voltage 4	CR_VP4	R/W	R	-	
			Five Point Pattern Voltage 5	CR_VP5	R/W	R	-	
			V/F Mode Selection	CS_VF_MODE	R/W	R	-	
			V/F Curve Gain	VF_CURVE_GAIN	R/W	R	-	

Primary Group	Sub Group 1	Sub Group 2	Keypad Name	Symbol	IM		SM	Sel list
					VF	Vect		
Special Control	V/F Stability		Dc Feedback Filter	FLT_VDC_F	R/W	R/W	-	
			Torque Current Stability Gain	VF_FCMP_A	R/W	R	-	
			Torque Current Stability Time Constant	VF_FCMP_AT	R/W	R	-	
			Speed Reference Filter For Low Speed Field Current Compensation	VF_FLT_SP_R	R/W	R	-	
			Torque Current Stability Compensation Start Delay Timer	VF_TIME_FCMP	R/W	R	-	
			Field Current Stability Antiovershoot Gain	VF_DVCMP_A	R/W	R	-	
			Field Current Stability Antiovershoot Response Gain	VF_DVCMP_AT	R/W	R	-	
	V/F Voltage Control		Voltage Control Proportional Gain	VF_LMT_VCMP	R/W	R	-	
			Voltage Control Response Gain	VF_VCMP_P	R/W	R	-	
			Voltage Control Compensation Limit	VF_VCMP_W1	R/W	R	-	
	V/F Starting Compensation		Initial Starting Frequency	LMT_SP_L	R/W	R/W	-	
			Starting Voltage Hold Timer	TIME_FON	R/W	R/W	-	
			Starting Frequency Hold Timer	TIME_ST	R/W	R	-	
			Initial Starting Voltage	VF_LSP_VBST	R/W	R	-	
			Voltage Boost End Speed	VF_LSP_VBST_SP	R/W	R	-	

* This table shows only the drive parameters available in the Utility section. Refer to section 4 of the manual for details of all of the functions available under the Utility section.

3.6.2 Selection Lists

Some parameters, such as analog inputs and outputs, have selection lists associated with them. For these parameters, only a limited number of settings may be chosen from. The lists contain the most common parameters used. If some special application requires a setting not in the list, other selections are available, by using the Wi Tool commissioning software. If a value has been programmed in one of the parameters that is not in the keypad's list, the keypad will display UNKOWN. If this parameter is changed via the keypad, it can only be returned with the Wi Tool commissioning software.

Selection List	Selections	Description	Note
1	DUST	Memory location that will not effect software operation.	
	SP_REF_AIN1	1st analog input speed reference. 25000 counts=100%	
	SP_REF_AIN2	2nd analog input speed reference. 25000 counts=100%	
	IM_NUMBER	The number of motors connected to the drive. 10000counts=100%	IM only
	FC_FBK	Exciter current feedback. 4000counts=100%	SM only
	TENS_R1	Torque reference used for Master/Slave control. 4000counts=100%	
	IQ_LMT_EXT	External torque current limit. 4000counts=100%	
2	DUST	Memory location that will not effect software operation.	
	VAC_FBK	Input voltage feedback. 10000counts=100%	
	IQ_F	Motor torque current feedback. 4000counts=100%	
	I1_F	Motor Average total current feedback. 4000counts=100%	
	VI_POWER_FLT	Output kW 1count/kW.	
	VI_POWER01	Output kW 1 count/0.1kW.	
	E1_R	Motor output voltage in percent. 16384 counts=100%	
	FO64	Output frequency. 64counts/Hz	
	SP_F	Speed feedback. 25000counts=100%	
	SP_R	Total speed reference. 25000counts=100%	
	VF_E1_REF	Volts/Hertz total output voltage reference 16384 counts=100%	IM only
	FC_REF	Exciter current reference. 4000counts=100%	SM only
	PHC_F	Exciter voltage reference. 4000counts=100%	SM only
	MAIN_VAC_F	Output voltage feedback. 10000counts=100%	
	VI_KVA_PCT	Drive output kVA percent 10000counts=100%	
	VI_KVA	Drive output kVA 1count/kVA	
	VI_KVAR_PCT	Drive output kVAR percent 10000counts=100%	
	VI_KVAR	Drive output kVAR 1count/kVAR	
	VI_PF_PCT	Drive output power factor percent 10000counts=100%	
	MOT_POWER_PCT	Motor input power percent 10000counts=100%	
	VDC_F_DSP	Average DC voltage feedback (Filtered). 10000counts=100%	
3	DUST	Memory location that will not effect software operation.	
	SSEQ_OUT1	Drive operation sequence output word 1.	
	SSEQ_OUT2	Drive operation sequence output word 2.	
	SSEQ_OUT3	Drive operation sequence output word 3.	
	FLGSTS_MV1	Drive status word 1.	
	SEQ_DATAMV02	Drive status word 2.	
	SEQ_DATASM00	Drive status word 0.	SM only

Selection List	Selections	Description	Note
3	DO_AUTO_SET	Digital output automatically set as per DO_G setting.	
4	DUST	Memory location that will not effect software operation.	
	SERSEQDATA1	Serial input word 1.	
	SERSEQDATA2	Serial input word 2.	
	DI_EX4	Serial/digital input word 4.	
	SP_REF_AIN1	1st analog input speed reference. 25000 counts=100%	
	SP_REF_AIN2	2nd analog input speed reference. 25000 counts=100%	
	IM_NUMBER	The number of motors connected to the drive. 10000counts=100%	IM only
	TENS_R1	Torque reference used for Master/Slave control. 4000counts=100%	
	IQ_LMT_EXT	External torque current limit. 4000counts=100%	
5	DUST	Memory location that will not effect software operation.	
	SSEQ_OUT1	Drive operation sequence output word 1.	
	SSEQ_OUT2	Drive operation sequence output word 2.	
	SSEQ_OUT3	Drive operation sequence output word 3.	
	FLGSTS_MV1	Drive status word 1.	
	SEQ_DATAMV02	Drive status word 2.	
	VAC_FBK	Input voltage feedback. 10000counts=100%	
	IQ_F	Motor torque current feedback. 4000counts=100%	
	I1_F	Motor Average total current feedback. 4000counts=100%	
	VI_POWER_FLT	Output kW 1count/kW.	
	VI_POWER01	Output kW 1 count/0.1kW.	
	E1_R	Motor output voltage in percent. 16384 counts=100%	
	FO64	Output frequency. 64counts/Hz	
	SP_F	Speed feedback. 25000counts=100%	
	SP_R	Total speed reference. 25000counts=100%	
	VF_E1_REF	Volts/Hertz total output voltage reference 16384 counts=100%	IM only
	MAIN_VAC_F	Output voltage feedback. 10000counts=100%	
	VI_KVA_PCT	Drive output kVA percent 10000counts=100%	
	VI_KVA	Drive output kVA 1count/kVA	
	VI_KVAR_PCT	Drive output kVAR percent 10000counts=100%	
	VI_KVAR	Drive output kVAR 1count/kVAR	
	VI_PF_PCT	Drive output power factor percent 10000counts=100%	
	MOT_POWER_PCT	Motor input power percent 10000counts=100%	
	VDC_F_DSP	Average DC voltage feedback (Filtered). 10000counts=100%	
	MOT_FREQ	VSD Operating Output Frequency (10counts/Hz)	
	MOT_VOLT	VSD Output Voltage (1count/volt)	
	INV_U_CURR	U-phase RMS motor current (10counts/A)	
	INV_V_CURR	V-phase RMS motor current (10counts/A)	
	INV_W_CURR	W-phase RMS motor current (10 counts/A)	
	LINE_VOLT	VSD Input Voltage (1count/V)	
	LINE_POWER	VSD Input Power - Calculated (1count/kW)	
	IM_NUMBER	Percentage of FLA input (100counts/%)	IM only
	CS_MOTOR_CURR	Programmed motor rated current (10counts/A)	
	CS_MOTOR_VOLT	Programmed motor rated voltage (1count/V)	

Selection List	Selections	Description	Note
5	VDC_UP_FLT	VSD U-phase Positive DC Link Voltage (100counts/%)	
	VDC_UN_FLT	VSD U-phase Negative DC Link Voltage (100counts/%)	
	VDC_VP_FLT	VSD V-phase Positive DC Link Voltage (100counts/%)	
	VDC_VN_FLT	VSD V-phase Negative DC Link Voltage (100counts/%)	
	VDC_WP_FLT	VSD W-phase Positive DC Link Voltage (100counts/%)	
	VDC_WN_FLT	VSD W-phase Negative DC Link Voltage (100counts/%)	
	OP_SEQ_OUT1	Optional drive operation sequence output word 1.	
	OP_SEQ_OUT2	Optional drive operation sequence output word 2.	
	OP_SEQ_OUT3	Optional drive operation sequence output word 3.	
	OP_SEQ_OUT4	Optional drive operation sequence output word 4.	
6	SP_R	Total speed reference. 25000counts=100%	
	SP_F	Speed feedback. 25000counts=100%	
	IQ_R	Motor torque current reference. 4000counts=100%	
	IQ_F	Motor torque current feedback. 4000counts=100%	
	ID_R	Motor field current reference. 4000counts=100%	
	ID_F	Motor field current feedback. 4000counts=100%	
	E1_R	Motor output voltage in percent. 16384 counts=100%	
	I1_F	Motor Average total current feedback. 4000counts=100%	
	F_P	Frequency pattern. 25000counts=100%	IM only
	VDC_F	Average DC voltage feedback. 10000counts=100%	
	VI_POWER	Output kW 1count/kW.	
	VAC_FBK	Input voltage feedback. 10000counts=100%	
	MAIN_VAC_F	Output voltage feedback. 10000counts=100%	
	FC_REF	Exciter current reference. 4000counts=100%	SM only
7	SP_R	Total speed reference. 25000counts=100%	
	SP_F	Speed feedback. 25000counts=100%	
	IQ_R	Motor torque current reference. 4000counts=100%	
	IQ_F	Motor torque current feedback. 4000counts=100%	
	ID_R	Motor field current reference. 4000counts=100%	
	ID_F	Motor field current feedback. 4000counts=100%	
	E1_R	Motor output voltage in percent. 16384 counts=100%	
	I1_F	Motor Average total current feedback. 4000counts=100%	
	F_P	Frequency pattern. 25000counts=100%	IM only
	VDC_F	Average DC voltage feedback. 10000counts=100%	
	MAIN_VAC_F	Output voltage feedback. 10000counts=100%	
	T_R	Torque reference. 4000counts=100%	
	EQ_R	Torque voltage reference. 16384counts=100%	
	ED_R	Field voltage reference. 16384counts=100%	
	VR_F	R-S input voltage feedback. 10000counts=100%	
	VT_F	S-T input voltage feedback. 10000counts=100%	
	G_VSC_FLX	Voltage saturation control flux reference gain. 16364counts=100%	
	VDC_UP	U-phase positive DC bus feedback. 10000counts=100%	
	VDC_UN	U-phase negative DC bus feedback. 10000counts=100%	
	VDC_VP	V-phase positive DC bus feedback. 10000counts=100%	

Selection List	Selections	Description	Note
7	VDC_VN	V-phase negative DC bus feedback. 10000counts=100%	
	VDC_WP	W-phase positive DC bus feedback. 10000counts=100%	
	VDC_WN	W-phase negative DC bus feedback. 10000counts=100%	
	DI_DATA1	Digital input word 1.	
	SSEQ_OUT1	Drive operation sequence output word 1.	
	SSEQ_OUT3	Drive operation sequence output word 3.	
	DI_DATA3	Digital input word 3.	
	DI_DATA4	Digital input word 4.	
	DI_DATA5	Digital input word 5.	
	CPS_FLT	Filtered control power input voltage. 1count/volt	
	WOCD	Sensorless vector control estimated speed error. 10000counts=100%	IM only
	E2Q	Rotor torque voltage feedback. 10000counts=100%	IM only
	QO	Rotor position feedback. 65536counts/360deg (2π radians)	
	VI_POWER	Output kW 1count/kW.	
	VF_EDCMP	Volts/Hertz field voltage reference compensation 16384counts=100%	IM only
	FL_R	Flux reference 10000counts=100%	
	VAC_FBK	Average drive input voltage feedback 10000counts=100%	
	VF_FCMP	Volts/Hertz torque feedback frequency compensation 25000counts=100%	IM only
	VF_STLCMP	Volts/Hertz soft stall compensation 25000counts=100%	IM only
	VF_VDCR_OUT	Volts/Hertz DC voltage control compensation output 4000counts=100%	IM only
	VF_TQZ_OUT	Volts/Hertz Regeration torque control output 4000counts=100%	IM only
	VF_EDD	Volts/Hertz field voltage reference 16384counts=100%	IM only
	VF_EQQ	Volts/Hertz torque voltage reference 16384counts=100%	IM only
	IPLL_DLTQ	Output voltage phase lock loop error 572counts/degree	
	IPLL_DLTQ_FLT	Output voltage phase lock loop error w/ filter 572counts/degree	
	XFR_DLTQ	Input voltage phase lock loop error 182counts/degree	
	FC_REF	Exciter current reference. 4000counts=100%	SM only

4.0 Utility Functions

4.1 EOI Access

This screen allows the user to set and change the password and define the functionality of the keypad. The password when shipped from the factory is '0'. Entering the password will allow the user to change the password to any number from 0 to 65535. The keypad only has one password. Once the password is changed, only the new password will function.

The functionality of the keypad STOP button can also be defined from this screen. Programming a '1' to Stop Mode Flag will allow the keypad STOP button to stop the motor when the drive is running in remote mode. Programming a '0' to this flag will disable the STOP button when the drive is in remote mode. Be aware that this function only works if the remote start/stop is done with momentary start and stop signals (three wire control). It will not function if the drive is controlled via a single maintained contact.

The functionality of the keypad, as a whole, can also be set in this screen. This is accomplished with the EOI Enable Flag. Programming this flag to '0' will disable all functions except monitoring. Programming it to '1' will allow monitoring and operation of the drive. Programming it to '2' will allow monitoring, operation, and changing of parameters. To change the value stored in this flag, you must enter the password first.

4.2 Clock Set

This screen allows the time and date to be set. The EOI contains a real time clock with a built-in ten year battery. It writes the time to the drives main control board when the drive control power is first energized. The drive time and the EOI time are both displayed in this screen. The EOI date and time can be changed via the UP and DOWN keys and the ENTER button. Once the EOI date and time are set, the drive date and time can be synchronized to the EOI by holding down the ENTER key.

4.3 Contrast

This screen allows the user to adjust the LCD contrast. The contrast will change as the number is changed, but to keep the new setting, the ENTER key or the encoder must be pressed to save the value. If ESC is pressed, the setting will return to the old value.

4.4 Version

This screen allows the user to view the software version of both the EOI and the Drive.

4.5 Parameter Control

This screen allows the drive parameters to be saved to the keypad and written to the drive control board. The screen shows the drive software version, the software version of the file saved in the EOI, and the time and date it was saved. There is also a message box and a Select Action box. From here the parameters can be saved to the EOI memory with the SAVE TO EOI selection or they can be written from the EOI to the control board with the WRITE TO DRIVE selection. The time and date that the parameters were last saved to the EOI is displayed at the bottom of the screen.

The WRITE TO DRIVE function does not work or an alert message is displayed under the following conditions:

Message displayed	Problem/concern
Cant write-No file saved	No valid file is saved in the EOI
Cant write-Drive type different	The first 4 digits of the software version not the same
Cant write-Not in local	The EOI is not in local mode
Cant write-Drive running	The drive is running
Software revision different	The entire software version is not the same

When attempting to write from the EOI to the control board, it is recommended that the drive be interlocked via the keypad interlock button and the input contactor be opened. If the saved file is written to the drive, the settings must be written to the EEPROM, and the control power cycled off and on before trying to operate the drive. Writing to the EEPROM assures that the settings will remain in the drive if the control power is lost. Also, many parameters do not take effect until the control power is cycled.

4.6 Fault History

This screen displays the fault history of the drive. Upon entering this screen, the display polls the control board for the past faults and sorts them by date. This process takes a few seconds. Up to 31 past faults are available. The faults are displayed one per screen. The data shown is the name of the fault, a short description, and a date and time stamp. The faults can be scrolled through via the UP/DOWN keys or the encoder.

4.7 Event Resets

This screen allows the user to reset the event data. The data that can be reset is Effective power (kWH), Apparent power, Power on time, Run time, and Fault history.

4.8 EOI Settings

This screen allows the user to change the Ready and Running indication LEDs of the EOI Between US standard and European standard. (See section 1.1). The change will not take effect until either the operation condition of the drive changes or the control power is cycled.

5.0 Faults and Alarms

5.1 First Fault

The First Fault screen will appear immediately when a fault has occurred telling the user the time the fault occurred, and a list of faults. There may be multiple events listed as a result of a fault. Up to 10 items may be listed. These events will be shown on separate screens. They can be stepped through from first to last via the UP/DOWN arrows or the encoder. The event marked F1 is the first fault that occurred, and the cause of the drive tripping. The others are events that result from the first. They are listed in chronological order. This screen will persist until the fault has cleared and RESET is pressed, or until the user presses ESC.

5.2 Preparation Display

The Preparation Display is available from the Main Tab when a fault or alarm has occurred or when the drive is not ready. The list of preparation items may be viewed by pressing ESC while viewing the Main Tab. If there is an unreset fault condition, this screen will list the fault first. If there is an alarm while the drive is running, it will be listed in this screen. If the ASD is in the Not Ready condition, but not faulted, the Preparation Display lists the items requiring user attention to prepare the ASD for operation. There may be up to 10 items in this list. Always correct the first item, as the following items are generally a result of the first. Once the preparation screen is entered, the EOI will automatically return to the main screen when the drive becomes ready. Otherwise, press the ESC key to return to the Main Tab.

5.3 Fault list

FI_CODE	BitGroup 08	Bit	Symbol 08	Description
0	BLF1	15	FL_FAULT_	Exciter Failure (Exciter Detection)
1	BLF1	14	N.U.	Not Used
2	BLF1	13	N.U.	Not Used
3	BLF1	12	N.U.	Not Used
4	BLF1	11	N.U.	Not Used
5	BLF1	10	N.U.	Not Used
6	BLF1	9	N.U.	Not Used
7	BLF1	8	LF_	Field Current Lost
8	BLF1	7	FCL_T_	Field Current Limit Timer
9	BLF1	6	FSTOP_	Exciter Stopped while Running
10	BLF1	5	N.U.	Not Used
11	BLF1	4	N.U.	Not Used
12	BLF1	3	N.U.	Not Used
13	BLF1	2	OV_S_	Stator Over Voltage
14	BLF1	1	FOC_	Instantaneous Field Overcurrent (Exciter Detection)
15	BLF1	0	FOC_S_	Instantaneous Field Overcurrent
48	BLR1	15	N.U.	Not Used
49	BLR1	14	OCA_	Instantaneous Output Overcurrent

FI_CODE	BitGroup 08	Bit	Symbol 08	Description
50	BLR1	13	N.U.	Not Used
51	BLR1	12	N.U.	Not Used
52	BLR1	11	N.U.	Not Used
53	BLR1	10	N.U.	Not Used
54	BLR1	9	REC_OH_	Rectifier Overheat
55	BLR1	8	OH_T_U_	Power Module U Overheat
56	BLR1	7	OH_T_V_	Power Module V Overheat
57	BLR1	6	OH_T_W_	Power Module W Overheat
58	BLR1	5	CURU_	U Phase HCT Fault
59	BLR1	4	CURW_	W Phase HCT Fault
60	BLR1	3	CPU_A_	Control Board Slave CPU Fault
61	BLR1	2	CPU_M_	Control Board Master CPU Fault
62	BLR1	1	FUSE_	Rectifier Fuse Failure
63	BLR1	0	BLF_	Heavy Electrical Fault (Exciter)
64	BLR2	15	OH_TR_	Transformer Overheat
65	BLR2	14	OCA_B_	Instantaneous Output Overcurrent B Bank
66	BLR2	13	N.U.	Not Used
67	BLR2	12	N.U.	Not Used
68	BLR2	11	FUSE_UP_	Rectifier Fuse Fault U Phase Positive Bus
69	BLR2	10	FUSE_UN_	Rectifier Fuse Fault U Phase Negative Bus
70	BLR2	9	FUSE_VP_	Rectifier Fuse Fault V Phase Positive Bus
71	BLR2	8	FUSE_VN_	Rectifier Fuse Fault V Phase Negative Bus
72	BLR2	7	FUSE_WP_	Rectifier Fuse Fault W Phase Positive Bus
73	BLR2	6	FUSE_WN_	Rectifier Fuse Fault W Phase Negative Bus
74	BLR2	5	CURU_B_	U Phase HCT Fault B Bank
75	BLR2	4	CURW_B_	W Phase HCT Fault B Bank
76	BLR2	3	N.U.	Not Used
77	BLR2	2	N.U.	Not Used
78	BLR2	1	N.U.	Not Used
79	BLR2	0	N.U.	Not Used
80	BLR3	15	N.U.	Not Used
81	BLR3	14	N.U.	Not Used
82	BLR3	13	OSS_	Motor Overspeed By Speed Sensor
83	BLR3	12	OSS_FO_	Output Overfrequency
84	BLR3	11	N.U.	Not Used
85	BLR3	10	N.U.	Not Used
86	BLR3	9	SP_ERR_	Pulse Generator or Sensorless Feedback Fault
87	BLR3	8	SP_ERR2_	Resolver Feedback Fault
88	BLR3	7	N.U.	Not Used
89	BLR3	6	N.U.	Not Used
90	BLR3	5	ROT_F_	Motor Rotation Failure

FI_CODE	BitGroup 08	Bit	Symbol 08	Description
91	BLR3	4	REV_ROT_F_	Motor Reverse Rotation Fault
92	BLR3	3	ENCODER_F_	Pulse Generator Feedback dn/dt Fault
93	BLR3	2	N.U.	Not Used
94	BLR3	1	N.U.	Not Used
95	BLR3	0	XFR_FAIL_	Transfer Failure
96	BLR4	15	REC_F_	DC Bus Charging Failure
97	BLR4	14	N.U.	Not Used
98	BLR4	13	N.U.	Not Used
99	BLR4	12	N.U.	Not Used
100	BLR4	11	OCD_UA1_	IGBT Overcurrent Device UA1
101	BLR4	10	OCD_UA4_	IGBT Overcurrent Device UA4
102	BLR4	9	OCD_UB1_	IGBT Overcurrent Device UB1
103	BLR4	8	OCD_UB4_	IGBT Overcurrent Device UB4
104	BLR4	7	OCD_VA1_	IGBT Overcurrent Device VA1
105	BLR4	6	OCD_VA4_	IGBT Overcurrent Device VA4
106	BLR4	5	OCD_VB1_	IGBT Overcurrent Device VB1
107	BLR4	4	OCD_VB4_	IGBT Overcurrent Device VB4
108	BLR4	3	OCD_WA1_	IGBT Overcurrent Device WA1
109	BLR4	2	OCD_WA4_	IGBT Overcurrent Device WA4
110	BLR4	1	OCD_WB1_	IGBT Overcurrent Device WB1
111	BLR4	0	OCD_WB4_	IGBT Overcurrent Device WB4
112	BLR5	15	PLD_ERR_	Control Board Programmable Logic Device Fault
113	BLR5	14	N.U.	Not Used
114	BLR5	13	START_JAM_	Starting Jam
115	BLR5	12	DS_T_	Door Switch Fault
116	BLR5	11	RUN_CMD_F_	Digital/Serial start command mismatch error
117	BLR5	10	N.U.	Not Used
118	BLR5	9	N.U.	Not Used
119	BLR5	8	N.U.	Not Used
120	BLR5	7	SPA4_T	Spare Input 4 Time delayed
121	BLR5	6	SPA3_T	Spare Input 3 Time delayed
122	BLR5	5	SPA2_T	Spare Input 2 Time delayed
123	BLR5	4	SPA1_T	Spare Input 1 Time delayed
124	BLR5	3	SPA4	Spare Input 4
125	BLR5	2	SPA3	Spare Input 3
126	BLR5	1	SPA2	Spare Input 2
127	BLR5	0	SPA1	Spare Input 1
128	BLR6	15	MPSF_MV_	Input Power Failure
129	BLR6	14	CPSF_	Control Power Failure
130	BLR6	13	N.U.	Not Used
131	BLR6	12	GR_T_	Time Delayed Ground Fault

FI_CODE	BitGroup 08	Bit	Symbol 08	Description
132	BLR6	11	OV_UP_	U Phase Positive DC Overvoltage
133	BLR6	10	OV_UN_	U Phase Negative DC Overvoltage
134	BLR6	9	OV_VP_	V Phase Positive DC Overvoltage
135	BLR6	8	OV_VN_	V Phase Negative DC Overvoltage
136	BLR6	7	OV_WP_	W Phase Positive DC Overvoltage
137	BLR6	6	OV_WN_	W Phase Negative DC Overvoltage
138	BLR6	5	N.U.	Not Used
139	BLR6	4	N.U.	Not Used
140	BLR6	3	N.U.	Not Used
141	BLR6	2	N.U.	Not Used
142	BLR6	1	N.U.	Not Used
143	BLR6	0	PLL_	Phase Lock Loop Synchronizing Error
144	UVA1	15	LF_	Field Current Lost
145	UVA1	14	UVD_	DC Bus Undervoltage
146	UVA1	13	OL5_	5 Minute RMS Overload Fault
147	UVA1	12	OL20_	20 Minute RMS Overload Fault
148	UVA1	11	UL_T_	Undercurrent Time Delayed Fault
149	UVA1	10	FCL_T_	Field Current Limit Timer
150	UVA1	9	CL_T_	Current Limit Time Delayed Fault
151	UVA1	8	C_FN_T_	Drive Cooling Fan Time Delayed Fault
152	UVA1	7	FSTOP_	Exciter Stopped while Running
153	UVA1	6	N.U.	Not Used
154	UVA1	5	N.U.	Not Used
155	UVA1	4	AC_MCCB_	Input Contactor Open
156	UVA1	3	N.U.	Not Used
157	UVA1	2	N.U.	Not Used
158	UVA1	1	N.U.	Not Used
159	UVA1	0	BLR_	Heavy Electrical Fault
160	UVA2	15	N.U.	Not Used
161	UVA2	14	UVD_B_	DC Bus Undervoltage On B Bank
162	UVA2	13	N.U.	Not Used
163	UVA2	12	N.U.	Not Used
164	UVA2	11	N.U.	Not Used
165	UVA2	10	N.U.	Not Used
166	UVA2	9	N.U.	Not Used
167	UVA2	8	C_FN_T_B_	Drive Cooling Fan Time Delayed Fault Both Banks
168	UVA2	7	N.U.	Not Used
169	UVA2	6	N.U.	Not Used
170	UVA2	5	N.U.	Not Used
171	UVA2	4	N.U.	Not Used
172	UVA2	3	N.U.	Not Used

FI_CODE	BitGroup 08	Bit	Symbol 08	Description
173	UVA2	2	N.U.	Not Used
174	UVA2	1	VINV_PH_LOSS_	Drive Output Voltage Phase Lost
175	UVA2	0	VAC_PH_LOSS_	Input Voltage Phase Lost
176	UVA3	15	UVP_B_	Positive DC Bus Undervoltage B Bank
177	UVA3	14	UVN_B_	Negative DC Bus Undervoltage B Bank
178	UVA3	13	UVP_	Positive DC Bus Undervoltage
179	UVA3	12	UVN_	Negative DC Bus Undervoltage
180	UVA3	11	OH_ACL_T_	AC Link Reactor Time Delayed Overheat
181	UVA3	10	N.U.	Not Used
182	UVA3	9	SYS_ERR_	System Configuration Error
183	UVA3	8	PARA_ERR_	Parameter Error
184	UVA3	7	N.U.	Not Used
185	UVA3	6	NO_LOAD_	Output Open Circuit
186	UVA3	5	GR_T_	Time Delayed Ground Fault
187	UVA3	4	PHASE_ERR_	Phase Lock Loop Phase Rotation Error
188	UVA3	3	BLA_	Input Breaker Tripped
189	UVA3	2	STALL_	Low Frequency Overload
190	UVA3	1	N.U.	Not Used
191	UVA3	0	CPT_FAIL_	Capture Failure
192	UVA4	15	START_JAM_	Starting Jam
193	UVA4	14	N.U.	Not Used
194	UVA4	13	TL_F1_	Drive Side Communication Board CPU Error
195	UVA4	12	TL_F2_	Communication Initializing Error
196	UVA4	11	RSTAT_ERR_	Restart Time Out
197	UVA4	10	0PS_ERR_	Inverter output voltage PLL error
198	UVA4	9	N.U.	Not Used
199	UVA4	8	N_IM_	Number Of Motors Connected Fault
200	UVA4	7	SPA4_T	Spare Input 4 Time delayed
201	UVA4	6	SPA3_T	Spare Input 3 Time delayed
202	UVA4	5	SPA2_T	Spare Input 2 Time delayed
203	UVA4	4	SPA1_T	Spare Input 1 Time delayed
204	UVA4	3	SPA4	Spare Input 4
205	UVA4	2	SPA3	Spare Input 3
206	UVA4	1	SPA2	Spare Input 2
207	UVA4	0	SPA1	Spare Input 1
208	UV1	15	UVS	External Safety Switch Open
209	UV1	14	IL_	External Interlock Open
210	UV1	13	P_SW_	Display Interlock Switch Open
211	UV1	12	SP_LOST_	Speed Reference Lost
212	UV1	11	QSTOP_FAULT_	Quick Stop Initiated While Running
213	UV1	10	UV_MPSF_	Input Power Failure

FI_CODE	BitGroup 08	Bit	Symbol 08	Description
214	UV1	9	N.U.	Not Used
215	UV1	8	ACSW_F_	Output Contactor Failure
216	UV1	7	SWILON_	KPAD Emulator Interlock Switch On
217	UV1	6	N.U.	Not Used
218	UV1	5	N.U.	Not Used
219	UV1	4	N.U.	Not Used
220	UV1	3	N.U.	Not Used
221	UV1	2	UVA_EX	External UVA
222	UV1	1	UVA	Intermediate Electrical Fault
223	UV1	0	C_IL	Start Interlock
224	UV2	15	PRE_CTT_	Precharge Contactor Open
225	UV2	14	AIN_FAULT_	Analog Input Fault
226	UV2	13	TL_F3_	Communication Transmission Error
227	UV2	12	TL_F4_	Communication Failure From Other Drive
228	UV2	11	N.U.	Not Used
229	UV2	10	N.U.	Not Used
230	UV2	9	M_OH_	Motor Overheat
231	UV2	8	B_HLTY	Load Equipment Brake Not Healthy
232	UV2	7	N.U.	Not Used
233	UV2	6	N.U.	Not Used
234	UV2	5	PP7_CODE_ERR_	Slave CPU Code Check-Sum Error
235	UV2	4	TUNE_IL_	Automatic Tuning Interlock
236	UV2	3	N.U.	Not Used
237	UV2	2	SPA1	Spare Input 1
238	UV2	1	SPA2	Spare Input 2
239	UV2	0	DSP_ESTP_	Emergency Stop by Keypad
240	SIL1	15	SPA1	Spare Input 1
241	SIL1	14	SPA2	Spare Input 2
242	SIL1	13	N.U.	Not Used
243	SIL1	12	N.U.	Not Used
244	SIL1	11	UVA_SIL_	Input Voltage Low Start Interlock
245	SIL1	10	N.U.	Not Used
246	SIL1	9	UV_SIL_	DC Voltage Low Start Interlock
247	SIL1	8	ACSW_C_	Output Contactor Closed Without Command
248	SIL1	7	SIL_R_CMD_	Run Command Start Interlock
249	SIL1	6	N.U.	Not Used
250	SIL1	5	N.U.	Not Used
251	SIL1	4	N.U.	Not Used
252	SIL1	3	N.U.	Not Used
253	SIL1	2	M_FN_	Motor Cooling Fan Stopped
254	SIL1	1	SP_SIL_	Speed Feedback High Start Interlock

FI_CODE	BitGroup 08	Bit	Symbol 08	Description
255	SIL1	0	STCMD_	Start Command Issued Before Ready
256	LFD2	15	RTRY_	Drive is in Retry Operation
257	LFD2	14	UL_A_	Undercurrent Alarm
258	LFD2	13	CPT_FAIL_	Capture Failure
259	LFD2	12	SL_CHG_	Auto Sensorless Control Switch Interlock
260	LFD2	11	TL_F1_	Drive Side Communication Board CPU Error
261	LFD2	10	TL_F2_	Communication Initializing Error
262	LFD2	9	TL_F3_	Communication Transmission Error
263	LFD2	8	PP7_CODE_ERR_	Slave CPU Code Check-Sum Error
264	LFD2	7	SPA4_T	Spare Input 4 Time delayed
265	LFD2	6	SPA3_T	Spare Input 3 Time delayed
266	LFD2	5	SPA2_T	Spare Input 2 Time delayed
267	LFD2	4	SPA1_T	Spare Input 1 Time delayed
268	LFD2	3	SPA4	Spare Input 4
269	LFD2	2	SPA3	Spare Input 3
270	LFD2	1	SPA2	Spare Input 2
271	LFD2	0	SPA1	Spare Input 1
272	READY1	15	TL_F1_	Drive Side Communication Board CPU Error
273	READY1	14	TL_F2_	Communication Initializing Error
274	READY1	13	TL_F3_	Communication Transmission Error
275	READY1	12	TL_F4_	Communication Failure From Other Drive
276	READY1	11	SP_LOST_	Speed Reference Lost
277	READY1	10	MOT_V_IL_	Residual Motor Voltage Start Interlock
278	READY1	9	N.U.	Not Used
279	READY1	8	N.U.	Not Used
280	READY1	7	N.U.	Not Used
281	READY1	6	N.U.	Not Used
282	READY1	5	ACSW_T_	Output Contactor Open Time Delayed
283	READY1	4	N.U.	Not Used
284	READY1	3	N.U.	Not Used
285	READY1	2	FL_READY	Exciter Ready Answer (From Exciter)
286	READY1	1	HFD_READY	Heavy Fault
287	READY1	0	UV_READY	Light Fault
288	READY2	15	N.U.	Not Used
289	READY2	14	N.U.	Not Used
290	READY2	13	N.U.	Not Used
291	READY2	12	N.U.	Not Used
292	READY2	11	M_FN_T_	Time Delayed Motor Cooling Fan Stopped
293	READY2	10	BR_F_	Load Equipment Brake Fault
294	READY2	9	N.U.	Not Used
295	READY2	8	CHG_START_	System Change In Progress

FI_CODE	BitGroup 08	Bit	Symbol 08	Description
296	READY2	7	N.U.	Not Used
297	READY2	6	N.U.	Not Used
298	READY2	5	N.U.	Not Used
299	READY2	4	N.U.	Not Used
300	READY2	3	N.U.	Not Used
301	READY2	2	SPA1	Spare Input 1
302	READY2	1	SPA2	Spare Input 2
303	READY2	0	N.U.	Not Used
304	HFD1	15	N.U.	Not Used
305	HFD1	14	N.U.	Not Used
306	HFD1	13	P_SW_	Display Interlock Switch Open
307	HFD1	12	SP_LOST_	Speed Reference Lost
308	HFD1	11	QSTOP_FAULT_	Quick Stop Initiated While Running
309	HFD1	10	N.U.	Not Used
310	HFD1	9	N.U.	Not Used
311	HFD1	8	ACSW_F_	Output Contactor Failure
312	HFD1	7	N.U.	Not Used
313	HFD1	6	N.U.	Not Used
314	HFD1	5	N.U.	Not Used
315	HFD1	4	N.U.	Not Used
316	HFD1	3	N.U.	Not Used
317	HFD1	2	UVA_EX	External UVA
318	HFD1	1	UVA	Intermediate Electrical Fault
319	HFD1	0	N.U.	Not Used
320	HFD2	15	PRE_CTT_	Precharge Contactor Open
321	HFD2	14	AIN_FAULT_	Analog Input Fault
322	HFD2	13	TL_F3_	Communication Transmission Error
323	HFD2	12	TL_F4_	Communication Failure From Other Drive
324	HFD2	11	M_FN_T_	Time Delayed Motor Cooling Fan Stopped
325	HFD2	10	BR_F_	Load Equipment Brake Fault
326	HFD2	9	M_OH_	Motor Overheat
327	HFD2	8	B_HLTY	Load Equipment Brake Not Healthy
328	HFD2	7	TL_F1_	Drive Side Communication Board CPU Error
329	HFD2	6	TL_F2_	Communication Initializing Error
330	HFD2	5	PP7_CODE_ERR_	Slave CPU Code Check-Sum Error
331	HFD2	4	TUNE_IL_	Automatic Tuning Interlock
332	HFD2	3	N.U.	Not Used
333	HFD2	2	SPA1	Spare Input 1
334	HFD2	1	SPA2	Spare Input 2
335	HFD2	0	GR_T_	Time Delayed Ground Fault
336	STPRQ1	15	OH_	Power Module Overheat

FI_CODE	BitGroup 08	Bit	Symbol 08	Description
337	STPRQ1	14	C_FN_	Drive Cooling Fan Stopped
338	STPRQ1	13	START_JAM_	Starting Jam
339	STPRQ1	12	C_FN_B_	Drive Cooling Fan Stopped Both Banks
340	STPRQ1	11	OH_ACL_	AC Link Reactor Overheat
341	STPRQ1	10	MTMP_S_	Motor Temperature Sensor Fault
342	STPRQ1	9	M_OH_	Motor Overheat
343	STPRQ1	8	M_OH_A_	Motor Overheat Alarm
344	STPRQ1	7	OL_A_	Motor Overload Alarm
345	STPRQ1	6	CL_TA_	Current Limit Alarm
346	STPRQ1	5	GR_A_	Ground Fault Alarm
347	STPRQ1	4	PRE_CTT_F_	Precharge Contactor Failure
348	STPRQ1	3	SP_LST_A_	Speed Reference Lost Alarm
349	STPRQ1	2	M_FN_	Motor Cooling Fan Stopped
350	STPRQ1	1	FCL_TA_	Field Current Limit Timer Alarm
351	STPRQ1	0	SPA1	Spare Input 1
352	LFD1	15	SP_LST_A_	Speed Reference Lost Alarm
353	LFD1	14	C_FN_	Drive Cooling Fan Stopped
354	LFD1	13	SOFT_STL_	Motor Soft Stall Alarm
355	LFD1	12	C_FN_B_	Drive Cooling Fan Stopped Both Banks
356	LFD1	11	OH_ACL_	AC Link Reactor Overheat
357	LFD1	10	MTMP_S_	Motor Temperature Sensor Fault
358	LFD1	9	M_OH_	Motor Overheat
359	LFD1	8	M_OH_A_	Motor Overheat Alarm
360	LFD1	7	AIN_FAULT_	Analog Input Fault
361	LFD1	6	XFR_FAIL_	Transfer Failure
362	LFD1	5	GR_A_	Ground Fault Alarm
363	LFD1	4	PRE_CTT_F_	Precharge Contactor Failure
364	LFD1	3	CUR_DIFF_	Current Unbalance Between A and B Bank
365	LFD1	2	M_FN_	Motor Cooling Fan Stopped
366	LFD1	1	GR_T_	Time Delayed Ground Fault
367	LFD1	0	STPRQ_	Stop Request
368	ACIL1	15	GR_A_	Ground Fault Alarm
369	ACIL1	14	N.U.	Not Used
370	ACIL1	13	FUSE_	Rectifier Fuse Failure
371	ACIL1	12	FUSE_B_	Fuse Failure B Bank
372	ACIL1	11	N.U.	Not Used
373	ACIL1	10	N.U.	Not Used
374	ACIL1	9	N.U.	Not Used
375	ACIL1	8	N.U.	Not Used
376	ACIL1	7	ACSW_C_	Output Contactor Closed Without Command
377	ACIL1	6	N.U.	Not Used

FI_CODE	BitGroup 08	Bit	Symbol 08	Description
378	ACIL1	5	GPSF_	Gate Power Supply Failure
379	ACIL1	4	N.U.	Not Used
380	ACIL1	3	ACSW_C_B_	Output Contactor Closed Without Command B Bank
381	ACIL1	2	N.U.	Not Used
382	ACIL1	1	GPSF_B_	Gate Power Supply Failure B Bank
383	ACIL1	0	UV	Light Fault
384	ACT1	15	SPA4_T	Spare Input 4 Time delayed
385	ACT1	14	SPA4	Spare Input 4
386	ACT1	13	N.U.	Not Used
387	ACT1	12	DS_	Door Switch Open
388	ACT1	11	N.U.	Not Used
389	ACT1	10	N.U.	Not Used
390	ACT1	9	N.U.	Not Used
391	ACT1	8	N.U.	Not Used
392	ACT1	7	N.U.	Not Used
393	ACT1	6	AC_MCCB_	Input Contactor Open
394	ACT1	5	N.U.	Not Used
395	ACT1	4	N.U.	Not Used
396	ACT1	3	N.U.	Not Used
397	ACT1	2	N.U.	Not Used
398	ACT1	1	BLR_	Heavy Electrical Fault
399	ACT1	0	BLR_CPSF_	Heavy Electrical Fault Except Power Supply Failure

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