Soft Servo
SYSTEMS, INC

LadderWorks PLC I/O Mapping for ServoWorks MC-Quad and the ServoWorks S-100M Series

Revision 2.51

Warning

The product described herein has the potential – through misuse, inattention, or lack of understanding – to create conditions that could result in personal injury, damage to equipment, or damage to the product(s) described herein. Machinery in motion and high-power, high-current servo drives can be dangerous; potentially hazardous situations such as runaway motors could result in death; burning or other serious personal injury to personnel; damage to equipment or machinery; or economic loss if procedures aren't followed properly. Soft Servo Systems, Inc. assumes no liability for any personal injury, property damage, losses or claims arising from misapplication of its products. In no event shall Soft Servo Systems, Inc. or its suppliers be liable to you or any other person for any incidental collateral, special or consequential damages to machines or products, including without limitation, property damage, damages for loss of profits, loss of customers, loss of goodwill, work stoppage, data loss, computer failure or malfunction claims by any party other than you, or any and all similar damages or loss even if Soft Servo Systems, Inc., its suppliers, or its agent has been advised of the possibility of such damages.

It is therefore necessary for any and all personnel involved in the installation, maintenance, or use of these products to thoroughly read this manual and related manuals and understand their contents. Soft Servo Systems, Inc. stands ready to answer any questions or clarify any confusion related to these products in as timely a manner as possible.

The selection and application of Soft Servo Systems, Inc.'s products remain the responsibility of the equipment designer or end user. Soft Servo Systems, Inc. accepts no responsibility for the way its controls are incorporated into a machine tool or factory automation setting. Any documentation and warnings provided by Soft Servo Systems, Inc. must be promptly provided to any end users.

This document is based on information that was available at the time of publication. All efforts have been made to ensure that this document is accurate and complete. However, due to the widely varying uses of this product, and the variety of software and hardware configurations possible in connection with these uses, the information contained in this manual does not purport to cover every possible situation, contingency or variation in hardware or software configuration that could possibly arise in connection with the installation, maintenance, and use of the products described herein. Soft Servo Systems, Inc. assumes no obligations of notice to holders of this document with respect to changes subsequently made. Under no circumstances will Soft Servo Systems, Inc. be liable for any damages or injuries resulting from any defect or omission in this manual.

Soft Servo Systems, Inc. makes no representation or warranty, expressed, implied, or statutory with respect to, and assumes no responsibility for the accuracy, completeness, sufficiency, or usefulness of the information contained herein. NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS OF PURPOSE SHALL APPLY.

Important Notice

The information contained in this manual is intended to be used only for the purposes agreed upon in the related contract with Soft Servo Systems, Inc. All material contained herein is subject to restricted rights and restrictions set forth in the contract between the parties.

These manuals contain confidential and proprietary information that is not to be shared with, nor distributed to, third parties by any means without the prior express, written permission of Soft Servo Systems, Inc. No materials contained herein are to be duplicated or reproduced in whole or in part without the express, written permission of Soft Servo Systems, Inc.

Although every effort and precaution has been taken in preparing this manual, the information contained herein is subject to change without notice. This is because Soft Servo Systems, Inc. is constantly striving to improve its products. Soft Servo Systems, Inc. assumes no responsibility for errors or omissions.

⚠ CAUTION

THIS MANUAL DOES NOT APPLY TO SERVOWORKS S-100T. For ServoWorks S-100T I/O mapping, see the *LadderWorks PLC I/O Mapping for ServoWorks S-100T* document.

Table of Contents

List of Figures

List of Tables

Chapter 1: Overview

1.1 Overview of PLC I/O in a ServoWorks CNC System

Programmable logic control (PLC) is the process of automating the monitoring and sequence control of machines. In a ServoWorks CNC system (with ServoWorks MC-Quad, ServoWorks S-100M, ServoWorks S-120M or ServoWorks S-140M), this process is performed by the LadderWorks PLC Engine.

The LadderWorks PLC Engine has access to *all* the information about not only the ServoWorks CNC system (hardware and software), but also the machine tool inputs and outputs. The PLC Engine is the one element that has access to everything there is to know about the ServoWorks CNC system and the machine. As such, it functions as the "central headquarters" for all decision-making regarding the motion and the machine tool. It controls the sequencing of everything that happens with the machine tool, the servo motors, etc.

The relationships between the ServoWorks CNC application, the ServoWorks CNC Engine, the LadderWorks PLC Engine and the machine tool with a VersioBus II interface system are as follows:

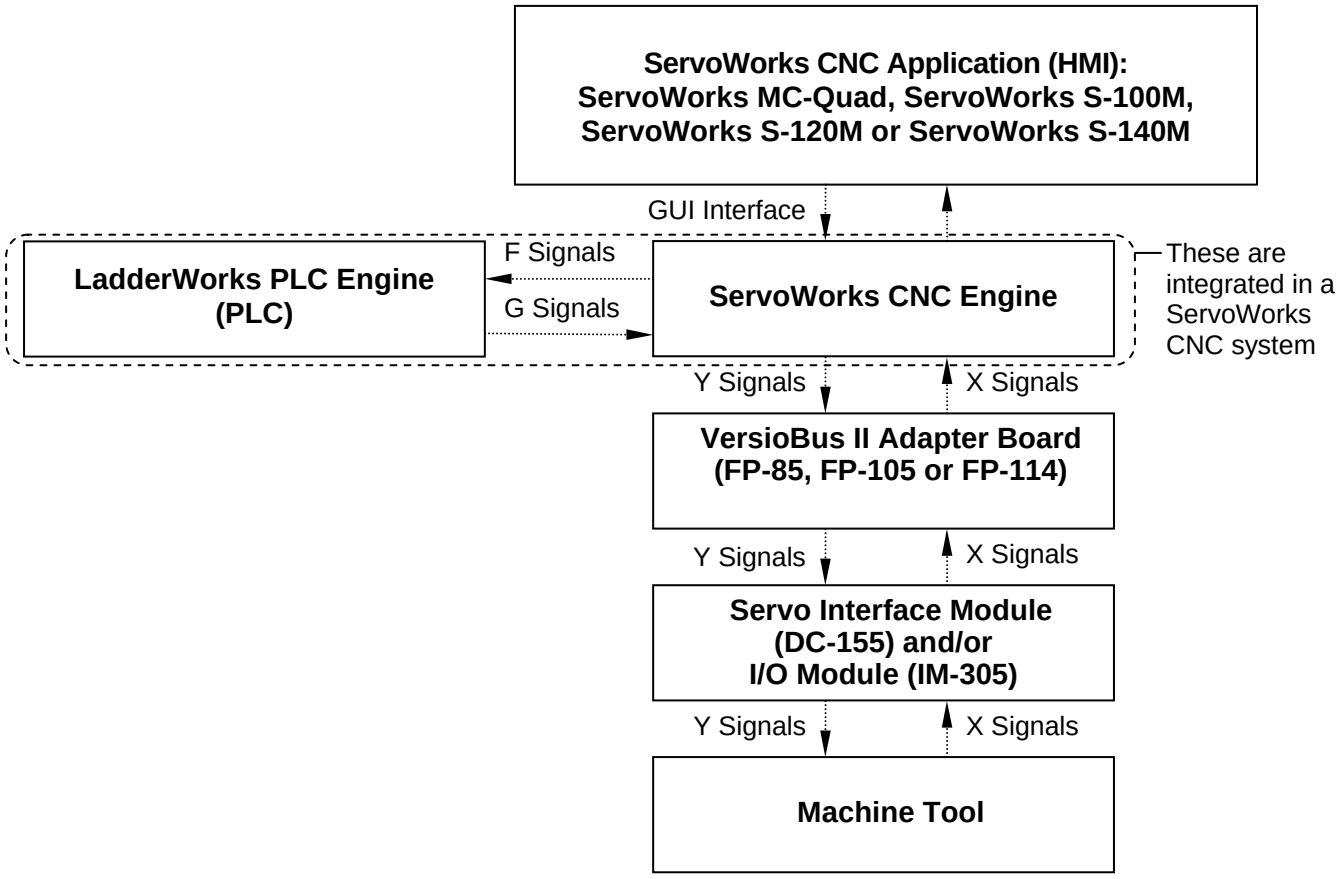

Figure 1-1: Overview of the LadderWorks PLC Engine in a VersioBus II Interface System

The LadderWorks PLC Engine executes sequence programs in a cyclical fashion. The LadderWorks PLC Engine has a timer, and uses it to run the following PLC cycle every scan time (by default, the scan time is 5 msec):

1) The LadderWorks PLC Engine performs a full scan of inputs from the ServoWorks CNC Engine and inputs from the machine (which go through the ServoWorks CNC Engine). In other words, it checks the status of each bit ("0" or "1") for each F and each X input signal.

2) The LadderWorks PLC Engine runs the executable sequence program based on these new input values. It executes the program by reading and executing each command sequentially, at high speed. The command may specify reading or writing inputs or outputs, or performing logical operations such as AND or OR (arithmetic processing).

3) The LadderWorks PLC Engine sends any outputs or commands generated by the sequence program to the ServoWorks CNC Engine or to the machine tool (using the G and Y signals) via the ServoWorks CNC Engine.

This cycle of scan, execute sequence program, and generate outputs or commands is repeated every 5 ms (the standard scan time for the LadderWorks PLC Engine, which can also be user-defined). Every time the sequence program finishes executing, it starts again almost immediately. This means that the LadderWorks PLC Engine is very responsive to any inputs or commands.

For example, if a mill operator gives a command (using the ServoWorks S-120M application, for instance) to start the spindle, that command gets relayed through the ServoWorks CNC Engine to the LadderWorks PLC Engine. The command is picked up by the LadderWorks PLC Engine (in the form of an F signal) the next time it scans all the inputs from the ServoWorks CNC Engine and the machine tool. The LadderWorks PLC Engine then executes the sequence program, which will check that the door is closed on the machine tool, the collet is in position, etc. (It checks these by looking at the status of X signals from the machine tool.) If all the conditions for starting the spindle are met, the LadderWorks PLC Engine will issue a command to the ServoWorks CNC Engine, which is sent to the machine tool (in the form of a Y signal) to start the movement of the spindle on the mill.

1.2 Overview of Data Mapping Tables

Each physical input and output device has a specific location associated with it. The binary value ("0" or "1") of that memory location corresponds to the logical state or value of the device.

The following mapping tables should be used in writing the sequence program for your machine or machine tool. For instance, as part of your program, you may want to check to see if a "cycle stop" command has been issued through the ServoWorks CNC Engine. To do so, you would check the F Data Mapping Tables, and find that the "Cycle Stop" signal (called SPL) is at address F000.4. To read this signal, you might use the command "RD F000.4."

Every possible command or signal either to or from the LadderWorks PLC Engine has a designated signal and address, as follows:

- F Data: Signals from the ServoWorks CNC Engine to the LadderWorks PLC Engine
- G Data: Signals from the LadderWorks PLC Engine to the ServoWorks CNC Engine
- X Data: Signals from the machine tool to the LadderWorks PLC Engine (machine input)
- Y Data: Signals to the machine tool from the LadderWorks PLC Engine (machine output)

The data mapping tables follow in subsequent chapters.

1.3 Data Mapping for PLC Axes

I/O mapping for PLC axes is allocated statically for each axis. [In other words, it is NOT allocated dynamically depending on which axis or axes are configured as PLC axes.] For example, if Axis #1 is not used as a PLC axis, then the addresses G210 to G218 (reserved for PLC Axis #1) will be unused. If Axis #6 is configured as a PLC axis, it will always be controlled by addresses G260 to G268, regardless of how many other PLC axes are configured.

Chapter 2: F Data Mapping

ADDRESS	NAME	DESCRIPTION	NOTES
F000.4	SPL	Cycle Stop	0: Program started or reset 1: Program stopped (feed hold)
F000.5	STL	Cycle Start	0: Program stopped or reset 1: Program started
F000.6	SA	Servo Ready	0: Not all the used axes are enabled 1: All the used axes are enabled
F000.7	OP	Auto Mode Running	0: Reset 1: Program started or stopped or ended
F001.0	AL	CNC Alarm	0: CNC is not in (reset from) the E-STOP (alarm) state 1: CNC is in the E-STOP (alarm) state
F001.1	RST	Control Reset	0: CNC is not in the Reset state 1: CNC is in the Reset state. When CNC has been reset, it will be in the Reset state for 1 second.
F001.3	DEN	Distribution Done	0: Block pulse distribution is not done 1: Block pulse distribution is done
F001.4	ENB	Spindle Command Enabled	0: Spindle is commanded to stop 1: Spindle is commanded to rotate
F001.5	RGD	Rigid Tapping Mode	0: Tapping is not in rigid mode 1: Tapping is in rigid mode
F001.6	SOR	Spindle Orientation	0: Spindle is not performing orientation 1: Spindle is performing orientation
F001.7	MA	CNC Ready	0: CNC is not ready (communication between host and remote devices is not on). 1: CNC is ready (communication between host and remote devices is on)
F002.5	OPSTP	Optional Stop	0: Optional stop signal is not on 1: Optional stop signal is on
F002.6	CUT	Signal for Cutting Mode	0: G00 1: Cutting mode Valid in Auto Mode and MDI Mode
F002.7	MDRN	Dry Run	0: Dry run mode is not on 1: Dry run mode is on
F003.0	MINC	Incremental Feed Select	Refer to Table 4-1
F003.1	MH	Manual Handwheel Mode	Refer to Table 4-1
F003.2	MJ	Jog Mode	Refer to Table 4-1
F003.3	MMDI	MDI Mode	Refer to Table 4-1
F003.4	MRMT	DNC Mode	Refer to Table 4-1
F003.5	MMEM	Auto Mode	Refer to Table 4-1
F004.0	MBDT1	Optional Block Skip	0: Optional block skip signal is not on 1: Optional block skip signal is on

Table 2-1: F Data Mapping Table (1 of 6)

ADDRESS	NAME	DESCRIPTION	NOTES
F004.2	MASBM	Manual Absolute Mode	0: Manual Absolute Mode is not on 1: Manual Absolute Mode is on See *Chapter 6: Manual Absolute Mode* in the *LadderWorks PLC Reference Manual*
F004.3	MSBK	Single Block	0: Single block mode is not on 1: Single block mode is on
F004.5	MREF	Manual Reference Point Return	Refer to Table 4-1
F004.6	MREF1	Manual Reference Point Return	Refer to Table 4-1
F005.0 to F005.7	MBDT2 to MBDT9	Optional Skip 2 to Optional Skip 9	0: Optional skip signal 2 to 9 is not on 1: Optional skip signal 2 to 9 is on
F007.0	MF	M Strobe	0: Miscellaneous function strobe is not on 1: Miscellaneous function strobe is on
F007.2	SF	S Strobe	0: Spindle function strobe is not on 1: Spindle function strobe is on
F007.3	TF	T Strobe	0: Tool function strobe is not on 1: Tool function strobe is on
F009.4	DM30	M30 Decode	0: M30 function is not on 1: M30 function is on
F009.5	DM02	M02 Decode	0: M02 function is not on 1: M02 function is on
F009.6	DM01	M01 Decode	0: M01 function is not on 1: M01 function is on
F009.7	DM00	M00 Decode	0: M00 function is not on 1: M00 function is on
F010	MDC1	M code decode in binary format, byte 1	Least significant byte
F011	MDC2	M code decode in binary format, byte 2	
F012	MDC3	M code decode in binary format, byte 3	
F013	MDC4	M code decode in binary format, byte 4	Most significant byte
F020.0 to F020.7	MILK1p to MILK8p	Interlock 1+ to Interlock 8+	0: Axis plus direction interlock 1 to 8 is off 1: Axis plus direction interlock 1 to 8 is on
F021.0 to F021.7	MILK1m to MILK8m	Interlock 1– to Interlock 8–	0: Axis minus direction interlock 1 to 8 is off 1: Axis minus direction interlock 1 to 8 is on
F022	SDC1	S code decode in binary format, byte 1	Least significant byte
F023	SDC2	S code decode in binary format, byte 2	
F024	SDC3	S code decode in binary format, byte 3	
F025	SDC4	S code decode in binary format, byte 4	Most significant byte
F026	TDC1	T code decode in binary format, byte 1	Least significant byte
F027	TDC2	T code decode in binary format, byte 2	

Table 2-2: F Data Mapping Table (2 of 6)

ADDRESS	NAME	DESCRIPTION	NOTES
F028	TDC3	T code decode in binary format, byte 3	
F029	TDC4	T code decode in binary format, byte 4	Most significant byte
F54.0 to F55.7	UO0 to UO15	User's output from macro to PLC bits 0 to 15	See Table 4-11
F085.4	MP1	Handwheel Multiple Selection 1	Refer to Table 4-2
F085.5	MP2	Handwheel Multiple Selection 2	Refer to Table 4-2
F086.0	HS1A	Handwheel Manual Axis Selection A	Refer to Table 4-3
F086.1	HS1B	Handwheel Manual Axis Selection B	Refer to Table 4-3
F086.2	HS1C	Handwheel Manual Axis Selection C	Refer to Table 4-3
F086.3	HS1D	Handwheel Manual Axis Selection D	Refer to Table 4-3
F088.0	HS1IA	Handwheel Interrupt Axis Selection A	Refer to Table 4-3
F088.1	HS1IB	Handwheel Interrupt Axis Selection B	Refer to Table 4-3
F088.2	HS1IC	Handwheel Interrupt Axis Selection C	Refer to Table 4-3
F088.3	HS1ID	Handwheel Interrupt Axis Selection D	Refer to Table 4-3
F094.0 to 94.7	ZP1 to ZP8	Zero Reference Point Return 1 to Zero Reference Point Return 8	0: Axis is not at home (reference point) 1: Axis is at home (reference point)
F102.0 to 102.7	MV1 to MV8	In Motion 1 to In Motion 8	0: Axis is not in motion 1: Axis is in motion
F104.0 to 104.7	INP1 to INP8	In Position 1 to In Position 8	0: Axis is not in position 1: Axis is in position
F106.0 to F106.7	MVD1 to MVD8	Motion In Negative Direction 1 to Motion In Negative Direction 8	0: Axis motion is not in negative direction 1: Axis motion is in negative direction
F120	ZRF1 to ZRF8	Zero Reference Point Finding 1 to 8	0: Axis home (reference point) has not been established 1: Axis home (reference point) has been established
F150 – F199	USRD1 to USRD50	User Defined CNC Status Data Addresses	Typically used for custom user interface, etc.
F235.0	BUF5	PLC Axis #6: PLC Axis Buffer Full Signal	0: Command buffer is not full 1: Command buffer is full
F235.1	DEN5	PLC Axis #6: PLC Axis Distribution End Signal	0: Movement pulse distribution did not end 1: Movement pulse distribution ended
F235.2	CNCA5	PLC Axis #6: PLC Axis Control Command Read-In Completed Signal	0: Command read-in did not complete 1: Command read-in completed

Table 2-3: F Data Mapping Table (3 of 6)

ADDRESS	NAME	DESCRIPTION	NOTES
F236.0 to F236.7	C5P00 to C5P07	PLC Axis #6: PLC Axis Counter Value Signal, Byte 1	Feedback position in encoder counts
F237.0 to F237.7	C5P08 to C5P15	PLC Axis #6: PLC Axis Counter Value Signal, Byte 2	
F238.0 to F238.7	C5P16 to C5P23	PLC Axis #6: PLC Axis Counter Value Signal, Byte 3	
F239.0 to F239.7	C5P24 to C5P31	PLC Axis #6: PLC Axis Counter Value Signal, Byte 4	
F240.0	BUF6	PLC Axis #7: PLC Axis Buffer Full Signal	0: Command buffer is not full 1: Command buffer is full
F240.1	DEN6	PLC Axis #7: PLC Axis Distribution End Signal	0: Movement pulse distribution did not end 1: Movement pulse distribution ended
F240.2	CNCA6	PLC Axis #7: PLC Axis Control Command Read-In Completed Signal	0: Command read-in did not complete 1: Command read-in completed
F241.0 to F241.7	C6P00 to C6P07	PLC Axis #7: PLC Axis Counter Value Signal, Byte 1	Feedback position in encoder counts
F242.0 to F242.7	C6P08 to C6P15	PLC Axis #7: PLC Axis Counter Value Signal, Byte 2	
F243.0 to F243.7	C6P16 to C6P23	PLC Axis #7: PLC Axis Counter Value Signal, Byte 3	
F244.0 to F244.7	C6P24 to C6P31	PLC Axis #7: PLC Axis Counter Value Signal, Byte 4	
F245.0	BUF7	PLC Axis #8: PLC Axis Buffer Full Signal	0: Command buffer is not full 1: Command buffer is full
F245.1	DEN7	PLC Axis #8: PLC Axis Distribution End Signal	0: Movement pulse distribution did not end 1: Movement pulse distribution ended
F245.2	CNCA7	PLC Axis #8: PLC Axis Control Command Read-In Completed Signal	0: Command read-in did not complete 1: Command read-in completed
F246.0 to F246.7	C7P00 to C7P07	PLC Axis #8: PLC Axis Counter Value Signal, Byte 1	Feedback position in encoder counts
F247.0 to F247.7	C7P08 to C7P15	PLC Axis #8: PLC Axis Counter Value Signal, Byte 2	
F248.0 to F248.7	C7P16 to C7P23	PLC Axis #8: PLC Axis Counter Value Signal, Byte 3	
F249.0 to F249.7	C7P24 to C7P31	PLC Axis #8: PLC Axis Counter Value Signal, Byte 4	
F299.0	MCQEXIT	MC-Quad Exit Signal	If ServoWorks MC-Quad is set to “Turn off PC after Auto Mode,” then MC-Quad will turn F299.0 “ON” (“1”) for 100 ms before shutting down itself and the PC. Use this signal in your PLC sequence program to program the shutting down of any devices you want to shut down when the PC exits. NOTES: 1) Applies only to MC-Quad at this time. 2) See *Section 14.9 Setting the PC to Turn Off Automatically* in the *ServoWorks MC-Quad Operator’s Manual* for more information.

Table 2-4: F Data Mapping Table (4 of 6)

ADDRESS	NAME	DESCRIPTION	NOTES
F300.0 to F300.7	PD01X00 to PD01X07	Position Data for Axis #1 in Integer Format, Byte 1	Position data = Axis feedback position (mm or deg) / Axis machine unit parameter setting (mm or deg)
F301.0 to F301.7	PD01X08 to PD01X15	Position Data for Axis #1 in Integer Format, Byte 2	
F302.0 to F302.7	PD01X16 to PD01X23	Position Data for Axis #1 in Integer Format, Byte 3	
F303.0 to F303.7	PD01X24 to PD01X31	Position Data for Axis #1 in Integer Format, Byte 4	
F304.0 to F304.7	PD02X00 to PD02X07	Position Data for Axis #2 in Integer Format, Byte 1	
F305.0 to F305.7	PD02X08 to PD02X15	Position Data for Axis #2 in Integer Format, Byte 2	
F306.0 to F306.7	PD02X16 to PD02X23	Position Data for Axis #2 in Integer Format, Byte 3	
F307.0 to F307.7	PD02X24 to PD02X31	Position Data for Axis #2 in Integer Format, Byte 4	
F308.0 to F308.7	PD03X00 to PD03X07	Position Data for Axis #3 in Integer Format, Byte 1	
F309.0 to F309.7	PD03X08 to PD03X15	Position Data for Axis #3 in Integer Format, Byte 2	
F310.0 to F310.7	PD03X16 to PD03X23	Position Data for Axis #3 in Integer Format, Byte 3	
F311.0 to F311.7	PD03X24 to PD03X31	Position Data for Axis #3 in Integer Format, Byte 4	
F312.0 to F312.7	PD04X00 to PD04X07	Position Data for Axis #4 in Integer Format, Byte 1	
F313.0 to F313.7	PD04X08 to PD04X15	Position Data for Axis #4 in Integer Format, Byte 2	
F314.0 to F314.7	PD04X16 to PD04X23	Position Data for Axis #4 in Integer Format, Byte 3	
F315.0 to F315.7	PD04X24 to PD04X31	Position Data for Axis #4 in Integer Format, Byte 4	
F316.0 to F316.7	PD05X00 to PD05X07	Position Data for Axis #5 in Integer Format, Byte 1	
F317.0 to F317.7	PD05X08 to PD05X15	Position Data for Axis #5 in Integer Format, Byte 2	
F318.0 to F318.7	PD05X16 to PD05X23	Position Data for Axis #5 in Integer Format, Byte 3	
F319.0 to F319.7	PD05X24 to PD05X31	Position Data for Axis #5 in Integer Format, Byte 4	
F320.0 to F320.7	PD06X00 to PD06X07	Position Data for Axis #6 in Integer Format, Byte 1	
F321.0 to F321.7	PD06X08 to PD06X15	Position Data for Axis #6 in Integer Format, Byte 2	
F322.0 to F322.7	PD06X16 to PD06X23	Position Data for Axis #6 in Integer Format, Byte 3	
F323.0 to F323.7	PD06X24 to PD06X31	Position Data for Axis #6 in Integer Format, Byte 4	

Table 2-5: F Data Mapping Table (5 of 6)

ADDRESS	NAME	DESCRIPTION	NOTES
F324.0 to F324.7	PD07X00 to PD07X07	Position Data for Axis #7 in Integer Format, Byte 1	Position data = Axis feedback position (mm or deg) / Axis machine unit parameter setting (mm or deg)
F325.0 to F325.7	PD07X08 to PD07X15	Position Data for Axis #7 in Integer Format, Byte 2	
F326.0 to F326.7	PD07X16 to PD07X23	Position Data for Axis #7 in Integer Format, Byte 3	
F327.0 to F327.7	PD07X24 to PD07X31	Position Data for Axis #7 in Integer Format, Byte 4	
F328.0 to F328.7	PD08X00 to PD08X07	Position Data for Axis #8 in Integer Format, Byte 1	
F329.0 to F329.7	PD08X08 to PD08X15	Position Data for Axis #8 in Integer Format, Byte 2	
F330.0 to F330.7	PD08X16 to PD08X23	Position Data for Axis #8 in Integer Format, Byte 3	
F331.0 to F331.7	PD08X24 to PD08X31	Position Data for Axis #8 in Integer Format, Byte 4	

Table 2-6: F Data Mapping Table (6 of 6)

Chapter 3: G Data Mapping

ADDRESS	NAME	DESCRIPTION	NOTES
G004.3	FIN	Done Signal	0: Auxiliary (M/S/T) function not finished 1: Auxiliary (M/S/T) function finished (edge triggered)
G005.0	MFIN	M Done	0: Miscellaneous (M/S/T) function not finished 1: Miscellaneous (M/S/T) function finished (edge triggered)
G005.2	SFIN	S Done	0: Spindle (M/S/T) function not finished 1: Spindle (M/S/T) function finished (edge triggered)
G005.3	TFIN	T Done	0: Tool (M/S/T) function not finished 1: Tool (M/S/T) function finished (edge triggered)
G006.2	ABSM	Manual Absolute Mode	0: Manual Absolute Mode on (edge triggered) 1: Manual Absolute Mode off See *Chapter 6: Manual Absolute Mode* in the *LadderWorks PLC Reference Manual*
G006.6	SKIPP	Skip Signal	G31 block is skipped when this signal value changes (edge triggered)
G007.2	ST	Cycle Start	Sets NC program cycle start on signal rising edge (0→1)
G008.0	*IT	All Axes Bi-Directional Interlock	0: All axes bi-directional interlock on 1: All axes bi-directional interlock off (edge triggered)
G008.4	*ESP	Emergency Stop	0: Set and keep the CNC in Emergency Stop mode (level triggered) 1: Release the CNC from Emergency Stop mode (level triggered) NOTE: G008.4 should usually be kept high (“1”), and set low (“0”) when an alarm is triggered.
G008.5	*SP	Cycle Stop	Sets NC program cycle stop on signal falling edge (1→0)
G008.6	RRW	CNC Reset	Rewinds NC program on signal rising edge (0→1) if program has stopped or ended
G008.7	ERS	External Reset	Resets CNC on signal rising edge (0→1)
G010 to G011	*JV0 to *JV15	Manual Feedrate Override Bit 0 to 15	Refer to Table 4-5
G012.0 to G012.7	*FV0 to FV7	Feedrate Override Bit 0 to 7	Refer to Table 4-6
G014.0	ROV1	Rapid Override 1	Refer to Table 4-7
G014.1	ROV2	Rapid Override 2	Refer to Table 4-7

Table 3-1: G Data Mapping Table (1 of 7)

ADDRESS	NAME	DESCRIPTION	NOTES
G018.0	HS1A	Handwheel Manual Axis Selection A	Refer to Table 4-3
G018.1	HS1B	Handwheel Manual Axis Selection B	Refer to Table 4-3
G018.2	HS1C	Handwheel Manual Axis Selection C	Refer to Table 4-3
G018.3	HS1D	Handwheel Manual Axis Selection D	Refer to Table 4-3
G019.4	MP1	Handwheel Multiple Selection 1	Refer to Table 4-2
G019.5	MP2	Handwheel Multiple Selection 2	Refer to Table 4-2
G027.6	RGD	Rigid tapping	0: Set tapping in non-rigid mode 1: Set tapping in rigid mode (edge triggered) NOTE: When the value changes either from 0 to 1, or from 1 to 0, the rigid tapping mode will be turned on (rigid tapping mode will be turned off by G00, G01, G02, G03 or G80 codes).
G027.7	CON	Spindle C Axis Control	0: Turn off spindle C axis control 1: Turn on spindle C axis control (edge triggered)
G029.5	SOR	Spindle Orientation	0: Turn off spindle orientation 1: Turn on spindle orientation (edge triggered)
G029.6	SSTP	Spindle Pulse Enable	0: Stop spindle rotation command 1: Enable spindle rotation command (edge triggered)
G030.0 to G030.7	SOV0 to SOV7	Spindle Override Bit 0 to Spindle Override Bit 7	Refer to Table 4-4
G041.0	HS1IA	Handwheel Interrupt Axis Selection A	Refer to Table 4-3
G041.1	HS1IB	Handwheel Interrupt Axis Selection B	Refer to Table 4-3
G041.2	HS1IC	Handwheel Interrupt Axis Selection C	Refer to Table 4-3
G041.3	HS1ID	Handwheel Interrupt Axis Selection D	Refer to Table 4-3
G043.0	MD1	NC Mode Selection	Refer to Table 4-8
G043.1	MD2	NC Mode Selection	Refer to Table 4-8
G043.2	MD4	NC Mode Selection	Refer to Table 4-8
G043.3	DNC1	Set DNC Mode	Refer to Table 4-8
G043.4	ZRN	Zero Reference Point Return	Refer to Table 4-8
G043.5	RT	Rapid Move	Refer to Table 4-8
G044.0	BDT1	Optional Block Skip 1	0: Set optional block skip 1 off 1: Set optional block skip 1 on (edge triggered)

Table 3-2: G Data Mapping Table (2 of 7)

ADDRESS	NAME	DESCRIPTION	NOTES
G044.2	REF2	Return to Reference Point 2	0: Stop returning to reference point 2 1: Start returning to reference point 2 (edge triggered)
G044.3	REF3	Return to Reference Point 3	0: Stop returning to reference point 3 1: Start returning to reference point 3 (edge triggered)
G044.4	REF4	Return to Reference Point 4	0: Stop returning to reference point 4 1: Start returning to reference point 4 (edge triggered)
G045.0 to G045.7	BDT2 to BDT9	Optional Block Skip 2 to Optional Block Skip 9	0: Set optional block skip 2 to 9 off 1: Set optional block skip 2 to 9 on (edge triggered)
G046.0	OPSTP	Optional Stop	0: Set optional stop mode off 1: Set optional stop mode on (edge triggered)
G046.1	SBK	Single Block	0: Set single block mode off 1: Set single block mode on (edge triggered)
G046.7	DRN	Dry Run	0: Set dry run mode off 1: Set dry run mode on (edge triggered)
G054.0 to G055.7	UI0 to UI15	User's input from PLC to macro bits 0 to 15	See Table 4-11
G100	+J1 to +J8	Jog Axis 1+ to Jog Axis 8+	Refer to Tables 4-9 and 4-10
G102	–J1 to –J8	Jog Axis 1– to Jog Axis 8–	
G108.0 to G108.7	MLK1 to MLK8	Machine Lock Axis 1 to Machine Lock Axis 8	0: Axis 1 to 8 machine unlock 1: Axis 1 to 8 machine lock (edge triggered)
G114.0 to G114.7	LMS1P to LMS8P	Plus Hard Limit Switch Axis 1 to Plus Hard Limit Switch Axis 8	0: Plus hard limit switch not active 1: Plus hard limit switch active NOTES: 1) G198.4=1 reverses the meaning of "0" and "1" 2) Most servo drives halt automatically at the detection of a hard limit in one of the networked servo motors, without requiring the ServoWorks CNC Engine to respond (the ServoWorks CNC Engine only confirms the result). When the hard limit is raised explicitly through PLC programming (using G114.x/G116.x), the servo drives do get stopped by the ServoWorks CNC Engine, but there is a slight time lag due to the fact that PLC signals are slower than direct inputs like normal limit switches. 3) These signals are effective only when NC_PARAM.SwitchLimitInMode is set to "1". They are not effective when NC_PARAM.SwitchLimitInMode is set to "0" as default.

Table 3-3: G Data Mapping Table (3 of 7)

ADDRESS	NAME	DESCRIPTION	NOTES
G116.0 to G116.7	LMS1M to LMS8M	Minus Hard Limit Switch Axis 1 to Minus Hard Limit Switch Axis 8	0: Minus hard limit switch not active 1: Minus hard limit switch active NOTES: 1)G198.4=1 reverses the meaning of "0" and "1" 2)Most servo drives halt automatically at the detection of a hard limit in one of the networked servo motors, without requiring the ServoWorks CNC Engine to respond (the ServoWorks CNC Engine only confirms the result). When the hard limit is raised explicitly through PLC programming (using G114.x/G116.x), the servo drives do get stopped by the ServoWorks CNC Engine, but there is a slight time lag due to the fact that PLC signals are slower than direct inputs like normal limit switches. 3)These signals are effective only when NC_PARAM.SwitchLimitInMode is set to "1". They are not effective when NC_PARAM.SwitchLimitInMode is set to "0" as default.
G126.0 to G126.7	SVF1 to SVF8	Servo ON/OFF Axis 1 to Servo ON/OFF Axis 8	0: Axis 1 to 8 servo off 1: Axis 1 to 8 servo on (edge triggered)
G127.0 to G127.7	SVF9 to SVF16	Servo ON/OFF Axis 9 to Servo ON/OFF Axis 16	0: Axis 9 to 16 servo off 1: Axis 9 to 16 servo on (edge triggered)
G130	*IT1 to *IT8	Bi-Directional Interlock Axis 1 to Bi-Directional Interlock Axis 8	0: Axis 1 to 8 bi-directional interlock on 1: Axis 1 to 8 bi-directional interlock off (edge triggered)
G132.0 to G132.7	MIT1p to MIT8p	Interlock Axis 1+ to Interlock Axis 8+	0: Axis plus direction interlock off 1: Axis plus direction interlock on (edge triggered)
G134.0 to G134.7	MIT1m to MIT8m	Interlock Axis 1– to Interlock Axis 8–	0: Axis minus direction interlock off 1: Axis minus direction interlock on (edge triggered)
G196.0 to G196.7	HMS1 to HMS8	Home Limit Switch Axis 1 to Home Limit Switch Axis 8	0: Home switch not active 1: Home switch active NOTES: 1) G198.4=1 reverses the meaning of "0" and "1" 2) These signals are effective only when NC_PARAM.SwitchHomeInMode is set to "1". They are not effective when NC_PARAM.SwitchHomeInMode is set to "0" as default.

Table 3-4: G Data Mapping Table (4 of 7)

ADDRESS	NAME	DESCRIPTION	NOTES
G198.4	GMS_REV	Switch Reversal	0: No change in plus hard limit switch signal, minus hard limit switch signal or home switch signal. 1: Reverses plus hard limit switch signal, minus hard limit switch signal and home switch signal so that "0" would mean the switch is active and "1" would mean the switch is inactive. [For example, when G198.4 is 1, and G196.0 is 0, that indicates the Axis 1 Home Switch is active.]
G200.0	ROV1E	PLC Axis Rapid Override Selection Signal 1	Refer to Table 4-12
G200.1	ROV2E	PLC Axis Rapid Override Selection Signal 2	Refer to Table 4-12
G260.0	SBK5	PLC Axis #6: PLC Axis Block Stop Signal	
G260.1	STP5	PLC Axis #6: PLC Axis Temporary Stop Signal	
G260.2	RTS5	PLC Axis #6: PLC Axis Reset Signal	
G260.3	PMCA5	PLC Axis #6: PLC Axis Control Command Read-In Strobe Signal	
G260.4	CSKP5	PLC Axis #6: PLC Axis Command Skip Signal	
G260.5	MSBK5	PLC Axis #6: PLC Axis Block Stop Prohibited Signal	
G261.0 to G261.7	OV5X00 to OV5X07	PLC Axis #6: PLC Axis Feedrate Override Signals	Refer to Table 4-13
G262.0 to G262.7	CD5X00 to CD5X07	PLC Axis #6: PLC Axis Control Command Code Signals	
G263.0 to G263.7	FD5X00 to FD5X07	PLC Axis #6: PLC Axis Feedrate Control Signals	Binary format, least significant byte
G264.0 to G264.7	FD5X08 to FD5X15	PLC Axis #6: PLC Axis Feedrate Control Signals	Binary format, most significant byte
G265.0 to G265.7	D5X00 to D5X07	PLC Axis #6: PLC Axis Control Data Signals	Binary format, least significant byte
G266.0 to G266.7	D5X08 to D5X15	PLC Axis #6: PLC Axis Control Data Signals	Binary format
G267.0 to G267.7	D5X16 to D5X23	PLC Axis #6: PLC Axis Control Data Signals	Binary format
G268.0 to G268.7	D5X24 to D5X31	PLC Axis #6: PLC Axis Control Data Signals	Binary format, most significant byte

Table 3-5: G Data Mapping Table (5 of 7)

ADDRESS	NAME	DESCRIPTION	NOTES
G270.0	SBK6	PLC Axis #7: PLC Axis Block Stop Signal	
G270.1	STP6	PLC Axis #7: PLC Axis Temporary Stop Signal	
G270.2	RTS6	PLC Axis #7: PLC Axis Reset Signal	
G270.3	PMCA6	PLC Axis #7: PLC Axis Control Command Read-In Strobe Signal	
G270.4	CSKP6	PLC Axis #7: PLC Axis Command Skip Signal	
G270.5	MSBK6	PLC Axis #7: PLC Axis Block Stop Prohibited Signal	
G271.0 to G271.7	OV6X00 to OV6X07	PLC Axis #7: PLC Axis Feedrate Override Signals	Refer to Table 4-13
G272.0 to G272.7	CD6X00 to CD6X07	PLC Axis #7: PLC Axis Control Command Code Signals	
G273.0 to G273.7	FD6X00 to FD6X07	PLC Axis #7: PLC Axis Feedrate Control Signals	Binary format, least significant byte
G274.0 to G274.7	FD6X08 to FD6X15	PLC Axis #7: PLC Axis Feedrate Control Signals	Binary format, most significant byte
G275.0 to G275.7	D6X00 to D6X07	PLC Axis #7: PLC Axis Control Data Signals	Binary format, least significant byte
G276.0 to G276.7	D6X08 to D6X15	PLC Axis #7: PLC Axis Control Data Signals	Binary format
G277.0 to G277.7	D6X16 to D6X23	PLC Axis #7: PLC Axis Control Data Signals	Binary format
G278.0 to G278.7	D6X24 to D6X31	PLC Axis #7: PLC Axis Control Data Signals	Binary format, most significant byte
G280.0	SBK7	PLC Axis #8: PLC Axis Block Stop Signal	
G280.1	STP7	PLC Axis #8: PLC Axis Temporary Stop Signal	
G280.2	RTS7	PLC Axis #8: PLC Axis Reset Signal	
G280.3	PMCA7	PLC Axis #8: PLC Axis Control Command Read-In Strobe Signal	
G280.4	CSKP7	PLC Axis #8: PLC Axis Command Skip Signal	
G280.5	MSBK7	PLC Axis #8: PLC Axis Block Stop Prohibited Signal	
G281.0 to G281.7	OV7X00 to OV7X07	PLC Axis #8: PLC Axis Feedrate Override Signals	Refer to Table 4-13
G282.0 to G282.7	CD7X00 to CD7X07	PLC Axis #8: PLC Axis Control Command Code Signals	

Table 3-6: G Data Mapping Table (6 of 7)

ADDRESS	NAME	DESCRIPTION	NOTES
G283.0 to G283.7	FD7X00 to FD7X07	PLC Axis #8: PLC Axis Feedrate Control Signals	Binary format, least significant byte
G284.0 to G284.7	FD7X08 to FD7X15	PLC Axis #8: PLC Axis Feedrate Control Signals	Binary format, most significant byte
G285.0 to G285.7	D7X00 to D7X07	PLC Axis #8: PLC Axis Control Data Signals	Binary format, least significant byte
G286.0 to G286.7	D7X08 to D7X15	PLC Axis #8: PLC Axis Control Data Signals	Binary format
G287.0 to G287.7	D7X16 to D7X23	PLC Axis #8: PLC Axis Control Data Signals	Binary format
G288.0 to G288.7	D7X24 to D7X31	PLC Axis #8: PLC Axis Control Data Signals	Binary format, most significant byte

Table 3-7: G Data Mapping Table (7 of 7)

Chapter 4: Address Maps for Specific F and G Data

NC MODE	MINC (F003.0)	MH (F003.1)	MJ (F003.2)	MMDI (F003.3)	MRMT (F003.4)	MMEM (F003.5)	MREF (F004.5)	MREF1 (F004.6)
MDI	0	0	0	1	0	1	0	0
HOME	0	0	0	0	0	0	1	1
AUTO	0	0	0	0	0	1	0	0
JOG / JOG CONT	0	0	1	0	0	0	0	0
HANDWHEEL	1	1	0	0	0	0	0	0
RAPID	0	0	1	0	0	0	0	0
POSITION / JOG INCR	0	0	0	1	0	0	0	0
IDLE	0	0	0	0	0	0	0	0

Table 4-1: PLC F Address Map for NC Mode Settings

MULTIPLE	MP1 (F85.4/G19.4)	MP2 (F85.5/G19.5)
X1	0	0
X10	1	0
X100	0	1
X1000	1	1

Table 4-2: PLC F/G Address Map for HandWheel Multiple Selection

AXIS	HS1A (F86.0, G18.0) HS1IA (F88.0, G41.0)	HS1B (F86.1, G18.1) HS1IB (F88.1, G41.1)	HS1C (F86.2, G18.2) HS1IC (F88.2, G41.2)	HS1D (F86.3, G18.3) HS1ID (F88.3, G41.3)
1	1	0	0	0
2	0	1	0	0
3	1	1	0	0
4	0	0	1	0
5	1	0	1	0
6	0	1	1	0
7	1	1	1	0
8	0	0	0	1

Table 4-3: PLC F/G Address Map for HandWheel and HandWheel Interrupt Axis Selection

ADDRESS	SIGNAL	WEIGHT
G30.0	0	1
	1	0
G30.1	0	2
	1	0
G30.2	0	4
	1	0
G30.3	0	8
	1	0
G30.4	0	16
	1	0
G30.5	0	32
	1	0
G30.6	0	64
	1	0
G30.7	0	128
	1	0

NOTES:

1) Spindle Speed Override = Sum of the Weights from G30.0 to G30.7 (percent)

2) When the bits of the override signal are unchanged (i.e., kept at the default “00000000,” then the override is set to 100% (no override).

3) Once any of the bits are changed, then “00000000” starts to signify an override of 0% (since the maximum override is 254% and “00000000” calculates to an override of 255%).

Table 4-4: PLC G Address Map for Spindle Speed Override

ADDRESS	SIGNAL	WEIGHT
G10.0	0	1
	1	0
G10.1	0	2
	1	0
G10.2	0	4
	1	0
G10.3	0	8
	1	0
G10.4	0	16
	1	0
G10.5	0	32
	1	0
G10.6	0	64
	1	0
G10.7	0	128
	1	0

ADDRESS	SIGNAL	WEIGHT
G11.0	0	256
	1	0
G11.1	0	512
	1	0
G11.2	0	1024
	1	0
G11.3	0	2048
	1	0
G11.4	0	4096
	1	0
G11.5	0	8192
	1	0
G11.6	0	16384
	1	0
G11.7	0	32768
	1	0

NOTES:

1) Manual Feedrate Override = Sum of the Weights from G10.0 to G11.7 (per ten thousand)

2) When the bits of the override signal are unchanged (i.e., kept at the default “0000000000000000,” then the override is set to 100% (no override).

Table 4-5: PLC G Address Map for Manual Feedrate Override

ADDRESS	SIGNAL	WEIGHT
G12.0	0	1
	1	0
G12.1	0	2
	1	0
G12.2	0	4
	1	0
G12.3	0	8
	1	0
G12.4	0	16
	1	0
G12.5	0	32
	1	0
G12.6	0	64
	1	0
G12.7	0	128
	1	0

NOTES:

1) Feedrate Override = Sum of the Weights from G12.0 to G12.7 (percent)

2) When the bits of the override signal are unchanged (i.e., kept at the default "00000000," then the override is set to 100% (no override).

3) Once any of the bits are changed, then "00000000" starts to signify an override of 0% (since the maximum override is 254% and "00000000" calculates to an override of 255%).

Table 4-6: PLC G Address Map for Feedrate Override

RAPID OVERRIDE	ROV1 (G14.0)	ROV2 (G14.1)
100	0	0
50	1	0
25	0	1
0	1	1

Table 4-7: PLC G Address Map for Rapid Override

NC MODE	MD1 (G43.0)	MD2 (G43.1)	MD4 (G43.2)	DNCI (G43.3)	ZRN (G43.4)	RT (G43.5)
MDI	0	0	0	0	0	N/A
HOME	1	0	1	0	1	N/A
AUTO	1	0	0	0	0	N/A
JOG / JOG CONT	1	0	1	0	0	0
HANDWHEEL	0	0	1	0	0	N/A
RAPID	1	0	1	0	0	1
POSITION / JOG INCR	0	1	1	0	0	N/A
IDLE	1	1	1	0	0	N/A

Table 4-8: PLC G Address Map for NC Mode Settings

ADDRESS	NAME	IN JOG MODE	IN RAPID MODE	IN AUTO MODE	IN HOME MODE
G100	+J1 to +J8	Move axis in plus direction at jog feedrate	Move axis in plus direction at rapid feedrate	Move axis in plus direction at jog feedrate	Start searching for Z pulse in the plus direction if the home direction parameter is set to plus
G102	-J1 to -J8	Move axis in minus direction at jog feedrate	Move axis in minus direction at rapid feedrate	Move axis in minus direction at jog feedrate	Start searching for Z pulse in the minus direction if the home direction parameter is set to minus

Table 4-9: PLC Axis Control in Jog Mode, Rapid Mode and Home Mode

CNC PRODUCT	AXIS NO.	INTERFACE DISPLAY	ADDRESS FOR PLUS DIRECTION	ADDRESS FOR MINUS DIRECTION
ServoWorks MC-Quad	1	X Axis	G100.0	G102.0
	2	Y Axis	G100.1	G102.1
	3	Z Axis	G100.2	G102.2
	4	A Axis	G100.3	G102.3
ServoWorks S-100M, S-120M and S-140M	1	Axis 1 (X^2)	G100.0	G102.0
	2	Axis 2 (Y^2)	G100.1	G102.1
	3	Axis 3 (Z^2)	G100.2	G102.2
	4	Spindle[1]	G100.3	G102.3
	5	Axis 4 (A^2)	G100.4	G102.4
	6	Axis 5 (B^2)	G100.5	G102.5
	7	Axis 6	G100.6	G102.6
	8	Axis 7	G100.7	G102.7

NOTES

1) This spindle will be named “S” if it is an inverter type spindle (open loop) or “C” for a servo type spindle (closed loop).

2) This is a typical axis name. However, each of these axes can be named X, Y, Z, A or B, as long as each axis name is unique. If your spindle is an inverter type spindle, the spindle axis will be automatically named “S,” in which case you can also use the “C” designation for one of the servo axes.

Table 4-10: PLC Address Map for Axis Selection with G100 and G102

Macro System Variable	PLC Address
#1000	G54.0
#1001	G54.1
#1002	G54.2
#1003	G54.3
#1004	G54.4
#1005	G54.5
#1006	G54.6
#1007	G54.7
#1008	G55.0
#1009	G55.1
#1010	G55.2
#1011	G55.3
#1012	G55.4
#1013	G55.5
#1014	G55.6
#1015	G55.7
#1032	The 16-bit binary value of bytes G54 and G55, G54 being the least significant byte.

Macro System Variable	PLC Address
#1100	F54.0
#1101	F54.1
#1102	F54.2
#1103	F54.3
#1104	F54.4
#1105	F54.5
#1106	F54.6
#1107	F54.7
#1108	F55.0
#1109	F55.1
#1110	F55.2
#1111	F55.3
#1112	F55.4
#1113	F55.5
#1114	F55.6
#1115	F55.7
#1132	The 16-bit binary value of bytes F54 and F55, F54 being the least significant byte.
#1133	The 32-bit binary value of bytes F56, F57, F58, and F59, F56 being the least significant byte.

Table 4-11: ServoWorks Macro System Variable PLC Mapping Table

RAPID OVERRIDE	ROV1E (G200.0)	ROV2E (G200.1)
100	0	0
50	1	0
25	0	1
0	1	1

Table 4-12: PLC G Address Map for PLC Axis Rapid Override Selection Signal

ADDRESSES			SIGNAL	WEIGHT
PLC Axis #6	PLC Axis #7	PLC Axis #8		
G261.0	G271.0	G281.0	0	1
			1	0
G261.1	G271.1	G281.1	0	2
			1	0
G261.2	G271.2	G281.2	0	4
			1	0
G261.3	G271.3	G281.3	0	8
			1	0
G261.4	G271.4	G281.4	0	16
			1	0
G261.5	G271.5	G281.5	0	32
			1	0
G261.6	G271.6	G281.6	0	64
			1	0
G261.7	G271.7	G281.7	0	128
			1	0

NOTES:

1) Feedrate Override = Sum of the Weights from Bit 0 to Bit 7 (i.e. G261.0 to G261.7) (percent)

2) "00000000" signifies an override of 0% (since the maximum override is 254% and "00000000" calculates to an override of 255%).

3) With an override of 0% ("00000000" or "11111111"), the PLC axis will not move.

Table 4-13: PLC G Address Map for PLC Axis Feedrate Override

Chapter 5: X Data Mapping for the VersioBus II Interface System

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X00.0	HW_ESTP	Handwheel E-Stop	0: HandWheel E-Stop button is active (pushed down) 1: HandWheel E-Stop button is not active (released) *Hardware pinouts:* • *Pin #12 of J1 header block on the FP-85* • *Pin #12 of J1 header block on the FP-105* • *Pin #12 of J1 header block on the FP-114* • *Pin #19 of the DB25F handwheel port*
X00.1	HW_X	Handwheel Axis X	0: HandWheel axis X is not selected 1: HandWheel axis X is selected *Hardware pinouts:* • *Pin #13 of J1 header block on the FP-85* • *Pin #13 of J1 header block on the FP-105* • *Pin #13 of J1 header block on the FP-114* • *Pin #7 of the DB25F handwheel port*
X00.2	HW_Y	Handwheel Axis Y	0: HandWheel axis Y is not selected 1: HandWheel axis Y is selected *Hardware pinouts:* • *Pin #14 of J1 header block on the FP-85* • *Pin #14 of J1 header block on the FP-105* • *Pin #14 of J1 header block on the FP-114* • *Pin #20 of the DB25F handwheel port*
X00.3	HW_Z	Handwheel Axis Z	0: HandWheel axis Z is not selected 1: HandWheel axis Z is selected *Hardware pinouts:* • *Pin #15 of J1 header block on the FP-85* • *Pin #15 of J1 header block on the FP-105* • *Pin #15 of J1 header block on the FP-114* • *Pin #8 of the DB25F handwheel port*
X00.4	HW_4	Handwheel Axis Selection 4	0: HandWheel axis 4 is not selected 1: HandWheel axis 4 is selected *Hardware pinouts:* • *Pin #16 of J1 header block on the FP-85* • *Pin #16 of J1 header block on the FP-105* • *Pin #16 of J1 header block on the FP-114* • *Pin #21 of the DB25F handwheel port*
X00.5	HW_5	Handwheel Axis Selection 5	0: HandWheel axis 5 is not selected 1: HandWheel axis 5 is selected *Hardware pinouts:* • *Pin #17 of J1 header block on the FP-85* • *Pin #17 of J1 header block on the FP-105* • *Pin #17 of J1 header block on the FP-114* • *Pin #9 of the DB25F handwheel port*

Table 5-1: X Data Mapping Table for VersioBus II (1 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X00.7	HW_X1	Handwheel Multiple X1	0: HandWheel multiple X1 is not selected 1: HandWheel multiple X1 is selected *Hardware pinouts:* • *Pin #8 of J1 header block on the FP-85* • *Pin #8 of J1 header block on the FP-105* • *Pin #8 of J1 header block on the FP-114* • *Pin #17 of the DB25F handwheel port*
X01.0	HW_X10	Handwheel Multiple X10	0: HandWheel multiple X10 is not selected 1: HandWheel multiple X10 is selected *Hardware pinouts:* • *Pin #9 of J1 header block on the FP-85* • *Pin #9 of J1 header block on the FP-105* • *Pin #9 of J1 header block on the FP-114* • *Pin #5 of the DB25F handwheel port*
X01.1	HW_X100	Handwheel Multiple X100	0: HandWheel multiple X100 is not selected 1: HandWheel multiple X100 is selected *Hardware pinouts:* • *Pin #10 of J1 header block on the FP-85* • *Pin #10 of J1 header block on the FP-105* • *Pin #10 of J1 header block on the FP-114* • *Pin #18 of the DB25F handwheel port*
X02.0	FP_Din_0	Local (FP Board) Digital Input 0	• *Pin #1 of J2 header block on the FP-85* • *Pin #1 of J3 header block on the FP-105* • *Pin #1 of J2 header block on the FP-114* • *Pin #1 of the DB37F on-board I/O port* • *Pin #1 of the TB37BD breakout box*
X02.1	FP_Din_1	Local (FP Board) Digital Input 1	• *Pin #2 of J2 header block on the FP-85* • *Pin #2 of J3 header block on the FP-105* • *Pin #2 of J2 header block on the FP-114* • *Pin #20 of the DB37F on-board I/O port* • *Pin #20 of the TB37BD breakout box*
X02.2	FP_Din_2	Local (FP Board) Digital Input 2	• *Pin #3 of J2 header block on the FP-85* • *Pin #3 of J3 header block on the FP-105* • *Pin #3 of J2 header block on the FP-114* • *Pin #2 of the DB37F on-board I/O port* • *Pin #2 of the TB37BD breakout box*
X02.3	FP_Din_3	Local (FP Board) Digital Input 3	• *Pin #4 of J2 header block on the FP-85* • *Pin #4 of J3 header block on the FP-105* • *Pin #4 of J2 header block on the FP-114* • *Pin #21 of the DB37F on-board I/O port* • *Pin #21 of the TB37BD breakout box*
X02.4	FP_Din_4	Local (FP Board) Digital Input 4	• *Pin #5 of J2 header block on the FP-85* • *Pin #5 of J3 header block on the FP-105* • *Pin #5 of J2 header block on the FP-114* • *Pin #3 of the DB37F on-board I/O port* • *Pin #3 of the TB37BD breakout box*

Table 5-2: X Data Mapping Table for VersioBus II (2 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X02.5	FP_Din_5	Local (FP Board) Digital Input 5	• *Pin #6 of J2 header block on the FP-85* • *Pin #6 of J3 header block on the FP-105* • *Pin #6 of J2 header block on the FP-114* • *Pin #22 of the DB37F on-board I/O port* • *Pin #22 of the TB37BD breakout box*
X02.6	FP_Din_6	Local (FP Board) Digital Input 6	• *Pin #7 of J2 header block on the FP-85* • *Pin #7 of J3 header block on the FP-105* • *Pin #7 of J2 header block on the FP-114* • *Pin #4 of the DB37F on-board I/O port* • *Pin #4 of the TB37BD breakout box*
X02.7	FP_Din_7	Local (FP Board) Digital Input 7	• *Pin #8 of J2 header block on the FP-85* • *Pin #8 of J3 header block on the FP-105* • *Pin #8 of J2 header block on the FP-114* • *Pin #23 of the DB37F on-board I/O port* • *Pin #23 of the TB37BD breakout box*
X03.0	FP_Din_8	Local (FP Board) Digital Input 8	• *Pin #10 of J2 header block on the FP-85* • *Pin #10 of J3 header block on the FP-105* • *Pin #10 of J2 header block on the FP-114* • *Pin #24 of the DB37F on-board I/O port* • *Pin #24 of the TB37BD breakout box*
X03.1	FP_Din_9	Local (FP Board) Digital Input 9	• *Pin #11 of J2 header block on the FP-85* • *Pin #11 of J3 header block on the FP-105* • *Pin #11 of J2 header block on the FP-114* • *Pin #6 of the DB37F on-board I/O port* • *Pin #6 of the TB37BD breakout box*
X03.2	FP_Din_10	Local (FP Board) Digital Input 10	• *Pin #12 of J2 header block on the FP-85* • *Pin #12 of J3 header block on the FP-105* • *Pin #12 of J2 header block on the FP-114* • *Pin #25 of the DB37F on-board I/O port* • *Pin #25 of the TB37BD breakout box*
X03.3	FP_Din_11	Local (FP Board) Digital Input 11	• *Pin #13 of J2 header block on the FP-85* • *Pin #13 of J3 header block on the FP-105* • *Pin #13 of J2 header block on the FP-114* • *Pin #7 of the DB37F on-board I/O port* • *Pin #7 of the TB37BD breakout box*
X03.4	FP_Din_12	Local (FP Board) Digital Input 12	• *Pin #14 of J2 header block on the FP-85* • *Pin #14 of J3 header block on the FP-105* • *Pin #14 of J2 header block on the FP-114* • *Pin #26 of the DB37F on-board I/O port* • *Pin #26 of the TB37BD breakout box*
X03.5	FP_Din_13	Local (FP Board) Digital Input 13	• *Pin #15 of J2 header block on the FP-85* • *Pin #15 of J3 header block on the FP-105* • *Pin #15 of J2 header block on the FP-114* • *Pin #8 of the DB37F on-board I/O port* • *Pin #8 of the TB37BD breakout box*

Table 5-3: X Data Mapping Table for VersioBus II (3 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X03.6	FP_Din_14	Local (FP Board) Digital Input 14	• *Pin #16 of J2 header block on the FP-85* • *Pin #16 of J3 header block on the FP-105* • *Pin #16 of J2 header block on the FP-114* • *Pin #27 of the DB37F on-board I/O port* • *Pin #27 of the TB37BD breakout box*
X03.7	FP_Din_15	Local (FP Board) Digital Input 15	• *Pin #17 of J2 header block on the FP-85* • *Pin #17 of J3 header block on the FP-105* • *Pin #17 of J2 header block on the FP-114* • *Pin #9 of the DB37F on-board I/O port* • *Pin #9 of the TB37BD breakout box*
X12.1	HS_1	Home Switch Axis 1	0: Home switch axis 1 is not active 1: Home switch axis 1 is active *Hardware pinouts:* • *Pin #36 of I/O Connector 1 of DC-155 #1* • *Terminal #2 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #36 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
X12.2	NLS_1	Negative Limit Switch Axis 1	0: Negative limit switch axis 1 is not active 1: Negative limit switch axis 1 is active *Hardware pinouts:* • *Pin #17 of I/O Connector 1 of DC-155 #1* • *Terminal #3 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #17 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
X12.3	PLS_1	Positive Limit Switch Axis 1	0: Positive limit switch axis 1 is not active 1: Positive limit switch axis 1 is active *Hardware pinouts:* • *Pin #35 of I/O Connector 1 of DC-155 #1* • *Terminal #4 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #35 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
X12.5	HS_2	Home Switch Axis 2	0: Home switch axis 2 is not active 1: Home switch axis 2 is active *Hardware pinouts:* • *Pin #34 of I/O Connector 1 of DC-155 #1* • *Terminal #6 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #34 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*

Table 5-4: X Data Mapping Table for VersioBus II (4 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X12.6	NLS_2	Negative Limit Switch Axis 2	0: Negative limit switch axis 2 is not active 1: Negative limit switch axis 2 is active *Hardware pinouts:* • *Pin #15 of I/O Connector 1 of DC-155 #1* • *Terminal #7 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #15 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
X12.7	PLS_2	Positive Limit Switch Axis 2	0: Positive limit switch axis 2 is not active 1: Positive limit switch axis 2 is active *Hardware pinouts:* • *Pin #33 of I/O Connector 1 of DC-155 #1* • *Terminal #8 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #33 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
X13.1	HS_3	Home Switch Axis 3	0: Home switch axis 3 is not active 1: Home switch axis 3 is active *Hardware pinouts:* • *Pin #36 of I/O Connector 2 of DC-155 #1* • *Terminal #2 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #36 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
X13.2	NLS_3	Negative Limit Switch Axis 3	0: Negative limit switch axis 3 is not active 1: Negative limit switch axis 3 is active *Hardware pinouts:* • *Pin #17 of I/O Connector 2 of DC-155 #1* • *Terminal #3 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #17 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
X13.3	PLS_3	Positive Limit Switch Axis 3	0: Positive limit switch axis 3 is not active 1: Positive limit switch axis 3 is active *Hardware pinouts:* • *Pin #35 of I/O Connector 2 of DC-155 #1* • *Terminal #4 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #35 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*

Table 5-5: X Data Mapping Table for VersioBus II (5 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X13.5	HS_4	Home Switch Axis 4	0: Home switch axis 4 is not active 1: Home switch axis 4 is active *Hardware pinouts:* • *Pin #34 of I/O Connector 2 of DC-155 #1* • *Terminal #6 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #34 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
X13.6	NLS_4	Negative Limit Switch Axis 4	0: Negative limit switch axis 4 is not active 1: Negative limit switch axis 4 is active *Hardware pinouts:* • *Pin #15 of I/O Connector 2 of DC-155 #1* • *Terminal #7 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #15 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
X13.7	PLS_4	Positive Limit Switch Axis 4	0: Positive limit switch axis 4 is not active 1: Positive limit switch axis 4 is active *Hardware pinouts:* • *Pin #33 of I/O Connector 2 of DC-155 #1* • *Terminal #8 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #33 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
X14.0	AF_1	Amplifier Fault Axis 1	0: Amplifier fault axis 1 is not active 1: Amplifier fault axis 1 is active *Hardware pinouts:* • *Pin #4 of Axis Connector 1 of DC-155 #1* • *Terminal #11 of terminal block #2 of TB36A breakout box connected to Axis Connector 1 of DC-155 #1* • *Terminal #4 of TB36B breakout box connected to Axis Connector 1 of DC-155 #1*
X14.4	AF_2	Amplifier Fault Axis 2	0: Amplifier fault axis 2 is not active 1: Amplifier fault axis 2 is active *Hardware pinouts:* • *Pin #4 of Axis Connector 2 of DC-155 #1* • *Terminal #11 of terminal block #2 of TB36A breakout box connected to Axis Connector 2 of DC-155 #1* • *Terminal #4 of TB36B breakout box connected to Axis Connector 2 of DC-155 #1*

Table 5-6: X Data Mapping Table for VersioBus II (6 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X15.0	AF_3	Amplifier Fault Axis 3	0: Amplifier fault axis 3 is not active 1: Amplifier fault axis 3 is active *Hardware pinouts:* • *Pin #4 of Axis Connector 3 of DC-155 #1* • *Terminal #11 of terminal block #2 of TB36A breakout box connected to Axis Connector 3 of DC-155 #1* • *Terminal #4 of TB36B breakout box connected to Axis Connector 3 of DC-155 #1*
X15.4	AF_4	Amplifier Fault Axis 4	0: Amplifier fault axis 4 is not active 1: Amplifier fault axis 4 is active *Hardware pinouts:* • *Pin #4 of Axis Connector 4 of DC-155 #1* • *Terminal #11 of terminal block #2 of TB36A breakout box connected to Axis Connector 4 of DC-155 #1* • *Terminal #4 of TB36B breakout box connected to Axis Connector 4 of DC-155 #1*
X16.0	DC_#1_Din_0	DC Module #1 Digital Input 0	• *Pin #32 of I/O Connector 1 of DC-155 #1* • *Terminal #10 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #32 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
X16.1	DC_#1_Din_1	DC Module #1 Digital Input 1	• *Pin #13 of I/O Connector 1 of DC-155 #1* • *Terminal #11 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #13 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
X16.2	DC_#1_Din_2	DC Module #1 Digital Input 2	• *Pin #31 of I/O Connector 1 of DC-155 #1* • *Terminal #12 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #31 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
X16.3	DC_#1_Din_3	DC Module #1 Digital Input 3	• *Pin #12 of I/O Connector 1 of DC-155 #1* • *Terminal #13 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #12 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*

Table 5-7: X Data Mapping Table for VersioBus II (7 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X16.4	DC_#1_Din_4	DC Module #1 Digital Input 4	• *Pin #30 of I/O Connector 1 of DC-155 #1* • *Terminal #14 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #30 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
X16.5	DC_#1_Din_5	DC Module #1 Digital Input 5	• *Pin #11 of I/O Connector 1 of DC-155 #1* • *Terminal #15 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #11 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
X16.6	DC_#1_Din_6	DC Module #1 Digital Input 6	• *Pin #29 of I/O Connector 1 of DC-155 #1* • *Terminal #16 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #29 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
X16.7	DC_#1_Din_7	DC Module #1 Digital Input 7	• *Pin #10 of I/O Connector 1 of DC-155 #1* • *Terminal #17 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #10 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
X17.0	DC_#1_Din_8	DC Module #1 Digital Input 8	• *Pin #32 of I/O Connector 2 of DC-155 #1* • *Terminal #10 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #32 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
X17.1	DC_#1_Din_9	DC Module #1 Digital Input 9	• *Pin #13 of I/O Connector 2 of DC-155 #1* • *Terminal #11 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #13 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
X17.2	DC_#1_Din_10	DC Module #1 Digital Input 10	• *Pin #31 of I/O Connector 2 of DC-155 #1* • *Terminal #12 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #31 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*

Table 5-8: X Data Mapping Table for VersioBus II (8 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X17.3	DC_#1_Din_11	DC Module #1 Digital Input 11	• *Pin #12 of I/O Connector 2 of DC-155 #1* • *Terminal #13 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #12 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
X17.4	DC_#1_Din_12	DC Module #1 Digital Input 12	• *Pin #30 of I/O Connector 2 of DC-155 #1* • *Terminal #14 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #30 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
X17.5	DC_#1_Din_13	DC Module #1 Digital Input 13	• *Pin #11 of I/O Connector 2 of DC-155 #1* • *Terminal #15 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #11 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
X17.6	DC_#1_Din_14	DC Module #1 Digital Input 14	• *Pin #29 of I/O Connector 2 of DC-155 #1* • *Terminal #16 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #29 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
X17.7	DC_#1_Din_15	DC Module #1 Digital Input 15	• *Pin #10 of I/O Connector 2 of DC-155 #1* • *Terminal #17 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #10 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
X20.0	IM_#1_Din_0	IM Module #1 Digital Input 0	*Pin #3 of Terminal Block 1 of IM-305 #1*
X20.1	IM_#1_Din_1	IM Module #1 Digital Input 1	*Pin #4 of Terminal Block 1 of IM-305 #1*
X20.2	IM_#1_Din_2	IM Module #1 Digital Input 2	*Pin #5 of Terminal Block 1 of IM-305 #1*
X20.3	IM_#1_Din_3	IM Module #1 Digital Input 3	*Pin #6 of Terminal Block 1 of IM-305 #1*
X20.4	IM_#1_Din_4	IM Module #1 Digital Input 4	*Pin #7 of Terminal Block 1 of IM-305 #1*
X20.5	IM_#1_Din_5	IM Module #1 Digital Input 5	*Pin #8 of Terminal Block 1 of IM-305 #1*
X20.6	IM_#1_Din_6	IM Module #1 Digital Input 6	*Pin #9 of Terminal Block 1 of IM-305 #1*
X20.7	IM_#1_Din_7	IM Module #1 Digital Input 7	*Pin #10 of Terminal Block 1 of IM-305 #1*
X21.0	IM_#1_Din_8	IM Module #1 Digital Input 8	*Pin #3 of Terminal Block 2 of IM-305 #1*
X21.1	IM_#1_Din_9	IM Module #1 Digital Input 9	*Pin #4 of Terminal Block 2 of IM-305 #1*

Table 5-9: X Data Mapping Table for VersioBus II (9 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X21.2	IM_#1_Din_10	IM Module #1 Digital Input 10	*Pin #5 of Terminal Block 2 of IM-305 #1*
X21.3	IM_#1_Din_11	IM Module #1 Digital Input 11	*Pin #6 of Terminal Block 2 of IM-305 #1*
X21.4	IM_#1_Din_12	IM Module #1 Digital Input 12	*Pin #7 of Terminal Block 2 of IM-305 #1*
X21.5	IM_#1_Din_13	IM Module #1 Digital Input 13	*Pin #8 of Terminal Block 2 of IM-305 #1*
X21.6	IM_#1_Din_14	IM Module #1 Digital Input 14	*Pin #9 of Terminal Block 2 of IM-305 #1*
X21.7	IM_#1_Din_15	IM Module #1 Digital Input 15	*Pin #2 of Terminal Block 3 of IM-305 #1*
X22.0	IM_#1_Din_16	IM Module #1 Digital Input 16	*Pin #3 of Terminal Block 3 of IM-305 #1*
X22.1	IM_#1_Din_17	IM Module #1 Digital Input 17	*Pin #4 of Terminal Block 3 of IM-305 #1*
X22.2	IM_#1_Din_18	IM Module #1 Digital Input 18	*Pin #5 of Terminal Block 3 of IM-305 #1*
X22.3	IM_#1_Din_19	IM Module #1 Digital Input 19	*Pin #6 of Terminal Block 3 of IM-305 #1*
X22.4	IM_#1_Din_20	IM Module #1 Digital Input 20	*Pin #7 of Terminal Block 3 of IM-305 #1*
X22.5	IM_#1_Din_21	IM Module #1 Digital Input 21	*Pin #8 of Terminal Block 3 of IM-305 #1*
X22.6	IM_#1_Din_22	IM Module #1 Digital Input 22	*Pin #9 of Terminal Block 3 of IM-305 #1*
X22.7	IM_#1_Din_23	IM Module #1 Digital Input 23	*Pin #10 of Terminal Block 3 of IM-305 #1*
X23.0	IM_#1_Din_24	IM Module #1 Digital Input 24	*Pin #3 of Terminal Block 4 of IM-305 #1*
X23.1	IM_#1_Din_25	IM Module #1 Digital Input 25	*Pin #4 of Terminal Block 4 of IM-305 #1*
X23.2	IM_#1_Din_26	IM Module #1 Digital Input 26	*Pin #5 of Terminal Block 4 of IM-305 #1*
X23.3	IM_#1_Din_27	IM Module #1 Digital Input 27	*Pin #6 of Terminal Block 4 of IM-305 #1*
X23.4	IM_#1_Din_28	IM Module #1 Digital Input 28	*Pin #7 of Terminal Block 4 of IM-305 #1*
X23.5	IM_#1_Din_29	IM Module #1 Digital Input 29	*Pin #8 of Terminal Block 4 of IM-305 #1*
X23.6	IM_#1_Din_30	IM Module #1 Digital Input 30	*Pin #9 of Terminal Block 4 of IM-305 #1*
X23.7	IM_#1_Din_31	IM Module #1 Digital Input 31	*Pin #10 of Terminal Block 4 of IM-305 #1*
X28.1	HS_5	Home Switch Axis 5	*0: Home switch axis 5 is not active* *1: Home switch axis 5 is active* *Hardware pinouts:* • *Pin #36 of I/O Connector 1 of DC-155 #2* • *Terminal #2 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #36 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*

Table 5-10: X Data Mapping Table for VersioBus II (10 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X28.2	NLS_5	Negative Limit Switch Axis 5	*0: Negative limit switch axis 5 is not active* *1: Negative limit switch axis 5 is active* *Hardware pinouts:* • *Pin #17 of I/O Connector 1 of DC-155 #2* • *Terminal #3 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #17 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
X28.3	PLS_5	Positive Limit Switch Axis 5	*0: Positive limit switch axis 5 is not active* *1: Positive limit switch axis 5 is active* *Hardware pinouts:* • *Pin #35 of I/O Connector 1 of DC-155 #2* • *Terminal #4 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #35 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
X28.5	HS_6	Home Switch Axis 6	*0: Home switch axis 6 is not active* *1: Home switch axis 6 is active* *Hardware pinouts:* • *Pin #34 of I/O Connector 1 of DC-155 #2* • *Terminal #6 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #34 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
X28.6	NLS_6	Negative Limit Switch Axis 6	*0: Negative limit switch axis 6 is not active* *1: Negative limit switch axis 6 is active* *Hardware pinouts:* • *Pin #15 of I/O Connector 1 of DC-155 #2* • *Terminal #7 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #15 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
X28.7	PLS_6	Positive Limit Switch Axis 6	*0: Positive limit switch axis 6 is not active* *1: Positive limit switch axis 6 is active* *Hardware pinouts:* • *Pin #33 of I/O Connector 1 of DC-155 #2* • *Terminal #8 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #33 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*

Table 5-11: X Data Mapping Table for VersioBus II (11 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X29.1	HS_7	Home Switch Axis 7	*0: Home switch axis 7 is not active* *1: Home switch axis 7 is active* *Hardware pinouts:* • *Pin #36 of I/O Connector 2 of DC-155 #2* • *Terminal #2 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #36 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
X29.2	NLS_7	Negative Limit Switch Axis 7	*0: Negative limit switch axis 7 is not active* *1: Negative limit switch axis 7 is active* *Hardware pinouts:* • *Pin #17 of I/O Connector 2 of DC-155 #2* • *Terminal #3 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #17 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
X29.3	PLS_7	Positive Limit Switch Axis 7	*0: Positive limit switch axis 7 is not active* *1: Positive limit switch axis 7 is active* *Hardware pinouts:* • *Pin #35 of I/O Connector 2 of DC-155 #2* • *Terminal #4 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #35 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
X29.5	HS_8	Home Switch Axis 8	*0: Home switch axis 8 is not active* *1: Home switch axis 8 is active* *Hardware pinouts:* • *Pin #34 of I/O Connector 2 of DC-155 #2* • *Terminal #6 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #34 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
X29.6	NLS_8	Negative Limit Switch Axis 8	*0: Negative limit switch axis 8 is not active* *1: Negative limit switch axis 8 is active* *Hardware pinouts:* • *Pin #15 of I/O Connector 2 of DC-155 #2* • *Terminal #7 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #15 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*

Table 5-12: X Data Mapping Table for VersioBus II (12 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X29.7	PLS_8	Positive Limit Switch Axis 8	*0: Positive limit switch axis 8 is not active* *1: Positive limit switch axis 8 is active* *Hardware pinouts:* • *Pin #33 of I/O Connector 2 of DC-155 #2* • *Terminal #8 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #33 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
X30.0	AF_5	Amplifier Fault Axis 5	*0: Amplifier fault axis 5 is not active* *1: Amplifier fault axis 5 is active* *Hardware pinouts:* • *Pin #4 of Axis Connector 1 of DC-155 #2* • *Terminal #11 of terminal block #2 of TB36A breakout box connected to Axis Connector 1 of DC-155 #2* • *Terminal #4 of TB36B breakout box connected to Axis Connector 1 of DC-155 #2*
X30.4	AF_6	Amplifier Fault Axis 6	*0: Amplifier fault axis 6 is not active* *1: Amplifier fault axis 6 is active* *Hardware pinouts:* • *Pin #4 of Axis Connector 2 of DC-155 #2* • *Terminal #11 of terminal block #2 of TB36A breakout box connected to Axis Connector 2 of DC-155 #2* • *Terminal #4 of TB36B breakout box connected to Axis Connector 2 of DC-155 #2*
X31.0	AF_7	Amplifier Fault Axis 7	*0: Amplifier fault axis 7 is not active* *1: Amplifier fault axis 7 is active* *Hardware pinouts:* • *Pin #4 of Axis Connector 3 of DC-155 #2* • *Terminal #11 of terminal block #2 of TB36A breakout box connected to Axis Connector 3 of DC-155 #2* • *Terminal #4 of TB36B breakout box connected to Axis Connector 3 of DC-155 #2*
X31.4	AF_8	Amplifier Fault Axis 8	*0: Amplifier fault axis 8 is not active* *1: Amplifier fault axis 8 is active* *Hardware pinouts:* • *Pin #4 of Axis Connector 4 of DC-155 #2* • *Terminal #11 of terminal block #2 of TB36A breakout box connected to Axis Connector 4 of DC-155 #2* • *Terminal #4 of TB36B breakout box connected to Axis Connector 4 of DC-155 #2*

Table 5-13: X Data Mapping Table for VersioBus II (13 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X32.0	DC_#2_Din_0	DC Module #2 Digital Input 0	• *Pin #32 of I/O Connector 1 of DC-155 #2* • *Terminal #10 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #32 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
X32.1	DC_#2_Din_1	DC Module #2 Digital Input 1	• *Pin #13 of I/O Connector 1 of DC-155 #2* • *Terminal #11 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #13 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
X32.2	DC_#2_Din_2	DC Module #2 Digital Input 2	• *Pin #31 of I/O Connector 1 of DC-155 #2* • *Terminal #12 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #31 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
X32.3	DC_#2_Din_3	DC Module #2 Digital Input 3	• *Pin #12 of I/O Connector 1 of DC-155 #2* • *Terminal #13 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #12 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
X32.4	DC_#2_Din_4	DC Module #2 Digital Input 4	• *Pin #30 of I/O Connector 1 of DC-155 #2* • *Terminal #14 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #30 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
X32.5	DC_#2_Din_5	DC Module #2 Digital Input 5	• *Pin #11 of I/O Connector 1 of DC-155 #2* • *Terminal #15 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #11 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
X32.6	DC_#2_Din_6	DC Module #2 Digital Input 6	• *Pin #29 of I/O Connector 1 of DC-155 #2* • *Terminal #16 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #29 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*

Table 5-14: X Data Mapping Table for VersioBus II (14 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X32.7	DC_#2_Din_7	DC Module #2 Digital Input 7	• *Pin #10 of I/O Connector 1 of DC-155 #2* • *Terminal #17 of terminal block #1 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #10 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
X33.0	DC_#2_Din_8	DC Module #2 Digital Input 8	• *Pin #32 of I/O Connector 2 of DC-155 #2* • *Terminal #10 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #32 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
X33.1	DC_#2_Din_9	DC Module #2 Digital Input 9	• *Pin #13 of I/O Connector 2 of DC-155 #2* • *Terminal #11 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #13 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
X33.2	DC_#2_Din_10	DC Module #2 Digital Input 10	• *Pin #31 of I/O Connector 2 of DC-155 #2* • *Terminal #12 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #31 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
X33.3	DC_#2_Din_11	DC Module #2 Digital Input 11	• *Pin #12 of I/O Connector 2 of DC-155 #2* • *Terminal #13 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #12 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
X33.4	DC_#2_Din_12	DC Module #2 Digital Input 12	• *Pin #30 of I/O Connector 2 of DC-155 #2* • *Terminal #14 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #30 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
X33.5	DC_#2_Din_13	DC Module #2 Digital Input 13	• *Pin #11 of I/O Connector 2 of DC-155 #2* • *Terminal #15 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #11 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*

Table 5-15: X Data Mapping Table for VersioBus II (15 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X33.6	DC_#2_Din_14	DC Module #2 Digital Input 14	• *Pin #29 of I/O Connector 2 of DC-155 #2* • *Terminal #16 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #29 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
X33.7	DC_#2_Din_15	DC Module #2 Digital Input 15	• *Pin #10 of I/O Connector 2 of DC-155 #2* • *Terminal #17 of terminal block #1 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #10 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
X36.0	IM_#2_Din_0	IM Module #2 Digital Input 0	*Pin #3 of Terminal Block 1 of IM-305 #2*
X36.1	IM_#2_Din_1	IM Module #2 Digital Input 1	*Pin #4 of Terminal Block 1 of IM-305 #2*
X36.2	IM_#2_Din_2	IM Module #2 Digital Input 2	*Pin #5 of Terminal Block 1 of IM-305 #2*
X36.3	IM_#2_Din_3	IM Module #2 Digital Input 3	*Pin #6 of Terminal Block 1 of IM-305 #2*
X36.4	IM_#2_Din_4	IM Module #2 Digital Input 4	*Pin #7 of Terminal Block 1 of IM-305 #2*
X36.5	IM_#2_Din_5	IM Module #2 Digital Input 5	*Pin #8 of Terminal Block 1 of IM-305 #2*
X36.6	IM_#2_Din_6	IM Module #2 Digital Input 6	*Pin #9 of Terminal Block 1 of IM-305 #2*
X36.7	IM_#2_Din_7	IM Module #2 Digital Input 7	*Pin #10 of Terminal Block 1 of IM-305 #2*
X37.0	IM_#2_Din_8	IM Module #2 Digital Input 8	*Pin #3 of Terminal Block 2 of IM-305 #2*
X37.1	IM_#2_Din_9	IM Module #2 Digital Input 9	*Pin #4 of Terminal Block 2 of IM-305 #2*
X37.2	IM_#2_Din_10	IM Module #2 Digital Input 10	*Pin #5 of Terminal Block 2 of IM-305 #2*
X37.3	IM_#2_Din_11	IM Module #2 Digital Input 11	*Pin #6 of Terminal Block 2 of IM-305 #2*
X37.4	IM_#2_Din_12	IM Module #2 Digital Input 12	*Pin #7 of Terminal Block 2 of IM-305 #2*
X37.5	IM_#2_Din_13	IM Module #2 Digital Input 13	*Pin #8 of Terminal Block 2 of IM-305 #2*
X37.6	IM_#2_Din_14	IM Module #2 Digital Input 14	*Pin #9 of Terminal Block 2 of IM-305 #2*
X37.7	IM_#2_Din_15	IM Module #2 Digital Input 15	*Pin #2 of Terminal Block 3 of IM-305 #2*
X38.0	IM_#2_Din_16	IM Module #2 Digital Input 16	*Pin #3 of Terminal Block 3 of IM-305 #2*
X38.1	IM_#2_Din_17	IM Module #2 Digital Input 17	*Pin #4 of Terminal Block 3 of IM-305 #2*
X38.2	IM_#2_Din_18	IM Module #2 Digital Input 18	*Pin #5 of Terminal Block 3 of IM-305 #2*
X38.3	IM_#2_Din_19	IM Module #2 Digital Input 19	*Pin #6 of Terminal Block 3 of IM-305 #2*
X38.4	IM_#2_Din_20	IM Module #2 Digital Input 20	*Pin #7 of Terminal Block 3 of IM-305 #2*
X38.5	IM_#2_Din_21	IM Module #2 Digital Input 21	*Pin #8 of Terminal Block 3 of IM-305 #2*
X38.6	IM_#2_Din_22	IM Module #2 Digital Input 22	*Pin #9 of Terminal Block 3 of IM-305 #2*

Table 5-16: X Data Mapping Table for VersioBus II (16 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X38.7	IM_#2_Din_23	IM Module #2 Digital Input 23	*Pin #10 of Terminal Block 3 of IM-305 #2*
X39.0	IM_#2_Din_24	IM Module #2 Digital Input 24	*Pin #3 of Terminal Block 4 of IM-305 #2*
X39.1	IM_#2_Din_25	IM Module #2 Digital Input 25	*Pin #4 of Terminal Block 4 of IM-305 #2*
X39.2	IM_#2_Din_26	IM Module #2 Digital Input 26	*Pin #5 of Terminal Block 4 of IM-305 #2*
X39.3	IM_#2_Din_27	IM Module #2 Digital Input 27	*Pin #6 of Terminal Block 4 of IM-305 #2*
X39.4	IM_#2_Din_28	IM Module #2 Digital Input 28	*Pin #7 of Terminal Block 4 of IM-305 #2*
X39.5	IM_#2_Din_29	IM Module #2 Digital Input 29	*Pin #8 of Terminal Block 4 of IM-305 #2*
X39.6	IM_#2_Din_30	IM Module #2 Digital Input 30	*Pin #9 of Terminal Block 4 of IM-305 #2*
X39.7	IM_#2_Din_31	IM Module #2 Digital Input 31	*Pin #10 of Terminal Block 4 of IM-305 #2*
X52.0	IM_#3_Din_0	IM Module #3 Digital Input 0	*Pin #3 of Terminal Block 1 of IM-305 #3*
X52.1	IM_#3_Din_1	IM Module #3 Digital Input 1	*Pin #4 of Terminal Block 1 of IM-305 #3*
X52.2	IM_#3_Din_2	IM Module #3 Digital Input 2	*Pin #5 of Terminal Block 1 of IM-305 #3*
X52.3	IM_#3_Din_3	IM Module #3 Digital Input 3	*Pin #6 of Terminal Block 1 of IM-305 #3*
X52.4	IM_#3_Din_4	IM Module #3 Digital Input 4	*Pin #7 of Terminal Block 1 of IM-305 #3*
X52.5	IM_#3_Din_5	IM Module #3 Digital Input 5	*Pin #8 of Terminal Block 1 of IM-305 #3*
X52.6	IM_#3_Din_6	IM Module #3 Digital Input 6	*Pin #9 of Terminal Block 1 of IM-305 #3*
X52.7	IM_#3_Din_7	IM Module #3 Digital Input 7	*Pin #10 of Terminal Block 1 of IM-305 #3*
X53.0	IM_#3_Din_8	IM Module #3 Digital Input 8	*Pin #3 of Terminal Block 2 of IM-305 #3*
X53.1	IM_#3_Din_9	IM Module #3 Digital Input 9	*Pin #4 of Terminal Block 2 of IM-305 #3*
X53.2	IM_#3_Din_10	IM Module #3 Digital Input 10	*Pin #5 of Terminal Block 2 of IM-305 #3*
X53.3	IM_#3_Din_11	IM Module #3 Digital Input 11	*Pin #6 of Terminal Block 2 of IM-305 #3*
X53.4	IM_#3_Din_12	IM Module #3 Digital Input 12	*Pin #7 of Terminal Block 2 of IM-305 #3*
X53.5	IM_#3_Din_13	IM Module #3 Digital Input 13	*Pin #8 of Terminal Block 2 of IM-305 #3*
X53.6	IM_#3_Din_14	IM Module #3 Digital Input 14	*Pin #9 of Terminal Block 2 of IM-305 #3*
X53.7	IM_#3_Din_15	IM Module #3 Digital Input 15	*Pin #2 of Terminal Block 3 of IM-305 #3*
X54.0	IM_#3_Din_16	IM Module #3 Digital Input 16	*Pin #3 of Terminal Block 3 of IM-305 #3*
X54.1	IM_#3_Din_17	IM Module #3 Digital Input 17	*Pin #4 of Terminal Block 3 of IM-305 #3*
X54.2	IM_#3_Din_18	IM Module #3 Digital Input 18	*Pin #5 of Terminal Block 3 of IM-305 #3*
X54.3	IM_#3_Din_19	IM Module #3 Digital Input 19	*Pin #6 of Terminal Block 3 of IM-305 #3*
X54.4	IM_#3_Din_20	IM Module #3 Digital Input 20	*Pin #7 of Terminal Block 3 of IM-305 #3*
X54.5	IM_#3_Din_21	IM Module #3 Digital Input 21	*Pin #8 of Terminal Block 3 of IM-305 #3*
X54.6	IM_#3_Din_22	IM Module #3 Digital Input 22	*Pin #9 of Terminal Block 3 of IM-305 #3*

Table 5-17: X Data Mapping Table for VersioBus II (17 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X54.7	IM_#3_Din_23	IM Module #3 Digital Input 23	*Pin #10 of Terminal Block 3 of IM-305 #3*
X55.0	IM_#3_Din_24	IM Module #3 Digital Input 24	*Pin #3 of Terminal Block 4 of IM-305 #3*
X55.1	IM_#3_Din_25	IM Module #3 Digital Input 25	*Pin #4 of Terminal Block 4 of IM-305 #3*
X55.2	IM_#3_Din_26	IM Module #3 Digital Input 26	*Pin #5 of Terminal Block 4 of IM-305 #3*
X55.3	IM_#3_Din_27	IM Module #3 Digital Input 27	*Pin #6 of Terminal Block 4 of IM-305 #3*
X55.4	IM_#3_Din_28	IM Module #3 Digital Input 28	*Pin #7 of Terminal Block 4 of IM-305 #3*
X55.5	IM_#3_Din_29	IM Module #3 Digital Input 29	*Pin #8 of Terminal Block 4 of IM-305 #3*
X55.6	IM_#3_Din_30	IM Module #3 Digital Input 30	*Pin #9 of Terminal Block 4 of IM-305 #3*
X55.7	IM_#3_Din_31	IM Module #3 Digital Input 31	*Pin #10 of Terminal Block 4 of IM-305 #3*
X68.0	IM_#4_Din_0	IM Module #4 Digital Input 0	*Pin #3 of Terminal Block 1 of IM-305 #4*
X68.1	IM_#4_Din_1	IM Module #4 Digital Input 1	*Pin #4 of Terminal Block 1 of IM-305 #4*
X68.2	IM_#4_Din_2	IM Module #4 Digital Input 2	*Pin #5 of Terminal Block 1 of IM-305 #4*
X68.3	IM_#4_Din_3	IM Module #4 Digital Input 3	*Pin #6 of Terminal Block 1 of IM-305 #4*
X68.4	IM_#4_Din_4	IM Module #4 Digital Input 4	*Pin #7 of Terminal Block 1 of IM-305 #4*
X68.5	IM_#4_Din_5	IM Module #4 Digital Input 5	*Pin #8 of Terminal Block 1 of IM-305 #4*
X68.6	IM_#4_Din_6	IM Module #4 Digital Input 6	*Pin #9 of Terminal Block 1 of IM-305 #4*
X68.7	IM_#4_Din_7	IM Module #4 Digital Input 7	*Pin #10 of Terminal Block 1 of IM-305 #4*
X69.0	IM_#4_Din_8	IM Module #4 Digital Input 8	*Pin #3 of Terminal Block 2 of IM-305 #4*
X69.1	IM_#4_Din_9	IM Module #4 Digital Input 9	*Pin #4 of Terminal Block 2 of IM-305 #4*
X69.2	IM_#4_Din_10	IM Module #4 Digital Input 10	*Pin #5 of Terminal Block 2 of IM-305 #4*
X69.3	IM_#4_Din_11	IM Module #4 Digital Input 11	*Pin #6 of Terminal Block 2 of IM-305 #4*
X69.4	IM_#4_Din_12	IM Module #4 Digital Input 12	*Pin #7 of Terminal Block 2 of IM-305 #4*
X69.5	IM_#4_Din_13	IM Module #4 Digital Input 13	*Pin #8 of Terminal Block 2 of IM-305 #4*
X69.6	IM_#4_Din_14	IM Module #4 Digital Input 14	*Pin #9 of Terminal Block 2 of IM-305 #4*
X69.7	IM_#4_Din_15	IM Module #4 Digital Input 15	*Pin #2 of Terminal Block 3 of IM-305 #4*
X70.0	IM_#4_Din_16	IM Module #4 Digital Input 16	*Pin #3 of Terminal Block 3 of IM-305 #4*
X70.1	IM_#4_Din_17	IM Module #4 Digital Input 17	*Pin #4 of Terminal Block 3 of IM-305 #4*
X70.2	IM_#4_Din_18	IM Module #4 Digital Input 18	*Pin #5 of Terminal Block 3 of IM-305 #4*
X70.3	IM_#4_Din_19	IM Module #4 Digital Input 19	*Pin #6 of Terminal Block 3 of IM-305 #4*
X70.4	IM_#4_Din_20	IM Module #4 Digital Input 20	*Pin #7 of Terminal Block 3 of IM-305 #4*
X70.5	IM_#4_Din_21	IM Module #4 Digital Input 21	*Pin #8 of Terminal Block 3 of IM-305 #4*
X70.6	IM_#4_Din_22	IM Module #4 Digital Input 22	*Pin #9 of Terminal Block 3 of IM-305 #4*

Table 5-18: X Data Mapping Table for VersioBus II (18 of 19)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X70.7	IM_#4_Din_23	IM Module #4 Digital Input 23	*Pin #10 of Terminal Block 3 of IM-305 #4*
X71.0	IM_#4_Din_24	IM Module #4 Digital Input 24	*Pin #3 of Terminal Block 4 of IM-305 #4*
X71.1	IM_#4_Din_25	IM Module #4 Digital Input 25	*Pin #4 of Terminal Block 4 of IM-305 #4*
X71.2	IM_#4_Din_26	IM Module #4 Digital Input 26	*Pin #5 of Terminal Block 4 of IM-305 #4*
X71.3	IM_#4_Din_27	IM Module #4 Digital Input 27	*Pin #6 of Terminal Block 4 of IM-305 #4*
X71.4	IM_#4_Din_28	IM Module #4 Digital Input 28	*Pin #7 of Terminal Block 4 of IM-305 #4*
X71.5	IM_#4_Din_29	IM Module #4 Digital Input 29	*Pin #8 of Terminal Block 4 of IM-305 #4*
X71.6	IM_#4_Din_30	IM Module #4 Digital Input 30	*Pin #9 of Terminal Block 4 of IM-305 #4*
X71.7	IM_#4_Din_31	IM Module #4 Digital Input 31	*Pin #10 of Terminal Block 4 of IM-305 #4*

Table 5-19: X Data Mapping Table for VersioBus II (19 of 19)

Chapter 6: X Data Mapping for the MECHATROLINK Interface System

6.1: X12 through X63

ADDRESS	NAME	DESCRIPTION	NOTES
X12.1	HS_1	Home Switch Axis 1	0: Home switch axis 1 is not active 1: Home switch axis 1 is active
X12.2	NLS_1	Negative Limit Switch Axis 1	0: Negative limit switch axis 1 is not active 1: Negative limit switch axis 1 is active
X12.3	PLS_1	Positive Limit Switch Axis 1	0: Positive limit switch axis 1 is not active 1: Positive limit switch axis 1 is active
X12.5	HS_2	Home Switch Axis 2	0: Home switch axis 2 is not active 1: Home switch axis 2 is active
X12.6	NLS_2	Negative Limit Switch Axis 2	0: Negative limit switch axis 2 is not active 1: Negative limit switch axis 2 is active
X12.7	PLS_2	Positive Limit Switch Axis 2	0: Positive limit switch axis 2 is not active 1: Positive limit switch axis 2 is active
X13.1	HS_3	Home Switch Axis 3	0: Home switch axis 3 is not active 1: Home switch axis 3 is active
X13.2	NLS_3	Negative Limit Switch Axis 3	0: Negative limit switch axis 3 is not active 1: Negative limit switch axis 3 is active
X13.3	PLS_3	Positive Limit Switch Axis 3	0: Positive limit switch axis 3 is not active 1: Positive limit switch axis 3 is active
X13.5	HS_4	Home Switch Axis 4	0: Home switch axis 4 is not active 1: Home switch axis 4 is active
X13.6	NLS_4	Negative Limit Switch Axis 4	0: Negative limit switch axis 4 is not active 1: Negative limit switch axis 4 is active
X13.7	PLS_4	Positive Limit Switch Axis 4	0: Positive limit switch axis 4 is not active 1: Positive limit switch axis 4 is active
X14.0	AF_1	Amplifier Fault Axis 1	0: Amplifier fault axis 1 is not active 1: Amplifier fault axis 1 is active
X14.4	AF_2	Amplifier Fault Axis 2	0: Amplifier fault axis 2 is not active 1: Amplifier fault axis 2 is active
X15.0	AF_3	Amplifier Fault Axis 3	0: Amplifier fault axis 3 is not active 1: Amplifier fault axis 3 is active
X15.4	AF_4	Amplifier Fault Axis 4	0: Amplifier fault axis 4 is not active 1: Amplifier fault axis 4 is active
X28.1	HS_5	Home Switch Axis 5	0: Home switch axis 5 is not active 1: Home switch axis 5 is active
X28.2	NLS_5	Negative Limit Switch Axis 5	0: Negative limit switch axis 5 is not active 1: Negative limit switch axis 5 is active
X28.3	PLS_5	Positive Limit Switch Axis 5	0: Positive limit switch axis 5 is not active 1: Positive limit switch axis 5 is active
X28.5	HS_6	Home Switch Axis 6	0: Home switch axis 6 is not active 1: Home switch axis 6 is active
X28.6	NLS_6	Negative Limit Switch Axis 6	0: Negative limit switch axis 6 is not active 1: Negative limit switch axis 6 is active

Table 6-1: X Data Mapping Table for MECHATROLINK (1 of 2)

ADDRESS	NAME	DESCRIPTION	NOTES
X28.7	PLS_6	Positive Limit Switch Axis 6	0: Positive limit switch axis 6 is not active 1: Positive limit switch axis 6 is active
X29.1	HS_7	Home Switch Axis 7	0: Home switch axis 7 is not active 1: Home switch axis 7 is active
X29.2	NLS_7	Negative Limit Switch Axis 7	0: Negative limit switch axis 7 is not active 1: Negative limit switch axis 7 is active
X29.3	PLS_7	Positive Limit Switch Axis 7	0: Positive limit switch axis 7 is not active 1: Positive limit switch axis 7 is active
X29.5	HS_8	Home Switch Axis 8	0: Home switch axis 8 is not active 1: Home switch axis 8 is active
X29.6	NLS_8	Negative Limit Switch Axis 8	0: Negative limit switch axis 8 is not active 1: Negative limit switch axis 8 is active
X29.7	PLS_8	Positive Limit Switch Axis 8	0: Positive limit switch axis 8 is not active 1: Positive limit switch axis 8 is active
X30.0	AF_5	Amplifier Fault Axis 5	0: Amplifier fault axis 5 is not active 1: Amplifier fault axis 5 is active
X30.4	AF_6	Amplifier Fault Axis 6	0: Amplifier fault axis 6 is not active 1: Amplifier fault axis 6 is active
X31.0	AF_7	Amplifier Fault Axis 7	0: Amplifier fault axis 7 is not active 1: Amplifier fault axis 7 is active
X31.4	AF_8	Amplifier Fault Axis 8	0: Amplifier fault axis 8 is not active 1: Amplifier fault axis 8 is active

Table 6-2: X Data Mapping Table for MECHATROLINK (2 of 2)

NOTE: Please refer to the appropriate users' manuals for YASKAWA Sigma II and Sigma III drives for hardware pinouts for the YASKAWA servo drives, to properly connect the home, limit and amplifier fault switches.

6.2 X80 through X99

Mapping of X80 through X99 data for the MECHATROLINK interface system general I/O data is dynamic. There are 20 X addresses (X80 – X99) available for general I/O in a MECHATROLINK interface system. X I/O is mapped to I/O nodes in ascendant order according to the INSize parameter of each I/O node. You can use INSize values that exceed the capacity of the I/O module, if you want to force certain X values to correspond with certain I/O modules.

Mapping depends on the order of the station numbers (set in the .ini system configuration file for the MECHATROLINK ServoWorks CNC system). If you change the station numbers, you change the mapping.

An example of a MECHATROLINK system information file for typical I/O nodes in a MECHATROLINK interface system follows. Assume Node 3 is an IO2310 simple I/O module (digital: 64 bits in and 64 bits out), Node 5 is an AN2900 Intelligent I/O module (analog: 4 channels) and Node 6 is a PL2900 Intelligent I/O (counter: 2 channels). These nodes would look as follows in a MECHATROLINK system configuration file:

```
[Station 3]
NodeType=2
IOType=1
DAType=0
INSize=8
OUTSize=8
```
This station will be mapped to X80 – X87 and Y80 – Y87

```
[Station 5]
NodeType=2
IOType=2
DAType=1
INSize=8
OUTSize=0
```
This station will be mapped to X88 – X95

```
[Station 6]
NodeType=2
IOType=2
DAType=2
INSize=4
OUTSize=0
```
This station will be mapped to X96 – X99

6.3 I/O Mapping for Optional Fiber-Optic VersioBus II I/O Included as Part of a MECHATROLINK Interface System

If optional fiber-optic VersioBus II I/O is included in your MECHATROLINK interface system, see *Chapter 5: X Data Mapping Tables for the VersioBus II Interface System* for the I/O mapping of the 32 points of on-board general I/O for the VersioBus II adapter board, the I/O mapping for the encoder and digital I/O connector for a handwheel provided by the VersioBus II adapter board, and the I/O mapping for the digital I/O provided by any IM-305 VersioBus II I/O modules.

Chapter 7: X Data Mapping for the Panasonic Realtime Express Interface System

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X12.1	HS_1	Home Switch Axis 1	0: Home switch axis 1 is not active 1: Home switch axis 1 is active
X12.2	NLS_1	Negative Limit Switch Axis 1	0: Negative limit switch axis 1 is not active 1: Negative limit switch axis 1 is active
X12.3	PLS_1	Positive Limit Switch Axis 1	0: Positive limit switch axis 1 is not active 1: Positive limit switch axis 1 is active
X12.5	HS_2	Home Switch Axis 2	0: Home switch axis 2 is not active 1: Home switch axis 2 is active
X12.6	NLS_2	Negative Limit Switch Axis 2	0: Negative limit switch axis 2 is not active 1: Negative limit switch axis 2 is active
X12.7	PLS_2	Positive Limit Switch Axis 2	0: Positive limit switch axis 2 is not active 1: Positive limit switch axis 2 is active
X13.1	HS_3	Home Switch Axis 3	0: Home switch axis 3 is not active 1: Home switch axis 3 is active
X13.2	NLS_3	Negative Limit Switch Axis 3	0: Negative limit switch axis 3 is not active 1: Negative limit switch axis 3 is active
X13.3	PLS_3	Positive Limit Switch Axis 3	0: Positive limit switch axis 3 is not active 1: Positive limit switch axis 3 is active
X13.5	HS_4	Home Switch Axis 4	0: Home switch axis 4 is not active 1: Home switch axis 4 is active
X13.6	NLS_4	Negative Limit Switch Axis 4	0: Negative limit switch axis 4 is not active 1: Negative limit switch axis 4 is active
X13.7	PLS_4	Positive Limit Switch Axis 4	0: Positive limit switch axis 4 is not active 1: Positive limit switch axis 4 is active
X14.0	AF_1	Amplifier Fault Axis 1	0: Amplifier fault axis 1 is not active 1: Amplifier fault axis 1 is active
X14.4	AF_2	Amplifier Fault Axis 2	0: Amplifier fault axis 2 is not active 1: Amplifier fault axis 2 is active
X15.0	AF_3	Amplifier Fault Axis 3	0: Amplifier fault axis 3 is not active 1: Amplifier fault axis 3 is active
X15.4	AF_4	Amplifier Fault Axis 4	0: Amplifier fault axis 4 is not active 1: Amplifier fault axis 4 is active
X16.0	AN4_#1_Din_0	Axis 1 Digital Input Bit 0	
X16.1	AN4_#1_Din_1	Axis 1 Digital Input Bit 1	
X16.2	AN4_#1_Din_2	Axis 1 Digital Input Bit 2	
X16.3	AN4_#1_Din_3	Axis 1 Digital Input Bit 3	
X16.4	AN4_#2_Din_0	Axis 2 Digital Input Bit 0	
X16.5	AN4_#2_Din_1	Axis 2 Digital Input Bit 1	
X16.6	AN4_#2_Din_2	Axis 2 Digital Input Bit 2	
X16.7	AN4_#2_Din_3	Axis 2 Digital Input Bit 3	

Table 7-1: X Data Mapping Table for the Panasonic Realtime Express Interface System (1 of 3)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X17.0	AN4_#3_Din_0	Axis 3 Digital Input Bit 0	
X17.1	AN4_#3_Din_1	Axis 3 Digital Input Bit 1	
X17.2	AN4_#3_Din_2	Axis 3 Digital Input Bit 2	
X17.3	AN4_#3_Din_3	Axis 3 Digital Input Bit 3	
X17.4	AN4_#4_Din_0	Axis 4 Digital Input Bit 0	
X17.5	AN4_#4_Din_1	Axis 4 Digital Input Bit 1	
X17.6	AN4_#4_Din_2	Axis 4 Digital Input Bit 2	
X17.7	AN4_#4_Din_3	Axis 4 Digital Input Bit 3	
X18.0	AN4_#5_Din_0	Axis 5 Digital Input Bit 0	
X18.1	AN4_#5_Din_1	Axis 5 Digital Input Bit 1	
X18.2	AN4_#5_Din_2	Axis 5 Digital Input Bit 2	
X18.3	AN4_#5_Din_3	Axis 5 Digital Input Bit 3	
X18.4	AN4_#6_Din_0	Axis 6 Digital Input Bit 0	
X18.5	AN4_#6_Din_1	Axis 6 Digital Input Bit 1	
X18.6	AN4_#6_Din_2	Axis 6 Digital Input Bit 2	
X18.7	AN4_#6_Din_3	Axis 6 Digital Input Bit 3	
X19.0	AN4_#7_Din_0	Axis 7 Digital Input Bit 0	
X19.1	AN4_#7_Din_1	Axis 7 Digital Input Bit 1	
X19.2	AN4_#7_Din_2	Axis 7 Digital Input Bit 2	
X19.3	AN4_#7_Din_3	Axis 7 Digital Input Bit 3	
X19.4	AN4_#8_Din_0	Axis 8 Digital Input Bit 0	
X19.5	AN4_#8_Din_1	Axis 8 Digital Input Bit 1	
X19.6	AN4_#8_Din_2	Axis 8 Digital Input Bit 2	
X19.7	AN4_#8_Din_3	Axis 8 Digital Input Bit 3	
X28.1	HS_5	Home Switch Axis 5	0: Home switch axis 5 is not active 1: Home switch axis 5 is active
X28.2	NLS_5	Negative Limit Switch Axis 5	0: Negative limit switch axis 5 is not active 1: Negative limit switch axis 5 is active
X28.3	PLS_5	Positive Limit Switch Axis 5	0: Positive limit switch axis 5 is not active 1: Positive limit switch axis 5 is active
X28.5	HS_6	Home Switch Axis 6	0: Home switch axis 6 is not active 1: Home switch axis 6 is active

Table 7-2: X Data Mapping Table for the Panasonic Realtime Express Interface System (2 of 3)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X28.6	NLS_6	Negative Limit Switch Axis 6	0: Negative limit switch axis 6 is not active 1: Negative limit switch axis 6 is active
X28.7	PLS_6	Positive Limit Switch Axis 6	0: Positive limit switch axis 6 is not active 1: Positive limit switch axis 6 is active
X29.1	HS_7	Home Switch Axis 7	0: Home switch axis 7 is not active 1: Home switch axis 7 is active
X29.2	NLS_7	Negative Limit Switch Axis 7	0: Negative limit switch axis 7 is not active 1: Negative limit switch axis 7 is active
X29.3	PLS_7	Positive Limit Switch Axis 7	0: Positive limit switch axis 7 is not active 1: Positive limit switch axis 7 is active
X29.5	HS_8	Home Switch Axis 8	0: Home switch axis 8 is not active 1: Home switch axis 8 is active
X29.6	NLS_8	Negative Limit Switch Axis 8	0: Negative limit switch axis 8 is not active 1: Negative limit switch axis 8 is active
X29.7	PLS_8	Positive Limit Switch Axis 8	0: Positive limit switch axis 8 is not active 1: Positive limit switch axis 8 is active
X30.0	AF_5	Amplifier Fault Axis 5	0: Amplifier fault axis 5 is not active 1: Amplifier fault axis 5 is active
X30.4	AF_6	Amplifier Fault Axis 6	0: Amplifier fault axis 6 is not active 1: Amplifier fault axis 6 is active
X31.0	AF_7	Amplifier Fault Axis 7	0: Amplifier fault axis 7 is not active 1: Amplifier fault axis 7 is active
X31.4	AF_8	Amplifier Fault Axis 8	0: Amplifier fault axis 8 is not active 1: Amplifier fault axis 8 is active

Table 7-3: X Data Mapping Table for the Panasonic Realtime Express Interface System (3 of 3)

NOTES:

1) Please refer to the *Panasonic Instruction Manual, AC Servo Motor and Driver, MINAS A4 Series* for hardware pinouts for the Panasonic servo drives, to properly connect the home, limit and amplifier fault switches.

2) If optional fiber-optic VersioBus II I/O is included in your Panasonic Realtime Express interface system, see *Chapter 5: X Data Mapping Tables for the VersioBus II Interface System* for the I/O mapping of the 32 points of on-board general I/O for the VersioBus II adapter board, the I/O mapping for the encoder and digital I/O connector for a handwheel provided by the VersioBus II adapter board, and the I/O mapping for the digital I/O provided by any IM-305 VersioBus II I/O modules.

3) Mapping of X data for AnyWire I/O modules in the RTEX interface system is dynamic. There are 20 X addresses (X80 – X99) available for AnyWire I/O in an RTEX interface system.

Chapter 8: X Data Mapping for the SSCNET Interface System

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X12.1	HS_1	Home Switch Axis 1	0: Home switch axis 1 is not active 1: Home switch axis 1 is active
X12.2	NLS_1	Negative Limit Switch Axis 1	0: Negative limit switch axis 1 is not active 1: Negative limit switch axis 1 is active
X12.3	PLS_1	Positive Limit Switch Axis 1	0: Positive limit switch axis 1 is not active 1: Positive limit switch axis 1 is active
X12.5	HS_2	Home Switch Axis 2	0: Home switch axis 2 is not active 1: Home switch axis 2 is active
X12.6	NLS_2	Negative Limit Switch Axis 2	0: Negative limit switch axis 2 is not active 1: Negative limit switch axis 2 is active
X12.7	PLS_2	Positive Limit Switch Axis 2	0: Positive limit switch axis 2 is not active 1: Positive limit switch axis 2 is active
X13.1	HS_3	Home Switch Axis 3	0: Home switch axis 3 is not active 1: Home switch axis 3 is active
X13.2	NLS_3	Negative Limit Switch Axis 3	0: Negative limit switch axis 3 is not active 1: Negative limit switch axis 3 is active
X13.3	PLS_3	Positive Limit Switch Axis 3	0: Positive limit switch axis 3 is not active 1: Positive limit switch axis 3 is active
X13.5	HS_4	Home Switch Axis 4	0: Home switch axis 4 is not active 1: Home switch axis 4 is active
X13.6	NLS_4	Negative Limit Switch Axis 4	0: Negative limit switch axis 4 is not active 1: Negative limit switch axis 4 is active
X13.7	PLS_4	Positive Limit Switch Axis 4	0: Positive limit switch axis 4 is not active 1: Positive limit switch axis 4 is active
X14.0	AF_1	Amplifier Fault Axis 1	0: Amplifier fault axis 1 is not active 1: Amplifier fault axis 1 is active
X14.4	AF_2	Amplifier Fault Axis 2	0: Amplifier fault axis 2 is not active 1: Amplifier fault axis 2 is active
X15.0	AF_3	Amplifier Fault Axis 3	0: Amplifier fault axis 3 is not active 1: Amplifier fault axis 3 is active
X15.4	AF_4	Amplifier Fault Axis 4	0: Amplifier fault axis 4 is not active 1: Amplifier fault axis 4 is active
X28.1	HS_5	Home Switch Axis 5	0: Home switch axis 5 is not active 1: Home switch axis 5 is active
X28.2	NLS_5	Negative Limit Switch Axis 5	0: Negative limit switch axis 5 is not active 1: Negative limit switch axis 5 is active
X28.3	PLS_5	Positive Limit Switch Axis 5	0: Positive limit switch axis 5 is not active 1: Positive limit switch axis 5 is active
X28.5	HS_6	Home Switch Axis 6	0: Home switch axis 6 is not active 1: Home switch axis 6 is active
X28.6	NLS_6	Negative Limit Switch Axis 6	0: Negative limit switch axis 6 is not active 1: Negative limit switch axis 6 is active
X28.7	PLS_6	Positive Limit Switch Axis 6	0: Positive limit switch axis 6 is not active 1: Positive limit switch axis 6 is active

Table 8-1: X Data Mapping Table for the SSCNET Interface System (1 of 2)

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
X29.1	HS_7	Home Switch Axis 7	0: Home switch axis 7 is not active 1: Home switch axis 7 is active
X29.2	NLS_7	Negative Limit Switch Axis 7	0: Negative limit switch axis 7 is not active 1: Negative limit switch axis 7 is active
X29.3	PLS_7	Positive Limit Switch Axis 7	0: Positive limit switch axis 7 is not active 1: Positive limit switch axis 7 is active
X29.5	HS_8	Home Switch Axis 8	0: Home switch axis 8 is not active 1: Home switch axis 8 is active
X29.6	NLS_8	Negative Limit Switch Axis 8	0: Negative limit switch axis 8 is not active 1: Negative limit switch axis 8 is active
X29.7	PLS_8	Positive Limit Switch Axis 8	0: Positive limit switch axis 8 is not active 1: Positive limit switch axis 8 is active
X30.0	AF_5	Amplifier Fault Axis 5	0: Amplifier fault axis 5 is not active 1: Amplifier fault axis 5 is active
X30.4	AF_6	Amplifier Fault Axis 6	0: Amplifier fault axis 6 is not active 1: Amplifier fault axis 6 is active
X31.0	AF_7	Amplifier Fault Axis 7	0: Amplifier fault axis 7 is not active 1: Amplifier fault axis 7 is active
X31.4	AF_8	Amplifier Fault Axis 8	0: Amplifier fault axis 8 is not active 1: Amplifier fault axis 8 is active

Table 8-2: X Data Mapping Table for the SSCNET Interface System (2 of 2)

NOTES:

1) Some models of the Mitsubishi MR-J2 Super AC servo drives have committed (digital) home and limit switches; others do not. Currently, there are no hard-coded limit switch functions for the SSCNET interface system for ServoWorks CNC products. Simulated limit switch functions using general I/O and PLC should be used instead. Therefore, home and limit switches need to be connected to a general I/O device and controlled with PLC signals using the G114, G116, G196 and G198.4 addresses to simulate these switch functions. (These signals are effective only when NC_PARAM.SwitchLimitInMode is set to "1". They are not effective when NC_PARAM.SwitchLimitInMode is set to "0" as default.) For instance, you can connect the home switch of Axis 1 to one of the IM-305's input pins, and create a PLC ladder program to trigger G data (home switch for Axis 1) with that particular X data.

   For example, the PLC X data address X20.0 is assigned to Pin #3 of Terminal Block 1 of IM-305 #1. If you connect the X axis home switch to Pin #3 of Terminal 1 of the IM-305, you might want to add the following lines of code to the PLC ladder file:

```
RD   X20.0
WRT  G196.0
```

   If you want the input to be active low, you might add the following lines:

```
RD.NOT  X20.0
WRT     G196.0
```

   It should be noted that because the LadderWorks PLC Engine is running at a slower cycle than the ServoWorks CNC Engine (5 ms versus 3.5 ms for SSCNET or 0.88 ms for SSCNET II), the response to the limit and home switches using the IM-305 I/O module is slower than using the dedicated (committed) input channels. Therefore, we recommend using a slower speed during homing in order to avoid an overrun.

2) If optional fiber-optic VersioBus II I/O is included in your SSCNET interface system, see *Chapter 5: X Data Mapping Tables for the VersioBus II Interface System* for the I/O mapping of the 32 points of on-board general I/O for the VersioBus II adapter board, the I/O mapping for the encoder and digital I/O connector for a handwheel provided by the VersioBus II adapter board, and the I/O mapping for the digital I/O provided by any IM-305 VersioBus II I/O modules.

Chapter 9: Y Data Mapping for the VersioBus II Interface System

ADDRESS	NAME	DESCRIPTION	HARDWARE PINOUTS
Y00.0	DC_#1_Dout_0	DC Module #1 Digital Output 0	• *Pin #24 of I/O Connector 1 of DC-155 #1* • *Terminal #8 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #24 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
Y00.1	DC_#1_Dout_1	DC Module #1 Digital Output 1	• *Pin #5 of I/O Connector 1 of DC-155 #1* • *Terminal #9 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #5 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
Y00.2	DC_#1_Dout_2	DC Module #1 Digital Output 2	• *Pin #23 of I/O Connector 1 of DC-155 #1* • *Terminal #10 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #23 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
Y00.3	DC_#1_Dout_3	DC Module #1 Digital Output 3	• *Pin #4 of I/O Connector 1 of DC-155 #1* • *Terminal #11 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #4 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
Y00.4	DC_#1_Dout_4	DC Module #1 Digital Output 4	• *Pin #3 of I/O Connector 1 of DC-155 #1* • *Terminal #13 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #3 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
Y00.5	DC_#1_Dout_5	DC Module #1 Digital Output 5	• *Pin #21 of I/O Connector 1 of DC-155 #1* • *Terminal #14 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #21 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*

Table 9-1: Y Data Mapping Table for VersioBus II (1 of 12)

ADDRESS	NAME	DESCRIPTION	HARDWARE PINOUTS
Y00.6	DC_#1_Dout_6	DC Module #1 Digital Output 6	• *Pin #2 of I/O Connector 1 of DC-155 #1* • *Terminal #15 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #2 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
Y00.7	DC_#1_Dout_7	DC Module #1 Digital Output 7	• *Pin #20 of I/O Connector 1 of DC-155 #1* • *Terminal #16 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #1* • *Terminal #20 of TB36B breakout box connected to I/O Connector 1 of DC-155 #1*
Y01.0	DC_#1_Dout_8	DC Module #1 Digital Output 8	• *Pin #24 of I/O Connector 2 of DC-155 #1* • *Terminal #8 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #24 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
Y01.1	DC_#1_Dout_9	DC Module #1 Digital Output 9	• *Pin #5 of I/O Connector 2 of DC-155 #1* • *Terminal #9 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #5 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
Y01.2	DC_#1_Dout_10	DC Module #1 Digital Output 10	• *Pin #23 of I/O Connector 2 of DC-155 #1* • *Terminal #10 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #23 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
Y01.3	DC_#1_Dout_11	DC Module #1 Digital Output 11	• *Pin #4 of I/O Connector 2 of DC-155 #1* • *Terminal #11 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #4 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
Y01.4	DC_#1_Dout_12	DC Module #1 Digital Output 12	• *Pin #3 of I/O Connector 2 of DC-155 #1* • *Terminal #13 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #3 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*

Table 9-2: Y Data Mapping Table for VersioBus II (2 of 12)

ADDRESS	NAME	DESCRIPTION	HARDWARE PINOUTS
Y01.5	DC_#1_Dout_13	DC Module #1 Digital Output 13	• *Pin #21 of I/O Connector 2 of DC-155 #1* • *Terminal #14 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #21 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
Y01.6	DC_#1_Dout_14	DC Module #1 Digital Output 14	• *Pin #2 of I/O Connector 2 of DC-155 #1* • *Terminal #15 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #2 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
Y01.7	DC_#1_Dout_15	DC Module #1 Digital Output 15	• *Pin #20 of I/O Connector 2 of DC-155 #1* • *Terminal #16 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #1* • *Terminal #20 of TB36B breakout box connected to I/O Connector 2 of DC-155 #1*
Y02.0	DC_#2_Dout_0	DC Module #2 Digital Output 0	• *Pin #24 of I/O Connector 1 of DC-155 #2* • *Terminal #8 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #24 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
Y02.1	DC_#2_Dout_1	DC Module #2 Digital Output 1	• *Pin #5 of I/O Connector 1 of DC-155 #2* • *Terminal #9 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #5 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
Y02.2	DC_#2_Dout_2	DC Module #2 Digital Output 2	• *Pin #23 of I/O Connector 1 of DC-155 #2* • *Terminal #10 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #23 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
Y02.3	DC_#2_Dout_3	DC Module #2 Digital Output 3	• *Pin #4 of I/O Connector 1 of DC-155 #2* • *Terminal #11 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #4 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*

Table 9-3: Y Data Mapping Table for VersioBus II (3 of 12)

ADDRESS	NAME	DESCRIPTION	HARDWARE PINOUTS
Y02.4	DC_#2_Dout_4	DC Module #2 Digital Output 4	• *Pin #3 of I/O Connector 1 of DC-155 #2* • *Terminal #13 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #3 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
Y02.5	DC_#2_Dout_5	DC Module #2 Digital Output 5	• *Pin #21 of I/O Connector 1 of DC-155 #2* • *Terminal #14 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #21 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
Y02.6	DC_#2_Dout_6	DC Module #2 Digital Output 6	• *Pin #2 of I/O Connector 1 of DC-155 #2* • *Terminal #15 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #2 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
Y02.7	DC_#2_Dout_7	DC Module #2 Digital Output 7	• *Pin #20 of I/O Connector 1 of DC-155 #2* • *Terminal #16 of terminal block #2 of TB36A breakout box connected to I/O Connector 1 of DC-155 #2* • *Terminal #20 of TB36B breakout box connected to I/O Connector 1 of DC-155 #2*
Y03.0	DC_#2_Dout_8	DC Module #2 Digital Output 8	• *Pin #24 of I/O Connector 2 of DC-155 #2* • *Terminal #8 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #24 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
Y03.1	DC_#2_Dout_9	DC Module #2 Digital Output 9	• *Pin #5 of I/O Connector 2 of DC-155 #2* • *Terminal #9 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #5 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
Y03.2	DC_#2_Dout_10	DC Module #2 Digital Output 10	• *Pin #23 of I/O Connector 2 of DC-155 #2* • *Terminal #10 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #23 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*

Table 9-4: Y Data Mapping Table for VersioBus II (4 of 12)

ADDRESS	NAME	DESCRIPTION	HARDWARE PINOUTS
Y03.3	DC_#2_Dout_11	DC Module #2 Digital Output 11	• *Pin #4 of I/O Connector 2 of DC-155 #2* • *Terminal #11 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #4 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
Y03.4	DC_#2_Dout_12	DC Module #2 Digital Output 12	• *Pin #3 of I/O Connector 2 of DC-155 #2* • *Terminal #13 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #3 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
Y03.5	DC_#2_Dout_13	DC Module #2 Digital Output 13	• *Pin #21 of I/O Connector 2 of DC-155 #2* • *Terminal #14 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #21 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
Y03.6	DC_#2_Dout_14	DC Module #2 Digital Output 14	• *Pin #2 of I/O Connector 2 of DC-155 #2* • *Terminal #15 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #2 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
Y03.7	DC_#2_Dout_15	DC Module #2 Digital Output 15	• *Pin #20 of I/O Connector 2 of DC-155 #2* • *Terminal #16 of terminal block #2 of TB36A breakout box connected to I/O Connector 2 of DC-155 #2* • *Terminal #20 of TB36B breakout box connected to I/O Connector 2 of DC-155 #2*
Y08.0	IM_#1_Dout_0	IM Module #1 Digital Output 0	*Pin #3 of Terminal Block 5 of IM-305 #1*
Y08.1	IM_#1_Dout_1	IM Module #1 Digital Output 1	*Pin #4 of Terminal Block 5 of IM-305 #1*
Y08.2	IM_#1_Dout_2	IM Module #1 Digital Output 2	*Pin #5 of Terminal Block 5 of IM-305 #1*
Y08.3	IM_#1_Dout_3	IM Module #1 Digital Output 3	*Pin #6 of Terminal Block 5 of IM-305 #1*
Y08.4	IM_#1_Dout_4	IM Module #1 Digital Output 4	*Pin #7 of Terminal Block 5 of IM-305 #1*
Y08.5	IM_#1_Dout_5	IM Module #1 Digital Output 5	*Pin #8 of Terminal Block 5 of IM-305 #1*
Y08.6	IM_#1_Dout_6	IM Module #1 Digital Output 6	*Pin #9 of Terminal Block 5 of IM-305 #1*
Y08.7	IM_#1_Dout_7	IM Module #1 Digital Output 7	*Pin #10 of Terminal Block 5 of IM-305 #1*

Table 9-5: Y Data Mapping Table for VersioBus II (5 of 12)

ADDRESS	NAME	DESCRIPTION	HARDWARE PINOUTS
Y09.0	IM_#1_Dout_8	IM Module #1 Digital Output 8	*Pin #3 of Terminal Block 6 of IM-305 #1*
Y09.1	IM_#1_Dout_9	IM Module #1 Digital Output 9	*Pin #4 of Terminal Block 6 of IM-305 #1*
Y09.2	IM_#1_Dout_10	IM Module #1 Digital Output 10	*Pin #5 of Terminal Block 6 of IM-305 #1*
Y09.3	IM_#1_Dout_11	IM Module #1 Digital Output 11	*Pin #6 of Terminal Block 6 of IM-305 #1*
Y09.4	IM_#1_Dout_12	IM Module #1 Digital Output 12	*Pin #7 of Terminal Block 6 of IM-305 #1*
Y09.5	IM_#1_Dout_13	IM Module #1 Digital Output 13	*Pin #8 of Terminal Block 6 of IM-305 #1*
Y09.6	IM_#1_Dout_14	IM Module #1 Digital Output 14	*Pin #9 of Terminal Block 6 of IM-305 #1*
Y09.7	IM_#1_Dout_15	IM Module #1 Digital Output 15	*Pin #2 of Terminal Block 7 of IM-305 #1*
Y10.0	IM_#1_Dout_16	IM Module #1 Digital Output 16	*Pin #3 of Terminal Block 7 of IM-305 #1*
Y10.1	IM_#1_Dout_17	IM Module #1 Digital Output 17	*Pin #4 of Terminal Block 7 of IM-305 #1*
Y10.2	IM_#1_Dout_18	IM Module #1 Digital Output 18	*Pin #5 of Terminal Block 7 of IM-305 #1*
Y10.3	IM_#1_Dout_19	IM Module #1 Digital Output 19	*Pin #6 of Terminal Block 7 of IM-305 #1*
Y10.4	IM_#1_Dout_20	IM Module #1 Digital Output 20	*Pin #7 of Terminal Block 7 of IM-305 #1*
Y10.5	IM_#1_Dout_21	IM Module #1 Digital Output 21	*Pin #8 of Terminal Block 7 of IM-305 #1*
Y10.6	IM_#1_Dout_22	IM Module #1 Digital Output 22	*Pin #9 of Terminal Block 7 of IM-305 #1*
Y10.7	IM_#1_Dout_23	IM Module #1 Digital Output 23	*Pin #10 of Terminal Block 7 of IM-305 #1*
Y11.0	IM_#1_Dout_24	IM Module #1 Digital Output 24	*Pin #3 of Terminal Block 8 of IM-305 #1*
Y11.1	IM_#1_Dout_25	IM Module #1 Digital Output 25	*Pin #4 of Terminal Block 8 of IM-305 #1*
Y11.2	IM_#1_Dout_26	IM Module #1 Digital Output 26	*Pin #5 of Terminal Block 8 of IM-305 #1*
Y11.3	IM_#1_Dout_27	IM Module #1 Digital Output 27	*Pin #6 of Terminal Block 8 of IM-305 #1*
Y11.4	IM_#1_Dout_28	IM Module #1 Digital Output 28	*Pin #7 of Terminal Block 8 of IM-305 #1*
Y11.5	IM_#1_Dout_29	IM Module #1 Digital Output 29	*Pin #8 of Terminal Block 8 of IM-305 #1*
Y11.6	IM_#1_Dout_30	IM Module #1 Digital Output 30	*Pin #9 of Terminal Block 8 of IM-305 #1*
Y11.7	IM_#1_Dout_31	IM Module #1 Digital Output 31	*Pin #10 of Terminal Block 8 of IM-305 #1*
Y12.0	IM_#2_Dout_0	IM Module #2 Digital Output 0	*Pin #3 of Terminal Block 5 of IM-305 #2*

Table 9-6: Y Data Mapping Table for VersioBus II (6 of 12)

ADDRESS	NAME	DESCRIPTION	HARDWARE PINOUTS
Y12.1	IM_#2_Dout_1	IM Module #2 Digital Output 1	*Pin #4 of Terminal Block 5 of IM-305 #2*
Y12.2	IM_#2_Dout_2	IM Module #2 Digital Output 2	*Pin #5 of Terminal Block 5 of IM-305 #2*
Y12.3	IM_#2_Dout_3	IM Module #2 Digital Output 3	*Pin #6 of Terminal Block 5 of IM-305 #2*
Y12.4	IM_#2_Dout_4	IM Module #2 Digital Output 4	*Pin #7 of Terminal Block 5 of IM-305 #2*
Y12.5	IM_#2_Dout_5	IM Module #2 Digital Output 5	*Pin #8 of Terminal Block 5 of IM-305 #2*
Y12.6	IM_#2_Dout_6	IM Module #2 Digital Output 6	*Pin #9 of Terminal Block 5 of IM-305 #2*
Y12.7	IM_#2_Dout_7	IM Module #2 Digital Output 7	*Pin #10 of Terminal Block 5 of IM-305 #2*
Y13.0	IM_#2_Dout_8	IM Module #2 Digital Output 8	*Pin #3 of Terminal Block 6 of IM-305 #2*
Y13.1	IM_#2_Dout_9	IM Module #2 Digital Output 9	*Pin #4 of Terminal Block 6 of IM-305 #2*
Y13.2	IM_#2_Dout_10	IM Module #2 Digital Output 10	*Pin #5 of Terminal Block 6 of IM-305 #2*
Y13.3	IM_#2_Dout_11	IM Module #2 Digital Output 11	*Pin #6 of Terminal Block 6 of IM-305 #2*
Y13.4	IM_#2_Dout_12	IM Module #2 Digital Output 12	*Pin #7 of Terminal Block 6 of IM-305 #2*
Y13.5	IM_#2_Dout_13	IM Module #2 Digital Output 13	*Pin #8 of Terminal Block 6 of IM-305 #2*
Y13.6	IM_#2_Dout_14	IM Module #2 Digital Output 14	*Pin #9 of Terminal Block 6 of IM-305 #2*
Y13.7	IM_#2_Dout_15	IM Module #2 Digital Output 15	*Pin #2 of Terminal Block 7 of IM-305 #2*
Y14.0	IM_#2_Dout_16	IM Module #2 Digital Output 16	*Pin #3 of Terminal Block 7 of IM-305 #2*
Y14.1	IM_#2_Dout_17	IM Module #2 Digital Output 17	*Pin #4 of Terminal Block 7 of IM-305 #2*
Y14.2	IM_#2_Dout_18	IM Module #2 Digital Output 18	*Pin #5 of Terminal Block 7 of IM-305 #2*
Y14.3	IM_#2_Dout_19	IM Module #2 Digital Output 19	*Pin #6 of Terminal Block 7 of IM-305 #2*
Y14.4	IM_#2_Dout_20	IM Module #2 Digital Output 20	*Pin #7 of Terminal Block 7 of IM-305 #2*
Y14.5	IM_#2_Dout_21	IM Module #2 Digital Output 21	*Pin #8 of Terminal Block 7 of IM-305 #2*
Y14.6	IM_#2_Dout_22	IM Module #2 Digital Output 22	*Pin #9 of Terminal Block 7 of IM-305 #2*
Y14.7	IM_#2_Dout_23	IM Module #2 Digital Output 23	*Pin #10 of Terminal Block 7 of IM-305 #2*
Y15.0	IM_#2_Dout_24	IM Module #2 Digital Output 24	*Pin #3 of Terminal Block 8 of IM-305 #2*
Y15.1	IM_#2_Dout_25	IM Module #2 Digital Output 25	*Pin #4 of Terminal Block 8 of IM-305 #2*

Table 9-7: Y Data Mapping Table for VersioBus II (7 of 12)

ADDRESS	NAME	DESCRIPTION	HARDWARE PINOUTS
Y15.2	IM_#2_Dout_26	IM Module #2 Digital Output 26	*Pin #5 of Terminal Block 8 of IM-305 #2*
Y15.3	IM_#2_Dout_27	IM Module #2 Digital Output 27	*Pin #6 of Terminal Block 8 of IM-305 #2*
Y15.4	IM_#2_Dout_28	IM Module #2 Digital Output 28	*Pin #7 of Terminal Block 8 of IM-305 #2*
Y15.5	IM_#2_Dout_29	IM Module #2 Digital Output 29	*Pin #8 of Terminal Block 8 of IM-305 #2*
Y15.6	IM_#2_Dout_30	IM Module #2 Digital Output 30	*Pin #9 of Terminal Block 8 of IM-305 #2*
Y15.7	IM_#2_Dout_31	IM Module #2 Digital Output 31	*Pin #10 of Terminal Block 8 of IM-305 #2*
Y16.0	IM_#3_Dout_0	IM Module #3 Digital Output 0	*Pin #3 of Terminal Block 5 of IM-305 #3*
Y16.1	IM_#3_Dout_1	IM Module #3 Digital Output 1	*Pin #4 of Terminal Block 5 of IM-305 #3*
Y16.2	IM_#3_Dout_2	IM Module #3 Digital Output 2	*Pin #5 of Terminal Block 5 of IM-305 #3*
Y16.3	IM_#3_Dout_3	IM Module #3 Digital Output 3	*Pin #6 of Terminal Block 5 of IM-305 #3*
Y16.4	IM_#3_Dout_4	IM Module #3 Digital Output 4	*Pin #7 of Terminal Block 5 of IM-305 #3*
Y16.5	IM_#3_Dout_5	IM Module #3 Digital Output 5	*Pin #8 of Terminal Block 5 of IM-305 #3*
Y16.6	IM_#3_Dout_6	IM Module #3 Digital Output 6	*Pin #9 of Terminal Block 5 of IM-305 #3*
Y16.7	IM_#3_Dout_7	IM Module #3 Digital Output 7	*Pin #10 of Terminal Block 5 of IM-305 #3*
Y17.0	IM_#3_Dout_8	IM Module #3 Digital Output 8	*Pin #3 of Terminal Block 6 of IM-305 #3*
Y17.1	IM_#3_Dout_9	IM Module #3 Digital Output 9	*Pin #4 of Terminal Block 6 of IM-305 #3*
Y17.2	IM_#3_Dout_10	IM Module #3 Digital Output 10	*Pin #5 of Terminal Block 6 of IM-305 #3*
Y17.3	IM_#3_Dout_11	IM Module #3 Digital Output 11	*Pin #6 of Terminal Block 6 of IM-305 #3*
Y17.4	IM_#3_Dout_12	IM Module #3 Digital Output 12	*Pin #7 of Terminal Block 6 of IM-305 #3*
Y17.5	IM_#3_Dout_13	IM Module #3 Digital Output 13	*Pin #8 of Terminal Block 6 of IM-305 #3*
Y17.6	IM_#3_Dout_14	IM Module #3 Digital Output 14	*Pin #9 of Terminal Block 6 of IM-305 #3*
Y17.7	IM_#3_Dout_15	IM Module #3 Digital Output 15	*Pin #2 of Terminal Block 7 of IM-305 #3*
Y18.0	IM_#3_Dout_16	IM Module #3 Digital Output 16	*Pin #3 of Terminal Block 7 of IM-305 #3*
Y18.1	IM_#3_Dout_17	IM Module #3 Digital Output 17	*Pin #4 of Terminal Block 7 of IM-305 #3*
Y18.2	IM_#3_Dout_18	IM Module #3 Digital Output 18	*Pin #5 of Terminal Block 7 of IM-305 #3*

Table 9-8: Y Data Mapping Table for VersioBus II (8 of 12)

ADDRESS	NAME	DESCRIPTION	HARDWARE PINOUTS
Y18.3	IM_#3_Dout_19	IM Module #3 Digital Output 19	*Pin #6 of Terminal Block 7 of IM-305 #3*
Y18.4	IM_#3_Dout_20	IM Module #3 Digital Output 20	*Pin #7 of Terminal Block 7 of IM-305 #3*
Y18.5	IM_#3_Dout_21	IM Module #3 Digital Output 21	*Pin #8 of Terminal Block 7 of IM-305 #3*
Y18.6	IM_#3_Dout_22	IM Module #3 Digital Output 22	*Pin #9 of Terminal Block 7 of IM-305 #3*
Y18.7	IM_#3_Dout_23	IM Module #3 Digital Output 23	*Pin #10 of Terminal Block 7 of IM-305 #3*
Y19.0	IM_#3_Dout_24	IM Module #3 Digital Output 24	*Pin #3 of Terminal Block 8 of IM-305 #3*
Y19.1	IM_#3_Dout_25	IM Module #3 Digital Output 25	*Pin #4 of Terminal Block 8 of IM-305 #3*
Y19.2	IM_#3_Dout_26	IM Module #3 Digital Output 26	*Pin #5 of Terminal Block 8 of IM-305 #3*
Y19.3	IM_#3_Dout_27	IM Module #3 Digital Output 27	*Pin #6 of Terminal Block 8 of IM-305 #3*
Y19.4	IM_#3_Dout_28	IM Module #3 Digital Output 28	*Pin #7 of Terminal Block 8 of IM-305 #3*
Y19.5	IM_#3_Dout_29	IM Module #3 Digital Output 29	*Pin #8 of Terminal Block 8 of IM-305 #3*
Y19.6	IM_#3_Dout_30	IM Module #3 Digital Output 30	*Pin #9 of Terminal Block 8 of IM-305 #3*
Y19.7	IM_#3_Dout_31	IM Module #3 Digital Output 31	*Pin #10 of Terminal Block 8 of IM-305 #3*
Y20.0	IM_#4_Dout_0	IM Module #4 Digital Output 0	*Pin #3 of Terminal Block 5 of IM-305 #4*
Y20.1	IM_#4_Dout_1	IM Module #4 Digital Output 1	*Pin #4 of Terminal Block 5 of IM-305 #4*
Y20.2	IM_#4_Dout_2	IM Module #4 Digital Output 2	*Pin #5 of Terminal Block 5 of IM-305 #4*
Y20.3	IM_#4_Dout_3	IM Module #4 Digital Output 3	*Pin #6 of Terminal Block 5 of IM-305 #4*
Y20.4	IM_#4_Dout_4	IM Module #4 Digital Output 4	*Pin #7 of Terminal Block 5 of IM-305 #4*
Y20.5	IM_#4_Dout_5	IM Module #4 Digital Output 5	*Pin #8 of Terminal Block 5 of IM-305 #4*
Y20.6	IM_#4_Dout_6	IM Module #4 Digital Output 6	*Pin #9 of Terminal Block 5 of IM-305 #4*
Y20.7	IM_#4_Dout_7	IM Module #4 Digital Output 7	*Pin #10 of Terminal Block 5 of IM-305 #4*
Y21.0	IM_#4_Dout_8	IM Module #4 Digital Output 8	*Pin #3 of Terminal Block 6 of IM-305 #4*
Y21.1	IM_#4_Dout_9	IM Module #4 Digital Output 9	*Pin #4 of Terminal Block 6 of IM-305 #4*
Y21.2	IM_#4_Dout_10	IM Module #4 Digital Output 10	*Pin #5 of Terminal Block 6 of IM-305 #4*
Y21.3	IM_#4_Dout_11	IM Module #4 Digital Output 11	*Pin #6 of Terminal Block 6 of IM-305 #4*

Table 9-9: Y Data Mapping Table for VersioBus II (9 of 12)

ADDRESS	NAME	DESCRIPTION	HARDWARE PINOUTS
Y21.4	IM_#4_Dout_12	IM Module #4 Digital Output 12	*Pin #7 of Terminal Block 6 of IM-305 #4*
Y21.5	IM_#4_Dout_13	IM Module #4 Digital Output 13	*Pin #8 of Terminal Block 6 of IM-305 #4*
Y21.6	IM_#4_Dout_14	IM Module #4 Digital Output 14	*Pin #9 of Terminal Block 6 of IM-305 #4*
Y21.7	IM_#4_Dout_15	IM Module #4 Digital Output 15	*Pin #2 of Terminal Block 7 of IM-305 #4*
Y22.0	IM_#4_Dout_16	IM Module #4 Digital Output 16	*Pin #3 of Terminal Block 7 of IM-305 #4*
Y22.1	IM_#4_Dout_17	IM Module #4 Digital Output 17	*Pin #4 of Terminal Block 7 of IM-305 #4*
Y22.2	IM_#4_Dout_18	IM Module #4 Digital Output 18	*Pin #5 of Terminal Block 7 of IM-305 #4*
Y22.3	IM_#4_Dout_19	IM Module #4 Digital Output 19	*Pin #6 of Terminal Block 7 of IM-305 #4*
Y22.4	IM_#4_Dout_20	IM Module #4 Digital Output 20	*Pin #7 of Terminal Block 7 of IM-305 #4*
Y22.5	IM_#4_Dout_21	IM Module #4 Digital Output 21	*Pin #8 of Terminal Block 7 of IM-305 #4*
Y22.6	IM_#4_Dout_22	IM Module #4 Digital Output 22	*Pin #9 of Terminal Block 7 of IM-305 #4*
Y22.7	IM_#4_Dout_23	IM Module #4 Digital Output 23	*Pin #10 of Terminal Block 7 of IM-305 #4*
Y23.0	IM_#4_Dout_24	IM Module #4 Digital Output 24	*Pin #3 of Terminal Block 8 of IM-305 #4*
Y23.1	IM_#4_Dout_25	IM Module #4 Digital Output 25	*Pin #4 of Terminal Block 8 of IM-305 #4*
Y23.2	IM_#4_Dout_26	IM Module #4 Digital Output 26	*Pin #5 of Terminal Block 8 of IM-305 #4*
Y23.3	IM_#4_Dout_27	IM Module #4 Digital Output 27	*Pin #6 of Terminal Block 8 of IM-305 #4*
Y23.4	IM_#4_Dout_28	IM Module #4 Digital Output 28	*Pin #7 of Terminal Block 8 of IM-305 #4*
Y23.5	IM_#4_Dout_29	IM Module #4 Digital Output 29	*Pin #8 of Terminal Block 8 of IM-305 #4*
Y23.6	IM_#4_Dout_30	IM Module #4 Digital Output 30	*Pin #9 of Terminal Block 8 of IM-305 #4*
Y23.7	IM_#4_Dout_31	IM Module #4 Digital Output 31	*Pin #10 of Terminal Block 8 of IM-305 #4*
Y24.0	FP_Dout_0	Local (FP Board) Digital Output 0	• *Pin #20 of J2 header block on the FP-85* • *Pin #20 of J3 header block on the FP-105* • *Pin #20 of J2 header block on the FP-114* • *Pin #29 of the DB37F on-board I/O port* • *Pin #29 of the TB37BD breakout box*
Y24.1	FP_Dout_1	Local (FP Board) Digital Output 1	• *Pin #21 of J2 header block on the FP-85* • *Pin #21 of J3 header block on the FP-105* • *Pin #21 of J2 header block on the FP-114* • *Pin #11 of the DB37F on-board I/O port* • *Pin #11 of the TB37BD breakout box*

Table 9-10: Y Data Mapping Table for VersioBus II (10 of 12)

ADDRESS	NAME	DESCRIPTION	HARDWARE PINOUTS
Y24.2	FP_Dout_2	Local (FP Board) Digital Output 2	• *Pin #22 of J2 header block on the FP-85* • *Pin #22 of J3 header block on the FP-105* • *Pin #22 of J2 header block on the FP-114* • *Pin #30 of the DB37F on-board I/O port* • *Pin #30 of the TB37BD breakout box*
Y24.3	FP_Dout_3	Local (FP Board) Digital Output 3	• *Pin #23 of J2 header block on the FP-85* • *Pin #23 of J3 header block on the FP-105* • *Pin #23 of J2 header block on the FP-114* • *Pin #12 of the DB37F on-board I/O port* • *Pin #12 of the TB37BD breakout box*
Y24.4	FP_Dout_4	Local (FP Board) Digital Output 4	• *Pin #24 of J2 header block on the FP-85* • *Pin #24 of J3 header block on the FP-105* • *Pin #24 of J2 header block on the FP-114* • *Pin #31 of the DB37F on-board I/O port* • *Pin #31 of the TB37BD breakout box*
Y24.5	FP_Dout_5	Local (FP Board) Digital Output 5	• *Pin #25 of J2 header block on the FP-85* • *Pin #25 of J3 header block on the FP-105* • *Pin #25 of J2 header block on the FP-114* • *Pin #13 of the DB37F on-board I/O port* • *Pin #13 of the TB37BD breakout box*
Y24.6	FP_Dout_6	Local (FP Board) Digital Output 6	• *Pin #26 of J2 header block on the FP-85* • *Pin #26 of J3 header block on the FP-105* • *Pin #26 of J2 header block on the FP-114* • *Pin #32 of the DB37F on-board I/O port* • *Pin #32 of the TB37BD breakout box*
Y24.7	FP_Dout_7	Local (FP Board) Digital Output 7	• *Pin #27 of J2 header block on the FP-85* • *Pin #27 of J3 header block on the FP-105* • *Pin #27 of J2 header block on the FP-114* • *Pin #14 of the DB37F on-board I/O port* • *Pin #14 of the TB37BD breakout box*
Y25.0	FP_Dout_8	Local (FP Board) Digital Output 8	• *Pin #30 of J2 header block on the FP-85* • *Pin #30 of J3 header block on the FP-105* • *Pin #30 of J2 header block on the FP-114* • *Pin #34 of the DB37F on-board I/O port* • *Pin #34 of the TB37BD breakout box*
Y25.1	FP_Dout_9	Local (FP Board) Digital Output 9	• *Pin #31 of J2 header block on the FP-85* • *Pin #31 of J3 header block on the FP-105* • *Pin #31 of J2 header block on the FP-114* • *Pin #16 of the DB37F on-board I/O port* • *Pin #16 of the TB37BD breakout box*
Y25.2	FP_Dout_10	Local (FP Board) Digital Output 10	• *Pin #32 of J2 header block on the FP-85* • *Pin #32 of J3 header block on the FP-105* • *Pin #32 of J2 header block on the FP-114* • *Pin #35 of the DB37F on-board I/O port* • *Pin #35 of the TB37BD breakout box*

Table 9-11: Y Data Mapping Table for VersioBus II (11 of 12)

ADDRESS	NAME	DESCRIPTION	HARDWARE PINOUTS
Y25.3	FP_Dout_11	Local (FP Board) Digital Output 11	• *Pin #33 of J2 header block on the FP-85* • *Pin #33 of J3 header block on the FP-105* • *Pin #33 of J2 header block on the FP-114* • *Pin #17 of the DB37F on-board I/O port* • *Pin #17 of the TB37BD breakout box*
Y25.4	FP_Dout_12	Local (FP Board) Digital Output 12	• *Pin #34 of J2 header block on the FP-85* • *Pin #34 of J3 header block on the FP-105* • *Pin #34 of J2 header block on the FP-114* • *Pin #36 of the DB37F on-board I/O port* • *Pin #36 of the TB37BD breakout box*
Y25.5	FP_Dout_13	Local (FP Board) Digital Output 13	• *Pin #35 of J2 header block on the FP-85* • *Pin #35 of J3 header block on the FP-105* • *Pin #35 of J2 header block on the FP-114* • *Pin #18 of the DB37F on-board I/O port* • *Pin #18 of the TB37BD breakout box*
Y25.6	FP_Dout_14	Local (FP Board) Digital Output 14	• *Pin #36 of J2 header block on the FP-85* • *Pin #36 of J3 header block on the FP-105* • *Pin #36 of J2 header block on the FP-114* • *Pin #37 of the DB37F on-board I/O port* • *Pin #37 of the TB37BD breakout box*
Y25.7	FP_Dout_15	Local (FP Board) Digital Output 15	• *Pin #37 of J2 header block on the FP-85* • *Pin #37 of J3 header block on the FP-105* • *Pin #37 of J2 header block on the FP-114* • *Pin #19 of the DB37F on-board I/O port* • *Pin #19 of the TB37BD breakout box*

Table 9-12: Y Data Mapping Table for VersioBus II (12 of 12)

Chapter 10: Y Data Mapping for the MECHATROLINK Interface System

Mapping of Y data for the MECHATROLINK interface system is dynamic. There are 20 Y addresses (Y80 – Y99) available for I/O in a MECHATROLINK interface system. Y I/O data is mapped to I/O nodes in ascendant order according to the OUTSize parameter of each I/O node. You can use OUTSize values that exceed the capacity of the I/O module, if you want to force certain Y values to correspond with certain I/O modules.

Mapping depends on the order of the station numbers (set in the .ini system configuration file for the MECHATROLINK ServoWorks CNC system). If you change the station numbers, you change the mapping.

An example of a MECHATROLINK system information file for typical I/O nodes in a MECHATROLINK interface system follows. Assume Node 3 is an IO2310 simple I/O module (digital: 64 bits in and 64 bits out), Node 5 is an AN2900 Intelligent I/O module (analog: 4 channels) and Node 6 is a PL2900 Intelligent I/O (counter: 2 channels). These nodes would look as follows in a MECHATROLINK system configuration file:

```
[Station 3]
NodeType=2
IOType=1
DAType=0
INSize=8
OUTSize=8
```

This station will be mapped to X80 – X87 and Y80 – Y87

```
[Station 5]
NodeType=2
IOType=2
DAType=1
INSize=8
OUTSize=0
```

This station will be mapped to X88 – X95

```
[Station 6]
NodeType=2
IOType=2
DAType=2
INSize=4
OUTSize=0
```

This station will be mapped to X96 – X99

NOTE: If optional fiber-optic VersioBus II I/O is included in your MECHATROLINK interface system, see *Chapter 9: Y Data Mapping Tables for the VersioBus II Interface System* for the I/O mapping of the 32 points of on-board general I/O for the VersioBus II adapter board, the I/O mapping for the encoder and digital I/O connector for a handwheel provided by the VersioBus II adapter board, and the I/O mapping for the digital I/O provided by any IM-305 VersioBus II I/O modules.

Chapter 11: Y Data Mapping for the Panasonic Realtime Express Interface System

ADDRESS	NAME	DESCRIPTION	NOTES / HARDWARE PINOUTS
Y00.0	AN4_#1_Dout_0	Axis 1 Digital Output Bit 0	
Y00.1	AN4_#1_Dout_1	Axis 1 Digital Output Bit 1	
Y00.2	AN4_#2_Dout_0	Axis 2 Digital Output Bit 0	
Y00.3	AN4_#2_Dout_1	Axis 2 Digital Output Bit 1	
Y00.4	AN4_#3_Dout_0	Axis 3 Digital Output Bit 0	
Y00.5	AN4_#3_Dout_1	Axis 3 Digital Output Bit 1	
Y00.6	AN4_#4_Dout_0	Axis 4 Digital Output Bit 0	
Y00.7	AN4_#4_Dout_1	Axis 4 Digital Output Bit 1	
Y01.0	AN4_#5_Dout_0	Axis 5 Digital Output Bit 0	
Y01.1	AN4_#5_Dout_1	Axis 5 Digital Output Bit 1	
Y01.2	AN4_#6_Dout_0	Axis 6 Digital Output Bit 0	
Y01.3	AN4_#6_Dout_1	Axis 6 Digital Output Bit 1	
Y01.4	AN4_#7_Dout_0	Axis 7 Digital Output Bit 0	
Y01.5	AN4_#7_Dout_1	Axis 7 Digital Output Bit 1	
Y01.6	AN4_#8_Dout_0	Axis 8 Digital Output Bit 0	
Y01.7	AN4_#8_Dout_1	Axis 8 Digital Output Bit 1	

Table 11-1: Y Data Mapping Table for the Panasonic Realtime Express Interface System

If optional fiber-optic VersioBus II I/O is included in your Panasonic Realtime Express interface system, see *Chapter 9: Y Data Mapping Tables for the VersioBus II Interface System* for the I/O mapping of the 32 points of on-board general I/O for the VersioBus II adapter board, the I/O mapping for the encoder and digital I/O connector for a handwheel provided by the VersioBus II adapter board, and the I/O mapping for the digital I/O provided by any IM-305 VersioBus II I/O modules.

Mapping of Y data for AnyWire I/O modules in the RTEX interface system is dynamic. There are 20 Y addresses (Y80 – Y99) available for AnyWire I/O in an RTEX interface system.

Chapter 12: Y Data Mapping for the SSCNET Interface System

If optional fiber-optic VersioBus II I/O is included in your SSCNET interface system, see *Chapter 9: Y Data Mapping Tables for the VersioBus II Interface System* for the I/O mapping of the 32 points of on-board general I/O for the VersioBus II adapter board, the I/O mapping for the encoder and digital I/O connector for a handwheel provided by the VersioBus II adapter board, and the I/O mapping for the digital I/O provided by any IM-305 VersioBus II I/O modules.