



RS-M8196F

Serial Communication Remote Unit
with High-speed 6-axis Motion Control Module

Features

- Remote control via Modbus RTU
- DSP-based motion control module
- Pulse output rate: 4 MHz (Max.)
- Maximum encoder input frequency: 12 MHz
- Independent 6-axis motion control
- 2 to 6 axes linear / 2 to 3 axes circular / 3 axes helical interpolation functions
- Continuous interpolation
- 4-step home mode with auto-searching
- Synchronized start motion
- Programmable T/S-curve acceleration and deceleration
- Software limit protection
- Software FIFO for arbitrary curve motion
- High-speed position latch
- High-speed compare trigger and auto-increment compare mode
- Expandable remote I/O:
128 DI and 128 DO via a two-wire FRnet interface



Introduction

The **RS-M8196F** is a remote serial 6-axis stepping/pulse-type servo motion controller which uses Modbus RTU as its communication protocol. The RS-M8196F is a slave in a Modbus RTU network and supports all standard Modbus function codes. Three serial interfaces are provided (RS232, RS485 and RS422) and the user can select any of the three serial interfaces for communication. The RS-M8196F can expand a PLC system by adding 6-axis motion control support.

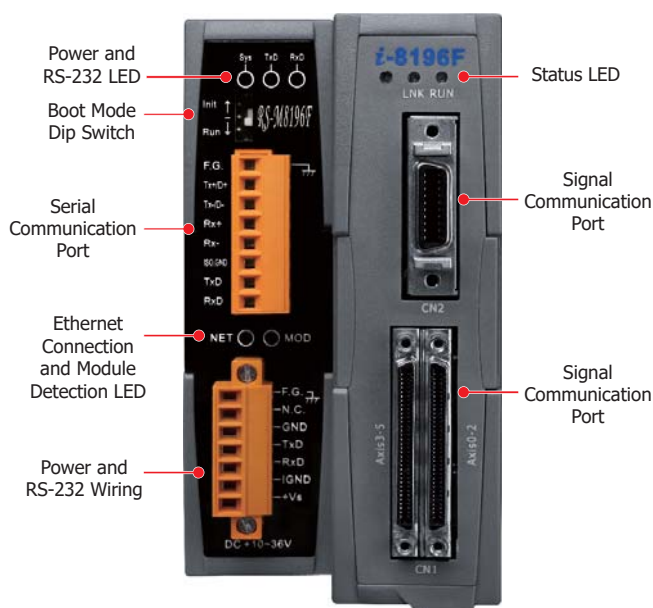
The motion controller of the RS-M8196F consists of a serial communication module and a motion control card. A digital signal processor (DSP) is the brain of the motion controller which calculates the commanded move trajectory and manages supervisory control by monitoring the limits and emergency stops to ensure safe operation. A Field Programmable Gate Array (FPGA) controls the input/output (e.g. latch, compare, encoder counter etc.).

The motion controller is suitable for general-purpose motion control applications. In addition to its wide speed range, this intelligent motion controller also has a variety of built-in motion control functions, such as 2 to 6 axes linear interpolation, 2 to 3 axes circular interpolation, 3 axes helical interpolation, T/S-curve acceleration/deceleration, and automatic home search, etc.

In addition the RS-M8196F acts as an FRnet master and can control up to 16 remote DIO slaves (128 digital outputs and 128 digital inputs). FRnet is a two-wire serial bus and has a scan interval of 0.72 ms and it is specifically designed for easy and cost effective wiring. ICPDAS provides a large range of FRnet I/O terminal boards and modules.

DLL, software utilities and demo programs for Win7, Win8 and Win10 are provided.

Hardware



RS-M8196F Interface Functions

Specifications

Model	RS-M8196F	Model	RS-M8196F
Software		Counting Rate	
OS Support	Windows 7/8/10 32/64 bit	12 MHz	
Development	Visual C++ lib/DLL, C#, VB.Net DLL, Delphi Visual Basic 6.0, BCB 5.0, 6.0	Counter Width	
Utility	EzGo Utility	32-bit	
Hardware		Pulse Output	
Connector	68-pin VHDCI and 20-pin SCSI-II	Mode	CW/CCW, PULSE/DIR, A/B Phase
General		Counter Width	32-bit
No. of Axes	6	Rate	4 MPPS (Max.)
Motion Control Type	DSP Based	Interpolation	
Speed Profile	T/S-curve	Cicular	Any 2 to 3 axes (up to 3 groups)
Servo Update Rate	2 KHz	Continuous	Yes
Position Control Mode	Incremental and absolute mode	Helical	3 axes
Command Type	Pulse Command	Linear	Any 2 to 6 axes (up to 3 groups)
Auto-Home Search	Yes	Digital Input	
Input Signal Filter	Yes	Channels	Local: 12 DI Expandable: 128 DI
Axis I/O		Isolation	2500 Vrms (with DN-8368)
Servo Interface Output	SVON, ALM_RST, ERC	Digital Output	
Latch Input	High-Speed 5 V or 24 V NPN	Channels	Local: 3 DO Expandable: 128 DO
Mechanical Switch Input	Home, Limit+/-, Near Home, Emergency	Isolation	2500 Vrms (with DN-8368)
Position Compare Output	High-Speed 5 V TTL or 24 V open collector	COM Ports	
Servo Interface Input	INP, ALM, RDY	Ports	1 x RS-232/422/485
Encoder Input		Baud Rate	115200 bps Max.
Mode	A/B Phase, Up/Down	Protocol	Modbus RTU
Ring Counter Mode	32-bit	Power	
		Input Range	+24V
		Mechanical	
		Dimensions (mm)	65 x 121 x 125 (W x L x H)
		Environment	
		Operating Temperature	0 ~ +60 °C
		Storage Temperature	-20 ~ +80 °C
		Humidity	10 ~ 90% RH, Non-condensing

Ordering Information

RS-M8196F	Remote serial communication unit with high-speed, DSP-based, 6-axis motion control card
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Accessories

DN-8368UB	Photo-isolated Universal Snap-on wiring terminal board
DN-8368GB	Photo-isolated General-purpose wiring terminal board
DN-8368MB	Photo-isolated Snap-on wiring terminal board for Mitsubishi MELSERVO-J2 servo amplifier
DN-20M	General purpose digital input and remote digital I/O (FRnet) extension board
CA-MINI68-15	68-pin VHDCI to SCSI-II Connector Cable, Length 1.5 M
CA-SCSI20-M1/M3/M5	20-pin SCSI-II Male connector cable (for Mitsubishi J2 series motor), Length 1 M / 3 M / 5 M.
CA-26-MJ3-15/30/50(B)	26-pin HD D-Sub Male Cable for Mitsubishi Servo Amplifier, 1.5/3/5 M. (for MELSERVO-J3/J4Series)
CA-26-PA4-15/30/50(B)	26-pin HD D-Sub Male Cable for Panasonic Servo Amplifier, 1.5/3/5 M. (for MINAS A4/A5 Series)
CA-26-YSV-15/30/50(B)	26-pin HD D-Sub Male Cable for Yaskawa Servo Amplifier, 1.5/3/5 M. (for Sigma II/III/V Series)
CA-26-DAA2-15/30/50(B)	26-pin HD D-Sub Male Cable for Delta A2 Servo Amplifier, 1.5/3/5 M. (for ASDA-A2 Series)
CA-26-DAB2-15/30/50(B)	26-pin HD D-Sub Male Cable for Delta B2 Servo Amplifier, 1.5/3/5 M. (for ASDA-B2 Series)
CA-26-FFW-15/30/50	26-pin HD D-Sub Male Cable for Fuji Servo Amplifier, 1.5/3/5 M. (for FALDIC-W and ALPHA5 Smart Series)
CA-26-TTA-15/30/50	26-pin HD D-Sub Male Cable for Teco Servo Amplifier, 1.5/3/5 M. (for TSTA-A/A+ Series)