

ET-M8196F

Ethernet Remote Unit with High-speed, DSP-based, 6-axis Motion Control Module

Features

- Remote control via Modbus TCP
- 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 **ET-M8196F** is a compact remote motion control device which uses Modbus TCP as its communication protocol. The ET-M8196F acts as a server in a Modbus TCP network and supports all standard Modbus function codes defined by the Modbus TCP protocol. Nowadays many PCs have got limited PCI slots; therefore the ET-M8196F can be used to replace PCI motion control cards. The ET-M8196F has got two Ethernet ports which allow daisy chaining.

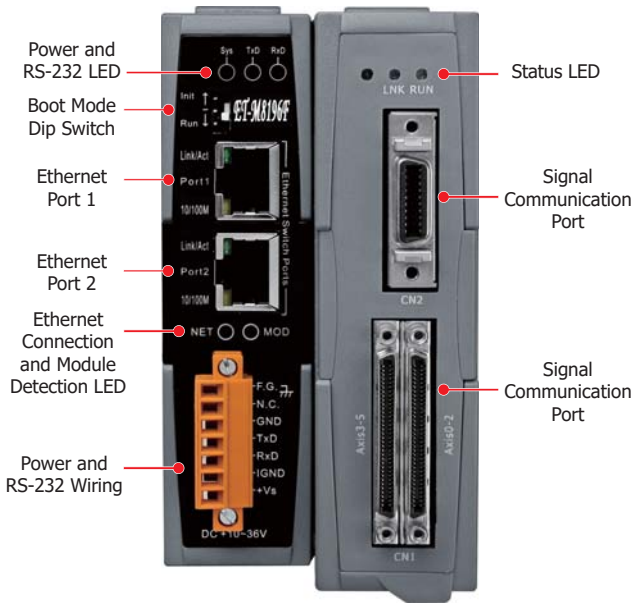
The motion controller of the ET-M8196F consists of an Ethernet communication module and a 6-axis motion control card. A digital signal processor (DSP) is the brain of the motion controller which calculates the commanded move trajectory and manages supervisory control by monitoring the limits and emergency stops to ensure safe operation. I/O control output (e.g. latch, compare, encoder counter etc.) is realized in a Field Programmable Gate Array (FPGA).

The motion controller is suitable for general-purpose motion control applications. In additions 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 ET-M8196F acts as an FRnet master and can control up to 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.

An application programming interface (API) for communicating with the ET-M8196F motion controller is being provided. This enables the user's program on the host computer to easily interact with the motion controller. A software utility for Ethernet configuration and basic motion settings and execution is part of the software package.

Hardware



ET-M8196F Interface Functions

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Specifications

Model	ET-M8196F
Software	
OS Support	Windows 7/8/10 32/64 bit
Development	Visual C++ lib/DLL, C#, VB.Net DLL, Delphi, Visual Basic 6.0, BCB 5.0, 6.0
Utility	EzGo Utility
Hardware	
Connector	68-pin VHDCI and 20-pin SCSI-II
General	
No. of Axes	6
Motion Control Type	DSP Based
Speed Profile	T/S-curve
Servo Update Rate	2 KHz
Position Control Mode	Incremental and absolute mode
Command Type	Pulse Command
Auto-Home Search	Yes
Input Signal Filter	Yes
Axis I/O	
Servo Interface Output	SVON, ALM_RST, ERC
Latch Input	High-Speed 5 V or 24 V NPN
Mechanical Switch Input	Home, Limit+/-, Near Home, Emergency
Position Compare Output	High-Speed 5 V TTL or 24 V open collector
Servo Interface Input	INP, ALM, RDY
Encoder Input	
Mode	A/B Phase, Up/Down

Model	ET-M8196F
Ring Counter Mode	32-bit
Counting Rate	12 MHz
Counter Width	32-bit
Pulse Output	
Mode	CW/CCW, PULSE/DIR, A/B Phase
Counter Width	32-bit
Rate	4 MPPS (Max.)
Interpolation	
Cicular	Any 2 to 3 axes (up to 3 groups)
Continuous	Yes
Helical	3 axes
Linear	Any 2 to 6 axes (up to 3 groups)
Digital Input	
Channels	Local: 12 DI Expandable: 128 DI
Isolation	2500 Vrms (with DN-8368)
Digital Output	
Channels	Local: 3 DO Expandable: 128 DO
Isolation	2500 Vrms (with DN-8368)
Ethernet	
Protocol	Modbus TCP
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

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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)

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