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-axis linear/ 2- to 3-axis circular/ helical interpolation function
- 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

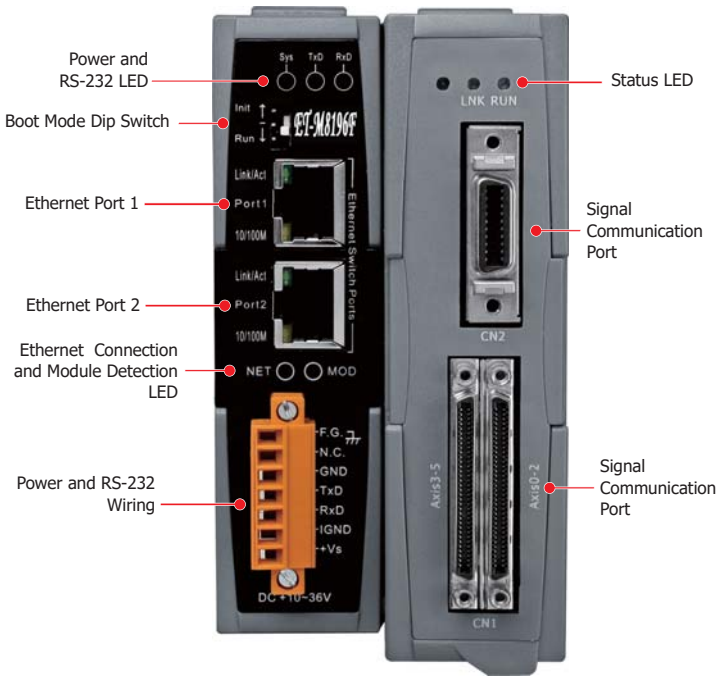
The **ET-M8196F** is a compact remote motion control device which uses Modbus TCP as its communication protocol. The ET-M8196F acts as a server in a Modbus TCP network and supports all standard Modbus function codes defined by the Modbus TCP protocol. Nowadays many PCs have got limited PCI slots; therefore 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-axis linear interpolation, 2- or 3-axis circular interpolation, 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.



ET-M8196F Interface Functions

Specifications

Model		ET-M8196F
System Specifications		
Communication		Ethernet
Communication Protocol		Modbus TCP
Number of Axes		6 axes
Motion Control Type		DSP Based
Pulse Output Rate		4 MPPS (Max.)
Pulse Output Mode	CW/CCW	Yes
	PULSE/DIR	Yes
	A/B Pulse	Yes
Command Type		Pulse Command
Interpolation	Linear Interpolation	2/6 axes
	Circular Interpolation	2/3 axes
	Helical Interpolation	3 axes
	Continuous Interpolation	2/3 axes
Auto-Home Search		Yes
Manual Pulse Generation		-
Velocity Profile	Trapezoidal Curve	Yes
	S-Curve	Yes
Ring Counter Mode		Yes
Axis I/O		
Mechanical Switch Input	Home	Yes
	Near Home	Yes
	Limit (Positive/Negative)	Yes
	Emergency	Yes
	Latch	Yes
Servo I/O Interface	Input: INP, ALM, RDY	Yes
	Output: SVON, ALMRST ERC	Yes
Encoder Interface	A/B Pulse	Yes
	Up/Down	Yes
Encoder Counter		32-bit
Encoder Counting Rate		12 MHz
Position Compare Trigger		4 MHz

Model		ET-M8196F
Digital Input		
Digital Input Channels	Local	12 DI
	Frnet	Up to 128 DI
Digital Output		
Digital Output Channels	Local	3 DO
	FRnet	Up to 128 DO
Input Signal Filter		Yes
I/O Isolation (with daughter board)		2500 Vrms optical isolation (with DN-8368)
Connector		68-pin VHDCI Connector and 20-pin SCSI-II
Power		
Input Voltage		+24V
Mechanical		
Dimensions		65x125x121mm
Environmental		
Operating Temperature		0 ~ +60 °C
Storage Temperature		-20 ~ +80 °C
Operating Humidity		
Storage Humidity		5 ~ 90 % RH, non-condensing
Software Support		
Windows Driver/DLL/Lib		Windows XP/7/8/10 32/64 bit: Visual C++ lib/DLL C#, VB.Net DLL Delphi Visual Basic 6.0 BCB 5.0, 6.0 Demo programs
Software Utility		EzGo Utility
Macro Programming		-

Ordering Information

ET-M8196F	Ethernet Remote Unit with High-speed, DSP-based, 6-axis Motion Control Module

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	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	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	26-pin HD D-Sub Male Cable for Yaskawa Servo Amplifier, 1.5/3/5 M. (for Sigma II/III/V 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)
CA-26-DAA2-15/30/50	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	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)