



## ET-M8194H

Ethernet Remote Unit

with High-speed 4-axis Motion Control Module

### Features

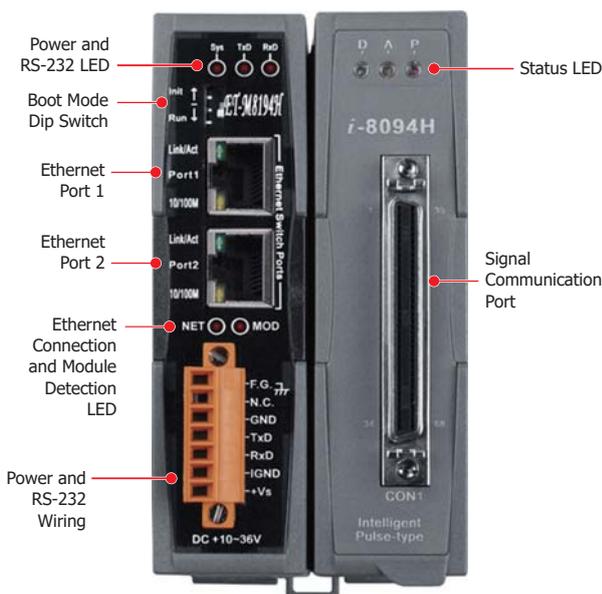
- Remote control via Modbus TCP
- Can be controlled using SCADA, PAC or PLC,ETC
- Can be integrated into multi-station, multi-axis applications
- 4-axis motion control capability
- 2/3-axis linear interpolation function
- 2-axis circular interpolation function
- Programmable automatic homing function
- EzMove Utility for configuration and macro programming
- Test motion functions via EzMove without compilation
- Library for rapid development of applications
- Easy wiring for multi-station applications
- Can be set as a remote or stand-alone motion controller
- Supports high-speed FRnet I/O: 128 DO and 128 DI



### Introduction

The **ET-M8194H** is a new product from ICP DAS that can be used to implement remote control functionality via the Ethernet and includes an I-8094H module (a 4-axis stepping/pulse-type servo motor control module with an embedded CPU) and an Ethernet communication interface. The intelligent ET-M8194H can provide users with the ability to develop a wide range of remote motion control applications, and can be integrated in any system where the host platform is built on the Modbus TCP protocol (for example: PC, PAC or PLC). In addition, implementing a multi-station, multi-axis motion control solution can easily be achieved by cascading several ET-M8194H devices using Ethernet cables, either with or without Ethernet switches. ICP DAS also provides the EzMove Utility and an API Library that can be used to configure the ET-M8194H and to rapidly develop customized control applications.

### Hardware



### ET-M8194H Interface Functions

### Software Supported: ET-M8194H SDK

#### EzMove Utility

EzMove is a configuration utility developed by ICP DAS for the ET-M8194H controller. It is intended to perform motion control tasks and movement test on equipment without the need to first create customized applications. As the EzMove Utility is a Modbus client, it can be used to create and edit Macro Programs (MP), which can then be uploaded to the ET-M8194H. The EzMove Utility can also display and plot position/velocity of all four axes as well as display Modbus TCP messages for easy reference.



#### API Library

The ET-M8194H API Library is composed of nine groups of functions, which can be utilized to edit Macro Programs (MP) and send Modbus TCP commands required to control or configure the I-8094H. The library provides users with the ability to simultaneously control a large number of ET-M8194H from the PC.

DLL and libraries for the following development environments are provided:

- Visual C++
- BCB 5.0, 6.0
- C#, VB.NET
- Visual Basic 6.0

## Specifications

| Model                        |                             | ET-M8194H     |
|------------------------------|-----------------------------|---------------|
| <b>System Specifications</b> |                             |               |
| Communication                |                             | Ethernet      |
| Communication Protocol       |                             | Modbus TCP    |
| Number of Axes               |                             | 4 axes        |
| Motion Control Type          |                             | IC Chip Based |
| Pulse Output Rate            |                             | 4 MPPS (Max.) |
| Pulse Output Mode            | CW/CCW                      | Yes           |
|                              | PULSE/DIR                   | Yes           |
|                              | A/B Pulse                   | -             |
| Command Type                 |                             | Pulse Command |
| Interpolation                | Linear Interpolation        | 2/3 axes      |
|                              | Circular Interpolation      | 2 axes        |
|                              | Helical Interpolation       | -             |
|                              | Continuous Interpolation    | 2/3 axes      |
| Auto-Home Search             |                             | Yes           |
| Manual Pulse Generation      |                             | Yes           |
| Velocity Profile             | Trapezoidal Curve           | Yes           |
|                              | S-Curve                     | Yes           |
| Ring Counter Mode            |                             | Yes           |
| <b>Axis I/O</b>              |                             |               |
| Mechanical Switch Input      | Home                        | Yes           |
|                              | Near Home                   | Yes           |
|                              | Limit (Positive/Negative)   | Yes           |
|                              | Emergency                   | Yes           |
| Servo I/O Interface          | Latch                       | Yes           |
|                              | Input: INP, ALM, RDY        | Yes           |
| Encoder Interface            | Output: SVON, ALMRST<br>ERC | Yes           |
|                              | A/B Pulse                   | Yes           |
| Encoder Counter              | Up/Down                     | Yes           |
|                              |                             | 32-bit        |
| Encoder Counting Rate        |                             | 4 MHz         |
| Position Compare Trigger     |                             | -             |

| Model                               |  | ET-M8194H                                  |
|-------------------------------------|--|--|
| <b>Digital Input</b>                |  |  |
| Digital Input Channels              | Local  | 1 DI                                       |
|                                     | Frnet  | Up to 128 DI                               |
| <b>Digital Output</b>               |  |  |
| Digital Output Channels             | Local  | -  |
|                                     | FRnet  | Up to 128 DO                               |
| Input Signal Filter                 |  | 2 ~ 16 ms, 8 stages                        |
| I/O Isolation (with daughter board) |  | 2500 Vrms optical isolation (with DN-8468) |
| Connector                           |  | 68-pin SCSI-II                             |
| <b>Power</b>                        |  |  |
| Input Voltage                       |  | +24V                                       |
| <b>Mechanical</b>                   |  |  |
| Dimensions                          |  | 65x99x121mm                                |
| <b>Environmental</b>                |  |  |
| Operating Temperature               |  | 20 ~ +75°C                                 |
| Storage Temperature                 |  | -30 ~ +85°C                                |
| Operating Humidity                  |  | 10 ~ 85% RH, non-condensing                |
| Storage Humidity                    |  | 5 ~ 90% RH, non-condensing                 |
| <b>Software Support</b>             |  |  |
| Windows Driver/DLL/Lib              | Windows XP/7/8/10<br>32/64 bit:<br>Visual C++ lib/DLL<br>C#, VB.Net DLL<br>Visual Basic 6.0<br>BCB 5.0, 6.0<br>Demo programs |  |
| Software Utility                    | EzMove Utility   |  |
| Macro Programming                   | Yes  |  |

## Applications

- X-Y-Z Table
- Fix-Pitch Stamping Machine
- Transfer Machine

- Spinner
- Loader/Unloader

## Ordering Information

|                  |  |
|------------------|--|
| <b>ET-M8194H</b> | Ethernet Remote Automation Unit with High-speed 4-axis Motion Control Module |
|------------------|--|

## Accessories

|              |   |
|--------------|---|
| DN-8468UB    | Photo-isolated Universal Snap-on Wiring Terminal Board                                  |
| DN-8468GB    | Photo-isolated General Purpose Wiring Terminal Board                                    |
| DN-8468MB    | Photo-isolated Snap-on Wiring Terminal Board for Mitsubishi MELSERVO-J2 Servo Amplifier |
| DN-8468PB    | Photo-isolated Snap-on Wiring Terminal Board for Panasonic MINAS A4/A5 Servo Amplifier  |
| DN-8468YB    | Photo-isolated Snap-on Wiring Terminal Board for Yaskawa Sigma II/III/V Servo Amplifier |
| DN-8468DB    | Photo-isolated Snap-on Wiring Terminal Board for Delta ASDA-A Servo Amplifier           |
| DN-8468FB    | Photo-isolated Snap-on Wiring Terminal Board for Fuji FALDIC-W Servo Amplifier          |
| CA-SCSI15-H2 | 68-pin SCSI-II Connector Cable; Length 1.5 M  |
| CA-SCSI30-H2 | 68-pin SCSI-II Connector Cable; Length 3.0 M  |
| CA-SCSI50-H2 | 68-pin SCSI-II Connector Cable; Length 5.0 M  |