

**ET-BASE AVR EASY88**

(P-ET-A-00383)

**ET-BASE AVR EASY168**

(P-ET-A-00382)

**ET-BASE AVR EASY328**

(P-ET-A-00403)



EASY88/168



EASY328

**ET-BASE AVR EASY88/168/328** is AVR Microcontroller Board No.ATMEGA88 and No.ATMEGA168 from ATMEL. Its characteristic feature is mini Microcontroller but it is full of the basic resources; for example, it runs by the maximum frequency of 20 MHz at 1 CLOCK/MACHINE CYCLE, 512 BYTE EEPROM, 1 KBYTE SRAM, SPI, UART, I2C, WATCHDOG, A TO D and etc. Moreover, Board can directly download program into Microcontroller through PORT RS232, not providing any more Board DOWNLOAD. Board structure is designed to be compatible with Board I/O from ETT directly such as Board ET-MINI I/O. For example, Board ET-MINI ENC28J60 that is able connect with LAN System.

- There are 2 methods to develop ET-BASE AVR EASY88/168 easily;
  1. Develop program by C Language (C++) of Arduino Project in the format of OPEN SOURCE; in this case, this MCU of ETT has already been installed Program BOOTLOADER into MCU; so, user can download it through RS232 PORT directly (if downloading through PORT USB, user can add ET-USB/RS232 MINI).
  2. Develop program by ordinary AVR; in this case, user can use develop program by any Language Program that supports the application of AVR such as BASIC Language, C Language or WIN AVR. It downloads data by BOOTLOADER through PORT RS232 or through Connector AVR ISP IDE 10PIN on board. It can be used with Board ET-AVR PROG MINI, ET-AVR ISP USB V1 and etc.

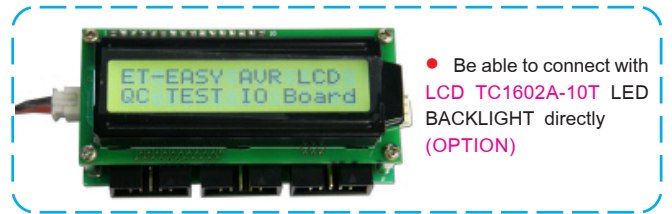
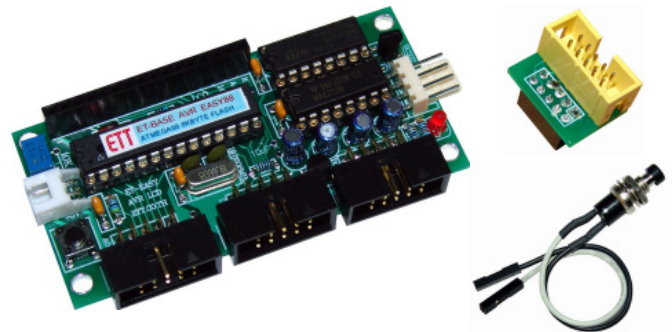
**Specifications of Board ET-BASE AVR EASY88/168/328**

- Use AVR MCU No.ATMEGA88 for Board ET-BASE AVR EASY88 and No.ATMEGA168 for Board ET-BASE AVR EASY168 and No.ATMEGA328 for Board ET-BASE AVR EASY328
- ATMEGA88 has 8 KBYTE FLASH MEMORY and ATMEGA168 has 16 KBYTE FLASH MEMORY and ATMEGA328 has 32KBYTE FLASH MEMORY.
- Has 1 KBYTE SRAM, 512 BYTE EEPROM, and run at Frequency 16.00 MHz
- Has 3 of 20BIT PORT I/O(PB 6BIT), (PC 6BIT), (PD 8BIT) that are RS232, SPI, I2C, TIMER/COUNTER, A TO D 10BIT 6-CHANNEL.
- Has 3 of Connector 10PIN ET and 1 of Connector OUTPUT 10PIN IDE ET by 74HC595.
- Has SW RESET and SW BL(PD2) to reset board to operate in BOOTLOADER through PORT RS232.
- Has RS232 PORT 4PIN ET for using and downloading program.
- Has 10PIN IDE according to the standard of AVR ISP to program value, not through PORT RS232.
- Has Base on board to directly install Test Boards such as ET-MINI I/O , so it is more inconvenient to test.
- Use 7-10VDC POWER SUPPLY, LM2940 (LOW DROP) ON BOARD
- PCB size: 8 x 6 cm.
- **ET-BASE AVR EASY88/168/328** Kit includes...
  1. Board
  2. CD-ROM User's Manual Program
  3. Cable ET-RS232 DB 9 PIN



**ET-EASY AVR LCD**

(P-ET-A-00384)



- Be able to connect with LCD TC1602A-10T LED BACKLIGHT directly (OPTION)

**ET-EASY AVR LCD** is Microcontroller Board that is designed as same as ET-BASE AVR EASY88; in this case, it is designed as mini size as same as LCD MTC-16205D. So, it is suitable for receiving data from RS232 to display or the project that has LCD Display and mini I/O.



- There are 2 methods to develop ET-EASY AVR LCD easily;
  1. It uses the C Language (C++) of Arduino Project, it can download data into MCU through PORT RS232.
  2. It uses the ordinary AVR that downloads data into MCU by BOOTLOADER through PORT RS232 .

**Specifications of Board ET-EASY AVR LCD**

- Use AVR MCU No.ATMEGA88 that has 8 KBYTE FLASH Memory, 1 KBYTE SRAM, and 512 BYTE EEPROM.
- Run at Frequency 16.00 MHz
- Has 3 PORT I/O 20BIT (PB 6BIT), (PC 6BIT), (PD 8BIT)
- Has 3 Connector 10 PIN ET
- Use Connector 16PIN Female straight row to interface with LCD Character and use 74HC595 on board to control with Circuit ON/OFF LED BACKLIGHT
- Has RS232 PORT 4 PIN for using and downloading program into board
- Be able to connect with LCD TC1602A-10T LED BACKLIGHT directly (OPTION)
- 5VDC POWER SUPPLY
- PCB Size: 80.0(W) x 36.0(H) mm.
- Board **ET-EASY AVR LCD** includes...
  1. Board ET-EASY AVR LCD
  2. CON 10PIN/ISP
  3. CD-ROM User's Manual
  4. Cable ET-RS232 DB9 PIN
  5. Cable SW PUSH BUTTON



**TC1602A-10T LED BACKLIGHT \* 190.-**  
(A-LC-C-00023)



- It is inexpensive LCD that replaces LCD version MTC-16205D that is ran out now.
- It is 16 Character with 2 Line LCD; there is white LED BACKLIGHT in the format of STN, TRANSFLECTIVE, POSITIVE, T-G
- LSolder Connector 16PIN HEADER straight line, it can interface with ET-CONV 10 TO LCD, ET-CONV SPI TO LCD directly; moreover, there is iron legged-stand to hold LCD.

- LLCD size is 80.0(W) x 36.0(H) x 13.5(D) mm.
- LLCD Display size is 64.5(W) x 13.8(H) mm.
- LCharacter size is 8 x 5 DOT, 2.95(W) x 4.35(H) mm.

- LCD TC1602A-10T interfaces with ET-CONV 10 TO LCD.

