SYS TEC ELECTRONIC

sysWORXX Automation Series

# MBC-1784

## 32-bit Universal Mobile Controller

**The MBC-1784 is a mobile controller device powered by an Infineon Tricore 1784 microcontroller. The device features a broad range of user-configurable inputs and outputs for nearly all kind of peripheral sensors and actuators available on an 112-pin IP 67 ECU connector. The MBC-1784 may be used as stand-alone controller as well as a sub-component in decentralized control structures.**

- Infineon Tricore 1784 Microcontroller with 180MHz
- IEC 61131-3 and C++ programmable
- 50 configurable inputs and outputs
- Integrated CiA 302 CANopen Manager
- Rugged IP67 housing with 112-pin ECU connector

CANopen

IEC 61131-3

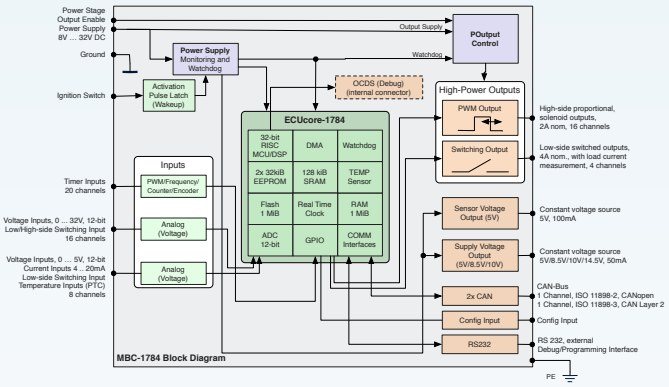
Machine manufacturers need to offer new advanced functionality in order to stand out from competing products. Respectively new functionality is introduced with each new generation of machines and the system complexity increases. At the same time end-users and operators require the usability and machine operation to be simplified. Efficiency, rentability and usability become the first and foremost criterias for making a buying decision.

Modern machine applications do not only involve standard control tasks but increasingly incorporate multimedia components and wireless communication. This imposes new challenges to the control equipment in terms of flexibility and the inter-connectivity of all integrated functional components.

To solve the contradiction between the extended functionality and machine cost flexible components and well-established communication standards are required to enable easy interconnection of multi-vendor devices within the machine's control system. By using CAN-bus based networks, even complex control structures can be realized without exceeding efforts.

**SYS TEC electronic offers professional engineering and development services that help you to maintain a sound headstart towards your competing market players.**

**We do not only provide advanced products but also offer OEM customers with the electronic product designs for incorporation of this product designs into their own product lines.**

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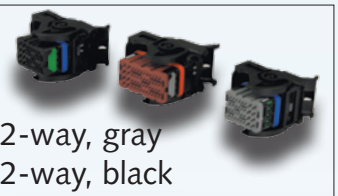
# Feature Overview

| | |
|---|---|
| **CPU** | Infineon Tricore TC1784, 180MHz or<br>Infineon Tricore TC1797, 180MHz or<br>Infineon Tricore TC1793, 230 MHz |
| **Supply Voltage** | 8V .. 32V DC |
| **Current Consumption** | 3W (without load)<br>200W maximum load, (25A external fuse) |
| **Protection Measures** | Short circuit protected against VBAT and Ground<br>Over-temperature (outputs)<br>Reverse polarity on power supply/battery |
| **Diagnostic capabilities** | Cable break and short circuit for analog inputs and digital outputs<br>On-board temperature sensor |
| **Other Signals** | Ignition signal input (K15)<br>External Power Stage Enable Signal Input<br>Software independent watchdog |
| **Programming/ Software Support** | IEC 61131-3 or C/C++ programming<br>CANopen Manager Support<br>PID controller |
| **Memory** | 1MiB Flash, 1MiB Ram, 32kiB error history |
| **Operating Temperature** | -40°C ... +85°C |
| **Communication Interfaces** | 2x CAN (CANopen CiA 302)<br>RS 232, LIN/K-Line |
| **Enclosure** | Aluminium diecast, IP67 according to EN 60529 |
| **Conformity** | CE acc.to 2004/104/EC |

Mating Plugs: (Molex)



| | |
|---|---|
| 64319-1218 | 32-way, gray |
| 64319-3211 | 32-way, black |
| 64319-3319 | 48-way, brown |

# Connector Pinout

Grey

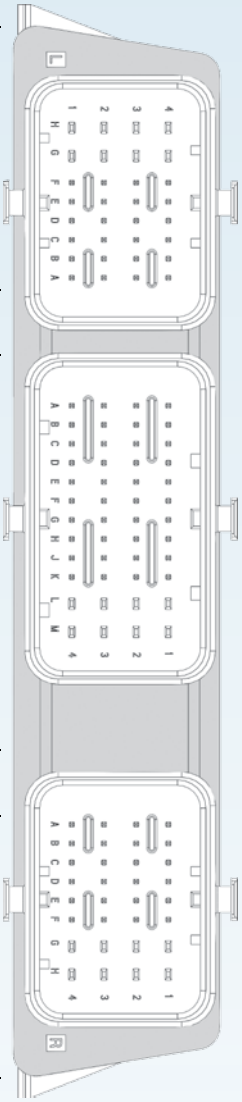
| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| A | DO-HS5 | DO-HS6 | DO-HS7 | DO-HS8 |
| B | DO-HS4 | VBAT- | VBAT- | DO-HS9 |
| C | DO-HS3 | VBAT- | VBAT- | DO-HS10 |
| D | DO-HS2 | VBAT- | VBAT- | DO-HS11 |
| E | DO-HS1 | VBAT- | VBAT- | DO-HS12 |
| F | DO-HS0 | DO-HS15 | DO-HS14 | DO-HS13 |
| G | VBAT- | VBAT- | VBAT+ | VBAT+ |
| H | VBAT- | VBAT- | VBAT+ | VBAT+ |

Brown

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| A | DO-LS3 | DO-LS2 | DO-LS1 | DO-LS0 |
| B | VBAT- | VBAT- | VBAT- | VBAT- |
| C | Power Stage Enable | CFG0 | SIO0_TX | SIO0_RX |
| D | CAN1_L | Ignition-Input | CAN0_H | LIN0 |
| E | N.C. | CAN1_H | CAN0_TERM | CAN0_L |
| F | N.C. | N.C. | N.C. | N.C. |
| G | VO1 (5/8/10/14.5/ 50mA) | VBAT- | VBAT- | VO0 (5V/100mA) |
| H | N.C. | N.C. | N.C. | N.C. |
| J | AIN(0-5V)/ DIN 5 | AIN(0-5V)/ DIN 4 | AIN(0-5V)/ DIN 1 | AIN(0-5V)/ DIN 0 |
| K | AIN(0-5V)/ DIN 7 | AIN(0-5V)/ DIN 6 | AIN(0-5V)/ DIN 3 | AIN(0-5V)/ DIN 2 |
| L | VBAT- | VBAT- | VBAT- | VBAT- |
| M | VBAT- | VBAT- | VBAT- | VBAT- |

Black

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| A | AIN(0-32V)/ DIN 17 | AIN(0-32V)/ DIN 16 | AIN(0-32V)/ DIN 9 | AIN(0-32V)/ DIN 8 |
| B | AIN(0-32V) /DIN 19 | AIN(0-32V)/ DIN 18 | AIN(0-32V)/ DIN 11 | AIN(0-32V)/ DIN 10 |
| C | AIN(0-32V)/ DIN 21 | AIN(0-32V)/ DIN 20 | AIN(0-32V)/ DIN 13 | AIN(0-32V)/ DIN 12 |
| D | AIN(0-32V)/ DIN 23 | AIN(0-32V)/ DIN 22 | AIN(0-32V)/ DIN 15 | AIN(0-32V) / DIN 14 |
| E | VBAT- | VBAT- | VBAT- | VBAT- |
| F | TIN3 | TIN2 | TIN1 | TIN0 |
| G | VBAT- | VBAT- | VBAT- | VBAT- |
| H | VBAT- | VBAT- | VBAT- | VBAT- |



# I/O Configuration

| | **Digital Inputs** | | **Timer Inputs** (0..10kHz) | | | | **Analog Inputs** (12-bit) | | | | | **Digital Outputs** | | | **Analog Output** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Amount** | High Side Switching | Low Side Switching | PWM | Frequency | Counter | Quadrature Encoder | 0..5V | 0..32V | 0..20mA | Resistive (PTC, Potentiometer) | Current Feedback | PWM/ Switching, 2A | Switching High Side, 2A | Switching Low Side, 4A | 5V Sensor Output | 5V/8.5V/10V Sensor Output |
| **1** | | | | | | | | | | | | | | | P | |
| **1** | | | | | | | | | | | | | | | | P |
| **16** | P | A | | | | | | P | | | | | | | | |
| **8** | | A | | | | | P | | A | A | | | | | | |
| **4** | | | A | A | P | A | | | | | | | | | | |
| **16** | | | | A | A | | | | | | | A | P | | | |
| **4** | | | | | | | | | | | P | | | A | | |

P → Primary Function, A → Alternative Function

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