

Universal Automotive Control Unit– HY-TTC 94

General Description

The HY-TTC 94 is an extremely robust and powerful electronic control unit for use in automotive applications. This controller complies with the international EN ISO 13849 standard and has been certified by TÜV Nord. It meets the requirements of Functional Safety according to Performance Level (PL) d. The HY-TTC 94 is equipped with the Infineon XC2287M CPU providing enhanced safety features for protecting internal RAM and flash. The control unit supports programming in C (MATLAB Simulink I/O block library available) and is protected by a compact, automotive housing suited to various applications in harsh environments.

Specifications

Parameter		Unit
ECU Dimensions	147.6 x 180.3 x 39.8	mm
Dimensions for minimum connector release clearance	197.7 x 202.8 x 39.8	mm
Weight	about 650	g
Operating Temperature	- 40 to +85 (full load) - 40 to +105 (lim. load)	°C
Operating Altitude	0 to 4000	m
Supply Voltage	8 to 32	V
Peak Voltage	45	V _{max}
Standby Current	0.5	mA _{max}
Idle Current	0.15 at 9V	A _{max}
Current	25	A _{max}
Fulfills the following standards		
Functional Safety	EN ISO 13849 PL d	
CE-Mark	2014/30/EU 2006/42/EC	
E-Mark	ECE-R10 Rev.4	
EMC	ISO 13766, up to 200 V/m, 20 MHz to 1GHz	
ESD	IEC 61000-4-2	
Load Dump	ISO 7637-2, 173 V, 2 Ohm	
Ingression Protection	EN 60529 IP 65, IP67 DIN 40050 IP 6K9K	
Temperature	EN 60068-2-1, -14Nb, -2, -78, -30	
Vibration, Shock, Bump	IEC 60068-2-29, -64, -27, -32	



Features

All I/Os and interfaces mentioned below are protected against short circuit to GND and BAT+.

CPU Core

- 16/32-bit Infineon XC2287M safety microcontroller, 80 MHz, 832 kB int. Flash, 50 kB int. RAM, 512 kB ext. RAM
- CPU-internal safety features
 - Hardware CRC checker for supervising flash memory
 - Integrated Memory Protection Unit (MPU)
 - RAM content protection through Error-Correcting-Code (ECC).
- Watchdog CPU Freescale HC 908, including monitoring software
- 64 kbit EEPROM

Interface

- 1 x RS-232 and 1 x LIN serial interfaces
- 4 x CAN, 125 kbit/s up to 1 Mbit/s

Outputs

- 8 x digital OUT 2 A high-side, PWM, configurable as timer inputs
- 8 x digital OUT 4 A high-side, configurable as analog inputs

Inputs

- 8 x analog IN 0 to 5 V / 10 bit, configured by software alternative use as resistive measurements
- 8 x analog IN 0 to 32 V / 10 bit, range configurable by SW
- 4 x current feedback, configurable as digital outputs/ lowside 2 A
- 4 x digital IN (4 timer 0.1 Hz to 10 kHz)
- 8 x digital IN

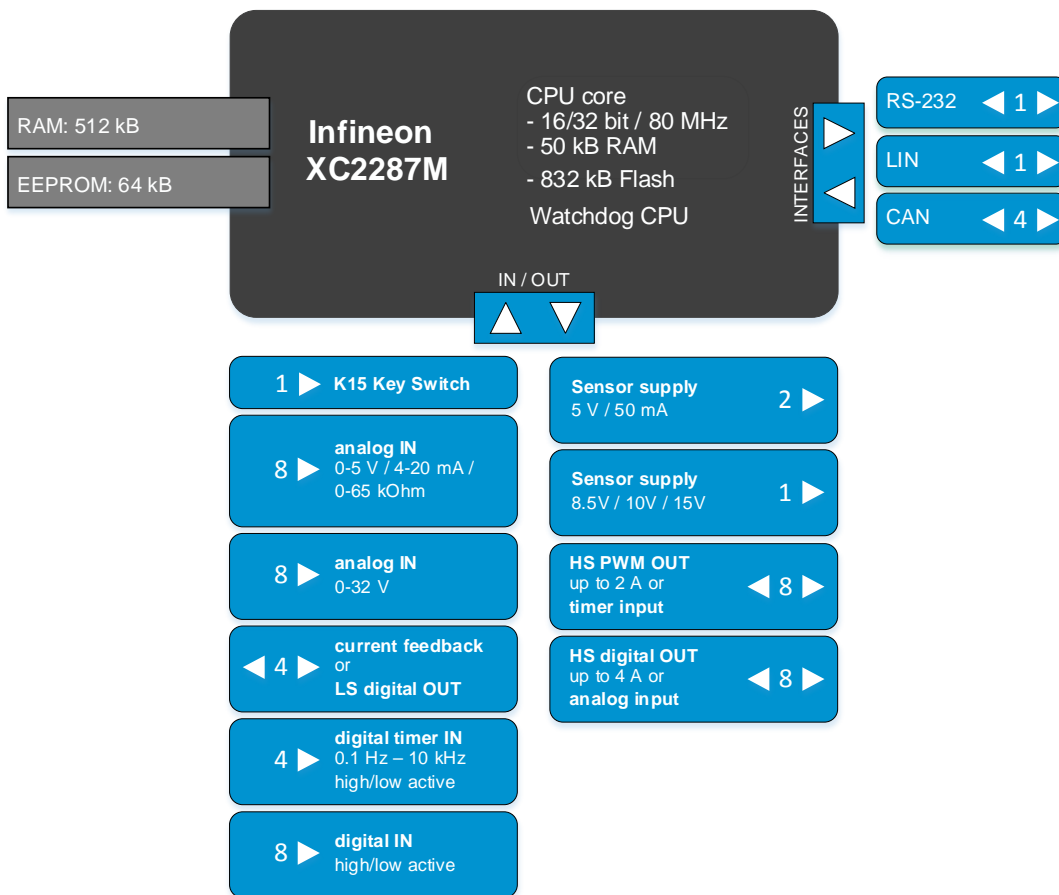
Other

- Internal: monitoring of board temperature, sensor supply and battery
- 1 x sensor supply 8.5/10.0/14.5 V configurable
- 2 x sensor supply 5 V

Software Options

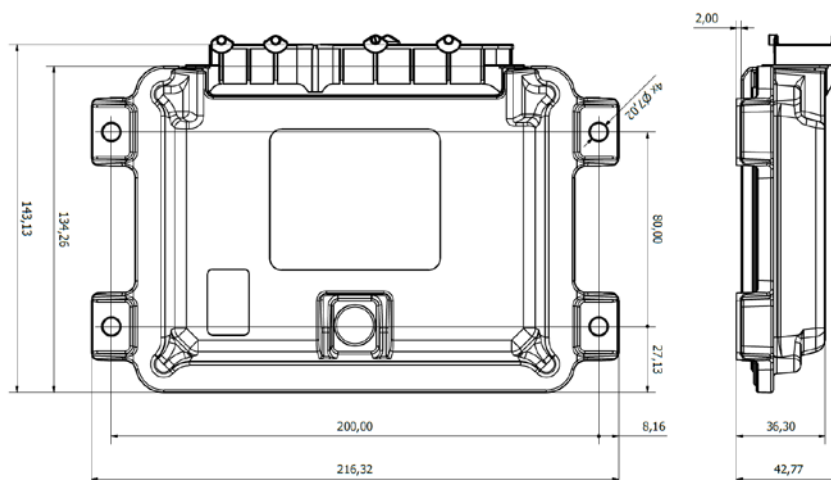
- C Programming Environment (incl. BSP and driver library)
- MATLAB Simulink I/O block library
- CODESYS® 2.3 including support for CANopen®

Block Diagram



Housing and Connector

- Aluminum pressure die-cast housing
- Water-proof 80-pin connector
- Pressure adjusting with water barrier



For further information, including price and availability, please contact products@tttech-auto.com