HY-TTC 90 / HY-TTC 94 – Electronic Control Unit

General Description

HY-TTC 90 and HY-TTC 94 are extremely robust and powerful electronic control units for use in automotive applications. Both controllers' compliance with the international ISO/EN 13849 standards on functional safety has been certified by TÜV Nord; they are equipped with the Infineon XC2287M CPU providing enhanced safety features for protecting internal RAM and flash. HY-TTC 90 and HY-TTC 94 fulfill PL d (Performance Level) requirements. They are part of a complete and compatible product family and are protected by a compact, automotive-style housing suited to mobile 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 4 000	m
Supply Voltage	8 to 32	V
Peak Voltage	45	V_{max}
Standby Current	0.5	mA_{max}
Idle Current	0.15 at 9 V	A_{max}
Current	25	A_{max}
Fulfills the following standards		
Functional Safety	Certified for EN ISO 13849 PL d	
CE-Mark	Conformity with 2014/30/EC	
EMC	ISO 13766, up to 200 V/m, 20 MHz to 1GHz	
ESD	IEC 61 000-4-2	
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

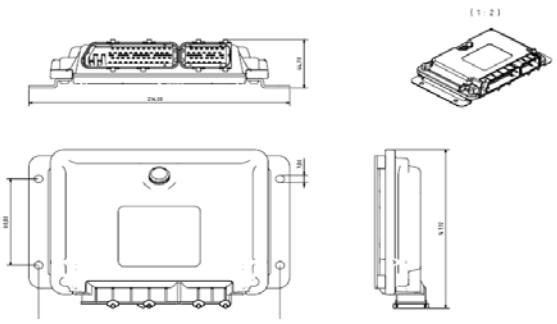
- All I/O's and interfaces mentioned below are protected against short circuit to GND and BAT+.
- 16/32-bit Infineon XC2287M safety microcontroller, 80 MHz, 832 kB int. Flash, 50 kB int. RAM, 512 kB ext. RAM
- CPU-internal safety features
  - Hardware CRC checker for supervising flash memory
  - Integrated Memory Protection Unit (MPU)
  - RAM content protection through Error-Correcting-Code (ECC).
- Watchdog CPU Freescale HC 908, including monitoring software
- 64 kbit EEPROM

Interfaces and Monitoring

- 8 x analog IN 0 to 5 V / 10 bit, configured by software
- 8 x analog IN 0 to 32 V / 10bit, 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
- 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
- Mini Module, up to 8 pins for customer specific extensions, 4 shared with range configurable analog inputs
- 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
- 1 x RS-232 and 1 x LIN serial interfaces
- Either 2 x (HY-TTC 90) or 4 x (HY-TTC 94) CAN, 125 kbit/s up to 1 Mbit/s

Safety: modular safety concept for distributed and stand-alone systems
Software: C, CODESYS® 2.3 including support for CANopen®

Outline Dimensions



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

TTTech Computertechnik AG – Automotive Contact Information

www.tttech-automotive.com

Europe, Austria - Headquarters
Tel.: +43 1 5885 65 38-5000

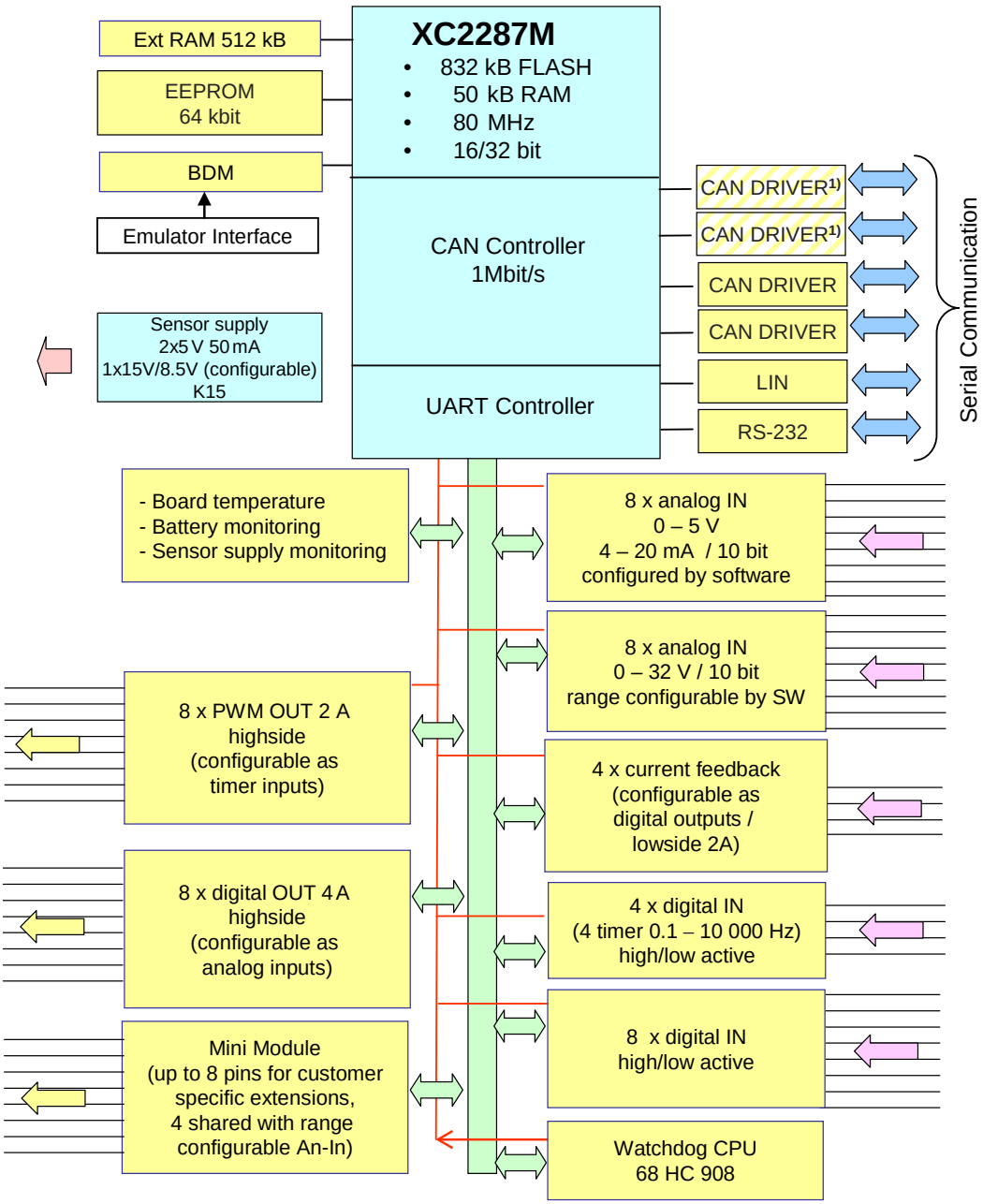
Germany
Tel.: +49 841 88 56 47-0

Japan
Tel.: +81 52 485 5898

China
Tel.: +86 21 5015 2925

E-mail: products@tttech-automotive.com

Block diagram



[1] available on HY-TTC 94 only