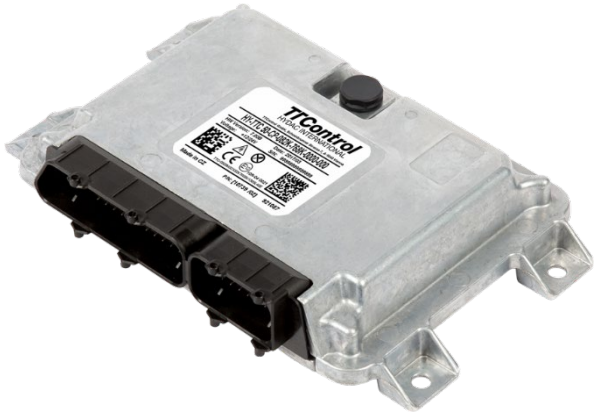
HY-TTC 50 Family

Freely Programmable Automotive Control Units



Key Benefits

- 6 different variants, two of them safety certified to fulfill different application needs
- Up to 8 PWM outputs, 6 with current feedback
- Flexibility: Outputs can be used as inputs,
- Range-configurable analog inputs
- Use of various analog and digital sensors
- Connectivity: Up to 4 CAN interfaces with 256 CAN message buffers
- Very comfortable programming and debugging with CODESYS®

These cost-effective, high-performance electronic control units are targeted towards applications that need to function reliably under harsh environmental conditions. The electronic circuits are well protected by a compact, automotive-style aluminum pressure die-cast housing. In more demanding applications, several electronic control units can be interconnected via CAN® bus to form a network. The units are programmed either in C or in CODESYS®.

Functional Safety

The HY-TTC 94, the top-level ECU of the HY-TTC 50 family, contains a main CPU executing the user application and a smaller watchdog CPU, which continuously monitors the main CPU and the safety-critical inputs and outputs. In case of an error, the internal safety switch disconnects all output stages from power, that way entering the safe state. Through this watchdog CPU, uncommanded movements of the vehicle can be avoided in order to ensure the safety of machine operators and equipment. The HY-TTC 94 fulfills PL d (Performance Level d) requirements and compliance with the international ISO/EN 13849 standard on functional safety and has been certified by TÜV Nord.

Flexible I/Os and Modular Architecture

These ECUs were designed to make each pin of the ECU as configurable and flexible as possible. All output pins can also be configured as inputs, and the inputs have various pull-up and pull-down configuration options. Analog inputs can be utilized as resistive, potentiometric or current inputs.

Connectivity

In many applications there is a growing demand for data transmission inside the vehicle network. On big and complex machines several CAN busses are being used for the various systems. To meet this demand HY-TTC 94 is equipped with 4 CAN channels.

Application Fields

- Buses
- Electric Power Train
- Trucks
- Cars

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Robustness

The HY-TTC 50 family's compact, automotive-style housing withstands extreme conditions such as humidity, vibrations, temperature changes and mechanical load. Furthermore, this product family has achieved the "International Protection Rating" IP 67 according to the international standard IEC 60529.

Variant Overview

	HY-TTC 50	HY-TTC 60	HY-TTC 94	HY-TTC 36X	HY-TTC 48X	HY-TTC 48XS
CPU core	16/32 bit Infineon XC2287 microcontroller, 80 MHz, 768 kB int. flash, 82 kB int. RAM	16/32 bit Infineon XC2287 microcontroller, 80 MHz, 768 kB int. flash, 82 kB int. RAM, 512 kB ext. RAM	16/32 bit Infineon XC2287M microcontroller, 80 MHz, 832 kB int. flash, 50 kB int. RAM, 512 kB ext. RAM	16/32 bit Infineon XC2287 microcontroller, 80 MHz, 768 kB int. flash, 82 kB int. RAM	16/32 bit Infineon XC2287 microcontroller, 80 MHz, 768 kB int. flash, 82 kB int. RAM, 512 kB ext. RAM	16/32 bit Infineon XC2287M microcontroller, 80 MHz, 832 kB int. flash, 50 kB int. RAM, 512 kB ext. RAM
	8 kByte EEPROM					
			Watchdog CPU Freescale HC 908, including monitoring software			Watchdog CPU Freescale HC 908, including monitoring software
Interfaces	1 x RS-232					
	1 x LIN					
	2 x CAN, up to 1 Mbit/s		4 x CAN, up to 1 Mbit/s	1 x CAN		
Number I/Os	20 inputs (analog & digital), 20 outputs (8 x PWM, 4 PWM with current feedback)	28 inputs (analog & digital), 20 outputs (8 x PWM, 4 PWM with current feedback)	28 inputs (analog & digital), 20 outputs (8 x PWM, 4 PWM with current feedback)	24 inputs (analog & digital), 16 outputs (4 x PWM)	28 inputs (analog & digital), 20 outputs (8 x PWM)	28 inputs (analog & digital), 20 outputs (8 x PWM)
Sensor Supply	1 x sensor supply 8.5 V / 10 V / 14.5 V configurable 2x 5 V sensor supplies					
Internal	Internal: monitoring of board temperature, sensor supply and supply voltage					
Software	C-Programming / CODESYS®			CANopen® slave software preinstalled	CANopen® slave software preinstalled	CANopen® Safety slave software preinstalled
Functional Safety			EN ISO 13849 PL d			EN ISO 13849 PL d

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