

High-end Safety Controller – TTC 2785

General Description

TTC 2785 is a robust and powerful high-end electronic control solution for use in off-highway applications. The TTC 2785 is equipped with Infineon's TriCore™ Aurix™ TC399 CPU designed to fulfil the requirements in demanding safety-relevant construction, agricultural, municipal, material handling and automotive applications.

The TTC 2785 is part of a complete and compatible product family and is protected by a compact, automotive-style housing suited to mobile and stationary applications in harsh environments.

Specifications

Parameter	Unit
ECU Dimensions	220.5 x 317.0 x 41.2
Dimensions for minimum connector release clearance	70 x 158 x 50 70 x 220 x 50
Weight	2652
Connector	4 x 48-pin + 1 x 2-slot HSD
Operating Temperature	-40 to +85
Operating Altitude	0 to 4000
Supply Voltage	8 to 32
Supply Current at 12/24V without load	333/166
Standby Current	<1
Total Load Current	80

Standards

Functional safety	IEC 61508 SIL2 EN ISO 13849 PL d ISO 25119 AgPL d SRL2 ISO 26262 ASIL C ISO 19014 MPL d
CE-Mark	2014/30/EU 2006/42/EC
E-Mark	ECE-R10 Rev.6
FCC-Mark	47 CFR Part 15B, Class A
EMC	EN 13766 ISO 14982 CISPR 25 IEC 61000-4-2/-3/-4/-5/-6/-8
ESD	ISO 10605
Electrical	ISO 16750-2 ISO 7637-2, -3
Ingress Protection	EN 60529 IP65 and IP67 ISO 20653 IP6k9k
Climatic	ISO 16750-4
Mechanical	ISO 16750-3
ISOBUS	ISO 11783

Software

- Available with the software platform MATCH® by HYDAC Software
- C Programming Environment with real-time operating system
- CODESYS® * Safety SIL 2 including support for CANopen® Safety Master

Board temperature, sensor supply, and supply voltage are monitored by software. Three independent safety shut-off groups for output stages. Details to the standards can be found in the System-Manual.

*upcoming feature



Features

CPU Core

- 32-Bit Infineon TriCore™ Aurix™ TC399
- 6 cores (4 lockstep cores) running at 300 MHz and memory protection for safety-relevant applications
- Floating-Point Unit
- Hardware Security Module
- 6.47 MB int. SRAM, 16 MB int. Flash
- 32 MB ext. Flash, 8kB ext. FRAM, 1 MB internal EEPROM Emulation

Interfaces

- 8 x CAN / CAN FD 50 kbit/s up to 2 Mbit/s (1x CAN with wake-up capability and 1x CAN ISOBUS)
- 1 x CAN bus termination configurable via connector pins
- 2 x 100BASE-TX (internal configurable Ethernet switch)
- 8 x SENT (with SPC support*)
- 2 x LIN
- 1 x Real Time Clock (with external supply)

Outputs

- 46 x PWM OUT up to 1 kHz or digital OUT, up to 4 A (6 x up to 8 A), high side, with current measurement
alternative use as digital timer IN (0.1 Hz - 20 kHz) or analog IN 12 bit, 0 - 32 V or LED control OUT*
- 12 x digital OUT up to 4 A, high side, current sense
alternative use as PVG OUT, 10 - 90% of BAT+ or 4 x as voltage OUT 0 - 10 V or LED control OUT* or analog IN 12 bit, 0 - 32 V or (1x) Emergency stop OUT*
- 12 x PWM OUT up to 4 kHz, up to 4 A, low side, with current measurement (2 x featuring timer feedback)
alternative use as analog IN 12 bit, 0 - 5 V, 0 - 32 V or 2 x as digital timer IN* (0.1 Hz - 20 kHz) Option to configure up to 6 x H-bridges for motor control*
- 3 x Status LED

Inputs

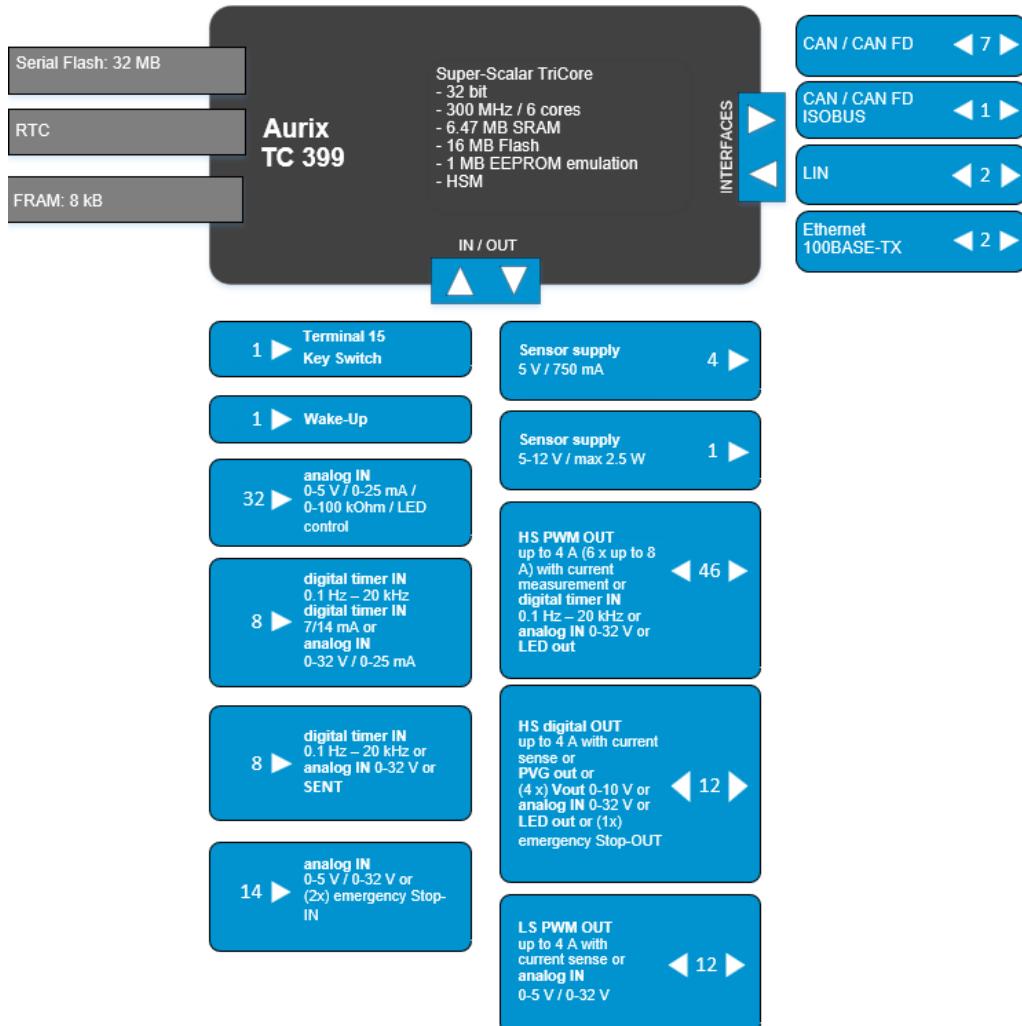
- 32 x analog IN 12 bit, 0 - 5 V, 0 - 25 mA, 0 - 100 kOhm, LED control
- 8 x digital timer IN (0.1 Hz - 20 kHz), encoder support, configurable pull-up/down, support for 7/14 mA current loop speed-sensor
alternative use as analog IN 12 bit, 0 - 32 V, 0 - 25 mA
- 8 x digital timer IN (0.1 Hz - 20 kHz), encoder support, configurable pull-up
alternative use as analog IN 12 bit, 0 - 32 V or SENT interface
- 14 x analog IN 12 bit, 0 - 5 V, 0 - 32 V with configurable pull up/down or (2x) Emergency stop IN* alternative use as analog IN 12 bit, 0 - 32 V
- Terminal 15 and Wake-Up

Sensor supply

- 4 x sensor supply, 5 V, max. 750 mA
- 1 x sensor supply, 5 - 12 V, max. 2.5 W, max. 750 mA, configurable by SW in 0.5 V steps

All inputs and outputs supporting analog IN can also be used as digital Input. All I/Os and interfaces are protected against short circuit to GND and BAT+ and can be configured by software.

Block Diagram



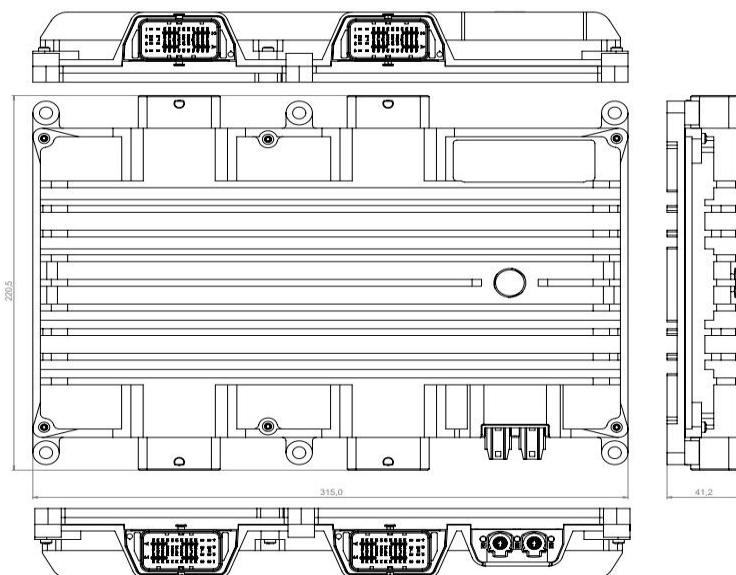
Housing and Connector

Aluminum die-cast housing

Main connectors:

4 x 48-pin connectors

1 x 2-slot HSD connector



For further information, including price and availability, please contact products@ttcontrol.com

Subject to changes and corrections. TTC 2785 is a product name of TTControl GmbH. CODESYS is a trademark of 3S Smart Software Solutions GmbH. CANopen is a trademark of CAN in Automation (CiA). All other trademarks are the property of their respective holders. To the extent possible under applicable law TTControl hereby disclaims any and all liability for the content and use of this product flyer.