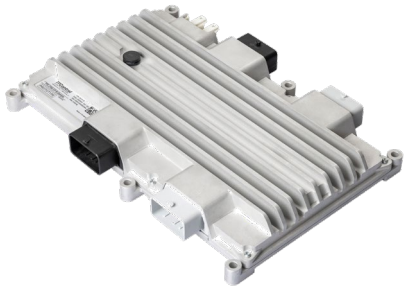
High-end Safety Controller – TTC 2785

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	mm
Dimensions for minimum connector release clearance	70 x 158 x 50 70 x 220 x 50	mm
Weight	2652	g
Connector	4 x 48-pin + 1 x 2-slot HSD	
Operating Temperature	-40 to +65 (full load) +65 to +85 (lim. load)	°C
Operating Altitude	0 to 4000	m
Supply Voltage	8 to 32	V
Supply Current at 12/24V without load	333/166	mA_{max}
Standby Current	<1	mA_{max}
Total Load Current	80	A_{max}

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 FD 50 kbit/s up to 2 Mbit/s (1 x CAN FD with wake-up capability and 1 x CAN FD 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

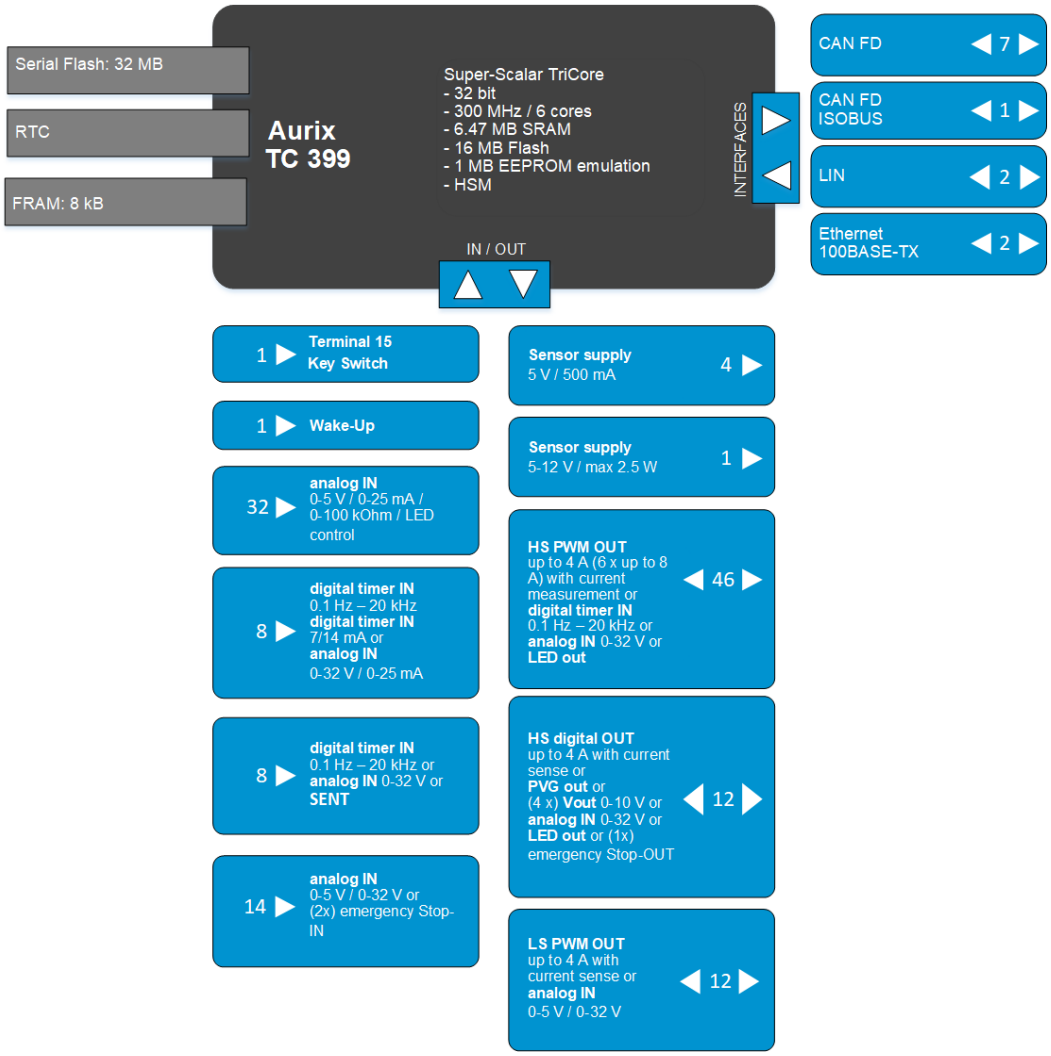
Sensor supply

- 4 x sensor supply, 5 V, max. 500 mA
- 1 x sensor supply, 5 - 12 V, max. 2.5 W, 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.

TTControl S.r.l. - Brixen, Italy
Tel. +39 0472 26 80-11,
office@ttcontrol.com, www.ttcontrol.com
TTControl GmbH - Vienna, Austria
Tel.: +43 1 585 34 34-0

Block Diagram



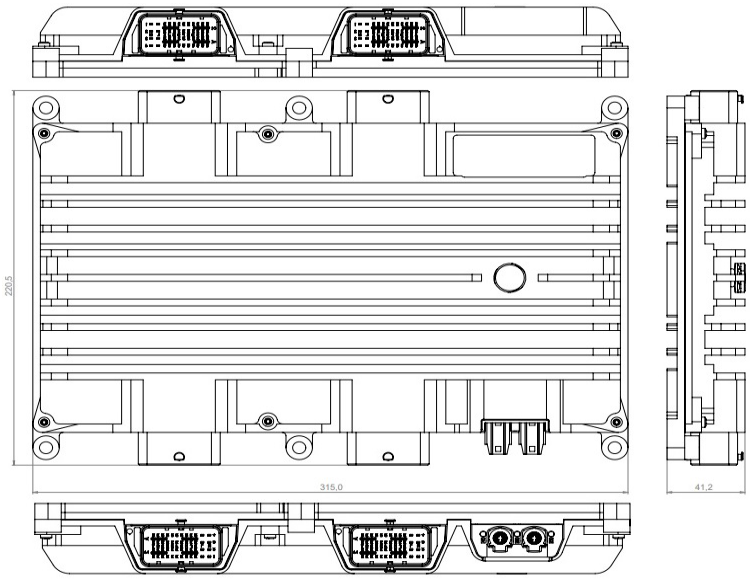
Housing and Connector

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