TTC 30S – Safety Control Unit

General Description

The TTC 30S is a compact control unit specially developed for use in cost-sensitive applications or smaller vehicles. The device is based on an Infineon XC22xx microcontroller and supports programming in C (MATLAB Simulink I/O block library available). With its 28 freely configurable I/Os it can be operated with a wide variety of sensors and actuators.

The TTC 30S was developed following the international standard EN ISO 13849 and is certified by TÜV NORD. It meets the requirements of functional safety according to Performance Level (PL) c.

Six out of the eight PWM outputs offer integrated current measurement. The TTC 30S was specially developed for vehicles and machines used in rugged operating environments and at extreme operating temperatures. The device is protected by a proven, robust and compact housing, specially designed for the automotive industry.

Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECU dimensions</td>
<td>147 x 92 x 38 mm</td>
</tr>
<tr>
<td>Dimensions for minimum connector release clearance</td>
<td>208 x 92 x 38 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>330 g</td>
</tr>
<tr>
<td>Connector</td>
<td>48 pins</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40 to +85 °C</td>
</tr>
<tr>
<td>Operating altitude</td>
<td>0 to 4,000 m</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>8 to 32 V</td>
</tr>
<tr>
<td>Peak supply voltage</td>
<td>40 V</td>
</tr>
<tr>
<td>Max. idle current</td>
<td>≤120 mA</td>
</tr>
<tr>
<td>Standby current</td>
<td>≤1 mA</td>
</tr>
<tr>
<td>Total load current</td>
<td>24 A</td>
</tr>
</tbody>
</table>

Standards

- Functional safety: EN ISO 13849 PL c
- CE-Mark: 2014/30/EU 2006/42/EC
- E-Mark: ECE-R10 Rev.4
- EMC: EN 13309
- ESD: ISO 14982
- Electrical: ISO 16750-2, ISO 7637-2, -3, limited to 40 V by external load dump protection
- Ingress protection: EN 60529 IP67
- Climatic: ISO 16750-4
- Mechanical: ISO 16750-3

Features

- CPU Core: Infineon XC22xx 16/32 bit CPU running at 80 MHz
- 768 kByte int. Flash, 82 kByte int. RAM, 8 kByte EEPROM

Interfaces

- 1 x CAN, 125 kbit/s up to 1 Mbit/s
- 1 x CAN bus termination, configurable via connector pins

Outputs

- 6 x PWM OUT or digital OUT, up to 3 A, high side switch with current measurement, overload and open load detection, PL c capable
  - alternative use
  - digital timer IN (10 Hz - 10 kHz) or analog IN 0 - 32 V both with integrated pull-up
- 2 x PWM OUT or digital OUT, up to 3 A, high side switch with overload detection, open load detection and support for high inrush current loads, PL c capable
  - alternative use
  - digital timer IN (10 Hz - 10 kHz) or analog IN 0 - 32 V, both with integrated pull-up
- 2 x digital OUT, up to 3 A, low side switch
  - used as redundant switch-off path for high side PWM outputs
- 6 x PVG OUT
  - 15% - 85% BAT+ with PVG valves
  - alternative use
  - voltage OUT 0 V - 75% BAT+ with 10 kOhm low side load or analog IN 0 – 32 V

Inputs

- 4 x digital timer IN (0.1 Hz - 10 kHz), PL c capable if used in pairs
  - alternative use
  - analog IN, 0 – 32 V
  - 1x rotary encoder
  - configurable pull-up/down in digital IN mode
- 2 x analog IN, configurable in software, input functions are PL c capable if used in pairs
  - 0 - 5 V / 10 V IN 0 - 25 mA IN
  - 0 - 65 kOhm IN up to 25 mA LED control OUT
- 6 x analog IN, configurable in software, input functions are PL c capable if used in pairs
  - 0 - 5V / 10 V IN 0 - 25 mA IN
  - up to 25 mA LED control OUT
- 2 x analog IN 0 - 32V, PL c capable if used in pairs
  - configurable Pull-Up/Down in digital IN mode

Other

- 1 x sensor supply 5 V, 100 mA
- Internal monitoring of board temperature, sensor supply, K15 input and battery voltage

Software Options

- C programming environment (incl. BSP and driver library)
- MATLAB Simulink I/O block library

Details about the standards can be found in the user manual.

www.tttech-auto.com
### Housing and Connector

- Aluminum die-cast housing
- 48-pin connector, 1 connector chamber
- Mating connector: FCI PPI0001494 or PPI0001495
  Molex 64320-1311 or 64320-3311

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

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