

## Universal Off-Highway Control – TTC 100

### General Description

TTC 100 is a powerful electronic solution for the off-highway industry that relies on its equipment to function under the most difficult conditions.

TTC 100 was designed to comply with the IEC 61508 international standard, SIL 2 (Safety Integrity Level).

It is part of a complete and compatible product family and is protected by a robust housing suited to the off-highway industry.

### Specifications

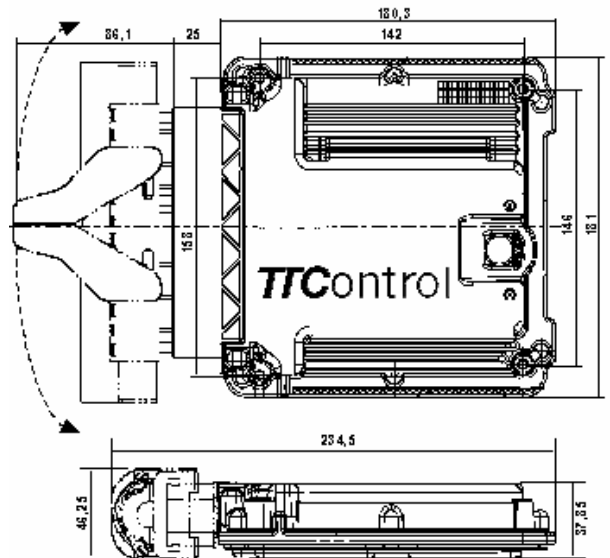
Parameter		Unit
Dimensions	234 x 181 x 48	mm
Weight	790	g
Operating Temperature	-40 to +85	°C
Operating Altitude	0 to 4000	M
Supply Voltage	9 to 32	V
Peak Voltage	45	V <sub>max</sub>
Current Consumption	1 at 9V	A <sub>max</sub>
Environmental Specifications		
Functional Safety	IEC 61508 SIL2	
Protection Degree	DIN 40050 IP65	
Vibration, Shock, Bump	IEC 68-2-64, -27, -29, -6	
EMC	ISO/DIS 13766	
ESD	IEC 61000	
Temperature Environment	IEC 68-2-1, -2, -3, -14, -30	
Load Dump	ISO 7637	

### Features

- MPC555, 40 MHz, 448kB int. Flash, 26kB int. RAM, 512kB ext. RAM, 2MB ext. Flash
- 16kbit EEPROM
- Watchdog CPU Freescale HC908, including monitoring software
- 1 x RS-232 and 1 x LIN serial interfaces
- 2 x CAN, 125 to 500 kbit/s
- 8 x analog IN 0 to 5V or 4 to 20mA / 10bit, configured by software
- 12 x analog / digital IN 0 to 10V / 10bit
- 8 x digital IN (counter 10Hz to 10kHz)
- 5 x digital IN for hardware identification
- 4 x digital OUT 2.35A, PWM, current control loop, short to ground protection and open load detection
- 4 x digital OUT 4A, PWM, short to ground protection and open load detection
- 4 x digital OUT 4A, short to ground protection and open load detection
- 1 x digital OUT for external relays to switch off output for safely applications (fail-silent)
- Internal: monitoring of board temperature, sensor supply and battery
- 1 x sensor supply 10.5V
- 1 x sensor supply 5V
- Software: I/O Toolbox, Simulink®, C/C++, CoDeSys® 2.3

### Outline Dimensions

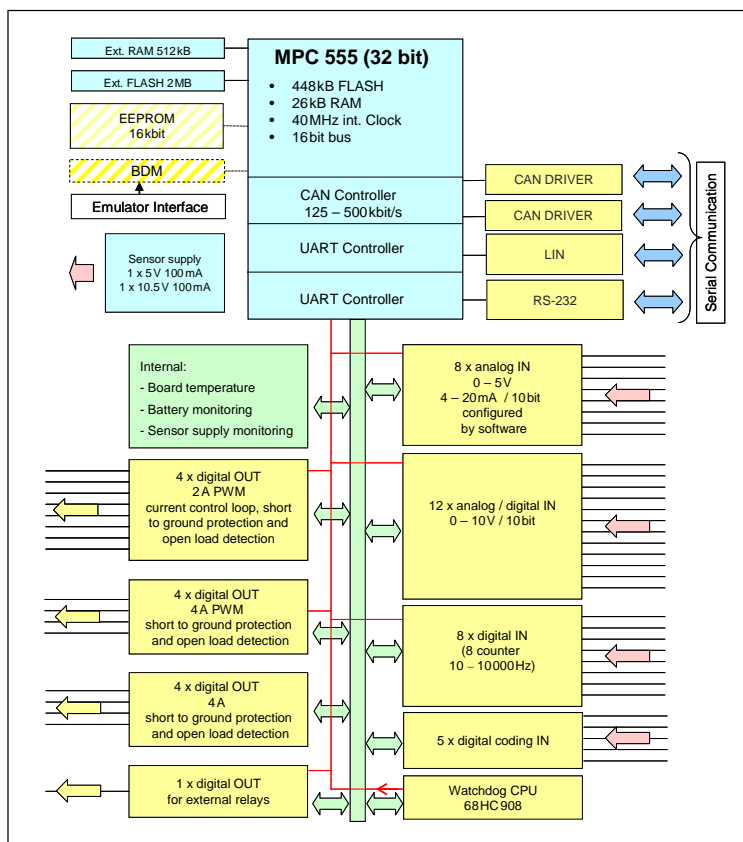
- Aluminum injection-molded housing
- Splash-proof 154 pin connector
- Pressure adjusting with water barrier
- Housing fins for optimal temperature deduction



### Cervis Incorporated, North American Partner of TTControl

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**Block Diagram**



**Ordering Information**

Available Options							Device Numbering System						
TTC 100	M	L	C	D	CD	S	TTC 100	n	n	n	n	n	n
TTC 100	M	L	C	D	NA	S	RAM						
TTC 100	M	L	C	W	CD	S	M: 512 kB						
TTC 100	M	L	C	W	NA	S	Serial interfaces						
TTC 100	M	L	C	D	NA	O	L: LIN on SCI 1, RS-232 on SCI 2 (default)						
TTC 100	M	L	C	W	NA	O	Bootloader						
TTC 100	M	L	C	W	NA	O	C: CAN - Enables download via CAN 2.0B						
Unlabeled options are available on request							Watchdog*)						
							D: Dummy - no monitoring is performed, outputs are permanently enabled						
							W: Watchdog enabled - required for SIL2 and SIL3 application, needs configuration based on application-dependent safety-concept and cyclical service						
							Firmware						
							CD: CoDeSys Run-Time-System - for CoDeSys development environment						
							NA: No firmware						
							Housing						
							S: Sealed (default)						
							O: Open - option for connecting BDM debuggers (e.g. for C programming)						

\*) The software-watchdog monitors the MPC 555 microcontroller and the I/Os and activates the safe state (switches off all outputs) if an error is detected

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