



## Universal Mobile Controller HY-TTC 200

Functional Safety  
PL d



### Description

The HY-TTC 200 is safety-certified and is one of the most powerful controllers in the 32 bit controller series. Configurable inputs and outputs ensure that it can be used with almost all types of sensor and actuator.

The control unit was developed to ensure the reliability and performance of mobile machinery, even under the most extreme conditions.

The HY-TTC 200 was developed in accordance with the international standard EN ISO 13849 and certified by TÜV NORD. It meets the safety requirements up to **PL d (Performance Level d)** as a stand-alone device.

### Special features

- **PL d certified**
- Additional watchdog CPU
- Programming in CODESYS® 2.3 or C/C++
- Up to 1 MB RAM
- 69 inputs and outputs, including
  - 12 PWM outputs
  - 8 with integrated current measurement
  - 22 power outputs
  - 8 analogue inputs (voltage/current)
  - 12 analogue/Digital inputs with diagnostic function
- All inputs and outputs are configurable and are protected against overvoltage and short circuits
- Stabilized sensor voltage supply with internal monitoring
- Robust aluminium die cast housing with a waterproof 154-pole male connection and pressure equalization via a waterproof Gore-Tex® membrane
- Housing fins for optimum heat dissipation
- e12 type approval

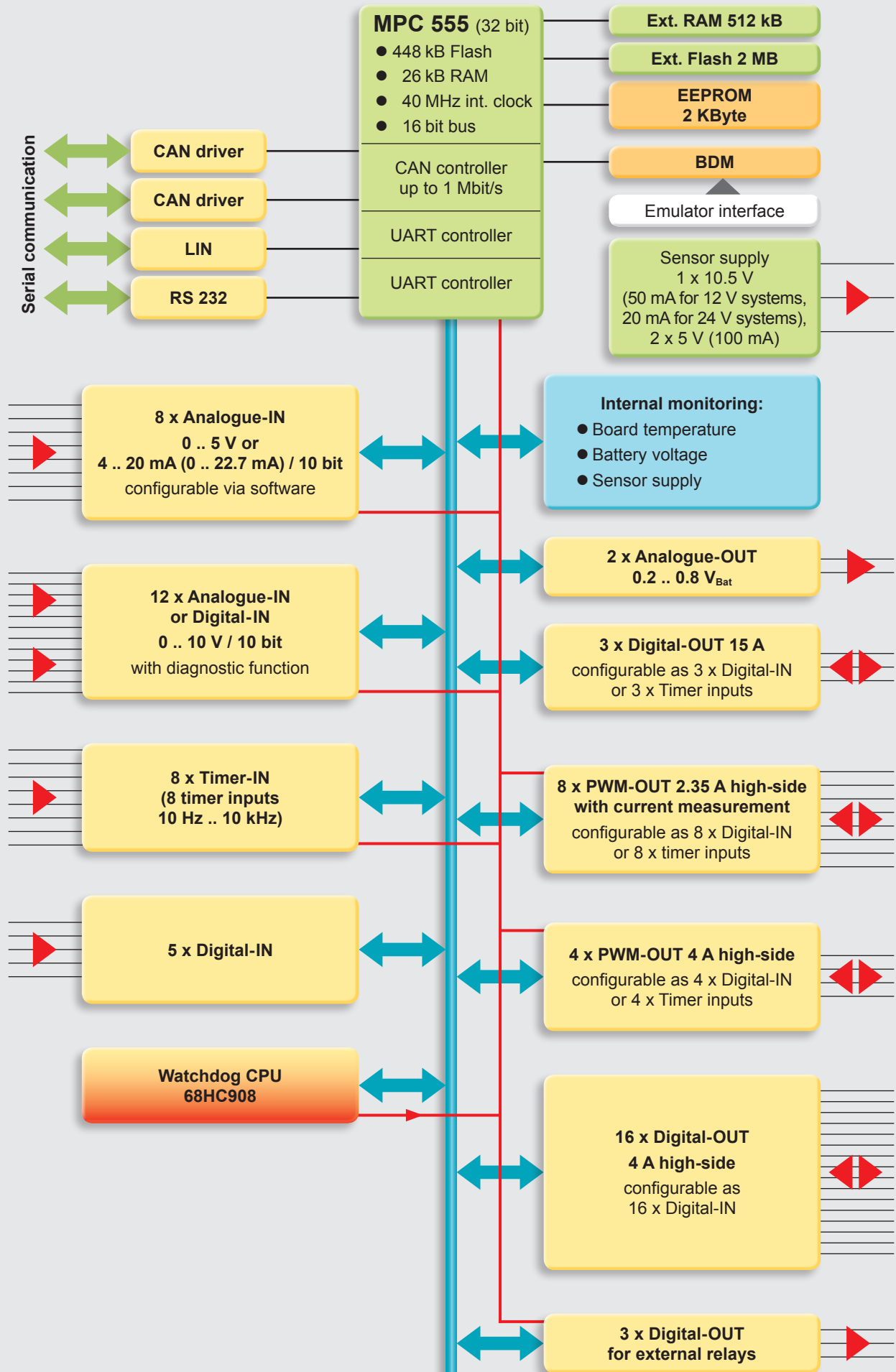
### Technical data

Ambient conditions	
Operating temperature	-40 .. +85 °C (with full load) to EN 60068-2
Operating altitude	0 .. 4,000 m
Supply voltage	9 .. 32 V
Peak voltage	45 V max. (1 ms)
Idle current	1 A max. at 9 V
Standby current	1 mA max.
Current consumption	50 A max. (complete voltage and temperature range)
Fulfils the following standards	
CE mark	Compliant with 2004/108/EC
E-mark	Compliant with 2006/28/EC
Functional safety	EN ISO 13849 -PL d-
EMC	ISO 13766 (up to 300 V/m, 20 MHz .. 1 GHz)
ESD	IEC 61000-4-2
Load dump	ISO 7637-2, 173 V, 2 Ohm
Protection class	EN 60529 IP 65 DIN 40050 IP 6k9k
Temperature	EN 60068-2-1; -14Nb; -2; -78; -30
Vibration, shock, bump	IEC 60068-2-29; -64; -27; -32
Dimensions and weight	
Dimensions with mounting bracket	204.8 x 211 x 42.1 mm
Minimum clearance for connection	265 x 233 x 45 mm
Weight	784 g
Features	
32 bit MPC 555 processor, 40 MHz, 448 kB int. Flash, 26 kB int. RAM, 512 kB ext. RAM (opt. 1 MB ext. RAM), 2 MB ext. Flash	
2 KByte EEPROM	
Watchdog CPU freescale HC 908, including monitoring software	
1 x RS-232 and 1 x LIN serial interfaces	
2 x CAN, up to 1 Mbit/s	
8 x Analogue-IN 0 .. 5 V or 4 .. 20 mA (0 .. 22.7 mA) / 10 bit, configurable via software	
12 x Analogue / Digital-IN with diagnostic function 0 .. 10 V / 10 bit	
8 x Timer-IN (timer input 10 Hz .. 10 kHz)	
5 x Digital-IN optional can be used as instrument ID	
8 x PWM-OUT 2.35 A high-side with current measurement, short-circuit and load detection (open load), configurable as 4 x Timer input or Digital-IN	
4 x PWM-OUT 4 A high-side, short-circuit and load detection (open load), configurable as 4 x Timer input or Digital-IN	
16 x Digital-OUT 4 A high-side, short-circuit and load detection (open load), configurable as 16 x Digital-IN	
3 x Digital-OUT 15 A high-side, open load detection, (1 x with screen wiper option), configurable as 3 x timer input or Digital-IN	
3 x Digital-OUT high-side for external relays to switch off output for safety applications (fail-safe)	
2 x Analogue-OUT, 0.2 .. 0.8 V <sub>Bat</sub>	
Internal monitoring of board temperature, sensor supply and battery voltage	
Connector types: 60-pole Tyco PN 284742-1 / 94-pole Tyco PN 284743-1	
1 x sensor supply 10.5 V (50 mA for 12 V systems, 20 mA for 24 V system)	
2 x sensor supply 5 V (100 mA)	
Modular safety concept for centralized and distributed electronic systems	
Programming: CODESYS® 2.3; C/C++	

**Note:** All I/Os and interfaces are protected against short circuit to GND and BAT+.

# Block circuit diagram

## HY-TTC 200



## Model code

HY-TTC 200 – XX – XXXX – 2.4M – WD 00 – 000

### Firmware

CD = CODESYS® run-time system  
for CODESYS® development environment  
CP = for “C/C++” programming without CODESYS®

### RAM memory (internal and external)

538K = 538 kByte  
001M = 1 MByte

### Flash memory (internal and external)

2.4M = 2.4 MByte

### Functional safety

WD = watchdog with standard software

### Equipment options

00 = none  
10 = with mounting bracket, fitted

### Modification number

000 = standard

### Note:

On instruments with a different modification number, please read the label or the technical amendment details supplied with the instrument.

### Accessories

Appropriate accessories, such as cables and connectors, service tools, software etc. can be found in the Accessories section.

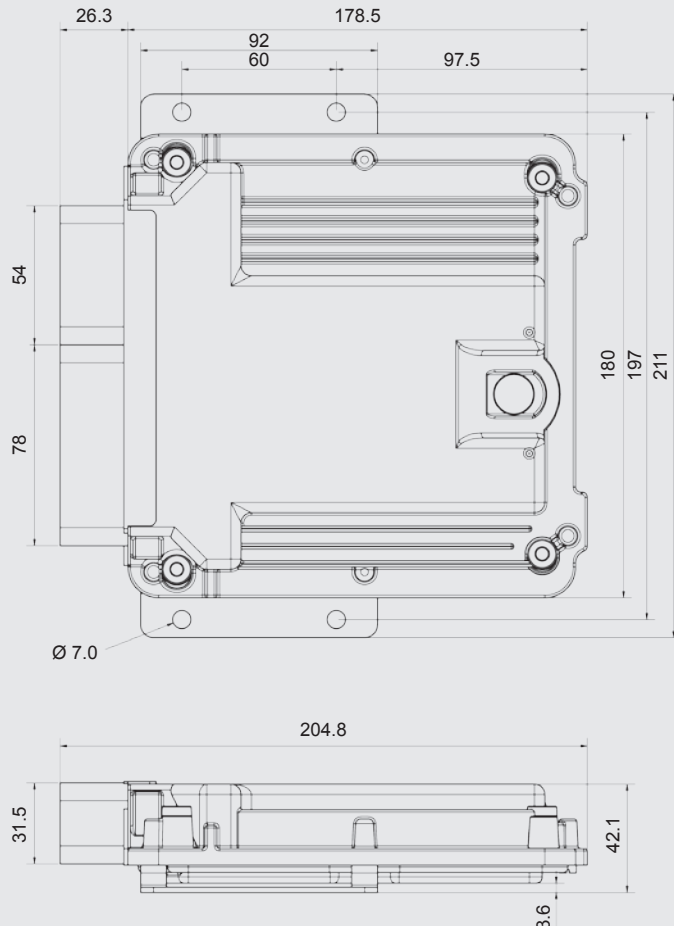
## Note

The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

## Dimensions



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