Universal Off-Highway Control – HY-TTC 48XS

General Description

HY-TTC 48XS is an intelligent I/O module that is controlled using CANopen®. It is compliant to CANopen Safety standard certified by CiA and to the international ISO/EN 13849 standard on functional safety, performance level (PL) d. It is part of a complete and compatible product family and is protected by a compact, automotive-style housing suited to mobile applications in harsh environments.

Specifications

Parameter		Unit
ECU Dimensions	147.6 x 180.3 x 39.8	mm
Dimensions for minimum connector release clearance	197.7 x 202.8 x 39.8	mm
Weight	about 650	g
Operating Temperature	-40 to +85	°C
Operating Altitude	0 to 4000	m
Supply Voltage	8 to 32	V
Peak Voltage	45	V_{max}
Idle Current	0.15 at 9 V	A_{max}
Standby Current	0.5	mA_{max}
Current	25	A_{max}
Fulfills the following standards		
CE-Mark	2014/30/EU 2006/42/EC	
E-Mark	ECE-R10 Rev.4	
EMC	ISO13766, up to 100 V/m, 20 MHz to 1GHz	
ESD	IEC 61000-4-2	
Load Dump	ISO 7637-2, 173 V, 2 Ohm	
Ingression Protection	EN 60529 IP 65, IP67 DIN 40050 IP 6K9K	
Communication Profile	CANopen CiA DS-401 CANopen EN 50325-5	
Temperature	EN 60068-2-1, -14Nb, -2, -78, -30	
Vibration, Shock, Bump	IEC 60068-2-29, -64, -27, -32	
Functional Safety	ISO EN 13849 – PL d	

Features

All I/Os and interfaces mentioned below are protected against short circuit to GND and BAT+.

CPU core
- 16/32-bit Infineon XC2287M microcontroller, 80 MHz, 832 kB int. Flash, 50 kB int. RAM, 512 kB ext. RAM
- CPU-internal safety features
  - Hardware CRC checker for supervising flash memory
  - Integrated Memory Protection Unit (MPU)
  - RAM content protection through Error-Correcting Code (ECC).
- Watchdog CPU Freescale HC 908, including monitoring software
- 64 kbit EEPROM

Interfaces
- 1x CAN, 125 kbit/s up to 1 Mbit/s

Outputs
- 8x digital OUT 2 A high-side, PWM, configurable as timer inputs
- 8x digital OUT 4 A high-side, configurable as analog inputs

Inputs
- 8x analog IN 0 to 5 V or 4 to 20 mA / 10 bit, configured by software
  alternative use as resistive measurements
- 8x analog IN 0 to 32 V / 10 bit, range configurable by SW
- 4x current feedback, configurable as digital outputs/ lowside 2 A
- 4x digital IN (4 timer 0,1 Hz to 10 kHz)
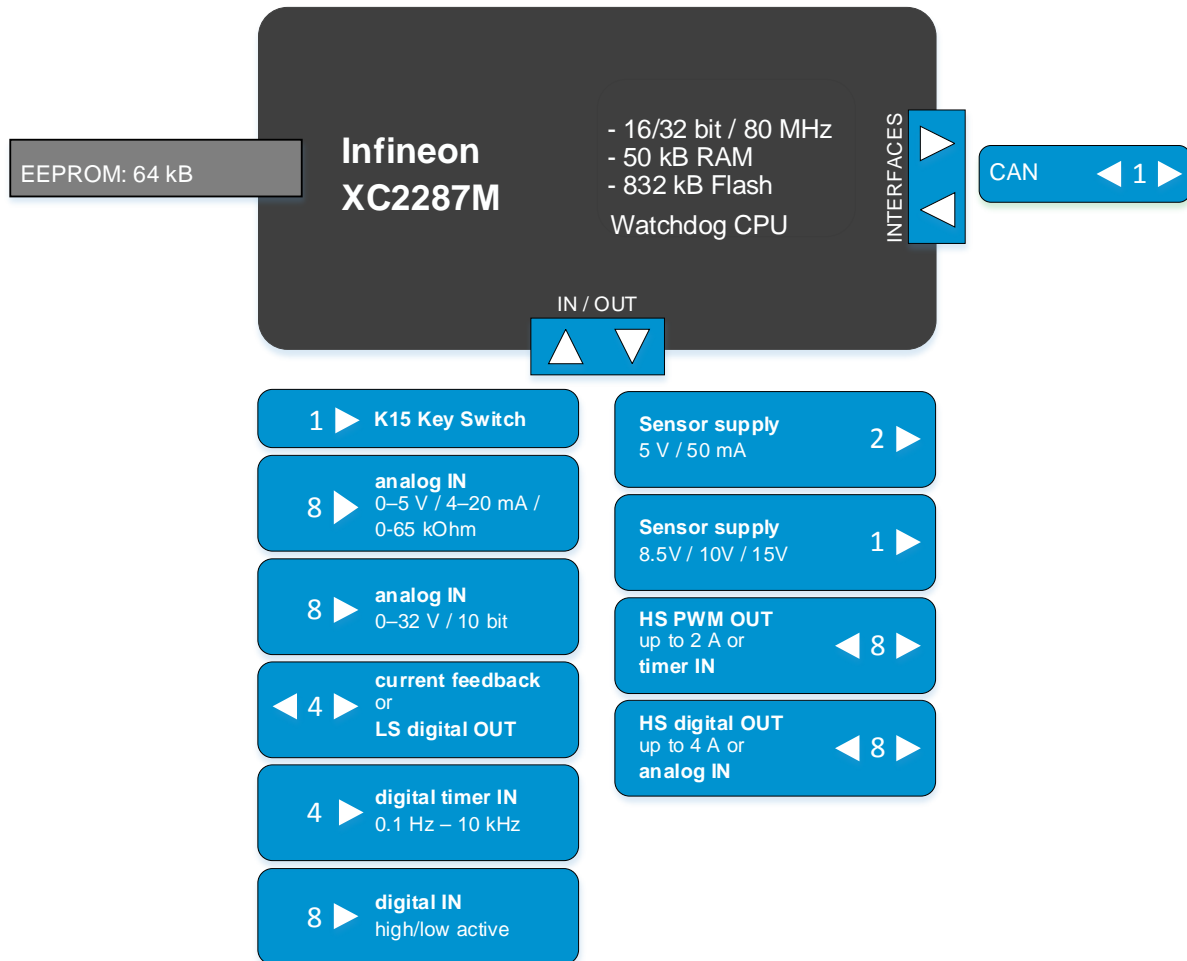- 8x digital IN

Other
- Internal: monitoring of board temperature, sensor supply and battery
- 1x sensor supply 8.5 V/10.0V/14.5 V configurable
- 2x sensor supply 5 V
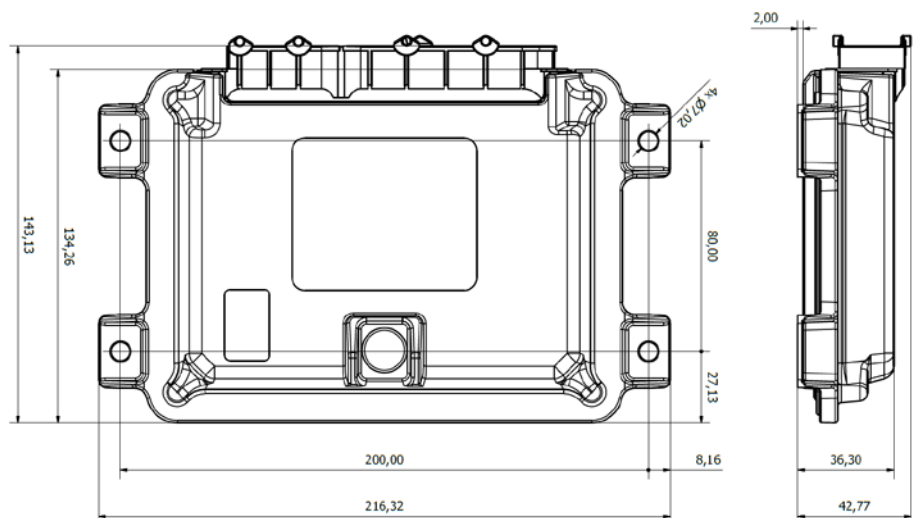
Software
- CANopen® Safety slave software preinstalled

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Block Diagram

Infineon XC2287M

EEPROM: 64 kB

- 16/32 bit / 80 MHz
- 50 kB RAM
- 832 kB Flash

Watchdog CPU

INTERFACES

CAN ◄ 1 ►

IN / OUT ▲ ▼

1 ► K15 Key Switch

8 ► analog IN 0–5 V / 4–20 mA / 0-65 kOhm

8 ► analog IN 0–32 V / 10 bit

◄ 4 ► current feedback or LS digital OUT

4 ► digital timer IN 0.1 Hz – 10 kHz

8 ► digital IN high/low active

Sensor supply 5 V / 50 mA 2 ►

Sensor supply 8.5V / 10V / 15V 1 ►

HS PWM OUT up to 2 A or timer IN ◄ 8 ►

HS digital OUT up to 4 A or analog IN ◄ 8 ►

Housing and Connector

- Aluminum pressure die-cast housing
- Water-proof 80-pin connector
- Pressure adjusting with water barrier

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