



## Universal I/O Expansion Module HY-TTC 48X

### Description

The HY-TTC 48X module is an intelligent I/O module which can be controlled and parameterized via CANopen Standard according to CiA DS 401.

It provides a means of expanding control systems with additional inputs and outputs, and hence additional functionality, in a simple and uncomplicated way.

The PID control devices built into the instrument make it possible to add independent proportional controls in conjunction with the powerful PWM outputs and the current measurement.

The module is protected in a proven, extremely compact housing of the 16-bit controller series, which was specially designed for the off-highway vehicle industry.

### Special features

- 48 inputs and outputs:
  - 8 PWM outputs
  - 4 current feedbacks
  - 8 digital outputs
  - 16 analogue inputs
  - 12 digital inputs
- Robust aluminium die cast housing with pressure equalization via a waterproof Gore-Tex® membrane
- Waterproof, 80-pin male connection
- e12 type approval

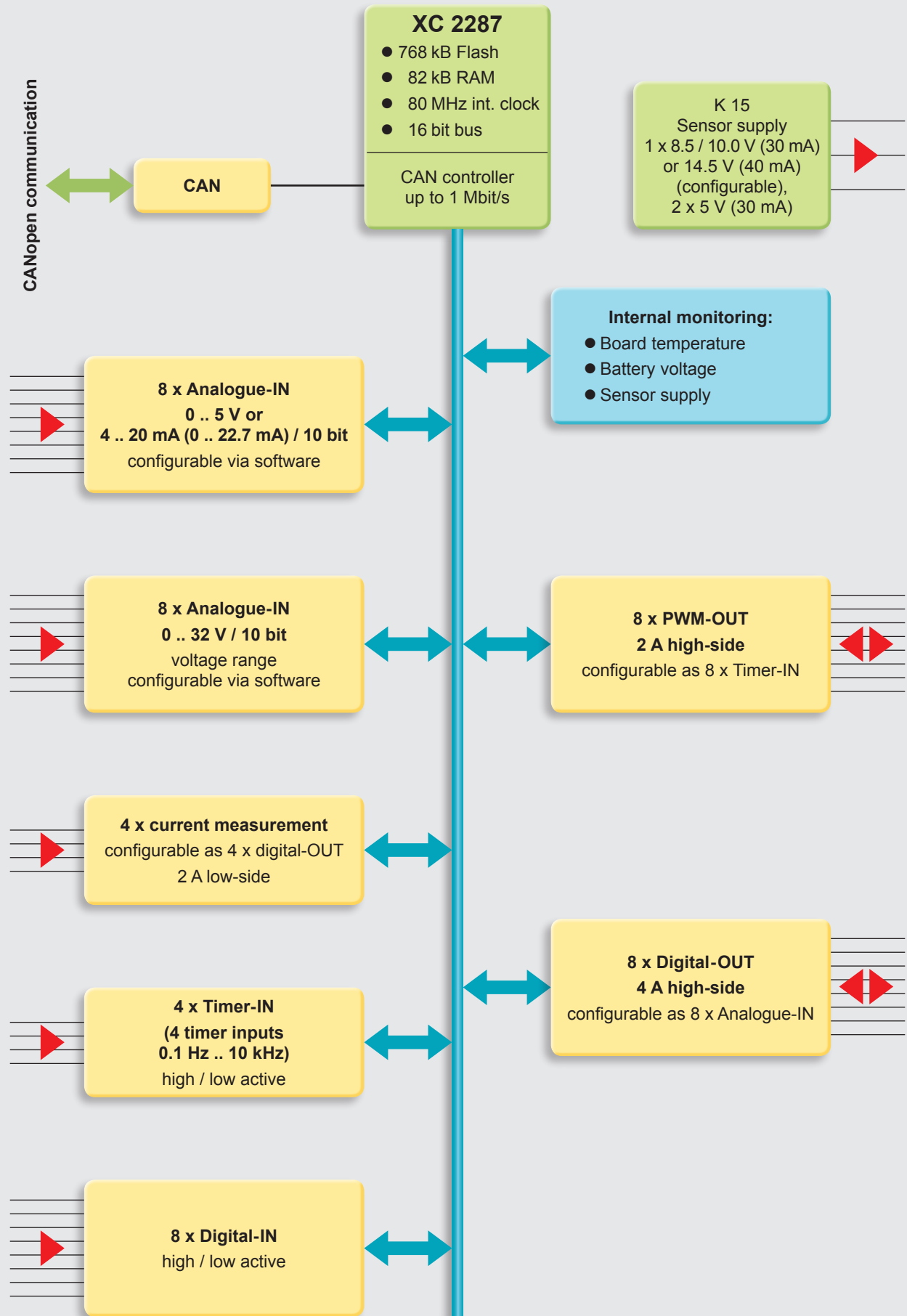
### Technical data

| Ambient conditions  |  |
|---|--|
| Operating temperature   | -40 .. +85 °C (with full load) to EN 60068-2       |
| Operating altitude  | 0 .. 4,000 m                                       |
| Supply voltage  | 8 .. 32 V  |
| Peak voltage  | 45 V max. (1 ms)                                   |
| Idle current  | 0.15 A max. at 9 V                                 |
| Standby current   | 0.5 mA max.  |
| Current consumption   | 25 A max. (complete voltage and temperature range) |
| Complies with the following standards   |  |
| CE mark   | Compliant with 2004/108/EC                         |
| E-mark  | 2009/19/EC   |
| EMC   | ISO 13766 (up to 200 V/m, 20 MHz .. 1 GHz)         |
| ESD   | IEC 61000-4-2                                      |
| Load dump   | ISO 7637-2   |
| IP class  | EN 60529 IP 65 / IP 67<br>DIN 40050 IP 6k9k        |
| Temperature   | EN 60068-2-1; -14Nb; -2; -78; -30                  |
| Vibration, shock, bump  | IEC 60068-2-29; -64; -27; -32                      |
| Communication profile   | CANopen CiA DS 401                                 |
| Dimensions and weight   |  |
| Housing dimensions  | 148 x 181 x 40 mm                                  |
| Minimum clearance for connection  | 198 x 203 x 40 mm                                  |
| Weight  | 675 g  |
| Features*   |  |
| 16 bit Infineon XC 2287 microcontroller, 80 MHz, 768 kB int. Flash, 82 kB int. RAM        |  |
| 1 x CAN, up to 1 Mbit/s   |  |
| IN  |  |
| 8 x Analogue-IN 0 .. 5 V or 4 .. 20 mA (0 .. 22,7 mA) / 10 bit, configurable via software |  |
| 8 x Analogue-IN 0 .. 32 V / 10 bit, voltage range configurable via software               |  |
| 4 x current feedback, configurable as 4 x Digital-OUT / low-side 2 A                      |  |
| 4 x Timer-IN (timer input 0.1 Hz .. 10 kHz)   |  |
| 8 x Digital-IN  |  |
| OUT   |  |
| 8 x PWM-OUT 2 A high-side, configurable as 8 x Timer inputs                               |  |
| 8x Digital-OUT 4 A high-side, configurable as 8 x Analogue-IN                             |  |
| Internal monitoring of circuit board temperature, sensor supply and battery voltage       |  |
| Connector types: 52-pole Tyco PN 1393450-5 / 28-pole Tyco PN 1393436-4                    |  |
| 1 x sensor supply 8.5 V / 10.0 V (30 mA) or 14.5 V (40 mA) configurable                   |  |
| 2 x sensor supply 5 V (30 mA)   |  |

**Note:** \* All I/O's and interfaces mentioned below are protected against short circuit to GND and BAT+.

# Block circuit diagram

## HY-TTC 48X



## Model code

HY-TTC 48X - F11 - 00 - 000

**CAN protocol**  
F11 = CANopen

**Equipment options**  
00 = standard

**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 cables and connectors, service tools, software etc. can be found in the Accessories section.

## Note

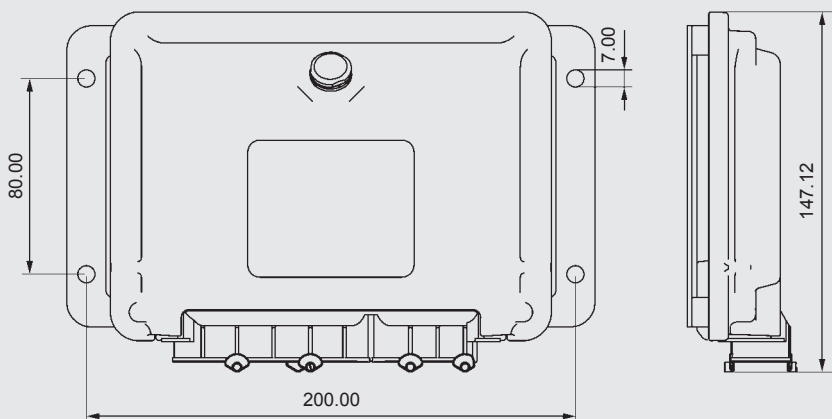
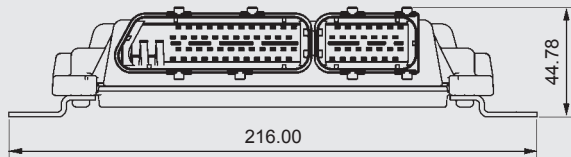
The information in this brochure relates to the operating conditions and applications described.

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

Subject to technical modifications.

## Dimensions

52-pole Tyco PN 1393450-5 / 28-pole Tyco PN 1393436-4



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