CompactCom™ M40 for EtherCAT

The Anybus CompactCom M40 for EtherCAT is a complete communication module which enables your products to communicate on an EtherCAT network. The module supports very fast communication speeds, making it suitable also for high-end industrial devices.

By implementing the CompactCom concept into your product line, you will have instant access to any other industrial network by simply plugging in another Anybus module.

Why worry about networking?

Once you have implemented the Anybus CompactCom concept, you don't have to worry about network upgrades or certifications. HMS takes care of the network maintenance, so you can focus on your products.

If you need fast EtherCAT communication

The Anybus CompactCom M40 enables very fast communication between your device and EtherCAT (process data is copied in hardware, bypassing the processor, making the data latency almost zero).

The module comes with an integrated EtherCAT Slave Controller implemented in the module's NP40 chip and supports Distributed Clocks Synchronization with cycle times as low as 100µs.

File access over EtherCAT (FoE) is supported as well as Modular Device Profile.

Features and benefits

- A complete, interchangeable communication module with connectors.
- Short in-design with free assistance from HMS ensures a fast time to market.
- Pre-certified for network compliance (enables faster network certification).
- Fast data transfer: 1486 bytes of process data in each direction.
- Very low latency <500ns.
- Synchronous operation using distributed clocks.
- Event-based interface method enables easy access to input and output data at any time.
- Fast, event-based application hardware interfaces: 8/16-bit parallel and high speed SPI. I/O (shift register interface) is also available.
- One hardware platform for all Ethernet versions. Simply download new firmware to enable communication with another network for example EtherNet/IP or PROFINET.
- Firmware management tool enables easy download via serial connection (FoE also available for firmware download).
- Solid security: Mandatory software signatures prevent unauthorized software to be downloaded to the module. Furthermore, encryption is used to prevent illicit copying.

CompactCom 40-series

The M40 is part of the Anybus CompactCom 40-series — communication products in chip, brick and module formats. These are all built on the Anybus NP40 processor making them especially suitable for modern and demanding industrial applications.

Innovative mounting

The Anybus module plugs into a CompactFlash™ connector which is integrated onto the host PCB. HMS offers a CompactFlash connector specifically tailored for the CompactCom module.

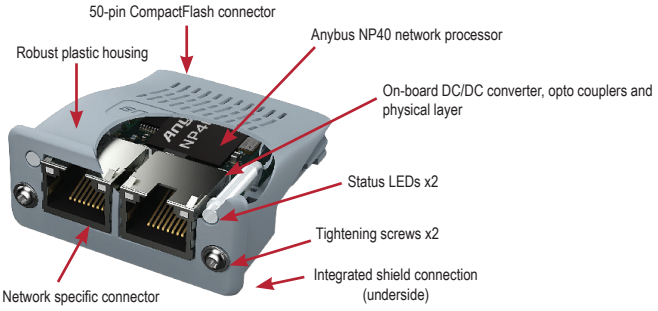
Best-in-class processor

The M40 is equipped with the best network processor on the market according to independent analyst firm Frost & Sullivan.

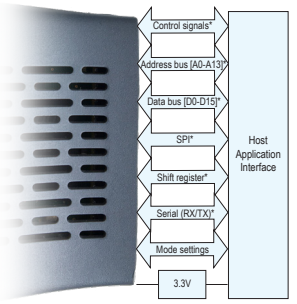
Technical specifications

Technical Details	
Dimensions (L • W • H)	52•50•22 mm, 2.04•1.97•0.86" 51•37•16 mm, 2.01•4.46•0.63" (modules without housing)
Protection class	IP20
RoHS Compliance	Yes
Galvanically isolated network interface	Yes
Application interfaces	- 8/16-bit parallel (30 ns access) - High speed SPI, baudrate configurable up to 20 MHz - I/O (shift register interface, cyclical update time 82 µs) - UART (for backwards compatibility with 30-series, max 625kbps)
Profile support	I/O
Ethernet features	- Integrated EtherCAT Slave Controller - File Access over EtherCAT (FOE) - EtherNet over EtherCAT (EOE) - Transparent socket interface (40-series technology enables higher throughput) - Support of HTTP forwarding via socket interface - IT functions (FTP server, E-mail client, web server with SSI support or JSON functionality)
LED indicator	Integrated on front (with housing), via application interface (without housing) Indicates Module Status, Network Status
Certifications	
UL, cUL	Yes
Network conformance	Yes
CE - Declaration of Pre-Conformity	
Emission EN 61000-6-4	EN55016-2-3 Radiated emission EN55022 Conducted emission
Immunity EN 61000-6-2	EN61000-4-2 Electrostatic discharge, EN61000-4-3 Radiated immunity. EN61000-4-4 Fast transients/burst, EN61000-4-5 Surge immunity. EN61000-4-6 Conducted immunity.
Electrical Characteristics	
Power requirements	3.3 VDC, +/- 0.15 VDC

EtherCAT-specific technical highlights
Supports process data remapping from the network
Process Data Objects (PDOs) for I/O exchange and Service Data Object (SDO) for explicit messaging
Supports 4 Sync Manager channels
Supports 4 FMMU channels
Output I/O sync manager watchdog implemented
Cycle times down to 100µs. Jitter on sync pulse max. 1µs
Support for 57343 ADIs
Process data sizes up to 1486 bytes
File Access over EtherCAT (FoE)
Supports the following synchronization modes: • Free run • Synchronous with Sync0 event (distributed clocks)
Supports DS301 communication profile
Transparent data pass-through enables drive profile implementation.
Modular Device Profile support
Possible to implement Semi conductor devices and other device profiles
Black channel supported (transparent channel for Fail safe over EtherCAT)



Block diagram



Anybus slot and 50-pin CompactFlash connector on the PCB of the host device

Module mounting

The CompactCom module slides into a pre-designated slot in the host automation device PCB. The module is secured with an innovative mechanism by tightening the two screws located on the front cover of the CompactCom module.
HMS offers a customized CompactFlash connector for Anybus CompactCom. The module insertion can be made at any stage in the logistical chain between the automation device manufacturer and the end customer. CompactCom slot cover available on request from HMS.

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