Anybus®
BY HMS NETWORKS

CompactCom™ 40 — Transparent Ethernet

Anybus CompactCom 40 products are available in a special version that includes a Transparent Ethernet interface. This means that industrial Ethernet protocol data (for example PROFINET or EtherNet/IP) is processed as usual by the CompactCom while all other Ethernet data passes straight through the module transparently — speeding up the network communication while allowing you to develop your own IT-functions.

INDUSTRIAL ETHERNET PROTOCOL DATA

OTHER ETHERNET DATA

Networks:

PROFINET

EtherCAT.

EtherNet/IP

Modbus TCP

Article numbers:

Module with housing
M40 PROFINET IRT	AB6635
M40 EtherNet/IP	AB6638
M40 EtherCAT	AB6639
M40 Modbus TCP	AB6637

Module without housing
M40 PROFINET IRT	AB6735
M40 EtherNet/IP	AB6738
M40 EtherCAT	AB6739
M40 Modbus TCP	AB6737

Brick
B40 PROFINET IRT	AB6775
B40 EtherNet/IP	AB6778
B40 EtherCAT	AB6779
B40 Modbus TCP	AB6777

Anybus CompactCom Transparent Ethernet — How it works

The CompactCom can recognize and separate incoming Ethernet data packets. The real-time industrial Ethernet protocol data is processed by the CompactCom as usual, while other Ethernet traffic (such as http and ftp packets) is forwarded transparently to the host application processor.

The "other Ethernet traffic" is forwarded via the Transparent Ethernet interface (also called RMII — Reduced Media Independent Interface), of the Anybus CompactCom.

Consequently, users with high-end processors and software, such as Linux with built in TCP/IP stack and IT services, get a transparent Ethernet channel through the CompactCom module. The Anybus CompactCom takes care of the complex industrial real-time protocols, leaving the rest to the host.

Features and benefits

• Enables full control over IT functionality and IT protocols.

• Available as complete, interchangeable communication module with connectors. Or as more flexible Bricks or Chips where you add your own hardware/connectors.

• Pre-certified for network compliance (enables faster network certification).

• Fast data transfer:
  - Up to 1500 bytes of process data in each direction.
  - Up to 1500 bytes of explicit messaging.

• Very low latency.

• Event-based interface method enables easy access to input and output data at any time.

• Fast, event-based application hardware interfaces: 8-bit parallel and high speed SPI.

• Fast throughput of http, ftp and other non-real-time Ethernet data.

• Dual port switch implemented in the network processor — the Anybus NP40.

• Solid security: Mandatory software signatures prevent unauthorized software to be downloaded to the module. Furthermore, encryption is used to prevent illicit copying.

Why Transparent Ethernet?

The transparent Ethernet interface gives you complete freedom to develop your own IT functionality.

What you can do:
• Web server
• FTP
• Email
• MQTT
• Functionality built on proprietary protocols such as custom configuration tool

This means that there is no need for additional Ethernet ports in your product since all communication goes through the Anybus CompactCom.
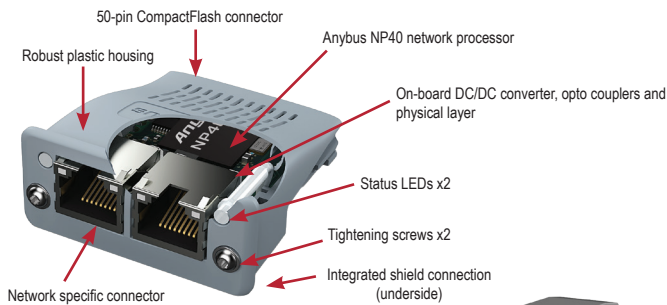
CompactCom 40-series

The Anybus CompactCom 40-series is a range of communication products in chip, brick and module formats. The 40-series is especially suitable for modern and demanding industrial applications.

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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-bit parallel (30 ns access) - High speed SPI, baudrate configurable up to 20 MHz - UART (for backwards compatibility with 30-series, max 625kbps)
Profile support	Generic device
LED indicator	Integrated on front (only module with housing). Indicates Module Status and 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

Environmental Characteristics

Operating temp	-40 to 70 ℃, -40-158 ℉ -40 to 85 ℃, -40-176 ℉ (modules without housing)
Humidity	5-95 % non-condensing

Host application system

- 50-pin CompactFlash connector
- Robust plastic housing
- Anybus NP40 network processor
- On-board DC/DC converter, opto couplers and physical layer
- Status LEDs x2
- Tightening screws x2
- Integrated shield connection (underside)
- Network specific connector

Cyclic and acyclic Data / Industrial Ethernet protocol

Other ethernet traffic, HTTP, FTP,...

Under the hood

This block diagram shows how the communication is handled inside the Anybus CompactCom. Inside, there is a "traffic separator" which is able to detect and separate industrial Ethernet protocol data from other Ethernet data. The real-time data is processed by the CompactCom while other Ethernet data is routed via the Reduced Media Independent Interface (RMII) interface for transparent distribution to the application.

The Transparent Ethernet RMII interface emulates a PHY operating at 100Mbit/s full duplex. It is connected directly to an Ethernet MAC in the host application processor.
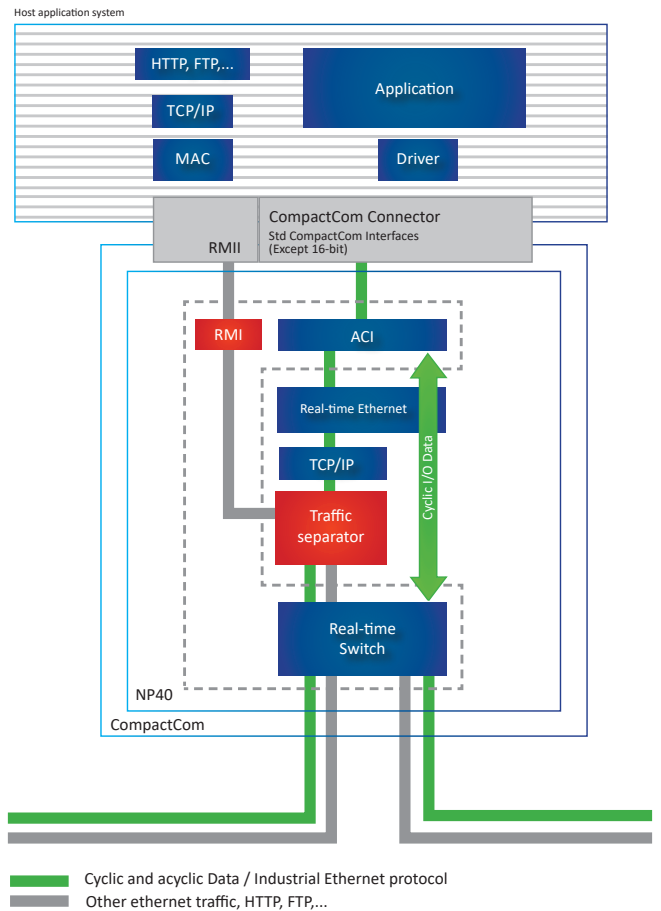
Module mounting

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.

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

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