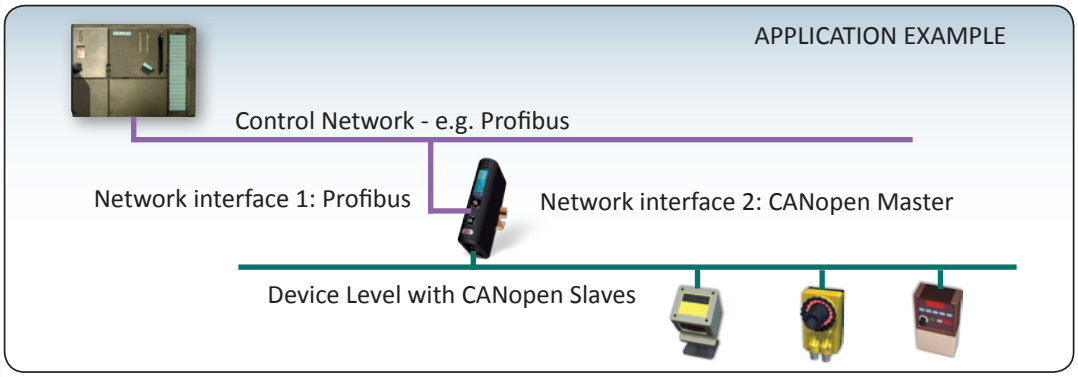
# X-gateway™ CANopen®

With the Anybus X-gateway CANopen, HMS makes it possible to integrate CANopen devices into almost any other PLC system and their supported networks. The X-gateway CANopen gateway series provides CANopen master/slave connectivity to all popular fieldbus and industrial Ethernet networks such as Profibus, DeviceNet, Modbus-RTU, ControlNet, Profinet, EtherNet/IP, EtherCAT and Modbus-TCP.


## Target Industries

Suitable industries for the Anybus X-gateway CANopen include machine building, transportation, infrastructure, medical, all types of energy distribution and control applications including renewable energies.




## Availability

Each version of the Anybus X-gateway CANopen is equipped with a CANopen master/slave interface.
The second network interface can be selected from the list below:

| PartNo: | Network: |
|---|---|
| AB7300 | EtherCAT |
| AB7301 | Profibus DPV1 |
| AB7302 | DeviceNet |
| AB7303 | ControlNet |
| AB7304 | CANopen |
| AB7305 | Modbus RTU |
| AB7306 | EtherNet/IP |
| AB7307 | Profinet-IO |
| AB7308 | Modbus-TCP |
| AB7309 | Profinet-IRT |
| 021370-B | CANopen-USB dongle |

3 YEAR GUARANTEE

HMS provides a full 3 year product guarantee from date of shipment.

Anybus X-gateways with CANopen act as intelligent links between two industrial networks. On the CANopen side, they can function as both a master (manager) or slave (server), while they work as slaves on the fieldbus/Ethernet side. The implementation is based on HMS NP30 network microprocessor and is certified by CAN in Automation (CIA) for full conformance to the CANopen DS 301 v4.0.2 standard.

## Features and benefits

- Connects CANopen slave devices to fieldbus and Industrial Ethernet networks
- Provides CANopen master or slave functionality on one side, and fieldbus/Ethernet slave functionality on the other side
- Allows transparent transfer of I/O data between CANopen and another network
- CANopen master functionality allows connection of up to 126 CANopen slave devices
- CANopen configuration using any standard CANopen configuration tool
- A CANopen configuration tool included with the gateway, no programming or scripting required
- Dual port Ethernet with switch functionality (EtherNet/IP, Modbus-TCP and Profinet-IRT)
- The fieldbus or Ethernet slave interface is configured with a standard device description file (GSD/EDS)

## CANopen configuration

Any standard CANopen configuration tool can be used to configure the CANopen interface.

The uplink fieldbus or Ethernet slave interface is configured with a standard device description file (GSD/EDS) and the standard engineering tool of the PLC. No programming is required.

HMS supplies the “CANopen Configuration Manager” which is included in the price of the gateway and can be downloaded from www.anybus.com.

## Accessories

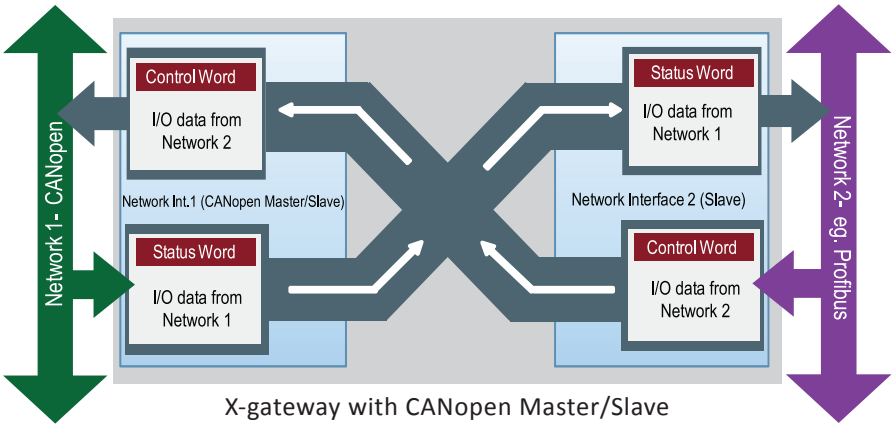
A CANopen-to-USB dongle including CD software and documentation can be ordered separately if required.

## Functionality overview

Anybus X-gateway CANopen supports a maximum data size of 512 byte input and 512 byte output, including four reserved bytes for Control and Status words. The Control word is used to control the gateway and the CANopen network and the Status word is used to see the gateway status. The gateway supports baud rates from 20 kbit/sec up to 1000 kbit/sec as well as auto baud rate detection. Rotary switches on the gateway can be used to set baud rate and node address.

## CANopen supported features

- CANopen Master and Slave mode
- NMT (Network Management) messages configure and initialize the network.
- CMT (Configuration Manager) messages are used for configuration of CANopen devices.
- PDOs (Process Data Objects) are used for I/O communication. 128 Receive PDOs and 128 transmit PDOs are implemented. Each can transfer up to 8 bytes.
- SDOs (Service Data Objects) are used to access objects without mapping them to an I/O (PDO) connection.
- SYNC (Synchronization Object) is used for synchronizing PDO communication.
- Heartbeat Mechanism to monitor the status of another node.
- Node Guarding/Life Guarding protocol makes it possible to guard slaves or masters.
- An EMCY (Emergency Object) is used for error reporting when a fault has occurred in the driver or the communication adapter.
- LSS (Layer Setting Services). In master mode, LSS can configure the baud rate and node ID of all slaves that support LSS.



X-gateway with CANopen Master/Slave

| TECHNICAL SPECIFICATIONS | |
|---|---|
| Width | 120 x 75 x 27 mm |
| Weight | 150 g |
| Module Voltage | 24 VDC + 10% |
| Current Consumption | Max 150 mA @ 24 V |
| Operating Temp | -25 to +55 °C (ControlNet version AB7303 +0 to +55 °C ) |
| Mounting | DIN-rail |
| Protection Class | IP20 |
| Certification | CE, RoHS, ATEX, HazLoc, UL & cUL (E203225) |
| Conformance | Tested and verified for full network conformance |

## Data Exchange

Each of the two network interfaces exchanges data on its network through internal I/O buffers. The gateway forwards the data between these buffers as shown above.

On the CANopen master interface, the dedicated control word is used to start/stop the exchange of data, or to reset the gateway if needed. The master on the other network (e.g. Profibus) can see the status of the CANopen network in the corresponding status word.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