

# Anybus ONE-S100 – System-on-Module for Industrial Networking

## KEY FEATURES:

- 26 × 26 mm compact System-on-Module with integrated PHY and flash memory
- Dual-core ARM<sup>®</sup> architecture with Cortex<sup>®</sup> M7 up to 800 MHz for user applications
- Hardware-agnostic software architecture for unmatched resilience
- Multi-protocol supporting PROFINET, EtherNet/IP and EtherCAT, with SPI and Modbus RTU host interface
- Built-in security engine with secure boot, encryption, and signed firmware updates
- Designed for IEC 62443-4-2 and EU Cyber Resilience Act (CRA) compliance (2027)
- Unified footprint for scalability across product variants
- Operating temperature –40°C to +85°C



## PRODUCT DESCRIPTION:

The Anybus ONE-S100 is a compact, all-in-one System-on-Module designed to provide reliable industrial Ethernet connectivity for automation devices. Measuring 26 × 26 mm, it includes all essential hardware and firmware needed to connect to major industrial networks, simplifying integration and reducing development time.

The Anybus ONE-S100 features a dual-core ARM<sup>®</sup> architecture with a power-efficient core dedicated to industrial protocol handling via the Anybus Data & Service Manager, and a high-performance ARM<sup>®</sup> Cortex<sup>®</sup> M7 core running up to 800 MHz for user applications. This combination offers robust system partitioning, from running lightweight host control tasks to advanced application logic, within a single SoM. Integrated Ethernet PHY, memory, and switch functionality minimize the need for external components, enabling a clean, space-efficient design.

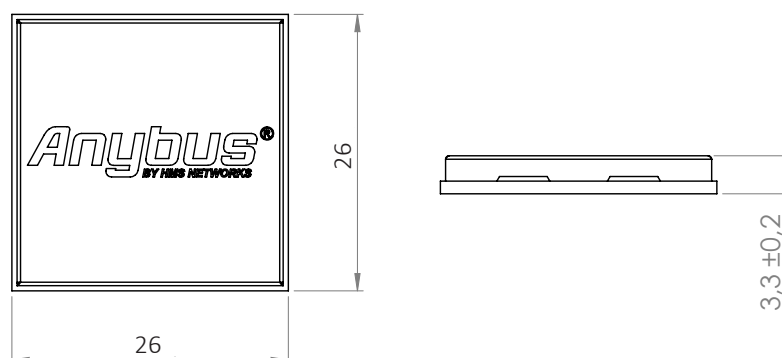
The Anybus ONE-S100 supports PROFINET device, EtherNet/IP adapter, and EtherCAT SubDevice out of the box, with no license fees. On the host side, the module connects via SPI or a Modbus RTU interface, mapping host data to the active industrial protocol. A unified firmware architecture lets you select the active protocol per application and simplifies future upgrades. Configuration and customization are handled through the Anybus Studio, offering a graphical interface for set-up, diagnostics, and firmware management.

Security has been built in from the start. Developed under an IEC 62443-4-1 certified process, the Anybus ONE-S100 is to be certified to IEC 62443-4-2 SL1 requirements and the EU Cyber Resilience Act, with compliance targeted for 2027. The integrated security engine provides cryptographic secure boot, encrypted communication capabilities, and signed firmware updates, ensuring data integrity and protection throughout the product lifecycle.

With a single footprint across performance levels, the Anybus ONE-S100 supports a scale-as-you-go approach, from basic industrial connectivity to advanced designs integrating Edge, Machine Learning, or AI functionality in upcoming SoM variants. The result is a flexible, long-lifetime communication solution.

The Anybus ONE-S100 is the first product built on the new Anybus Technology Platform, a scalable architecture that decouples hardware and software, ensuring future-proof and simplified lifecycle management through software-defined updates.

## DIMENSIONS



## SYSTEM &amp; PROCESSING

| Attribute               | Specification                                   |
|-------------------------|-------------------------------------------------|
| Product name            | Anybus ONE-S100                                 |
| Form factor             | System on Module (SoM) / Land Grid Array (LGA)  |
| Core architecture       | Anybus Core + User Core (ARM® Cortex®-M7)       |
| Core allocation         | Anybus Core; M7 = User Core (available in 2027) |
| Clock frequency         | ARM® Cortex®-M7 at 800 MHz                      |
| Internal RAM            | Up to 512 kB                                    |
| Additional memory       | Up to 32 MB HyperRAM                            |
| Flash                   | Up to 16 MB SPI                                 |
| Boot source             | NOR flash                                       |
| Real-time clock         | Yes                                             |
| Inter-core coordination | Internal MMIO / IPC                             |
| Hardware accelerators   | Crypto, EtherCAT                                |
| Supply voltage          | 3.3 V                                           |

## NETWORKING &amp; PROTOCOLS

| Attribute            | Specification                                                                            |
|----------------------|------------------------------------------------------------------------------------------|
| Supported protocols  | PROFINET, EtherNet/IP, EtherCAT (Compliant with ODVA, PI and ETG)                        |
| Concurrent operation | One active protocol; multi-firmware                                                      |
| Protocol selection   | Configurable on site, selected by the application                                        |
| Host interface       | Cyclic I/O process data via SPI, acyclic data and commands via UART, parameters via GPIO |
| Ethernet ports       | 2                                                                                        |
| Link speeds          | 100 Mbit (PROFINET); 10/100 Mbit (EtherNet/IP)                                           |
| Integrated switch    | Managed                                                                                  |
| Topology discovery   | LLDP (IEEE 802.1AB)                                                                      |
| Time synchronization | PTP / IEEE 1588                                                                          |
| QoS                  | Yes                                                                                      |
| MAC handling         | Preset MAC + customer-configurable MAC                                                   |

## SECURITY

| Attribute              | Specification                                      |
|------------------------|----------------------------------------------------|
| Secure boot            | Secure boot of application firmware                |
| Key storage            | Secure storage via encryption + ELE secure enclave |
| Secure provisioning    | Yes                                                |
| Device identity        | Yes (unique)                                       |
| Certificate handling   | X.509                                              |
| TLS stack              | Mbed TLS                                           |
| Firmware update        | WebDAV                                             |
| SBOM                   | Yes                                                |
| Vulnerability handling | Yes (PSIRT process)                                |

## PERFORMANCE

| Attribute      | Specification                                        |
|----------------|------------------------------------------------------|
| Min cycle time | 1 ms (EtherNet/IP, PROFINET); 250 µs–1 ms (EtherCAT) |

## DEVICE MANAGEMENT

| Attribute     | Specification |
|---------------|---------------|
| Factory reset | Yes           |

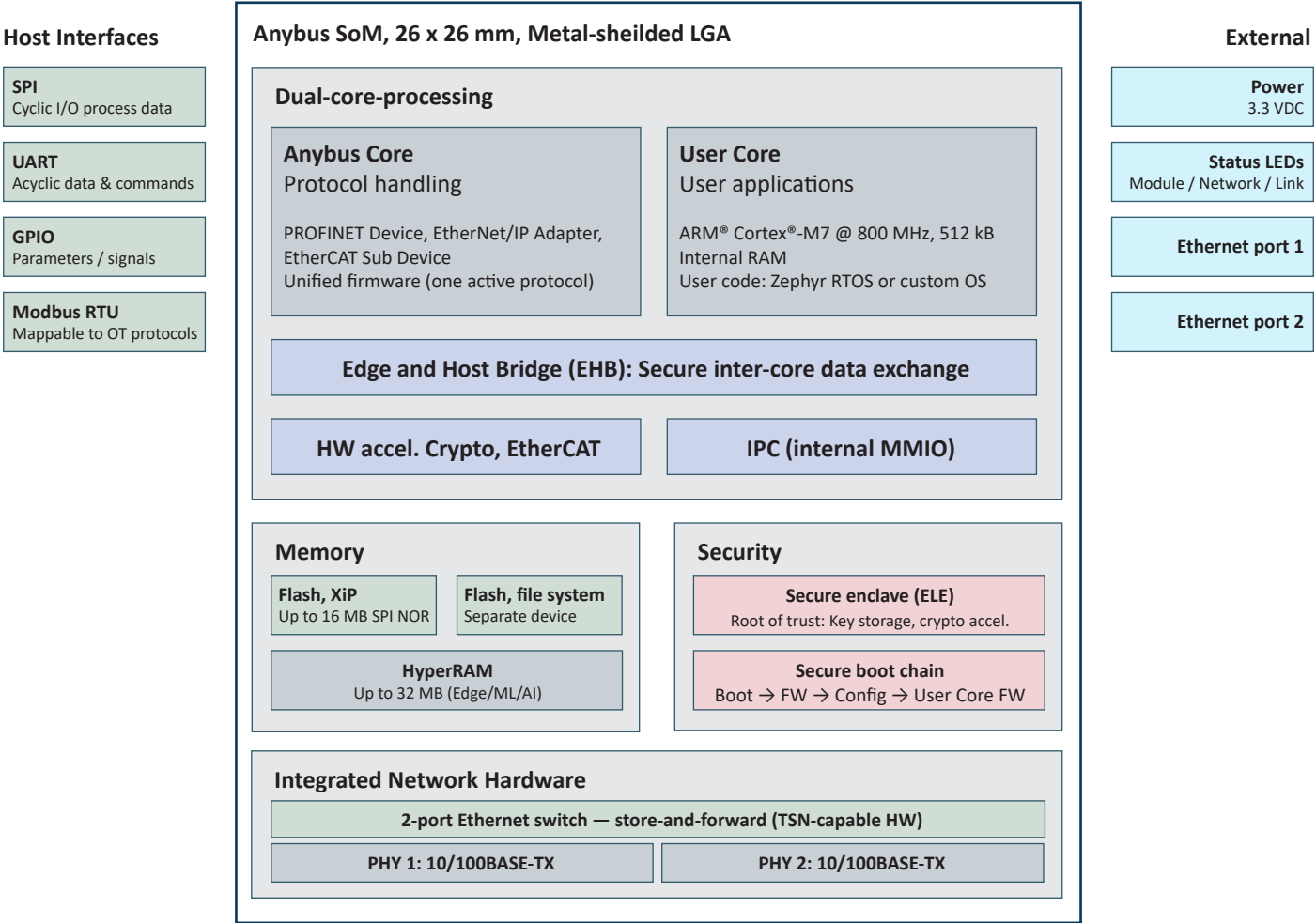
## ENVIRONMENTAL &amp; COMPLIANCE

| Attribute                     | Specification                                                                                                                                                                                                                                                                                                         |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating temperature         | –40 °C to +85 °C                                                                                                                                                                                                                                                                                                      |
| Storage temperature           | –40 °C to +85 °C                                                                                                                                                                                                                                                                                                      |
| RoHS                          | Compliant                                                                                                                                                                                                                                                                                                             |
| EMC                           | Emission — EN 61000-6-4<br>EN 55016-2-3 — Radiated emission<br>EN 55032 — Conducted emission<br>Immunity — EN 61000-6-2<br>EN 61000-4-2 — Electrostatic discharge<br>EN 61000-4-3 — Radiated immunity<br>EN 61000-4-4 — Fast transients / burst<br>EN 61000-4-5 — Surge immunity<br>EN 61000-4-6 — Conducted immunity |
| Country of origin             | Available on request                                                                                                                                                                                                                                                                                                  |
| IEC 62443-4-2 SL1             | 2027                                                                                                                                                                                                                                                                                                                  |
| EU Cyber Resilience Act (CRA) | 2027                                                                                                                                                                                                                                                                                                                  |

## LIFECYCLE &amp; LOGISTICS

| Attribute         | Specification |
|-------------------|---------------|
| Longevity program | 10+ years     |
| Delivery format   | Tape & Reel   |

HARDWARE BLOCK DIAGRAM



# The Anybus concept: Scalable, efficient and future-proof

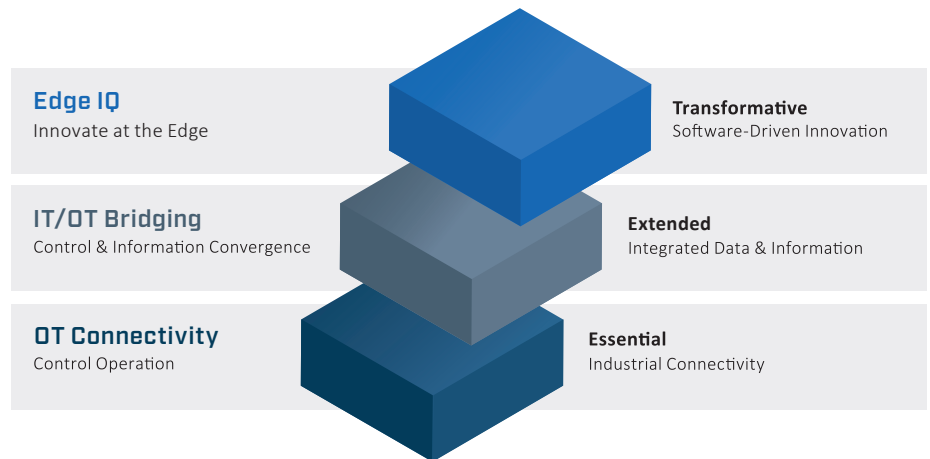
The Anybus ONE-S100 is the first product built on the new Anybus Technology Platform, Anybus ONE, an architecture created to change how connectivity is designed into industrial devices. Instead of selecting a new communication solution for every product and every protocol, device makers can build on one platform that scales with their portfolio and evolves with the standards around it. The result is faster time to market, lower lifetime cost, and products that stay current long after they ship.

## ONE DESIGN, A FULL PORTFOLIO

Anybus ONE is offered in functionality levels that share a single footprint and a common core architecture, from essential industrial connectivity, through IT/OT data convergence, to innovation at the edge. A device maker can start with what a product needs today and move up the range without redesigning hardware. One integration effort serves an entire family of devices, from the simplest connectivity node to the most capable, which means engineering investment is made once and reused across the portfolio.

## EFFICIENT DEVELOPMENT WITH ANYBUS STUDIO

Every variant is configured and maintained through Anybus Studio, a single graphical tool for network protocols, security functions, and application services. The same environment carries a project from



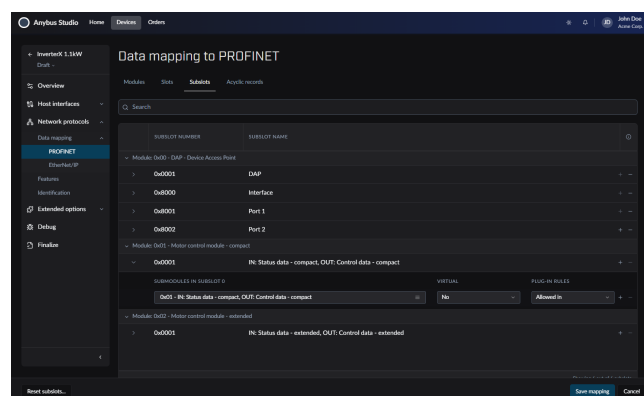
*One architecture with scalable functionality levels, designed to support a full range of communication needs across a complete device portfolio.*

first prototype through to firmware maintenance in the field, so teams learn one tool and reuse it across every product they build on the platform. Development effort goes into the application that differentiates the product, not into the plumbing underneath it.

## FUTURE-PROOF BY DESIGN

The platform's software-defined architecture decouples hardware from firmware, so capabilities can be add-

ed over the life of a product through software rather than silicon. New industrial standards and tightening security requirements can be met by updating the firmware on hardware already in the field. The platform is built to adopt technologies such as TSN, OPC UA, MQTT, and Edge AI as they mature meaning a device designed today is positioned to stay relevant in the connected, secure, and intelligent factories of tomorrow.



*Anybus Studio - A unified configuration tool that streamlines customization, testing, and maintenance.*