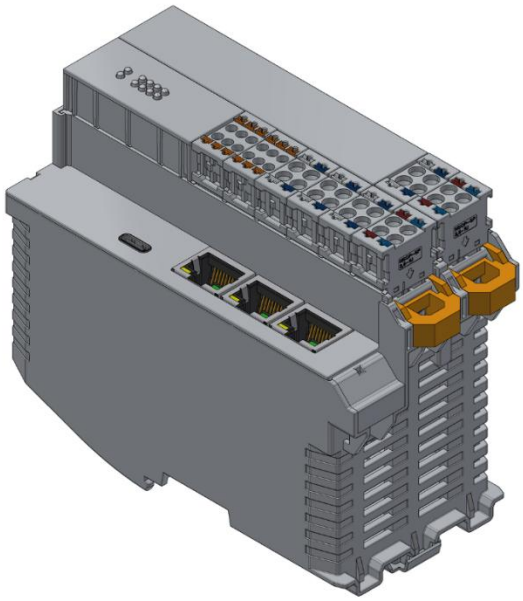
B:Core CPU
Central processing unit for the B:Core system



B:Core CPU
(preliminary view)

Non-binding Draft

- ***B:Core Central Processing Unit for data acquisition and control***
- ***A freely scalable system offers high flexibility and can be combined with specially developed B:Core IO modules***
- ***Various versions supporting common fieldbuses such as Ethernet, CAN bus FD, and serial (RS482, RS422, RS232)***
- ***Compact module units with a 0.75" grid, for installation on a DIN mounting rail***

The B:Core module series, newly developed by Böning, is designed for building universal data processing stations that, as part of a B:MACS application (Monitoring, Alarm, and Control System), can capture, process, and evaluate all signals, sensors, and actuators on a ship. A key feature of the B:Core concept is its outstanding flexibility and scalability.

B:Core CPU – Function and Variants

The B:Core CPU functions as a central data processing unit and can be operated with up to 32 I/O modules, depending on project requirements. In combination with the B:Core ME module expansion, up to 64 I/O modules are even possible.

The B:Core CPU module is available in several variants and sizes. The standard configuration already includes a number of fieldbuses that are commonly used on ships. In addition to the 3-port Ethernet interface (1 Gb/RJ45), models with 3-port or 6-port CAN bus (including the FD option for flexible data rates), combined with a 2-port serial port, are available. The CAN buses can be used to integrate CAN-based Böning products from the AHD series or to implement external fieldbus protocols (e.g., DeviceNet, NMEA2000). Serial protocols (e.g., NME0183, Modbus RTU) are also available.

Three independent Ethernet interfaces are available for communication with other B:Core CPUs or Böning products from the AHD series, as well as for integrating external systems. A ring topology can be used as the bus structure, which maintains communication even in the event of a line break. This enables the easy integration of redundant structures into control systems and significantly increases operational reliability.

For operation with B:Core I/O modules, a B:Core CPU variant with an internal module interface is used. This allows for the direct connection of up to 32 modules without additional wiring via modular connectors. LEDs integrated on the front panel indicate current operating states in different colors. System configuration is performed using user-friendly Böning tools that were custom-developed for this purpose.

B:Core CPU – Overview

Ordering code	Ports	Module Width	Part-No.
B:Core CPU E3C3S2 G1	3x Ethernet, 3x CAN FD, 2x Serial	37,8mm (1,5“)	25718
B:Core CPU E3C3S2M G1	3x Ethernet, 3x CAN FD, 2x Serial, Module Interface	56,7mm (2,25“)	25721
B:Core CPU E3C6S2M G1	3x Ethernet, 6x CAN FD, 2x Serial, Module Interface	75,6mm (3“)	25722

B:Core I/O Modules – Overview

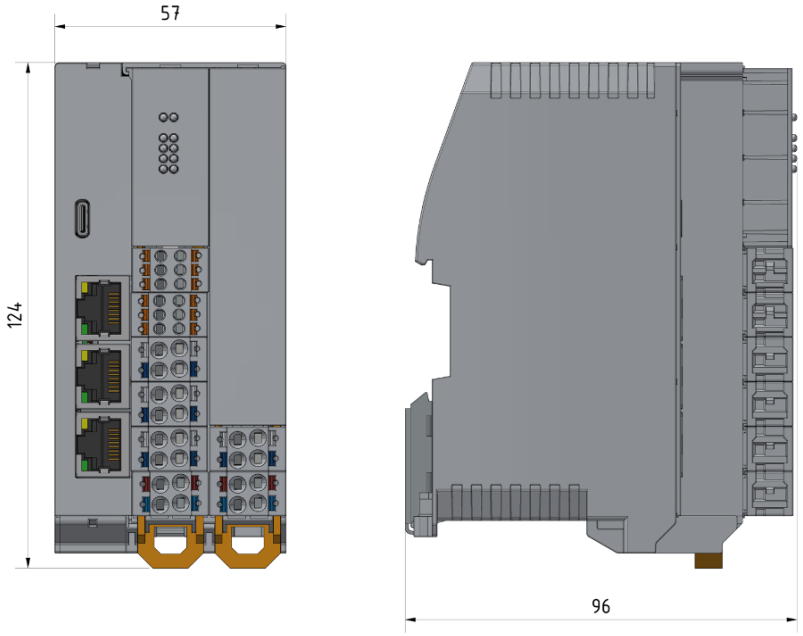
Please inquire about availability and lead time (additional modules in planning)

Ordering code	Function	Module width	Part-No.
B:Core AI10 C20V10 G1	10 analog inputs, 4-20mA or 0-10V	18,9mm (0,75“)	25045
B:Core DI20 P G1	20 digital inputs (positive-switching)	18,9mm (0,75“)	25046
B:Core RO10 CO2 G1	10 relay outputs (change-over contact 2A)	18,9mm (0,75“)	25248
B:Core TO10 P3 G1	10 transistor outputs (positive-switching 3A)	18,9mm (0,75“)	25250
B:Core MB S2 G1	Modbus Interface 2 x RS 485 (isolated)	18,9mm (0,75“)	25981
B:Core ME G1	Module expansion for connecting up to 32 additional I/O modules to a shared CPU	18,9mm (0,75“)	25249

The B:Core CPU module and the associated I/O modules are supplied in compact units designed for control cabinet mounting on a DIN rail.

Non-binding Draft

B:Core CPU Dimension



B:Core CPU E3C3S2M G1 (preliminary view)

Technical Specifications

Dimensions W x H x L 2 units (1.5") 3 units (2.25") 4 units (3")	Depending on the variant: 37.8 x 124.3 x 95.9 mm 56.7 x 124.3 x 95.9 mm 75.6 x 124.3 x 95.9 mm
Operating temperature	-30 °C … +70 °C
Storage temperature	-40 °C … +85 °C
Weight:	depending on model (to be determined)
Protection class	IP20
Power supply	9 … 32 V DC
Power consumption	depending on model (to be determined)
CPU	Quad-core
RAM	4 GB
HDD	16 GB eMMC
Interfaces	Basic: ▪ 3 x Ethernet (1Gb), RJ45 (B:Core Bus System, Böning devices and externel systems) ▪ 1 x micro-SD card slot (for Service, data download and upload) ▪ 1 x USB-C port (for Service, connecting storage devices or attaching an external PC)
Interfaces	Depending on the variant: ▪ 3x or 6x CAN FD, galvanically isolated (connection to Böning Devices or other protocols) ▪ 2x RS485/422/232 (Modbus or other protocols) ▪ Module interface for connecting B:Core IO modules (max. 32 modules with a 24V power supply or 16 modules with a 12V power supply)
Installation	TS32/35 mounting rail
Approvals	In preparation
Part Number	
25718	B:Core CPU E3C3S2 G1 3x Ethernet, 3x CAN FD, 2x Serial
25721	B:Core CPU E3C3S2M G1 3x Ethernet, 3x CAN FD, 2x Serial, Module Interface
25722	B:Core CPU E3C6S2M G1

Preliminary