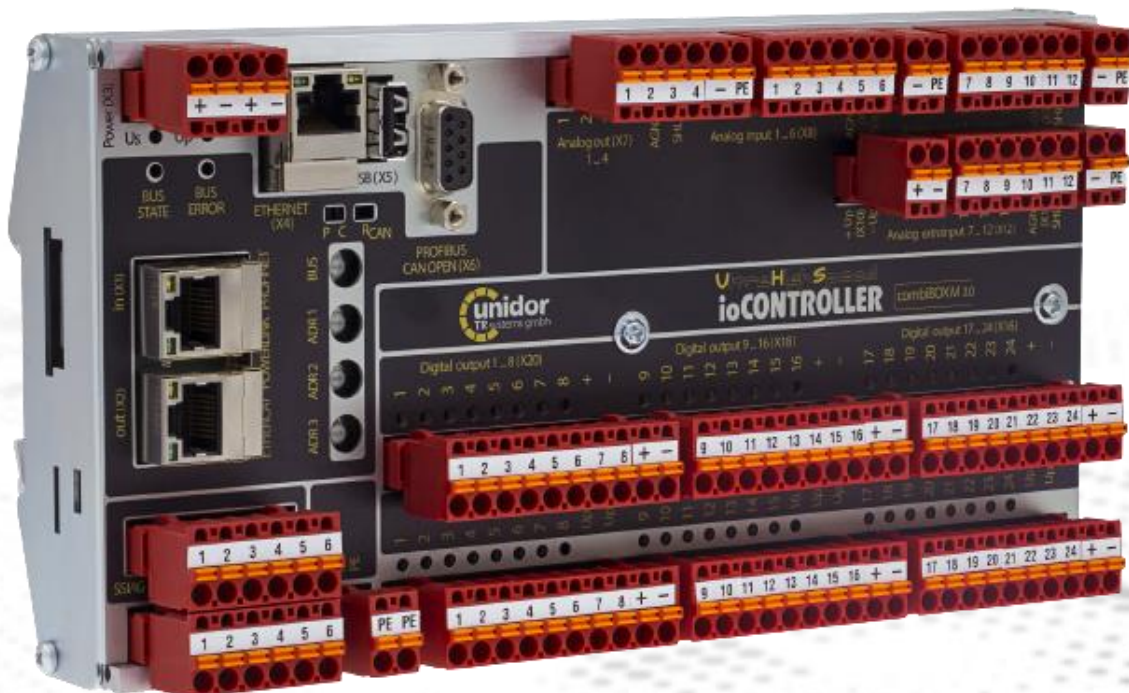


data sheet cBOX M

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The all-rounder combiBOX M is basically designed for three applications:

1. cBOX M as a passive BUS-Terminal

The cBOX M is a platform for high-speed automation-Systems. Based on an ultra-fast BUS cycle time of 50µs provides the fieldbus terminal with an EtherCAT-Slave-Interface analog and digital Inputs / Outputs.

On the contrary to a standard PLC - which operates at a cycle time of 1ms - realizes the cBOX M a BUS cycle time of 50µs, thus a 20 times faster and therefore a 20 times more precise evaluation of the process as conventional PLC systems.

Real time software solutions are realized e.g. with the Soft-PLC TwinCAT.

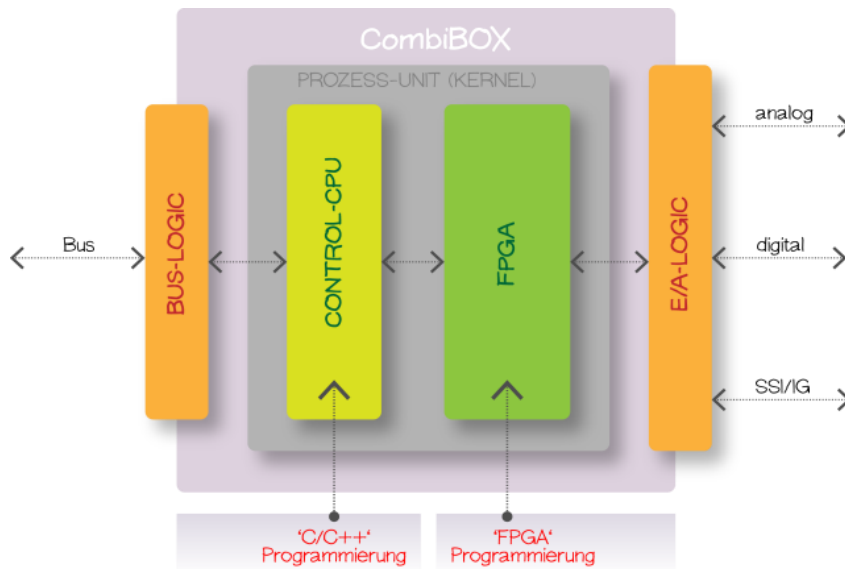
2. cBOX M as an active PLC-Sub-System

The cBOX M suits optimal as a high-speed PLC-Sub-system, to collect, evaluate, actuate and control stand-alone analog and digital process data and provides the process parameters additionally via an EtherCAT-Interface to a host system.

Due to the high-speed internal processing of the I/O-Signals via CPU <50µs and FPGA <1µs are cycle times realized which are only a fraction of the BUS cycle.

3. cBOX M as an Embedded System

The cBOX M is also as a stand-alone system for individual test- / control-applications available. Programming with C- programs for the ARM-Controller or with VHDL for the FPGA. Development Kits for individual applications are available.



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1.1 electrical characteristics

power supply voltage:

Us/Up:	24VDC \pm 10%
current consumption without load:	< 250mA at 24VDC (Us) 10..2000mA at 24VDC (Up) the current requirement increases by the amount of the connected signal transmitters and encoders.

analog inputs 1..12:

voltage range:	\pm 0..10V \pm 0..5V
power range:	0..20mA 4..20mA (analog inputs 7..12)
input current:	max. 0.5mA
resolution:	16 Bit (incl. signs)
D/A converting time	< 5 μ s
sampling rate:	200kSPS
input filter:	100kHz
measurement error:	< \pm 0.3% (related to the upper range value)
extended functions:	Min-, max-, differential-, average-measuring

analog output 1..4:

voltage range:	\pm 0..10V
max. current:	20mA per output total current max. 40mA
resolution:	16 Bit (incl. signs)
D/A converting time	< 2 μ s
output rate:	500kSPS
slew rate:	0.75V/ μ s (in between 20-80% full-scale)
output signal bandwidth:	0..15kHz recommended
output error:	< \pm 0.4% (related to the final issue value)

digital inputs 1..24:

max. input voltage:	30VDC
input current:	9.5mA typ.
„Log 0“	0..7V
„Log 1“:	12..30V
rise time:	< 0,3 μ s
fall time:	< 0,3 μ s
input filter:	0.6 μ s typ. (1.5MHz)
digital debouncing:	0..65535 μ s

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extended functions: programmable debouncing, edge counter and incremental encoder 24V
(digital inputs 23..24 / track A and B)

digital outputs 1..24:

output level: is specified by the supply voltage at "X16"/"X18"/"X20".
(min. 6VDC / max. 27VDC / nom. 24VDC)
max. current: 1200mA per output | 1x 2600mA per output driver
rise time: 37µs
fall time: 100µs
error diagnosis: short circuit and overload protection

SSI/G inputs 1..2:

power supply voltage: level of Up (X3.3, X3.4) max. 500mA per interface
max. clock frequency SSI Master: programmable 125 / 250 / 500 / 1000kHz
standard 500kHz
Max. clock frequency SSI Slave: 100kHz to <= 1MHz
signallevel: RS422/RS485 differential 5V
functions: master / slave / encoder / incremental encoder

EMC:

interference emission: DIN EN 61000-6-3: 2007
DIN EN 61000-6-2: 2006

Ethernet:

Physical Layer: 100 Base-TX, ethernet, ISO/IEC 8802-3
transfer rate: 100 MBit/s, full duplex
transfer: CAT-5e cable, shielded (STP), ISO/IEC 11801
standard: IEC 61784-1:2003 CPF 2/2 Type 2, IEC 61158:2003 Type 2

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1.2 mechanic

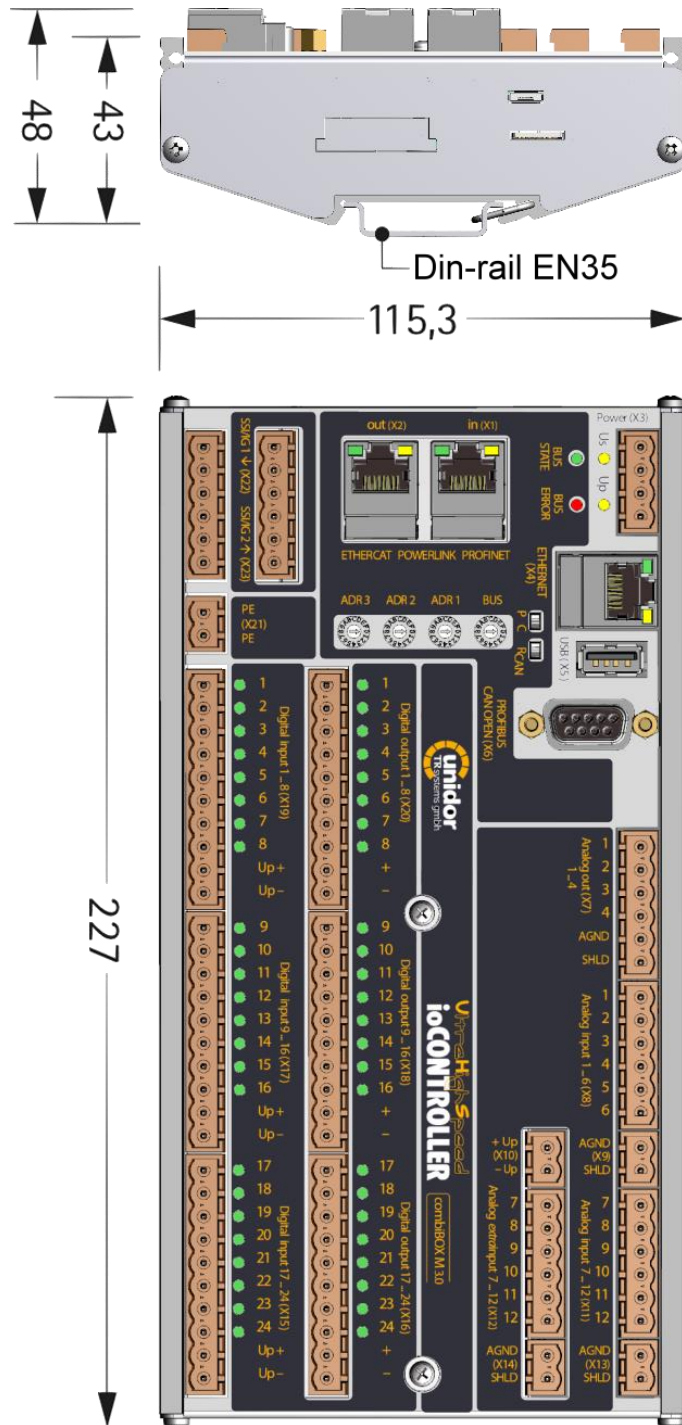
dimensions:	227 x 115 x 43mm (L x W x H)
.....	
installation:	Din-rail EN35
.....	
weight:	900g
.....	
protection class:	IP 20
.....	
vibration proofing X/Y/Z:	10G
.....	
tested according to IEC68 part 2-6	

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1.3 dimensions:



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