

Industrial Fieldbus Multiprotocol Communication Solutions on based of ERTEC200P (SIEMENS)



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Abbreviations

ESYSE	Embedded Systems Engineering
ISDK	Industrial Software Development Kit
E200P2	ERTEC200P Step-2 Controller
MC	Motion Control
MCE	Motion Control Encoder
MCD	Motion Control Drive



1 Introduction

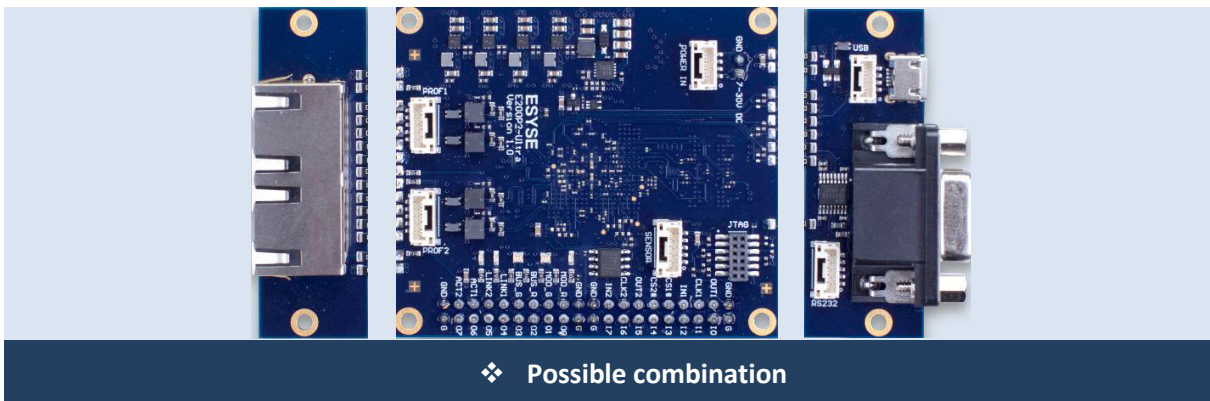
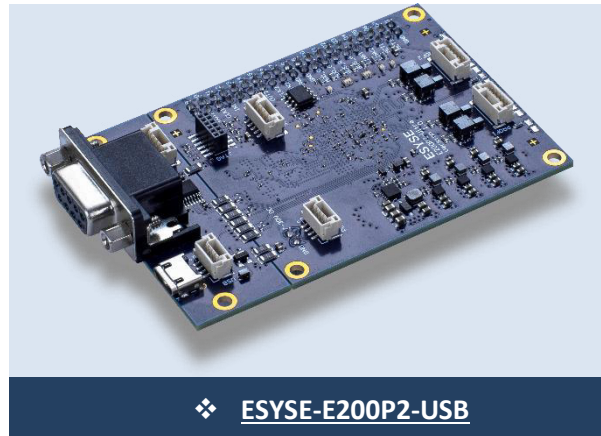
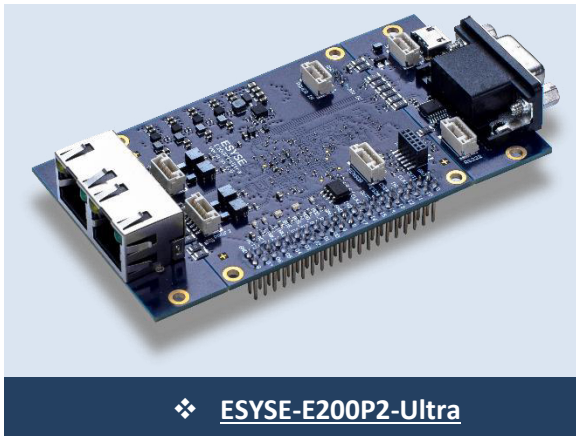
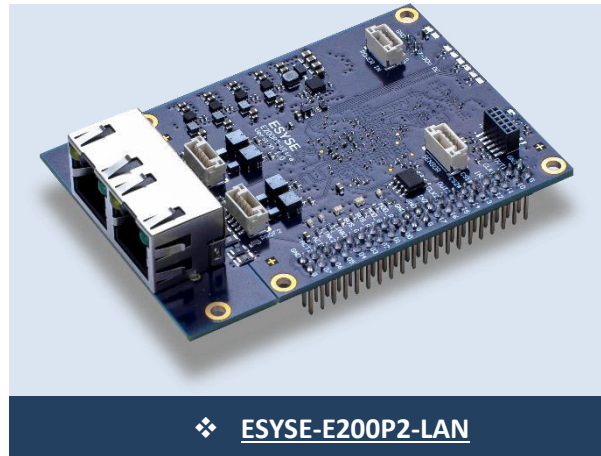
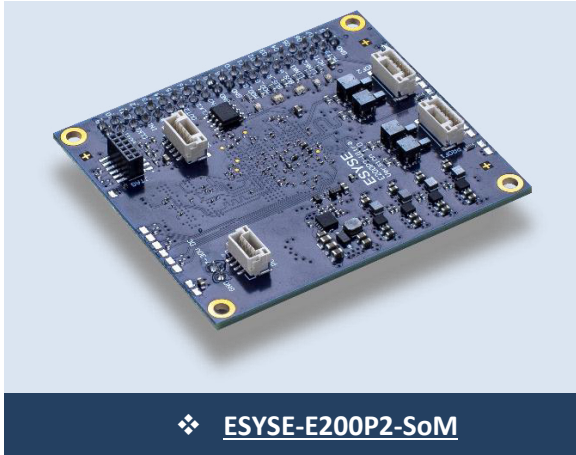
1.1 Short introduction about ESYSE:

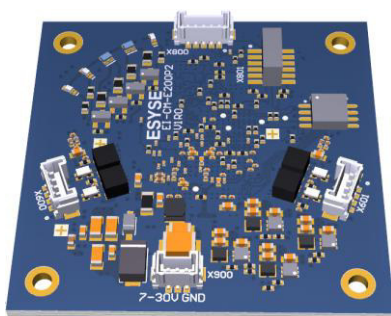
- Partner for embedded Hardware and Software engineering,
- plans, designs and develops products and solutions for the industrial and automotive market,
- tight internal workflow allows short delivery times and short time-to-market,
- Target markets are PLC, Drives, Encoders, Pumps, Valves, Servo Motors, IO-devices, ...
- upgrades existing but also develop new hardware and software,
- after many years of software business, expanded to own hardware products,
- typically act as a “time-limited group” in your development department while your own specialists remain disposable to promote your own projects,
- modular- Hardware and Software concept allows short development and delivery times,
- maintains strong partnerships with large, international companies,
- offers variable services aligned exactly with your requirements,
- own products benefit from 10 years practical experience,
- Many thousands of software powered devices are in use worldwide,
- service ranges from the very first project planning up to final device certification and production support; take from exactly what you actually need!
- is committed to the most common communication technologies such as PROFIBUS, PROFINET EtherNet/IP, EtherCAT,
- Many of products have been certified by ...
- helps you to save time and costs for upgrading your devices to meet latest market requirements,
- will develop your product exactly to the needs of its specific application; this will strengthen your market position.



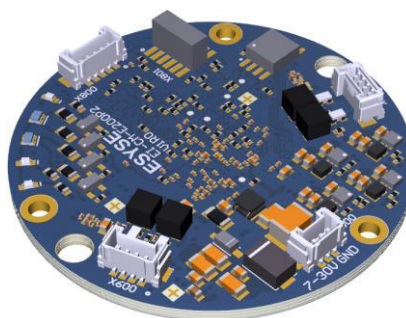
2 Product overview

This chapter includes an overview of ESYSE Industrial Fieldbus Multiprotocol Communication Solutions on based of ERTEC200P (SIEMENS). The detailed features of products will be followed in the next chapter.

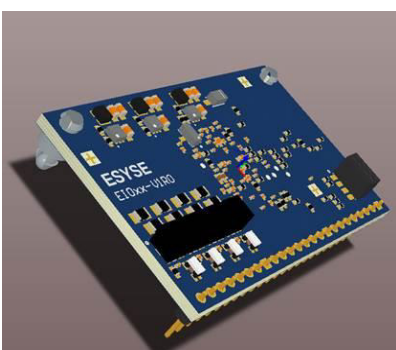




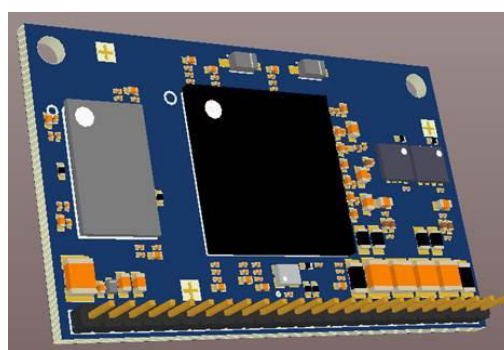
❖ ESYSE-E200P2-Universal



❖ ESYSE-E200P2-MCX



❖ ESYSE-E200P2-MINI



❖ ESYSE-E200P2-Gateway: PROFINET | EtherNet/IP | EtherCAT ↔ PROFIBUS



3 Embedded Solutions

3.1 Universal Modules

3.1.1 General Description

Following figure shows the general block diagram of Universal module:

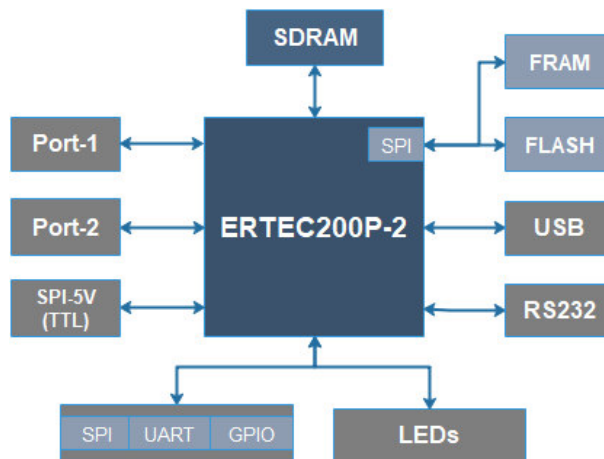
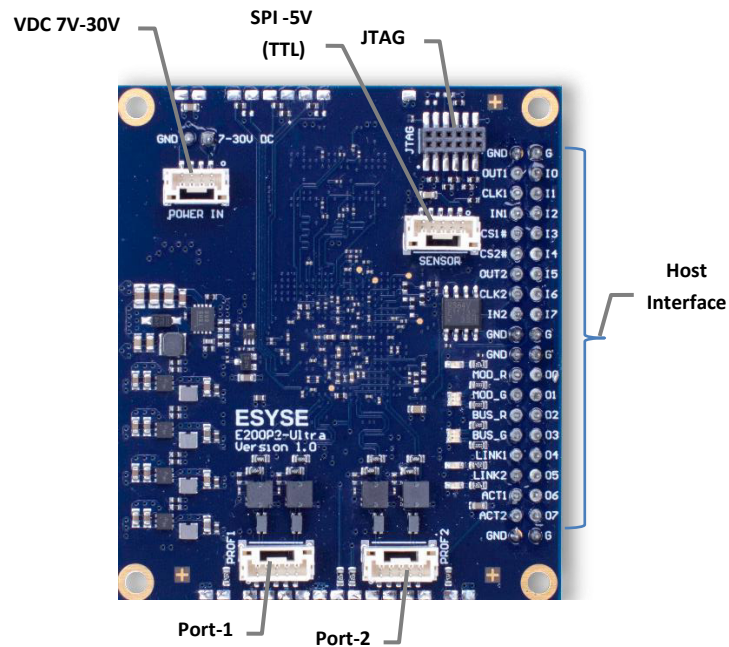


Figure 1: General Block diagram ESYSE-E200P2-XXXX





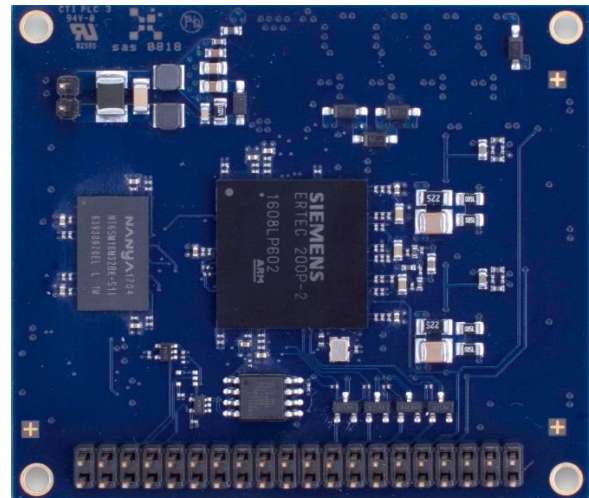
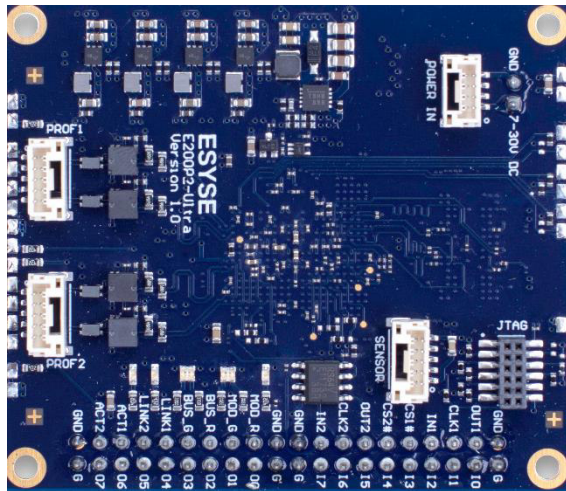
Following table shows the general description of ESYSE-E200P2-XXX communication modules:

General Description	
Temperature area:	-45° - 85°
Power-Supply:	7V- 30V DC Input,
Power consumption:	Wattage: min. 0.5VA, max. 3VA, Nominal: 1VA (with 1 millisecond network connection IO-cycle time)
SDRAM:	64 MB
ROM	8/16/32 MB
FRAM:	8/16 KB
Ethernet Connection:	- RJ45 Connector - M12, JST, Borad-to-Board / Wire-to-Board
Host Interface:	- SPI / UART (3.3 V) or - SPI-TTL (5 V)
Status LEDs:	Module and Net Bicolor, Link-LEDs (Port-1 and Port-2)
GPIO:	Additional configurable Digital Input/Output
Programming Interface:	JTAG-Interface for ARM Debugger
RS232	Serial D-SUB 9-Pin
USB:	Micro-USB Connector
Fieldbus Protocols:	PROFINET: - PROFINET Version 2.33, - Performance Class CCA,CCB and CCC (MRP, RT and IRT) - Media Redundancy: MRP, MRPD, - System Redundancy, - min. IO-Cycle Time: 125 microsecond, - Shared Device, - Fast-Startup, - Motion Control (Optional): - o PROFIdrive Version V4.2 Axis-Control: Speed and Positioning - o PROFIdrive Version V4.2 Encoder Device Profile.
	EtherNet/IP: - Dual Port integrated switch, - ACD (Address Collision Detection), - DLR (Device Level Ring), - Max. simoultaneously Implecit Messaging (IO-Connections): 5, - Max. Explicit Messageing: 15, - Min. IO-connection cycle time: 1ms, - CIP-Safety: as Black-Box communication module,
	- PROFIBUS: DPV0, DPV1 and DPV2 - EtherCAT, - MODBUS,
Additional standard protocols:	Webserver, OPC-UA, MQTT, IP-Telemetry
Applications: (Available by ESYSE)	- Drive: Servo Drive Motion Control Systems (Positioning and speed control) - Encoder: SSI, BiSS-B, BiSS-C, Endat,... - Pump, - Valve, - IO-Device, - Gateway, - General Communication module - User specific (Programmable via JTAG-Interface)

Table 1: General Description

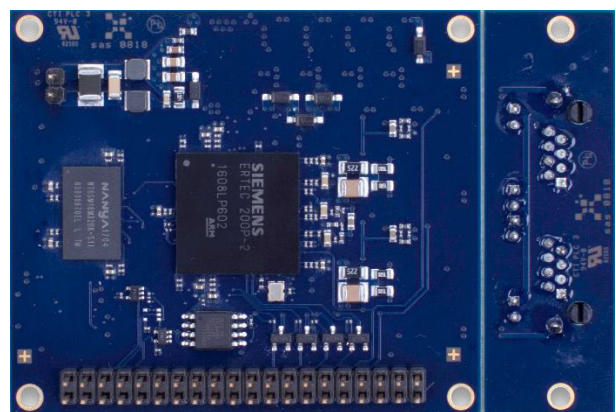
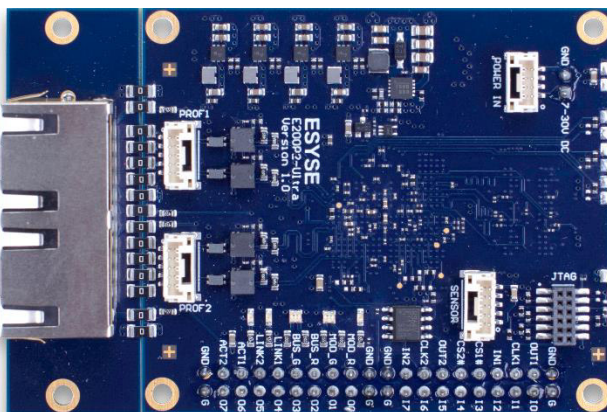


3.1.2 ESYSE-E200P2-SoM

**Table 2: ESYSE-E200P2-SoM**

Description	General Description	Refer to Section 3.1.1
	Order-ID:	ESYSE-E200P2-SoM
	Dimension:	65mm x 58mm
	Ethernet Connection:	JST, Borad-to-Board / Wire-to-Board

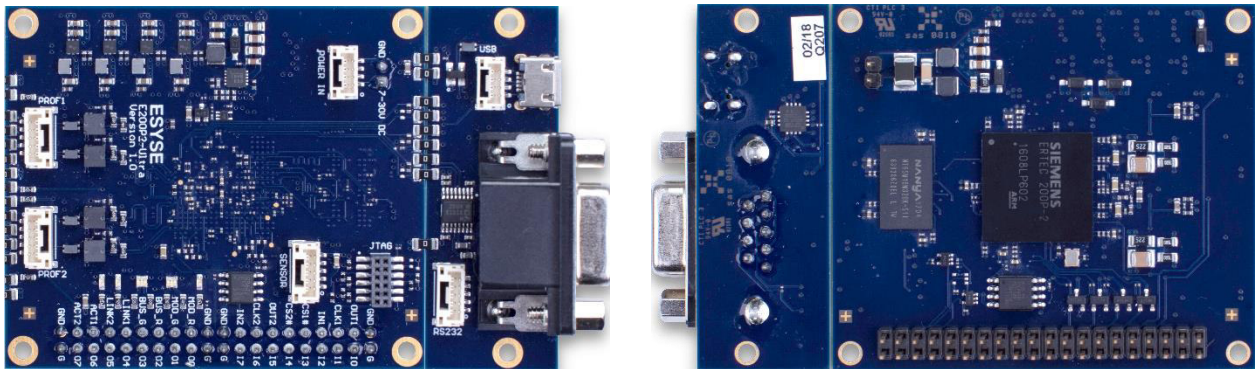
3.1.3 ESYSE-E200P2-LAN

**Table 3: ESYSE-E200P2-LAN**

Description	General Description	Refer to table section 3.1
	Order-ID:	ESYSE-E200P2-LAN
	Dimension:	85mm x 58mm
	Ethernet Connection:	RJ45

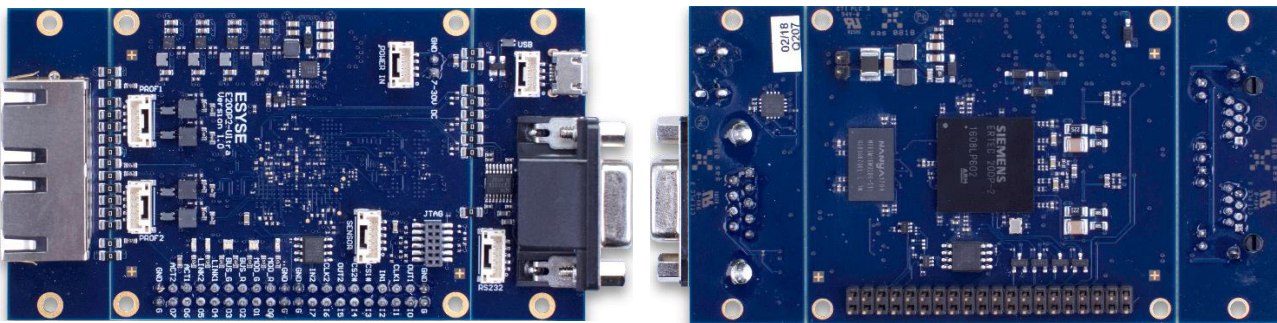


3.1.4 ESYSE-E200P2-USB

**Table 4: ESYSE-E200P2-USB**

Description	General Description	Refer to table section 3.1
	Order-ID:	ESYSE-E200P2-USB
	Dimension:	85mm x 58mm
	Ethernet Connection:	JST, Borad-to-Board / Wire-to-Board
	USB-Connector	Micro-USB
	RS232-Connector:	Serial D_SUB 9-Pin

3.1.5 ESYSE-E200P2-Ultra

**Table 5: ESYSE-E200P2-Ultra**

Description	General Description	Refer to table section 3.1
	Order-ID:	ESYSE-E200P2-Ultra
	Dimension:	105mm x 58mm
	Ethernet Connection:	RJ45
	USB-Connector	Micro-USB
	RS232-Connector:	Serial D_SUB 9-Pin



Gateway solution

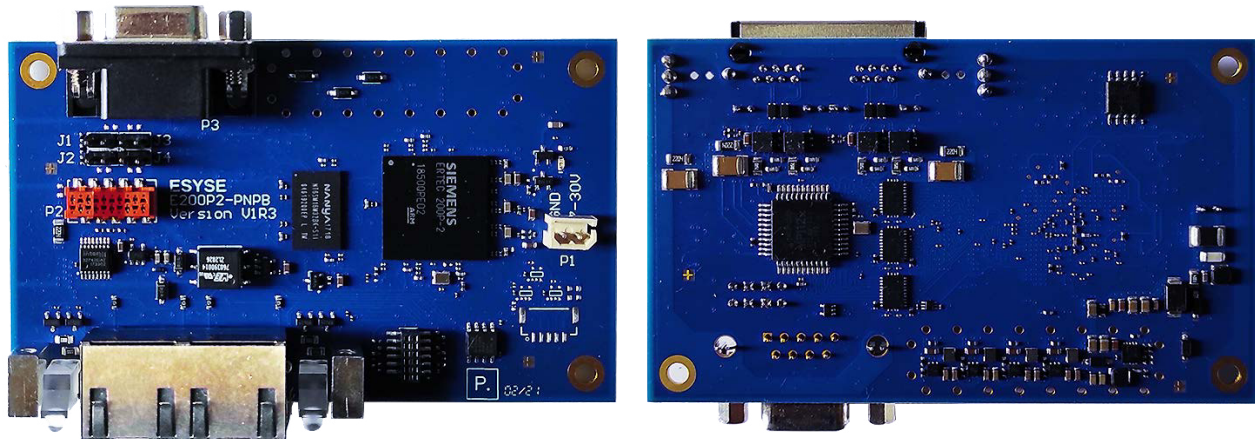
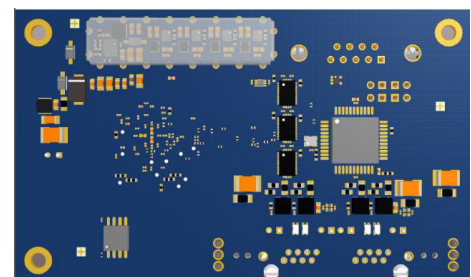
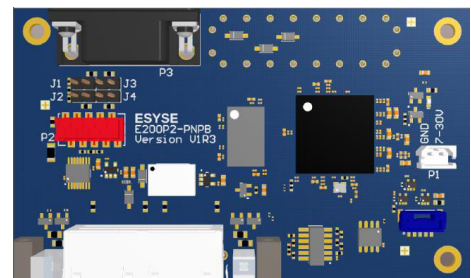
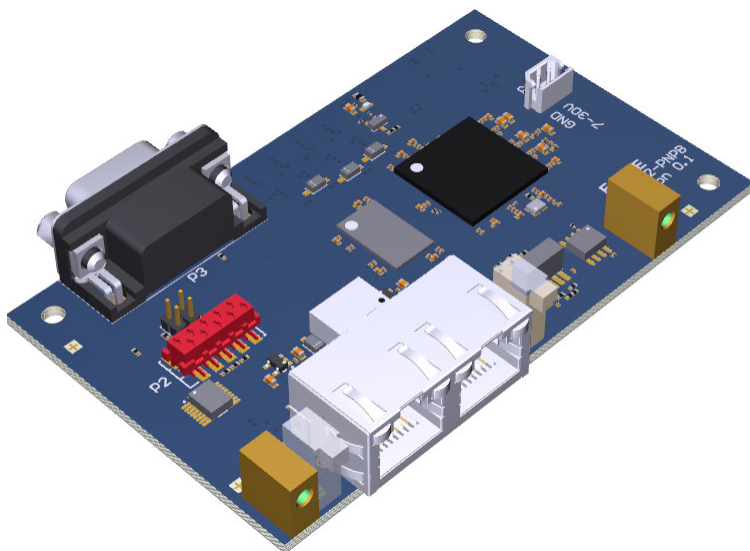


Table 6: ESYSE-E200P2-Gateway

Description	General Description	Refer to table section 3.1
	Order-ID:	ESYSE-E200P2-Gateway
	Dimension:	100mm x 60mm
	Ethernet Connection:	Dual Port RJ45
	PROFIBUS Connector	D-SUB 9-Pin
	Ethernet Interface:	IP, PROFINET, EtherNet/IP, EtherCAT, MODBUS,..
	PROFIBUS:	DPV0, DPV1 and DPV2
	Application:	Gateway, Drive, Encoder, Pump, Valve, IO-Device,...





3.3 ESYSE-E200P2 Compact

3.3.1 ESYSE-E200P2-MINI

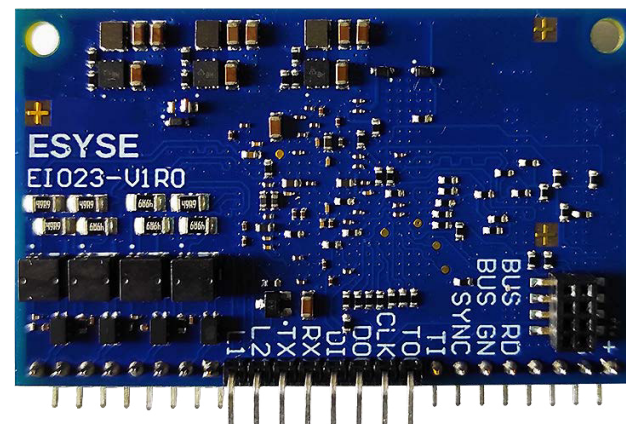
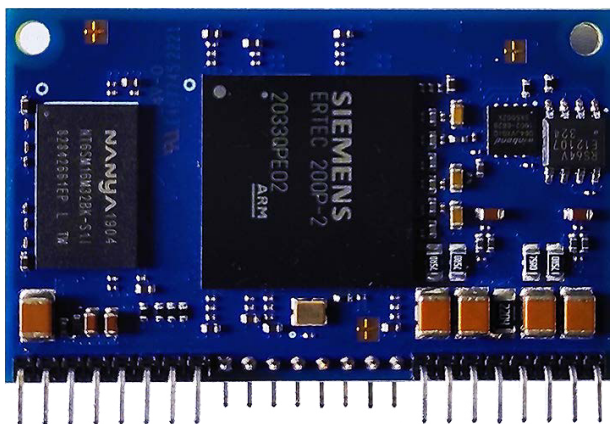
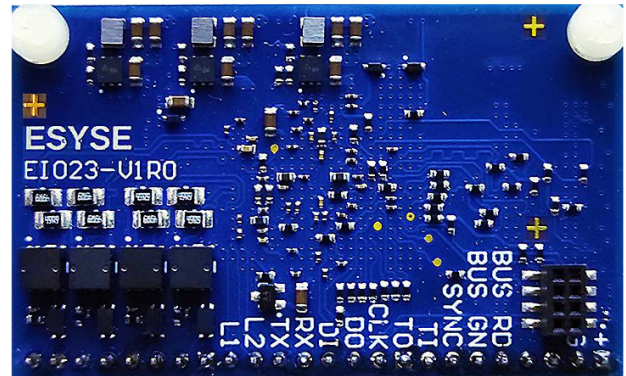
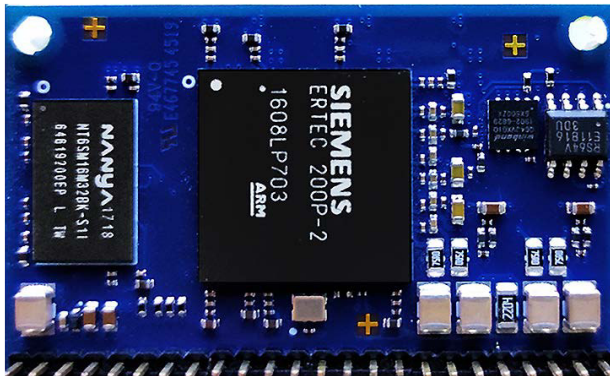


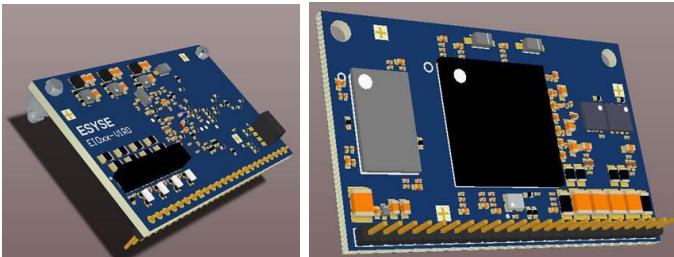
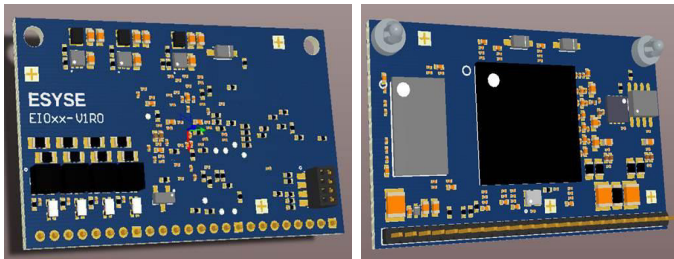
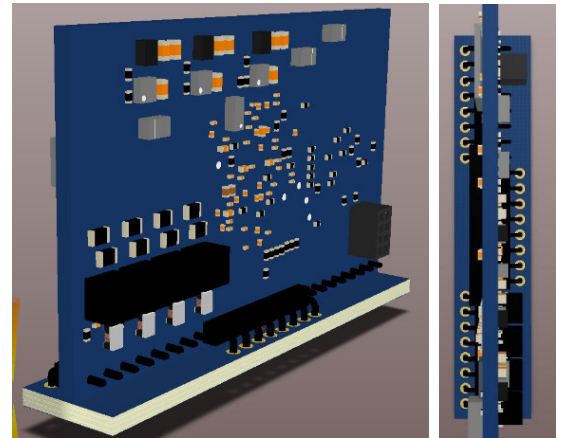
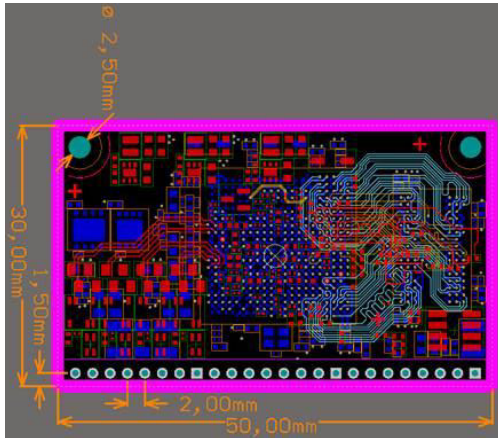
Table 7: ESYSE-E200P2-MINI

Description	Order-ID:	ESYSE-E200P2-MINI
	Dimension:	50mm x 30mm
	Ethernet Connection:	Dual Port RJ45
	Temprature area:	-45° - 85°
	Power-Supply:	3.3 V DC Input,
	Power consumption:	Wattage: min. 0.5VA, max. 3VA, Nominal: 1VA (with 1 millisecond network connection IO-cycle time)
	SDRAM:	64 MB
	ROM	8/16/32 MB
	FRAM:	8/16 KB
	Ethernet Connection:	Borad-to-Board
	Host Interface:	Borad-to-Board, SPI / UART (3.3 V),
	Status LEDs:	Module and Net Bicolor, Link-LEDs (Port-1 and Port-2)
	GPIO:	Additional configurable Digital Input/Output
	Programming Interface:	JTAG-Interface for ARM Debugger
	Protocols:	PROFINET, Ethernet/IP, EtherCAT, MODBUS,..
	Applications:	Drive, Encoder, Pump, Valve, IO-Device, General



3.3 ESYSE-E200P2 Compact

3.3.1 ESYSE-E200P2-MINI





3.4 ESYSE-E200P2-Drive

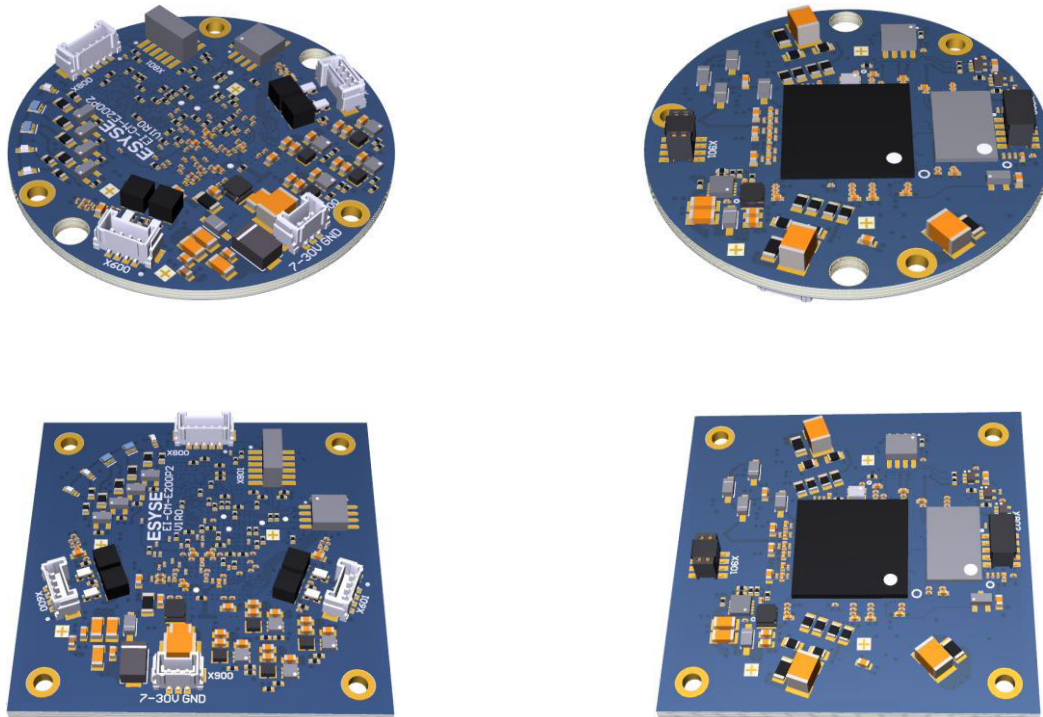


Table 8: ESYSE-E200P2-Drive

Description	General Description	Refer to table section 3.1
	Order-ID:	ESYSE-E200P2-Drive
	Dimension:	50mm x 50mm
	Ethernet Connection:	4-Pin JST Connector
	Protocols:	PROFINET, Ethernet/IP, EtherCAT, MODBUS,...
	Applications:	Drive, Encoder, Pump, Valve, IO-Device, General