ED-PLC2010

Datasheet

by EDA Technology Co., Ltd

built: 2024-12-09

ED-PLC2010

Programmable Controller Base on CODESYS

- Broadcom BCM2711, quad core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
- Up to 8GB LPDDR4 RAM and 32GB eMMC storage, support Micro SD card
- 1 x Gigabit Ethernet, 1 x EtherCAT, 2 x RS232, 2 x RS485 and 2 x USB 3.0
- Optional 2.4GHz and 5GHz dual-band Wi-Fi, Bluetooth and 4G LTE
- Integrated supercapacitor (backup power supply), RTC, EEPROM and crypto authentication
- Support DI, DO, AI, AO different types of I/O Modules
- Support up to 32 local I/O Modules through internal EtherCAT bus expansion
- Support IEC-61131-3 PLCopen languages (FBD, LD, ST, CFC and SFC)
- CODESYS Control Real Time Engine (RTE), Visualization (Target & Web), Softmotion/CNC+Robotics
- Support EtherCAT, Modbus TCP and OPCUA protocols
- Compatible with DIN-rail installation

Specifications

System	
CPU	Broadcom BCM2711, quad core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
VPU	H.265 (HEVC), up to 4Kp60 decode H.264, up to 1080p60 decode, 1080p30 encode
GPU	OpenGL ES 3.1 & Vulkan 1.0
Memory	Options for 1GB, 2GB, 4GB, 8GB LPDDR4-3200 SDRAM
Storage	Options for 8GB, 16GB, 32GB eMMC storage Micro SD card (user storage expansion)
Operating System	Raspberry Pi OS (Lite) 64-bit
Program Execution Mode	Compile and execute
Number of EtherCAT Axis	8
Number of EtherCAT Communication	1 EtherCAT_Master (Up to 128 EtherCAT_Slave)

System	
Number of Modbus TCP Communication	1 Modbus_TCP_Master (Up to 63 Modbus_TCP_Slave)

CODESYS	
Runtime	Optional Single-core or Multi-core CODESYS Control Runtime System
Programming Mode	IEC 61131-3 programming languages, including ST, LD, FBD, SFC and CFC
IDE	CODESYS V3.5
Fieldbus	CODESYS EtherCAT Master and CODESYS Modbus TCP Master
Motion Control	Optional CODESYS SoftMotion and CNC+Robotics
Visualization	Optional CODESYS TargetVisu and CODESYS WebVisu
OPC UA	Support OPC UA Server

Ports	
System Power	PT terminals, the range of input voltage is DC 24V (±20%).
Field Power	PT terminals, the range of input voltage is DC 24V (±20%).
RS485	2 x RS485, 6-Pin 3.5mm pitch phoenix terminals with IO isolator, which are equipped with electrostatic and surge protection, the single signal is defined as IGND/A/B.
RS232	2 x RS232, 6-Pin 3.5mm pitch phoenix terminals, which are equipped with electrostatic and surge protection, the single signal is defined as IGND/TX/RX.
100M Ethernet	1 x adaptive 10/100/1000M ethernet port, RJ45 connector. It can be used to access the network.
EtherCAT	1 x EtherCAT OUT port, using to connect EtherCAT Slave.
SD Card Slot	1 x Micro SD card slot, using to install SD card for storing user data.
HDMI	1 x HDMI port, type A connector. It is compatibles with HDMI2.0 standard and supports 4K 60Hz.
USB 2.0	1 x USB 2.0 port, type A connector, supporting up to 480Mbps.
USB 3.0	2 x USB 3.0 ports, type A connector, supporting up to 5Gbps.
Antenna	2 x SMA ports (optional), using to connect 4G antenna and Wi-Fi/BT antenna.

Indicators	
HDD	1 x green HDD indicator, using to check the status of reading and writing data for device eMMC.
PWR	1 x red power indicator, using to check the status of device power-on and power-off.
RUN	1 x green RUN indicator, using to check the status of device working.
ERR	1 x red ERR indicator, using to check if there is a system error.

Indicators	
IO RUN	1 x green IO RUN indicator, using to check the status of I/O Modules running.
IO ERR	1 x red IO ERR indicator, using to check if there is an error of I/O Modules.
IO SYS	1 x green IO SYS indicator, using to check the status of I/O Modules working.
UPDATE	1 x red UPDATE indicator, using to check the status of program updating.
UDISK DETECT	1 x green UDISK DETECT indicator, using to check the detecting status of USB drive.
UDISK BUSY	1 x green UDISK BUSY indicator, using to check the mounting status of USB drive.
ECAT	1 x green ECAT indicator, using to check the connection status of EtherCAT input.
4G	1 x green 4G indicator, which is used to check the status of 4G signal.
COM1~COM4	4 x green UART indicators, using to check the communication status of UART port.

Buttons	
Reset	1 x Reset button, which can reset the device.
FAC RST	x FAC RST button, which uses to restore factory settings.
IPADDR RST	1 x IPADDR RST button, using to restore default IP address.
UDISK RM	1 x UDISK RM button, using to remove USB storage devices safely.
IMP	1 x IMP button, using import PLC programs from USB storage devices or SD cards.
STOP START	1 x STOP/START button, which can start or stop PLC runtime.

Expansion I/O	
I/O Type	DI, DO, AI, AO, RTD, TC and High-Speed Counter modules
Number	Up to 32 I/O modules
Fixing	Plug-in construction modules, which can be directly fixed on the right of ED-PLC2010

Expansion Functions	
EEPROM	Supports 4K byte storage and improves the ease of use of device.
Crypto Authentication	It can be matched to realize the required upper layer application and improves the security of device.
RTC	RTC with 1F SuperCAP backup, which can ensure that the system clock is not affected by device power-off. We also provide a battery base, and you can buy a CR1220 battery backup for RTC.
Buzzer	A tip or an abnormity can be configurated according to actual application, which realizes the alarm function.

Electrical Characteristics	
Input Voltage	DC 24V (±20%)
Power Consumption	24W (Max)

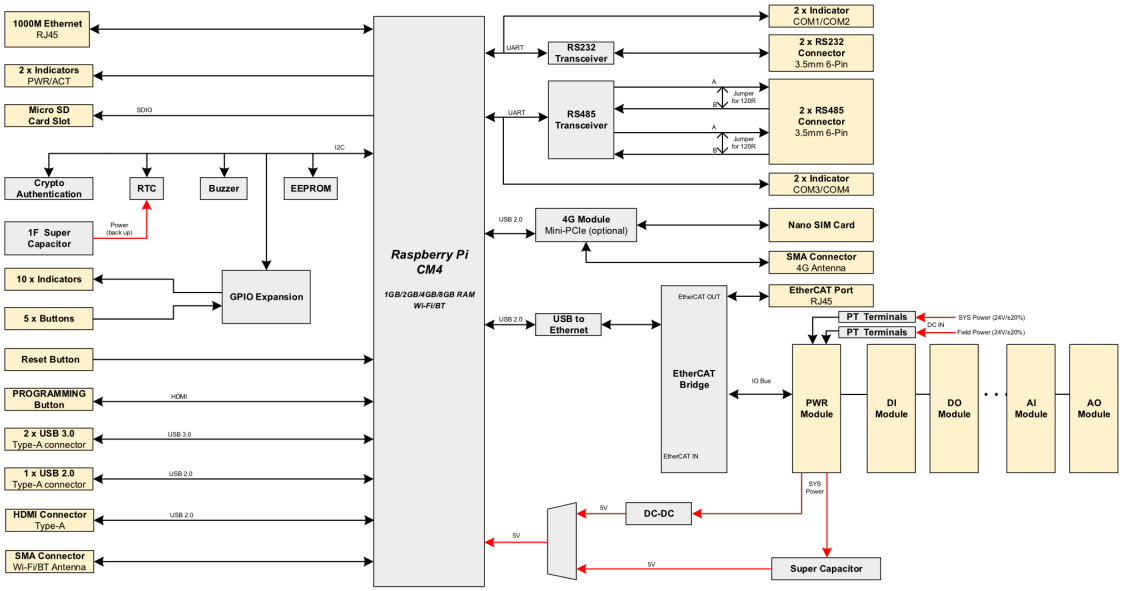
Mechanical Characteristics	
Dimensions	103mm x 71mm x 81mm (WxDxH, antenna and DIN-rail bracket are not included.)
Weight	About 750g
Installation	DIN-rail installation

Wireless	
Wi-Fi/Bluetooth (optional)	2.4GHz & 5GHz dual-band Wi-Fi and Bluetooth with antenna. • 2.4GHz Wi-Fi: Compatible with IEEE 802.11 b/g/n. • 5GHz Wi-Fi: Compatible with IEEE 802.11 a/n/ac. • The Bluetooth supports 2402MHz ~ 2480MHz frequency.
4G (optional)	Connect with various 4G LTE modules through the Mini PCIe interface, with antenna. • EC20-CE Module (China/India) ◦ LTE FDD: B1/B3 ◦ LTE TDD: B38/B39/B40/B41 ◦ TDSCDMA: B34/B39 ◦ WCDMA: B1 ◦ CDMA 1x/EVDO: BC0 ◦ GSM: 900/1800MH ◦ GPS/GLONASS/BDS/Galileo/QZSS (optional) • EC25-AFX Module (North America) ◦ LTE FDD: B2/B4/B5/B12/B13/B14/B66/B71 ◦ LTE TDD ◦ WCDMA: B2/B4/B5 ◦ GSM/EDGE ◦ GPS/GLONASS/BDS/Galileo/QZSS • EC25-AUX Module (Latin America/Australia/New Zealand) ◦ LTE FDD: B1/B2/B3/B4/B5/B7/B8/B28 ◦ LTE TDD: B40 ◦ WCDMA: B1/B2/B4/B5/B8 ◦ GSM/EDGE: B2/B3/B5/B8 ◦ GPS/GLONASS/BDS/Galileo/QZSS • EC25-EUX Module (Europe/Middle East/Africa/Thailand) ◦ LTE FDD: B1/B3/B7/B8/B20/B28A ◦ LTE TDD: B38/B40/B41 ◦ WCDMA: B1/B8 ◦ GSM/EDGE: B3/B8 ◦ GPS/GLONASS/BDS/Galileo/QZSS • EC25-EM Module (Europe/Middle East/Africa/South-East Asia) ◦ LTE FDD: B1/B3/B7/B8/B20/B28 ◦ LTE TDD: B38/B40/B41

Wireless	
	◦ WCDMA: B1/B5/B8 ◦ GSM/EDGE: B3/B8 ◦ GPS/GLONASS/BDS/Galileo/QZSS

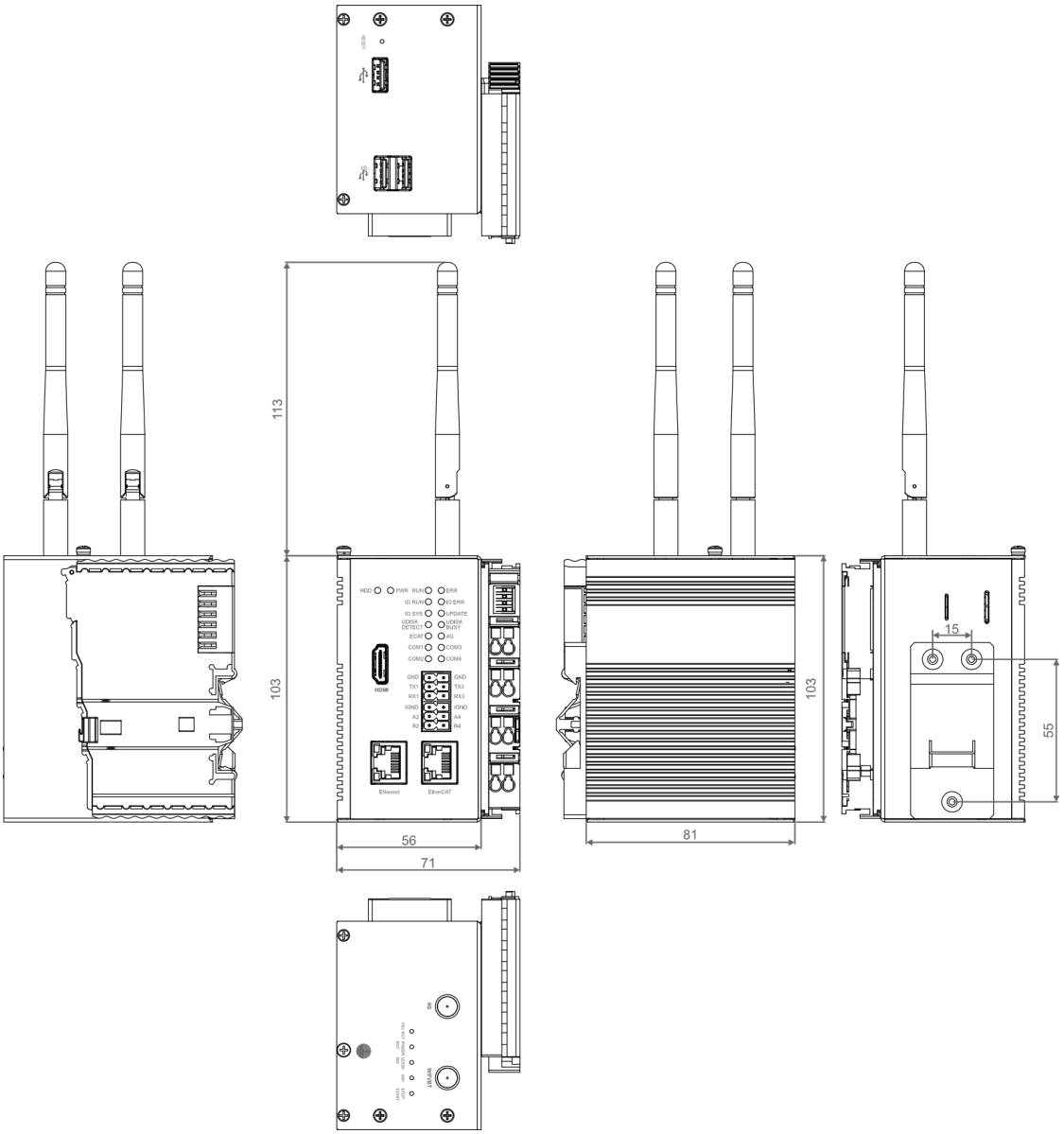
Environmental & Regulatory	
Operating Temperature	-10°C ~ 55°C
Storage Temperature	-20°C ~ 60°C
Ambient Humidity	5% ~ 95% (non-condensing)

System Diagram



Dimensions

Unit: mm


113
103
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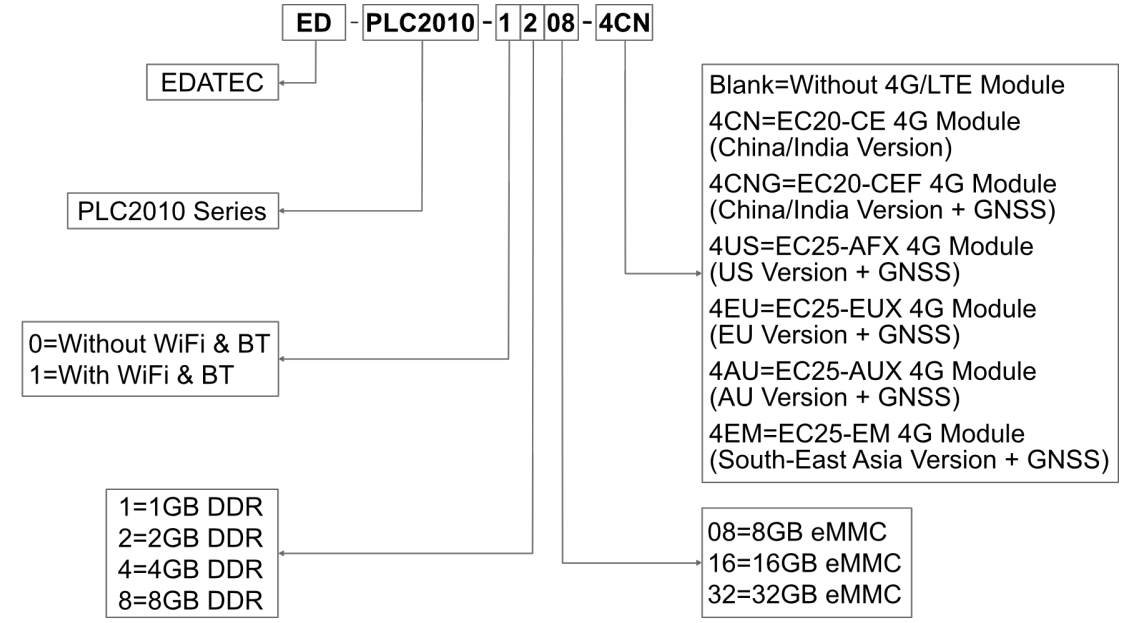
Ordering Code



Example

P/N: **ED-PLC2010-1208-4CN**
Configuration: Programmable Logic Controller, with Wi-Fi & Bluetooth, 4G (EC20-CE Module), 2GB DDR, 8GB eMMC, 2 x RS485, 2 x RS232 and Super Capacitor Module.

Optional I/O Modules

Support a variety of I/O modules, the detailed ordering codes are the table below.

Model	Description
ED-EIO8XP	8-channel digital input module (PNP)
ED-EIO8XN	8-channel digital input module (NPN)
ED-EIO16XP	16-channel digital input module (PNP)
ED-EIO16XN	16-channel digital input module (NPN)
ED-EIO8YP	8-channel digital output module (PNP)
ED-EIO8YN	8-channel digital output module (NPN)
ED-EIO16YP	16-channel digital output module (PNP)
ED-EIO16YN	16-channel digital output module (NPN)
ED-EIO4YR	4-channel digital output module (Relay)
ED-EIO4ADV	4-channel analog input module (voltage), -5~5V/0~10V/-10~10V, configurable
ED-EIO4ADA	4-channel analog input module (current), 4-20mA/0-20mA, configurable
ED-EIO8ADA	8-channel analog input module (current), 4-20mA/0-20mA, configurable
ED-EIO4AD	

Model	Description
	4-channel analog input module (voltage/current mixed), -5~5V/0~10V/-10~10V/4-20mA/0-20mA, configurable
ED-EIO4DAV	4-channel analog output module (voltage), -5 ~ 5V/0 ~ 10V/-10 ~ 10V, configurable
ED-EIO4DAA	4-channel analog output module (current), 4-20mA/0-20mA, configurable
ED-EIO4RTD	4-channel RTD Module
ED-EIO4TC	4-channel TC Module
ED-EIO2HCD	2-channel High Speed Counter Module
ED-EIOPWR	Power Expansion Supply Module
ED-EIOTERM	Bus End Cover

Optional Remote I/O

Model	Description
ED-EIOBRG-EC	EtherCAT Coupler

Optional CODESYS Ordering Code

CODESYS licensing includes TargetVisu, WebVisu, Softmotion, CNC+Robotics, EtherCAT Master, Modbus TCP Master, OPC UA Server, Multicore and Singlecore functional modules. You can choose different models according to actual needs.

Model*1	EtherCAT Master	Modbus TCP Master	OPC UA Server	TargetVisu	WebVisu	Softmotion	CNC+Robotics	Multicore	Singlecore
ED-CODESYS-TV-SM-MC	√	√	√	√		√		√	
ED-CODESYS-TV-SM-SC	√	√	√	√		√			√
ED-CODESYS-WV-SM-MC	√	√	√		√	√			√
	√	√	√		√	√		√	

Model*1	EtherCAT Master	Modbus TCP Master	OPC UA Server	TargetVisu	WebVisu	Softmotion	CNC+Robotics	Multicore	Singlecore
ED-CODESYS-WV-SM-SC									
ED-CODESYS-SM-CNC-MC	√	√	√			√	√	√	
ED-CODESYS-SM-CNC-SC	√	√	√			√	√		√
ED-CODESYS-WV-SM-CNC-MC	√	√	√		√	√	√	√	
ED-CODESYS-WV-SM-CNC-SC	√	√	√		√	√	√		√
ED-CODESYS-TV-WV-SM-CNC-MC	√	√	√	√	√	√	√	√	
ED-CODESYS-TV-WV-SM-CNC-SC	√	√	√	√	√	√	√		√

*1: The license cannot be purchased separately, you can only purchase it together with the hardware device.

Packing List

- 1 x ED-PLC2010 Unit
- [Wi-Fi/BT Version - optional] 1 x 2.4GHz/5GHz Wi-Fi/BT Antenna
- [4G Version - optional] 1 x 4G/LTE Antenna