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KSH International Co., Ltd.

Network & Wireless Solutions For
AI-IoT, 5G-IoT, Industrial IoT, Serial, USB, Analog & Digital I/O
Compatible Arduino UNO R4 with Ethernet IoT Controller



KSH UNO R4



Analog I/O



Digital I/O

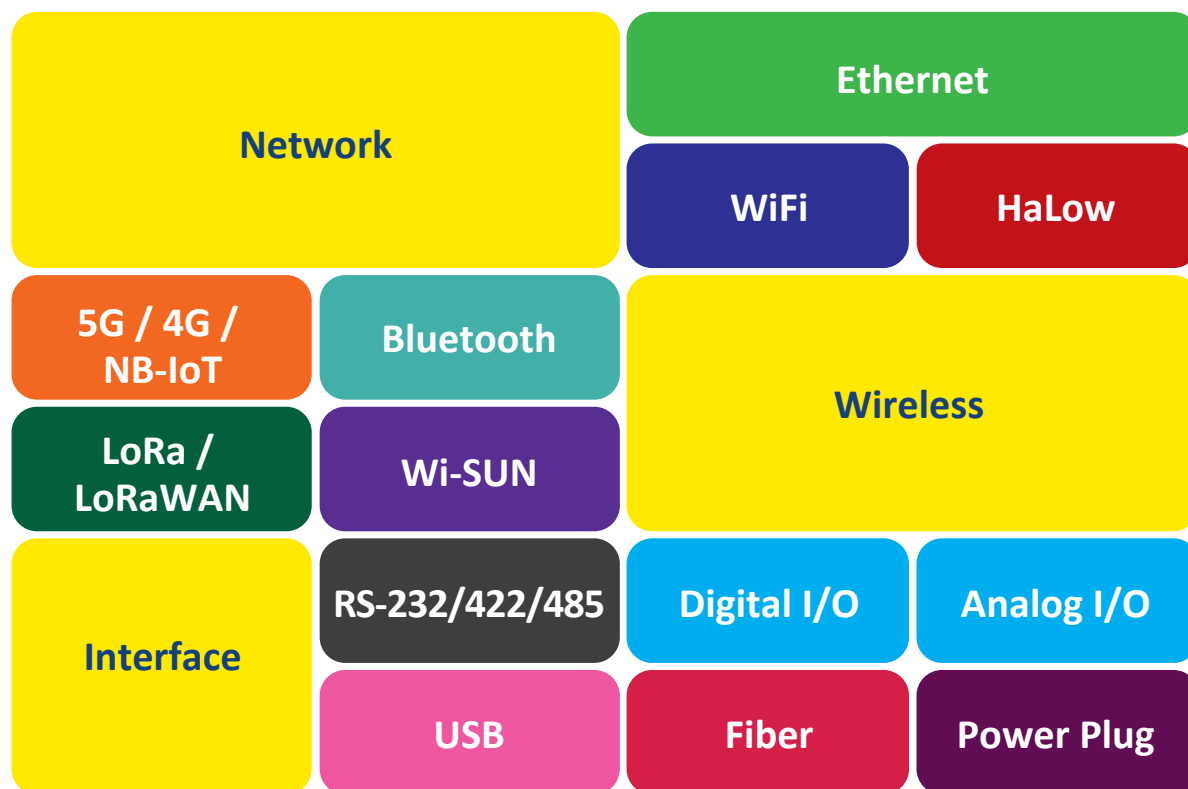


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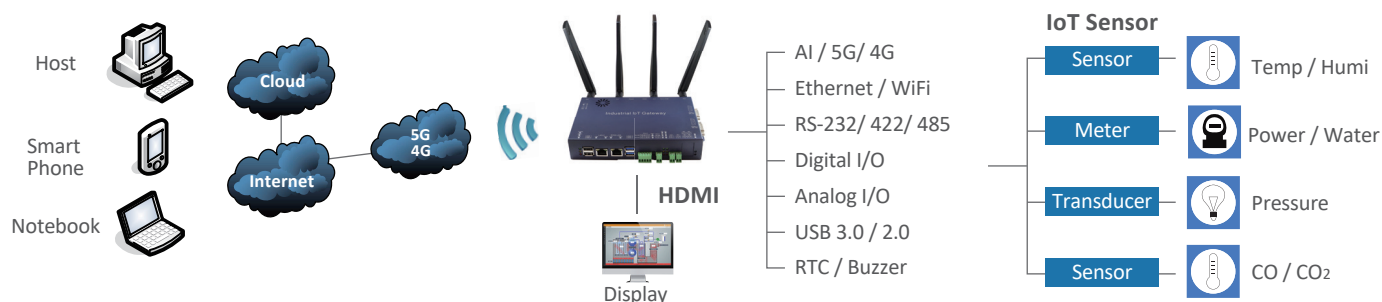
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04	Industrial IoT - Embedded Raspberry Pi CM3+ / CM4S Controller
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APPLICATIONS

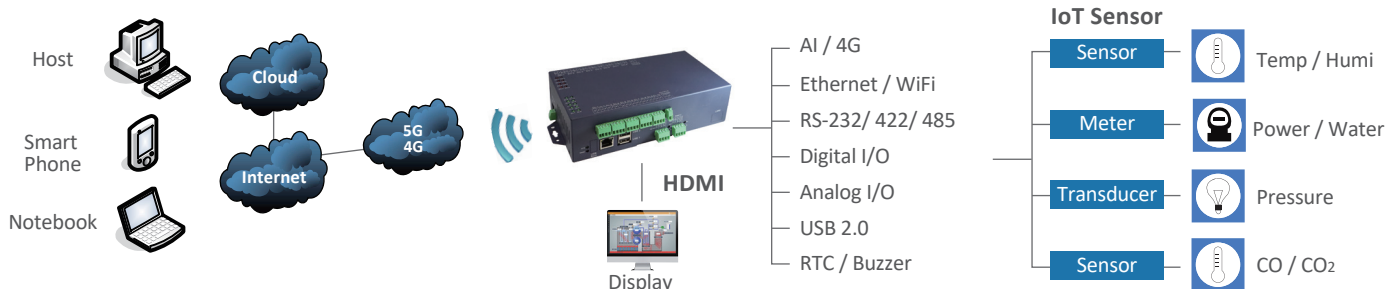


- AI Application / Edge AI
- 5G Private Network
- Industry 4.0
- SCADA System
- Facility Management
- Factory Automation
- Environment Remote Monitor & Control
- ESG Environmental Data Collection
- Building Automation
- Energy Management
- Smart City
- Smart Agriculture
- Smart Green Energy
- Solar Power System Data Acquisition
- Smart Campus Control
- Access Control
- Parking System
- Intelligent Traffic Remote Control
- POS / Retail Automation
- Health Care

Model	WPC-632-Pi CM5-AI	WPC-632-Pi CM5	WPC-632-Pi CM4-5G	WPC-632-Pi CM4-SSD	WPC-632-Pi CM4-DIO	WPC-632-Pi CM4-4/8	WPC-632-Pi CM4-EVB
Photo							
Function	AI IoT	Industrial IoT	5G / 4G IoT	IIoT with 1T SSD	IIoT with DI * 9 + DO * 10	IIoT - 4/8 Ports Serial	IIoT EVB PCB
Pi Module	Pi CM5 / CM4	Pi CM5 / CM4	Pi CM5 / CM4	Pi CM5 / CM4	Pi CM5 / CM4	Pi CM5 / CM4	Pi CM5 / CM4
CPU	ARM Cortex-A76/A72	ARM Cortex-A76/A72	ARM Cortex-A76/A72	ARM Cortex-A76/A72	ARM Cortex-A76/A72	ARM Cortex-A76/A72	ARM Cortex-A76/A72
CPU Speed	2.4 / 1.5 GHz	2.4 / 1.5 GHz	2.4 / 1.5 GHz	2.4 / 1.5 GHz	2.4 / 1.5 GHz	2.4 / 1.5 GHz	2.4 / 1.5 GHz
SDRAM	2 / 4 / 8 G	2 / 4 / 8 G	1 / 2 / 4 / 8 G	1 / 2 / 4 / 8 G	1 / 2 / 4 / 8 G	1 / 2 / 4 / 8 G	1 / 2 / 4 / 8 G
EMMC ROM	16 / 32 / 64 G	16 / 32 / 64 G	8 / 16 / 32 G	8 / 16 / 32 G	8 / 16 / 32 G	8 / 16 / 32 G	8 / 16 / 32 G
OS	Debian	Debian	Raspbian/Debian	Raspbian/Debian	Raspbian/Debian	Raspbian/Debian	Raspbian/Debian
Ethernet - Giga	1	1	1	1	1	1	1
Ethernet - 10/100M	1	1	1	1	1	1	1
WiFi - 802.11 / Bluetooth	CM5/CM4-option	CM5/CM4-option	CM5/CM4-option	CM5/CM4-option	CM5/CM4-option	CM5/CM4-option	CM5/CM4-option
RS - 232/422/485	1	1	1	1		4 / 8	1
RS - 232/485	1	1	1	1	1		1
Baud Rate	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps
USB 3.0	2	2	2	2	2	2	2
USB 2.0	2	2	2	2	2	2	2
M.2 (USB 3.0 or PCIe)	1	1	1	1	1		1
Mini - PCIe (USB 2.0)	1	1	1	1	1		1
RTC/ Battery / Buzzer	●	●	●	●	●	●	●
HDMI	●	●	●	●	●	●	●
SPI / I2C/PWM	●	●	●	●	●	●	●
Digital Input / Output	1 / 1, 5 / 2	1 / 1, 5 / 2	1 / 1, 5 / 2	1 / 1, 5 / 2	9 / 10		1 / 1, 5 / 2
5G / 4G / SSD / AI	AI (Hailo)		5G / 4G	PCIe-SSD	OPTION	X	OPTION
Nano SIM	●	●	●	●	●	X	●
FAN	OPTION	OPTION	OPTION	OPTION	OPTION	OPTION	OPTION
Aluminum heat dissipation	OPTION	OPTION	OPTION	OPTION			
Power Input	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V
DIN - Rail Mounting	●	●	●	●	●	●	●
Operating Temperature	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C
Packaging							
Net weight	680 gm	650 gm	810 gm	680 gm	950 gm	920 gm	165 gm
Dimension	200 * 120 * 35mm	200 * 120 * 35mm	200 * 120 * 35mm	200 * 120 * 35mm	200 * 120 * 50mm	220 * 120 * 50mm	175 * 100 * 25mm



Model	WPC-632-Pi CM4S 2 LAN	WPC-632-Pi CM4S CAN	WPC-632-Pi CM3	WPC-632-Pi CM3-4G	WPC-632-Pi CM3-DIO-108	WPC-632-Pi CM3-EB	WPC-632-Pi 4 / 5 - EVB
Photo							
Function	IIoT - 2LAN	IIoT - CAN	IIoT	4G IIoT	IIoT with DIO	IIoT - EVB Board	Expansion Board
Support Pi Module	Pi CM4S / CM3+	Pi CM4S / CM3+	Pi CM4S / CM3+	Pi CM4S / CM3+	Pi CM4S / CM3+	Pi CM4S / CM3+	Pi 4 / Pi 5
CPU	ARM Cortex-A72 / A53	ARM Cortex-A72 / A53	ARM Cortex-A72 / A53	ARM Cortex-A72 / A53	ARM Cortex-A72 / A53	ARM Cortex-A72 / A53	
CPU Speed	1.5 / 1.2 GHz	1.5 / 1.2 GHz	1.5 / 1.2 GHz	1.5 / 1.2 GHz	1.5 / 1.2 GHz	1.5 / 1.2 GHz	
SDRAM	1 / 2 / 4 / 8 G	1 / 2 / 4 / 8 G	1 G	1 G	1 G	1 G	
EMMC ROM	8 / 16 / 32 G	8 / 16 / 32 G	8 / 16 / 32 G	8 / 16 / 32 G	8 / 16 / 32 G	8 / 16 / 32 G	
OS	Raspbian/Debian	Raspbian/Debian	Raspbian/Debian	Raspbian/Debian	Raspbian/Debian	Raspbian/Debian	
Ethernet	2	1	1	1	1	1	
WiFi-802.11 b/g/n	Mini PCIe / USB	Mini PCIe / USB	Mini PCIe / USB	Mini PCIe / USB	Mini PCIe / USB	Mini PCIe / USB	
Bluetooth 4.0	Mini PCIe / USB	Mini PCIe / USB	Mini PCIe / USB	Mini PCIe / USB	Mini PCIe / USB	Mini PCIe / USB	
RS - 232/422/485		1	2	2	2	2	1
RS - 485	2						
Baud Rate	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps
USB	2	2	2	2	2	2	
SD	1	1	1	1	1	1	
Mini - PCIe (USB)	1	1	1	1	1	1	1
4G	OPTION	OPTION	OPTION	V	OPTION	OPTION	OPTION
M.2							1
Nano SIM	•	•	•	•	•	•	•
RTC / Buzzer	•	•	•	•	•	•	•
HDMI	•	•	•	•	•	•	
SPI / I2C	•	•	•	•	•	•	
GPIO	4		12	12			
Digital Input / Output		2 / 0			10 / 8		1 / 1
Power Input	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V
DIN - Rail Mounting	•	•	•	•	•	•	
Operating Temperature	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C
Packaging							
Net weight	500 gm	480 gm	620 gm	650 gm	900 gm	130 gm	90 gm
Dimension	155 * 110 * 30mm	155 * 110 * 30mm	205 * 120 * 35mm	205 * 120 * 35mm	220 * 120 * 55mm	170 * 110 * 17mm	110 * 95 * 17mm



KSH UNO R4 with Ethernet + RS485 + CAN

Model	KSH UNO R4 - Ethernet	KSH UNO R4 - Ethernet + RS-485	KSH UNO R4 - Ethernet + CAN	KSH UNO R4 - Full Function
Photo				
Function	UNO R4 - Ethernet	UNO R4 - Ethernet + RS-485	UNO R4 - Ethernet + CAN	UNO R4 - Full Function
CPU	Arm Cortex M4	Arm Cortex M4	Arm Cortex M4	Arm Cortex M4
Clock	200 MHZ	200 MHZ	200 MHZ	200 MHZ
SRAM	512 KB	512 KB	512 KB	512 KB
FLASH Memory	1024 KB	1024 KB	1024 KB	1024 KB
USB-C TYPE C connector	V	V	V	V
USB 2.0	Full speed	Full speed	Full speed	Full speed (OTG)
Digital I/O - 14 pins	D0 ~ D13	D0 ~ D13	D0 ~ D13	D0 ~ D13
PWM - 6 pins	D3, D5, D6, D9, D10, D11	D3, D5, D6, D9, D10, D11	D3, D5, D6, D9, D10, D11	D3, D5, D6, D9, D10, D11
ADC - 6 pins (12 - bit)	A0 ~ A5	A0 ~ A5	A0 ~ A5	A0 ~ A5
DAC - 1 pin (12 - bit)	A0	A0	A0	A0
Operation Voltage	DC 3.3V	DC 3.3V	DC 3.3V	DC 3.3V
Power Input (DC - JACK , VIN)	4.5 ~ 32V	4.5 ~ 32V	4.5 ~ 32V	4.5 ~ 32V
Power via USB - C	5 V	5 V	5 V	5 V
UART *1	D0 , D1	D0 , D1	D0 , D1	D0 , D1
SPI * 1	D10 ~ D13, (ICSP Header)	D10 ~ D13, (ICSP Header)	D10 ~ D13, (ICSP Header)	D10 ~ D13, (ICSP Header)
I2C * 1 (A4, A5) (D18, D19)	A4 (SDA), A5 (SCL)	A4 (SDA), A5 (SCL)	A4 (SDA), A5 (SCL)	A4 (SDA), A5 (SCL)
CAN TTL *1 (CAN 2.0)	D4 , D5	D4 , D5	D4 , D5	D4 , D5
Reset Button	V	V	V	V
RTC	V	V	V	V
ICSP	V	V	V	V
ICE	V	V	V	V
LED	Power, D13, RX, TX	Power, D13, RX, TX	Power, D13, RX, TX	Power, D13, RX, TX
KSH UNO R4 Expansion Spec.				
Ethernet	V	V	V	V
RS-485 Driver IC + Terminal Block		V (D0,D1 - Jump)		V (D0,D1 - Jump)
CAN Transceiver + Terminal Block			V (D4,D5 - Jump)	V (D4,D5 - Jump)
SD Slot	V	V	V	V
Battery (For RTC)	V	V	V	V
Buzzer	V (D6/ PWM - Jump)	V (D6/ PWM - Jump)	V (D6/ PWM - Jump)	V (D6/ PWM - Jump)
WiFi / Bluetooth - RYWB 116 - lite	OPTION	OPTION	OPTION	OPTION
LoRa Module - RYLR 998	OPTION	OPTION	OPTION	OPTION
Operating Temperature	-40℃ ~ 85℃	-40℃ ~ 85℃	-40℃ ~ 85℃	-40℃ ~ 85℃
Packaging				
Net weight	30 gm	39 gm	39 gm	49 gm
Dimension	54 * 70 * 15 mm	54 * 75 * 15 mm	54 * 75 * 15 mm	54 * 75 * 15 mm

Bluetooth To Serial

Model	BS-101-232	BS-101-485	BS-201-232	BS-201-485	BS-201-DM-232	BS-201-DM-485
Photo						
Function	RS - 232 To Bluetooth	RS - 485/422 To Bluetooth	RS - 232 To Bluetooth	RS - 485/422 To Bluetooth	RS - 232 To Bluetooth	RS - 485/422 To Bluetooth
Bluetooth	Bluetooth 2.1	Bluetooth 2.1	Bluetooth 5.2	Bluetooth 5.2	Dual Mode (BLE + SPP)	Dual Mode (BLE + SPP)
Carrier Frequency	2400 ~ 2483.5 MHz	2400 ~ 2483.5 MHz	2400 ~ 2483.5 MHz	2400 ~ 2483.5 MHz	2400 ~ 2483.5 MHz	2400 ~ 2483.5 MHz
Class	Class 1	Class 1	Class 1	Class 1	Class 1	Class 1
Tx RF Output Power	12 dBm	12 dBm	6 dBm	6 dBm	12 dBm	12 dBm
Rx Sensitivity	-86 dBm (min)	-86 dBm (min)	-89 dBm	-89 dBm	-89 dBm	-89 dBm
Antenna	SMA plug 2 dbi	SMA plug 2 dbi	SMA plug 2 dbi	SMA plug 2 dbi	SMA plug 2 dbi	SMA plug 2 dbi
Distance	60 ~ 80 Meters	60 ~ 80 Meters	60 ~ 80 Meters	60 ~ 80 Meters	60 ~ 80 Meters	60 ~ 80 Meters
RS - 232	1		1		1	
RS - 422 / 485		1		1		1
Baud Rate	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps
Modbus	V	V	V	V	V	V
Security	PIN Code	PIN Code	128 bit AES	128 bit AES	128 bit AES	128 bit AES
Setup Utility	APP / AT command	APP / AT command	APP / AT command	APP / AT command	APP / AT command	APP / AT command
Power Input	DC 5 ~ 28V	DC 5 ~ 28V	DC 5 ~ 28V	DC 5 ~ 28V	DC 5 ~ 28V	DC 5 ~ 28V
Operating Temperature	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C
Packaging						
Net weight	45 gm	60 gm	45 gm	60 gm	45 gm	60 gm
Dimension	95 * 35 * 18 mm	95 * 35 * 18 mm	95 * 35 * 18 mm	95 * 35 * 18 mm	95 * 35 * 18 mm	95 * 35 * 18 mm

1. RS-232/422/485 Cableless



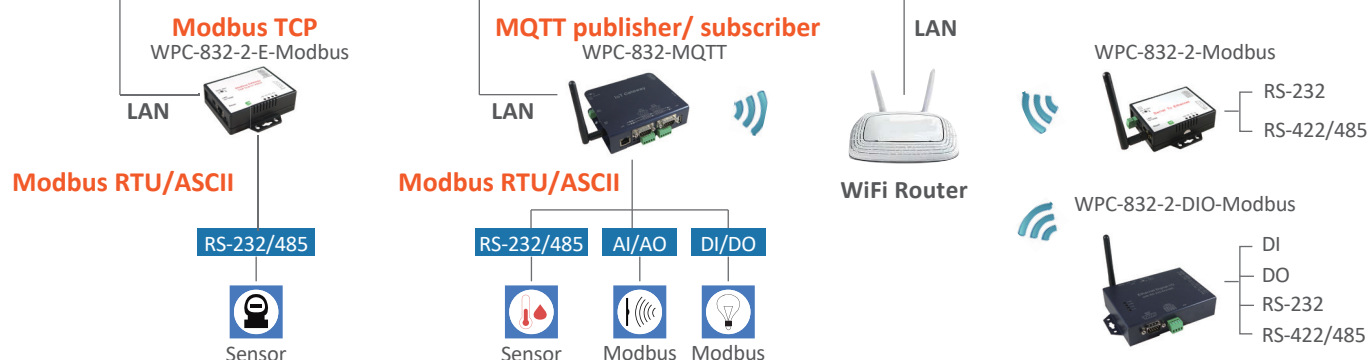
2. Data Collect via Bluetooth



Industrial Gateway

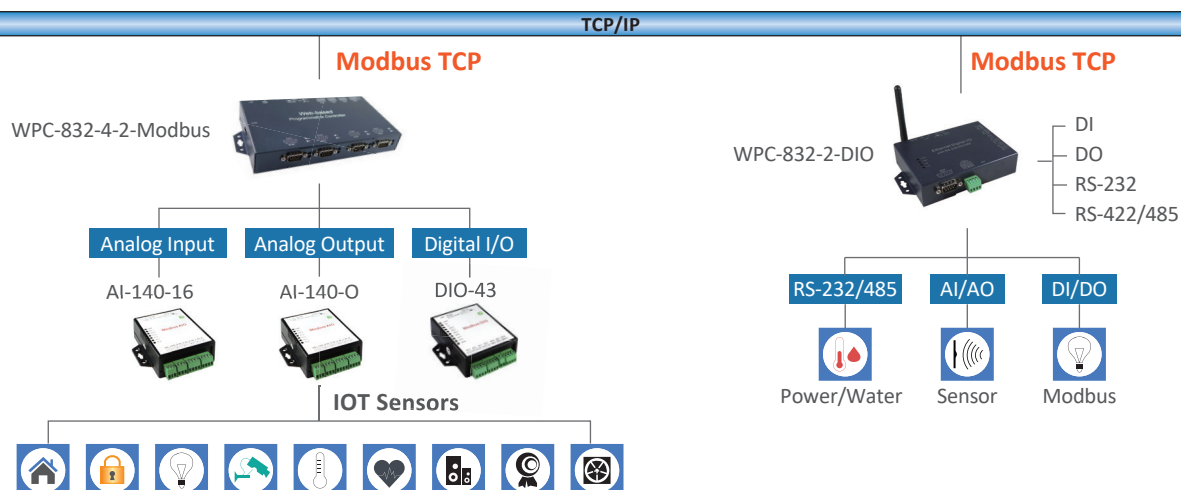
Model	E-P732-X-Modbus	WPC-832-2-Modbus	WPC-832-MQTT	WPC-832-MQTT + Data Logger	WPC-832-MQTT over 4G	WPC-832-4-I-Modbus	WPC-632-Pi CM4 -4/8-Modbus
Photo							
Function	Modbus	Modbus	MQTT	Modbus with Data Logger	MQTT with Data Logger over 4G	Modbus	Modbus
Serial Port	2 ports	2 ports	2 ports	2 ports	2 ports	4 ports	4 / 8 ports
CPU	ARM Cortex M4	MIPS CPU	MIPS CPU	MIPS CPU	MIPS CPU	MIPS CPU	ARM Cortex-A72
CPU Speed	120 MHz	580 MHz	580 MHz	580 MHz	580 MHz	580 MHz	1.5 G
SDRAM	256 KB	128 M	128 M	128 M	128 M	128 M	1 G
EMMC ROM	1 M	32 M	32 M	32 M	32 M	32 M	8 G
Ethernet	1	1	1	1	1	1	2
WiFi-802.11 b/g/n		1	1	1	1	1	1
Socket Connection	1	8	8	8	8	8	8
RS - 232/422/485			2	2	1	4	4 / 8
RS - 232	1	1					
RS - 422/485	1	1			1		
Baud Rate	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps
4G					V		
Nano SIM					V		
SD card Slot			V	V	V		
Watchdog	•	•	•	•	•	•	•
Utility / Web Page Setup	•	•	•	•	•	•	•
Power Input	DC-9 ~ 30V	DC-9 ~ 30V	DC-9 ~ 30V	DC-9 ~ 30V	DC-9 ~ 30V	DC-9 ~ 30V	DC-9 ~ 30V
DIN - Rail Mounting	•	•	•	•	•	•	•
Operating Temperature	-15°C ~ 75°C	-15°C ~ 75°C	-15°C ~ 75°C	-15°C ~ 75°C	-15°C ~ 75°C	-15°C ~ 75°C	-10°C ~ 65°C
Packaging							
Net weight	95 gm	115 gm	460 gm	460 gm	600 gm	690 gm	920 gm
Dimension	110 * 90 * 26 mm	110 * 90 * 26 mm	120 * 110 * 35 mm	120 * 110 * 35 mm	220 * 110 * 30mm	220 * 120 * 35mm	220 * 110 * 30mm

TCP/IP



Modbus Remote I/O

Model	AI-140-16 / 8	AI-140-0	DIO-43	AI-140-16-TCP	AI-140-ADIO-888	AI-140-ADIO-888-W	AI-140-422-8102
Photo							
Function	Analog Input	Analog Output	Digital I/O	Analog Input	AI + DIO	AI + DIO	Universal (V + A + T)
Modbus	RTU	RTU	RTU	TCP	RTU	TCP (WiFi)	RTU
Analog Input / Output	AI * 4, AI * 8	4 / 2		8 / 0	8 / 0	8 / 0	AI * 4, AI * 8
Digital Input / Output			4 / 3		8 / 8	8 / 8	2 / 2, 10 / 2
CPU	8-bit CPU	8-bit CPU	8-bit CPU	MIPS CPU	32-bit CPU	32-bit CPU	ARM Cortex M4
SDRAM	64 KB	64 KB	64 KB	128 M	4 M	4 M	192 KB
Flash ROM	256 KB	256 KB	256 KB	32 M	4 M	4 M	512 KB
Ethernet				1		WiFi * 1	1
RS - 485	1	1	1	1	1	1	1
Resolution	16 bits	16 bits		16 bits	16 bits	16 bits	24 bits
Current	4 ~ 20mA	4 ~ 20mA		4 ~ 20mA	4 ~ 20mA	4 ~ 20mA	0 ~ 25mA
Voltage	0 ~ 10 V	0 ~ 10 V		0 ~ 10 V	0 ~ 10 V	0 ~ 10 V	-10 ~ 10 V
Thermocouple							J, K, T, E, R, S, B, N
RTD							Platinum100 , -200 ~ 600°C
Input Impedence	V : 1.33 M A : 125	V : 1.33 M A : 125		V : 1.33 M A : 125	V : 1.33 M A : 125	V : 1.33 M A : 125	V : 1.33 M A : 125
3000V DC Isolation							•
Utility	•	•	•	•	•	•	•
Power Input	DC 9 ~ 24V	DC 9 ~ 24V	DC 9 ~ 24V	DC 9 ~ 24V	DC 9 ~ 24V	DC 9 ~ 24V	DC 12 ~ 24V
DIN - Rail Mounting	•	•	•	•	•	•	•
Operating Temperature	0°C ~ 70°C	-25°C ~ 70°C	0°C ~ 70°C	0°C ~ 70°C	0°C ~ 70°C	0°C ~ 70°C	0°C ~ 70°C
Packaging							
Net weight	95 gm	105 gm	95 gm	400 gm	600 gm	610 gm	120 gm
Dimension	110 * 90 * 26 mm	110 * 90 * 26 mm	110 * 90 * 26 mm	165 * 105 * 30 mm	220 * 105 * 30 mm	220 * 105 * 30 mm	70 * 60 * 80 mm



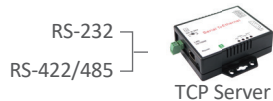
Serial To Ethernet + WiFi

Model	E-P132-T-100	E-P332	E-P732-X	WPC-832-2	WPC-832	WPC-832-4-I	WPC-632-Pi CM4-4 / 8
Photo							
Function	Serial To Ethernet	Serial To Ethernet	Serial To Ethernet	Serial To Ethernet	Serial To Ethernet	Serial To Ethernet	Serial To Ethernet
Serial Port	TTL UART x 1	2 ports	2 ports	2 ports	2 ports	4 ports	4 / 8 ports
CPU	8 BIT CPU	16 BIT CPU	ARM Cortex M4	MIPS,OpenWrt	MIPS,OpenWrt	MIPS,OpenWrt	ARM Cortex – A72
CPU Speed	100 MHz	100 MHz	120 MHz	580 MHz	580 MHz	580 MHz	1.5 GHz
SDRAM	32 K	2 M	256 K	128 M	128 M	128 M	1 G
Flash ROM	512 KB	256 KB	1 M	32 M	32 M	32 M	8 G
Wireless Lan 802.11				b/g/n	b/g/n	b/g/n	b/g/n/ax
Ethernet	1	1	1	1	1	1	2
Socket Connection	1	2	1	4	4	4	4
RS - 232/422/485					2	4	4 / 8
RS - 232	1 (UART)	1	1	1			
RS - 422/485		1	1	1			
Baud Rate	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps
Virtual Com	●	●	●	●	●	●	●
Utility / Web Page Setup	●	●	●	●	●	●	●
Power Input	DC 5V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V
Option					PoE		
DIN - Rail Mounting		●	●	●	●	●	●
Operating Temperature	-10°C ~ 65°C	-10°C ~ 65°C	-10°C ~ 65°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C
Packaging							
Net weight	12 gm	100 gm	95 gm	115 gm	460 gm	650 gm	920 gm
Dimension	45 * 38 * 10 mm	110 * 90 * 26 mm	110 * 90 * 26 mm	110 * 90 * 26 mm	120 * 110 * 35 mm	220 * 120 * 35 mm	220 * 120 * 50 mm

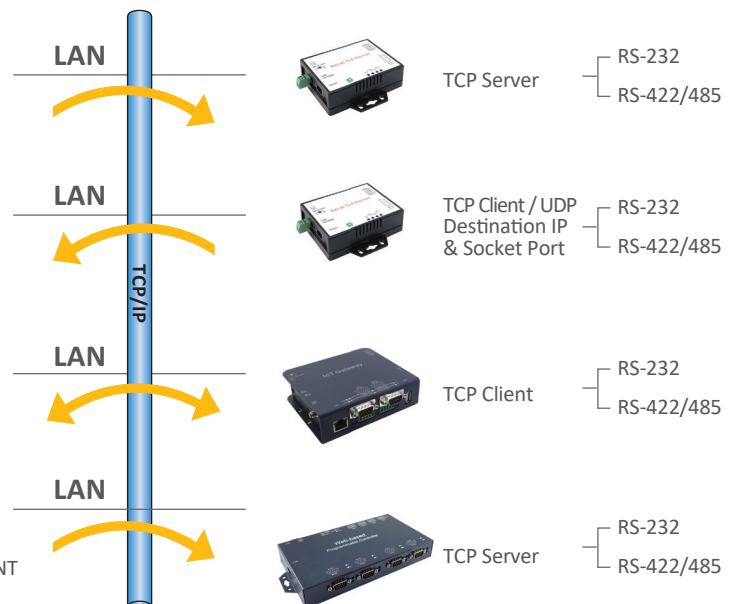
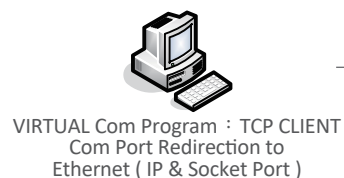
1. TCP Server



2. TCP CLIENT/ UDP

3. Peer to Peer
(Serial Tunnel)

4. Virtual Com



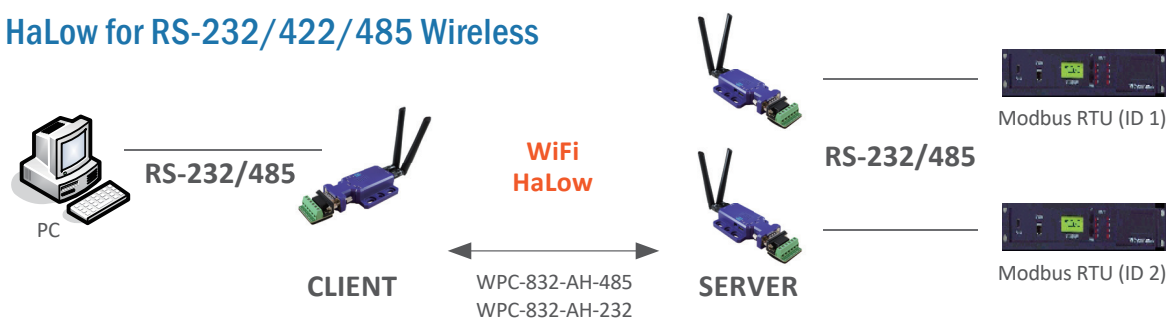
WiFi HaLow series - IEEE 802.11 ah

Model	WPC-832-AH-E	WPC-832-AH-485	WPC-832-AH-232
Photo			
Function	Ethernet To WiFi HaLow	RS-485 / 422 To WiFi HaLow	RS-232 To WiFi HaLow
WiFi HaLow Chipset	Newracom 7394	Newracom 7394	Newracom 7394
Carrier Frequency	ISM band 862 ~ 936 MHz	ISM band 862 ~ 936 MHz	ISM band 862 ~ 936 MHz
Tx RF Output Power	17 dBm	17 dBm	17 dBm
Receiver Sensitivity	-109 dBm	-109 dBm	-109 dBm
Antenna	SMA plug 3 dbi	SMA plug 3 dbi	SMA plug 3 dbi
Distance (Line of Sight)	Upto 1.5 KM	Upto 1.5 KM	Upto 1.5 KM
RS - 232			1
RS - 422/485		1	
Baud Rate		9600 ~ 115.2 K bps	9600 ~ 115.2 K bps
Ethernet	1		
Socket	TCP Client,Server/ UDP/ Http	TCP Client,Server/ UDP/ Http	TCP Client,Server/ UDP/ Http
Connection	4	4	4
Protocol	Transparent	Modbus/Transparent	Modbus/Transparent
Security	WPA2 / WPA3	WPA2 / WPA3	WPA2 / WPA3
Setup Utility	Web Page Setup	Web Page Setup	Web Page Setup
Power Input	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V
Operating Temperature	-10°C ~ 75°C	-10°C ~ 75°C	-10°C ~ 75°C
Packaging			
Net weight	210 gm	65 gm	50 gm
Dimension	110 * 75 * 30 mm	85 * 55 * 15 mm	85 * 55 * 15 mm

1. WiFi HaLow for Ethernet Wireless Bridge

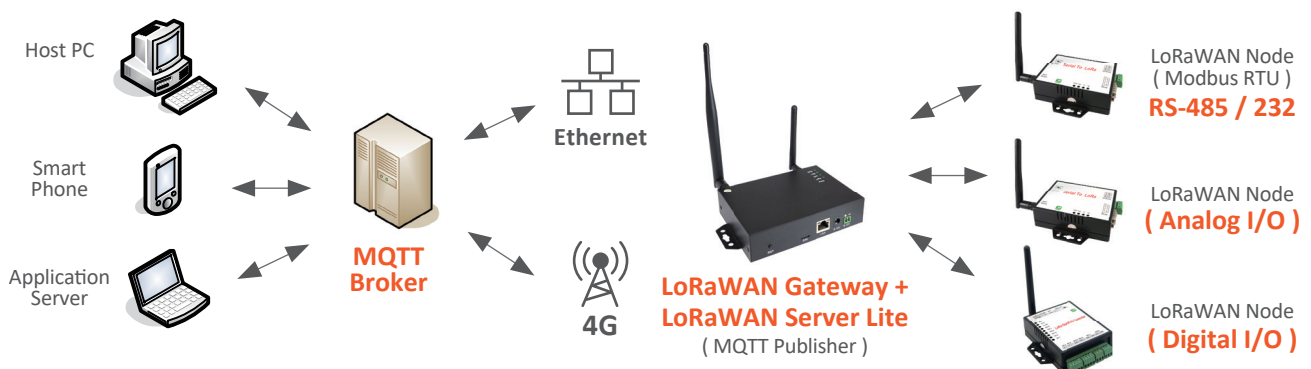


2. WiFi HaLow for RS-232/422/485 Wireless



LoRaWAN series

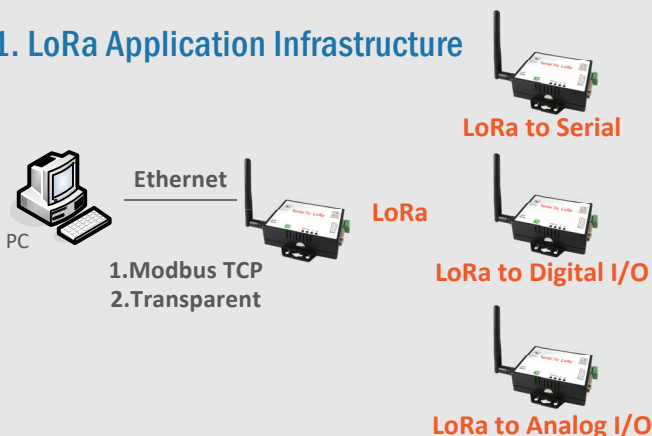
Model	LR-201-G-WAN	LR-201-G-WAN-Server	LR-201-S-WAN	LR-201-DIO-WAN	LR-201-AI-WAN	LR-201-AO-WAN	LR-201-ADIO-WAN
Photo							
Function	LoRaWAN Gateway	Gateway + Server	Serial To LoRaWAN	LoRaWAN DIO	LoRaWAN Analog Input	LoRaWAN Analog Output	LoRaWAN AI + DIO
LoRa Chipset	Semtech SX1272	Semtech SX1272	Semtech SX1272	Semtech SX1272	Semtech SX1272	Semtech SX1272	Semtech SX1272
Carrier Frequency	ISM band 862 ~ 936MHz	ISM band 862 ~ 936MHz	ISM band 862 ~ 936MHz	ISM band 862 ~ 936MHz	ISM band 862 ~ 936MHz	ISM band 862 ~ 936MHz	ISM band 862 ~ 936MHz
Tx RF Output Power	20 dBm	20 dBm	20 dBm	20 dBm	20 dBm	20 dBm	20 dBm
Receiver Sensitivity	-137 dBm	-137 dBm	-137 dBm	-137 dBm	-137 dBm	-137 dBm	-137 dBm
Antenna	SMA plug 3 dbi	SMA plug 3 dbi	SMA plug 3 dbi	SMA plug 3 dbi	SMA plug 3 dbi	SMA plug 3 dbi	SMA plug 3 dbi
Distance (Line of Sight)	2 ~ 5 KM	2 ~ 5 KM	2 ~ 5 KM	2 ~ 5 KM	2 ~ 5 KM	2 ~ 5 KM	2 ~ 5 KM
Ethernet	1	1					
RS-232/422/485			1				
Baud Rate			9600 ~ 115.2 K bps				
Digital I/O				DI * 4 , DO * 3			DI * 2 , DO * 2
Analog Input					8		8
Analog Output						2	
Protocol	TCP	TCP	Modbus/Transparent	Modbus	Modbus	Modbus	Modbus
Security	128 bits AES	128 bits AES	128 bits AES	128 bits AES	128 bits AES	128 bits AES	128 bits AES
Setup Utility	Web Page Setup	Web Page Setup	•	•	•	•	•
Power Input	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V
DIN-Rail Mounting	•	•	•	•	•	•	•
Operating Temperature	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C
Packaging							
Net weight	495 gm	495 gm	125 gm	136 gm	125 gm	120 gm	360 gm
Dimension	160 * 110 * 30 mm	160 * 110 * 30 mm	110 * 90 * 26 mm	110 * 90 * 26 mm	110 * 90 * 26 mm	110 * 90 * 26 mm	145 * 100 * 30 mm



LoRa series

Model	LR-201-E-U	LR-201-E-TCP-U	LR-201-S-U	LR-201-DIO-U	LR-201-AI-U	LR-201-AIO-U	LR-201-ADIO-U
Photo							
Function	Ethernet To LoRa	Ethernet (Modbus TCP) To LoRa	Serial To LoRa	LoRa DIO	LoRa Analog Input	LoRa Analog Output	LoRa AI + DIO
LoRa Chipset	Semtech SX1272	Semtech SX1272	Semtech SX1272	Semtech SX1272	Semtech SX1272	Semtech SX1272	Semtech SX1272
Carrier Frequency	ISM band 862 ~ 936MHz	ISM band 862 ~ 936MHz	ISM band 862 ~ 936MHz	ISM band 862 ~ 936MHz	ISM band 862 ~ 936MHz	ISM band 862 ~ 936MHz	ISM band 862 ~ 936MHz
Tx RF Output Power	20 dBm	20 dBm	20 dBm	20 dBm	20 dBm	20 dBm	20 dBm
Receiver Sensitivity	-137 dBm	-137 dBm	-137 dBm	-137 dBm	-137 dBm	-137 dBm	-137 dBm
Antenna	SMA plug 3 dbi	SMA plug 3 dbi	SMA plug 3 dbi	SMA plug 3 dbi	SMA plug 3 dbi	SMA plug 3 dbi	SMA plug 3 dbi
Distance (Line of Sight)	1 ~ 2 KM	1 ~ 2 KM	1 ~ 2 KM	1 ~ 2 KM	1 ~ 2 KM	1 ~ 2 KM	1 ~ 2 KM
Add Direction Antenna	3 ~ 5 KM	3 ~ 5 KM	3 ~ 5 KM	3 ~ 5 KM	3 ~ 5 KM	3 ~ 5 KM	3 ~ 5 KM
RS - 232/422/485			1				
Baud Rate			9600 ~ 115.2 K bps				
Ethernet	1	1					
Digital I/O				DI * 4 , DO * 3			DI * 2 , DO * 2
Analog Input					8	4	8
Analog Output						2	
Protocol	Transparent	Modbus	Modbus/Transparent	Modbus	Modbus	Modbus	Modbus
Security	AES	AES	AES	AES	AES	AES	AES
Setup Utility	●	●	●	●	●	●	●
Power Input	DC-9 ~ 30V	DC-9 ~ 30V	DC-9 ~ 30V	DC-9 ~ 30V	DC-9 ~ 30V	DC-9 ~ 30V	DC-9 ~ 30V
DIN-Rail Mounting	●	●	●	●	●	●	●
Operating Temperature	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C
Packaging							
Net weight	120 gm	120 gm	125 gm	136 gm	130 gm	130 gm	360 gm
Dimension	110 * 90 * 26 mm	110 * 90 * 26 mm	110 * 90 * 26 mm	110 * 90 * 26 mm	110 * 90 * 26 mm	110 * 90 * 26 mm	145 * 100 * 30 mm

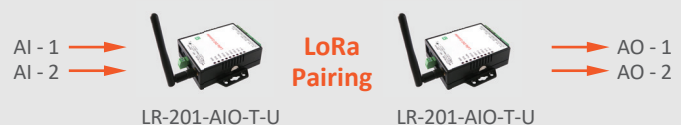
1. LoRa Application Infrastructure



2. DI Trigger Remote DO via LoRa



3. AI Transmit Data To Remote AO via LoRa



USB To Serial

Model	US-101-232	US-101-485	US-101-I	US-201-I	US-401-I	US-201-232
Photo						
Function	USB to RS-232	USB to RS-422/485	USB to RS-232/422/485	USB to RS-232/422/485	USB to RS-232/422/485	USB to RS-232
CPU	Silicon Lab	Silicon Lab	Silicon Lab	FTDI	FTDI	FTDI
USB version	1.0/1.1/2.0	1.0/1.1/2.0	1.0/1.1/2.0	1.0/1.1/2.0	1.0/1.1/2.0	1.0/1.1/2.0
RS - 232	1					1
RS - 422/485		1				
RS - 232/422/485			1	1	4	
Baud Rate	300 ~ 230.4 K bps	300 ~ 230.4K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps
3000V DC Isolation			•	•	•	
Driver Support	•	•	•	•	•	•
Power Input	USB port power	USB port power	USB port power	USB port power	Ethernet DC 9 ~ 30V	USB port power
DIN - Rail Mounting			•	•	•	
Operating Temperature	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C
Packaging						
Net weight	35 gm	35 gm	90 gm	90 gm	610 gm	35 gm
Dimension	55 * 40 * 25 mm	55 * 40 * 25 mm	110 * 90 * 26 mm	110 * 90 * 26 mm	220 * 120 * 30 mm	100 * 35 * 15 mm

Serial Converter

Model	SC-101	SC-101-I	SC-101-485-IR
Photo			
Function	RS-232 To RS-422/485	RS-232 To RS-422/485	RS-485 Repeater
RS - 232	1	1	
RS - 422/485	1	1	1
RS - 232 Cable	•	•	
Baud Rate	300 ~ 230.4 K	300 ~ 230.4 K	300 ~ 230.4 K
3000V DC Isolation		•	•
Power Input	DC 5 ~ 7V	DC 9 ~ 24V	DC 5 ~ 24V
DIN - Rail Mounting		•	
Operating Temperature	0°C ~ 65°C	0°C ~ 65°C	0°C ~ 65°C
Packaging			
Net weight	40 gm	94 gm	35 gm
Dimension	70 * 40 * 25 mm	88 * 91 * 27 mm	70 * 40 * 25 mm

TCP Socket Control & Modbus DI/O, DI Trigger DO via Ethernet & Power PDU

Ethernet & WiFi Digital I/O

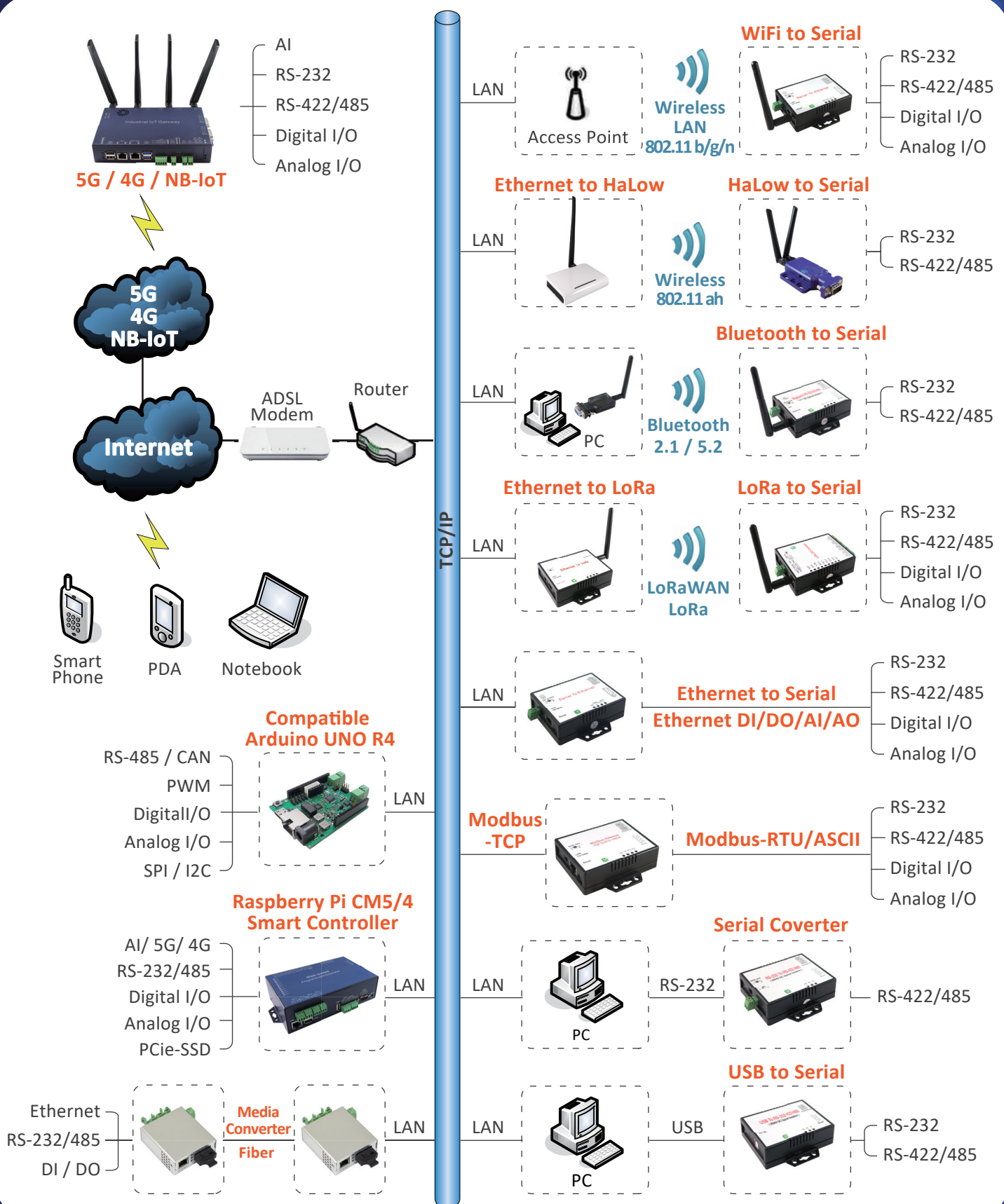
Model	E-P732-X-DIO	WPC-832-2-DIO	WPC-332-DIO-88	E-P332-DIO-1010	AI-140-888-W	WPC-332-DIO-Map	E-P732-ESP32-PDU
Photo							
Function	Ethernet I/O	Ethernet+ WiFi I/O	Modbus DI/DO	Modbus DI/DO	WiFi I/O	WiFi I/O	Power PLUG Controller
Protocol	TCP Socket Control	Modbus DI/DO	Modbus DI/DO	Modbus + Http	Modbus DI/DO	DI Trigger DO via LAN	TCP Socket Control
CPU	ARM Cortex M4	MIPS CPU	ARM 7 CPU	16-bit CPU	32-bit CPU	ARM 7 CPU	32-bit CPU
CPU - speed	120 MHz	580 MHz	80 GHz	100 MHz	120 MHz	80 MHz	120 MHz
SDRAM / ROM	256 KB / 1 M	128 M / 32 M	16 M / 8 M	1 M / 256 KB	4 M / 4 M	16 M / 8 M	4 M / 4 M
Ethernet / WiFi	1/0	1/1	1/0	1/0	0/1	1/0	1/0
RS - 232	1	1					
RS - 422/485	1	1		1	1		1
Baud Rate	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	300 ~ 230.4 K bps	110 ~ 115.2 K bps	300 ~ 230.4 K bps	1200 ~ 115.2 K bps
Digital I/O	2/2	2/2	8/8	10/10	8/8, AI * 8	8/4	PLUG * 1
Utility/Web Page Setup	•	•	•	•	•	•	•
Power Input	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 30V	DC 9 ~ 24V	DC 9 ~ 30V	DC 9 ~ 30V	AC 110 ~ 230V
Operating Temperature	0°C ~ 70°C	0°C ~ 70°C	0°C ~ 70°C	0°C ~ 65°C	0°C ~ 65°C	0°C ~ 70°C	0°C ~ 70°C
Packaging							
Net weight	350 gm	355 gm	730 gm	350 gm	600 gm	750 gm	730 gm
Dimension	140 * 95 * 26 mm	133 * 105 * 26 mm	240 * 120 * 30 mm	120 * 150 * 27 mm	220 * 105 * 30 mm	220 * 120 * 30 mm	250 * 105 * 40 mm

Fiber To Serial & Ethernet

Model	FS-120-SM	FS-120-MM	Model	FGE-100-C-SM	FGE-100-C-MM
Photo			Photo		
Function	Fiber to Serial	Fiber to Serial	Function	Fiber to Giga LAN	Fiber to Giga LAN
RS - 232/422/485	1	1	Ethernet	1	1
Optical type	Single Mode	Multi Mode	Speed	10/100/1000 Mbps	10/100/1000 Mbps
Connector	SC/FC/ST	SC/FC/ST	Optical type	Single Mode	Multi Mode
Baud Rate	300 ~ 230.4 K bps	300 ~ 230.4 K bps	Connector	LC/SC/FC/ST	LC/SC/FC/ST
Power Input	DC 9 ~ 24V	DC 9 ~ 24V	Power	DC 12V	DC 12V
Operating Temperature	-10°C ~ 70°C	-10°C ~ 70°C	Operating Temperature	-10°C ~ 70°C	-10°C ~ 70°C
Packaging			Packaging		
Net weight	125 gm	125 gm	Net weight	100 gm	100 gm
Dimension	115 * 70 * 27 mm	115 * 70 * 27 mm	Dimension	115 * 70 * 27 mm	115 * 70 * 27 mm

Network & Wireless Solutions For AI/5G IoT, Serial, USB, Analog & Digital I/O

Compatible Arduino UNO R4 with Ethernet IoT Controller



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