



PROGRAMMABLE IoT EDGE
ESP32
ANALOG IO MODULE





PROGRAMMABLE IOT EDGE ESP32 ANALOG IO MODULE

Programmable ESP32 WiFi Analog IO Modules can be used to build the custom solution for secure monitoring and controlling the IO. Field data collection over MODBUS RS485, Bluetooth, and USB make the monitoring and solution integration, easier than ever for IT engineers through open-source APIs.

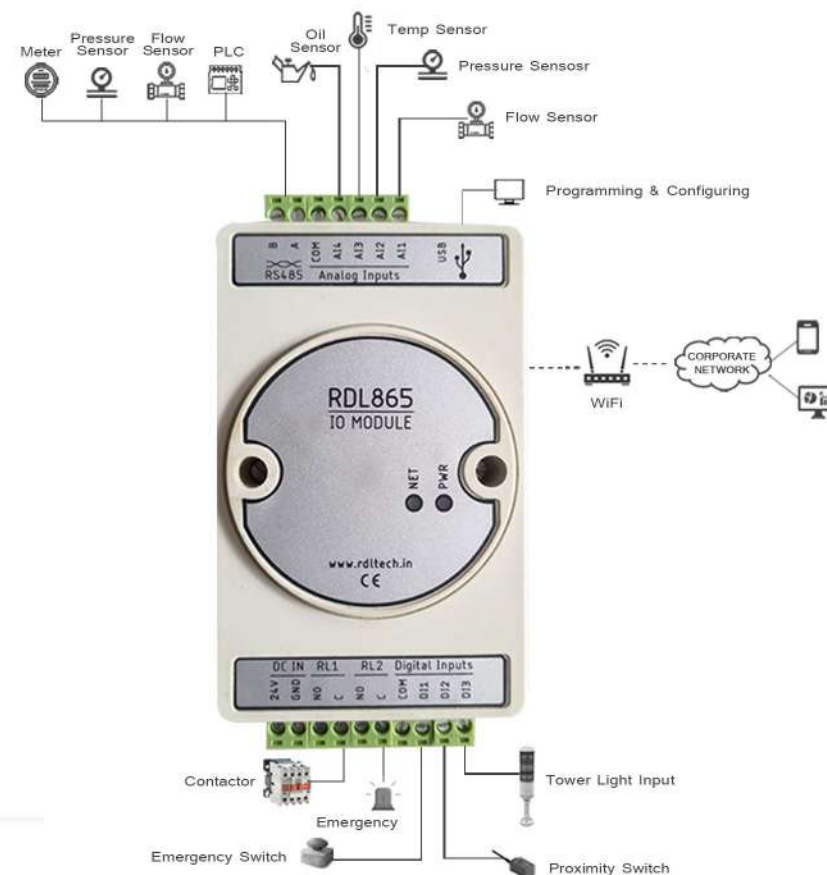
Features

- Open-source Hardware ESP32 dual-core 32-bit up to 240 MHz, Flash 16 MB.
- Support most of the open-source platforms for Custom Programming
- The device offers multiple industrial protocols like MODBUS RTU, MODBUS TCP, JSON, MQTT, and FTP and supports secure communication SSL.
- Industrial Grade Design - Isolated & Protected IO & EMC / EMI compliance.
- Support most of the cloud platforms including Microsoft Azure & AWS etc
- OTA Firmware upgrade supported
- Support communication over USB, WiFi, Bluetooth, and Modbus RTU
- Isolated & protected 3x 24 V Digital Input , 4x analog 4-20 mA / 0-10V & 2x 7A Relay Contact
- Supported DC 9-24V Power Supply.

Applications

- | | |
|--------------------------------------|----------------------------|
| • Production and process monitoring. | • Leakage detection. |
| • Utilities & Energy monitoring. | • Cold storage monitoring. |
| • Alarm & Automated Task application | • Fire & Safety |
| • Condition monitoring. | • Andon System |
| • Environment monitoring. | • District metering. |
| • Industrial Smart grid | • Water treatment. |
| • Standard PLC & SCADA Applications | • Water treatment. |
| • Generator monitoring. | |

APPLICATION WIRING DIAGRAM





SPECIFICATION

ISOLATED DIGITAL INPUTS

Number of digital inputs	3
Type of digital input	Isolated with Interrupted , WET / DRY connection supported
Max Input voltage range	0–28V
Logic HIGH trigger voltage	>12V
Logic LOW trigger voltage	<10V
Maximum trigger frequency	5Khz
Protection of Digital Inputs	ESD , Transient

CPU AND ON CHIP MEMORY

Controller	ESP32–D0WD–V3 embedded, Xtensa dual-core
Microprocessor	32-bit LX6 Microprocessor, up to 240 MHz
ROM	448 KB
SRAM	520 KB
SRAM in RTC	8 KB
Flash	16 MB

USB

Chipset	FTDI
Baud rate	115kbps
Connector Type	USB B

WIRELESS COMMUNICATION

Wi-Fi	802.11 b/g/n/e/l (802.11n @ up to 150 Mbit/s)
Bit Rate	802.11n up to 150 Mbps)
Aggregation	A-MPDU and A-MSDU
Interval Support	0.4 us guard
Frequency Range	2412 ~ 2484 MHz
Protocol	JSON , MQTT , SSL , FTP, RESTful
Security	WFA,WPA/WPA2 and WAPI

FIRMWARE UPDATE

Firmware	OTA/USB
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ISOLATED RS485

Isolation	2500 Vrms
Duplex type / Protocol	Half Duplex / MODBUS RTU
Number of receivers on bus	32*
Data rate	115 Kbps
Connector type	Screw connector A, B,GND

RELAY

No of Relay	4
Power Rating	7 Amps 250v



SUPPLY VOLTAGE

Supply Input Voltage	12V / 24V
Permissible range, lower limit (DC)	9V
Permissible range, Upper limit (DC)	36V

ISOLATED ANALOG INPUT 0-24V

Number of analog inputs	4
Type of analog inputs	Isolated 3700 Vrms
Range of voltage measurement	0-10v to 4-20m Amps
Resolution/Sampling	16 bit/860 SPS
Protection of analog inputs	ESD , Transient

BLUETOOTH® / BLE

- Bluetooth V4.2 BR/EDR and Bluetooth LE specification
- Class-1, class-2 and class-3 transmitter
- AFH
- CVSD and SBC

INSTALLATION

Mounting	Wall / DIN Rail
Enclosure	IP20

WiFi MODBUS TCP MASTER / SLAVE

Supported functions	01, 02, 03, 04, 05, 06, 15, 16
Supported data formats	INT 8/16 Bit, Doble INT 32 Bit, 64 Bit Unsigned INT, Float (ABCD (big-endian), DCBA (little-endian), CDAB, BADC), HEX

WiFi MODBUS RTU MASTER / SLAVE

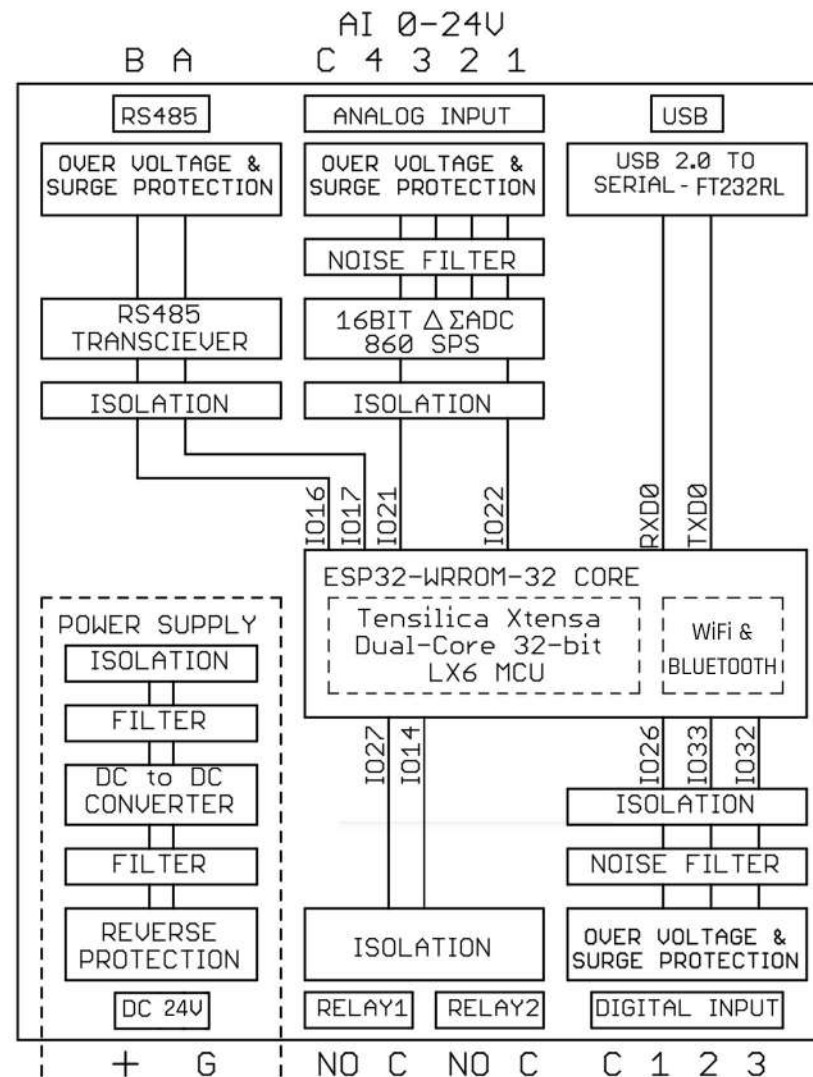
Supported baud rates	From 4800 to 115200
Supported functions	01, 02, 03, 04, 05, 06, 15, 16
Supported data formats	INT 8/16 Bit, Doble INT 32Bit, 64Bit Unsigned INT, Float (ABCD (big-endian), DCBA (little-endian), CDAB, BADC), HEX
Number of data bits	7 or 8
Number of stop bits	1 or 2
Parity bits	None, Even, Odd

DIMENSIONS

Length	140 mm
Height	35 mm
Width	75 mm
Weight	150 g

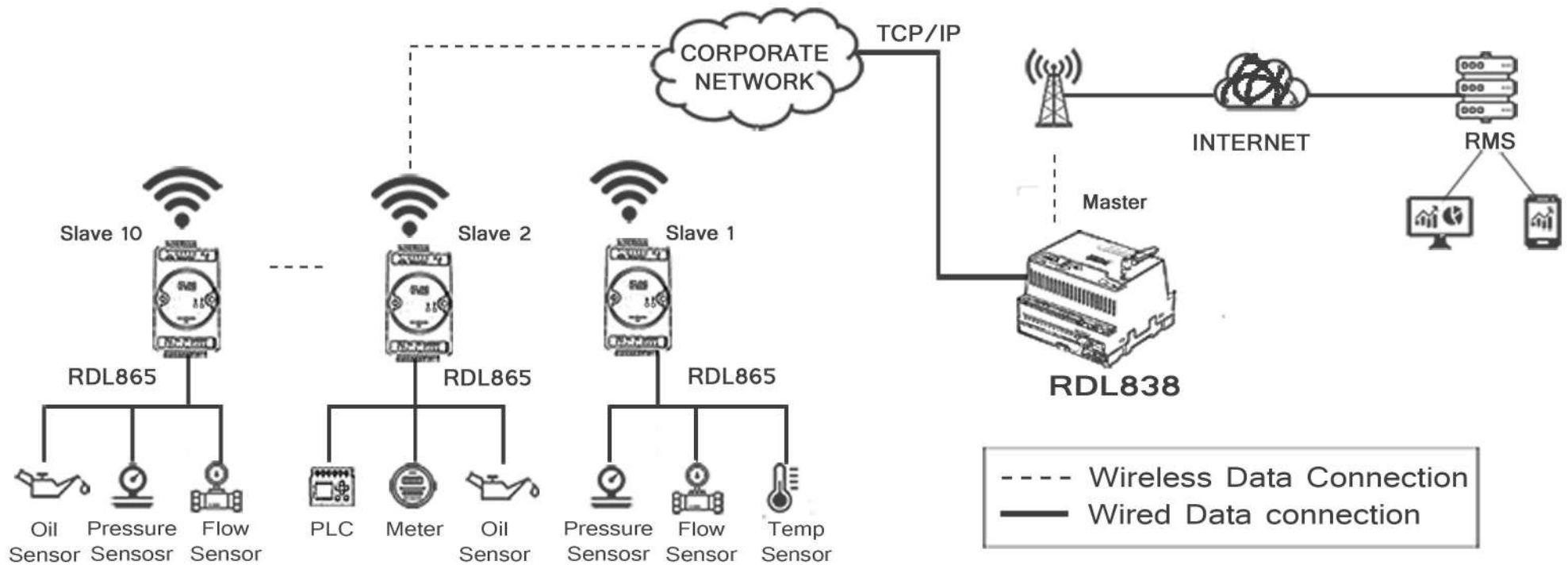


FUNCTIONAL BLOCK DIAGRAM ANALOG IO MODULE



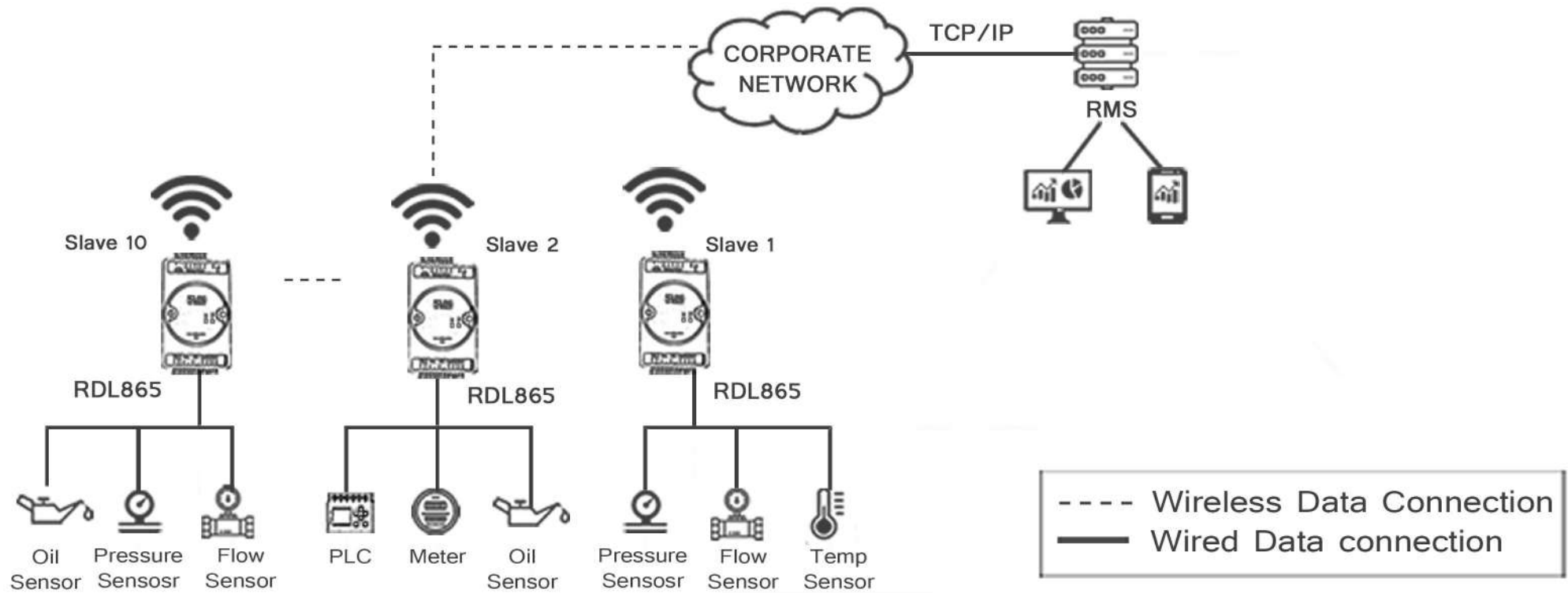


APPLICATION DIAGRAM - CASCADING WiFi IO MODULE & 4G/LTE COMMUNICATION



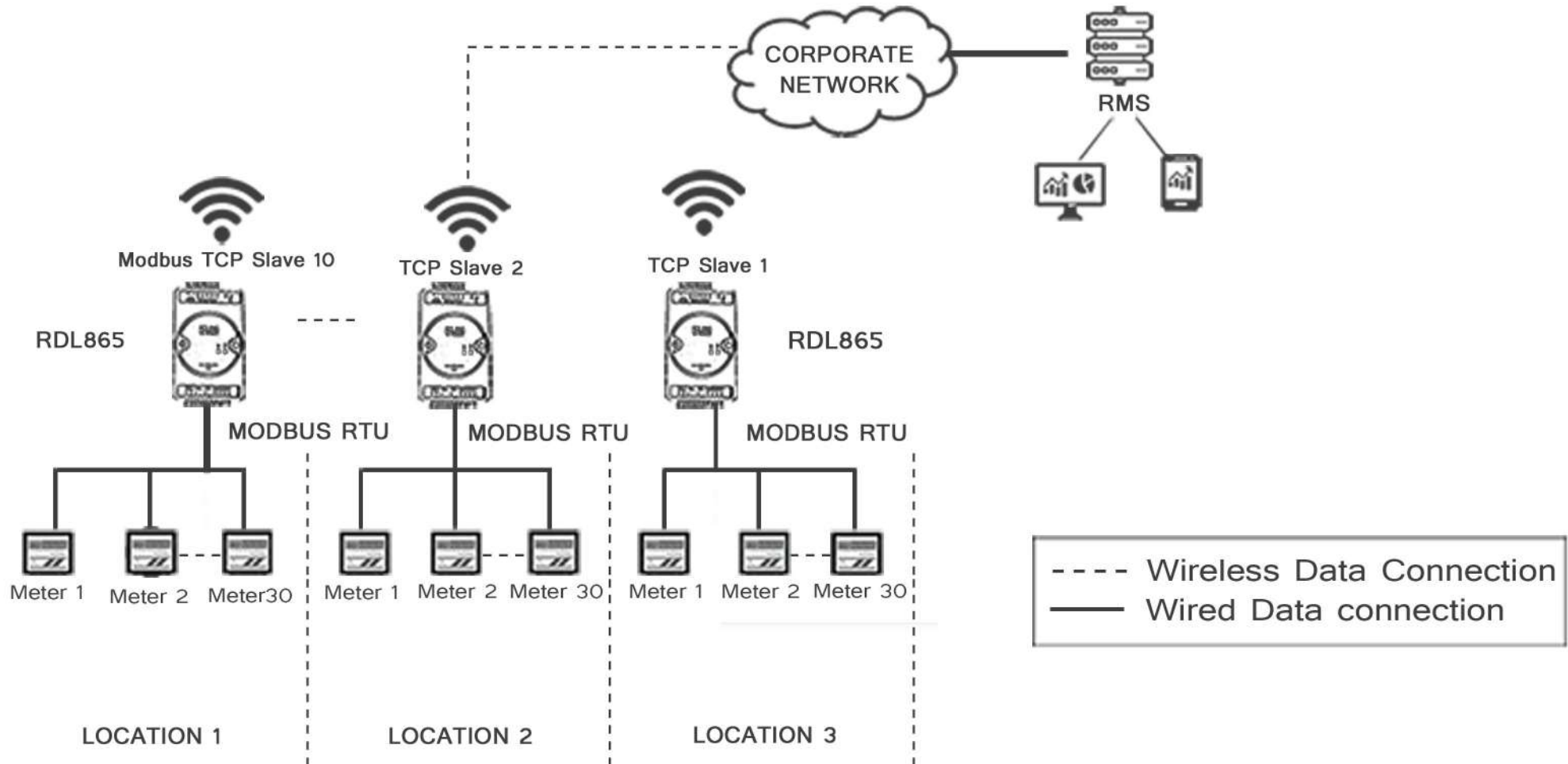


APPLICATION DIAGRAM - CASCADING WiFi IO MODULE



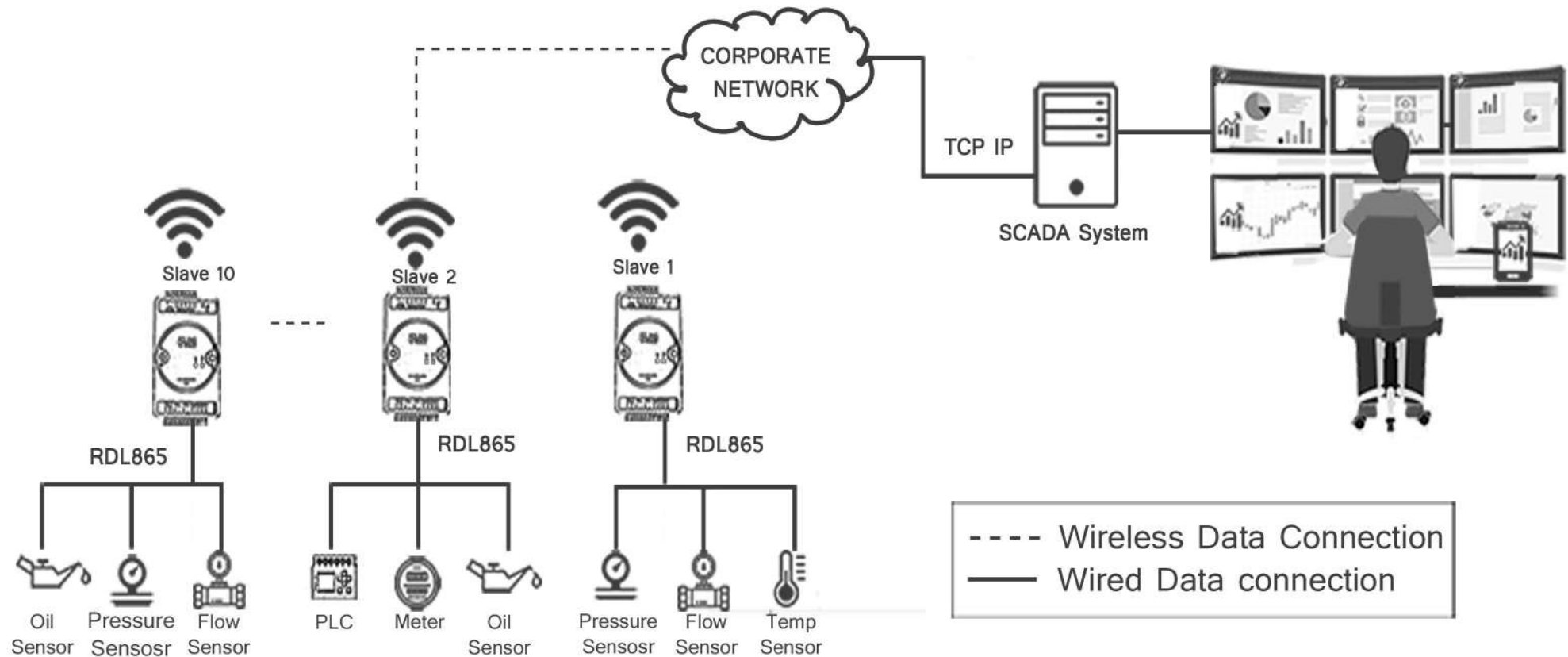


APPLICATION DIAGRAM - ENERGY MONITORING SYSTEM



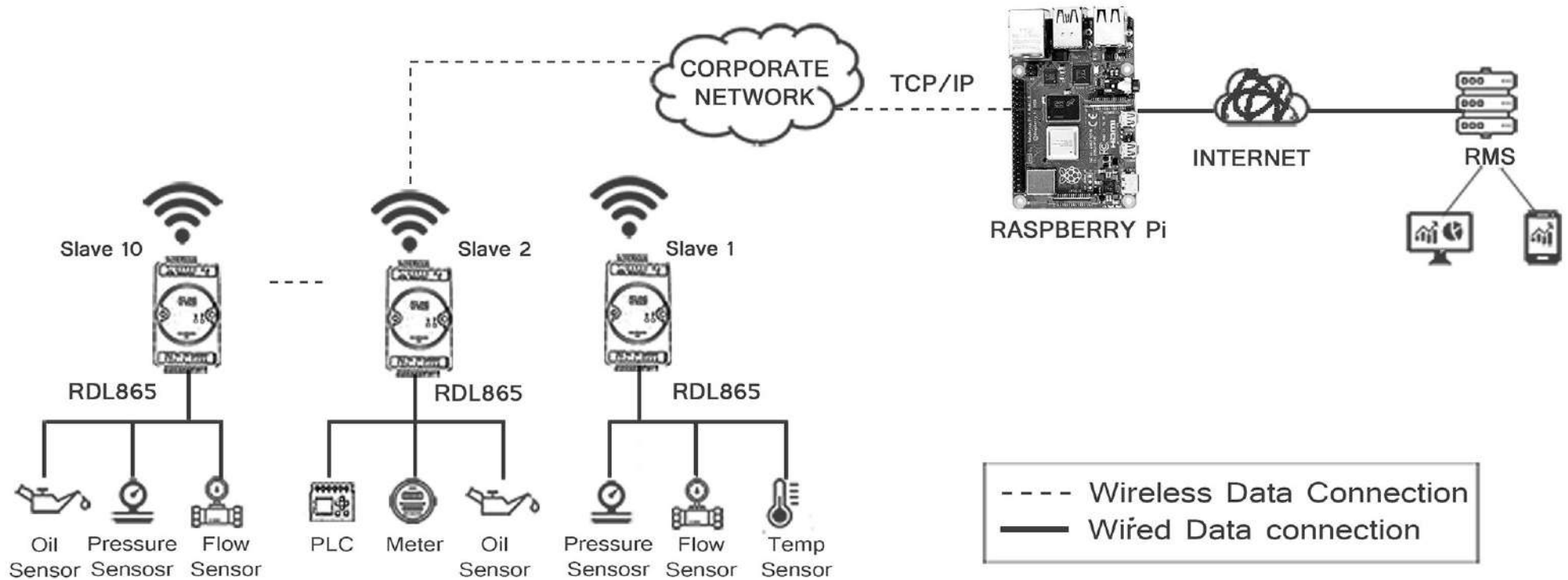


APPLICATION DIAGRAM - SCADA REMOTE IO MONITORING



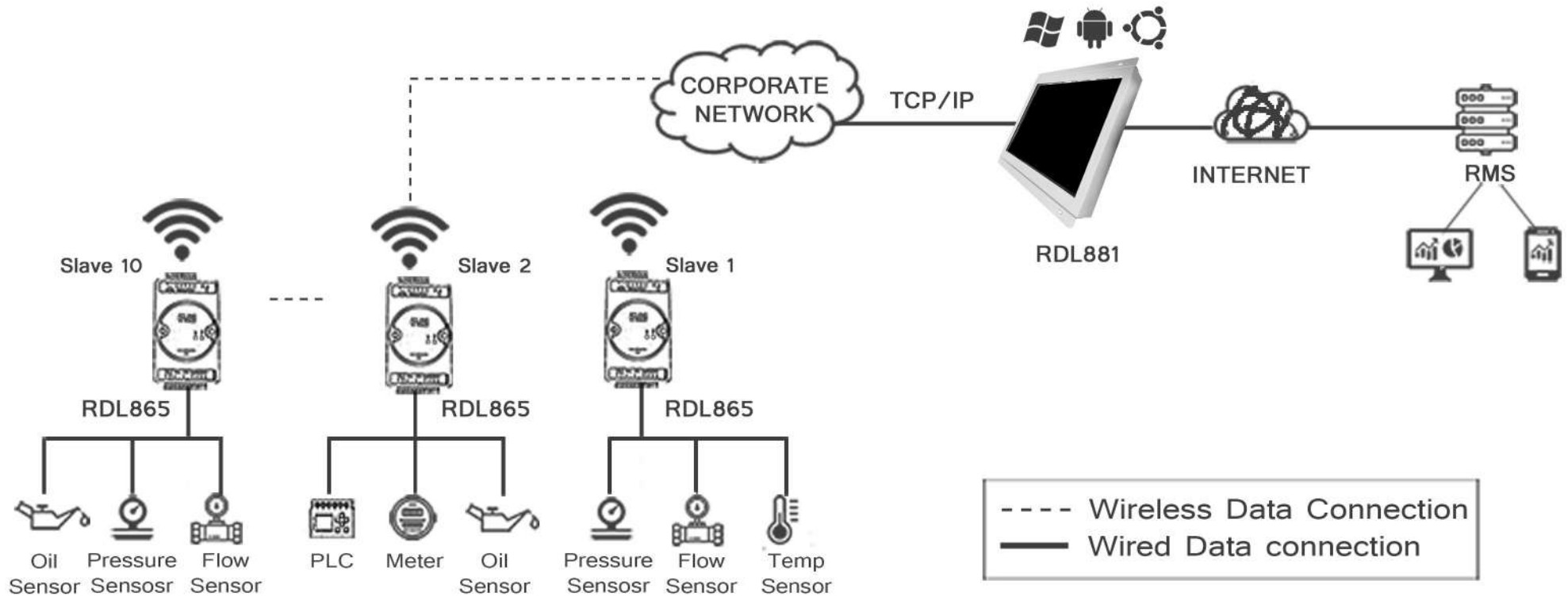


APPLICATION DIAGRAM FOR IO MODULE INTERFACING WITH RASPBERRY PI





APPLICATION DIAGRAM FOR IO MODULE INTERFACING WITH RDL HMI





ORDER INFORMATION TABLE

Model	RDL865	RDL865A	RDL865B	RDL865C	RDL865D	RDL865E
ESP32 Contrller 2-40MHz 16MB Flash	✓	✓	✓	✓	✓	✓
1X Isolated RS485 Modbus RTU	✓	✓	✓	✓	✓	✓
WiFi & Bluetooth	✓	✓	✓	✓	✓	✓
Isolated Analog Input 4.20mA	4CH	X	2CH	4CH	X	2CH
Isolated Analog Input 0-10V	X	4CH	2CH	X	4CH	2CH
3X Isolated Digital Input	✓	✓	✓	✓	✓	✓
2X 7Amps Relay	✓	✓	✓	✓	✓	✓
2.4 GHz Enclosure Mount Adhesive Antena	✓	✓	✓	✓	✓	✓
DIN Rail/Wall Mount Enclosure	X	X	X	✓	✓	✓

NOTE: ✓ - Available
X - Not Available



Note:

1. Unless otherwise specified, all parameters in this datasheet were measured at 25°C and 75% humidity.
2. All index testing procedures in this datasheet are based on our company's corporate standards.
3. We can offer product customization; please contact the sales team directly for more information.
4. Specifications are subject to change without prior notice:
5. For additional information on Product please refer to www.rdltech.in
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