



**RDL TECHNOLOGIES**

RDL838 / DATASHEET



# INDUSTRIAL DATA LOGGER

# 4G/LTE

IEC/EN 61000-4-2  
IEC/EN 61000-4-4  
IEC/EN 61000-4-5  
IEC/EN 61000-4-8

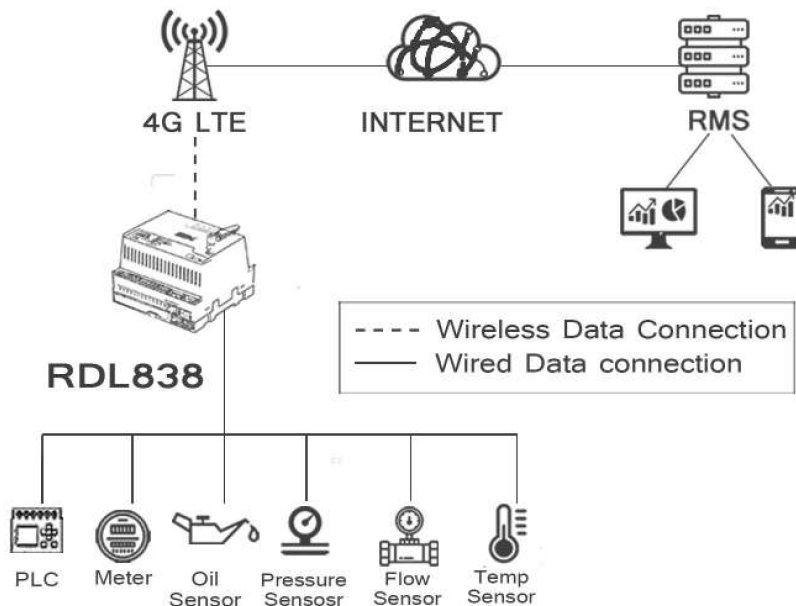




### INDUSTRIAL DATA LOGGER

Intelligent Data Logger product is designed to seamlessly integrate with the IoT and Analytical processing systems. Supporting Multiple IO Interfaces, Protocols, and Secure Data Logger communication are perfect for creating a custom Remote Monitoring Solution.

- ✓ Highly Reliable Connectivity
- ✓ No Coding - Plug & Play
- ✓ Industrial Isolated IO
- ✓ Alarm & Automated Task
- ✓ Easy Remote Management
- ✓ Industrial Grade Design
- ✓ Supporting Wide Range of Industrial Protocol



### FEATURES

#### Powerful IoT Edge Capabilities Intelligent Data Logger

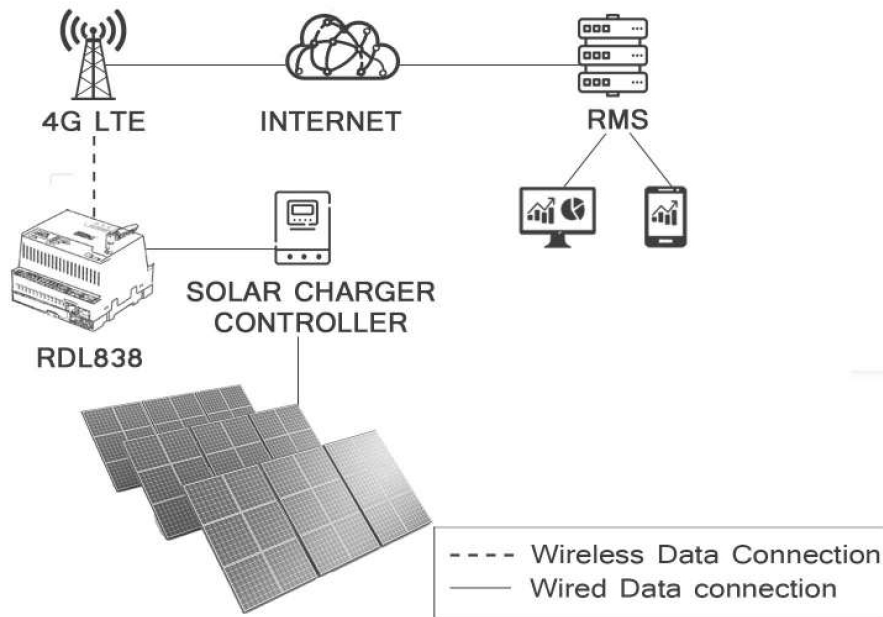
- 12 x Isolated Analog Input Channel 0-10V , 0-24v , 4-20mA.16 Bit Resolution and 860SPS
- 4x Isolated Digital Input 24V
- 3x Isolated Digital Output / PWM 24v
- 1x Relay (NO & C)
- 1x Isolated RS485 for MODBUS RTU Communication
- 1x Isolated Ethernet 10 / 100Mbps MODBUS TCP Communication
- 1x USB-Device Interface for Configuring, Monitoring and Download
- 1x WiFi / 2G / 4G / LTE Wireless Communication
- Configure and Read Multiple Slave IDs, Selectable Input Register Holding Register & Coil.
- Configurable Data Type and Conversion Method (INT, Long INT, FLOAT, Double Float & RawHex) UINT (ABCD (big-endian), DCBA (little-endian), CDAB, BADC)
- Configurable Scaling factor enabling option for Analog channel.
- Configurable WiFi / GPRS / 4G / LTE Interface
- Configurable Data Transferring Protocol JSON / MQTT and FTP
- Support secure communication SSL
- 16 GB inbuilt storage
- Data Logs and stores its CSV file during network failure
- Logger Sends offline data once Network and Server Connected
- Remote control / Activating Relay / Digital output
- Configurable Alarm
- Auto Maintain socket / server connection
- Support most of the cloud platforms including Microsoft Azure & AWS etc
- Industrial Grade Design - Isolated & Protected IO & EMC / EMI Compliance.



### INDUSTRIAL DATA LOGGER

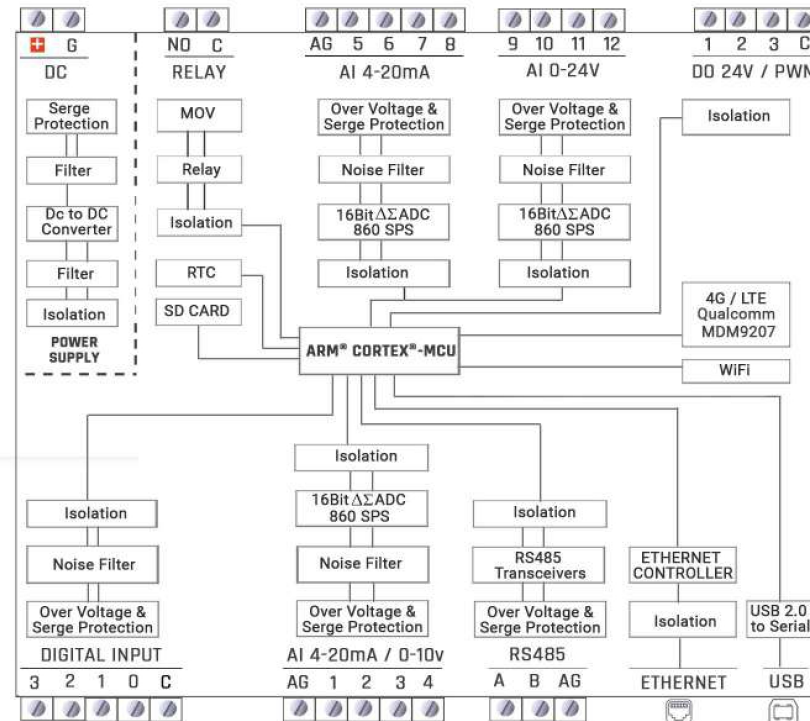
Industrial Data Logger 4.0 can be used to build the custom industrial solution for monitoring and controlling PLC and SCADA, HMI, VFD Motors, servo, Valves, energy meter, actuators, relays, encoder, rfid and finger print readers, industrial sensors and many more with below mentioned operational benefits.

- Improved productivity & asset utilization.
- Preventive maintenance.
- Reduced downtime.
- Paperless production environment.
- Performance Forecasting.
- Production count, rejections.



### APPLICATIONS

- |                                     |  |
|-------------------------------------|--|
| • Remote Monitoring System(RMS)     | • Cold storage monitoring                |
| • Production and process monitoring | • District metering.                     |
| • Utilities monitoring              | • Water treatment.                       |
| • Condition monitoring              | • Generator monitoring.                  |
| • Environment monitoring            | • Green House.                           |
| • Industrial Smart grid             | • Warning message in case of calamities. |
| • Solar grid                        | • Standard SCADA Applications            |





### SPECIFICATION

#### ISOLATED SWITCHABLE ANALOG INPUTS

Number of analog inputs	4
Type of analog inputs	Isolated 3700 Vrms
Range of voltage measurement	0-10v
Range of current measurement	0-20mA / 4-20mA
Switching of voltage / current mode	Software controlled
Resolution/Sampling	16 bit/860 SPS
Protection of analog inputs	ESD , Transient

#### ISOLATED DIGITAL INPUTS / COUNTER

Number of digital inputs	4
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 outputs	ESD , Transient

#### SMS /EVENTS

Processor Out Control	Auto
Events	SMS

#### ISOLATED DIGITAL OUTPUTS

Number of digital outputs	3
Type of digital output	Isolated / PWM
Output voltage range	Open collector output 24V
Maximum current per output	100 mA
Maximum switching frequency	5Khz
Protection of digital outputs	ESD , Transient

#### ISOLATED ANALOG INPUT 0-24V

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

#### ISOLATED ANALOG INPUT 0-20MA

Number of analog inputs	4
Type of analog inputs	Isolated 3700 Vrms
Range of current measurement	0-20mA / 4-20mA
Resolution/Sampling	16 bit/860 SPS
Protection of analog inputs	ESD , Transient



### MODBUS TCP MASTER

Supported functions	01, 03, 04
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

### WIRELESS COMMUNICATION

Wi-Fi	802.11 b/g/n/e/l (802.11n @ up to 150 Mbit/s
Bluetooth	V4.2 Bluetooth low Energy (BLE)
2G / 4G / LTE	UMTS/HSPA(+) and
<b>Data Speed</b>	GSM/GPRS/EDGE / MIMO
4G/LTE	Max 150Mbps Down link / Max 50 Mbps Uplink
Edge	Max 256kbps Down link / Max 236.8 kbps Uplink
GPRS	Max 107kbps Down link / Max 85.6 kbps Uplink
<b>Protocol</b>	TCP / IP, JSON, MQTT, SSL, FTP, RESTful
<b>Security</b>	WFA,WPA/WPA2 and WAPI

### MODBUS RTU MASTER

Supported baud rates	From 4800 to 115200
Supported functions	01, 03, 04,
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
Number of data bits	7 or 8
Number of stop bits	1 or 2
Parity bits	None, Even, Odd

### OPERATING ENVIRONMENT

Operation temprature	20 °C - + 70 °C
Working humidity	< 95% ( + 25 °C)

### MEMORY SD CARD

Memory	16 GB
DATA Storing Format	CSV

### MEMORY FRAM

Memory	25Kb
Write Cycle	1 Trillion



### WIRED COMMUNICATION

#### 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

#### Ethernet 10/100 Mbps

Isolation	1500 Vrms
Protocol	MODBUS TCP
Connector Type	RJ45

#### USB

Chipset	FTDI
Baud rate	115kbps
Connector Type	USB B

### SUPPLY VOLTAGE

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

### REAL TIME LOCATION (GPS)\*

GPS Type	Multi - Constellation
	GNS GPS Receiver
Antenna mode	Active
Antenna Type	External Antenna

### RTC

Battery Backup	3.3V
Accuracy	+/- 3.5ppm From -40 to +85 °C

### RELAY

No of Relay	1 x
Power Rating	5 Amps 250v

### PROCESSOR

4G / LTE Chipset	Qualcomm MDM9207, ARM® Cortex® A7 1.3 Ghz
WiFi Chipset	Xtensa® 32-bit LX7 dual-core, 32 BIT, up to 240 MHz
IO controller Chipset	ARM® Cortex® 32 Bit 200Mhz

### ELECTROMAGNETIC COMPATIBILITY

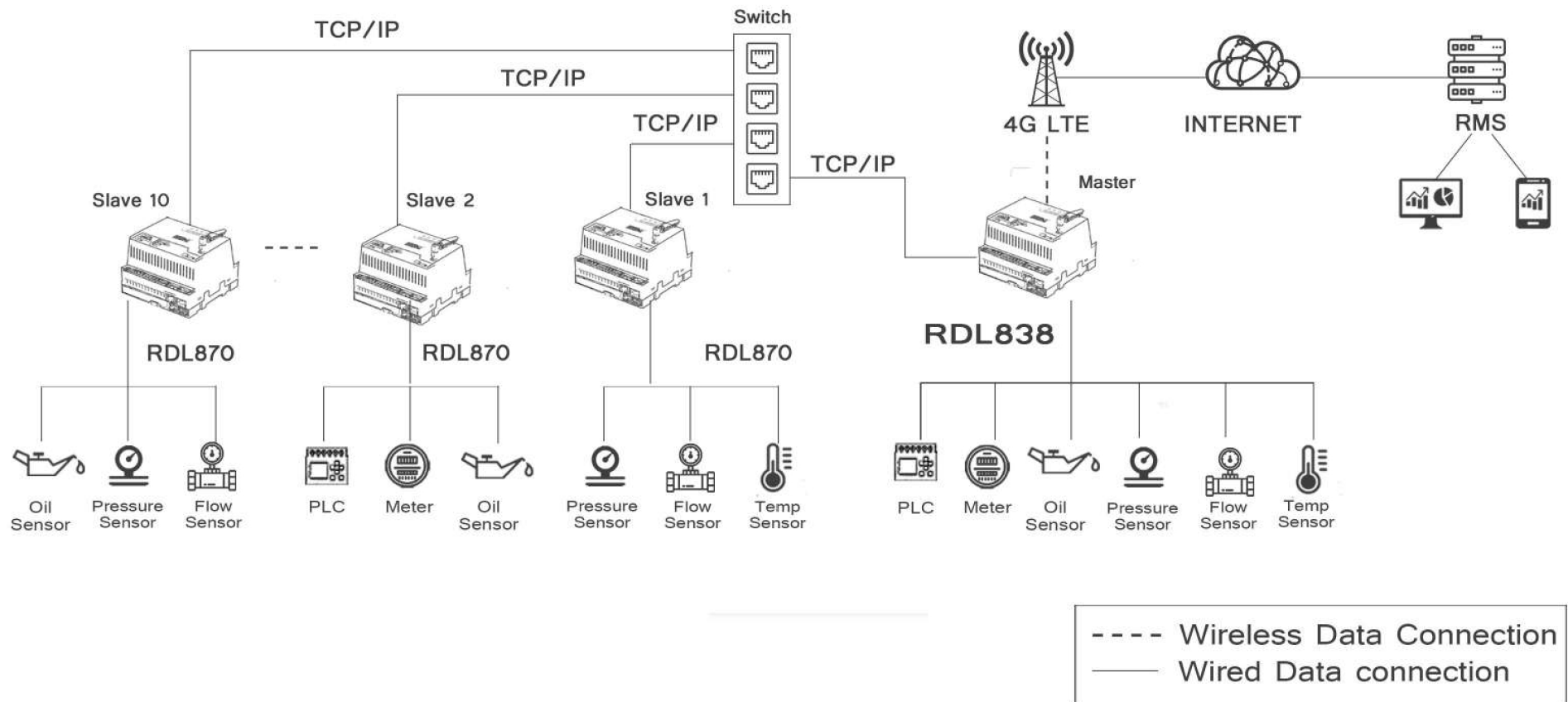
ESD	IEC/EN 61000-4-2	Contact ± 6KV Air ±8KV	Criteria A
EFT	IEC/EN 61000-4-4	± 2KV	Criteria A

### PHYSICAL SPECIFICATION

Length x Height x Width (LxHxW)	110mm x 72.5mm x 110mm
Weight	150 g
Mounting	Wall / DIN Rail
Enclosure	IP20

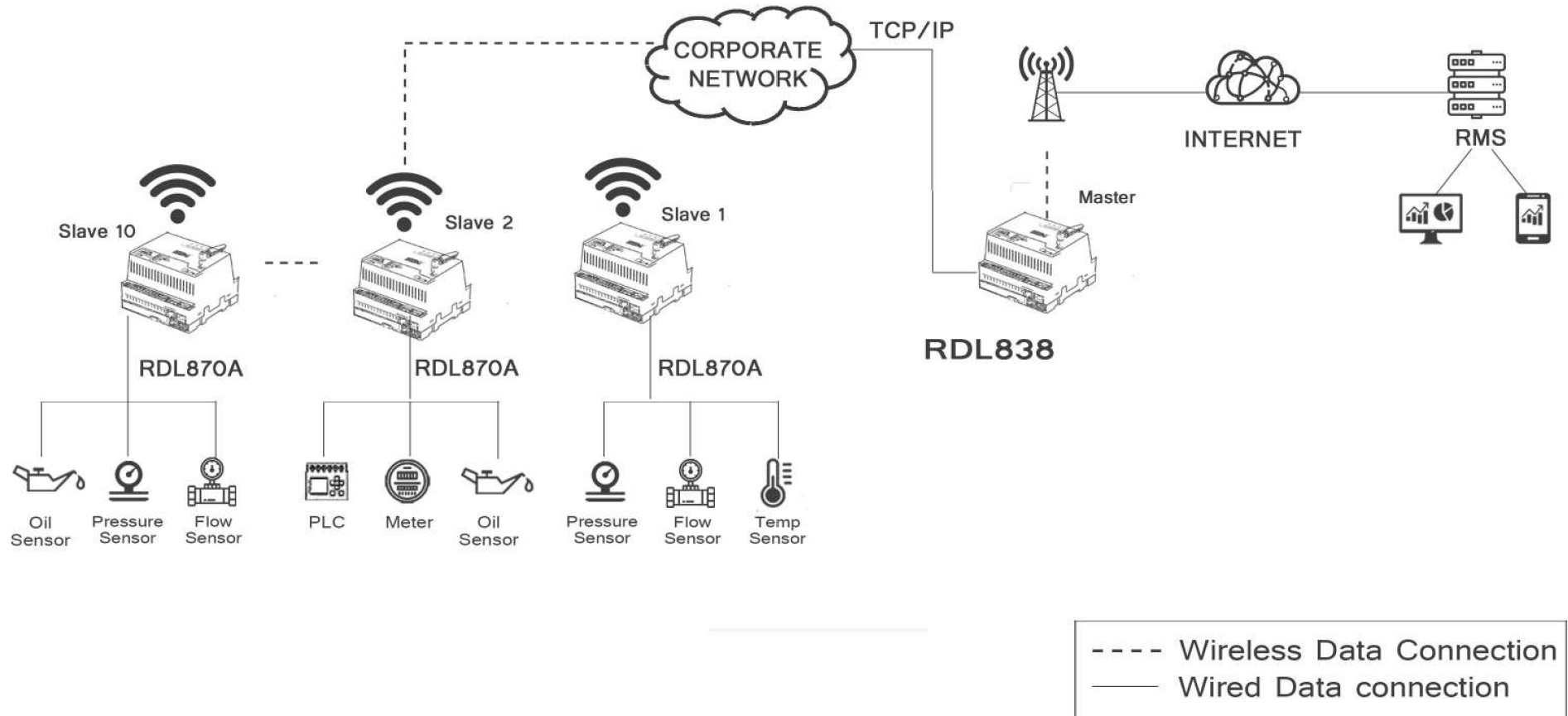


### APPLICATION DIAGRAM - CASCADING REMOTE IO MODULE



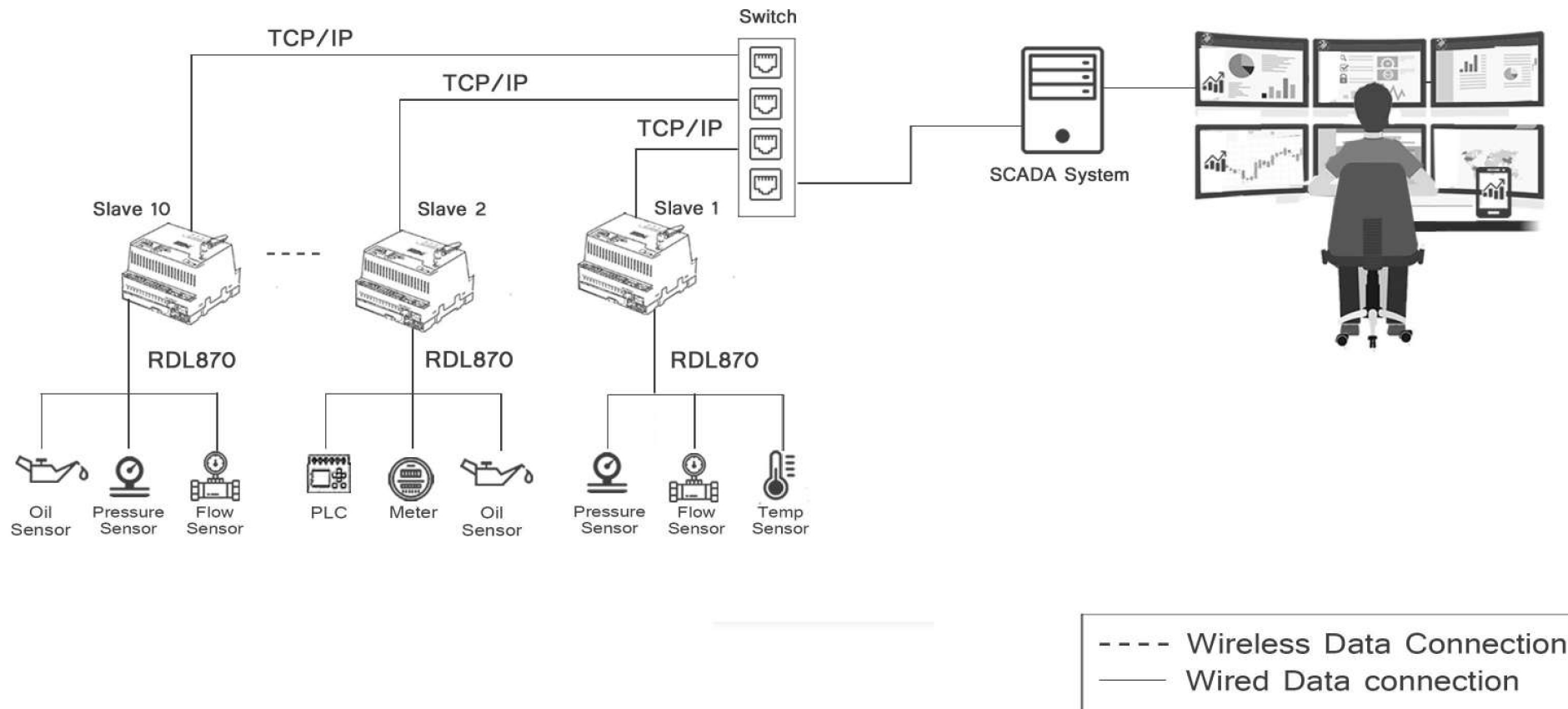


### APPLICATION DIAGRAM - CASCADING WiFi IO MODULE



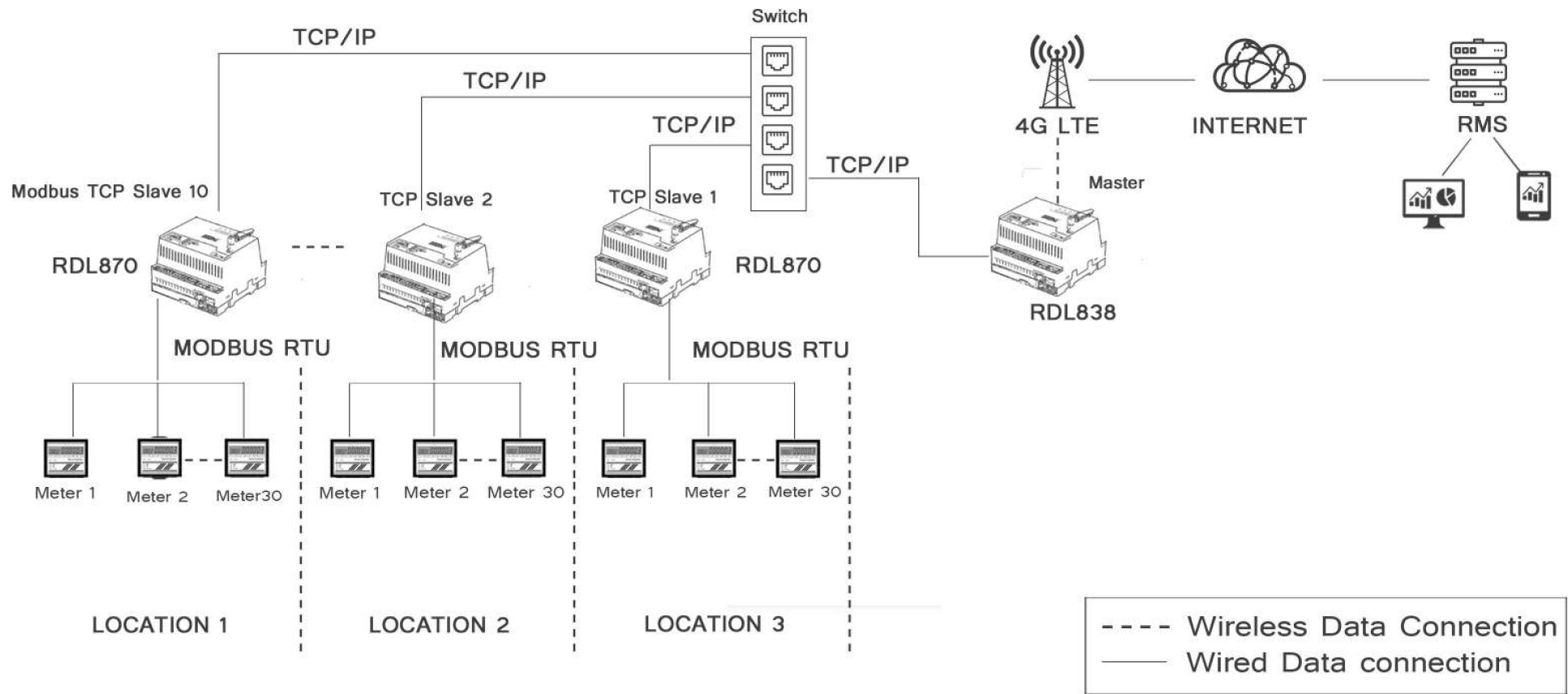


### APPLICATION DIAGRAM - SCADA REMOTE IO MONITORING



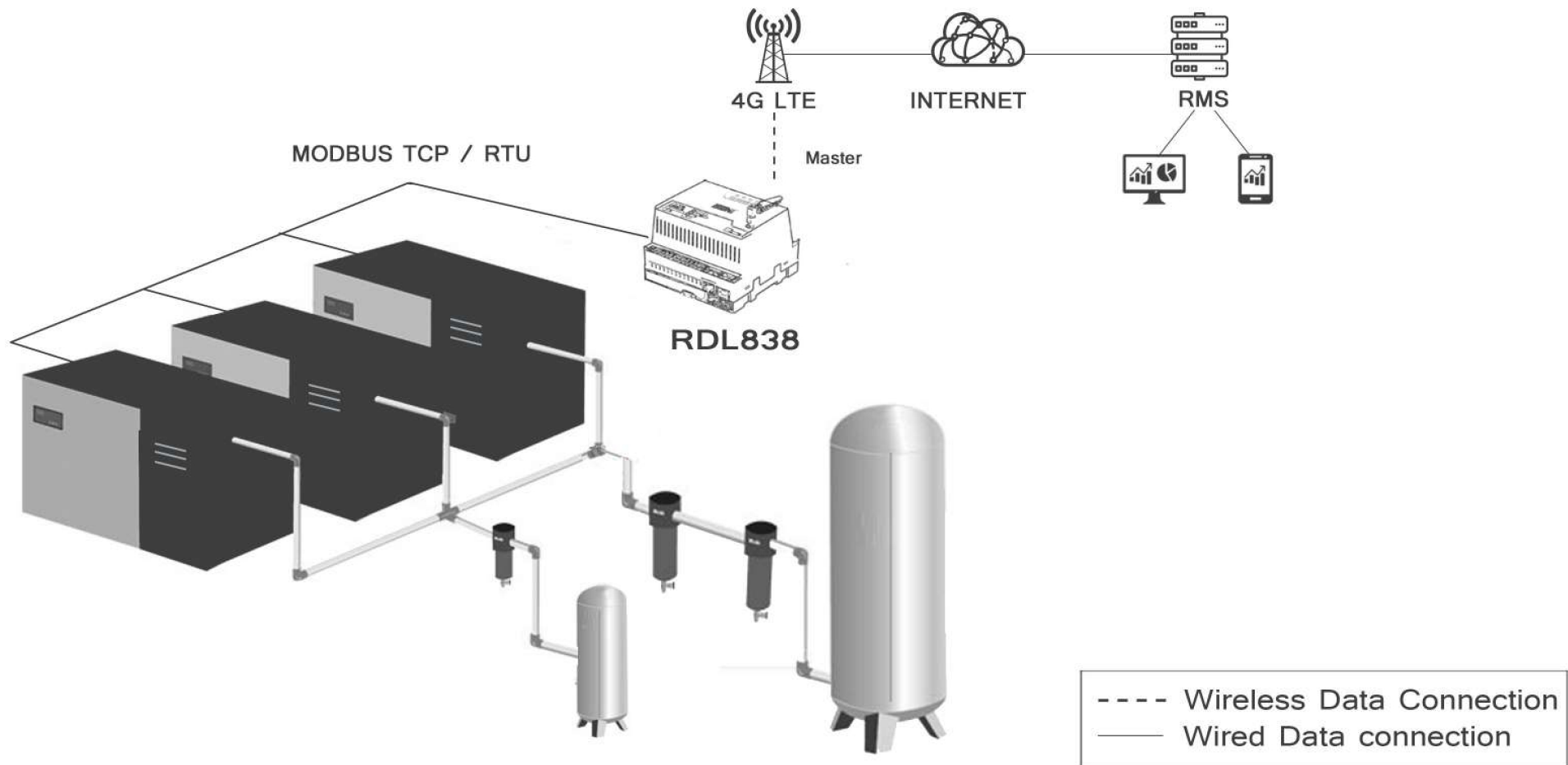


### APPLICATION DIAGRAM - ENERGY MONITORING SYSTEM





### DIAGRAM - COMPRESSOR MONITORING SYSTEM





## ORDER INFORMATION TABLE

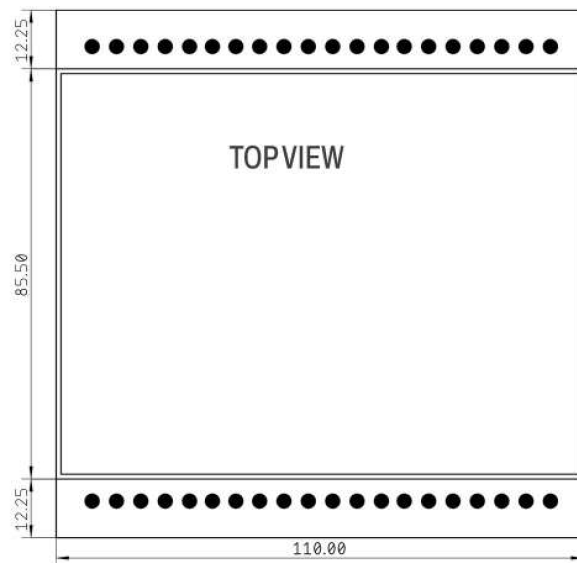
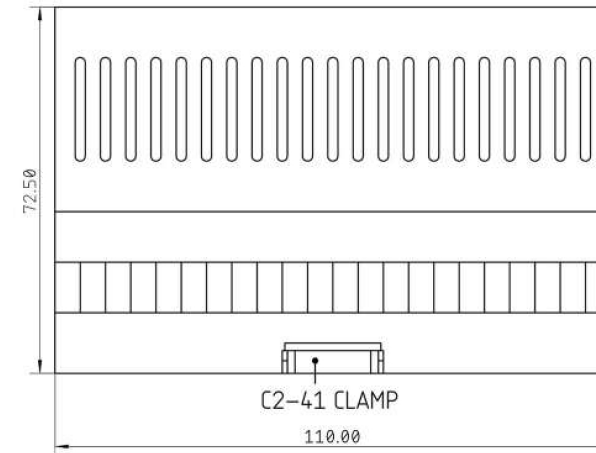
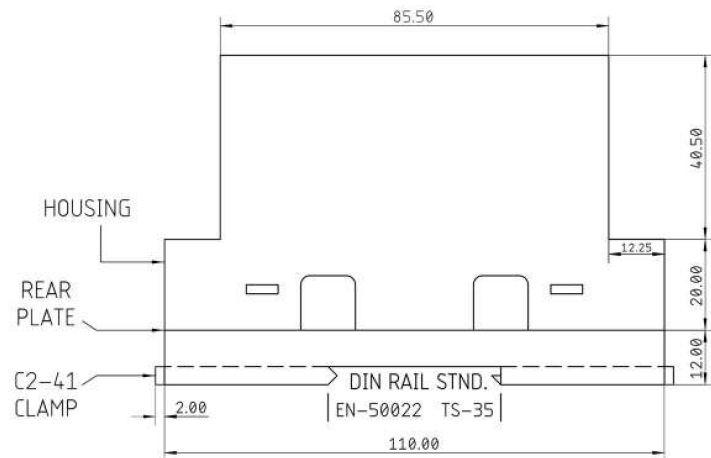
Model	RDL838A	RDL838B	RDL838C	RDL838D	RDL838E	RDL838F	RDL838G	RDL838H	RDL838I
Isolated Digital Inputs	X	X	4 CH	4 CH	4 CH	4 CH	4 CH	4 CH	4 CH
Isolated Digital Output 24V/PWM	X	X	X	3 CH	X	3 CH	3 CH	3 CH	3 CH
Isolated Switchable Analog Input 0-10V/0-24V/ 0-20mA/4-20mA	X	X	12 CH	12CH	12CH	12CH	12CH	12CH	12CH
Relay 5 Amps 250V	X	X	X	1 CH	X	1 CH	1 CH	1 CH	1 CH
16 GB SD Storage	✓	✓	✓	✓	✓	✓	✓	✓	✓
4G/LTE	X	✓	X	✓	X	✓	✓	✓	✓
WIFI	✓	X	✓	X	✓	X	✓	✓	✓
Isolated RS485 RTU	✓	✓	X	✓	✓	X	✓	✓	✓
ETHERNET Modbus TCP	✓	✓	X	✓	✓	X	✓	✓	✓
USB	✓	✓	✓	✓	✓	✓	✓	✓	✓
Alarm Functions	X	X	X	X	X	X	X	✓	✓
GNS/GPS	X	X	X	X	X	X	X	X	✓

NOTE: ✓ - Available

X - Not Available



### ENCLOSURE



#### Note:

Unit: Screw Terminal - XY129

Wire Range: 26 -12AWG / 0.5-2.5mm<sup>2</sup>

Tightening Torque: 0.5 N.m

Wall Mounting: C2-41 Clamp

Mounting Rail: TS35



### ADDITIONAL ACCESSORIES

#### IP65/66 ENCLOSURE



#### SPECIFICATIONS

Dimension (LxWxH) 280mmx190mmx130mm

Flammability Rating: UL 94 HB

Impact Resistance(EN 62262): IK07

Temperature c: -5 to 60c

Electrical Insulation: Totally Insulated

NEMA Class:NEMA 1, 4, 4X, 12, 13

Mounting: Wall Mount/DIN Rail

#### ORDER CODE:

**RDL871** : Enclosure with sufficient space for fixing Data Logger.

**RDL871A** : Enclosure with 14.8V 10000mAh Battery Pack & sufficient space for mounting Data Logger.

**RDL871B** : Enclosure with 80-240VAC 2 Amps & sufficient space for mounting Data Logger.

#### POWER SUPPLY 2.5 AMPS 24V

Order Code: RDL873



#### SPECIFICATIONS

Output Voltage 24 Volt

Amps 2 Amps

Input Voltage(AC/DC) 85-264VAC

Mounting DIN rail

#### EXTERNAL 4G/LTE ANTENNA

Order Code: RDL333



#### SPECIFICATIONS

Frequency (MHz) 2400 2500 MHz

Gain 3 dBi

Impedance ( ) 50

VSWR < 2.0

#### EXTERNAL WIFI ANTENNA

Order Code: RDL872



#### SPECIFICATIONS

Connector IPX female to SMA-KY

Frequency(Hz) 2.4 GHz

Gain(dB) <3

VSWR <1.5

Note: Additional Accesories need to be Order Separately. For More Additional Accessories Please Contact us Directly.



### APPLICATION STARTER KITS

#### IoT STARTER KIT - ENERGY MONITORING KIT



##### PACKAGE INCLUDES

Data Logger	RDL838	1 Nos
SMPS	24V 2 Amps	1 Nos
Energy Meter	3 phase, Modbus RS485	1 Nos
CT Coil	50 Amps	3 Nos
SDK	Open Source Web SDK	
Protocol	JSON/MQTT	

##### ORDER CODE:

WiFi - RDL874  
4G/LTE - RDL874A

#### IoT STARTER KIT - FUEL, OIL LEVEL & TEMPRATURE MONITORING KIT



##### PACKAGE INCLUDES

Data Logger	RDL838	1 Nos
SMPS	24V 2 Amps	1 Nos
Fuel Level Sensor Module	Modbus RS485	1 Nos
Oil Level Sensor	Modbus RS485	
Temperature Sensor 4-20 mA	50 °C to 400 °C	
SDK	Open Source Web SDK	
Protocol	JSON/MQTT	

##### ORDER CODE:

WiFi - RDL875  
4G/LTE - RDL875A

Note: Additional Accesories need to be Order Separately. For More Additional Accessories Please Contact us Directly.



# We Ship Worldwide

**Our Shipping Partner**



**We Accept**



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 offer product customization, OEM and ODM Services; please contact the sales team @ sales@rdltech.in.
4. We Ship Worldwide.
5. Specifications are subject to change without prior notice.
6. For additional information on Product and to buy online @ [www.researchdesignlab.com](http://www.researchdesignlab.com)

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