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Specification sheet for IoT LoRa Gateway, Model SC15L

LoRa devices SC15L, SC15L241 and Access Point SC15L APS are ideal for Machine monitoring and sending Sensor data using LoRa wireless technology, over long range.
SC15L LoRa transmitters connect transparently to the SC15L APS Access Point. SC15L241 sends IO data or field Modbus slave devices data to the SC15L APS, which gives output in Modbus RTU interface for monitoring. SC15L APS is used in 3 modes viz. Packet, Transparent and SC15L241 depending on application requirement.

Hundreds of sensors can be clustered together on single network and data can be aggregated at central monitoring system using cellular and Ethernet IoT gateways.

General Specifications

- SC15L and SC15L APS and SC15L241 support RS232 and RS485 interface.
- SC15L is used in Packet and Transparent modes only.
- SC15L APS supports Packet mode, Transparent mode and SC15L241 mode.
- SC15L needs SC15LAPS as a receiver to create communication channel.
- Typically, one receiver gateway can connect upto 100 SC15L or SC15L241 devices.
- SC15L241 supports 2 Analog Inputs (4-20mA), 4 Digital Inputs (Potential Free) and 1 Digital Output (Potential free).

LoRa

- Communication:
  LoRa Module : LM 10D-N-867-NS-S
  Frequency Band : 867 MHz.
  Distance : Line-of-Sight Range : Upto 3.5km
  Receiver Sensitivity : -140dBm at 8 bits
  Transmit Output Power : 20dBm
- LoRa data rate : 6 level (0.3, 0.6, 1.0, 1.8, 3.1 ,5.5 Kbps)
- Antenna connector : SMA female type, 3 dB standard Impedance of 50 ohms
- Connection Modes : Point to Point, Star

Hardware Specifications

- 16 bits CPU
- Program Memory : 128K bytes
- SRAM : 96K bytes
- Watchdog : Built in H/W watchdog timer

RTU Interface

- Serial port : RS-485(2 Wire), RS-232(3-Wire), Screw type connector
- Data bits : 8.
- Stop bits : 1, 2
- Parity : None, Even, Odd
- Baud rate : 2400 to 115200 bps
- Termination Resistors : Built in

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Analog Input

- Resolution : 10 bits
- No's of Inputs : 2
- Current or voltage input factory settable (Default: Current)
- Current : 4- 20 mA
- Voltage : 0-10V/0-5V
- Input impedance : Current 100 ohm, Voltage 10 T ohms

Digital input

- Number of inputs : 4
- External Dry (Potential free)/Wet contact factory settable
- Default: Potential free settings
- Wet contact
  Logic level 0 : 24 VDC
  Logic level 1 : 0 VDC

- External Dry contact (Potential free)
  Logic level 0 : Close to GND
  Logic level 1 : Open

Digital output

- Relay output
- Number of outputs : 1
- Relay coil voltage : 5V
- Contact rating : 24VDC @ 10A, 230VAC @ 5A

Power

Power supply : 24V DC, 1A (Voltage Range 9 to 30 VDC)
Connectors : Industrial Screw type Terminal block
Power Consumption : 0.8W @24VDC (No LoRa communication)
1.2 W @24VDC (During LoRa communication)
LED Indicators : Power, Tx, Rx, Status,
Data, RSSI (SC15L241 mode only)

Environmental Conditions

- Operating Temperature : 0 to +85ºC
- Storage Temperature : -10 to +85ºC
- Operating Humidity : 95% (unfreezing)

Mechanical

- Enclosure : Metallic Enclosure with DIN rail and wall mounting
- Dimensions : 37 x 70 x 138 mm for enclosure (Excluding antenna)

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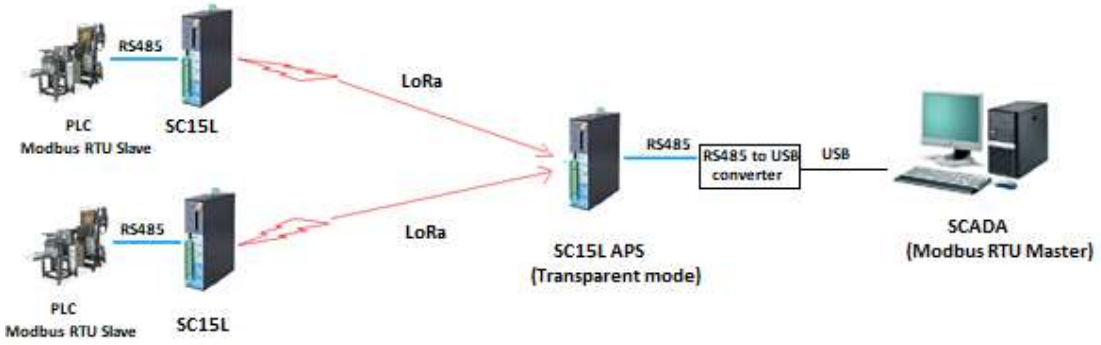
Ordering Information:

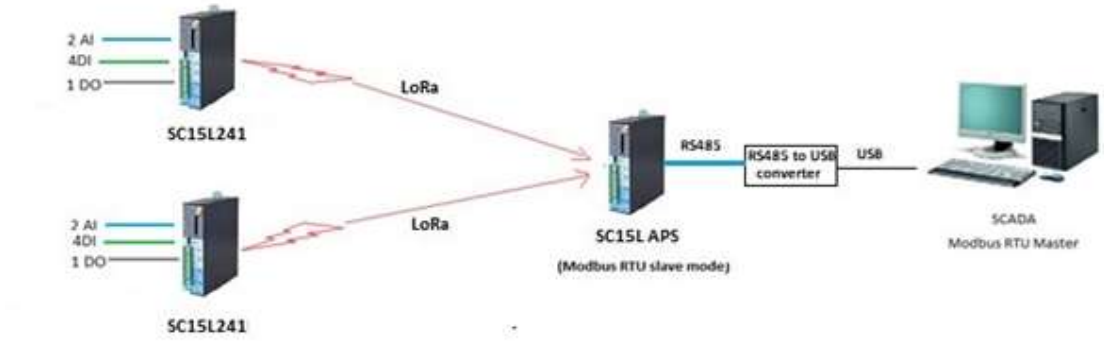
Sr. No	Ordering Code	Description
1	SC15L	LoRa device with Serial interface
2	SC15L200	LoRa device with 2 Analog Inputs (4-20 mA)
3	SC15L040	LoRa device with 4 Digital Inputs (Potential free)
4	SC15L240	LoRa device with 2 Analog Inputs (4-20 mA), 4 Digital inputs (Potential free)
5	SC15L241	LoRa device with 2 Analog Inputs (4-20 mA), 4 Digital inputs (Potential free), 1 Digital Output (Potential free)
6	SC15L APS	Access point LoRa unit with Serial interface

Application Diagram

Transparent mode:



Monitoring of IOs and Modbus slave devices using LoRa on the Modbus RTU SCADA



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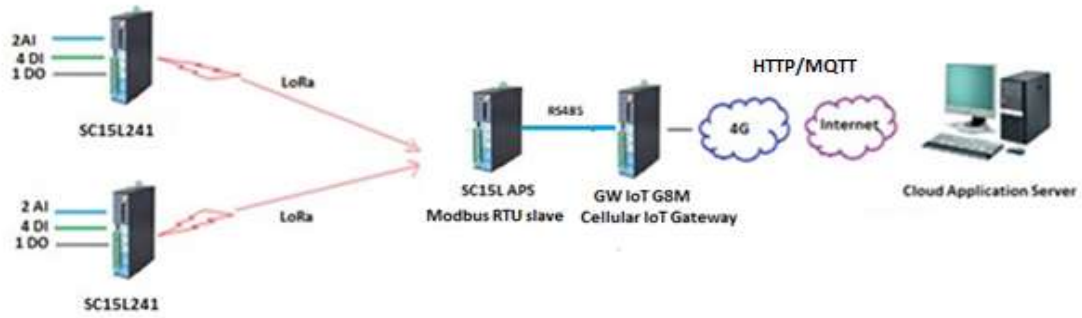
Monitoring of IOs with IoT LoRa gateway on the cloud using cellular network



Monitoring of IOs with IoT LoRa gateway on the cloud using broadband network