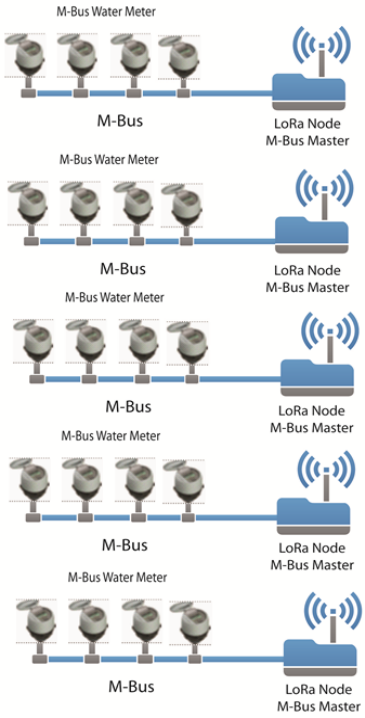
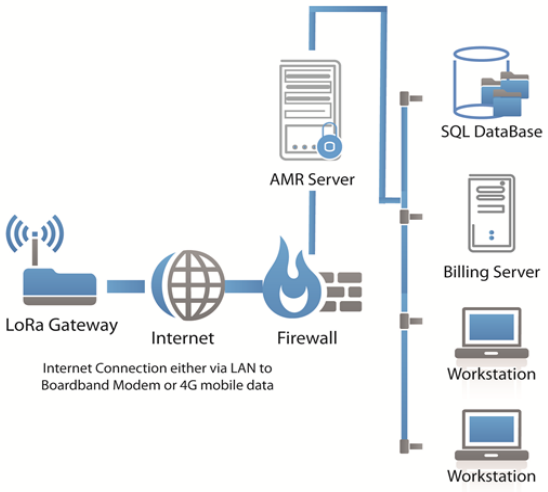
ZM3300 IoT System for Water Metering

WATER CONSUMPTION MONITORING SYSTEM

A Cost Effective Wireless IoT System For Water Consumption Monitoring

ZM3300 is a low cost high efficient IoT network for M-Bus water Metering. The system contains a number of LoRa nodes with M-Bus Master module connecting up to 32 M-Bus meters. The LoRa nodes are connected to LoRa gateway. Data collected by LoRa Gateway can be uploaded to data server via the LAN, WiFi, Broadband modem, 4G mobile data network or NBIoT data network.





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Specification of key system components

LoRa Gateway

Electronics and Software

- Controller
  - An intelligent gateway device running Debian Linux OS in 1.2GHz Quad-Core ARM Cortex-A53 MCU
  - 802.11 b/g/n Wireless LAN
  - Bluetooth 4.1 (Bluetooth Classic and LE)
  - 1GB LPDDR2 RAM
  - 10/100 BaseT Ethernet
  - OS boots from Micro SD card (16GB) running Debian Linux Operating System
- LoRa Module
  - LoRa Class C end device embedded
  - LoRa Spread Spectrum Modulation
  - LoRa Frequency Range : 850 ~ 930MHz
  - Maximum RF transmission power = +20 dBm
  - High sensitivity: down to -148 dBm
  - 168 dB maximum link budget
  - Data rate : 1200 bps – 57600 bps (default 9600 bps)
- Application Software
  - M-Bus meter data collection via LoRa
  - Data are stored in SD Card in XML files
  - Data will be uploaded to server via mobile data module, Ethernet LAN to Broadband modem
  - It supports Modbus interface to server

Electrical Characteristics

- Power Supply : AC 100V – 240V, 50Hz/60Hz

Environmental Characteristics

- Operating temperature : 0 deg C – 70 deg C
- Relative Humidity : 20% - 90%

Mechanical Characteristics

- 240 x 154 x 80 mm
- IP68 (Pressure Washer Proof)
- Tough ABS construction
- Wall Mount Lugs

LoRa Node with M-Bus master Module

Electronics and Software

- Controller
  - An intelligent IoT node running Debian Linux OS in 700 MHz Single Core ARM11 MCU
  - 802.11 b/g/n Wireless LAN
  - Bluetooth 4.1 (Bluetooth Classic and LE)
  - 256MB RAM Memory
  - OS boots from Micro SD card (16GB) running Debian Linux Operating System
- LoRa
  - LoRa Class A end device allows for bi-directional communication with one uplink transmission followed by two short downlink receive windows.
  - LoRa Spread Spectrum Modulation
  - Frequency range : 850 ~ 930MHz
  - Maximum RF transmission power = +20 dBm
  - High sensitivity: down to -148 dBm
  - 168 dB maximum link budget
  - Data rate : 1200 bps – 57600 bps (default 9600 bps)
  - M- Bus Master section
- M-Bus Master
  - Maximum 32 meters
  - Transmission speeds 300 to 9600 bps (2400 bps default)
  - M-bus voltage : 30V (typical)

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