ENBAYA METERS

Smart Prepaid Water Meter

These meters, in conjunction with the DCU, provide customers with the ability to remotely monitor and measure their water consumption using digital IOT technology.

The customer can also recharge their prepaid water meter remotely OTA (over the air) i.e. without having to insert their 20 digit code into the meter's keypad.

It provides a direct connection to utility management software.

DCU Features

- GPRS Data Concentrator Unit (GPRS DCU)
- Supports GSM/GPRS Modem
- Automatic Meter Data Upload Function
- Data (Hourly Consumption Data Record, Battery Voltage etc.)
- Finds possible water leakage and tamper situations
- Real Time Communication
- Automatic Communication Frequency Switch
- Automatic RTC (Real Time Clock) Calibration
- Solar Panel Power Supply system optional

Meter Features

- STS Prepaid working mode
- Remote meter data collection via AMI functions
- Meter recharge & data query via CIU
- Supports leak and meter tamper detection
- RTC (Real Time Clock)
- AMR / AMI Functions
- Valve Auto Clean
- Parameter enquiry
- Recharge limitation

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DCU Functionalities

The Laison Data Concentrator Unit is part of the Laison Advanced Metering Infrastructure (AMI) System. By adoption of LoRa RF Wireless Module, which features in low power consumption and long communication range, it can realize Automatic Meter Data Collection, valve open/close remotely and stably. Also, the data can be uploaded to Center Management System via GPRS.

It provides comprehensive, reliable, advanced smart meter solutions to water utilities & authorities, which avoids door-to-door meter checking manually. The default RF Communication Frequency is 433MHz, which is programmable and communication distance is around 1.0km in residential area.

Meter Functionalities

Real Time Clock
The meter includes a separate Real Time Clock (RTC) chip to ensure accuracy to an error margin of <0.5s/day

Step Tariff
Support for 10 stepped Water Tariff to assist in realisation of real time monetary calculations in meter. When consumed credit exceeds the fixed water volume, the credit will be deducted according to the latest price multiplied by the consumed volume. Calculating billing is done according to the monthly accumulated water consumption on the different steps.

Flexible Water Recharge Methods
STS Credit Tokens can be input to the meter using the traditional CIU Keypad.

Parameter Inquiry
Meters' corresponding parameters could be queried via CIU by LoRa RF Wireless Communication or Infrared Communication through TWO digits Data Query Token Group.

Recharge Limitation
Anti-water storage, if remaining water + current recharged water > recharge limitation, it shall reject the recharge operation, to prevent water storage.

Valve auto-clean
Meter's valve will be opened and closed or closed and opened once at a defined time interval to prevent the valve from being stuck and to check whether the valve is working.

AMR Functions:

- Meter Installation Location (GIS) information Collection
- Automatic Meter Data Collection and upload to Meter Data Management System (MDM)
- Remote Meter Parameter Checking & Valve Control

AMI Functions:

- Automatic Meter Data Upload like Hourly/Monthly Consumption Data Record, Battery Voltage, Meter Alarm Event etc.
- Automatic Real Time Clock (RTC) Calibration Remote Meter Parameter Checking & Valve Control 10 years historical meter data storage
- Prepaid and Postpaid Working Mode switchable

Customer Interface Unit

- AC Power and Dry Battery Power (4pcs AAA) Solution optional
- Touchable Keypad for Token input
- LoRa RF Wireless Communication & Infrared communication integrated in ONE
- Firmware Upgrade Port reserved

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Meter Specifications

Diameter	mm	15	20
Permanent Flow Rate Q3	m3/h	2.5	4.0
R (Q3/Q1)		100/160	
Permissible Error	Q2≤Q<Q4 Q1≤Q<Q2	2% 5%	
Working Temperature	0C	0 - 30 or 0 - 50	
Max. Working Pressure	MPa	1.0	
Rated Working Voltage	V	3.6	
Battery Lifespan	Years	≥ 6 years (Typical)	
Pulse Equivalent	m3	0.01 (10 Liters)	
IP Level		IP68	
Communication Method	• LoRa RF Wireless Com • Infrared Com		
LoRa RF Wireless Com. Frequency	• 470Mhz, 433Mhz, 868Mhz etc. optional.		
Communication Distance	• 100-200m by LoRa RF Wireless Com. • 5m by Infrared Com		

Dimensions

DN	L	L1	H	B	Communication	
mm					d	D
15	258	165	104	96	R1/2B	G3/4B
20	294	190	105.5	96	R3/4B	G1B
25	294	190	105.5	946	R1B	G5/4B

DCU Specifications

Working Temperature	0C -40 0C ~ 85
Working Humidity	5% ~ 95% (No condensation)
Power Supply	V DC 5 ~ 18V; 1.2A
Statistic Power Consumption W < 5W	W < 5W
Communication Method: Upstream Downstream	 (DCU → Center System) GSM/GPRS (DCU → Meter) RF wireless (LoRa Module)
RF Communication Distance: Line of View Residential Area	 m 5,000 m > 1,000 (Mainly affected by walls)
RF Communication Frequency: Programmable MHz 433 MHz	 433 MHz
Technical Parameters for GPRS module	
Standard GSM/GPRS	GSM/GPRS
Communication Rate kbps	14.4 kbps ~ 57.6kbps
Communication Frequency MHz	850/900/1800/1900 MHz
GPRS Multi-slot Class	GPRS Class 10
GPRS Terminal Device Class	Class B
Max. Transmit Power	GSM900 Class 4 (2W), DCS1800 Class 1 (1W)
Communication Protocol	TCP, UDP, DNS, Httpd client
Antenna Interface	IPEX Interface
Power Supply for SIM Card	1.8V / 3V