RSA Electronics Co.

Manufacturer of Intelligent Energy & Water Meter

Water Scarcity

Groundwater resources are one of the most important resources in supplying human's need to water as a vital element. These resources that have been shaped during a long period of time are being discharged for agricultural, industrial and domestic utilizations. Optimum utilization of these resources will be possible through monitoring and controlling the incoming and outgoing amounts of water.

While the world water resources are going to face severe water scarcity, a concern has been arising in some countries which are continuously using groundwater resources without adopting practical policies for controlling the consumption, particularly in arid and semi-arid regions.

Solution

There are only two methods to conserve groundwater resources as recharging the resources and restricting water withdrawals; clearly, groundwater pumping management is a major and practical solution for groundwater conservation. In addition, another important subject is managing water withdrawals from a single resource which is shared among a number of water wells in a vast plain. RSA Electronics' solution is an effective management system on monitoring and management of groundwater resources. Information of water wells which are calculated and measured by Smart Energy and Water Meter (SEWM) may be transferred to control center via GPRS, GSM or any other telecommunication infrastructures. Then data collection, information processing and reporting happen in control center.

The solution was approved and certified by Water and Energy Organization of Iran; accordingly, RSA Electronics signed contracts with all Iranian regional water and energy utility companies to manufacture, install and calibrate more than 40K meters all across the country which was followed by successful project implementation in every single province. Experts in water sections believe that it could be a revolution in the country's groundwater management.

Smart Energy and Water Meter (SEWM)

The most essential component of the company's comprehensive solution is SEWM which is a smart digital device, capable of measuring electricity and water. SEWM is a combination of three following devices:

- A Digital Water Meter
- A Credit and Control Device
- A Digital Energy (Electricity) Meter

The internal structure of Meter is similar to regular digital three phase electricity meters in which processing facilities, storage and display of data has been developed; based on RSA innovative method, this device is able to measure hydraulic parameters of water wells. Meanwhile, the Meter is equipped with card reader for being able to connect to the smart card and relay in order to disconnect/ reconect Power.

Water Meter's Technical Data

Measuring Parameters	Total Water Consumption	
	Instantaneous Flow	
	Electro-Pumps Operating Time	
Data Storage & Load Profile	Water Consumption	Up to 24 Months
	Maximum Flow	
Accuracy	Water Metering	> %95
Calibration Type	On-site	Manual/Software
Security	Tamper Detection in Electro-Pumps	Tamper-Proof Design
Credit Features	Data exchange with smart card/COM ports	
	Adjustable operation in credit mode via smartcard Definable total monthly/annual permitted water Definable permitted water withdrawal for each month separately (up to 24 months) Definable credit's start date Definable credit's expiry date	
Disconnect Features	Programmable Relay Power disconnection in case of exceeding water withdrawal Power disconnection in case of credit date expiry	
Adaptations	Identifying the Proper Operation of Electro-Pumps Intelligently	
	Applicable for Different Levels of Water Hardness	
	Compatibility with Different Types of Electro-Pumps	

Energy Meter's Technical Data

Nominal Voltage	3P4W 3P3W	3*230/400V - 3*120/208V
Nominal Frequency	---	50Hz - 60Hz
Nominal (Maximum) Current	Continuous Current	DC: 10(100) A CT: 5(6)A
	Short Duration	DC: 3000A for 0.5 Cycles CT: 120A for 0.5 Seconds
Starting Current	---	< 5mA
Active Energy Accuracy	According to IEC 62053-21	DC: Class 1
	According to IEC 62053-22	CT: Class 0.5
Reactive Energy Accuracy	According to IEC 62053-23	Class 2
RMS Accuracy	Voltage/Current	2% in Meter Operating Range
Internal Tariff Source	According to IEC62056-62	8 Tariffs for Active and Reactive Energy and Demand Up to 12 Seasons Weekday Dependant Tariff Scheme 50 Special Days

General Technical Data

Power Supply		3*230/400V ± 30%
Interfaces	Optical Port RS232 Smart Card	According to DLMS Protocol and IEC 62056 Family Standards
Time Backup for RTC	Accuracy	< 5ppm
	Battery	> 2 Years Continuous Operation at Standard Condition Shelf Life of 20+ Years
	Super Capacitor	> 5 Days
Backup supply for Readout Without Main Power	Battery	> 100 Hours RWP Shelf Life of 10+ Years
	Super Capacitor	> 5 Days
Temperature Conditions	Storage Temperature	-40°C to +80°C
	Operating Temperature	-25°C to +70°C
	Limited Operating Temperature	-40°C to +70°C
	Humidity	0-95% According to IEC62052-11
Electromagnetic Compatibility	According to IEC 62052-11 and IEC 62052-21	
Housing	Degree of Protection	Main Case: IP51 Terminal Block: IP31
	Material	Polycarbonate, Flame-Retardant, Self-Extinguishing Plastic, Recyclable
Weight		1.8 kg
Dimensions		284 mm * 175 mm * 92 mm
Life Time		10 Years

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