

EnergyLink400 Auto Meter Reading System



Smart for Greenlife!



Rental Commercial and
Residential Buildings



Factories



Shopping Malls



Government and Corporate
Buildings



School Campuses

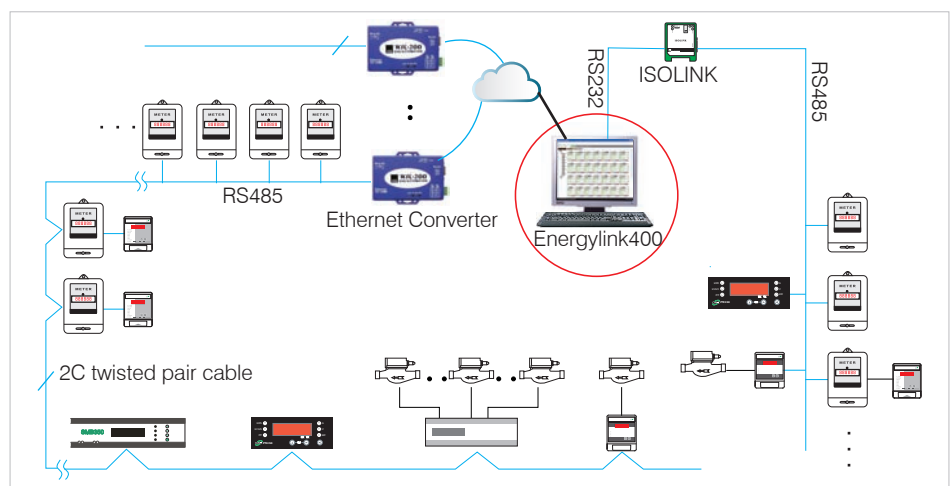
Description

The EnergyLink400 is a packaged software solution for automated meter reading, monitoring and control of DAE revenue meters, water meters, panel meters, multi-circuit meters and remote prepaid meters. It can support not just one type at a time, but can be a combination of all of the above all at once. Whether it is for keeping track of energy usage or for use as a remote prepaid system, the EnergyLink400 is the ideal tool for the job. The operator can monitor everything remotely from a PC, and easily browse through the entire installation as conveniently organized into multiple levels. As such it is well suited for a variety of locations including rental apartment, campus dormitories, market stalls, hotels, government agencies, school campus, shipping companies, factories, industrial parks and many other types of buildings.

The communication system needed by the system is very versatile and can be scaled from the small to the very large. It can be used in a small building using only an RS485 communication or in a large campus with several buildings using a wide area network, it can even be used on a very large scale that is linked only through the Internet.

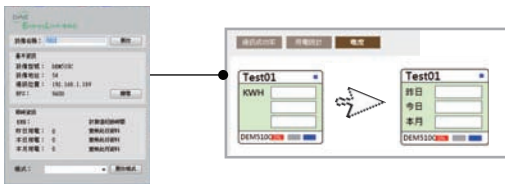
Aside from the typical automated meter reading, this system is also suited for use with a remote prepaid system, whether it be a stored value meter or revenue meter with card reader.

System Architecture



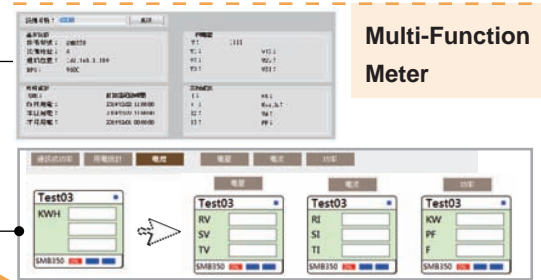
Screen Shots

Revenue Meter



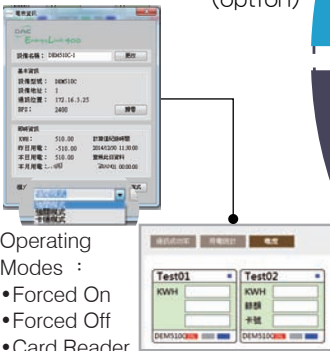
The real time data for each meter including the total kWh, usage over a period and connection quality.

Multi-Function Meter



The real time data for each meter including total kWh, usage over a period, connection quality, voltage, current, power, etc.

Remote Prepaid Meter (option)



Operating Modes :

- Forced On
- Forced Off
- Card Reader

Information regarding both type the remote prepaid meter - stored value and card reader based - including total kWh, usage over a period, connection quality, card insertion status, remaining stored value, etc.

Select using an outline (organized into floors and panels)



Model, connection status, operating mode, alarms

Complete information about the energy usage, device address, and model. Allows for changing of meter name.

Detailed information

Meter Name (user defined)

Water Meter



Real time water meter data including total consumption, usage over a period, connection quality, etc.

Energy Consumption Reports

Daily Report

查詢期間:	2014/12/01	至	2014/12/03				
用電日期	起抄日期	起抄時間	KWH	迄抄日期	迄抄時間	KWH	用電班數
2014/12/01	2014/12/01	00:00:00	510.00	2014/12/02	00:00:00	3658.60	3148.60
2014/12/02	2014/12/02	00:00:00	3658.60	2014/12/03	00:00:00	6167.30	2508.70
2014/12/03	2014/12/03	00:00:00	6167.30	2014/12/04	00:00:00	8894.60	2727.30
總用電數							8384.60

Monthly Report

查詢期間:	2014/12	至	2015/01				
用電月份	起抄日期	起抄時間	KWH	迄抄日期	迄抄時間	KWH	用電班數
2014年12月	2014/12/01	00:00:00	510.00	2015/01/01	00:00:00	66743.79	66233.79
2015年01月	2015/01/01	00:00:00	66743.79	2015/01/09	11:30:00	85633.59	18889.80
總用電數							85123.59

Billing Report

查詢期間:		2014/12/01	至	2014/12/28	查詢: 11							
編號	表位型號	表位名稱	起抄日期	起抄時間	成功率	KWH	迄抄日期	迄抄時間	成功率	KWH	用電班數	金額
1	DEM540C3	DEM510C-1	2014/12/01	00:00:00	100	510	2014/12/29	00:00:00	100	61572.5	61062.50	671680
2	DEM510C	DEM510C-2	2015/01/09	00:00:04	0	0	2015/12/30	11:30:00	100	250	250.00	2750
3	DEM550	DEM550	2015/01/09	00:00:04	0	0	2014/12/30	11:30:00	100	145.79	145.79	1604
4	DEM60002	DEM60002	2015/01/09	00:00:04	0	0	2014/12/30	11:30:00	100	4.32	4.32	48
5	DEM720	DEM720	2015/01/09	00:00:04	0	0	2014/12/30	11:30:00	100	2.52	2.52	32
16	DEM6007	DEM6007-7	2015/01/09	13:00:01	0	0	2014/12/30	11:30:00	0	0	0.00	0
17	DEM540C3	DEM540C-5	2015/01/09	00:00:04	0	0	2014/12/31	13:30:00	100	123.45	123.45	1358

Daily Report

This report shows the energy consumption for a given meter within the designated starting and ending dates. The period for each day starts and ends at 12 midnight.

Monthly Report

This report shows the energy consumption for a given meter within the designated starting and ending month. The period for month starts on the first day of the month.

Billing Report

This report shows the billing report for all or for a designated portion as selected from the outline organization. The report can either be for the water or electricity, each having its own tariff rate (user defined), the bill is computed based on the actual consumed within the designated starting and ending dates.

Records & Logs

Meter Data Logs

日期	時間	成功率	KWH	Kvarh	I1	I2	I3	Vr	Vs	Vt	Vrs	Vst	Vtr	PF	Kvar	VA
2014/11/25	00:00:00	100	0.16	0.000	0.000	0.000	0.000	228.9	228.3	228.5	395.4	395.1	395.6	1	0.000	0.000
2014/11/25	01:00:00	100	0.16	0.000	0.000	0.000	0.000	228.2	228.7	228.8	395.9	395.6	396.1	1	0.000	0.000
2014/11/25	02:00:00	100	0.16	0.000	0.000	0.000	0.000	226.7	226.3	226.4	391.8	391.4	391.8	1	0.000	0.000
2014/11/25	03:00:00	100	0.16	0.000	0.000	0.000	0.000	226.7	226.3	226.3	391.8	391.4	391.8	1	0.000	0.000
2014/11/25	04:00:00	40	0.16	0.000	0.000	0.000	0.000	226.6	226.1	226.2	391.4	391.1	391.6	1	0.000	0.000
2014/11/25	05:00:00	50	0.16	0.000	0.000	0.000	0.000	227.4	226.9	227.0	392.8	392.5	393.0	1	0.000	0.000
2014/11/25	06:00:00	100	0.16	0.000	0.000	0.000	0.000	227.2	226.8	226.9	392.7	392.3	392.7	1	0.000	0.000

Operator Activity

No	時間	日期	名稱	Gauge ID	動作
509	09:21:08	2014/12/01	DEM550	3	DEM550更改強開模式動作成功
510	09:21:13	2014/12/01	DEM550	3	DEM550更改強開模式動作成功
511	09:21:33	2014/12/01	DEM550	3	DEM550更改強開模式動作成功
512	15:31:50	2014/12/02	DEM550	3	DEM550歸零動作成功
513	16:11:45	2014/12/03	刪除出報群組	0	動作成功

Event Records

編號	日期	時間	表計名稱	表計ID	異常狀況
1	2014/12/30	11:22:36	DEM540C-5	18	DEM540C-5 讀取電壓錯誤-I1
2	2014/12/30	11:22:39	DEM6000-7	17	DEM6000-7 通訊成功率=0
3	2014/12/30	11:30:10	DEM540C-5	16	DEM540C-5 通訊成功率=0
4	2014/12/30	11:30:12	DEM6000-7	17	DEM6000-7 通訊成功率=0

Data Logs

Shows the 30 minute periodically logged data for a given meter within the designated dates. (With highlighting for records with poor connection quality or other conditions)

Operator Activity

Shows the activities undertaken by the user of this software within the given period (including forced on, forced off, change to card reader mode, and zeroing the meter).

Event Records

Shows the various events that have occurred with the given period including meter disconnection and low value alerts.

Schedule Control (option)

平台

教室

1 2 3 4 5

大走道燈A 小走道燈B 研究室前排燈

小走道燈B 教室前排燈 研究室後排燈

大走道燈C 教室後排燈 研究室門口燈

大走道燈A 教室門口燈 研究室兩側燈

走道

1 2 3 4 5

2014年11月26日

2014年11月

26 27 28 29 30 31

2 8 4 5 6 7 8

9 10 11 12 13 14 15

16 17 18 19 20 21 22

23 24 25 26 27 28 29

30 1 2 3 4 5 6

今天: 2014/12/26

Entry Setting

- Each entry can have multiple meter groups that are to be forced on and off together.

Schedules

- Each day can be designated as a regular day, weekend or special holiday.
- Each entry can have new meter groups added, deleted or modified. Each entry have have multiple starting and ending periods for its on/off operation.

Card Reader & Stored Value Meter Report (option)

Card insertion log: when a card reader is in use, then the system will log the status of the card reader slot every 30 minutes.

編號	表位名稱	KWH	卡月餘額	費率	溫度	日期	時間
1	DEM510C-2	250.00	882.00	5.00	23.9	2014/12/01	00:06:31
2	DEM510C-2	251.26	875.70	5.00	23.9	2014/12/01	00:16:36
3	DEM510C-2	252.52	869.40	5.00	23.9	2014/12/01	00:26:23
4	DEM510C-2	253.78	863.10	5.00	23.8	2014/12/01	00:36:30
5	DEM510C-2	255.04	856.80	5.00	23.7	2014/12/01	00:45:37

編號	卡月號碼	KWH	卡月餘額	費率	溫度	日期	時間
1	A00002	250.00	882.00	5.00	23.9	2014/12/01	00:06:31
2	A00002	251.26	875.70	5.00	23.9	2014/12/01	00:16:36
3	A00002	252.52	869.40	5.00	23.9	2014/12/01	00:26:23
4	A00002	253.78	863.10	5.00	23.8	2014/12/01	00:36:30
5	A00002	255.04	856.80	5.00	23.7	2014/12/01	00:45:37

Arranged according to the cards

Arranged according to the meters

編號	電壓值	儲值電壓餘額	日期	時間
1	\$10.00	0.00	2014/12/09	11:13:19
2	\$10.00	0.00	2014/12/09	11:14:40
3	\$10.00	0.00	2014/12/09	11:18:20
4	\$10.00	0.00	2014/12/09	11:48:05

Single Stored Value Meter History

Shows the usage history for a given stored value meter within the specified period.

No	裝置名稱	帳號	日期	時間	加值/減定	加值前	加值後
44	DEM540-5	root	2014/12/15	10:43:50	130.00	110.00	130.00
45	DEM540-5	root	2014/12/15	13:39:58	200.00	130.00	200.00
46	DEM540-5	root	2014/12/15	13:40:21	50.00	200.00	250.00
47	Test11	root	2014/12/15	16:45:27	150.00	250.00	150.00
48	Test11	root	2014/12/15	16:49:04	110.00	400.00	510.00

Stored Value Meters Summary

Shows a summary report of the latest transaction for all stored value meters within the specified period.

Software Specifications

PC System Requirements

- Compatible with Windows XP, Windows 7, Windows 8, both 32 and 64 bit versions
- Uses open source MySQL database
- Memory: 4GB or better
- Disk Space: 10GB
- Database must be backed up periodically
- A UPS must be provided to provide uninterrupted power to the PC and the communication equipment

System and Communication

- Devices support: select from 100, 300 or 1000 meters
- Communication: Connect from the PC to the meters through RS232 or a TCP/IP converter, the meter themselves are daisy chained through an RS232 bus with a maximum of 32 meters per bus. The meters may consist of different models including both energy and water meters.
- Meters supported include revenue meters, digital water meters, multi-function meters, stored value revenue meters.
- Data update rate: no more than 30 seconds per cycle

Real Time Monitoring and Control

- Selection using an outline: can support unlimited levels (example: by building, floor, panel, etc.), with filter for energy meter, multi-function meter and water meter. Select the desired level to view meter information for that level.
- Basic information include user defined meter name, meter model, device address and IP, connection quality, with color coding for the operating modes of forced on, forced off, card reader control and remote prepaid.
- Data available for each type of meter
 - Energy meter - kWh reading, kWh yesterday, kWh today, kWh for the month
 - Multi-function meter - kWh reading, phase/line voltage, current, true power, power factor, frequency
 - Water meter - cumulative water consumption, total water consumed for the month

Records and Reports

- Periodic logging: A complete reading of all the data available on the meter is made every 30 minutes and saved to the system database.
- Activity records
 - Operator activities: records the activity type, the starting and ending times
 - Alarms: records a connection loss or low credit warning, the starting and ending times
- Logging Report
 - Detailed reports (by time): lists all the data logged (every 30 minutes) for a given meter within the specified dates.
- Energy Consumption Report
 - Daily: shows the energy consumed per day for a given meter within the specified dates, with 0 hours as the demarcation for the days.
 - Monthly: shows the energy consumed per day for a given meter with the specified months, with the first day of the month as the demarcation for the months.
- Summary Reports
 - Overall Consumption: Computes the total consumption within the specified dates for all the meters or a lot of meters.
 - Billing Report: Computes the billing from the total consumption within the specified dates (based on a single user defined tariff)
- Each report can be exported as an Excel, Word or PDF file
- Data Quality: when a data is logged and there is a poor connection, then it is highlighted by different color to remind the user that the data may not be reliable

Access Levels: 3 levels of access regular user, operator, administrator

- Regular User: can view real time meter data and the meter report
- Operator: can change the meter name, mode of operation, zero the meter, calibrate adjust the water meter, perform remote value adding.
- Administrator: change the tariff and accounts management.

Device Selection

- Meter with card reader
 - Display: remaining card credits, card serial, tariff rate, temperature
 - Card slot log: card slot status is logged every 30 minutes, search by meter location or card serial.
- Stored Value Meter
 - Display: remaining kWh credits, low credit warning indicator
 - Stored value: value adding operation
 - Reports: value adding transaction history within the specified dates
- Schedule Control
 - Configuration: each schedule can set multiple meters to be controlled
 - Form: schedule can be set for an entire month, with separate entries for regular days, weekends and holidays.
 - Starting/Ending: Each schedule may have multiple starting and ending entries

Ordering

Type	Suited For	Description		Selection
Standard	- DEM510-2 , DEM600 , DEM540 , DEM730 , AMR100-D - AMR100 , AMR , AMR-D - PM210 , PM200 , PM250 - SMB350	• Displays current meter readings • Displays total energy use • Data logging and reporting • Billing report (based on tariff rate) • Change the device name		<input type="checkbox"/> up to 100 meters Energylink400-100 <input type="checkbox"/> up to 300 meters Energylink400-300 <input type="checkbox"/> up to 1000 meters Energylink400-1000
Advanced	- DEM510C-2 , DEM600D-2 , DEM540-2(with card reader)	Revenue meter with card reader	• Displays card slot status • Card usage record and reporting • Changing mode of operation	optional
	- DEM540-5 , DEM510C-5 , DEM600D-5	Remote stored value meter	• Remote credit adding • Credit adding transaction recording and reporting • Changing mode of operation	optional
	revenue meter with built in relay	Schedule control	• Group on/off times • Daily schedule	optional

*This datasheet is for reference only, specifications subject to change without notice