

# E5000-Revenue grade Dual source Prepaid Kwh meter



**TRINITY**  
Making Energy Matter

# E5000-Revenue grade Dual source Prepaid Kwh meter

## Salient Features

RFID based CONTACTLESS smart card prepaid meter.

Cost effective prepaid system.

Wall mounting design.

Dual source Measurement.

Current Limiting Facility.

Class 1.0 s Accuracy.

Supports MODBUS RTU protocol on RS485.



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## Introduction to Prepaid Metering system

E5000 offers a flexible and secure revenue management system using contactless smart card.

The meter meets the accuracy requirements of class 1.0.

Using this Prepaid meter, in conjunction with PC based vending stations, totally eliminates the costs associated with meter reading, bill generation, bill distribution and debt collection activities.

E5000 is RFID based CONTACTLESS Prepaid three phase energy meter.

Supports MODBUS RTU protocol on RS-485 port.

Through RS-485 port, user can read live data from the meter.

It consisting of three latching relays capable of cutting the power connection or supply to the load.

It has 3 LED indications, in which 2 LED are for Kwh and kVARh and 1 LED for ALARM/BUZZER indication.



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## Dual source Measurement & Current Limiting Facility

### Dual Source Measurement

- Measures KWh, KVAh and KVARh from two sources like EB and DG.
- When on the alternate source Trips the load if current exceeds the desired limits.
- Reconnects Automatically after 60 seconds.

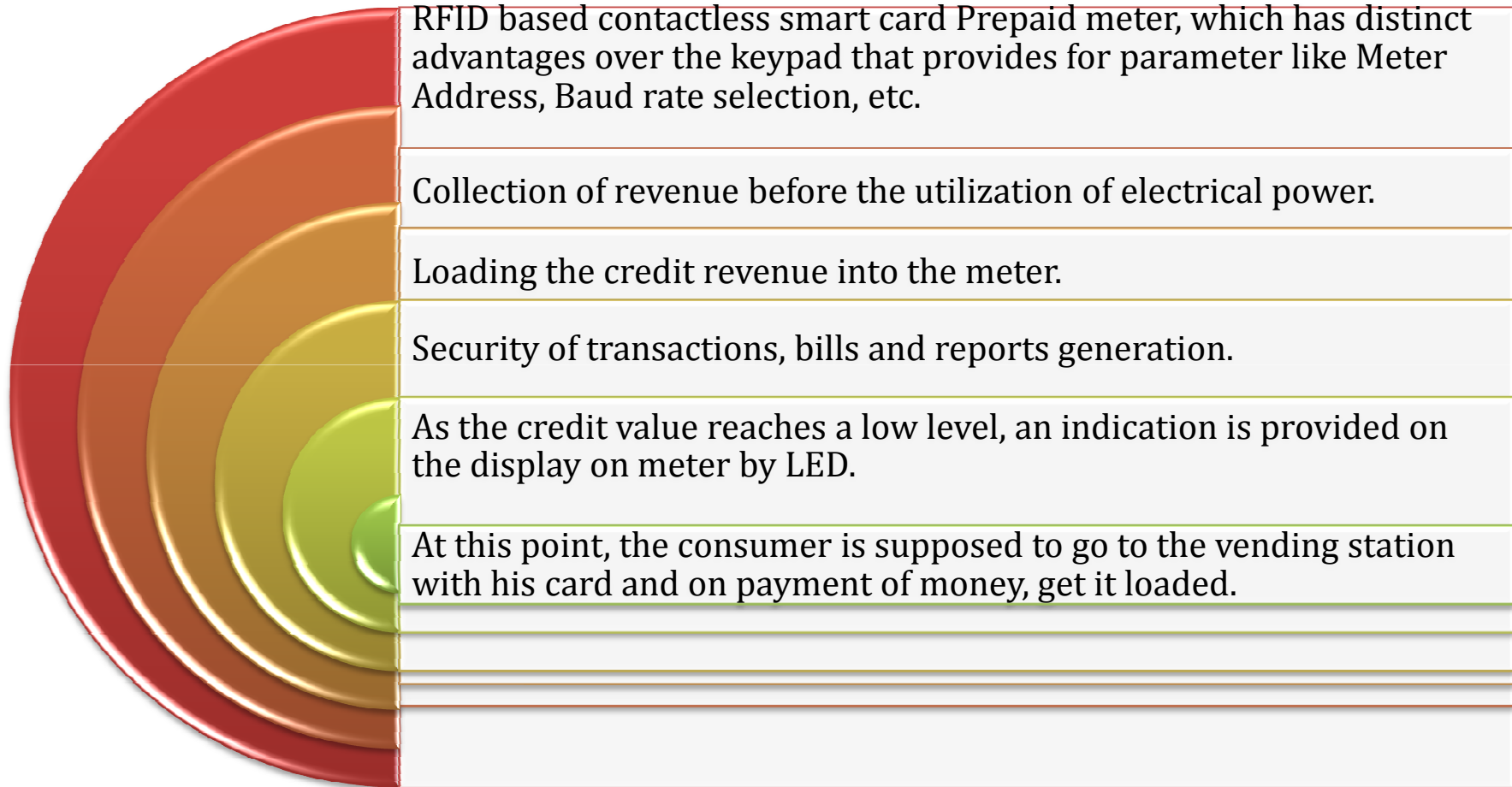
### Current Limiting Facility

- Prevents Overloading / Tripping of DG set caused due to excessive drawing of power by consumers.
- No need of external current limiters.



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## Basic Functionality



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## How Prepaid meter works

The meter is loaded with the revenue credit by the consumer using the smart card provided by utility. This smart card is credited with money at the utility's vending station.

E5000 has in-built latching relays between the input electrical supply and load side supply. For security purpose, before data transaction occurs, meter and tag will perform three pass authentication.

Each E5000 has its own Tag. Once, one Tag issued by VENDING SOFTWARE for each meters, then no one can replace that tag with dummy tag. If, some how issued TAG is lost, then only VENDING SOFTWARE can issue another tag

Tag has its own memory so that it can store lots of data like credit, energy uses, tariff rates, trip limits and many more data.

At VENDING STATION, Tag type will decided whether to use Tag for normal customer or the Master Tag. Master Tag can change tariff in all meter. It can change Tariff type, Time base Tariff or KWH based Tariff.



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## How it will operate at Vending station

There is a bi-directional communication between E5000 meter and smart card, which tells the meter tariff rates to be applied, every time revenue credit is loaded into the meter.

Detection of Tag will be shown by LED blinks and Buzzer sound one. This indication will show that meter has read information from tag and updates its tariff type and tariff rate and all the necessary parameters.

Using this Prepaid meter, in conjunction with PC based vending stations, totally eliminates the costs associated with meter reading, bill generation, bill distribution and debt collection activities.

Once meter read tag, it will show Credit inside tag. If you press ENTER key, then it will show FREE CREDIT, if you still further press ENTER key, then it will show KW based Load Tripping limit, if it is programmed at vending station.

At this point, meter will show Flat tariff for DG. And also show tariff for programmable Time zones or KWH limits. This selection will be done at VENDING STATION.

VENDING STATION will decide that tariff should be Time Base or KWH Consumption based.

At the end, it will ask to load money inside meter.



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## Display Parameters

Vrn => V1	Irn => I1	KW
Vyn => V2	Iyn => I2	KVA
Vbn => V3	Ibn => I3	KVAR
EB-KWH => KWH 1	DG-KWH => KWH 2	PF
EB-KVAH => KVAH 1	DG-KVAH => KVAH 2	Hz
EB-KVARH => KVARH 1	DG-KVARH => KVARH 2	DATE
MD-KW DKW	MD-KVA DKVA	TIME
MD-KW-DATE	MD-KVA-DATE	BAL CREDIT
MD-KW-TIME	MD-KVA-TIME	BAL KWH

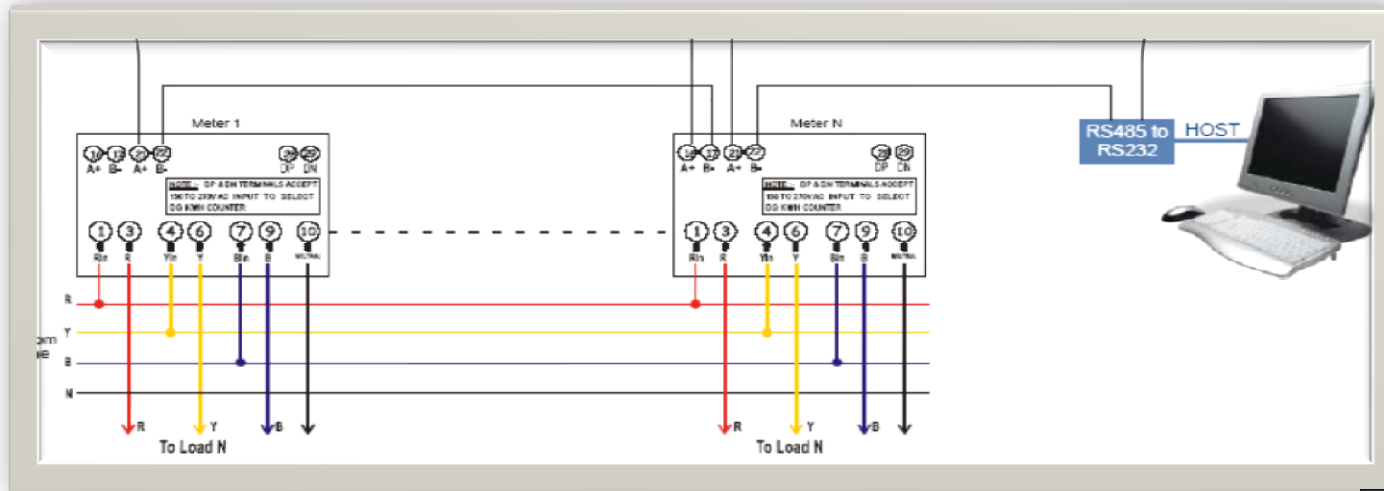


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## Display LCD



## Connection Scheme



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## VENDING SOFTWARE

The vending system maintains a database of the meter installations with customer specific details, sales history.

The vending software is secure with multi-level password protection.

A multitude of vending stations can be connected to a central server using various connectivity.

The central server maintains the master database and can generate MIS reports for all consumers or vending stations.

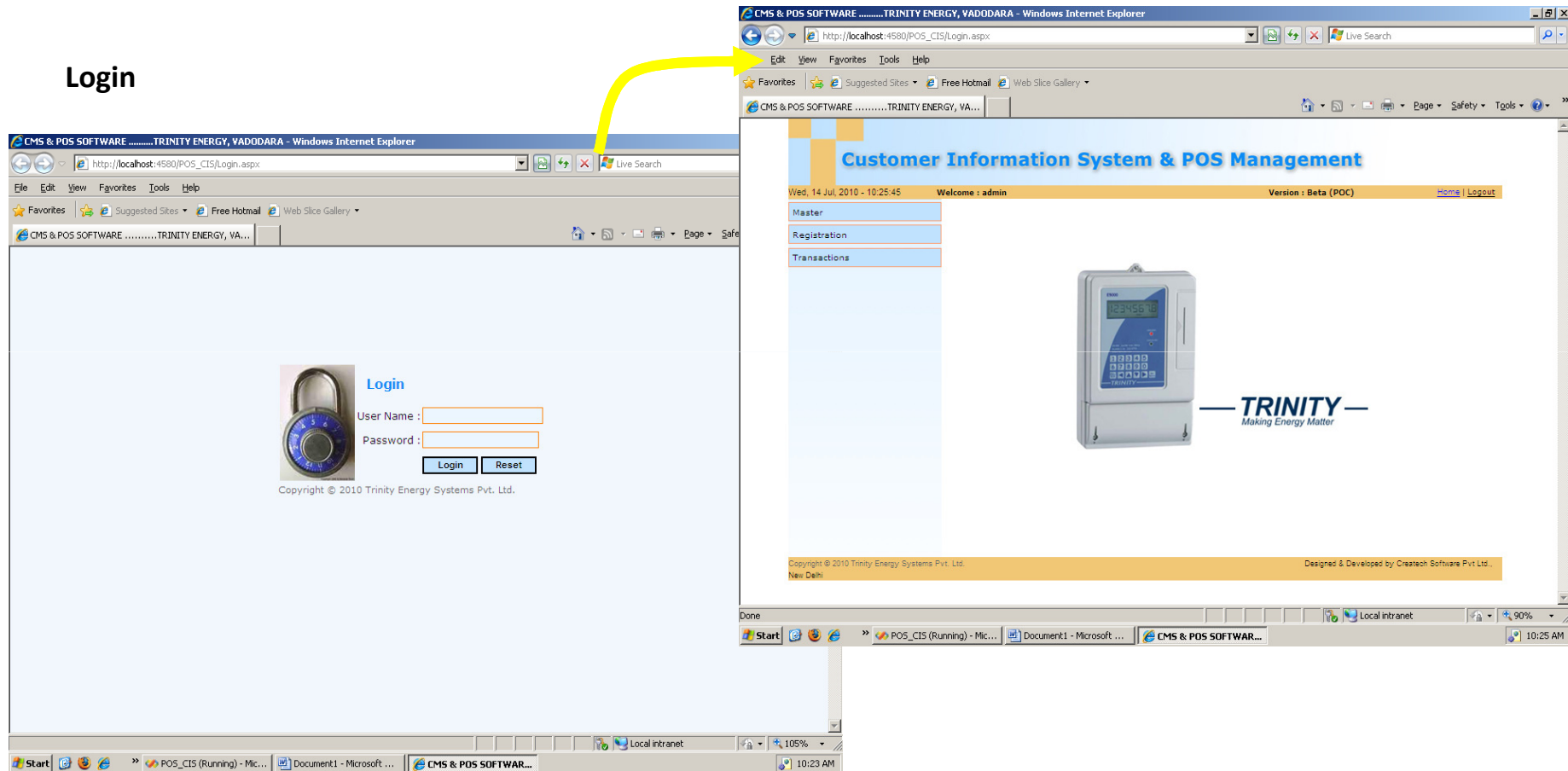


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## Screenshots for Vending Software

Home page

Login



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## Meters Registration

### New Meter Registration

Customer Information System & POS Management

Wed, 14 Jul, 2010 - 10:28:38    Welcome : admin    Version : Beta (POC)    Home | Logout

Master  
Meter Master  
Tariff Master  
Shift Master  
Station Master  
Registration  
Transactions

**New Meter Registration**

Meter Id :   
Apartment Id :   
Meter No :   
Meter Details :   
   
Search Meter :

Meter No	Meter Id	Apartment Id	Meter Details	Edit	Delete
3567YU77YUIT	1	23 E		<a href="#">Edit</a>	<a href="#">Delete</a>
56455RT6785	2	23 E		<a href="#">Edit</a>	<a href="#">Delete</a>
4365TRU767	3	23 E		<a href="#">Edit</a>	<a href="#">Delete</a>
46TY76455	4	24 J		<a href="#">Edit</a>	<a href="#">Delete</a>
643757875Y87	14	23 E		<a href="#">Edit</a>	<a href="#">Delete</a>
TYJH7KLKO	27	RZ-51		<a href="#">Edit</a>	<a href="#">Delete</a>
FCKUKY3D	36978545M	154878	ibm	<a href="#">Edit</a>	<a href="#">Delete</a>
154564	FCCSYKK	21224	-	<a href="#">Edit</a>	<a href="#">Delete</a>

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## Meter Entries

### Station Master

### Shift Master

### Tariff Master

Customer Information System & POS Management

Wed, 14 Jul 2010 - 10:27:03 Welcome: admin Version: Beta (POC)

**Tariff Plans**

Tariff Plan Category: Domestic

Tariff Plan Name:

Tariff Details:

Amount(per unit):

Min Amount:

Max Amount:

Tariff Category	Tariff Plan	Description	Amount	Min Amount	Max Amount	Delete
Domestic	PLAN A		4.7500	100.0000	8000.0000	Delete
Domestic	PLAN B		4.5000	1000.0000	7000.0000	Delete
Commercial	PLAN C		7.0000	1000.0000	25000.0000	Delete
Domestic	X	200	3.9000	100.0000	10000.0000	Delete

Customer Information System & POS Management

Wed, 14 Jul 2010 - 10:28:59 Welcome: admin Version: Beta (POC)

**Shift Master**

Shift Name:

Start Time:

End Time:

Registration	Shift Name	Start Time	End Time	Delete
	SHIFT 1	08:00:00	16:00:00	Delete
	SHIFT 2	16:00:00	00:00:00	Delete
	SHIFT 3	00:00:00	08:00:00	Delete

Customer Information System & POS Management

Wed, 14 Jul 2010 - 10:29:20 Welcome: admin Version: Beta (POC)

**Station Master**

Station Name:

Station Master	Station Name	Delete
	POS A	Delete
	POS B	Delete
	POS C	Delete

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## Registration

### New Card Registration

### New Customer Registration

The screenshot displays the 'Customer Information System & POS Management' web application. It features a navigation menu with options like 'Master', 'Registration', 'New Customer', 'New Card', 'Create User', and 'Transactions'. The 'Registration' section is active, showing a form for 'Register New Card' with fields for Card No., Meter No., Customer Name, Address, Tariff Plan, Payment Details, Amount, Tax, and Credit amount. Below the form is a table listing registered customers.

CardNo	tariffPlanName	CustomerName	CustomerAddress	ContactNo	MeterId	ApartmentId	MeterNo
DE 27 B4 A4	PLAN A	Manoj Garg	10 First Floor Satyaniketan	9968277903	14	23 E	643757875Y87
9E EE B0 A4	X	Deepak Pande	10 satya niketan	9368570395	36978545M	154878	FKKUKY3D



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## User Registration

## Card Recharge

### User Registration (Login Account)

The screenshot displays the 'Customer Information System & POS Management' web application. The left sidebar contains navigation options: Master, Registration, Transactions, and Card Recharge. The main content area is split into two sections. The top section, 'New User Registration', includes input fields for User Name, Name, Password, email, Shift Name, and Station Name, along with 'Submit' and 'Reset' buttons. Below this is a table of existing users:

User Name	Name	email	User Type	Status	Date of Creation	Shift	Station	
admin	admin	admin@trinity.com	Y		11 Jun 2010	SHIFT 1	POS A	<a href="#">Deactivate</a>
manoj	Manoj Garg	er.manojgarg@gmail.com	N		11 Jun 2010	SHIFT 2	POS A	<a href="#">Deactivate</a>

The bottom section, 'Card Recharge', features a 'Card No' field with a 'Connect' button, and input fields for Customer Name, Address, tariff Plan, Payment Details (with a dropdown set to 'Cash'), Amount, Tax(%), Credit amount, Tax amount, and Previous Bal. It also includes 'Submit' and 'Reset' buttons. A yellow arrow points from the 'User Registration (Login Account)' text to the 'Registration' menu item in the sidebar.

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## Sales Batch Records

**Customer Information System & POS Management**

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Master    Sales Batch Record

Registration

Transactions    Shift Name : SHIFT 1

Card Recharge    Station Name : POS A

Submit    Reset    Print

Sales Batch report

rechargeDate	StationName	ShiftName	modeOfPayment	Name	amount	tax_amount	creditAmount
11/06/2010 12:20:05 PM	POS A	SHIFT 1	Cash	admin	1000.0000	40.0000	960.0000
11/06/2010 12:20:33 PM	POS A	SHIFT 1	Cash	admin	200.0000	8.0000	192.0000
11/06/2010 12:20:51 PM	POS A	SHIFT 1	Cash	admin	1000.0000	40.0000	960.0000
11/06/2010 2:51:14 PM	POS A	SHIFT 1	Cash	admin	470.0000	18.8000	451.2000
11/06/2010 2:56:01 PM	POS A	SHIFT 1	Credit Card	admin	600.0000	24.0000	576.0000
11/06/2010 2:57:04 PM	POS A	SHIFT 1	Cheque	admin	450.0000	18.0000	432.0000
14/06/2010 10:39:22 AM	POS A	SHIFT 1	Cash	admin	100.0000	4.0000	96.0000
14/06/2010 5:57:08 PM	POS A	SHIFT 1	Cash	admin	200.0000	8.0000	192.0000
14/06/2010 5:57:41 PM	POS A	SHIFT 1	Cash	admin	50.0000	2.0000	48.0000

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**Sales Summary : POS A SHIFT 1**

Mode of Payment	User	Time	Amount	Tax	Credit amount
11-Jun-2010					
Cash	admin	12:20 pm	1,000.00	40.00	960.00
		12:20 pm	200.00	8.00	192.00
		12:20 pm	1,000.00	40.00	960.00
		2:51 pm	470.00	18.80	451.20
			2,670.00	106.80	2,563.20
Cheque	admin	2:57 pm	450.00	18.00	432.00
					450.00
Credit Card	admin	2:56 pm	600.00	24.00	576.00
					600.00
Total amount:			3,720.00		
14-Jun-2010					
Cash	admin	10:39 am	100.00	4.00	96.00
		5:57 pm	200.00	8.00	192.00
		5:57 pm	50.00	2.00	48.00
Total amount:			350.00	14.00	336.00

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## Applications

Shopping Malls & Multiplexes.

Residential Townships.

Commercial Buildings.

Multi-Hospitals..

LT Industrial loads.



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“ One name that solves your  
All Power & Energy Management Puzzles ”



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THANK YOU



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