
PowerServe

Automated Meter Reading System

User's Guide
&
Reference Manual

PowerServe

Automated Meter Reading System

Version 7.17



&
Distribution

E-Mail:

neald@powermeasurement.co.za

Web: www.powermeasurement.co.za

Advanced Monitoring Solutions



Advanced Monitoring Solutions cc CK 2003/054159/23

PO Box 3374 Durbanville 7551

De Villiers & Moore Centre Durbanville

Tel/Fax: (021) 9750788

Acknowledgments

Microsoft® and Windows® are registered trademarks of Microsoft Corporation.

Notice

The information contained in this document is subject to change without notice. No warranties of any kind are made with regards to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. AMSO (Advanced Monitoring Solutions cc) shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material. No part of this document may be photocopied, reproduced, or translated to another language without the prior written consent of AMSO (Advanced Monitoring Solutions cc)

©Copyright 2001 by Advanced Monitoring Solutions cc

TABLE OF CONTENTS

INTRODUCTION	6
INSTALLATION.....	8
INSTALLING FROM CD	8
SOFTWARE OPERATION	9
A] METERS	10
A.1] Meter Database.....	10
A.2] Meter Setup	13
A.3] Meter Read.....	14
A.4] Reading Display.....	15
A.5] Logging Display.....	15
A.6] Reports	17
A.7] Meter Tools	18
B] CUSTOMERS/CLIENTS/TENANTS	19
B.1] Customer Database.....	19
B.2] Reports	23
B.3] Print	23
C] RECONCILIATION	25
C.1] Master Meters.....	26
C.2] Slave Meters.....	26
C.3] Reading and Reconciliation Report	26
D] OPTIONS	28
D.1] General Options	28
D.2] Invoice Setup.....	28
D.3] Auto Read Setup.....	28
D.4] Passwords.....	29
D.5] About.....	29
E] HOW TO GUIDE.....	30
E.1] What to do at Month-End.....	30
E.2] Check Reconciliation	30
E.3] View Meter Readings	31

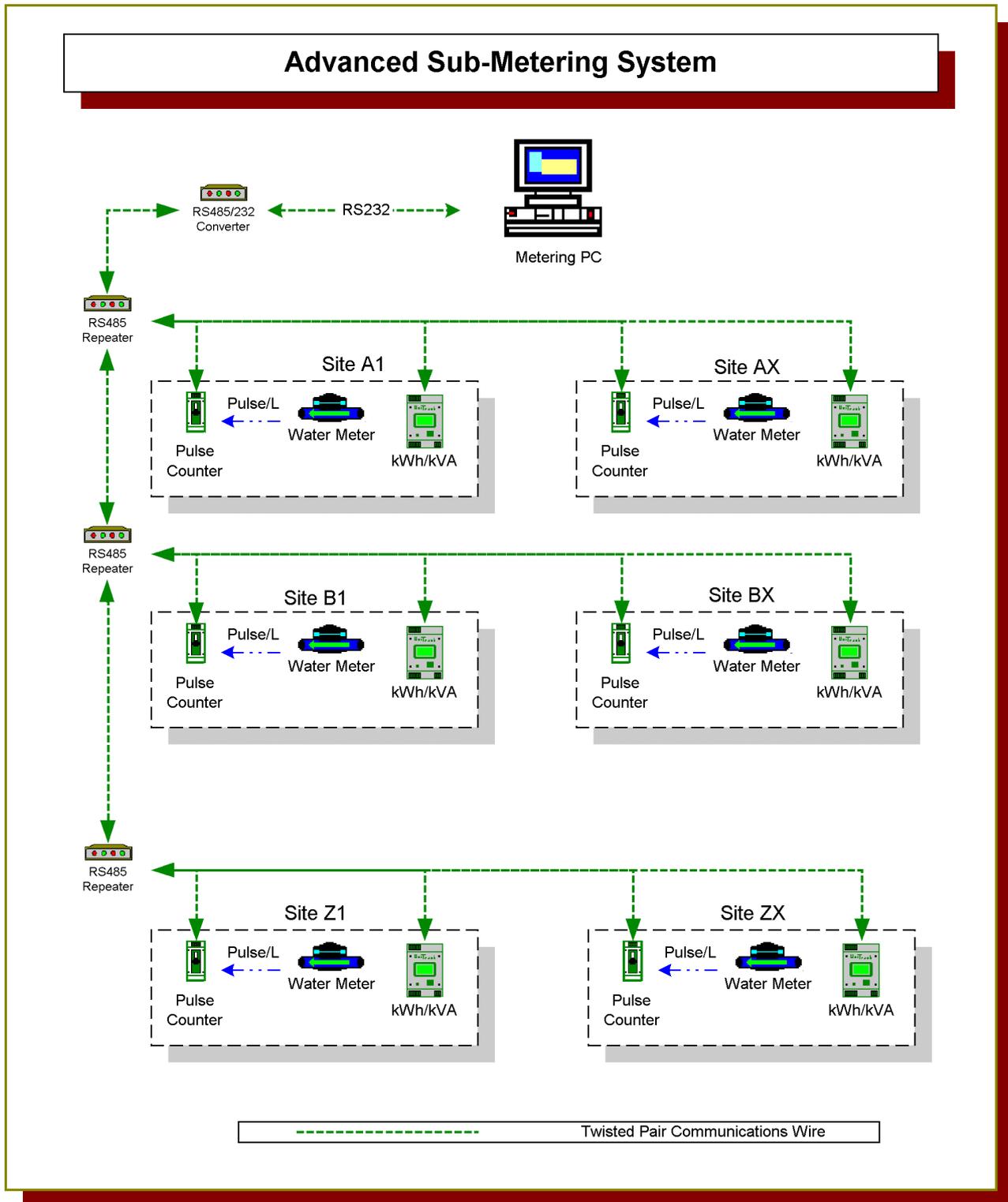
INTRODUCTION

The rapid growth of electronic systems and communications capabilities combined with the ever-increasing computerized environment presents the opportunity to fully integrate and automate metering systems. The increasing costs of electricity and water supply and high consumption there off further emphasizes the need for such systems. The PowerServe sub-metering system combines the latest electronic and computer technologies to provide a remote metering system that is maintenance free, accurate and easy to use.

The strength of the system lies in the software where the metering data is stored and presented in various formats. The main purpose of the software is to automate reading and billing procedures. Once the system is commissioned the various metering points will be read automatically at the end of a metering period. These readings are then used to calculate each customer's energy and/or water consumption and process their invoices accordingly. The metering data can be displayed in graphical and statistical formats with various reporting functions available. The reconciliation section ensures that the integrity of the system stays within acceptable limits and detects problem areas promptly (meter damage, water leakage's etc.).

The *PowerServe* sub-metering system uses the *Modicon ModBus RTU* communications protocol, which is an industrial and distributed control system protocol. The system is very reliable and flexible and integrates computers, monitoring and control devices. Each device (meter) in the system has a unique address, which the protocol uses in the command structure for identification purposes. A command is issued via the communications medium and the addressed (slave) device answers with the required

information.



INSTALLATION

Installing from CD

Insert the PowerServe CD into the CD-ROM drive and select the run command from the *Windows Start* menu. Select the *Browse..* button in the *Run* window and select the CD drive letter at the *Look In* drop down box. A list of file names should appear where the file *Setup.exe* must be selected and opened. This will result in the start of the setup program.

Follow the instructions of the setup program carefully. Read each window's text thoroughly before moving to the next step.

☞ Note: The setup program uses default directories and program folders and should only be altered in special situations.

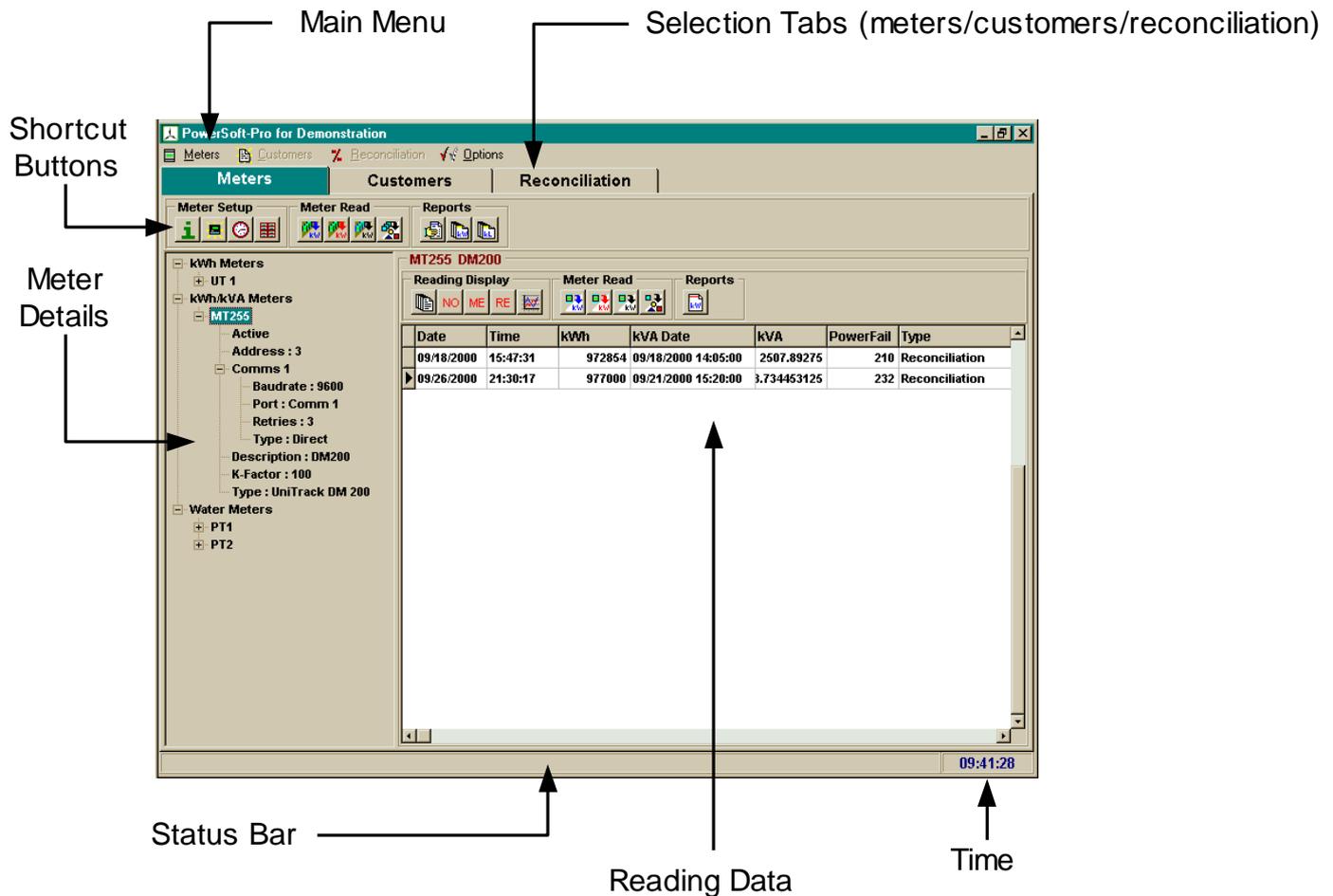
The last window of the setup program will tell whether the installation was successful and if successful then the software can be found and run in the program folder as specified during the setup. Under default setup conditions the program folder can be found in the following folder: *C:\ProgramFiles\Metering\PowerServe*

SOFTWARE OPERATION

The PowerServe software is divided into three major components. These components are seen on the tabs at the top of the window (just below the menu). Simply click with the mouse on one of the tabs to select the component. The appropriate menus, information panels and shortcuts will automatically be displayed upon selection.

- **Meters:** This component is the most important part of the software and is usually configured during the commissioning phase. The basic readings for each device is concentrated here and made available to the other components upon request. It is also advisable to limit access and operation to the system administrator. The data in this component is very vulnerable and incorrect use could lead to data loss. This section is protected with a password.
- **Customers:** The customer's component configures and displays the details and information for each customer. The system operator usually maintains this component and is responsible for updates whenever a tenant changes. This component can also be seen as the accounting department of the software where the meter percentages are assigned to tenants and their invoices calculated accordingly.
- **Reconciliation:** Reconciliation is concerned with the functionality of the sub-metering system and provides figures giving an indication of the current integrity of the electrical and/or water system. The main purpose of this component is to provide an indication whenever equipment or system failure/tampering occurs.

A] Meters



A.1] Meter Database

The meter database uses the *Meter Details* window to display the content of the database in a tree format (meter tree). The type of meters are group together under a group heading (kWh Meters, kWh/kVA Meters, Water Meters etc). Click the plus and minus sign box next to the heading to expand the tree disclosing more information concerning the specific meter. The highlight designates the selected meter and the accompanying reading data is displayed in the *Reading Data* window next to the *Meter Details* window. Simply select a meter to view the reading data in the *Reading Data* window. Three methods are available to execute the meter functions (database setup, meter information, etc).

- Main Menu: Select the meter menu and select the function from the menu list.
- Popup Menu: Right click with the mouse on the *Meter Details* window to display the popup menu. Select the command from the menu.
- Shortcut Buttons: Move the mouse cursor over a button to display a hint describing the function of the button. Click the button to execute the command.

Add/Edit Meter

The *Add Meter* and *Edit Meter* commands are found in the main or popup menu under *Meter Database*. Use *Add Meter* to create a new meter and the *Edit Meter* to edit an existing meter. These commands open a window where the following meter variables can be entered or edited:

- Meter Name: Each meter must have a unique name of up to 8 characters. These characters are stored inside the meter's memory and can be read from the screen on the meter.
- Meter Description: Provides an area where a more detailed description of the meter can be inserted. It is used together with the Device Name throughout the software for identification purposes.
- ModBus Address: A unique address with a value from 1 to 255 is assigned to each meter and is downloaded to the meter during configuration. This address is used by the communications protocol to distinguish between the meters in the system.
- K-Factor: The multiplication factor is derived from the CT (current transformer) configuration on the actual meter or factor obtained from water meter. The K-Factor is stored inside the meter and is available on the screen.
- Meter Type: Select the type of device currently being added (UniTrack DM50/100, SuperCon etc.).
- Meter Status: The meter can be selected (not active) to be ignored within the database when readings are taken.

- Month-End Reset via software: This selection box is only available when a kVA demand meter is installed. Selection means that a reset command will be sent to the meter whenever a Month-End reading is taken. The meter will then start with a new meter month. Note: Best is to setup the meter to do Month-End resets via the meters internal clock.
- Pulse Setup: The pulse setup is only applicable to water and energy pulse meters. The standard pulse counter has 4 pulse inputs and the correct pulse channel must be selected. The pulse setup must also be specified to identify whether the pulse counter counts water pulses or energy pulses.

Communications Properties

The properties display the information of the selected communications resource. Simply select the button (Select Communications Resource) at the bottom. This will display the list of available resources.

Communications Resources

- Add/Edit Resources: Opens a window where the following communications variables can be entered or edited:
 - Name: Used for identification purposes when selecting a resource.
 - Retries: Number of times a message is resent before an error is reported.
 - Communications Port: PC Port to which the communications devices are attached.
 - Baudrate: Specifies the speed of communications and is dictated by the meter's configuration (fixed inside the meter). The default baudrate is set at 9600.
 - Communications Type: This specifies the type of media used for communications. The various media uses different time-out values for messages.
 - LocalBus Controller (LBC): The LocalBus controller is a specialized device placed in the system to do specific tasks. This setup is used only if one is available in the system.

- Delete: Deletes the resource from the database.

Delete Meter

Deletes a meter and its data from the database.

WARNING – Deleting the meter also deletes all the readings belonging to it. Use this command with caution.

Meter Database Report

A report is generated, displaying the details for each meter in the database. These details can be printed and exported to a comma and delimited ASCII file. The exported file can easily be imported into a spreadsheet program.

A.2] Meter Setup



Information

Communications is established with the selected meter and the information is read from the meter and displayed in a window. This command is used purely for informational purposes.



Configure Meter

This command reads the information on the meter and displays a window where the address and the k-factor can be edited. The *Ok* button reconfigures the meter with the new address, k-factor and device name.



Sync Clock

The PC time and meter time is displayed and when the synchronize command is execute the meter's clock is changed to the same time as the computer. This command is only applicable to meters with internal clocks (SuperCon and UniTrack DM200).

Initialize Meter

This command initializes the meter readings in the database. The software reads a normal, month-end and reconciliation reading from the meter and places them in the

database as readings from a newly installed meter.

WARNING – Initializing a meter can corrupt your month-end readings for the specific meter. Do not use this command unless a new meter has been installed.



Realtime View

Displays the real-time information currently on the meter (voltages, currents and power parameters). This command is applicable only to the SuperCon and UniTrack DM200 meters.

A.3] Meter Read

The meter reading functions are divided into 2 groups. One can either read one meter at a time (selected meter) or do a specific reading for all the active meters in the database. A reading report is generated displaying reading status for the meters whenever an all meter function is executed.



Get Normal Reading for Selected/All Meter(s)

Reads the meter(s) and adds the reading to the database. The reading is displayed in the *Reading Window* as a normal reading. Normal readings can be taken at any time and is used for informational purposes.



Get Month-End Reading for Selected/All Meter(s)

Takes a Month-End reading for the meter(s). The maximum demand (when available) is reset in conjunction with this command (if selected in software) therefore this command should only be used at the end of metering periods. The reading is stored in the database and displayed in the *Reading Window* and marked as Month-End.

WARNING – The accounting section uses these readings for the reports and the invoices. Month-End readings should only be taken at the end of a reading period.



Get Reconciliation Reading for Selected/All Meter(s)

Takes reconciliation readings for the meter(s). These readings are used in the

reconciliation section to determine the discrepancies of the system.



Upload Logging Data

Uploads the logging for the meter(s). Logging functions are available only on the SuperCon and UniTrack DM200 meters.

A.4] Reading Display

All reporting and tool functions are applicable to the readings displayed in the reading window.



Display All Readings

Displays all the readings for the selected meter (normal, month-end and reconciliation).



Display Normal Readings

Displays the normal readings for the selected meter.



Display Month-End Readings

Displays the Month-End readings for the selected meter.



Display Reconciliation Readings

Displays the reconciliation readings for the selected meter.



Display Logging Data

Displays the logging data for the selected customer in the logging window. To close the window click the cross in the top right hand corner of the screen.

A.5] Logging Display

The logging display consists of a window divided into the following 4 sections:

- Identification: Displays the meter identification, location, logging interval and the logging period.

- **Statistics:** Displays the minimum, maximum and average value for the logged energy parameters.
- **Values:** Displays the date and time and the actual values for the logged energy parameters.
- **Graph:** Graphical display of the actual values. Tabs at the bottom of the graph display the graphs of the various logged energy parameters.

Display

The display can easily be set to display only the statistics and values or to use the complete window to draw the graphs. The menu functions can be found in the *Data Display* menu.

Print

The print functions prints the statistics, values and the graphs displayed. The 3 sections are printed individually.

Tools

Export Data

The export function exports the data to a *Comma and Delimited* file which can be imported into any spreadsheet program.

Graph Options

These options customize the graphs and provide the following options:

- **3D Graphs:** When this selection is checked the graphs are drawn in 3 dimensions.
- **Titles:** Main, x-axis and y-axis titles can be changed according to preferences.
- **Graph Selection:** This selection is applicable when the select tab at the bottom of the graphs is selected. Only the selected graphs will be displayed.
- **Axis Scaling:** The y-axis can either be automatically scaled between the highest and

the lowest values, or values can inserted to designate the highest and lowest values displayed on the graph. The time axis cannot be scaled, but drawing a box (from top left to right bottom) over the zoom area does zooms into the selected area. To undo the zoom, draw a box in the opposite direction (left bottom to top right). Holding the right button of the mouse and moving the cursor moves the entire graph.

Copy Graph to Clipboard

Copies the displayed graph to the *Windows* clipboard.

A.6] Reports

Reading Report

Displays status information concerned with the last reading. The information consists of a list of meters (name and description) together with each ones reading date and time, reading (upload) status and the reading type (normal/month-end/reconciliation).

👉 Note : The following reports are based on the readings displayed in the data window.

kWh Report for Selected Meter

The kWh reports deals with the specific energy consumption for the meters. The report for the selected meter subtracts the consecutive readings and displays the usage for the meter. The displayed information includes the period over which the consumption is calculated, the actual readings, the kWh consumption as well as the maximum demand (kVA) and the date thereof. The export function saves the displayed information to a comma and delimited typed file. The exported file can be imported into any spreadsheet program.

KWh/Water Report for Last Two Readings

The format of this report is the same as the previous, except that the last two readings for each meter is taken. This means that the last metering period's consumption is displayed for **each** meter.

A.7] Meter Tools

Delete Last Reading for Selected Meter

Warning – this command will delete the last reading in the database for the selected meter. These readings are permanently deleted and can never be recovered. Use this command with extreme caution.



Open Log File

Displays the logging data for the selected customer in the logging window. To close the window click the cross in the top right hand corner of the screen. See the logging display section (A.5) for details on this display.

B] Customers/Clients/Tenants

The screenshot shows the 'PowerSoft-Pro for Demonstration' software interface. The 'Customers' module is active, displaying a tree view of customers on the left and detailed information for 'Cust 1' on the right. The tree view includes 'C 5', 'Cust 1', and 'Cust 2'. The main window for 'Cust 1' has tabs for 'Energy Consumption', 'Water Consumption', and 'Totals and Expenses'. The 'Totals and Expenses' tab is selected, showing a table with columns for Description, Usage, Cost, and Amount. The table lists various charges and their amounts, including Energy Consumption, kVA Demand, Basic/Service Charge, Transmission Charge, Aux Cost, Total Net Cost, Vat, and Total Cost. The time '12:31:17' is displayed in the bottom right corner.

Description	Usage	Cost	Amount
Energy Consumption	2408.95 kWh	7 c/kWh	R 168.63
kVA Demand	240.00 kVA	1 R/kVA	R 240.00
Basic/Service Charge			R 162.42
Transmission Charge	@ 3.00 %		R 17.13
Aux Cost			R 500.00
Total Net Cost			R 1088.18
Vat	@ 14.00%		R 152.34
Total Cost			R 1240.52

B.1] Customer Database

The customer database groups and manages the details for each customer/client/tenant. The customer detail window displays the details for each customer in a tree format. Click on the + signs to expand the tree showing more detailed information. The – sign compresses the tree. Click the right button to show the popup menu.

Add/Edit Customer

Select the *Add* or *Edit* command in the customer or popup menu to add or edit a customer. The customer detail window is displayed where the customer's details can be added or edited. The following variables are available for editing purposes:

Customer Name: Text string by which the customer can be uniquely identified.

Account Number: The account number is a unique number given to each client.

Physical/Delivery Address: Street address of the client's office or residence.

Postal Address: Address where mail and all correspondence are sent.

Contact Person: Person to contact for any queries.

Telephone Number: Number where contact person can be reached.

Fax Number: Number where fax can be sent.

Email address: Address to use for any Internet correspondence.

Auxiliary Cost Description: The auxiliary cost is any extra costs that needs to be added to the account of the client (ex. Office space).

Auxiliary Cost: The actual value of the auxiliary cost.

Delete Customer

Removes the selected customer from the database.

Warning - Use this function with caution because important information can be deleted. No meter readings will be deleted when deleting a customer.

Meter Assignment

The Meter Assignment window displays the meters belonging (assigned) to the selected customer. The list of assigned meters is displayed on the left side and by selecting a meter the tariff assigned to the meter is displayed on the right side. Various customers can share a meter and the contribution for each customer is defined by the meter percentage. The percentage of the meter assigned to the customer is displayed at the bottom together with the total percentage of the meter assigned to all the customers. The meter assign management functions are as follows:

➤ Add – Displays a list of available meters. Select the desired meter and change the

percentage accordingly. Note that the available percentage for the selected meter is displayed in the percentage edit box.

- Edit – Displays an edit box where the meter's percentage can be changed. Keep in mind that one cannot assign more than 100% of a meter.
- Delete – Removes a meter from the list.
- Select Tariff - Selects a tariff from the available tariff structures. New tariffs and modifications to old tariffs can be made.
- Assign Report - The report displays a list of all the meters and the details of their assignment. This is useful when defining the assignment percentages as it provides a summary of the percentages already assigned and to which customers.

Tariff Setup

A wide range of tariff structures is available for energy billing. Each system can use a unique tariff and tariffs can even differ from meter to meter. It is therefore necessary to define tariffs according to the needs of the system.

The tariff setup displays a window containing a list of defined tariffs. The list is displayed in a tree format where the plus expands the tree to display more information. The following controls manages the list of tariffs:

Add/Edit

Displays a window containing all the necessary settings to define a tariff. The settings are as follows:

General settings

- Tariff name – Each tariff must be assigned a unique name for identification purposes.
- Service/Basic charge – This is a fixed monthly charge for the electrical/water connection plus the administration concerned with the supply and metering.

- Minimum monthly payment – Some tariffs are defined to have a minimum monthly payment, which is charged to the customer whenever the total account is below this amount.
- Transmission Charge – Usually with the large user the authority bill for the supply. This is a percentage of the total energy consumption.

Costs and sliding scales

A] Energy consumption and costs

The energy consumption can be billed for kWh's used and/or for kVA demand (maximum demand). Select the appropriate check boxes and enter the tariff charges.

The Add kVA selection is applicable when more than one kVA meter is assigned to a customer. The various meters kVA demand can then either be added together (when box is checked) or the biggest value of the meter can be used for billing purposes.

The energy sliding scales are used to define pricing of kWh's according to amounts used. Select the amount of scales needed (only 3 available), and enter the cost for each scale. The energy consumed up to the first scale is charged using the normal consumption cost and energy used above the specified amount is charged according to the first energy scale charge.

Example:

Consumption Costs: 20 c/kWh

Sliding scale setup:

Energy scale 1 > 1000 kWh Cost : 10 c/kWh

Energy scale 2 > 2000 kWh Cost : 5 c/kWh

Consumption = 2500 kWh

Account

0-1000 kWh = 1000x20 c/kWh

1000-2000 kWh = 1000x10 c/kWh

2000-2500 kWh = 500x5 c/kWh

Total = R325-00

B] Water consumption and costs

The water consumption billing and sliding scales operates in the exact same manner as the electricity billing except that the cost is per kiloliter.

Delete

Removes the selected tariff from the list.

B.2] Reports

Meter Assignment

The report displays a list of all the meters and the details of their assignment. This is useful when defining the assignment percentages as it provides a summary of the percentages already assigned and to which customers.

Customer Report

Displays a list of all the customers and the details of each.

👉 Note the *Print* button at the bottom of the report windows for printing to a device.

B.3] Print

The Print menu item is divided into two sections: *Selected Customer* and *All Customers*. The Selected Customer menu prints only the details for the one customer while the All Customers prints details for each customer in the database.

Consumption Report

This report prints the detail of the customer (acc nr, physical address, postal address, contact person, tel num, fax num and email address) and the consumption details (meter name, description, percentage assigned, metering period, kWh consumed, maximum demand/kVA date and time and maximum demand/kVA) for each meter assigned to a customer.

Tax Invoice

Prints a tax invoice containing the billing information. The invoice consumption details are the same as displayed on the screen. The following is an example of a typical invoice:

Tax Invoice

From:

Address and details of the billing company. These details are available for editing under *Options/Invoice Setup*.

Details of billing company

To:

Address and details of the customer/tenant/client.

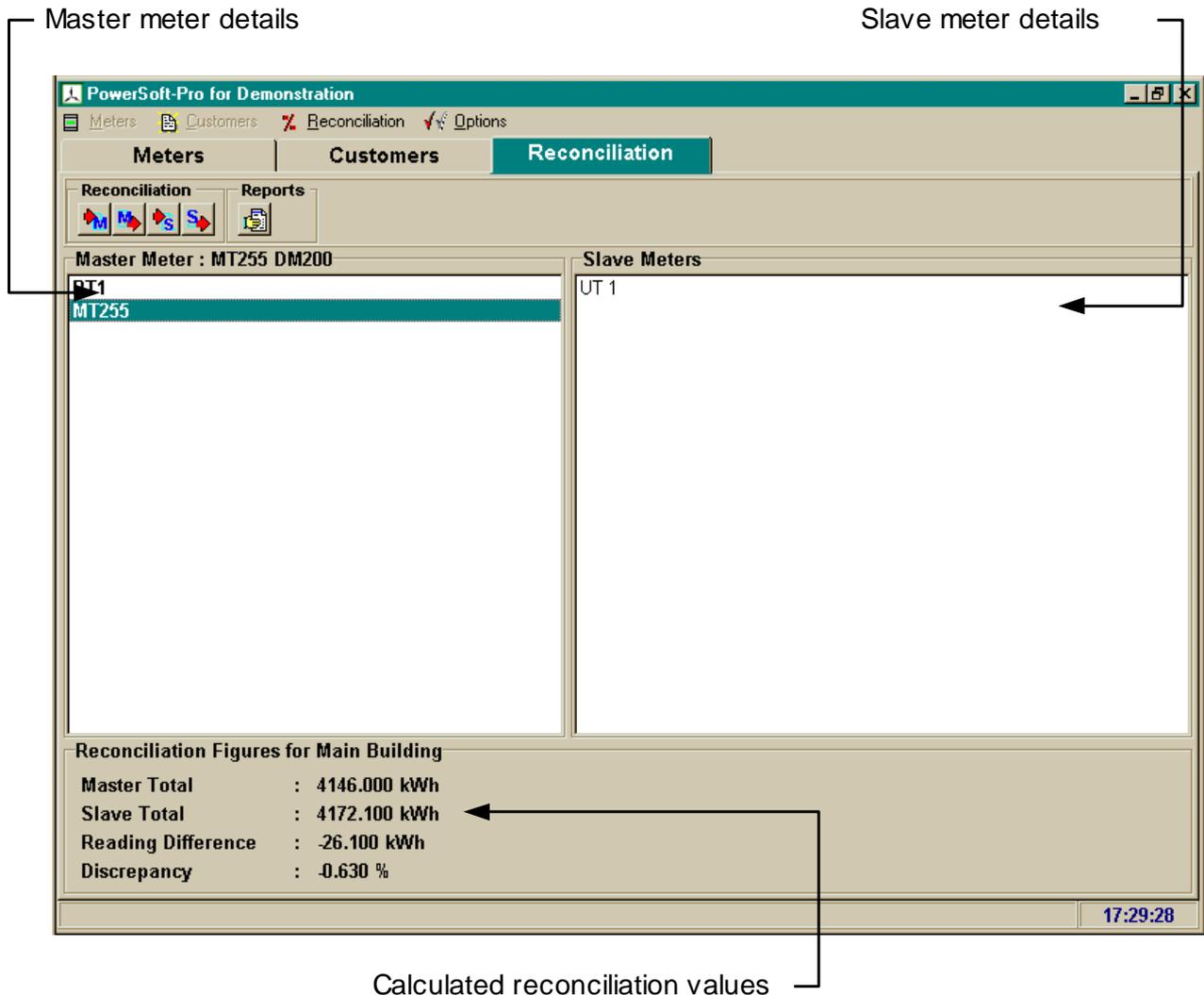
Details of customer/tenant/client.

Invoice details – Account number, invoice date and metering period.

<u>Description</u>	<u>Total Usage</u>	<u>Cost</u>	<u>Amount</u>
Details of the charge (basic charge or energy consumption etc.	Energy usage (kWh, kVA).	Cost per unit	The amount charged

Comment: the comment is also found under *Options/Invoice Setup*.

C] Reconciliation



The reconciliation section is mainly concerned with the integrity of the system. It provides an indication of the functionality and the accuracy of the system. The total energy consumption is measured at the incoming power supply using a master meter and the various feeders feeding from the supply are measured with the slave meters. The reconciliation section compares the master reading with the summated slave readings and displays a discrepancy percentage, which indicates whether the total consumption is measured. The system must be checked and verified whenever the discrepancy percentage rises above accepted levels. Problem areas such as communication media, CT connections, wiring and meters must be investigated.

The reconciliation page is divided into 3 divisions. The top, left division displays the master meter details, the top, right division displays the slave meters belonging to the selected master meter. The bottom part displays the statistics calculated from the last 2 reconciliation readings of the meters.

There are two paths to follow to set up the master and slave configuration. The main menu, *Reconciliation*, contains the necessary commands as well as the popup menus displayed by the right click of the mouse within the specific division. These menus contains the following commands:

C.1] Master Meters



Add Master Meters

This command displays a list of available meters. Select the master meter to add to the master meter division. More than one master meter can be selected.



Delete Master Meters

Use this command to remove a master meter from the master meter division.

C.2] Slave Meters



Add Slave Meters

This command displays a list of available meters (not yet selected). Select the slave meter/meters to add to the slave meter division. Remember that the slave meters selected are always linked to the master meter selected in the master meter division.



Delete Slave Meters

Use this command to remove a slave meter from the slave meter division.

C.3] **Reading and Reconciliation Report**

Displays a report containing the reconciliation figures as well as each meters readings and reading dates. The report is applicable to the selected meter.

Executing the print function will print the details as seen on the screen to the selected printer.

D] Options

D.1] General Options

The general options window displays the building code (default 1) and the default export and data paths. The default paths are the directories with which the file save and file open dialogs start with. These can be changed to suit individual needs. Simply select the correct paths and click *OK*.

D.2] Invoice Setup

The invoice setup is where the global details for the invoices are set. These include the VAT percentage and the details of the billing authority. The billing authority details are printed at the *From* part of the invoice. The Invoice Printing Selections section provides a means of customizing the invoice. Simply de-select the option to exclude the specified section from the printed invoice.

D.3] Auto Read Setup

The reading setup contains the variables for the automatic upload procedures. These procedures take a reading of the specified type on the selected day and time. Three types of readings can be taken (normal/month-end/reconciliation) and each of these can be set to automatic upload at separate intervals. Warning – avoid upload overlapping (upload at same time) as this could cause communications failures, which could lead to loss of data. Try to keep the upload times late at night or early in the morning. The following are the available selections:

- Monthly – Specify the day of the month (1 to 28) the hour (0 to 23) and the minutes (0 to 59). The Upload process will start once a month on the specified day at the amount of minutes past the hour.
- Weekly – Specify the day of week (1 to 7) with 1 being Monday, the upload hour (0 to 23) and the minutes (0 to 59). The upload process will run once a week on the specified time.

- Daily – The upload process will run every day on the specified time (hour 0-23 and minutes 0-59).

The logging of the meters (where available) can be set to be uploaded daily, weekly or monthly. The logging files will then contain a day, a week or a month's data depending on the selection.

D.4] Passwords

There are two passwords that are applicable. The first is the password to enter the meter section of the software. The default for this password is an empty text string and it protects the metering section from being tampered with by unauthorized personal. The second is the SuperCon password (when applicable). This password is necessary for resetting the maximum demand on the SuperCon demand meters. It is the level 4 password and the default value is 4.

D.5] About

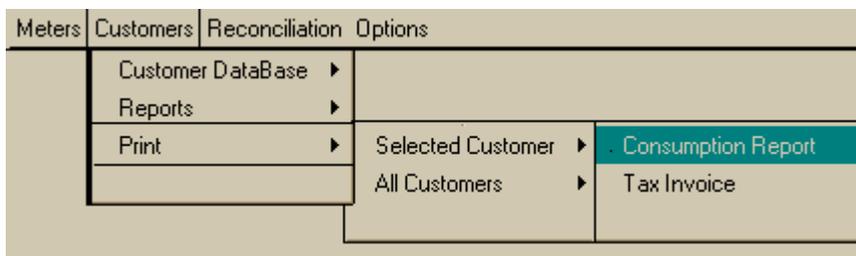
The about window displays the details of the software package. This includes the version number and the program vendor details.

E] How to guide

This section provides recipes to complete certain functions in the software. Follow the instructions carefully to reach the required result.

E.1] What to do at Month-End

- Check meter readings – Go to customer section (select customer tab), select the *Energy Consumption* tab in the customer detail window. Check the metering period for the correct dates (should be the period between the last two *Month-End* reads).
- Check meter reading report – Go to meter section (enter password). Select from the *Reports* Menu Item the *View Reading Report* to display a list of the meters that were read when they were read and the status of the reading.
- Print Reports/Invoices – A report/invoice can be printed just for the currently selected customer or a report/invoice can be printed for each customer in the database. Select one of the following menu items:



The printed report will provide all the details as seen on the screen and the invoice will present the data in an invoice format.

E.2] Check Reconciliation

Select Reconciliation section (click reconciliation tab) and look at discrepancy percentage at bottom of window. The discrepancy should be as low as possible (below 5% depending on installation). A high percentage can indicate a functional problem with the system.

E.3] View Meter Readings

Go to meter section (enter password). Select the type of reading to be displayed:



Display Normal Readings



Display Month-End Readings



Display Reconciliation Readings



Display Logging Data

Two reports can be generated from these readings:

1] kWh report for all meters displaying the difference between the last two kWh readings (consumption) for each meter in the database.

2] kWh report for selected meter displaying the difference between the consecutive kWh readings (consumption).

The commands to generate these reports can be found under the *Reports* menu item.

