

CUSTOMER DATABASE PROGRAM

Manual

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1 General information

The Customer Database program is based on a standard database using the Access file format. The program is a tool for generating a customer database for the PD 4000/340 Flowmeter-Display.

The database program is built on three tab sheets: <Customers>, <Delivery> and <Relations>.

The <Customer> tab sheet enables a database table with an unlimited number of customers to be generated. An extract of this information can then be downloaded to the PD 4000/340 Flowmeter-Display.

The <Delivery> tab sheet refers to another database table in which measurement data associated with the individual measurements performed from the PD 4000/340 Flowmeter-Display can be uploaded.

The <Relations> tab sheet makes it possible to build up relationships between a specific PD 4000/340 Flowmeter-Display and customers placed on a specific route.

Customer Database

Selection
 Number: Customer:

Number:
 Customer:
 Contact:
 Address 1:
 Address 2:
 Address 3:
 Phone:
 Fax:
 Route:
 Remarks:
 Info:

Show
 All customers
 Route No:

Print
 All customers
 Current element

Record: 1

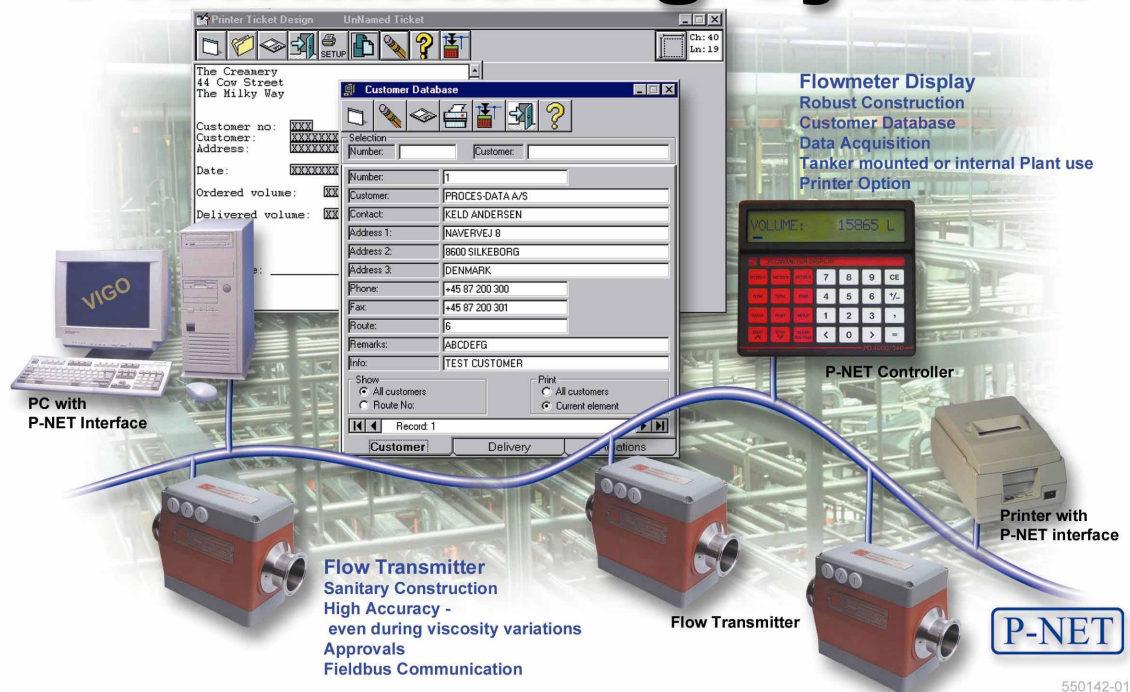
Customer Delivery Relations

1.1 Features.

- Database in Access file format
- No limit to the numbers of customers in the database
- Download of up to 1200 customers into one PD 4000/340 Flowmeter-Display
- Upload of measurement data associated with the individual transactions from the PD 4000/340 Flowmeter-Display
- Printing of measurement and customer data on the default printer connected to the PC.
- Sorting of data shown on the screen by Customer Number, Route Number, Date of Delivery and Customer Name
- Facilities for adding, deleting and updating customers
- Easy installation on a standard PC running Windows 95/98/NT
- Communication via the P-NET Fieldbus, EN50170 Vol. 1 and IEC 61158 type 4

1.2 System description

Flowmetering System



The figure above shows how a PC, with built in PC/ P-NET Interface, is connected to the Flowmeter system. The PC is normally only used as a base station, and only connected to the Flowmeter system for download of the database data and upload of delivery data.

The program is installed on a standard PC running Windows 95/98/NT. This PC has to be equipped with a plug-in PD 3920 card or PD 3930 PC/ P-NET Interface module. For further information about installation of a PC/ P-NET card, refer to the installation guides, ref. no. 506 041 for PD 3920 on windows 95/98, ref. no. 550 036 for PD 3920 on Windows NT and ref. no. 550 048 for PD 3930 on Windows 95/98/NT.

The exchange of data between the database program and the P-NET installation, is handled by a product called VIGO, which must also be installed on the PC.

VIGO is a PC based Fieldbus Management System. It enables a physical plant to be described in terms of data, related data structures and the location of the data. Such a description is already included within the database program for the PD 4000/340 system. For additional information about the VIGO system, refer to the VIGO Users Manual, ref. no. 502 086.

2 Customer

Each customer in the database consists of eleven data fields. An overview of these fields, and the corresponding size of each of them are shown below.

[Number]	Customer number	9 digits
[Customer]	Customer name	28 characters
[Contact]	Name of contact person	28 characters
[Address1]	Line 1 in a customer address	28 characters
[Address2]	Line 2 in a customer address	28 characters
[Address3]	Line 3 in a customer address	28 characters
[Phone]	Telephone number	20 characters
[Fax]	Fax number	20 characters
[Route]	Route number	9 digits
[Remark]	e.g. remarks about the media	28 characters
[Info]	e.g. information about the customer	28 characters

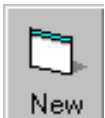
Customer records in the database are by default sorted in numerical order according to the value in the [Number] data field. By placing the cursor in the [Selection-Customer] field the customer records will be sorted into alphabetical order. Keying characters into the [Selection-Customer] field will start a search for the keyed in data, and move to the matching record. The same goes for the [Selection-Number] field where keying in a number and pressing the Enter key will result in a display of the matching record.

In the <Show> area it is possible to select and to display All Customers or to provide an extract from the database, by selecting a specific route number. The extract will be formed when the Enter key is pressed after keying in a route number.

The means to perform data input and output from the Customer database table, is controlled by a set of function buttons. Clicking on these provides the ability to add a New Element, Delete an Element, Save changes To Database, Print on default printer and to Download customer data to a connected PD 4000/340 Flowmeter-Display.

A description of the function buttons is given within the following pages.

2.1 New element



If the Customer screen is displayed, clicking on the <New Element> button with the mouse will clear all the updateable fields, and allow insertion of new values.

Since the [Number] data field is used for sorting the elements, it is not permitted for additional customers to be created using a previously used number held in any of the other [Number] data fields.

To switch entry from one data field to the next, either the mouse buttons or the TAB key can be used.

When creating a new customer the [Number], [Customer] and [Route] fields always have to be filled out.

To sort and save the new element in the database, click on the <Save Element> button.

2.2 Delete element



If the Customer screen is displayed clicking on the <Delete Element> button with the mouse will delete the displayed element from the database and update the database.

The record with the nearest lower number in the <Number> data field, will then be shown on the screen.

2.3 Save to database



If the Customer screen is displayed clicking on the <Save to database> button will save changes made to Customer records into the database and sort the records into numerical order.

2.4 Print



Customer data can be printed on a printer connected to the PC. Clicking on the <Print> button with the left hand mouse button will print either the current element shown on the screen, or an extract of the database table according to the criteria set up in the <Print> frame.

Data will always be printed on the default printer. To select another printer change the default printer setting in the Windows system.

2.5 Download / Upload



If the Customer screen is displayed clicking on the <Download / Upload> button will download an extract of the Customer table to a connected PD 4000/340 Flowmeter-Display according to the information in the Relation table.

The number of elements to be downloaded is limited to 1200.

The transmission line is tested for communication errors during the download sequence.

2.6 Exit Customer Database



To close the program, click on the <Exit> button. A click on the cross in the upper right corner will also shut down the program.

2.7 Scroll



The elements in the Customer database table are sorted in numerical order according to the values held in the [Number] data fields. In the Customer Database, it is possible to either single step through the elements, or to go to the first or the last customer record in the database, by clicking on the <arrow> buttons on the bottom line. If a specific route has been selected in the <Show> frame, the scroll function will only deal with the elements associated with this route.

3 Delivery.

The screenshot shows the 'Customer Database' application window. At the top, there are icons for Print, Load, Help, and Exit. Below this is a 'Selection' section with input fields for 'Number: 1' and 'Customer: PROCES-DATA A/S'. A central table displays delivery details:

Date:	1997-05-26
Time:	18:42:41
Volume:	1,835
Total:	4,938
Setpoint:	0,000
AV_Temp:	28,34
Error3:	

Below the table are two control panels. The 'Show' panel has radio buttons for 'All deliveries' and 'Date interval' (selected), with 'From' and 'To' date fields both set to 1997-05-26, and a checked checkbox for 'Route No.' with a value of 6. The 'Print' panel has radio buttons for 'Selected interval' and 'Current element' (selected). At the bottom, there are navigation buttons and a 'Record: 11' indicator. A tabbed interface at the very bottom shows 'Customer', 'Delivery' (active), and 'Relations' tabs.

Each delivery in the database consists of seven data fields. An overview of these fields is shown below.

- [Date]: Date of the delivery at the customer (registration of the Date is logged when the receipt is printed at customer site)
- [Time] Time of the delivery at the customer (registration of the Time is logged when the receipt is printed at customer site)
- [Volume] Volume of the delivery to/from the specific customer
- [Total] Total volume (could be current truck load)
- [Setpoint] Setpoint (could be Batching setpoint or Temperature setpoint for Limit Switch)
- [Av_temp] Average temperature of the delivery to/from a specific customer
- [Error3] If an error happens during the delivery, error information describing the error will be included in this field.

Delivery records in the database are, as default, sorted into ascending order, according to the values in the [Number], [Date] and [Time] data fields. By placing the cursor in the [Selection-Customer] field, the customer records will be sorted into alphabetical order. Keying characters into the [Selection-Customer] field will make a search for the keyed-in data, and move to the matching record. The same applies to the [Selection-Number] field, where keying-in a number and pressing the Enter key, will result in a display of the matching numerical record.

In the <Show> frame it is possible to select either to display All Customers, or to generate an extract from the database, by defining a specific Route number, and/or a Date interval. The extract will be generated when the selection criteria has been keyed-in, and Enter key has been pressed.

The format for data in the [Date] field follows the "Short date style" setting in the PC. The date style is set up in the Windows system <Start | Settings | Control Panel | Regional Settings> menu. Only "-" and "," and "/" are valid characters as separators in the [Date] fields.

The means for performing data input and output from the Delivery database table is controlled by a set of function buttons. A description of each of the function buttons is given within the following pages.

3.1 Print



Measurement data can be printed on a printer connected to the PC. Clicking on the <Print> button with the left hand mouse button, will print either the current element shown on the screen or an extract of the database table according to the criteria settings on the screen.

Data will always be printed on the default printer. To select another printer change the default printer setting in the Windows system.

3.2 Download / Upload



If the Delivery screen is shown, clicking on the <Download / Upload> button will upload data from a connected PD 4000/340 Flowmeter-Display into the Delivery table. All data fields in the PD 4000/340 will be uploaded.

The transmission line is monitored for communication errors during upload.

3.3 Exit Customer Database



To close the program, click on the <Exit> button. A click on the cross in the upper right corner will also shut down the program.

3.4 Scroll



The elements in the Delivery database table are sorted both in numerical order according to the values held in the [Number] data fields, and in date and time order according to the values held in the [Date] and [Time] data fields. It is possible to either single step through the elements, or to go to the first or the last Delivery record in the database, by clicking on the <arrow> buttons on the bottom line.

4 Relations.

The screenshot shows the 'Customer Database' application window. The title bar reads 'Customer Database'. The menu bar contains icons for 'New', 'Delete', 'Save', 'Help', 'Exit', and 'Add'. The main window area contains a form with the following fields:

Truck number:	1207
Remarks:	DRIVER: LARS HANSEN
Routes:	4
	6

At the bottom of the window, there is a record navigation bar with 'Record: 8' and navigation arrows. Below this are three tabs: 'Customer', 'Delivery', and 'Relations', with 'Relations' being the active tab.

Relations link the Customer table to a specific PD 4000/340 Flowmeter-Display.

A variable called *TruckNumber* can be keyed in into the PD 4000/340 Flowmeter-Display. The *TruckNumber* is used as an identification number for the display unit, and makes it possible to relate customers located on a specific route, with a specific PD 4000/340 Flowmeter-Display.

This means that when a download is performed from the Customer table, the program will read the *TruckNumber* in the PD 4000/340 and make an extract from the Customer table according to the information given in the Relation table. These data will then be downloaded to the PD 4000/340.

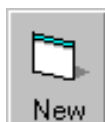
Note: At least one element (one relation) has to be created in the Relations table to be able to download from the Customer Database into a PD 4000/340 Flowmeter-Display.

It is possible to associate up to six Routes with each TruckNumber.

Relations records in the database are sorted into numerical order according to the value in the [Truck number] data field. Because of this, it is not permitted to create new truck numbers which have been previously used in any of the other [Trucknumber] data fields. The means for performing data input and output from the Relations table, is controlled by a set of function buttons. Clicking on these buttons with the mouse, provides the ability to add a New or Delete an Element or Route, Save changes To Database and to Add Route Numbers.

A description of each of the function buttons on the Relations tab sheet, is given within the following pages.

4.1 New element



If the Relations screen is shown, a new truck number can be added to the database, by clicking the <New Element> button with the left hand mouse button.

This will remove the [Routes] fields, clear the [TruckNumber] and [Remarks] fields, and allow insertion of new values. To add new route numbers click on the <Add New Route> button.

Since the [Trucknumber] data field is used for sorting the elements, it is not permitted to create additional elements using a previously used number held in any of the other [Truck number] data fields.

To switch entry from one data field to the next, either the mouse button or the TAB key can be used.

To sort and save the new element in the database, click on the <Save to database> button.

4.2 Delete element



If the Relation screen is shown, and if the cursor is placed in a Route field, clicking on the <Delete Element> button will only delete this particular route.

If the cursor is placed in the [Truck number] field, clicking on the <Delete Element> button will delete the entire element (Truck number, Remarks and Routes) and update the database. The record with the nearest lower number in the [Truck number] data field, will then be shown on the screen.

4.3 Save to database



Activation of the <Save> button from the Relations menu will save any changes made to the Relations records in the database and sort the records into numerical order.

4.4 Add New Route



Clicking on this button with the left hand mouse button, will insert a new empty Route field on the <Relation> screen. It is possible to relate up to six routes for each *TruckNumber*.

To sort and save the new route in the database, click on the <Save to database> button.

4.5 Exit Customer Database



The <Exit> button is used to update and shut down the database program. To close the program, click on the <Exit> button. A click on the cross in the upper right corner will also shut down the program.

4.6 Scroll



The elements in the Relations database table are sorted in numerical order according to the values held in the [Truck number] data fields. It is possible to either single step through the elements, or to go to the first or the last record in the database, by clicking on the <arrow> buttons on the bottom line.

5 Installation

5.1 VIGO

Customer Database uses the VIGO program, for communication with the PD 4000/340 Flowmeter-Display. It is therefore necessary to install VIGO 4.3 or higher prior to installation of the Customer Database program and the PC/ P-NET Interface card.

To install VIGO 4.3 or higher, the instructions included in the installation program should be followed. For further details about the VIGO system, refer to the VIGO Users Manual, ref.no. 502 086.

5.2 Customer Database program

To install the Customer Database program on a PC, follow the instructions below.

5.2.1 Close down the VIGO program

5.2.2 Installation of Customer Database

- a) Download the Customer Database from www.proces-data.dk
- b) Run Setup.exe in WinZipextractpath\disk1
- c) Follow the instructions given by the installation program, and Customer Database program will be installed on your system.

5.2.3 ReadMe.txt file

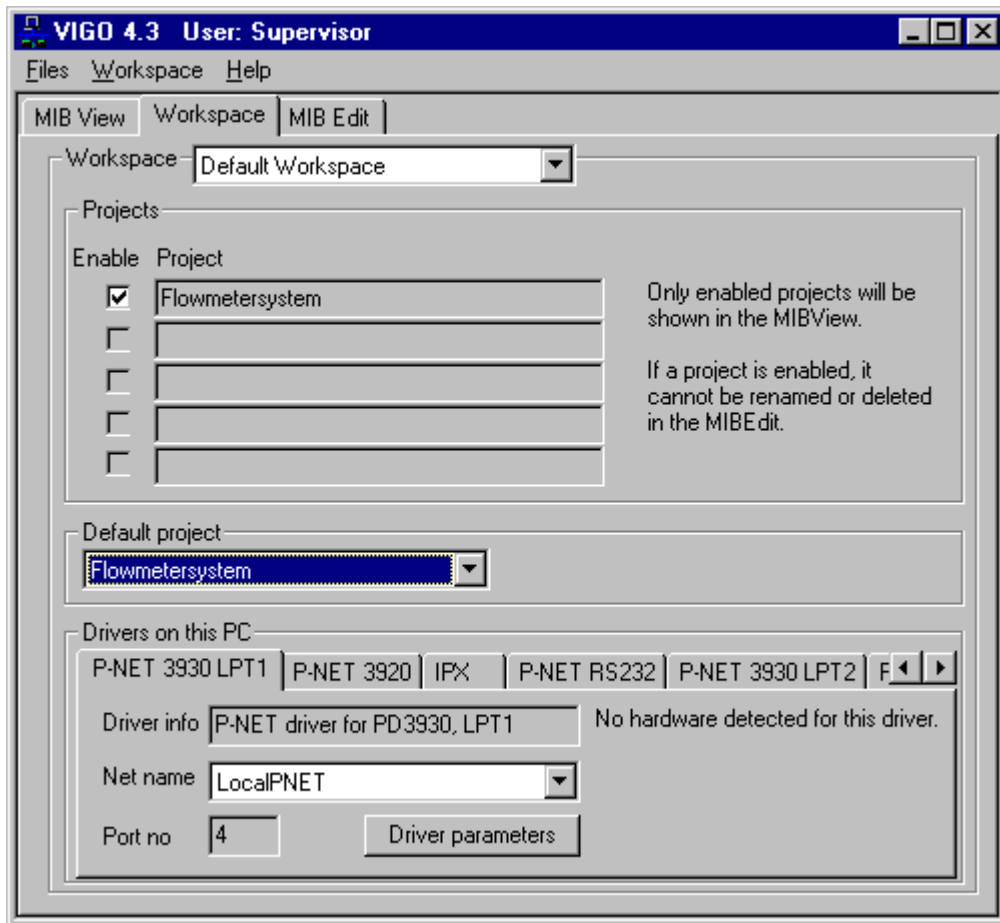
When the Customer Database program has been installed, it is advisable to read the ReadMe.txt file. If the default file locations were used, it will be found in the following directory: 'C:\Program Files\PDFlow\ReadMe.Txt'

5.2.4 Start the program.

Go into the <Start | Programs | PDFlow> and click with the left hand mouse button on the "Customer Database" icon.

5.2.5 Setup VIGO

VIGO is now started, click with the left hand mouse button on the minimized VIGO program, select the workspace tab, on the workspace tab select the P-NET 3920 or the P-NET PD 3930 tab depending on your PC/ P-NET interface installation.



Click on the driver parameters and key in 1 in the field node address, and 6 in the field No of masters.

Press the <OK> button, the Customer Database program is now ready to be used.