Daikin Air Conditioning Cyber Support
DACCS-PC Series

For Windows 98, 2000, Me, XP

2D Airflow Simulation Expert

EZFlow

V1.12

DAIKIN INDUSTRIES, LTD.

Cautions

The following conditions must be agreed to when using this software.
1. Daikin Industries, Ltd. reserves all rights concerning the airflow simulation program "EZFlow"
2. WestSide reserves all rights concerning the contour charting program "WscntE"
3. Daikin Industries, Ltd. and WestSide prohibit the reproduction of the program in part or in its entirety.
4. Daikin Industries, Ltd. and WestSide prohibit revision, deletion, or any other changes to part or entirety of the contents of the program.
5. Daikin Industries, Ltd. has full confidence in the accuracy of the program, however cannot be responsible for any damage or loss incurred from its use.
6. The contents of the program are subject to change without prior notice.

Notes

1. Before using this program, please read this manual.
2. ID/password is needed to run this program. Ask your Daikin distributor for details.
3. This program will expire on a fixed date, mentioned in the "Readme.txt" file, included in the CD-ROM. Contact your Daikin distributor before expiration.

CONTENT

[1] Introduction

1. Outline

Air velocity and air temperature distribution of the indoor air can be easily simulated for VRV indoor units. Results displayed in the engineering data, have been calculated using this software.

2. Features

1) Speedy calculation and air distribution calculation
You will first select the indoor unit of your choice from a Database, and will be able to locate it within a parallelepiped room, which you will have defined the size. After entering the initial room air condition, the program will simulate the air velocity and air temperature distribution within the defined space.

This program allows some fast calculations of the flow distribution within a room, creating convincing illustration to be given to customers.
2) Windows 98, 2000, Me, XP

3. Cautions

1) Simulation results can be use only for reference.
2) Use of a color printer is recommended for better display of the results.
3) This software is composed by two programs.
The airflow simulation program itself named "*EZFlow",* and the contour charting program named "*WscntE"* to display the simulation calculated with "EZFlow". "*EZFlow"* has been developed by DAIKIN INDUSTRIES, LTD with all copyright reserved. "*WscntE*" has been developed by "WestSide" company with all copyright reserved. To have full use of "WscntE", user should follow "WestSide" registration procedure.
4) The trial period for using "WscntE" is set under the following conditions.
<Limitation 1> Running time is limited to 60 minutes.
<Limitation 2> Printing quality will be change to low level after 50 printing operations.
(When doing screen hard copy).
<Limitation 3> Can export only 50 meta-files or bit-map data files.
To run the program without limitations, you should register your software version following the registration procedure.
5) Registration can be completed by a payment of US$25 using the Kagi system which accepts cards, checks, and cash. Please read "ReadMe.txt" in "WscntE" folder of "EZFlow" under "Program Files"

[2] Software Setup

The setup of this program is performed by using "Setup.exe" program, which is supplied in Disk1 Folder in the case of CD-ROM (or a diskette No. 1 in the case of floppy disk). All the data necessary for this program are installed in a hard disk with this setup program (Setup.exe). Please check your current hardware and software before setting up.

1. System Configuration

The following hardware and software are necessary to use this software.
- Windows compatible PC with (at least) Intel Pentium CPU.
- OS: Windows 98, 2000, Me, XP. (Not supported under Windows NT)
- Hard Disk Memory: At least 10 MB
- Display that is compatible with Microsoft Windows. Recommended resolution is 800 x 600 dot or more.
- Color printer (Standard A4 landscape output)

2. Setup Program

1) Insert CD-ROM in your PC drive, and follow the instruction from the installation wizard, that will appear automatically
2) If installation wizard doesn't appear automatically find the "Disk1" folder in the EZFlow folder and double click on Setup.exe. Follow the instruction from the installation wizard.
3) Copy the "VRV_Data" folder from CD-ROM to "EZFlow" folder created on your hard disk. Standard data for VRV indoor units are included in this folder.
 # Installation and un-installation of the software is possible.

3. Before Using

This software is an application program to be run on Windows 98, 2000, Me, XP. Thus, a basic knowledge of Windows is necessary to use this program. This manual does not offer a detailed explanation on the basic operations of Windows such as how to use the mouse, open the menus, or name the operation file in the dialogue box. For information concerning Windows, refer to the Windows manual or use on-line help.
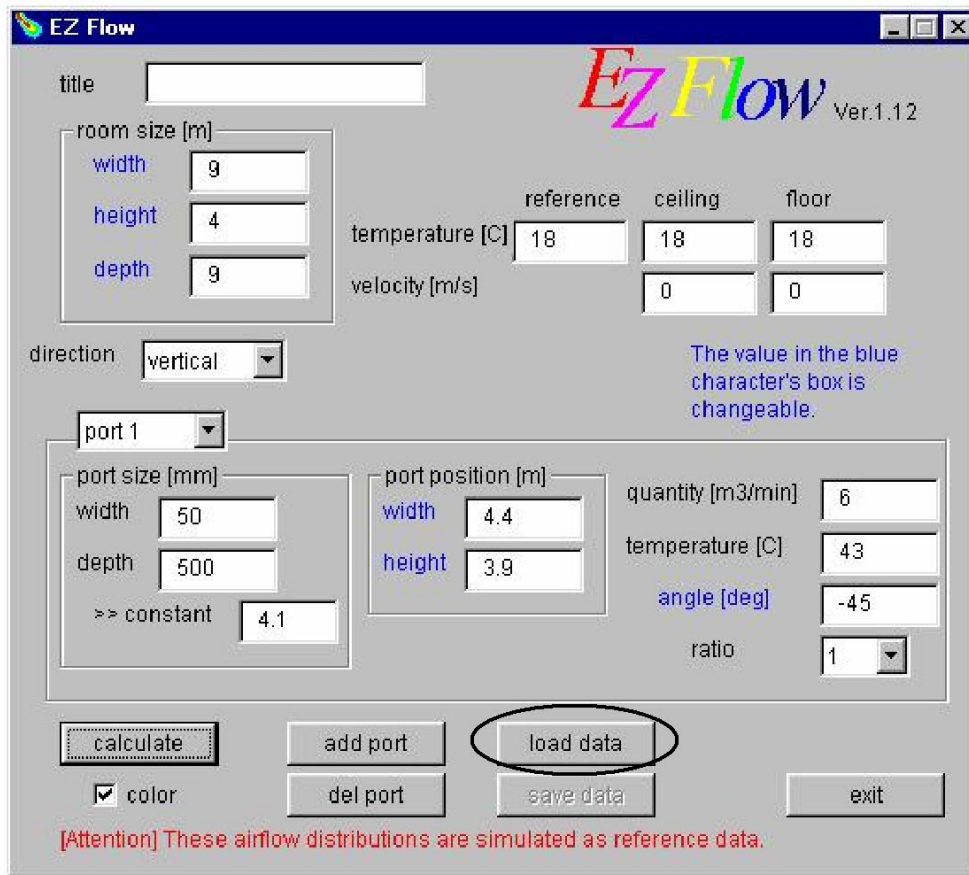
[3] Operation Method

This program is designed for **anyone** to **easily** and **quickly** simulate airflow distribution of VRV indoor unit.

1. Operation Method

1) Click [Start]-> [Programs]->, [EZFlow]-> [EZFlow].
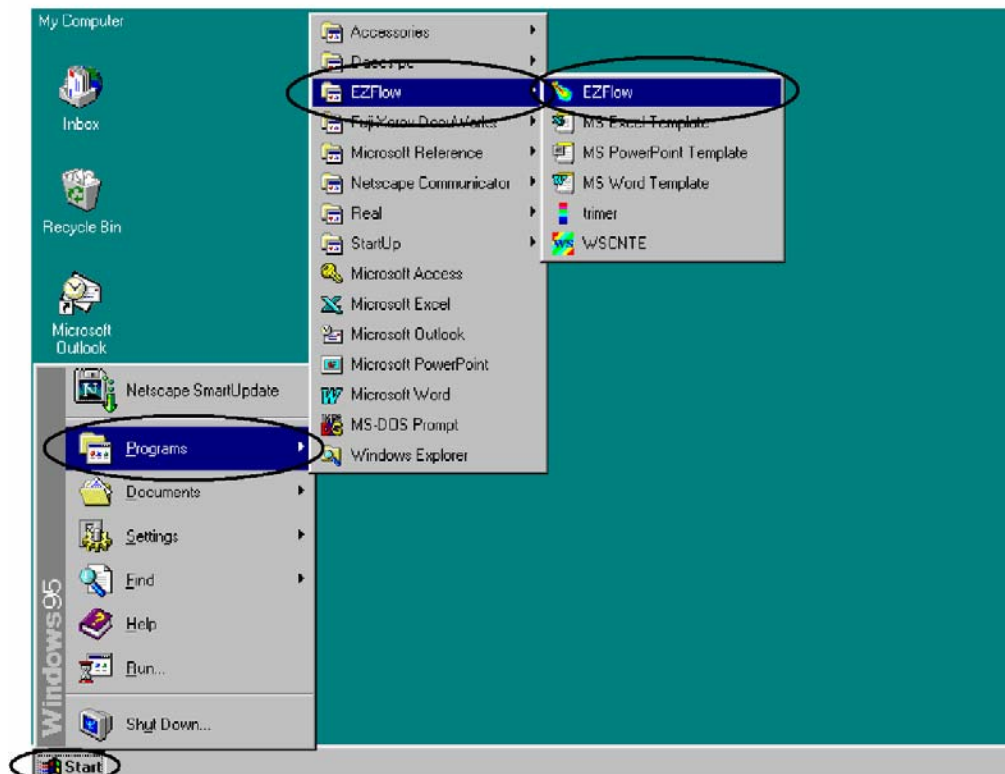
2) The following window will open (For the description of each field see chapter 4).

3) Click "load data" button and select the VRV's indoor unit model of your choice. Clicking on the "Open" button will automatically fill up the above field with the selected model's default data.

4) Input your design data and click on the "Calculate" button, to start calculation.

5) The contour-charting program will be run automatically after calculation.

In the trial period without registration the following window will be opened, because this program is a shareware program.
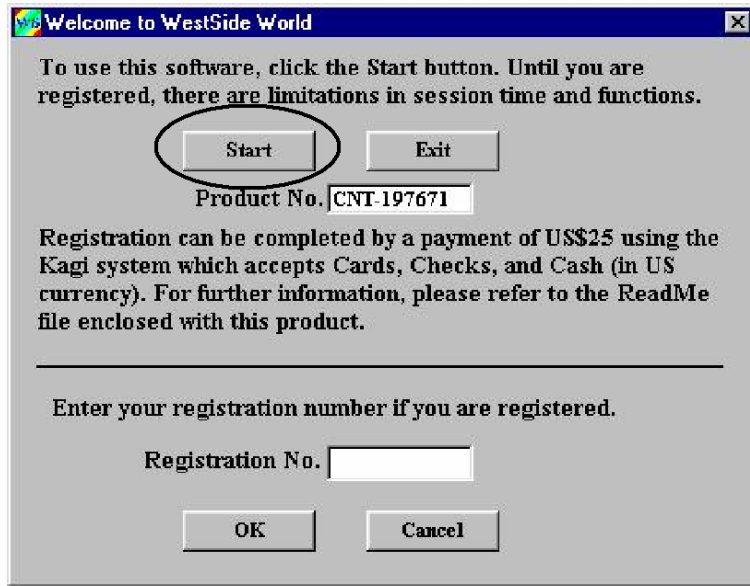

When you have entered your registration number provided by the registration procedure, the limitations will be removed and the above window will not appear.

6) Clicking on the "Start" button from the above window, will open the following window:.
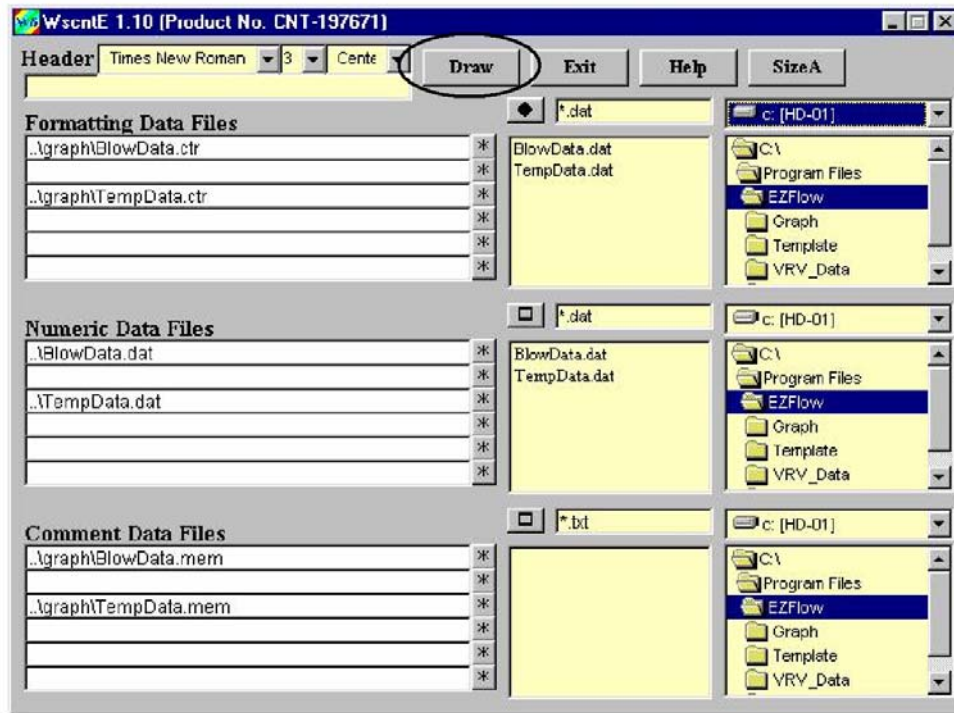
7) Click on the "Draw" button in the former window, air flow will be displayed as below. Top diagram displays the air velocity distribution, and bottom one displays the air temperature distribution.
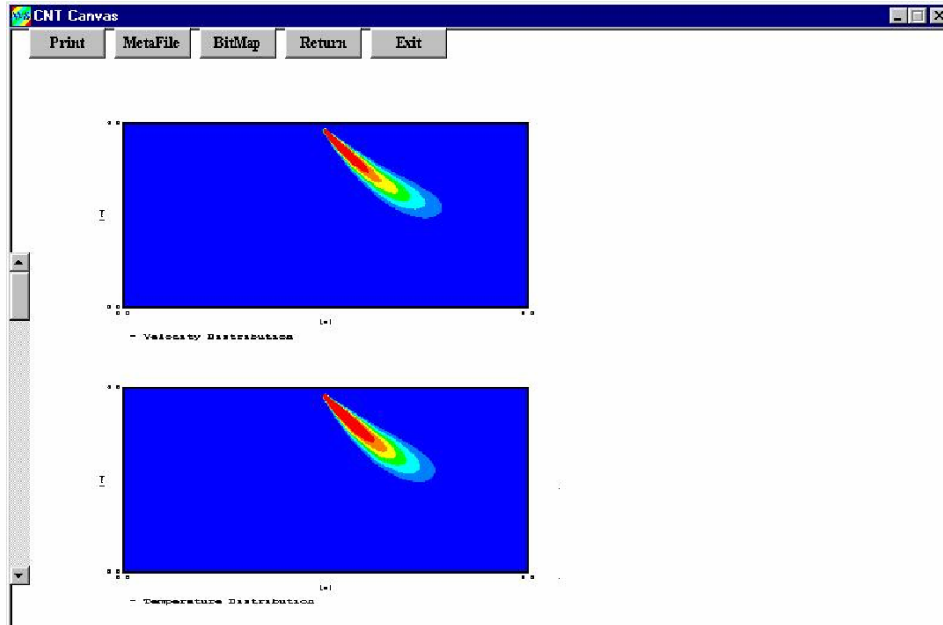
8) Select with the mouse the area you wish to print out. Once the area selected, click on the "**MetaFile**" button to export the selected area in a Metafile format. You will then be able to paste the selected area in one of the Microsoft template installed.
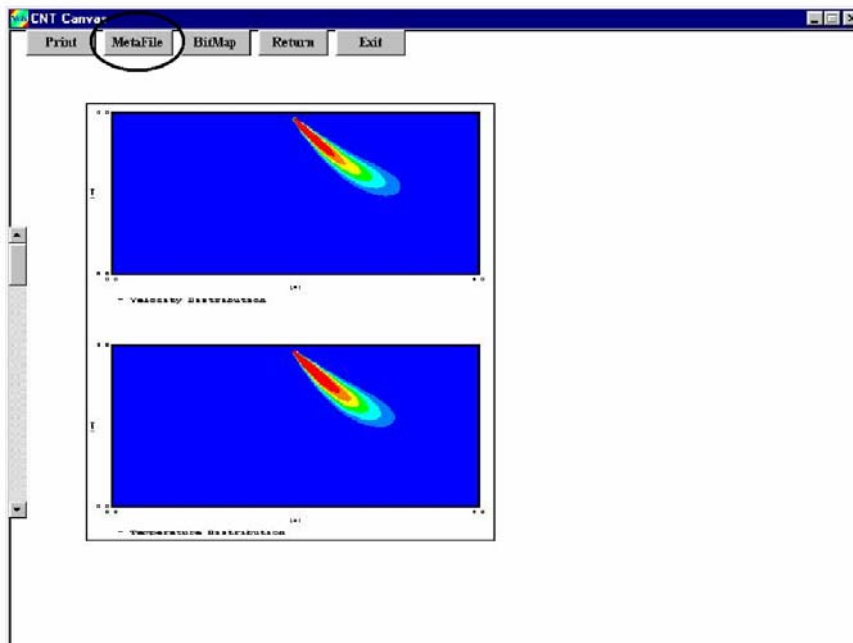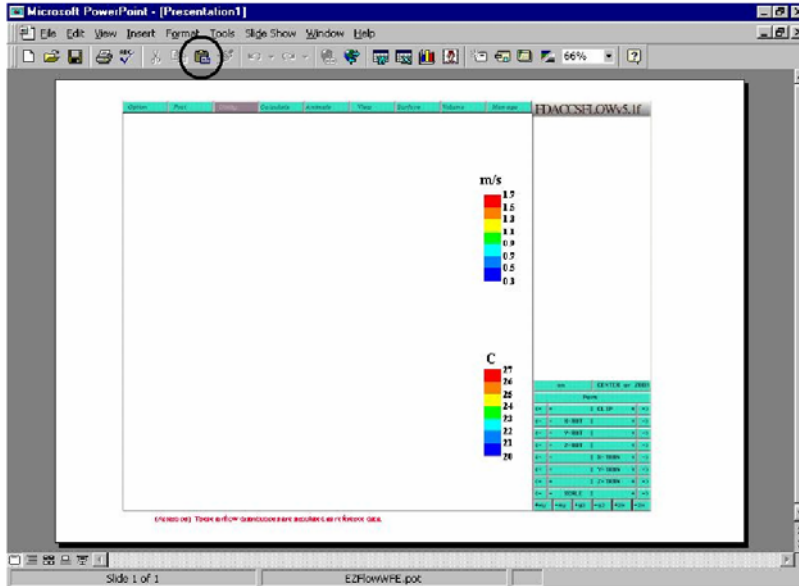
9) Paste the cut diagram in your favorite Microsoft Office applications.

In this example, PowerPoint template is used.

Click [Start] -> [Programs] -> [EZFlow] -> [MS PowerPoint Template].

The following window will be opened. Click on the "**Paste**" Icon, to paste the Metafile on MS PowerPoint presentation sheet.

Enlarge the pasted diagram by picking and dragging the corner handle, and arrange layout.
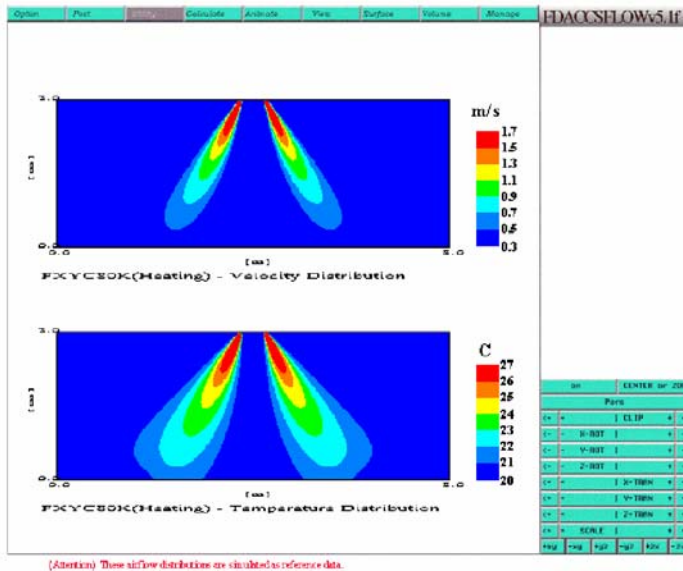
**_Note_**: Diagram can be created in BitMap format if needed.

10) Print out the airflow simulation results to a color printer from the Microsoft application.

Attention: It has several minutes to print out according as printer's performances.

[4] Input field description

Important notice:
Numerical values on the field written in blue can be changed according to actual conditions. Other numerical values correspond to design parameters from the model selected and shouldn't be modified.
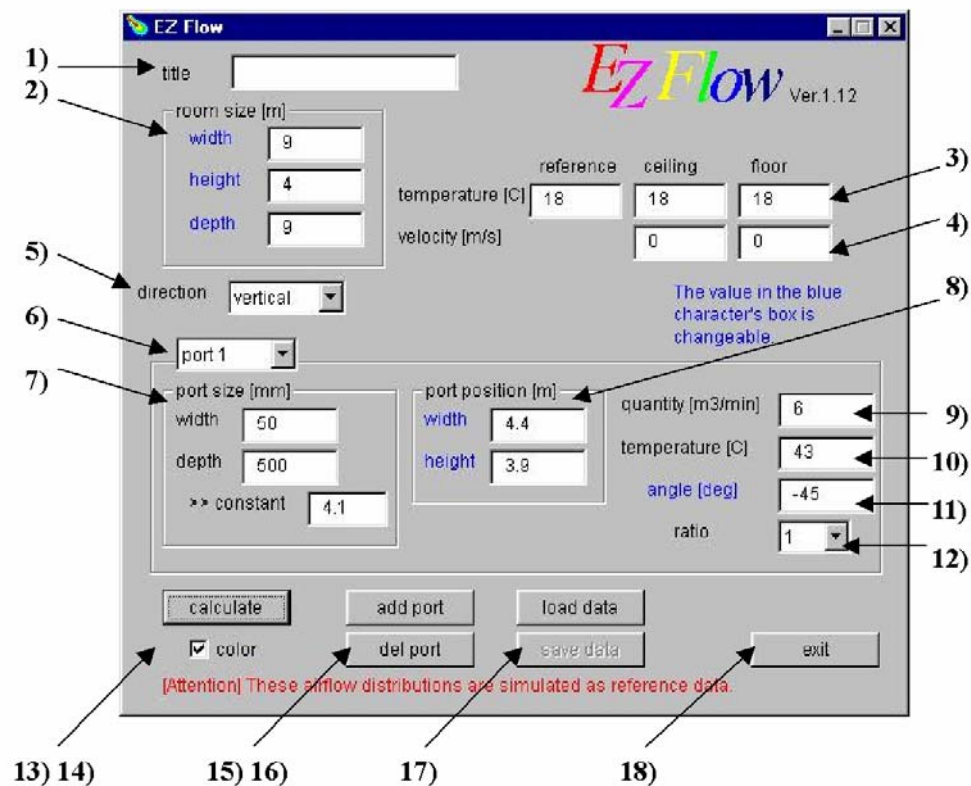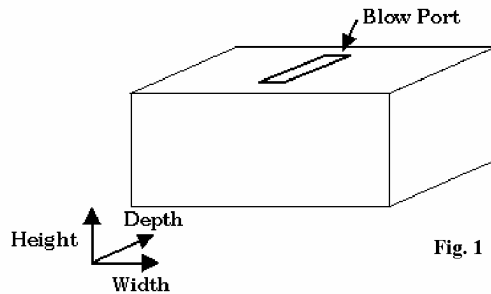
Field description:

1) Title

Selected indoor model name will be *automatically* displayed, together with the operating mode (heating or cooling).

2) Room size [m]

    Width: Input room width as per Fig.1 referential axes.

    Height: Input room height as per Fig.1 referential axes.

    Depth: Input room depth as per Fig.1 referential axes.

Fig. 1

3) Temperature[C]

    Reference: Input air indoor temperature.

    Ceiling: Input air ceiling temperature.

    Floor: Input floor temperature.

4) Velocity [m/s]

Input Airflow velocity on ceiling and floor if relevant. Default values "zero" are usually kept.

5) Direction

Select the direction of the section, calculation will be run.

Vertical: Calculation will be run throughout the orthogonal plan section to the depth direction (at mid-depth) as per fig.1 referential axes.

Horizontal: Calculation will be run throughout the orthogonal plan section to the height direction (at mid-height) as per fig.1 referential axes.

6) Port1

Number of port and size are internal parameters from the selected model. In the case simulation is run on FXYC, this indoor unit has 2 outlets to discharge air, therefore 2 ports will be displayed once the model as been loaded.

New ports can be added to the default ports in case indoor units need to be added to the room.

7) Port size [mm]

    Width: Outlet's width is automatically displayed and should not be modified (indoor unit design parameter).

    Depth: Outlet's depth is automatically displayed and should not be modified (indoor unit design parameter).

    Constant: This value is a design parameter of the selected indoor unit and should not be modified. {Constant = $-2.1 * \log_{10}$ (Depth/Width)$+6.2$}

8) Port position [m]

    Width: Origin of the referential is at the left side. Input the depth position of the center of the port as per Fig.1.

    Height: Origin of the referential is at the bottom level. Input the height of the center of the port as per Fig.1.

9) Quantity [m3/min]

    Discharge airflow from the selected indoor unit is displayed. This value is a design parameter from the selected indoor model, and **<u>should not be modified</u>**.

10) Temperature[C]

    Discharge air temperature from the selected model is displayed. This value is a design parameter and **should not be modified**.

11) Angle [deg]

    Input Airflow angle from the outlet of the indoor unit. A angle is shown as minus clockwise and plus counterclockwise based on horizontal line in Fig.2.
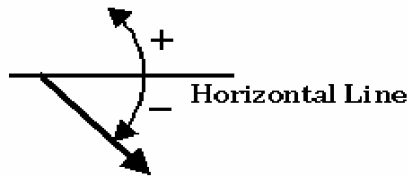

Fig. 2

12) Ratio

    This parameter controls the buoyancy of airflow according to the difference of density. Default value is 1, and is normally kept as it is.

13) Calculate

    Click this button to start the calculation. Contour-charting program will also be run automatically.

14) Color

    In checking this box, the simulation result will be display in color. If not display is monochrome.

    # In printing the monochrome diagram to the monochrome high-speed printer, the mesh might appear in the diagram. This mesh is a borderline of polygon mesh used for the calculation of the simulation. As a countermeasure, you may a color printer to print out the monochrome diagram.

15) Add port

    In clicking this button, new outlet will be created. It is possible to add up to 9 ports. Port size will be the same as the existing ports.

16) Del port

    Click this button, to delete selected port

17) Load data

    To select the indoor model, click on this button, and select the model of your choice from the database. After selecting the model of your choice, click on the"Open"button. Default data will be loaded and displayed.

18) Exit

    Click this button, to end the program.

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Operation Manual
Revised Edition