

**Hisense**

# Hisense Design Software Introduction



**Hisense** life reimagined

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1. Brief Introduction

2. Main Function

3. Project Case

# 1. Brief Introduction

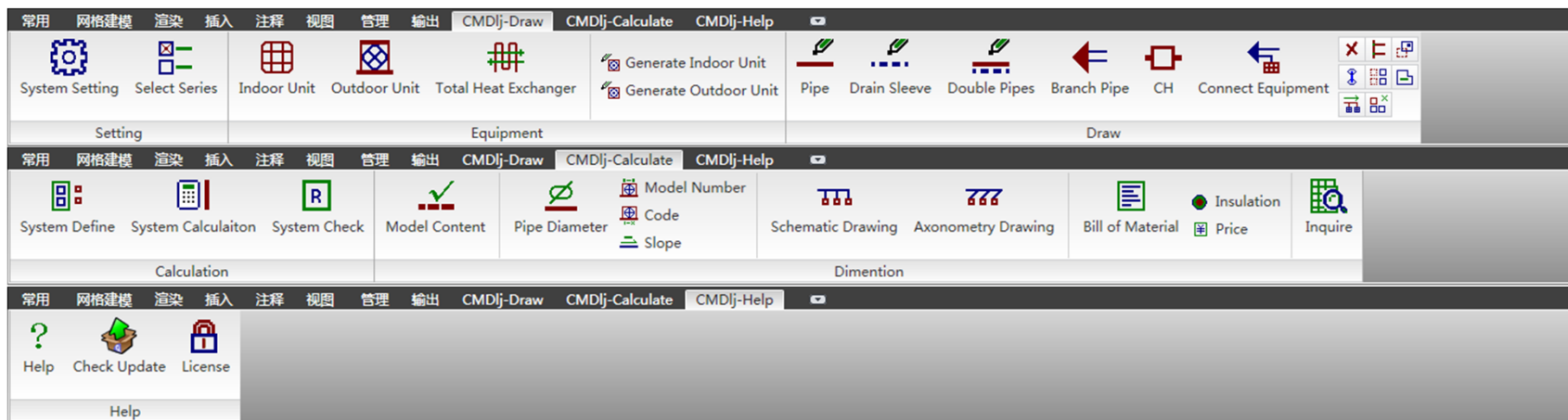
<b>Developers</b>	YNYC Software Technology Co.,Ltd
<b>Latest version</b>	Oct. 2016 V4.0
<b>Operating system</b>	32bit or 64 bit Windows XP/Win7/Win8
<b>Language</b>	English & Chinese
<b>Software size</b>	Main program 64M & update pack 30M
<b>Type</b>	Free trial

- By using CMDIj, we can complete the drawing of VRF system efficiently , including equipment and pipe design, pipe connecting , system define and calculation, generate the axonometric and stretch-out view drawing .
- We can generate the equipment chart , and refrigerant charge calculation, then export data as an Excel.
- Simple to operate, setting short-cut key for each function
- Check for update online and update automatically

## Function Menu

Support AutoCAD Ribbon menu

3D Model



floating toolbars

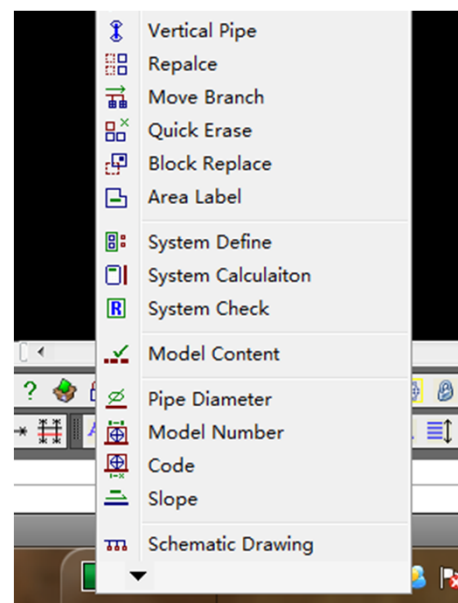
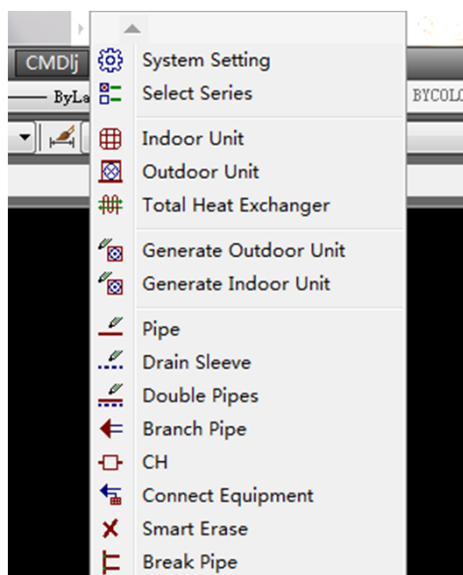




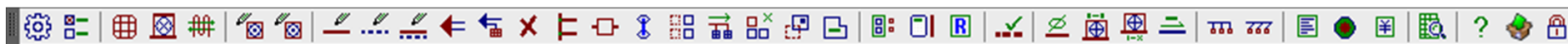
## Function Menu

Support AutoCAD Ribbon menu

2D Model

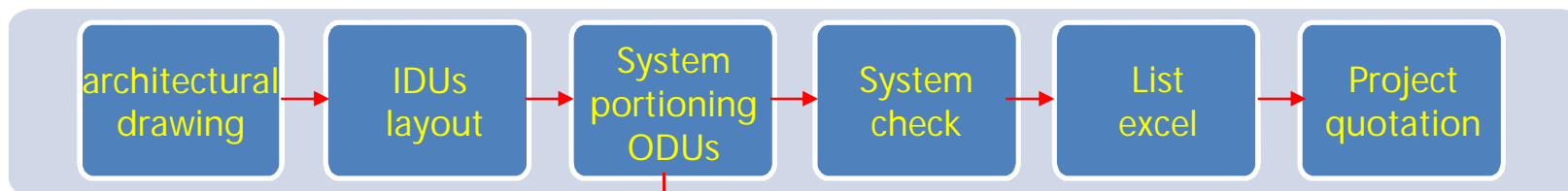


floating toolbars

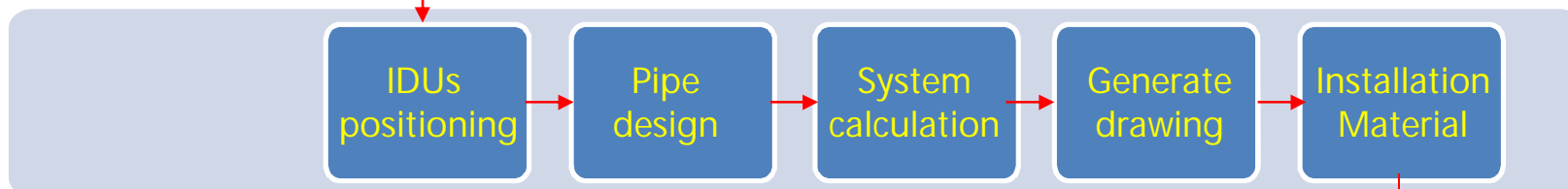


## Design Process

### Pre-sales



### Deepen



### Check



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3. Project Case

## PREPARE:

### Installation

- Download address: <http://www.hvacapp.com.cn>
- Download the edition of AutoCAD and then select oversea edition.
- After finishing software installation, it can be Loaded into the AutoCAD platform automatically.

### Register

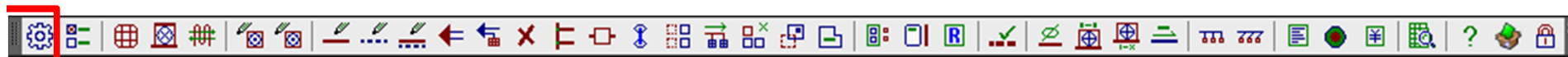


License

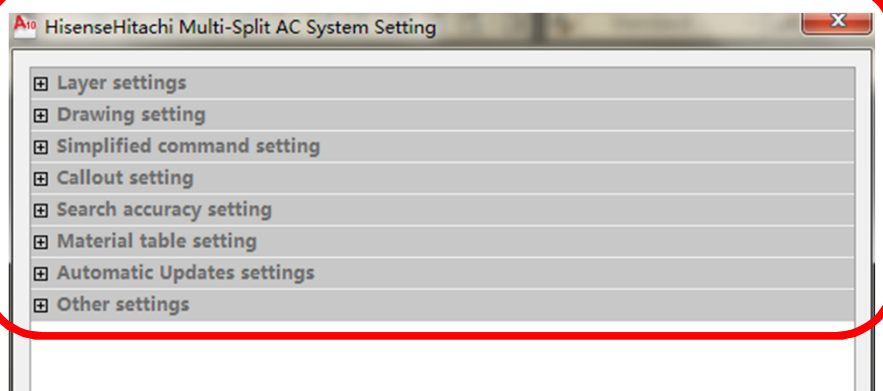


### Function 1

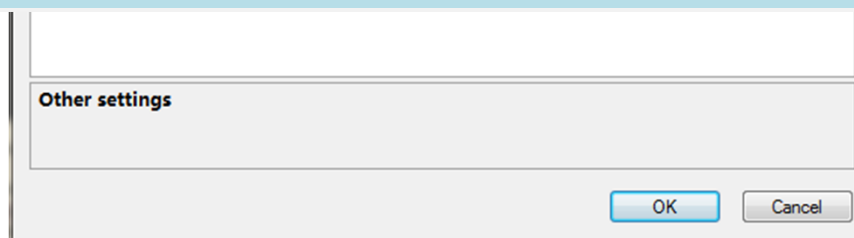
### System Setting



System setting



- System settings can set the layer , drawing , simplified command callout and other basic parameter during the use of CMdlj software . before drawing the VRF system ,you can check these settings according to your drawing requirements .

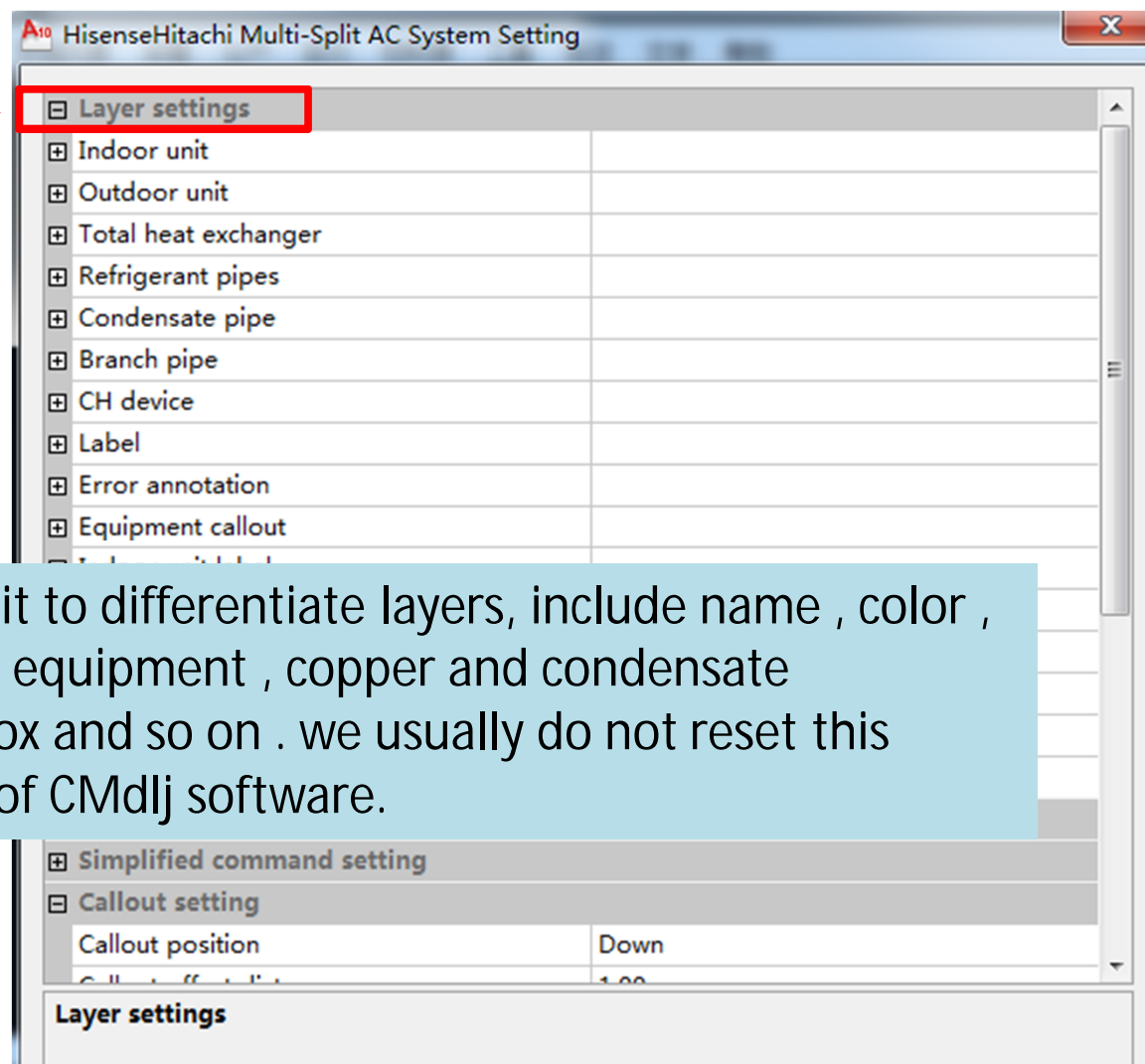


## Function 1

## System Setting



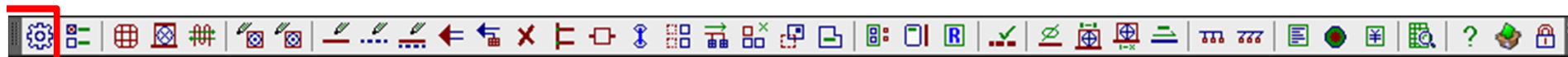
Layer setting



- Layer settings: we use it to differentiate layers, include name , color , linear and line width of equipment , copper and condensate pipe ,branch pipe, CH box and so on . we usually do not reset this settings during the use of CMdlj software.

## Function 1

## System Setting



Drawing setting

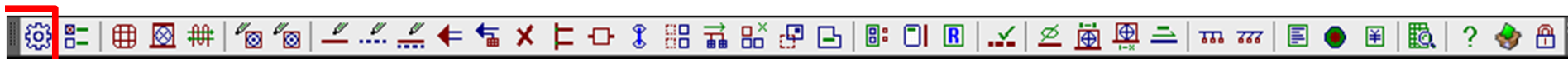
- Drawing settings can reset basic settings such as fills ,scale , length of the branch pipe , CH device , vertical pipe diameter and auto-connecting , according to your drawing requirements.

Layer settings	
Drawing setting	
Drawing scale	100.00
Text height	2.50 ▲
Branch pipe setting	
Branch pipe filling	Yes
Branch pipe size	2.00 ▲
Pipe connector tube length	1.00
CH device settings	
CH device fills	Yes
CH length	3.01
CH width	1.91
CH extension pipe length	0.20
Vertical pipe setting	
Refrigerant vertical pipe diameter in drawing	1.00
Condensate vertical pipe diameter in drawing	1.00
Auto-connecting	
Indoor piping extended length (mm)	400.00
Indoor condensate pipe extended length (mm)	250.00
Min.length of straight line at branch pipe outlet (mm)	0.00
Simplified command setting	
Callout setting	

## 2. Main Function

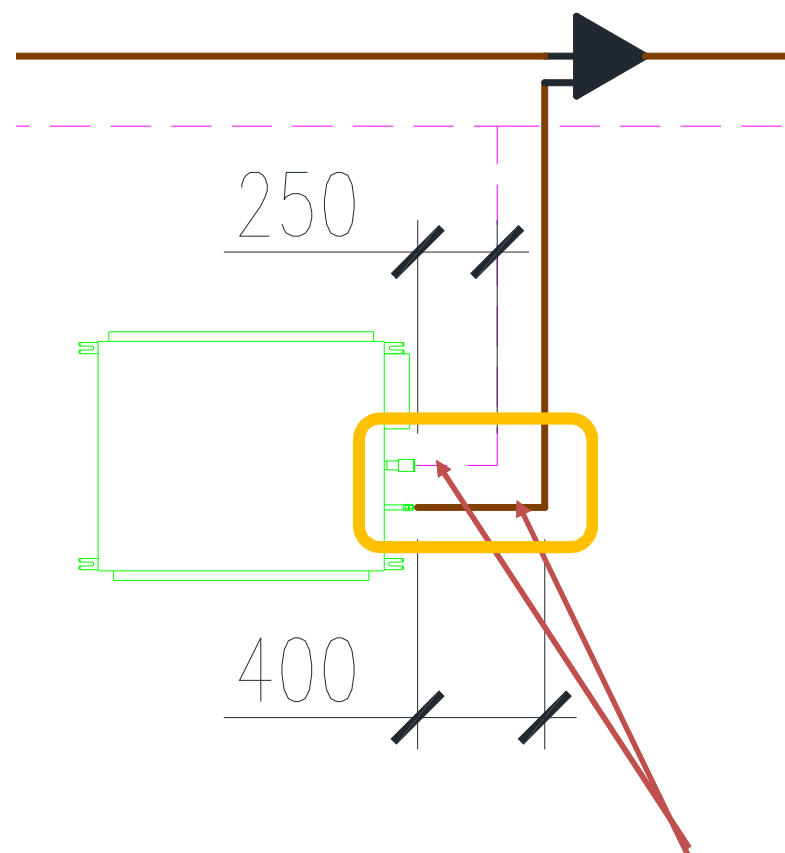
### Function 1

### System Setting



#### Drawing setting: Auto-connecting

Auto-connecting	
Indoor piping extended length (mm)	400.00
Indoor condensate pipe extended length (mm)	250.00
Min.length of straight line at branch pipe outlet (mm)	0.00



Indoor pipe extending



## Function 1

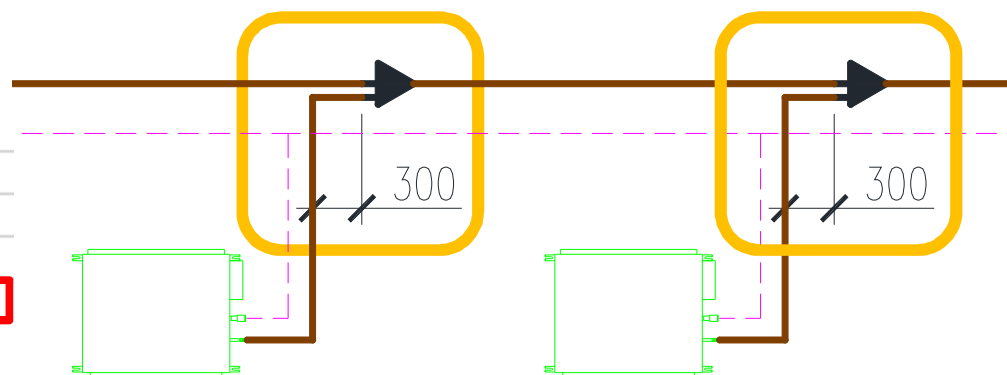
## System Setting



Drawing setting: Auto-connecting

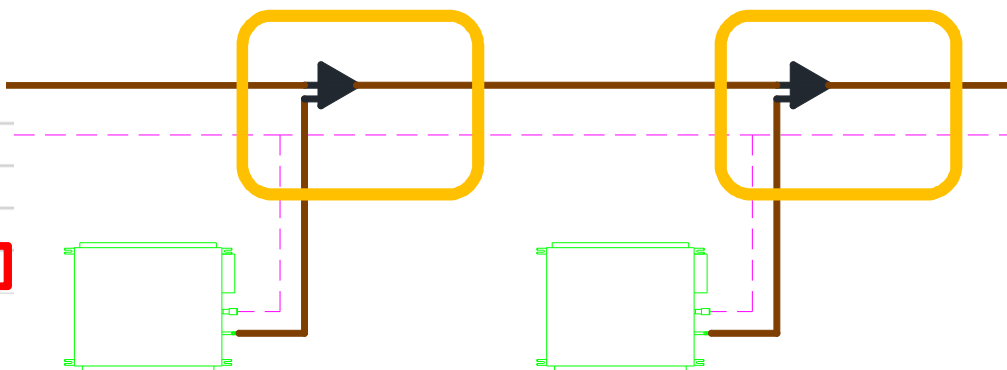
Default

Auto-connecting	
Indoor piping extended length (mm)	400.00
Indoor condensate pipe extended length (mm)	250.00
Min.length of straight line at branch pipe outlet (mm)	300.00



We suggest change the value to "0"

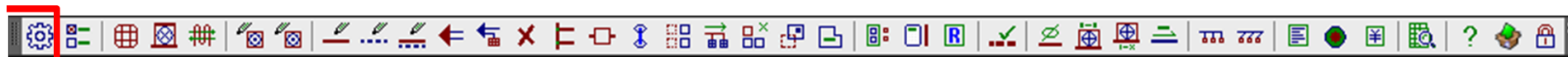
Auto-connecting	
Indoor piping extended length (mm)	400.00
Indoor condensate pipe extended length (mm)	250.00
Min.length of straight line at branch pipe outlet (mm)	0.00



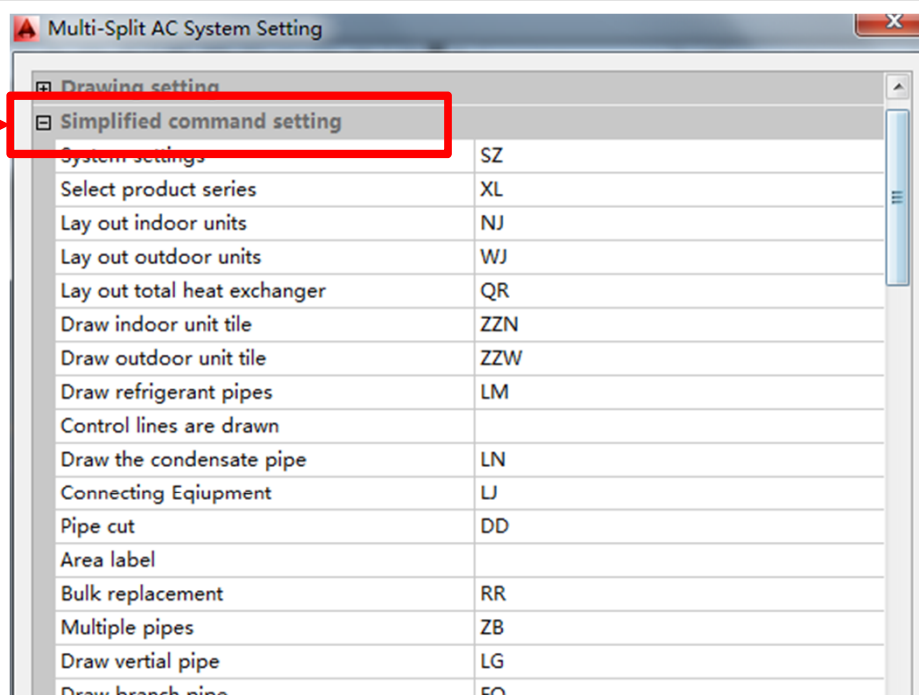
## 2. Main Function

### Function 1

### System Setting



Short-cut



- Simplified command settings can accelerate your drawing speed by inputting simple letters as the shortcut commands. You can reset the shortcut commands according to your personal habits

OK

Cancel

## 2. Main Function

### Function 1

### System Setting



Mark setting

Other settings

Multi-Split AC System Setting

- Drawing setting
- Simplified command setting
- Callout setting
 

Callout position	Up
Callout offset distance	1.00
Callout rotate with the entity	No
Refrigerant pipe callout prefix	%%c
Condensate pipe callout prefix	De
- Search accuracy setting
- Material table setting
- Automatic Updates settings
 

Automatic updates	Yes
Check interval (days)	7
- Other settings
 

Interface language	English
Unit	GB
The current database	HisenseHitachi(En)
Approximate branch pipe length	200.00
- The range of cooling match ratio
 

The min. of cooling match ratio	0.60
The max. of cooling match ratio	1.20

Drawing setting

OK Cancel

- Prefix
- Language  
Chinese  
English
- Unit  
meter(GB)  
feet(Imperial)

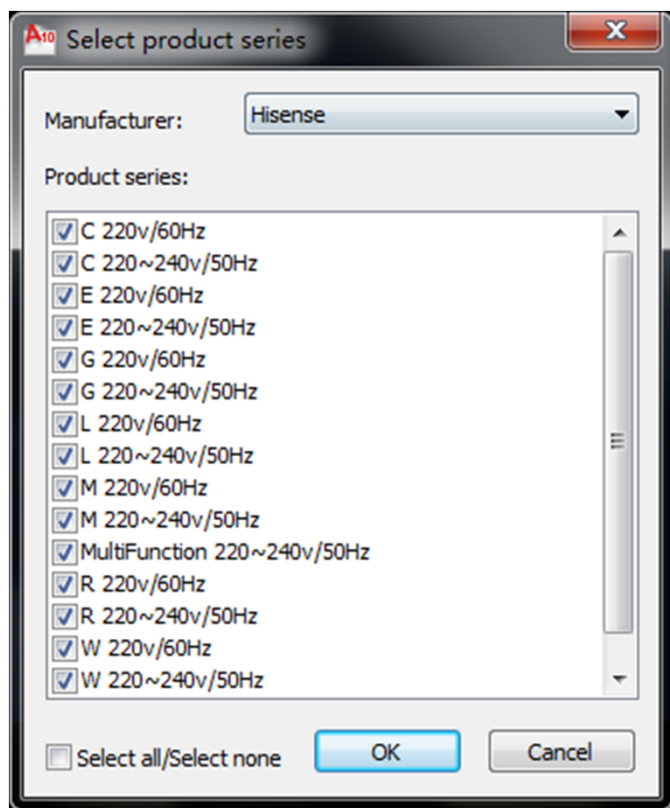
## 2. Main Function

### Function 2

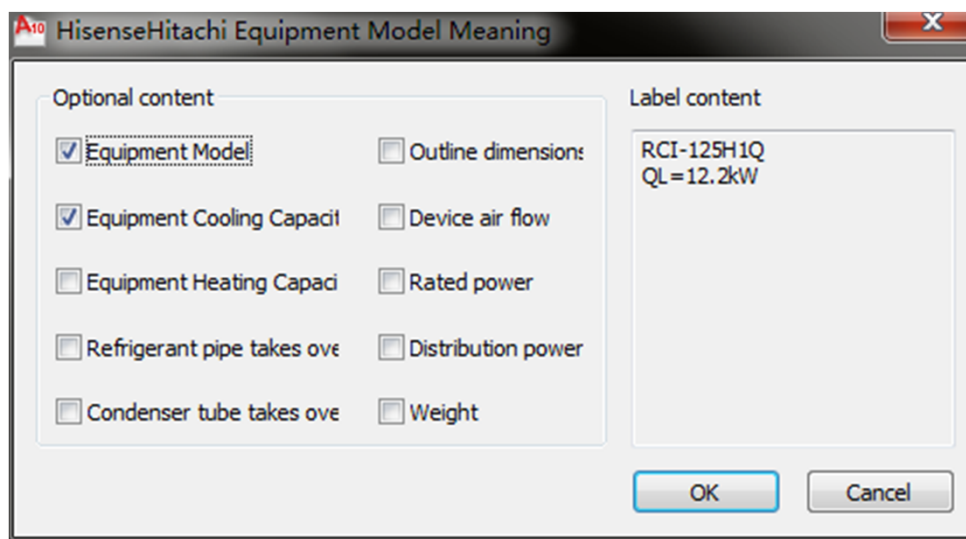
### Series and Content Setting



#### Select Series



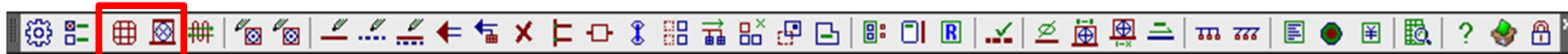
#### Model content



TICK WHAT YOU NEED !

## Function 3

## Equipment layout



Indoor unit/outdoor unit →

Equipment Parameters	
Manufacturers	Hisense
Product series	M 220~240v/50Hz
Equipment Type	4-way Cassette Type
Equipment Model	AVC-09UXCSEB
Cooling capacity (kW)	2.8
Cooling capacity (kBtu)	9.55
Cooling capacity (TR)	0.80
Heating capacity (kW)	3.3
Heating capacity (kBtu)	11.26
Heating capacity (TR)	0.94
Heating capacity with auxiliary heat	0
Rated power (kW)	.04
Distribution of power (kW)	.048
Power with auxiliary heat	0

- click "indoor unit", choose product series and equipment type.

HisenseHitachi Multi-Split AC Equipment

Indoor unit

Outdoor unit

Total heat exchanger

Manufacturer: Hisense

Product series: M 220~240v/50Hz

Equipment Type: 4-way Cassette Type

Equipment list:

AVC-09UXCSEB

AVC-12UXCSEB

AVC-14UXCSEB

AVC-17UXCSEB

AVC-18UXCSEB

AVC-22UXCSEB

AVC-24UXCSEB

AVC-27UXCSFB

AVC-30UXCSFB

AVC-38UXCSFB

AVC-48UXCSFB

AVC-54UXCSFB

Draw Level Elevation: 2.6

☒ Callout model

Install

Add

Modify

Delete

Close

Equipment Parameters

基本参数

Entity descriptions

Materials

Elevation (m) 0

Manufacturers Hisense

Product series M 220~240v/50Hz

Equipment Type 4-way Cassette Type

Equipment Model AVC-09UXCSEB

Cooling capacity (kW) 2.8

Cooling capacity (kBtu) 9.55

Cooling capacity (TR) 0.80

Heating capacity (kW) 3.3

Heating capacity (kBtu) 11.26

Heating capacity (TR) 0.94

Heating capacity with auxiliary heat 0

Segment Display

Object Display

## 2. Main Function

### Function 4

### Pipelines design



Pipelines system



Copper tube



Drain pipe



Double pipe



Double pipe

## 2. Main Function

### Function 4

### Pipelines design



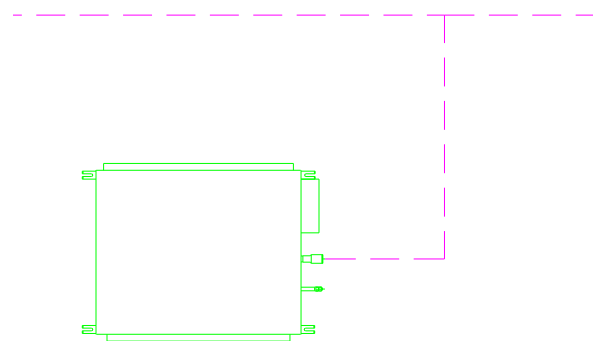
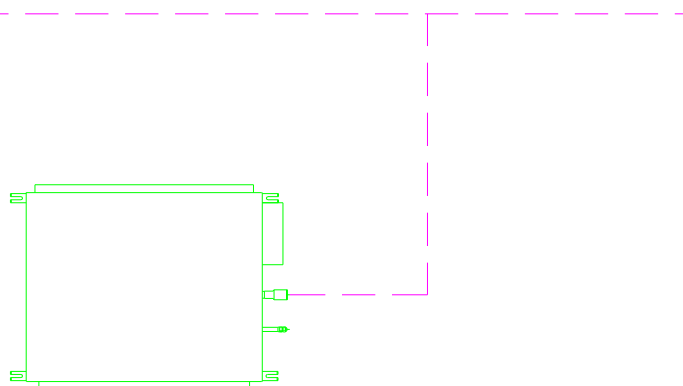
Drain pipe

Break drain pipe

Connect equipment

- 1.draw main drain pipe
- 2.draw branch drain pipe
- 3.break drain pipe

- 1.select copper tube (if only connect drain pipe, just click "space")
- 2.select drain pipe
- 3.select Indoor units
- 4.click "space" or "enter"
- done



## 2. Main Function

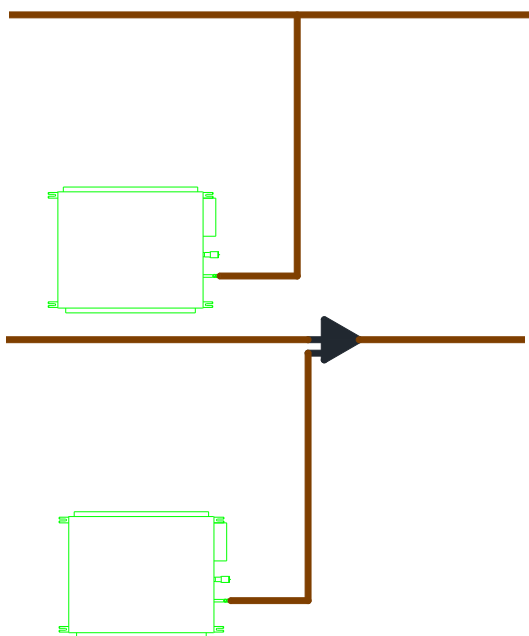
### Function 4

### Pipelines design



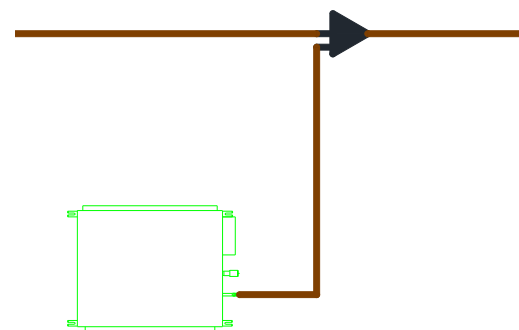
Branch pipe

- 1.select main pipe
- 2.select branch pipe



Connect equipment

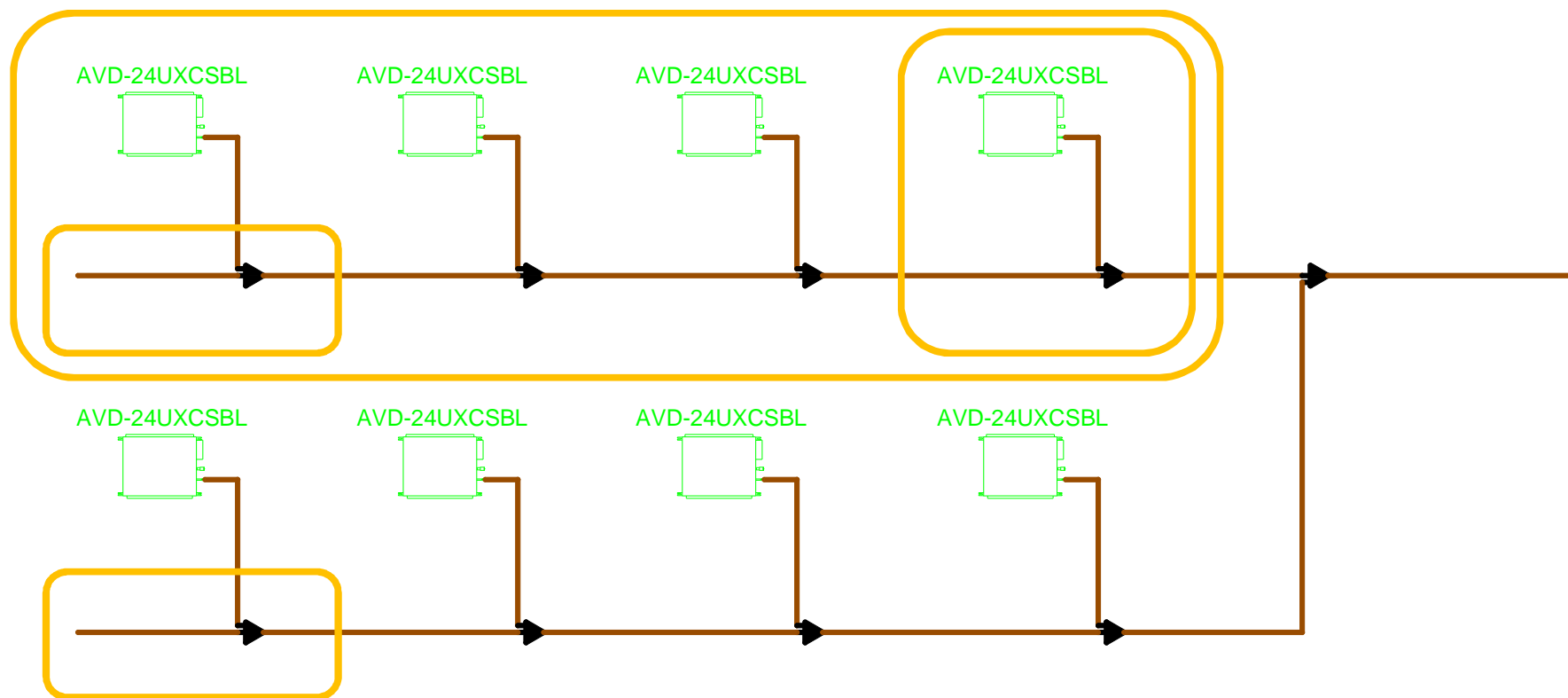
- 1.select copper tube
- 2.select drain pipe(if only connect copper tube, just click "space")
- 3.select Indoor units
- 4.click "space" or "enter"
- done





### Function 5

### Smart Erase



- Smart erase:  
use this key to erase indoor unit, branch pipe, or CH box, it can also clear up pipe system in the meanwhile.

## 2. Main Function

### Function 6

### Smart Label and IDUs replace



**Bulk replace equipment**

Equipment types in target model list

Manufacturer:

Product series:

Equipment Type:

Serial ...	Source model	Target model
1	AVD-24UXCSBL	AVD-24UXCSBL
2	AVC-30UXCSFB	AVC-30UXCSFB
3	AVC-09UXCSEB	AVC-09UXCSEB

Note: After bulk replace, different equipment sizes may lead to connection error between equipment and pipe.

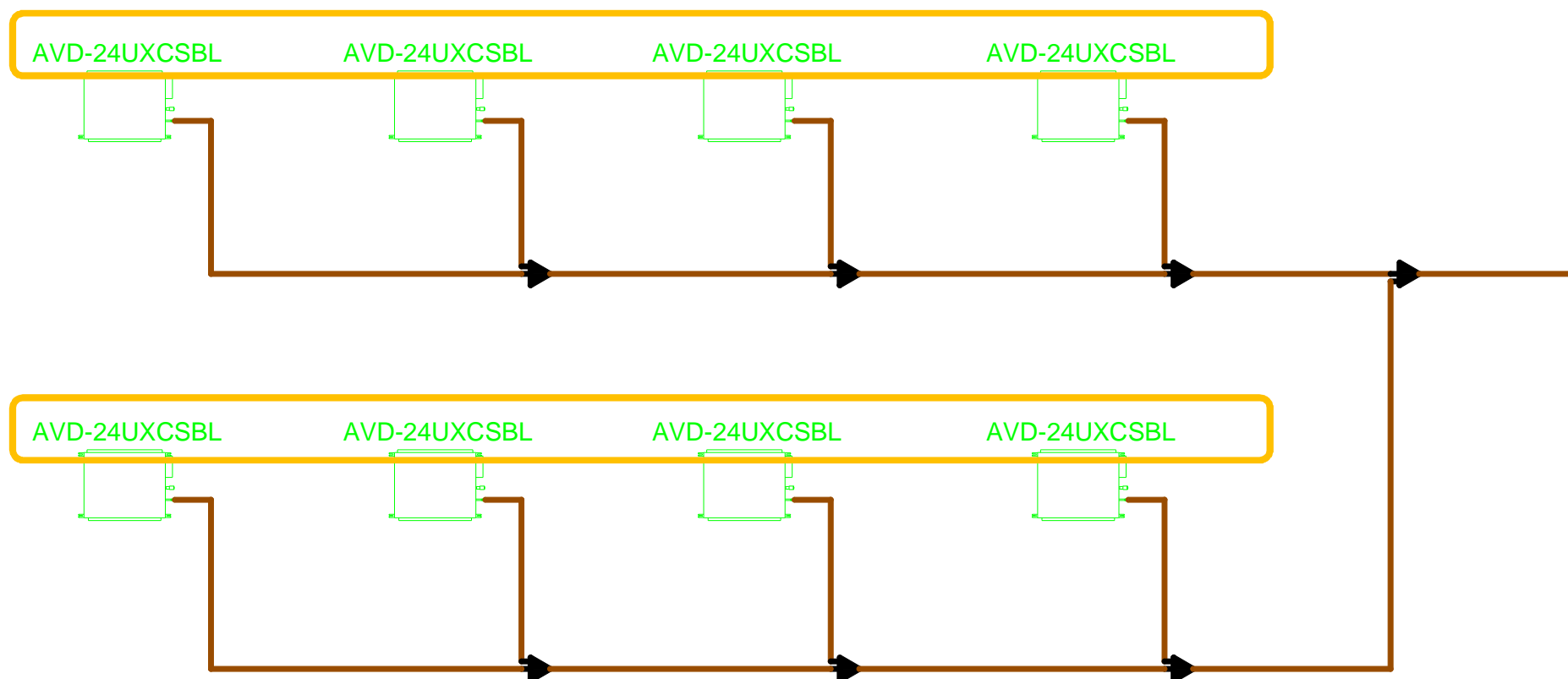
➤ Equipment replace  
Select the equipment you want to replace , choose the product series and type.

➤ Quick erase: use it to delete, copy or move things which are in the same layer or type.

## 2. Main Function

### Function 6

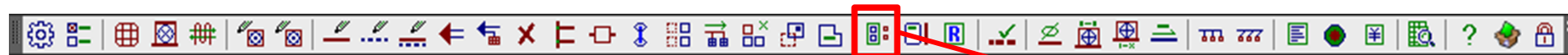
Smart Label and IDUs replace



## 2. Main Function

### Function 7

### Refrigerant system partition



System define

System Partitioning

System No.: \* All \* [New] [Modify] [Delete]

Indoor unit

Serial number	Equipment Model	Equipment Number	Cooling caps
1	AVD-24UXCSBL	7.10	
2	AVD-24UXCSBL	7.10	
3	AVC-30UXCSFB	9.00	
4	AVC-30UXCSFB	9.00	
5	AVC-09UXCSEB	2.80	
6	AVC-09UXCSEB	2.80	

Total cooling capacity: 37.80kW

Total heating capacity: 43.60kW

[select indoor unit] [Add indoor unit<] [Removed <] [Remove all]

[Twinkle] [Auto numbering]

Red indicates the conflict of system numbers  
yellow indicates there is no system number  
green indicates a successful system number

Outdoor unit

Serial number	Equipment Model	Ratio of cooling rate (%)	Coo
1	AVWT-114U6SR	112.84	33.4
2	AVWT-136U6SS	94.50	40.0
3	AVWT-154U6SS	84.00	45.0
4	AVWT-182U6SZ	71.05	53.0
5	AVWT-190U6SZ	67.50	56.0
6	AVWT-210U6SZ	61.46	61.0

[Confirm System Define] [Close]

Defining system name and equipment series No. , managing many different systems at the same time. Supporting dynamic twinkle and calculating the match ratio between IDU and ODU.

## Function 8

## System calculation



System calculates [current calculation rules: Hisense/M 220~240v/50Hz/Hi-FLEXi M Series]

Refrigerant pipes  
Branch pipe  
Refrigerant pipes  
Branch pipe  
Refrigerant pipes  
Branch pipe  
Refrigerant pipes  
Branch pipe  
Refrigerant pipes  
Refrigerant pipes  
Refrigerant pipes

System overview | Refrigerant pipes | Branch pipe | CH device | Condens

Index	Item	Value
1	Max.piping length (m)	18.41
2	Distance between outdoor units and the 1st...	5.78
3	Max.pipe length between the 1st branch an...	12.62
4	Number of main branch pipes	0
5	Number of indoor units	5
6	Indoor unit rated total cooling capacity (kW)	32.6
7	Indoor unit rated total heating capacity (kW)	36.6
8	Outdoor unit rated cooling capacity (kW)	33.5
9	Outdoor unit rated heating capacity (kW)	37.5
10	Corrected cooling capacity (kW)	0
11	Corrected heating capacity (kW)	0
12	Ratio of cooling rate (%)	97.31
13	The total amount of refrigerant system (kg)	9.9
14	Additional system refrigerant injection amo...	0

Maximum loop length that contains selected entity: 18.41 m.  
The length between the 1st branch the farthest indoor unit in loop:

Select Matched Outdoor Unit:  
M 220~240v/50Hz->AVWT-114U6SF

Search | Size Calculation | Update drawing | System check | Calculation rules | Close

## 2. Main Function

### Function 8

### Bill of material



Materials and equipment statistics

Single-layer equipment | Device table | All material | Insulation thickness | Refrigerant charge quantity

Serial ...	Material name ▾	Model specifi...	Unit	The numb...
1	Outdoor unit	AVWT-114U6SR	Set	1
2	Indoor unit4-way Cassette Type	AVC-09UXCSEB	Set	2
3	Indoor unit4-way Cassette Type	AVC-30UXCSFB	Set	3
4	Copper Pipe	12.7	m	12.07
5	Copper Pipe	15.88	m	10.77
6	Copper Pipe	19.05	m	2.56
7	Copper Pipe	25.4	m	5.78
8	Copper Pipe	6.35	m	6.29
9	Copper Pipe	9.53	m	13.33
10	Branch pipe	HFQ-102F	Piece	3
11	Branch pipe	HFQ-162F	Piece	1

☐ Display prices

Gas and liquid pipe styles:  
Combine gas and liqu ▾

Price library ...

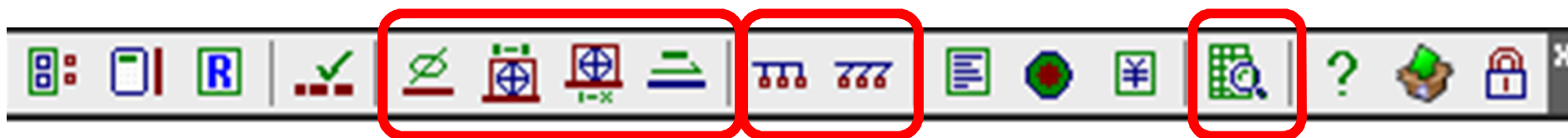
Refresh List

Select< Draw Excel table ... Close

## 2. Main Function

### Other Functions

Mark



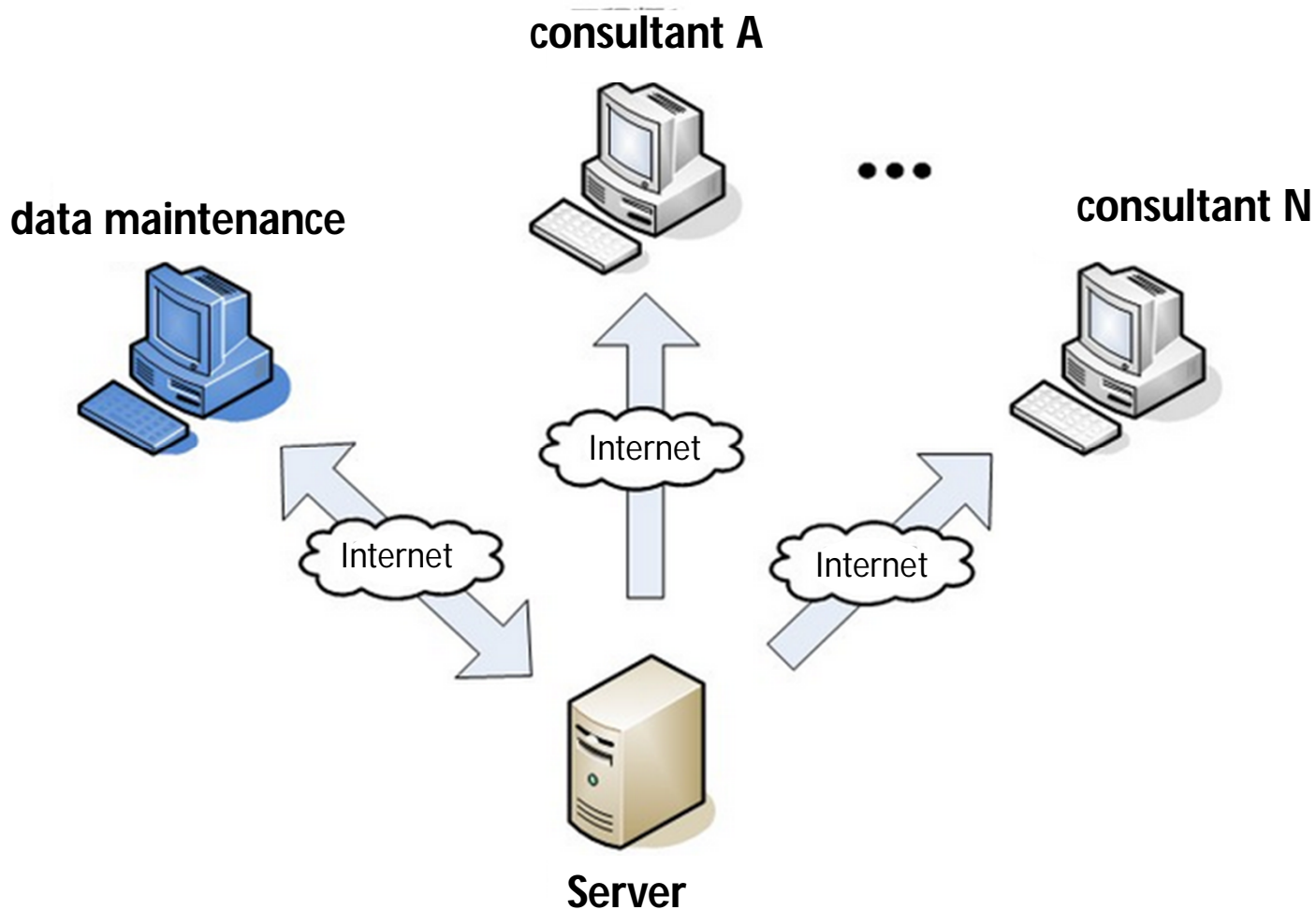
System diagram

Inquire

- Mark : Indoor unit , outdoor unit, branch pipe, and drain pipe slope
- System diagram: schematic and axonometric drawing
- Inquire : all information of indoor ,outdoor unit, pipe, branch pipe, and so on



## Update check





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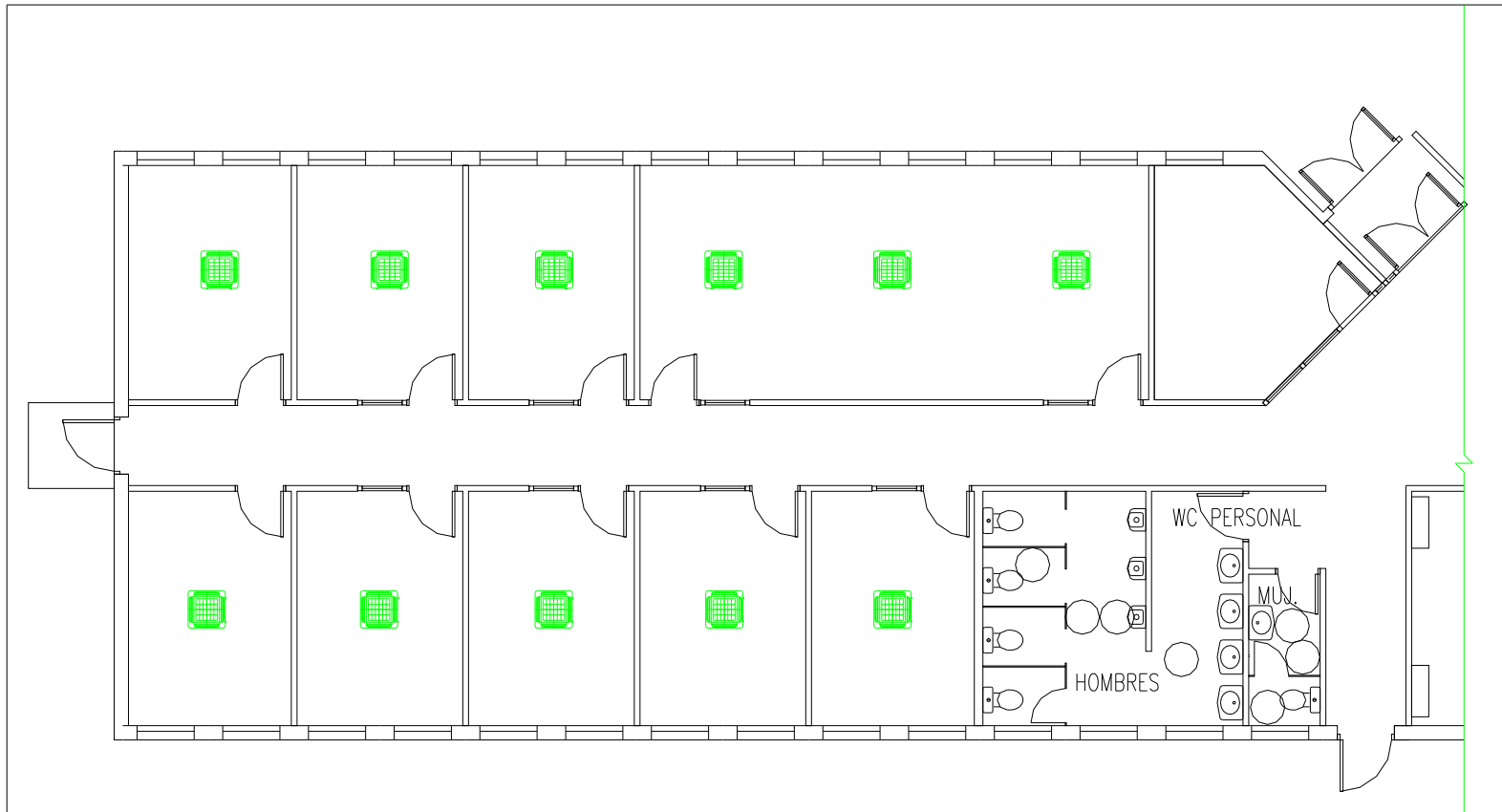
### Design Steps

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- 1 Area measure , IDUs layout
- 2 Refrigerant system define, select matched ODU. Confirm shaft position.
- 3 Draw refrigerant pipe, condensate pipe, branch pipe and connect with IDUs.
- 4 Calculate the pipe diameter and branch pipe size.
- 5 Label the pipes' dimension and branch pipe (both diameter and type).
- 6 Count the material ,draw the chart in drawing or export to Excel.
- 7 Inquiry the equipment or pipe in the drawing.

### 3. Project Case

#### 1.IDUs layout , like Duct type , 4-way cassette



# 3. Project Case

## 2.Refrigerant system partition , select matched ODU.

**System Partitioning**

System No.: \* All \* New Modify Delete

**Indoor unit**

Serial number	Equipment Model	Equipment Number	Cooling capa
1	AVC-12URCSAB		3.60
2	AVC-12URCSAB		3.60
3	AVC-09URCSAB		2.80
4	AVC-09URCSAB		2.80
5	AVC-09URCSAB		2.80
6	AVC-09URCSAB		2.80
7	AVC-09URCSAB		2.80
8	AVC-09URCSAB		2.80
9	AVC-09URCSAB		2.80
10	AVC-09URCSAB		2.80
11	AVC-09URCSAB		2.80

Total cooling capacity: 32.40kW

Total heating capacity: 38.10kW

Select indoor unit Add indoor unit< Removed < Remove all

Twinkle Auto numbering

Red indicates the system number already exists  
yellow indicates that there is no number

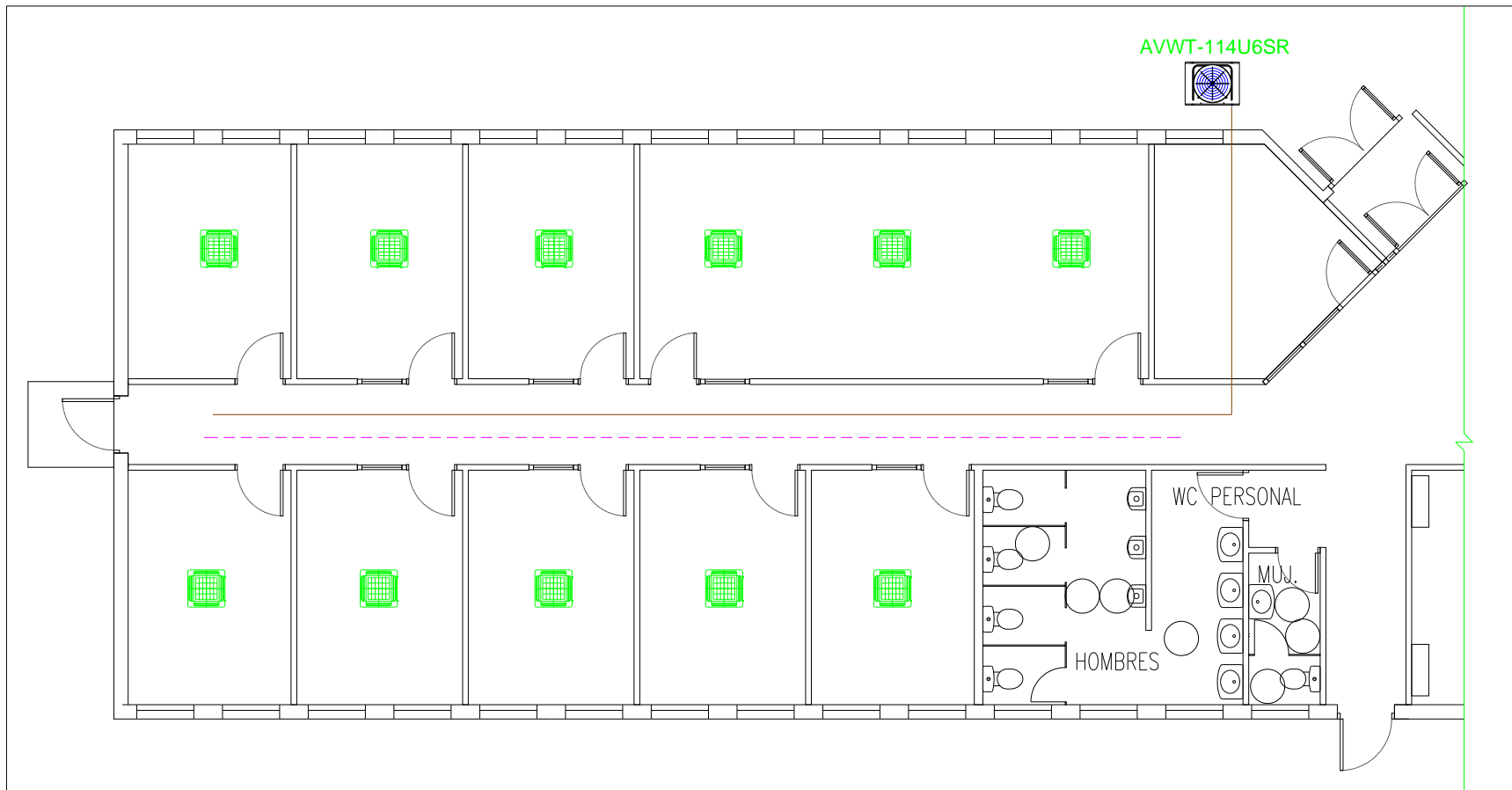
**Outdoor unit**

Serial number	Equipment Model	Ratio of cooling rate (%)	Coo
1	AVWT-114U6SR	96.72	33.1
2	AVWT-136U6SS	81.00	40.1
3	AVWT-154U6SS	72.00	45.1
4	AVWT-182U6SZ	60.90	53.1
5	AVWT-96U6SR	115.71	28.1

Confirm System Define Close

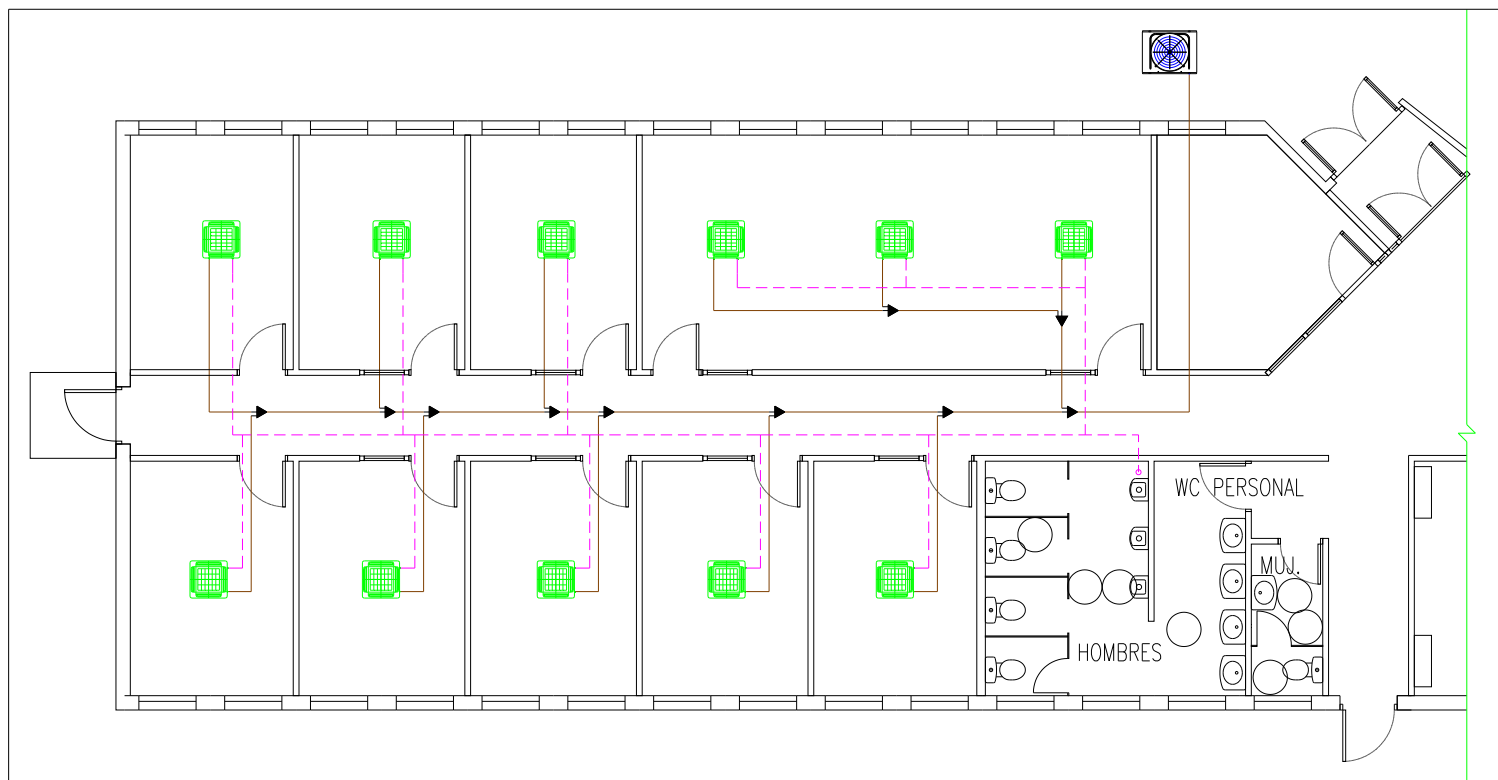
## 3. Project Case

### 3.1 Drawing the refrigerant pipe and condensate pipe



## 3. Project Case

### 3.2 Drawing the branch pipe and connecting equipment.



- Auto-connecting all the equipment with pipes and branch pipes:  
Select terminal refrigerant pipe—condensate pipe—all the equipment.
- Auto-connecting a single equipment with the pipe:  
Inputting "mm" + "space " + "s " + "space ".

# 3. Project Case

## 4. System calculation , calculate the pipe diameter and branch pipe .

System calculates [current calculation rules:Hisense/M 220~240v/50Hz/Hi-FLEXi M Series]

Refrigerant pipes  
Refrigerant pipes  
Branch pipe  
Refrigerant pipes  
Branch pipe  
Refrigerant pipes  
Branch pipe  
Refrigerant pipes  
Branch pipe  
Refrigerant pipes  
Branch pipe  
Refrigerant pipes  
Branch pipe

System overview Refrigerant pipes Branch pipe CH device Condens

Index	Item	Value
1	Max.piping length (m)	25.18
2	Distance between outdoor units and the 1st...	7.85
3	Max.pipe length between the 1st branch an...	17.33
4	Number of main branch pipes	1
5	Number of indoor units	11
6	Indoor unit rated total cooling capacity (kW)	32.4
7	Indoor unit rated total heating capacity (kW)	38.1
8	Outdoor unit rated cooling capacity (kW)	33.5
9	Outdoor unit rated heating capacity (kW)	37.5
10	Corrected cooling capacity (kW)	0
11	Corrected heating capacity (kW)	0
12	Ratio of cooling rate (%)	96.72
13	The total amount of refrigerant system (kg)	12.31
14	Additional system refrigerant injection amo...	2.41

Maximum loop length that contains selected entity: 25.18 m.  
The length between the 1st branch the farthest indoor unit in loop:

3

Select Matched Outdoor Unit:  
M 220~240v/50Hz->AVWT-114U6SF

Search Size Calculation Update drawing System check Calculation rules Close

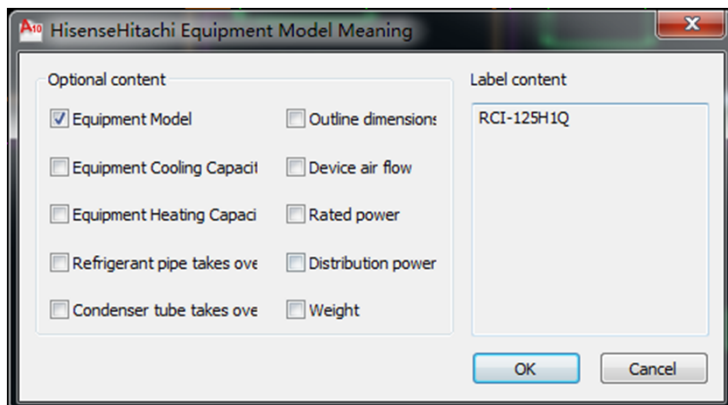
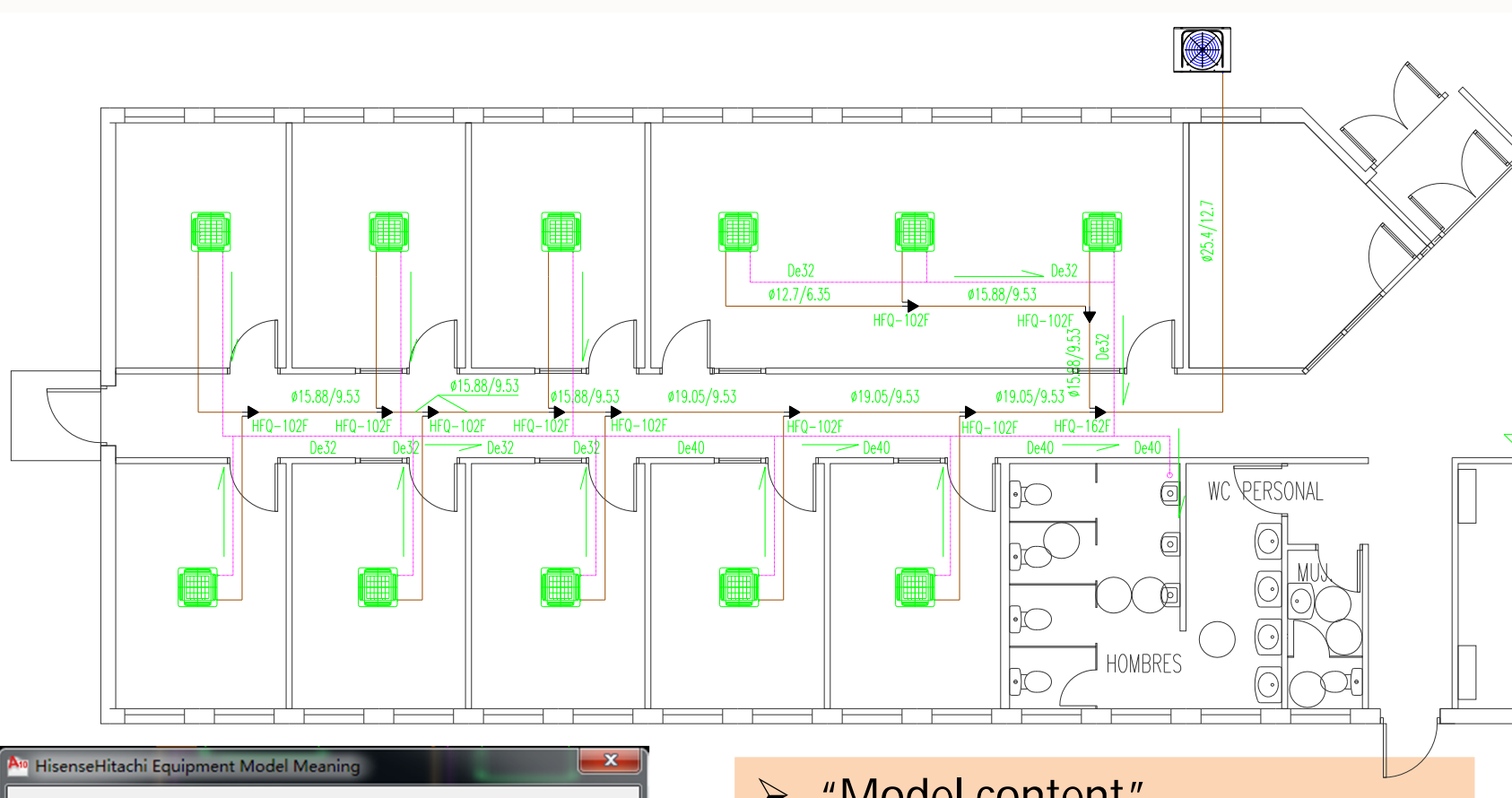
1 4 2

### Calculation steps:

- 1.Click "search" to select the terminal refrigerant pipe or condensate pipe, check that all the equipment twinkling in the system.
- 2.Click "calculation rules" and check product series and current rule template.
- 3.Select matched outdoor unit.
- 4.Click "size calculation" and "close", calculation complete.

# 3. Project Case

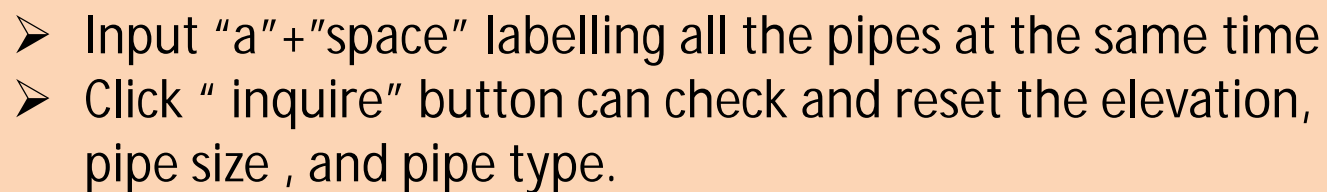
## 5.1 Label Equipment , including IDU ,ODU , heat exchanger, branch pipe ,CH device.



### ➤ “Model content”

Before labelling the model of equipment or generating material list in CAD or EXCELL form . The equipment parameters in the optional content can be checked to add in the list.





### 3. Project Case

6. Generate the bill of material, Classified as the size of the copper and condensate pipe, generate material list in CAD or EXCELL form.



**Materials and equipment statistics**

Single-layer equipment | Device table | **All material** | Insulation thickness | Refrigerant charge quantity

S...	Material name /	Model specifi...	Unit	The numb...
1	Branch pipe	HFQ-102F	Piece	9
2	Branch pipe	HFQ-162F	Piece	1
3	Copper Pipe	12.7	m	39.18
4	Copper Pipe	15.88	m	9.20
5	Copper Pipe	19.05	m	7.28
6	Copper Pipe	25.4	m	7.63
7	Copper Pipe	6.35	m	31.55
8	Copper Pipe	9.53	m	16.48
9	Indoor unit Compact 4-way Cassette Type	AVC-09URCSAB	Set	9
10	Indoor unit Compact 4-way Cassette Type	AVC-12URCSAB	Set	2
11	Outdoor unit	AVWT-114U6SR	Set	1
12	PVC plastic pipe	De32	m	38.53
13	PVC plastic pipe	De40	m	10.24

☐ Display prices

Gas and liquid pipe styles:  
Combine gas and liqu

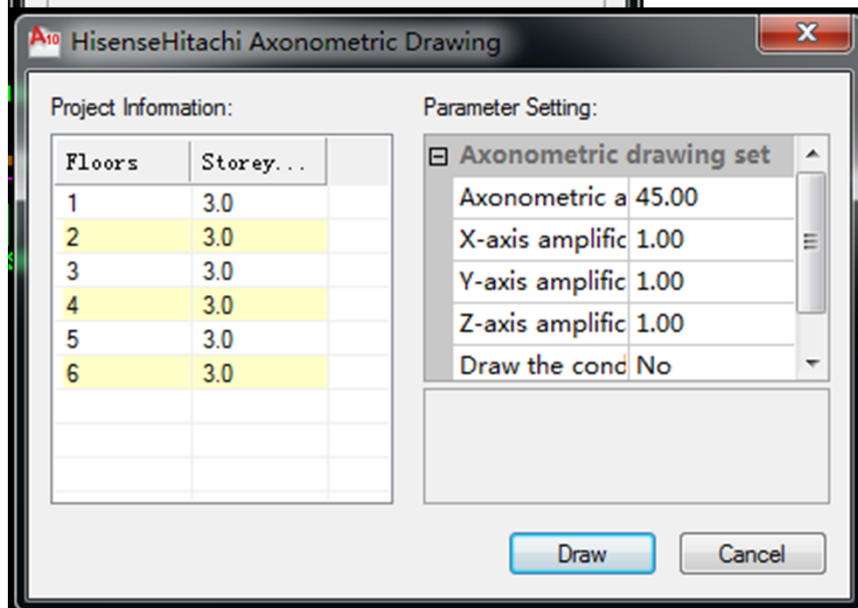
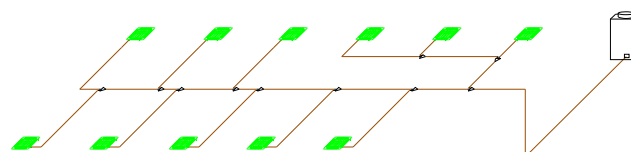
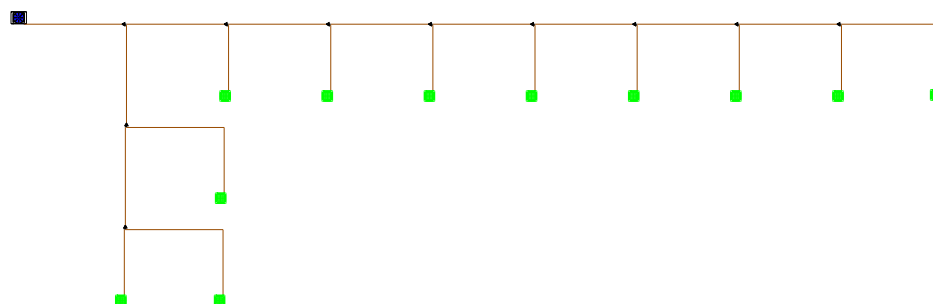
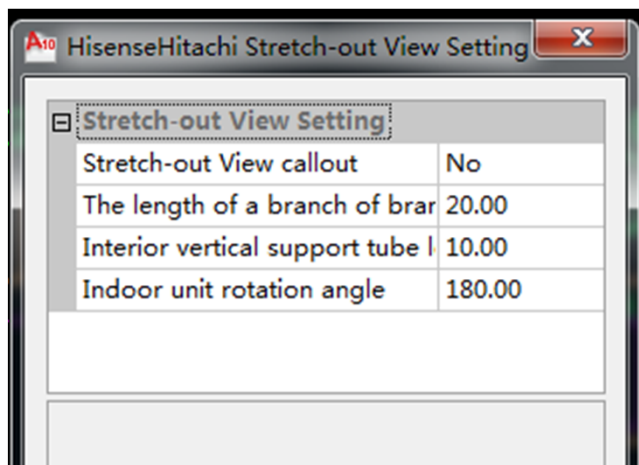
Price library ...

Refresh List

Select < Draw Excel table ... Close

### 3. Project Case

7. Generate the axonometric drawing, stretch-out view drawing.



- Generate the refrigerant system axonometric drawing, expanded view drawing from the floor plans, clearly shows the connection between ODU and IDUs, label the equipment model and pipe diameter.

*Thank  
You!*



# ***Hisense***

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