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iTAC120M Series Intelligent Hot-Pluggable Phasing Miniature Switch Modules

Domestically Leading Hot-Pluggable and Phase –Selecting Technologies

Secondary PCB Connection Technology

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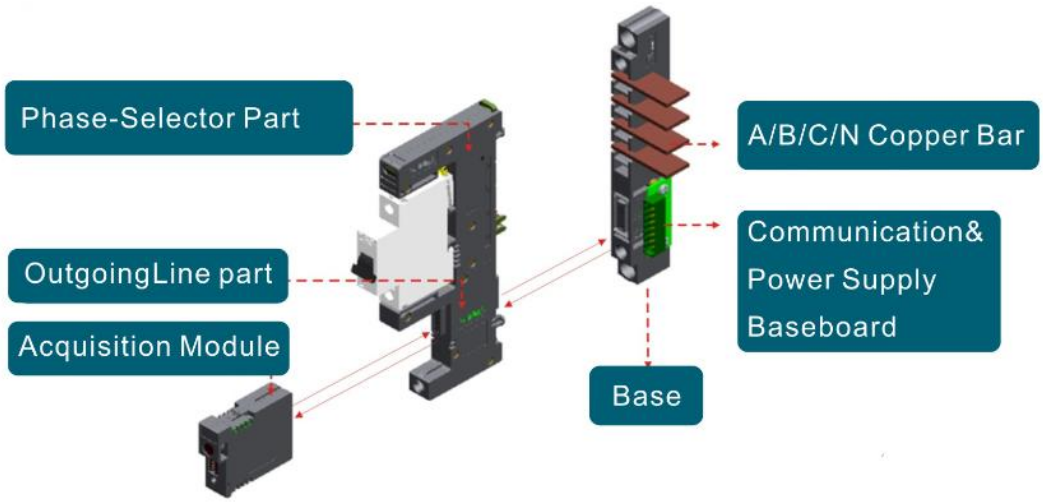
Contents

I. Application Scope

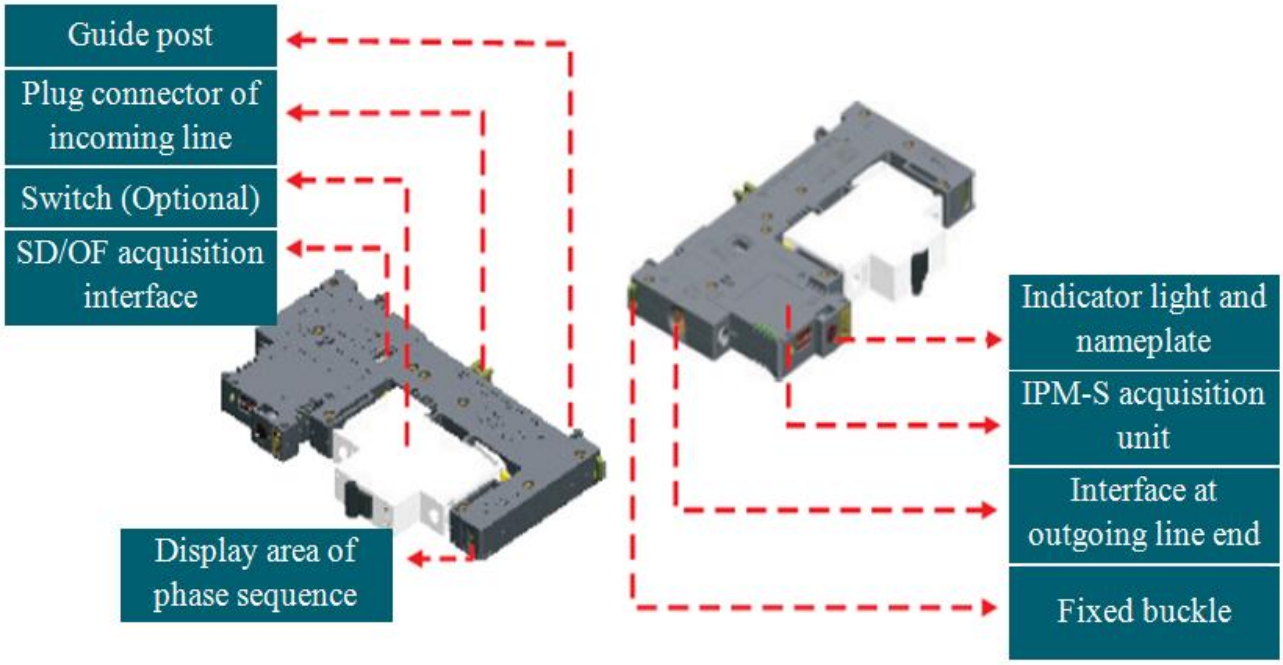
iTAC120M series intelligent pluggable phasing miniature switch modules assembly is applicable to the precision array cabinets in the data center and other power distribution systems.

II. Structure Composition



iTAC120M series intelligent pluggable phasing miniature switch module is mainly comprised of pluggable phasing part of the incoming line, outgoing line part and base.

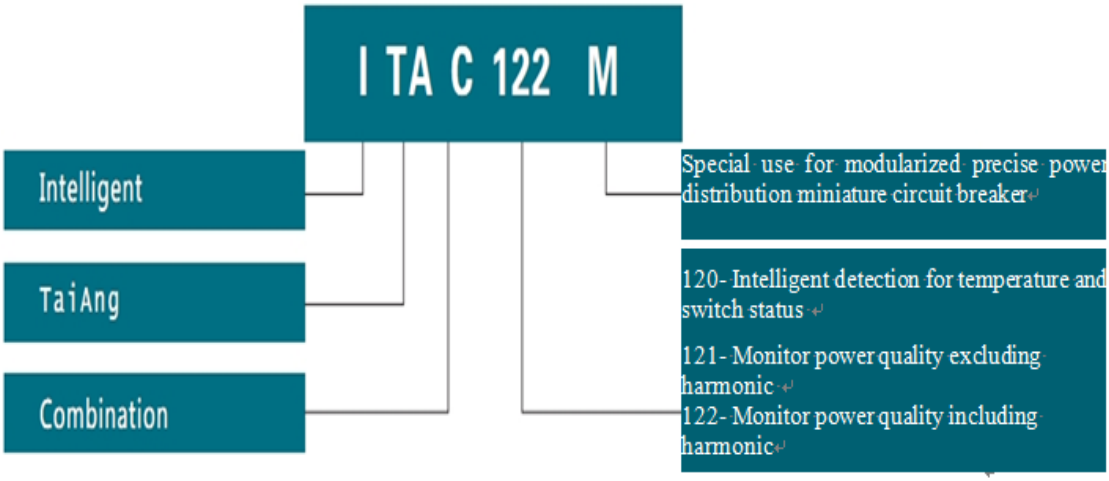
Therein, the connection between incoming line part and incoming line of main power source is provided with the live pluggable phasing function; except that the power source is supplied to loading end on the outgoing line part, the built-in acquisition module can also acquire various electricity parameters for feeder on this branch circuit and implement the information interaction for communication baseplate of base and backstage so as to realize the system's remote management.

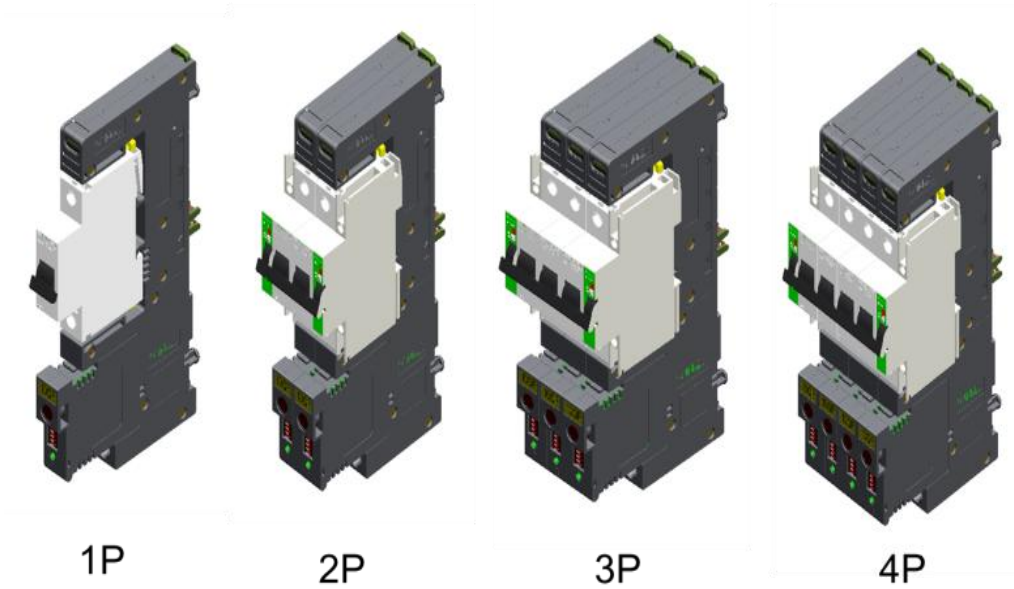


III. Main Functions

- **Pluggable maintenance in live doesn't affect other branch circuits' power supply;**
- **Easy phase selecting, three-phase loading for balanced system, onsite display for phase sequence;**
- **RS485 communication function;**
- **Support OF and SD of auxiliary installation contact;;**
- **Monitor the current, voltage, power, power factor, active and reactive power, power factor, electrical degree, harmonic wave and switch temperature, etc;**
- **The rated current of components is designed to meet the application demand of 63A rated current rating and below;**
- **All miniature circuit breakers at home and abroad as ABB, Schneider, Nader and Dem are compatible, and can be flexibly assembled as required.**

IV. Model Description





V. Technical Indexes

Basic parameters

Model			iTAC120M series
Number of poles			1, 2, 3 and 4 poles
Rated current			(1-63A) depending on the rated current of selected miniature circuit breaker
Rated voltage	AC	Single pole	230/400V
		Multi-pole	400V
	DC	Single pole	110/220V
Temperature range	Normal working environment		Temperature:-5～+40℃; humidity: 0～90%, without condensation
	Storage environment		Temperature:-40 ～ +70℃; humidity: 0 ～ 90%, without condensation
Output wiring range			0.75～25mm^2
Tightening torque			3.5 Nm
Communication mode			RS 485
Dimension of single-P assembly Width * depth * height			200*130*18 mm

Function List

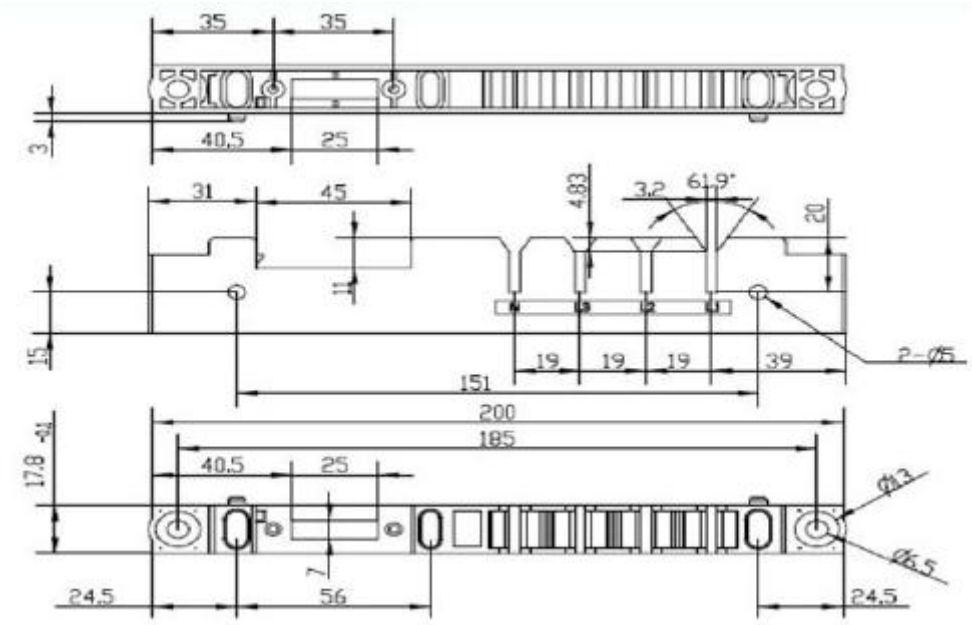
Parameter name	Symbol	Unit	Precision	Measurement Range	iTAC 120M	iTAC 121M	iTAC 122M
Single-phase voltage	U	V	0.2%	0～400	-	■	■
Single-phase current	I	A	0.5%	0～63	-	■	■
Frequency	Hz	Hz	0.01Hz	45～65	-	■	■
Active power	P	KW	0.5%		-	■	■
Reactive power	Q	KVAR	0.5%		-	■	■
Apparent power	S	KAV	0.5%		-	■	■
Power factor	PF		0.5%		-	■	■
Active electrical degree	KWh	KW.h	0.5%		-	■	■

Voltage harmonic wave (THD%)	Uh		0.5%		-	-	■
Current harmonic wave (THD%)	Ih		0.5%		-	-	■
Temperature	T	℃	0.5%	-10～100	■	■	■
Open/closed state(switch)	DI				■	■	■
Switch failure state	DI				■	■	■
Over-current alarm	I	A			-	■	■
High & low temperature alarms	T	℃			■	■	■
Communication		RS485, baud rate: 4,800, 9,600, 19,200, 38,400, 57,600, 115,200					

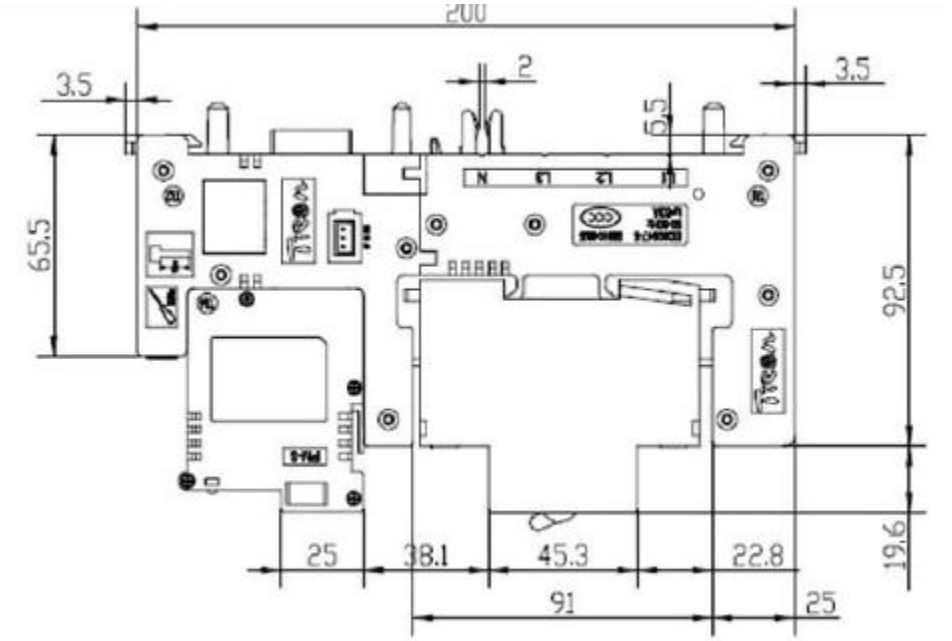
Note: The mark "■" is standard configuration, and the one "-" means no such function.

VI. Overall Dimension and Installation

Base Dimension



Assembly Dimension



VII. Ordering Instruction

■ Basic unit of iTAC120M system

iTAC120M series phase-selector assembly			
Product name	Packing specification	Product code	
iTAC120M (Monitor switching and the temperature)	One pluggable phase selector base, one cascade base, and one IPM-S1 collection module	iTAC120M	 Phase-selector assembly (without the switch)
iTAC121M (Monitor power quality without harmonic)	One pluggable phase selector base, one cascade base, and one IPM-S3 collection module	iTAC121M	
iTAC122M (Monitor power quality and harmonic)	One pluggable phase selector base, one cascade base, and one IPM-S collection module	iTAC122M	
Note: If multi-pole switches are needed, please communicate with pre-sale technical personnel beforehand.			

■ Ordering data (system accessories)

Pluggable phase-selector base			
Specification	Number of packages	Product code	
iTAC120M pluggable phase-selector base, 63A	1	iTAC120M-B	 The assembly without the collection module
iTAC121M pluggable phase-selector base, 63A	1	iTAC121M-B	
iTAC122M pluggable phase-selector base, 63A	1	iTAC122M-B	
Note: If you need multi-pole switch combination, please			

<table>
<tr><td colspan="3">communicate with pre-sale technical personnel beforehand.</td><td></td></tr>
<tr><td colspan="3">Collection module</td><td rowspan="4"> 
Collection module</td></tr>
<tr><td>Specification</td><td>Number of packages</td><td>Product code</td></tr>
<tr><td>Collection module of iTAC122M assembly</td><td>1</td><td>IPM-S</td></tr>
<tr><td>Collection module of iTAC121M assembly</td><td>1</td><td>IPM-S3</td></tr>
<tr><td>Collection module of iTAC120M assembly</td><td>1</td><td>IPM-S1</td></tr>
<tr><td colspan="3">Communication adapter plate</td><td rowspan="5"> 
Communication adapter plate</td></tr>
<tr><td>Specification</td><td>Number of packages</td><td>Product code</td></tr>
<tr><td>Communication adapter plate -02, 44*270.8mm, installed with 13 molded assemblies</td><td>1</td><td>iTAC-PCB13</td></tr>
<tr><td>Communication adapter plate -01, 44*470.8mm, installed with 24 molded assemblies</td><td>1</td><td>iTAC-PCB24</td></tr>
<tr><td>Communication adapter plate -03, 44*516.0mm, installed with 27 molded assemblies</td><td>1</td><td>iTAC-PCB27</td></tr>
<tr><td colspan="3">Note: Φ4.2*10 self-tapping screws shall be provided by yourself at installation.</td><td></td></tr>
</table>

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<table>
<tr><td colspan="3">Base plate for installation</td><td rowspan="5"> 
Base plate for installation</td></tr>
<tr><td>Specification</td><td>Number of packages</td><td>Product code</td></tr>
<tr><td>Base plate for installation-02, 456*274mm, installed with 26 molded assembles</td><td>1</td><td>iTAC-26P</td></tr>
<tr><td>Base plate for installation-01, 456*474mm, installed with 48 molded assembles</td><td>1</td><td>iTAC-48P</td></tr>
<tr><td>Base plate for installation-03, 456*549mm, installed with 54 molded assembles</td><td>1</td><td>iTAC-54P</td></tr>
<tr><td colspan="3">Note: Φ6.0*18 bolts shall be provided by yourself at installation.</td></tr>
<tr><td colspan="3">Standard copper bus-bar</td><td rowspan="3"> 
Standard copper bus-bar</td></tr>
<tr><td>Specification</td><td>Number of packages</td><td>Product code</td></tr>
<tr><td>Standard copper bus-bar, 20*3mm*2m, 200A</td><td>1</td><td>iTAC-CU</td></tr>
<tr><td colspan="3">Special bus-bar clamp</td><td rowspan="5"> 
Special bus-bar clamp</td></tr>
<tr><td>Specification</td><td>Number of packages</td><td>Product code</td></tr>
<tr><td>Special bus-bar clamp -01, specially for 20*3mm standard copper bus-bar</td><td>1</td><td>iTAC-CU01</td></tr>
<tr><td>Special bus-bar clamp -02, specially for 20*3mm standard copper bus-bar</td><td>1</td><td>iTAC-CU02</td></tr>
<tr><td colspan="3">Note: Bus-bar clamp -01 and bus-bar clamp-02 shall be used in pair and used as fixed copper bus-bar, and Φ6.0*45 bolts shall be provided by yourself at installation.</td></tr>
<tr><td colspan="3">Cascade base</td><td rowspan="2"></td></tr>
<tr><td>Specification</td><td>Number of</td><td>Product code</td></tr>
</table>

	packages		
Length * width * height 200*18*30mm	1	iTAC-B	Cascade base
Single-P protective cover plate			
Specification	Number of packages	Product code	
Length * width 200*18mm	1	iTAC-TP	Single-P protective cover plate
Note: It is only for extra protection. It is flexibly demand and used with the common base set together.			

VIII. System Installation Example

iTAC120M series intelligent phase-selector components can be assembled flexibly. The maximum of installed switches'quantity for each power distribution panel(600*800*2,200mm) is 108. Horizontal installation and vertical installation are both OK.

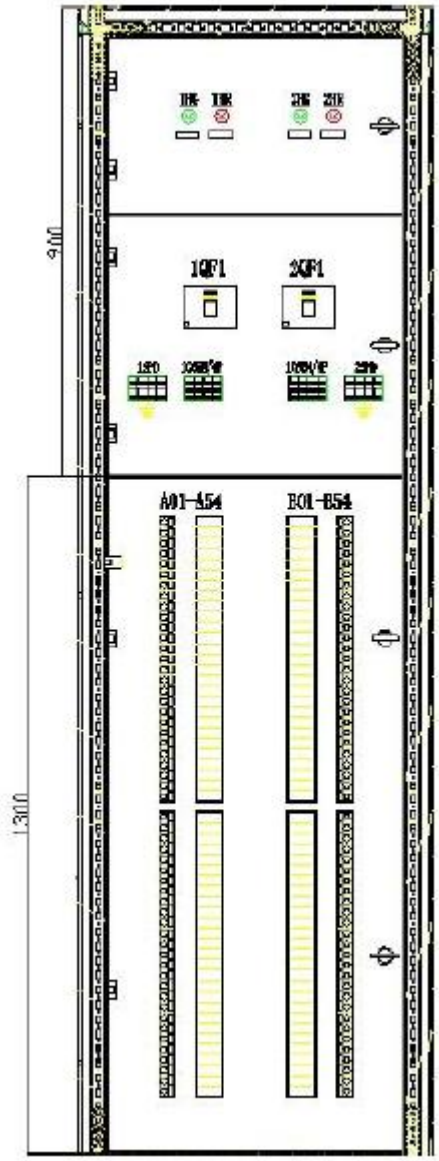
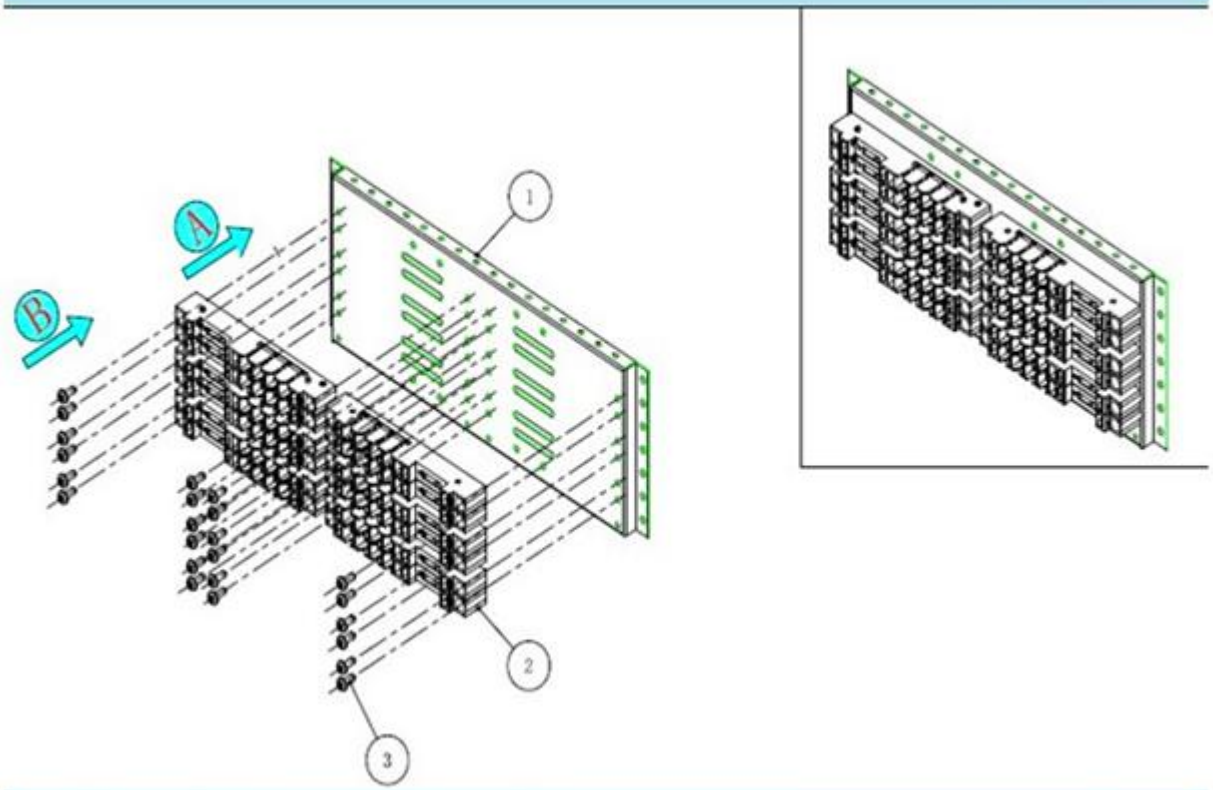


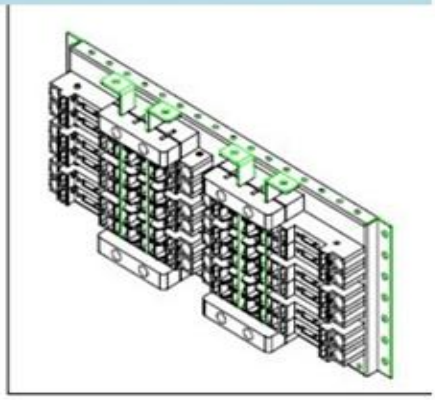
Diagram on Installation for Horizontal Left and Right Side

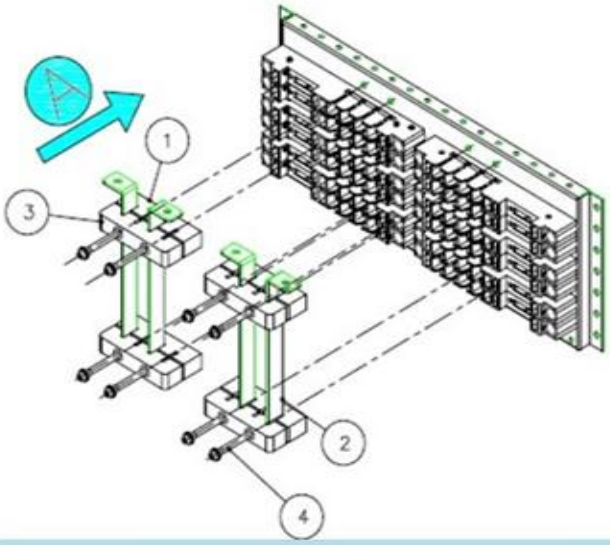
Base mounting



1. Baseboard; 2. Base; 3, ST6.0*18 tapping screw.

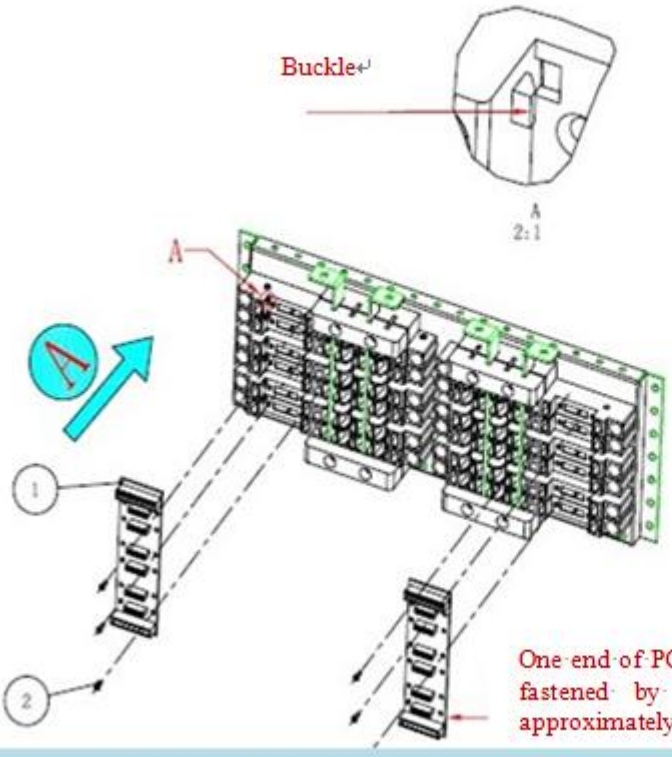
Busbar mounting

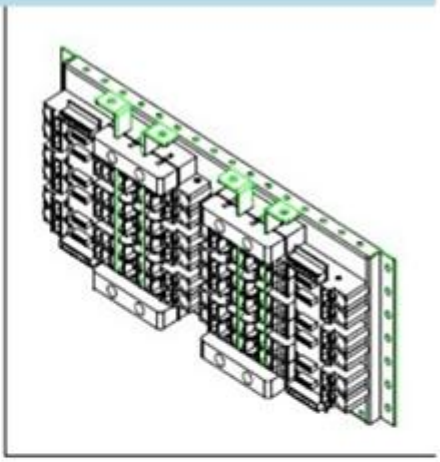




1.Special busbar clamp; 2.Busbar; 3.Special busbar clamp 4. ST 6.0*45 Screw

Installation of communication PCB

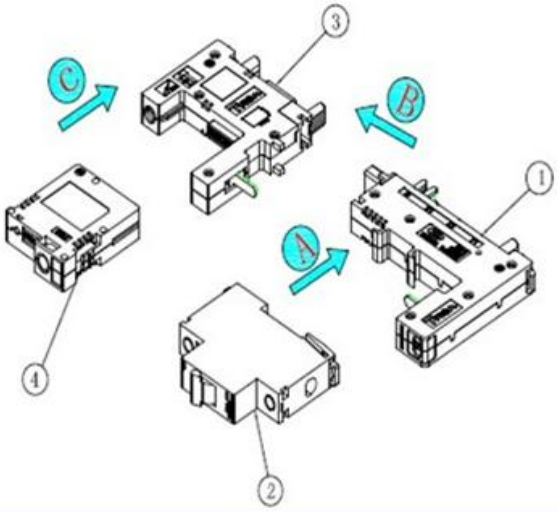


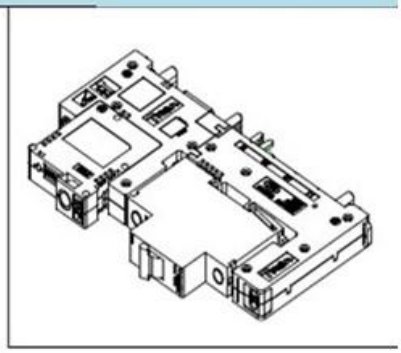


One end of PCB locates underneath buckle, and the other is fastened by screw, a screw is set every 100mm approximately.

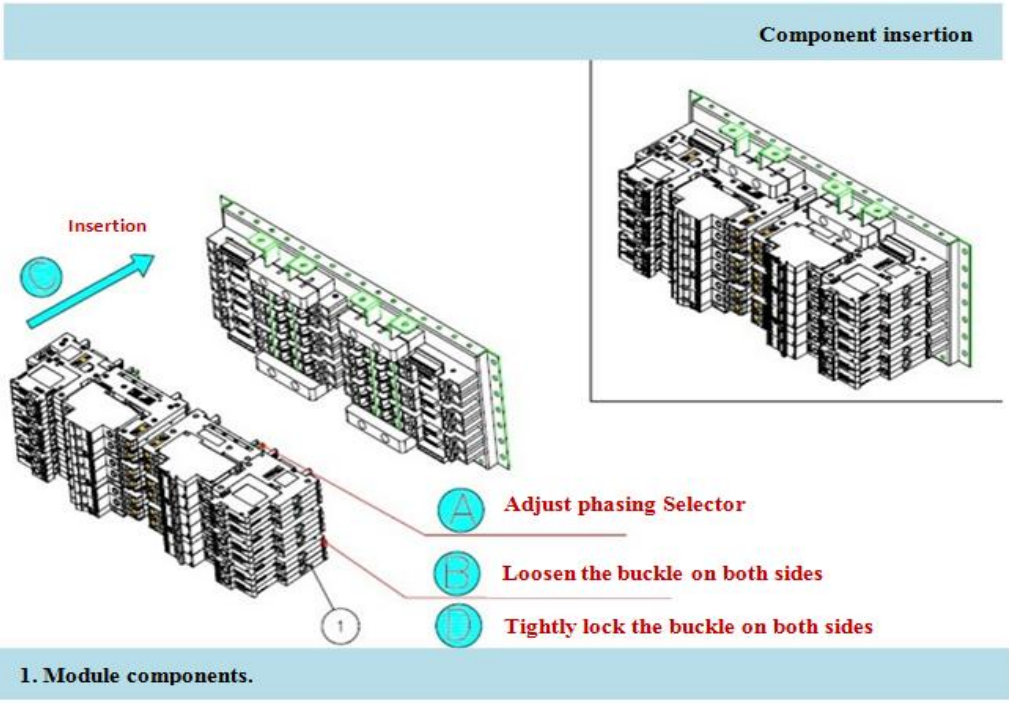
1. PCB board 2. ST 4.2*10 self-tapping screw

Module Installation





1.Phasing components 2.Miniature circuit breaker 3.Gathered components for outgoing line 4.Gathering module.



1. Module components.

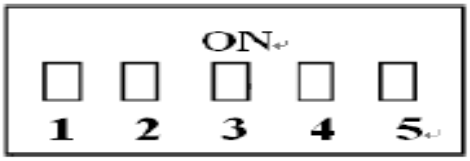
Look-up Table for Components Horizontal Installation

Quantity of assemblies without auxiliary contact	Width (mm)	Depth (mm)	Height (mm)	Weight including the switch (kg)
1	200	150	18	0.5
9			162	4.5
18			324	9
27			486	13.5
36			666	18
45			828	22.5
54			990	27
Quantity of assemblies with auxiliary contact				
1	200	150	27	0.5
9			243	5
18			486	10
27			747	15
36			990	20

Example: The space needs 200*150*324mm^3 when installing 18 iTAC intelligent phase-selector components without auxiliary contact.

IX. Module Dial-up Setting

Set the module address as shown in the figure below, dial onto ON location, it is 1; dial downward, it is 0; it is suggested not to set 00000 and 11111, this address is used as broadcasting bit frequently, the specific setting is as follows accordingly:



Binary system	10000	01000	11000	00100	10100	01100	11100	00010
Decimal system	1	2	3	4	5	6	7	8
Binary system	10010	01010	11010	00110	10110	01110	11110	00001
Decimal system	9	10	11	12	13	14	15	16
Binary system	10001	010001	11001	00101	10101	01101	11101	00011
Decimal system	17	18	19	20	21	22	23	24
Binary system	10011	01011	11011	00111	10111	01111		
Decimal system	25	26	27	28	29	30		

X. Use and Maintenance

1. The product can't be exposed to rain during transportation & safekeeping and shall be placed or installed free from the invasion of rain.
2. The product shall be regularly inspected during operating, and the inspection period depends on the work condition, and the power supply shall be cut off during the inspection. The inspection items mainly include:

A. Remove the dust and dirt, and particularly remove the dirt between incoming and outgoing line levels.
B. Tighten the binding screws.

XI. Safety Precautions

1. While installing the products, the operation in live isn't allowed so as to prevent the electric shock:

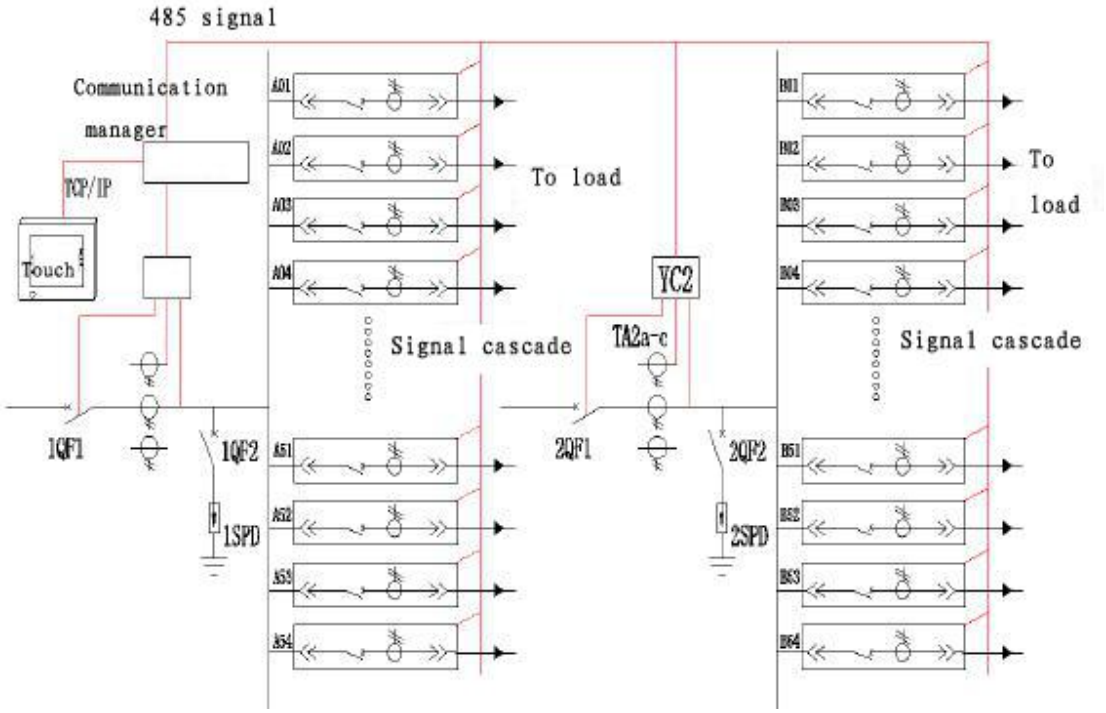
2. The live wire (phase wire) to earth short-circuit or null wire (neutral wire) and live wire touching method is **not** employed to test the product performance so as to avoid endangering the personal safety.

3. While installing, the wiring screw should be screwed up tightly, and the lead wire can't loosen or pulled out easily, the cross section of lead wire should be selected strictly according to the requirement specified in this instruction;

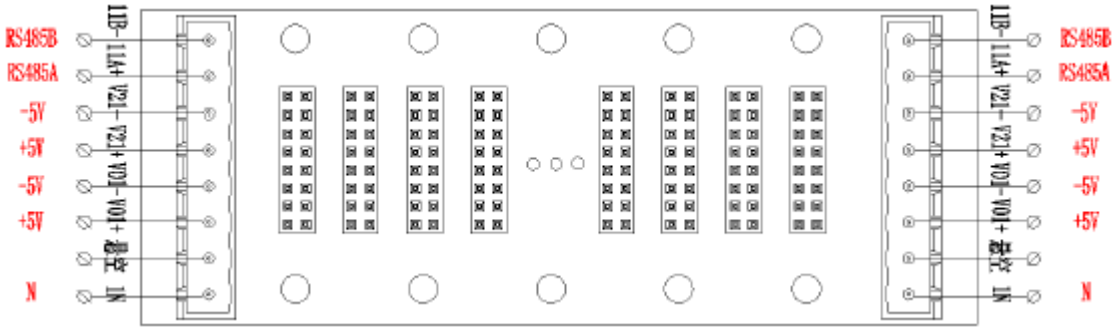
4. It is strictly forbidden to operate the circuit breaker with wet hands, otherwise, the electric shock accident may occur possibly.

XII. Appendixes

Appendix 1 Typical Array Cabinet System Diagram



Appendix 2 Communication Base Plate Wiring Diagram



Note: V01 and V21 of communication base plate are two groups of independent 5V power supply.