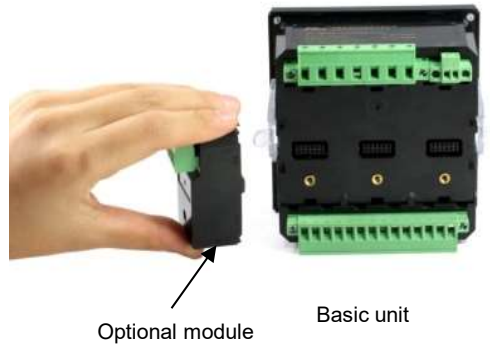


## Different Installation Method

### ➤ PMAC770 : Panel Mount



Front View



Optional module

Basic unit

Back View

## Feature

### ➤ Suit for LV/ HV voltage system

For low voltage system, direct connect up to 690 V (L-L) AC

For high voltage system, support connect up to 65KV

### ➤ Real-time measurement

True-RMS measuring parameters includes:

U, I, P, Q, S, PF, F, kWh, kvarh, kVAh

### ➤ Demand calculation mode is programmable

2 kinds of demand modes: fixed block and rolling block

### ➤ Power quality analysis

Harmonic analysis, crest and K factor, unbalance etc.

### ➤ Multi-tariff billing, historical data of 31 days and 12 months

TOU, 4 tariffs, 8 time period in 24 hours

### ➤ Max./ Min. Record (U, I, P, Q)

### ➤ Under/ over limit alarm

### ➤ DI/ DO

### ➤ Multiple Communication

Modbus RTU protocol, Profibus protocol (optional)

### ➤ High accuracy

Active energy: according to IEC62053-22, class 0.5s

Reactive energy: according to IEC62053-23, class 2

### ➤ Small size and thin style

### ➤ Standard

IEC62053-22/ 23, CE.

## Basic Function

Real time metering	Voltage	Ua, Ub, Uc, Uab, Ubc, Uca, UL-L avg, UL-N avg
	Current	Ia, Ib, Ic, In, Iavg
	Power	Pa, Pb, Pc, $\sum P$ , Qa, Qb, Qc, $\sum Q$ , Sa, Sb, Sc, $\sum S$
	Power factor	PFa, PFb, PFc, $\sum PF$
	Energy	kWh, kvarh (4 quadrant) & kVAh
	Frequency	F
	Demand & Max. demand	Dmd_I, Dmd_P, Dmd_Q, Dmd_S
	Max./ min. value	Max./ min. (U, I, P, Q)
	Multi-tariff energy	
Power quality analysis	Unbalance	U_unbl, I_unbl
	Harmonic (31 <sup>st</sup> )	THDu, THDi, TOHDu, TOHDi, TEHDu, TEHDi, HRU, RHI
	Harmonic RMS (0-31 <sup>st</sup> )	Harmonic RMS-U, Harmonic RMS-I, Harmonic RMS-P
	Harmonic energy (1 <sup>st</sup> -13 <sup>th</sup> )	
	Voltage crest factor, current K factor, Load rate, Voltage deviation, Frequency deviation,	
Setpoint alarm	Over/ under limit alarm	
3DI +2 DO	3 status input + 2 relay output	
RS485	Modbus-RTU protocol	
Record function	SOE (event log), Real-time clock ( yyyy-mm-dd hh:mm:ss)	
	Voltage/ frequency deviation, Voltage unbalance record	

## Optional Module



<b>SW</b>	4 status input (External Wet contact)	<b>R</b>	2 relay output
<b>SD</b>	4 status input (External Dry contact)	<b>AI</b>	2 analog input (4-20mA)
<b>C*</b>	The 2 <sup>nd</sup> RS485	<b>AO</b>	2 analog output (4-20mA)
<b>Ep*</b>	2 pulse output	<b>DP</b>	Profibus-DP protocol

Parameter	Accuracy	Resolution	Measuring Range
Voltage	0.2%	0.01V	Direct: 690Vph-ph PT primary: 0.001kV~65kV (settable) PT secondary: 1~398V (settable)
Current	0.2%	0.001A	CT primary: 1~9,999A (settable) CT secondary: 1 A or 5A
Power	0.5%	0.1W/var/ VA	each phase: 0~649.9MW/ Mvar/ MVA Total: 0~1949.8MW/ Mvar/ MVA
Power factor	0.5%	0.001	-1.000~+1.000
Frequency	0.01	0.01Hz	45~ 65 Hz
Active energy	0.5%	0.1kWh	0~ 99,999,999.9 kWh
Reactive energy	2.0%	0.1kvarh	0~ 99,999,999.9 kvarh
Apparent energy	1.0%	0.1kVAh	0~ 99,999,999.9 kVAh
THD	1.0%	0.001	0~100.0%
Individual harmonic	1.0%	0.001	0~100.0%
Un-balance	1.0%	0.001	0~100.0%

## Technical Specification

<b>Connection mode</b>	3-phase 3-wire 3-phase 4-wire Single phase	<b>Communication</b>	Modbus-RTU Protocol	RS485 serial Baud rate: 2400, 4800, 9600, 19200, 38400bps Address: 1~247
<b>Metering</b>	True RMS, 1 sec refresh time		Profibus DP	
<b>Input</b>	Rate current: 1A or 5A Rate voltage: Direct 120, 220V, 240V, 277V, 398Vph-N (optional) PT secondary: 1~398V (settable) Frequency: 50/ 60Hz	<b>Dimension (L x W x H)</b>	Panel: 96 x 96 x 13.5 mm Cut-out: 90 x 90 x 58.6 mm (basic) 90 x 90 x 80.1 mm (optional module)	
<b>Overload</b>	120% of rated, continuously Instantaneous current: 10 times/ sec Instantaneous voltage: 2 times/ sec	<b>IP index</b>	IP52 (front panel) and IP30 (case)	
<b>Status input</b>	Wet contact, external power supply	<b>Weight</b>	Basic unit: approx 550gr. One Module: 50gr.	
<b>Relay output</b>	Node capacity: 250VAC/5A	<b>Environment</b>	Main Module & other Modules	Operating temperature: -10°C~ +55 °C Storage temperature: -40°C~ +70 °C Humidity: 5%~95% non-condensing
<b>Pulse output</b>	Pulse constant: 1000~9999 programmable Pulse width: 60~100ms programmable Formula: 1 pulse = (1 ÷ pulse constant × PT × CT) kWh			<b>Power frequency withstand voltage</b>
<b>Power supply</b>	85 ~265VAC, 85~265VDC (When select P1) 100~420VAC, 100~400VDC (When select P2)	<b>Insulation resistance</b>	≥50MΩ	
<b>Power loss</b>	< 10VA (When select P1) < 15VA (When select P2)	<b>Impulse withstand voltage</b>	4kV (peak), 1.2/50μS	

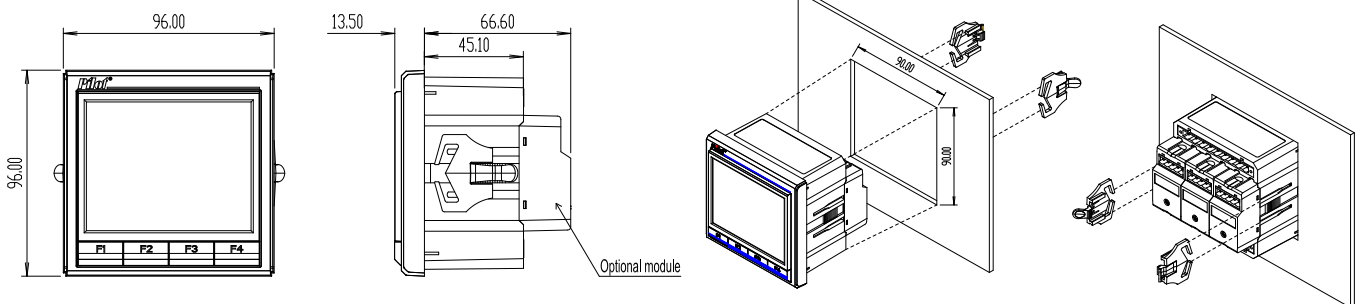
### Standard (EMC)

Oscillatory Waves Immunity Test	IEC 61000-4-12, Level 3	Surge Immunity Test (1, 2/50μs~8/20μs)	IEC 61000-4-5, Level 3
Electrostatic Discharge Immunity Test	IEC 61000-4-2, Level 3	RF Conducted Immunity	IEC 61000-4-6, Level 3
Radiated Radio-frequency Electromagnetic Field Immunity (RFEMS)	IEC 61000-4-3, Level 4	Power Frequency Magnetic Field Immunity Test	IEC 61000-4-6, Level 3
Electrical Fast Transient/burst Immunity Test	IEC 61000-4-4, Level 3	Electromagnetic Emission Limits	IEC 60255-25, Passed
		Power Frequency Immunity	IEC 61000-4-8, Level A

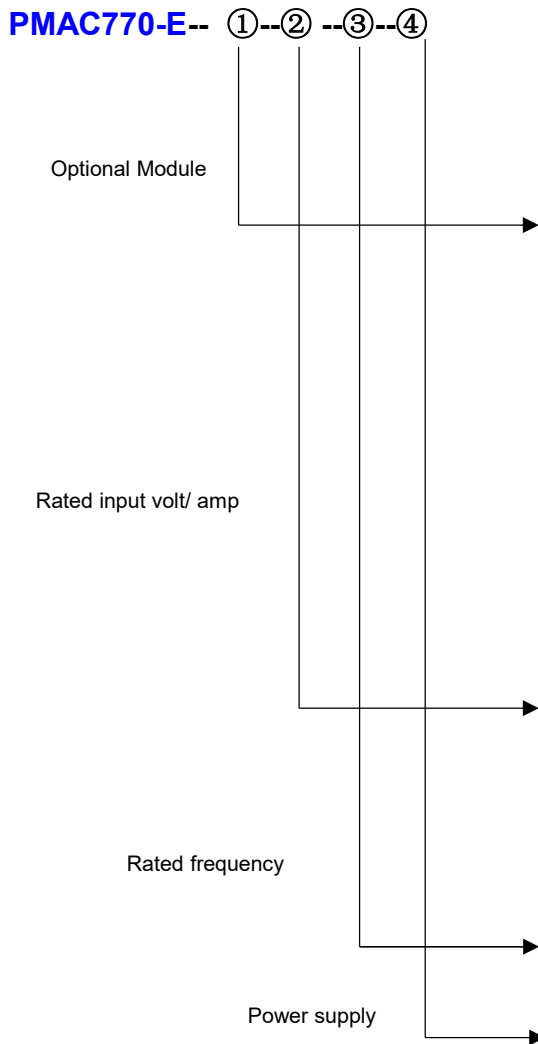
## Dimension & Installation

Unit: mm

PMAC770 : Panel Mount



## Order Information



<b>SW</b>	DI Module: 4 Status Input (wet contact)
<b>SD</b>	DI Module: 4 Status Input (Wet contact)
<b>R</b>	DO Module: 2 Relay Output
<b>C</b>	RS485 Module: The 2nd RS485 comm
<b>AO</b>	AO Module: 2 Analog output (4~20mA)
<b>AI</b>	AI Module: 2 Analog input (4~20mA)
<b>Ep</b>	PO Module: 2 Pulse Output
<b>DP</b>	Profibus DP module
<b>V1</b>	57.7/ 100V (via PT), 5A
<b>V2</b>	57.7/ 100V (via PT), 1A
<b>V3</b>	220/ 380V (direct), 5A
<b>V4</b>	220/ 380V (direct), 1A
<b>V5</b>	120/ 208V (direct), 5A
<b>V6</b>	240/ 415V (direct), 5A
<b>V7</b>	277/ 480V (direct), 5A
<b>V8</b>	63.5/ 110V (via PT), 5A
<b>V9</b>	120/ 208V (direct), 1A
<b>V10</b>	240/ 415V (direct), 1A
<b>V11</b>	277/ 480V (direct), 1A
<b>V12</b>	63.5/ 110V (via PT), 1A
<b>V13</b>	398/690V (direct), 5A
<b>F1</b>	50Hz
<b>F2</b>	60Hz
<b>P1</b>	85~265Vac, or 85 ~ 265Vdc, 45-65Hz
<b>P2</b>	100 ~ 420Vac , or 100 ~ 400Vdc, 45~60Hz

- Note: 1. PMAC770 supports Max. 3 optional module  
 2. PMAC770 supports Max. 2 **S** optional module, others optional function can only by chosen once.  
 3. Function **C** and **DP** can't be selected together.