User Manual PRO-3PCT120 (EN)

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Wi-Fi Smart Power Meter

User Manual V1.0

Introduction

The SONOFF PRO-3PCT120 is a 2-module DIN-rail-mounted three-phase smart energy meter that uses CT sensors for high-accuracy energy measurement and real-time monitoring. It features abnormality alerts and one dry contact output for control. With integrated Wi-Fi, Ethernet, and RS-485 connectivity, it supports communication protocols including Modbus RTU/TCP, MQTT, HTTP, and WebSocket. Energy data can be visualized and automation can be configured via the local web interface, cloud services, or third-party smart home platforms. It is suitable for energy management and power automation in residential, light commercial, and industrial applications.



4-Quadrant Measurement



Phase Loss Detection



Local Data Storage



Accuracy Class 0.5 for Active Energy



1.54-inch LCD Screen



Dry Contact Output



DIN Rail Mountable

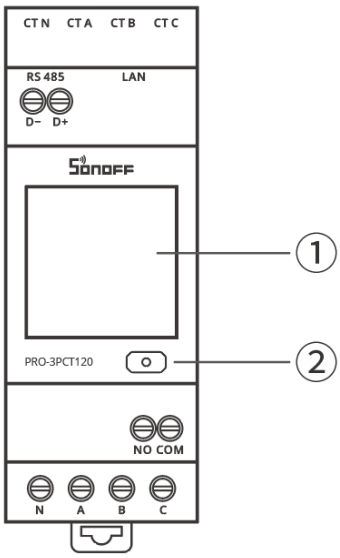


Power Monitoring

OpenEdge

Embedded OpenEdge Web Console

Modbus Support

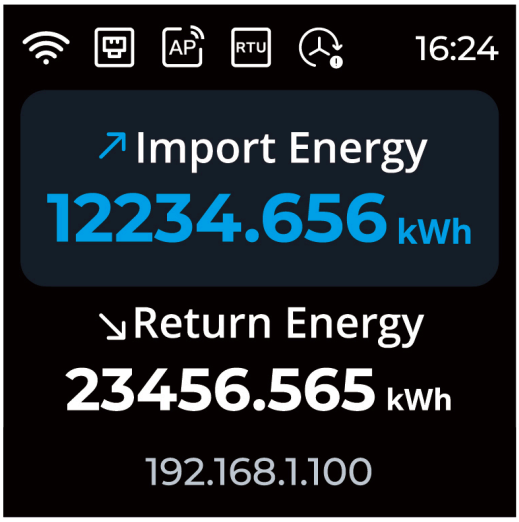


① Screen

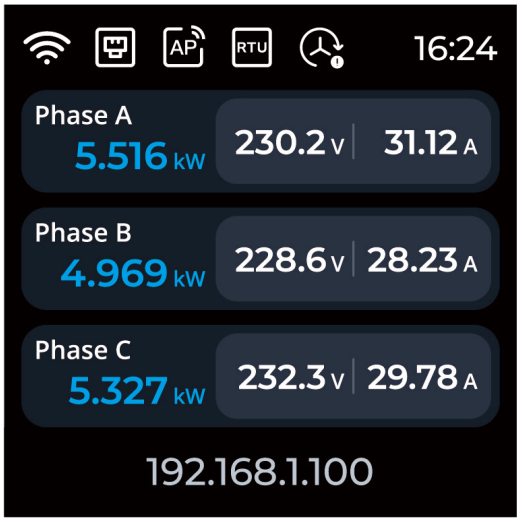
② Button

- Single Press: Wake the screen / Switch display pages / Exit pairing mode during pairing
- Double Press: Turn off the screen / Confirm when changing the Web password
- Press and Hold the Button for 5 Seconds: Enter Pairing Mode (No Response During Pairing)
- Press and Hold the Button for 10 Seconds: Restore Factory Settings

Screen Display Instructions



①



②

Pages	Display Information	
① Energy Page	Total Energy Consumption (Import) + Exported Energy, displayed in kWh	

② Real-Time Parameters Page	Header		Wi-Fi Connected
			Wi-Fi Disconnected
			Ethernet Connected
			Ethernet Enabled but Not Connected
			Not displayed when disabled
		AP	AP Mode Enabled
		AP	Not displayed when disabled
		RTU	Modbus Enabled
		RTU	Not displayed when disabled
			Phase Sequence Error Not displayed when there is no error
	Parameters		Three-Phase A/B/C: Voltage (V), Current (A), and Active Power (W or kW)
	Footer		The footer displays the current IP address. When both Ethernet and Wi-Fi are connected, the Ethernet IP address is displayed by default.

Prompt Pages



① ② ③ ④

Pages	Trigger Condition	Screen Display
① Pairing Mode Page	Device is in Pairing Mode	Displays the eWeLink pairing QR code. Users can scan the QR code with the eWeLink App to add the device. Press the button once to skip or wait for the page to time out and exit.

② Pairing Mode Prompt Page	Press and Hold the Button for 5 Seconds	Displays a prompt instructing the user to release the button to enter pairing mode.
③ Factory Reset Prompt Page	Press and Hold the Button for 10 Seconds	Displays a prompt instructing the user to release the button to restore the device to factory settings.
④ Reset Web Password Page	Web Password Reset Verification	Double-press the button to confirm the password change. The page exits automatically after a timeout.

Specification

Pro CT 3-Phase	
Product Series	Pro Series
Product Name	Wi-Fi Smart Power Meter
Product Model	PRO-3PCT120
Certifications	CE/RoHS
Electrical	
Measurement Type	Real-time measurement of electrical parameters in three-phase AC systems (voltage / current / active power / apparent power / energy / power factor / frequency)
Power Supply	Three-phase power supply
Phase Voltage	100-240V ~
Line Voltage	400V ~
Voltage Frequency	50/60Hz
Rated Current	0.1A
Metering	
CT Type	Clip-on CT sensor
Inner Diameter	16mm
Voltage Measurement Range	100~260V

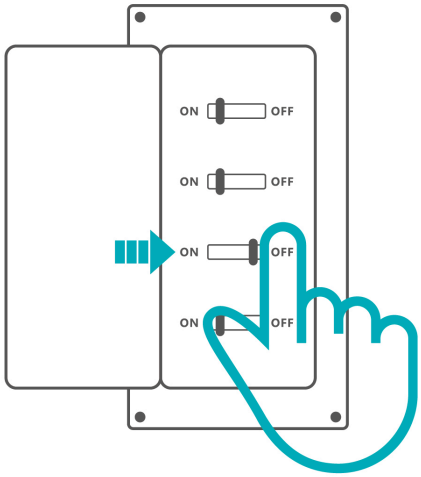
Voltage Measurement Accuracy	±0.5%
Current Measurement Range	0~120A
Current Measurement Accuracy	±1%（0.1~0.25A） ±0.5%（0.25~120A）
Power Measurement Accuracy	±1%（25~50W） ±0.5%（(Above 50W)）
Active Energy Accuracy	CLASS 0.5 IEC 62053-21
Historical Data	Power and energy data at 1-minute intervals for the most recent 60 days Energy data at 1-hour intervals for the most recent 186 days Energy data at 1-day intervals for the most recent 366 days Energy data at 1-month intervals for the most recent 60 months
Data Export	WEB/APP/API
Physical	
Dimensions (L × W × H)	103.2×66×36mm
Net Weight	112.5g
Mounting Type	DIN Rail（35mm）
Enclosure Material	PC
Color	Gray
Mechanical Environmental Class	M1
Environmental	
Operating Temperature	-20 °C ~ 40 °C
Operating Humidity	30% ~ 90% RH
Altitude	≤ 2000 m
EMC	

EMC (Article 3.1b)	ETSI EN 301 489-1 ETSI EN 301 489-17 EN 55032:2015+A1 EN 55035:2017+A11 EN 61000-3-3:2013+A1:2019+A2 EN IEC 61000-3-2:2019/A2 EN IEC 61326-1
Safety	
Measurement Category	IEC 61010-1 IEC 61010-2-030
Communication Interfaces	
Interface 1: RS485	
Interface Type	RS-485 Port
Protocol	Modbus RTU
Communication Address	1 – 247
Transmission Mode	Half-duplex
Data Type	Floating-point (Float)
Transmission Distance	9600bps 500m 19200bps 200m
Baud Rate	1200 / 2400 / 4800 / 9600 / 19200 bps
Parity	None(Default)/ Even / Odd
Stop Bits	1 or 2
Response Time	50 ms
Interface 2: Wi-Fi	
Protocol	802.11 b/g/n
RF Frequency Band	2.4 GHz
Maximum RF Output Power	< 20 dBm
Wi-Fi Range	≤ 70 m in open outdoor areas, depending on the environment
Interface 3: Ethernet	
Interface Type	RJ45
Interface 4: Bluetooth	
Version	5.3

Function	Network Configuration
Other	
Dry Contact Output	NO/COM，2A max

Installation

1. Power Off



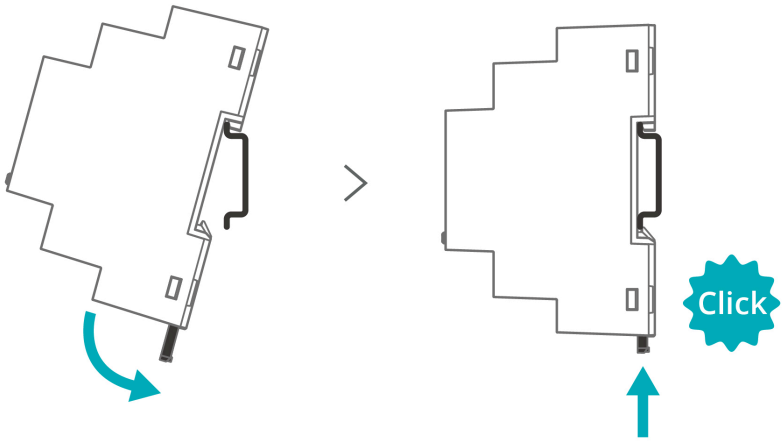
Warnings:

① Installation and troubleshooting must be performed by a qualified electrician. Do not perform wiring or touch terminals while the device is powered on to avoid electric shock!

② To ensure safe electrical installation, a miniature circuit breaker (MCB) or residual current operated circuit breaker (RCBO) rated at 16A and compliant with national safety standards must be installed ahead of the PRO-3PCT120.

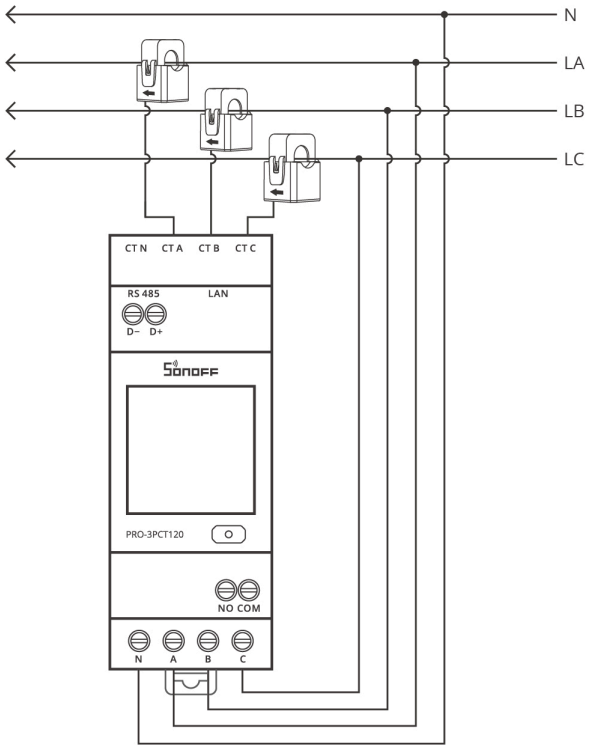
2. Install on the DIN Rail

Mount the device onto a 35 mm DIN rail. Install the device in a dry, well-ventilated location inside the distribution box.



3. Wiring

Connect the three-phase, four-wire A/B/C/N supply wires to the corresponding terminals. The phase voltage is 100–240 V~, 50/60 Hz.



Terminal Label	Terminal Function
A	Phase A input
B	Phase B input
C	Phase C input
N	Neutral terminal input
CT A	Phase A current transformer input

CT B	Phase B current transformer input
CT C	Phase C current transformer input
CT N	Neutral current transformer input
RS485 D+	RS-485 positive differential signal
RS485 D-	RS-485 negative differential signal
NO	Dry Contact Normally Open
COM	Dry Contact Common
LAN	Ethernet Port

4. Install the CT Sensors

Clip the CT sensors onto the A, B, and C phase conductors, respectively. For accurate energy measurement, it is recommended to match the CT labels A, B, and C with the corresponding CTA, CTB, and CTC terminals on the device.

> ⚠️ **CT Installation Direction**
> If the CT is installed in the wrong direction, there is no need to rewire it. Simply enable the “CT Reverse” function in the App or Web interface to correct the measurement direction.

5. Connect to Ethernet (Optional)

Remove the Ethernet port plug and connect the Ethernet cable. The device will automatically obtain an IP address.
⚠️ Only connect or disconnect the Ethernet cable when the device is powered off.

6. Power on the Device

Verify that all wiring is correct, then switch on the power supply. The display will light up, show the startup screen, and then enter the metering parameters page.

> 💡 **Network Priority:** When both Ethernet and Wi-Fi are available, Ethernet takes priority. If the Ethernet connection is disconnected, the device automatically switches to Wi-Fi.

eWeLink Ecosystem User Guide

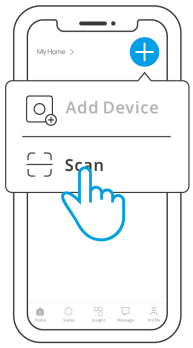
1. Download the eWeLink App

Please download the "**eWeLink**" App from **Google Play Store** or **Apple App Store**.

eWeLink

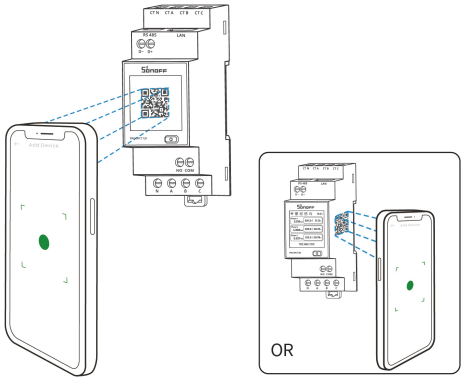
2. Add Device

1



Enter "Scan"

2



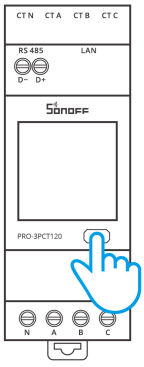
Scan the QR code on the device screen or side panel.

3



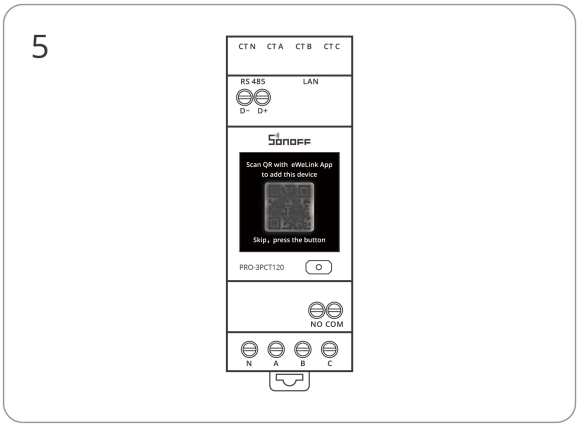
Select "Add Device"

4

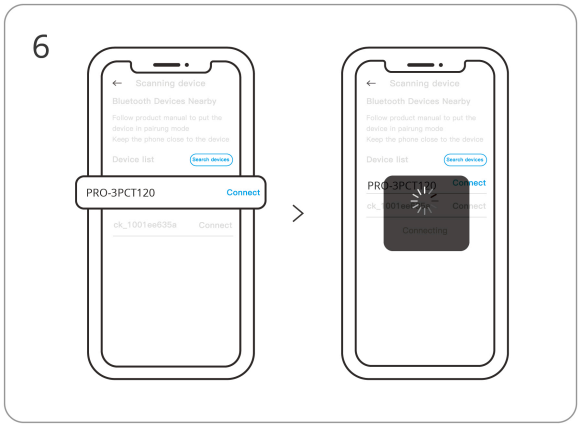


(If the device exits pairing mode)

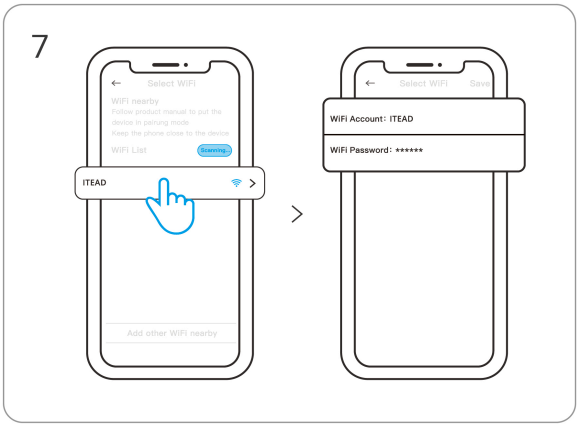
Long press the button for 5 seconds



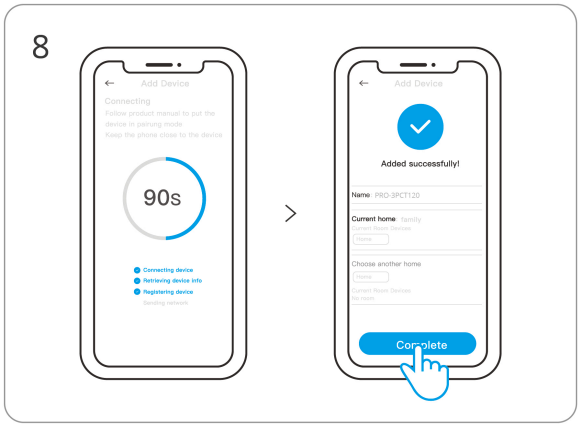
Check the QR code on the screen (the eWeLink QR code should be displayed).



Search for the device and start connecting. (For Ethernet users, the mobile phone and device must be connected to the same local area network (LAN). Otherwise, QR code scanning on the device screen will not bind the device. Please use the web interface to bind the device instead.)



Select the "Wi-Fi" network and enter the password



Device "Added completely"

Web Console Guide

Wi-Fi Users:

- The AP hotspot is automatically enabled when the QR code is displayed on the screen.
- Connect your phone or computer to the AP hotspot SONOFF_PRO3PCT120_XXXXXXXX (no password required by default).
- Open a Web browser and go to 192.168.33.1.
- **On first login, set a login password for the Web interface (at least 8 characters).**
- **Go to Network Settings → WLAN Settings.Select the target Wi-Fi network name (SSID) from the scanned list, then enter its password, and save to connect.**
- The device connects to the Wi-Fi network.
- After the setup is complete, press the screen button once to enter the Energy Parameters page.

Ethernet Users:

- The device automatically obtains an IP address after startup.
- To set a static IP address, connect to the AP and access the Web interface.
- **On first login, set a login password for the Web interface (at least 8 characters).**
- After the setup is complete, press the screen button once to enter the Energy Parameters page.

If the AP hotspot cannot be found, first put the device into pairing mode. After exiting pairing mode, the AP hotspot will automatically turn off after 10 minutes if no device is connected.

Modbus TCP/RTU

Modbus is an application-layer communication protocol widely used for monitoring and controlling industrial equipment and smart devices. This device supports both Modbus TCP and Modbus RTU, which use the same application-layer Protocol Data Unit (PDU).

Byte Order

Byte Order Configuration（Holding Register 40008)

40008 Value	Name	Register Order	Description
0	ABCD	[High Word, Low Word]	Register N stores the high 16 bits, and register N+1 stores the low 16 bits. Within each register, the high byte comes first.
1	CDAB	[Low Word, High Word]	Register N stores the low 16 bits, and register N+1 stores the high 16 bits. Within each register, the high byte comes first.

Example: Float value of 230.0 V = IEEE 754 `0x43660000`

40008 = 0 (ABCD)	40008 = 1 (CDAB)
Register N: 0x4366	Register N: 0x0000
Register N+1: 0x0000	Register N+1: 0x4366

0-base & 1-base

There are two numbering conventions for Modbus register addresses:

Concept	Description	First Input Register
1-based	Numbering starts at 1	30001
0-based	Numbering starts at 0	30000

Regardless of the logical addressing convention used, the PDU address (the address transmitted over the wire) always starts at 0. The difference lies only in how addresses are presented in documentation.

This document uses 1-based logical addressing (starting at 30001), in accordance with the Modbus Application Protocol Specification V1.1b3. Enter the address in the host software as follows:

Tool Type	Examples	Entry Method	Example (Read 31021)
0-based library	pymodbus、libmodbus	Enter the PDU address = logical address − 30001	Enter 1020
1-based tool	QModMaster, most configuration software	Enter the logical address suffix = logical address − 30000	Enter 1021

System Settings（Holding Registers)

System communication parameters can be read and written via Holding Registers using Function Codes 03 (Read Holding Registers), 06 (Write Single Register), and 10 (Write Multiple Registers).

Document Address	PDU Hex	Data Type	Access	Description	Valid Range	Default
40001	0x0000	uint16	R/W	Modbus slave address	1–247	1
40002	0x0001	uint16	R/W	TCP enable: 0 = Disabled, 1 = Enabled	0/1	0
40003	0x0002	uint16	R/W	TCP port	1–65535	502
40004	0x0003	uint16	R/W	RTU enable: 0 = Disabled, 1 = Enabled	0/1	0

40005	0x0004	uint16	R/W	RTU baud rate (see table below)	0–4: 0:1200 1:2400 2:4800 3:9600 4:19200	3
40006	0x0005	uint16	R/W	RTU stop bits: 1 or 2	1/2	1
40007	0x0006	uint16	R/W	RTU parity: 0 = None, 1 = Even, 2 = Odd	0/1/2	0
40008	0x0007	uint16	R/W	Byte order: 0 = ABCD, 1 = CDAB	0/1	0
40009	0x0008	uint16	R/W	Write Operations Enable: 0 = Disabled (Read-Only Mode), 1 = Enabled **When set to 0, the device enters read-only mode, and all Modbus write operations will be rejected. This setting cannot be reverted via Modbus. Write access must be restored through the web interface.**	0/1	1

Device Information (Input Registers)

Device information parameters can be read via Input Registers using Function Code 04. These registers are read-only.

Document Address	PDU Hex	Register Count	Data Type	Description
30001	0x0000	6	ASCII	Device MAC address (12 bytes, zero-padded)
30007	0x0006	10	ASCII	Device model (20 bytes, zero-padded)
30017	0x0010	32	ASCII	Device name (64 bytes, zero-padded)

Output Control (Coils)

The PRO-3PCT120 provides one dry contact relay output.

switch_id	Logical Address	PDU	PDU Hex	Description
0	00101	100	0x0064	Switch:0 — Dry Contact Output Control

Function Codes 01 (Read Coils), 05 (Write Single Coil), and 0F (Write Multiple Coils).
Write Value: `0xFF00` = ON, `0x0000` = OFF。

System Information (Input Registers)

Function Code 04 (Read Input Registers). Read-only.

Document Address	PDU Hex	Register Count	Data Type	Description	Unit
31001	0x03E8	2	uint32	Last Update Timestamp	UNIX
31003	0x03EA	1	bool	Phase A Loss	flag
31004	0x03EB	1	bool	Phase B Loss	flag
31005	0x03EC	1	bool	Phase C Loss	flag
31006	0x03ED	1	bool	Reserved	flag

31007	0x03EE	1	bool	Phase Sequence Error	flag
31008	0x03EF	2	float	Neutral Current	A
31010	0x03F1	1	bool	Reserved	flag
31011	0x03F2	1	bool	Reserved	flag
31012	0x03F3	2	float	Total Current (sum of phase currents)	A
31014	0x03F5	2	float	Total Active Power	W
31016	0x03F7	2	float	Total Apparent Power	VA
31018	0x03F9	3	—	Reserved	—

Real-Time Measurements (Input Registers)

Function Code 04 Read-only. Each phase uses 20 registers, including 5 reserved registers.

Phase A

Document Address	PDU Hex	Register Count	Data Type	Description	Unit
31021	0x03FC	2	float	Voltage	V
31023	0x03FE	2	float	Current	A
31025	0x0400	2	float	Active Power	W
31027	0x0402	2	float	Apparent Power	VA
31029	0x0404	2	float	Power Factor	—
31031	0x0406	1	bool	Overload Error	flag
31032	0x0407	1	bool	Overvoltage Error	flag

31033	0x0408	1	bool	Overcurrent Error	flag
31034	0x0409	2	float	Frequency	Hz
31036	0x040B	5	—	Reserved	—

Phase B

Document Address	PDU Hex	Register Count	Data Type	Description	Unit
31041	0x0410	2	float	Voltage	V
31043	0x0412	2	float	Current	A
31045	0x0414	2	float	Active Power	W
31047	0x0416	2	float	Apparent Power	VA
31049	0x0418	2	float	Power Factor	—
31051	0x041A	1	bool	Overload Error	flag
31052	0x041B	1	bool	Overvoltage Error	flag
31053	0x041C	1	bool	Overcurrent Error	flag
31054	0x041D	2	float	Frequency	Hz
31056	0x041F	5	—	Reserved	—

Phase C

Document Address	PDU Hex	Register Count	Data Type	Description	Unit
31061	0x0424	2	float	Voltage	V
31063	0x0426	2	float	Current	A
31065	0x0428	2	float	Active Power	W

31067	0x042A	2	float	Apparent Power	VA
31069	0x042C	2	float	Power Factor	—
31071	0x042E	1	bool	Overload Error	flag
31072	0x042F	1	bool	Overvoltage Error	flag
31073	0x0430	1	bool	Overcurrent Error	flag
31074	0x0431	2	float	Frequency	Hz
31076	0x0433	5	—	Reserved	—

Addresses 31080–31160 are undefined. Reading these registers may return invalid data. Do not read this address range from the host system.

Historical Data (Input Registers)

Function Code 04 Read-only.

Document Address	PDU Hex	Register Count	Data Type	Description	Unit
31161	0x0488	2	uint32	Last Update Timestamp	UNIX
31163	0x048A	2	float	Total Active Energy	Wh
31165	0x048C	2	float	Total Active Energy Returned	Wh
31167	0x048E	2	float	Phase A Total Active Energy	Wh
31169	0x0490	2	float	Phase A Total Active Energy Returned	Wh

31171	0x0492	2	float	Phase B Total Active Energy	Wh
31173	0x0494	2	float	Phase B Total Active Energy Returned	Wh
31175	0x0496	2	float	Phase C Total Active Energy	Wh
31177	0x0498	2	float	Phase C Total Active Energy Returned	Wh
31179	0x049A	22	—	Reserved (31179–31200)	—

EU Declaration of Conformity

Hereby, Shenzhen Sonoff Technologies Co., Ltd. declares that the radio equipment type

PRO-3PCT120 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: https://sonoff.tech/pages/compliance/

For CE Frequency

EU Operating Frequency Range:

Wi-Fi: 802.11 b/g/n20/ax20: 2412-2472 MHz, 802.11 n40: 2422-2462 MHz

BLE: 2402-2480 MHzz

EU Output Power:

Wi-Fi 2.4G≤20dBm

BLE≤10dBm

Under normal use of condition, this equipment should be kept a separation distance of at least 20 cm between the antenna and the body of the user.

WEEE Disposal and Recycling Information



WEEE Disposal and Recycling Information All products bearing this symbol are waste electrical and electronic equipment (WEEE as in directive 2012/19/EU) which should not be mixed with unsorted household waste. Instead, you should protect human health and the environment by handing over your waste equipment to a designated collection point for the recycling of waste electrical and electronic equipment, appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. Please contact the installer or local authorities for more information about the location as well as terms and conditions of such collection points.

Scatola	Scatola	Manuale	Neto	Neto
PAP 20	PAP 21	PAP 22	PAP 20	LDPE 4
Carta	Carta	Carta	Carta	Plastica
RACCOLTA DIFFERENZIATA				
Verifica le disposizioni del tuo Comune. Separa le componenti e conferiscile in modo corretto.				

Manufacturer: Shenzhen Sonoff Technologies Co., Ltd.

Address: 3F & 6F, Bldg A, No. 663, Bulong Rd, Shenzhen, Guangdong, 518000, China

Service email: support@itead.cc Website: sonoff.tech

Made in China

