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ET703-M 系列使用说明书
Instructions for the ET703-M series

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目录 Contents

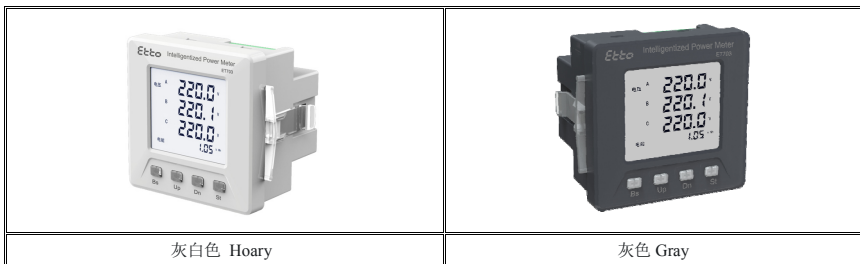
1. 概述 Overview.....	1
2. 技术指标 Technical specifications	1
3. 产品尺寸图及接线图示 Product size diagram and wiring diagram.....	5
4. 操作 Operate	7
5. 可编程参数设置 Setting of programmable parameters	7

1. 概述 Overview

ET703-M 系列智能表是一款集测量、监控、LCD 显示、数字通信于一体的多功能智能测控仪，可广泛应用于智能建筑、电力系统、低压配电、工业自动化、能源管理系统及自动化等领域。可测量如下参数：

ET703-M series smart meter is a multi-functional smart measurement and control meter ,measurement, monitoring, LCD display, digital communication. It can be widely used in intelligent building, power system, low-voltage distribution, industrial automation, energy management system ,automation and other fields. The following parameters can be measured:

- | | |
|--|---|
| <ul style="list-style-type: none"> ◇ 各相电流：
Each phase current; ◇ 各相相电压：
Phase voltage of each voltage; ◇ 各相及总有功功率：
Each phase and the total active power; ◇ 各相及总无功功率：
Each phase and the total reactive power; ◇ 各相及总视在功率：
Each phase and the total apparent power; ◇ 电压、电流 2~31 次谐波：
2~31 harmonics of voltage and current; | <ul style="list-style-type: none"> ◇ 各相及系统功率因数：
Power factor of each phase and the system; ◇ 电网频率：
Power grid frequency; ◇ 正向、反向、组合有功电能：
Forward, reverse and combined active energy; ◇ 四象限无功、组合无功 1、组合无功 2 电能：
Reactive, combined reactive 1,combined reactive2 of 4 quadrant energy; ◇ 2 路开关量检测，2 路继电器输出(选配功能)：
2 digital input detection, 2 relay output (optional function); |
|--|---|



2. 技术指标 (以下参数均以铭牌标注为准) Technical specifications (the following parameters are subject to the nameplate)

测量类型 Measuring type

- ◇ 测量: 适用于 3 相 4 线, 3 相 3 线电网
Measuring: Suitable for 3P4L, 3P3L power grid

电压(真有效值) Voltage (true effective value)

- ◇ 测量范围: AC20~400V
Measurement range: AC20~400V
- ◇ PT 变比: 1~5000
PT change ratio: 1~5000
- ◇ 输入功耗: <0.2VA
Input power consumption: <0.2VA
- ◇ 连续过载: 600V
Continuous overload: 600V

电流(真有效值) Current (true effective value)

- ◇ 测量范围(根据实际出货为准): AC0.05A~6A
Measurement range (according to the actual shipment): AC0.05A~6A
- ◇ CT 变比: 1~5000
CT change ratio: 1~5000
- ◇ 输入功耗: <0.5VA
Input power consumption: <0.5VA

频率 Frequency

- ◇ 测量范围: 45Hz~65Hz
Measurement range: 45Hz~65Hz

功率因数 Power factor

- ◇ 测量范围: -1.0~1.0
Measuring range: -1.0~1.0

开关量(选配功能) Digital quantity (optional function)

- ◇ 2DI: 光耦隔离\无源接点
2DI: optical isolation \ passive contact
- ◇ 2DO: 常开
2DO: often open
- ◇ 接点容量: AC250V, 5A (阻性); DC30V, 5A
Contact capacity: AC250V, 5A (resistance); DC30V, 5A
- ◇ 控制方式: 遥控或自控

Control mode: remote control or automatic control

- ◇ 输出方式: 电平或脉冲输出, 默认电平输出

Output mode: level or pulse output, the default level output

型号说明 Model introduction

- ◇ ET703-M1: 三相全电量+RS485

ET703-M1: three-phase full power+RS485

- ◇ ET703-M2: 三相全电量+RS485+2DI

ET703-M2: three-phase full power+RS485+2DI

- ◇ ET703-M3: 三相全电量+RS485+2DI+2DO

ET703-M3: Three-phase full power+RS485+2DI+2DO

电磁兼容 Electromagnetic compatibility

- ◇ 1.2/50-8/20us 浪涌: 电压/电流/电源/DO: 4kV, DI 输入/RS485 端口: 1kV

1.2 / 50-8 / 20us surge: voltage/current/power supply/DO: 4kV, DI input/RS485 port: 1kV

- ◇ 快速瞬变脉冲串: 通信端口: 2kV, 其它端口: 4kV

Fast transient pulse string: communication port: 2kV, other port: 4kV

- ◇ 静电放电: 接触放电: 6kV, 空气放电: 8kV

Electrostatic discharge: contact discharge: 6kV, air discharge: 8kV

辅助电源: AC85V~AC265V, 50/60Hz or DC100V~DC330V

Power supply: AC85V~AC265V, 50/60Hz or DC100V~DC330V

测量精度 Measurement accuracy

- ◇ 电流: 0.5 级

Current: 0.5 class

- ◇ 相电压: 0.5 级(20~300V)

Phase voltage: 0.5 class (20~300V)

- ◇ 线电压: 1 级(30~600V)

Line voltage: 1 class (30~600V)

- ◇ 功率: 0.5 级

Power: 0.5 class

- ◇ 功率因数: ± 0.02 (视在功率大于 6W)

Power factor: ± 0.02 (apparent power greater than 6W)

◇ 频率: $\pm 0.02\text{Hz}$ (45Hz~65Hz)
Frequency: $\pm 0.02\text{Hz}$ (45Hz~65Hz)

◇ 电能: 0.5S 级, 1 级
Electric energy: 0.5S class, 1 class

绝缘强度 Insulation strength

◇ 电压/电流/电源/DO 端口: 2kV (r.m.s) , 50Hz, 1min
Voltage/current/Power supply/DO port: 2kV (r.m.s) , 50Hz, 1min

◇ DI 输入/RS485 端口: 1kV (r.m.s) , 50Hz, 1min
DI input/RS485 port: 1kV (r.m.s) , 50Hz, 1min

工作条件 Operating condition

◇ 工作温度: $-10^{\circ}\text{C}\sim 50^{\circ}\text{C}$
Operating temperature: $-10^{\circ}\text{C}\sim 50^{\circ}\text{C}$

◇ 储存温度 $-40^{\circ}\text{C}\sim 70^{\circ}\text{C}$
Storage temperature: $-40^{\circ}\text{C}\sim 70^{\circ}\text{C}$

◇ 相对湿度: 20%~95%
Relative humidity: 20%~95%

通讯 Communication

◇ 接口: RS-485
Interface: RS-485

◇ 地址: 1~247
Address: 1~247

◇ 波特率: 1200/2400/4800/9600
Baud rate: 1200/2400/4800/9600

◇ 校验位: 奇/偶/无
Check bit: odd/even/none

◇ 数据位: 8bits
Data bit: 8bits

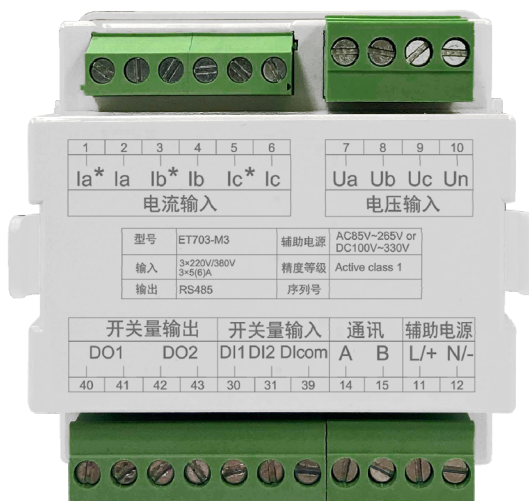
◇ 停止位: 1bits
Stop bit: 1bits

◇ 通讯协议: Modbus-RTU
Communication protocol: Modbus-RTU

3. 产品尺寸图及接线图示（单位：mm） Product size diagram and wiring diagram (unit: mm)

<p>长*宽*高 (72±0.5)mm*(72±0.5)mm*(56±0.5)mm L*W*H: (72±0.5)mm*(72±0.5)mm*(56±0.5)mm 底壳尺寸 (67.0±0.5)mm*(67.0±0.5)mm Bottom shell size: (67.0±0.5)mm*(67.0±0.5)mm</p>	<ol style="list-style-type: none"> 1) 将仪表安装到尺寸为 68±0.5mm×68±0.5mm 的开口。 1) Install the instrument to the opening hole of size 68±0.5mm×68±0.5mm. 2) 将仪表卸去安装插销, 从前向后推入盘面的安装孔。 2) Remove the instrument and push the mounting hole into the disk from the front and back. 3) 将安装插销顺着仪表两侧的插槽装上压紧。 3) Press the installation pin along the slots on both sides of the instrument.

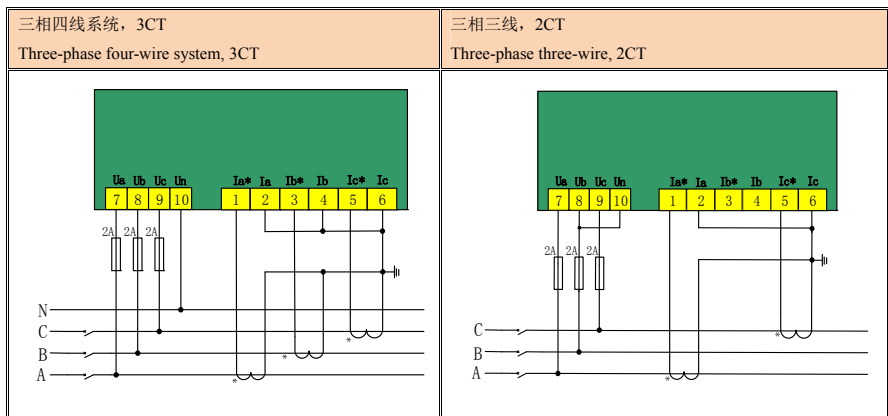
✧ 端子定义 Terminal Definition



电流输入	Current input	电压输入	Voltage input
型号	Model	辅助电源	Power supply
输入	Input	精度等级	Accuracy class
输出	Output	序列号	Order number
开关量输出	Digital output	开关量输入	Digital input
通讯	Communication		

端子号 Terminal number	端子定义 Terminal definition	注释 Note	端子号 Terminal number	端子定义 Terminal definition	注释 Note
1	Ia*	A 相电流流入 A Phase current input	40、41	DO1	第一路继电器输出 First-circuit relay output
2	Ia	A 相电流流出 A Phase current output	42、43	DO2	第二路继电器输出 Second-circuit relay output
3	Ib*	B 相电流流入 B Phase current input	30	DI1	第一路开关量输入 First-circuit digital input
4	Ib	B 相电流流出 B Phase current output	31	DI2	第二路开关量输入 Second-circuit digital input
5	Ic*	C 相电流流入 C Phase current input	39	DIcom	开关量输入公共端子 The common terminal of digital input
6	Ic	C 相电流流出 C Phase current output	14	A	RS485-A
7	Ua	A 相电压输入 A Phase voltage input	15	B	RS485-B
8	Ub	B 相电压输入 B Phase voltage input	11	L/+	交流电源火线/直流电源正极 Fire wiring of AC power supply / positive pole of DC power supply
9	Uc	C 相电压输入 C Phase voltage input	12	N/-	交流电源零线/直流电源负极 zero line of AC power supply / negative pole of DC power supply
10	Un	零线电压输入 Zero line voltage input			

◇ 电压电流接线 Voltage current wiring



◇ 安装现场 Installation site

仪表在初次安装时应作好以下工作，以保证维护尽可能方便。

The following work should be done in the first installation to ensure maintenance as convenient as possible.

1. PT 的二次侧不能短路；

The secondary side of PT cannot short circuit;

2. CT 的二次侧不能开路，在断开 CT 和监控回路连接时，将 CT 的二次侧短接；

The secondary side of the CT cannot open the road, and the secondary side of the CT when the CT is short connected;

3. 装置适用于各种三相系统，请仔细阅读本章节，以选择合适的接线方式；

The device is suitable for all three-phase systems, please read this chapter carefully to select the appropriate wiring mode;

4. 接入的电压，应在装置的额定电压范围以内；

The connected voltage shall be within the rated voltage range of the device;

5. PT 一次侧必须有断路器或熔断器提供保护；

The PT primary side must have a circuit breaker or a fuse to provide protection;

6. PT 和 CT 一次侧的励磁将在 PT 和 CT 二次侧电路产生较大的电压和电流，所以在安装仪表时一定要必要的安全措施，例如拆下 PT 的熔断器、短接 CT 二次侧。

Primary side excitation of PT and CT will generate large voltage and current in the PT and CT secondary side circuit, so necessary safety measures when installing the instrument, For example, remove the fuse of the PT and the secondary side of the short connection CT.

4. 操作 Operate

◇ 本仪表 4 个按键定义 Four key definitions

Bs	回到上一级画面，设置数据时：光标右移，在谐波显示画面进入分次谐波显示界面 Back to the upper level screen, when setting the data: the cursor moves right and enters the harmonic display interface in the harmonic display screen	Dn	画面向下切换；设置数据时：数值减 1 Switch down, set the data: data minus one
Up	画面向上切换；设置数据时：数值加 1 Picture switch up, set the data: data plus one	St	进入下一级画面；修改参数时：确认保存参数 Enter the next level screen, set the data: modify the confirmation or data confirmation

5. 可编程参数设置 Setting of programmable parameters

➢ 任意测量数据画面按“St”键一次，固定进入设置参数画面，通过按 Up 键和 Dn 键实现画面切换。

Press St key for any measurement data screen once, and enter the setting parameter screen firmly, and realize the screen switch by pressing Up keys and Dn keys.

➤ 按 St 键进入密码画面，若已经输入过密码则直接进入数字闪烁画面。

Press St to enter the password screen. If the password has been entered, enter the digital flashing screen directly.

显示字符 Display character	对应定义 Corresponding definition	数值范围 Range of value	显示字符 Display character	对应定义 Corresponding definition	数值范围 Range of value
Rddr	通讯地址 Communication address	1~247	595t 3P4L	接线方式 mode of connection	3P4L: 三相四线 3P4L: three-phase and four-wire lines 3P3L: 三相三线 3P3L: three phase and three lines
bRyd 9600 nonE	波特率, 校验位 Baud rate, check bit	1200, 2400, 4800, 9600, nonE: 无检验; EvEn: 偶检验; odd: 奇校验 1200, 2400, 4800, 9600, NonE: no test; EvEn: even test; odd: odd check	Clr-E 0000	清除电能 密码: 3366 Clear energy Password: 3366	/
Pt	电压变比 Voltage ratio	1~5000	Clr-d 0000	清除需量 密码: 3366 Clear demand Password: 3366	/
It	电流变比 Current ratio	1~5000	4Er 2000 t3	产品信息 Product information	/

注：以上图片仅供参考，产品以实物为准。

Note: The above pictures are for reference only, the products are subject to the actual product.

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