

MULTIS M-18 智能配电仪表
DIGITAL MULTIFUNCTION POWER METER



MULTIS M-18: ref.192J9060
Quickstart 551329

I. Introduction 产品概述

This document provides operating, maintenance and installation instructions of MULTIS M-18. The unit measures and displays the characteristics of 1P2W, 3P3W and 3P4W's application. It provides voltage, current, power, frequency, power factor, active energy, reactive energy, Imp.energy, Exp.energy, THD, IHD etc. It is a 1A or 5A CTs operated and configurable to work with a wide range of CTs. MULTIS M-18 is equipped with DI/DO function and provides RS485 communication interface. It is widely used in various monitoring systems, SCADA systems and energy management systems.

此手册为用户提供了MULTIS M-18 的操作, 维护和安装说明。MULTIS M-18测量并显示单、三相电网中的各种电力参数。测量电压, 电流, 功率, 频率, 功率因素, 有功电量, 无功电量, 正向电量, 反向电量, 总谐波失真, 分次谐波等。MULTIS M-18配置DI/DO功能, 提供RS485 通讯接口, 广泛应用于各种监控系统, SCADA 系统和能源管理系统。

2. Specifications 技术规格参数

2.1 General Specifications 技术规格

Voltage AC(Un) 额定电压	3x230/400VAC
Measurement Voltage Range 测量电压范围	50 to 600 Vac (L-L), 50 to 345 Vac (L-N)
Auxiliary Supply 辅助电源供电	85~275 V AC / 120~380V DC
Primary Current 一次侧电流	1~9999A
Second Current 二次侧电流	1A or 5A
Power Consumption 功耗	<2W/10VA
Frequency 频率	50/60Hz
AC voltage withstand 交流耐压	4KV/1分钟
Impulse Voltage Withstand 脉冲耐压	6KV~1.2uS
Over current withstand 短时过流	20Imax for 0.01s
Display 显示	LCD with white backlit LCD 带背光
Max. Reading 最大读数	9999999.9 kWh
Sampling Rate 采用频率	14.4kHz

2.2 Accuracy 精度

Voltage 电压	0.2%
Current 电流	0.2%
Frequency 频率	0.2%
Power factor 功率因素	1%
Active power 有功功率	0.5%
Reactive power 无功功率	1%
Apparent power 视在功率	1%
Active energy 有功电量	Class 0.5S IEC62053-22
Reactive energy 无功电量	Classs 2 IEC62053-23

2.3 Environment 环境

Operating temperature 工作温度	-25°C to +55°C
Storage and transportation temperature 存储温度	-40°C to +70°C
Relative humidity 湿度	0 to 95%
Altitude 使用海拔	2000m
Mechanical environment 机械环境等级	M1
Electromagnetic environment 电磁环境等级	E2
Degree of pollution 污染等级	2

2.4 Mechanics 机械参数

Dimensions 尺寸	96x96x70.3 (WxHxD)
Mounting 安装	Panel mounted 嵌入式 (面板安装)
Material 材质	Self-extinguishing UL94V-0自熄性材料
Terminal capacity current paths (Flexible):	1.5-2.5mm ²
电流端口接入线缆规格(推荐使用柔性):	1.5-2.5mm ²
Terminal capacity COM(Flexible):	0.5-2.5mm ²
通讯端口接入线缆规格(推荐使用柔性):	0.5-2.5mm ²
Max tightening torque 最大扭力:	0.4Nm

3. Display 显示

Initialization Display 初始化显示

When it is powered on, the meter will initialize and do self-checking. 正确接线后, 接通电源, 该仪表将初始化显示并做自检。

	Full screen 全屏显示 It will last for 3 seconds.持续3秒
	Software version 软件版本号, 以实际显示版本号为准
	Self-test passes 表自检通过

4. Button Function 按键功能

Buttons 按键	Click 点击	Press 2s 长按2秒
	- Displays power, voltage, current and energy information of each phase 查看每相功率, 电压, 电量信息 - Exit from the menu 设置模式下, 退出菜单	Automatic Scroll display ON/OFF 自动轮显开启/关闭
	- Display Voltage and current information of the selected system type. (3p4w, 3p3w and 1p2w) 查看所选线网的电压, 电流信息 - Phase sequence 查看相序 - Left side move 设置模式下, 向左(移动光标) 按键	Individual Harmonic Distortion of Voltage up to 63rd 电压分次谐波(最多到63次)
	- Display power factor, frequency, Max. Demand. 查看功率因素, 频率, 最大需量 - Max. and Min. of current and voltage 电压、电流的最大, 最小值 - Up page or add value 设置模式下, 向上(或者增大数值)按键	Individual Harmonic Distortion of Current up to 63rd 电流分次谐波(最多到63次)
	- Display active power, reactive power and apparent power information of the selected system type. 查看有功功率, 无功功率, 视在功率 - Down page or reduce value 设置模式下, 向下(或者减小数值)按键	- Running hour 查看运行时间 - Full Screen checking 查看全屏 - Modbus setting information 设置模式 Modbus 设置信息
	- Display total / import / export active and reactive energy information of the selected system type / multi-tariff energy / date / time. 查看有功电量(总/正/反)和无功电量(总/正/反)/复费率电量/日期/时间 - Right side move 设置模式下为向右(移动光标)按键	- Set-up mode entry 进入设置模式 - Confirmation 确认

Setting by button 按键设置

To get into Set-up Mode, the user needs to press the "Enter " button for 2 seconds. Below parameters can be set via the buttons.

通过长按此按键2秒进入设置模式, 可设置以下参数:

Main Screen		
Possword Entry		
COMS (Communication)	- Add (Address) Entry Value between (001-247) - baud (Baud rate) Select from(bps) 2400/4800/9600/19200/38400 - Parl (Parity) Select from none/odd/even - Stop(stop bit) Select from 1 or 2	
CT(System Configuration)	- CT2 Select from (1A or 5A) - CT1 Entry rate Value between 1-9999A	
PT(System Configuration)	- PT2 Entry Secondary Voltage between (50~600) - PT1 Entry PT Ratio Value between 50-600000	
DMD(Demand)	- DMD MeHd(demand method) Select from sliding / fixed - dIT (demand Interval Time) Select from 1~60 / OFF - Slid Time (Sliding time)	
Time	- Back Lit(backlight) Select from(minutes) 120/60/30/10/5/ON/OFF - dISP SCrl (display scrol) Select from 1~255s - SYS RTC(real time clock) Date YYYY-MM-DD Time HH-MM-SS - TRFF TIME(tariff / time segment) Time HH-MM-SS	
SyS (System Configuration)	- Sys type(system type) Select from 3P4/3P3/1P2 - Sys COCt(system connect) - Ph-1(Phase1) Select from Frd/rEv(forward/reverse) - Ph-2(Phase2) Select from Frd/rEv(forward/reverse) - Ph-3(Phase3) Select from Frd/rEv(forward/reverse) - Password(Change Password) Entry password between 0000~9999 (default 1000) - Auto Disp Scrl Select from ON/OFF	
DI (Digital Input)	- DIFLTR (DI Filter Time) - DICNT (DI Count)	
DO (Digital Output)	- ALAR (Alarm Setting) - DELY (DO Action Delay Time) - HC/HO/LC/LO Value Setting	
SOE (Sequence of Event)	30 SOE and Happen Time	
rEST (Reset)	Select from ALL/Engy/dmd/Max.Min/ SOE/DI CNT	

5. Communication 通讯

5.1 RS485 output for Modbus RTU RS485 Modbus 通讯

The meter provides a RS485 port for remote communication. Modbus RTU is the protocol applied. For Modbus RTU, the following RS485 communication parameters can be configured by Modbus or from the Set-up menu.

MULTIS M-18 配备1路RS485 通讯口，可通过Modbus RTU 实现远程通讯。通讯参数可通过Modbus 通讯设置或者按键菜单设置。

Baud rate 波特率: 2400, 4800, 9600, 19200, 38400bps

Parity 校验位: NONE/EVEN/ODD

Stop bits 停止位: 1 or 2

Modbus Address 表地址: 1 to 247

6. Maintenance 保养

In normal use, little maintenance is needed. As appropriate for service conditions, isolate electrical power, inspect the unit and remove any dust or other foreign material present. If necessary wipe the rear case with a dry cloth. If a cleaning agent is necessary, isopropyl alcohol is the only recommended agent and should be used sparingly. Water should not be used. If the rear case exterior or terminals should be contaminated accidentally with water, the unit must be thoroughly dried before further use.

在正常使用中，几乎不需要维护。根据使用条件，隔离电源，检查设备并清除任何灰尘或其他异物。如有必要，请用干布擦拭后壳。如果需要清洁剂，则异丙醇是唯一推荐的清洁剂，应谨慎使用。请勿使用水。如果后壳体的外部或端子意外被水污染，则在进一步使用前必须将其彻底干燥。

7. Battery Replacement 电池更换

The meter provides multi tariffs and RTC, it has a 3V DC battery as backup power supply. In theory, the lifespan is around 9 years. The real lifespan will be depends on the real application. When the battery voltage is lower than 2.4V DC, the meter LCD will shows warningsymbol  . The user needs to replace the battery with a new one.

该仪表提供复费率功能和实时时钟，它有3V DC电池作为备用电源。理论上，电池使用寿命约为9年，实际寿命已实际应为准。当电池电压低于2.4V DC时，仪表LCD上将显示警告符号，此时用户需要更换新电池。



When you replace the battery, please make sure the meter's voltage input must be disconnected.

更换电池时，为了您的安全，请确保电压输入必须是断开的。

8. Installation 安装

8.1 Safety instruction 安全提示

Information for your own safety 为了您的安全，请认真阅读以下信息

This manual does not contain all of the safety measures for operation of the equipment(module,device),because special operating conditions, and local code requirements or regulations may necessitate further measures.

However, it does contain information which must be read for your personal safety and to avoid material damages. This information is highlighted by a warning triangle and is represented as follows, depending on the degree of potential danger.

本手册不包含所有设备(模块、设备)操作的安全措施。因为特殊的操作条件和地方法规要求或法规可能需要进一步的措施。然而，为了您的安全及避免设备人为损坏，请认真阅读相关信息。



Warning 警告

This means that failure to observe the instruction can result in death, serious injury or considerable material damage. 不遵守指令可能会导致死亡，严重伤害或相当大的材料损坏。



Caution 注意安全

This means hazard of electric shock and failure to take the necessary safety precautions will result in death, serious injury or considerable material damage. 电击的危险及未能采取必要的安全预防措施，可能导致死亡、严重伤害或相当大的材料损坏。

8.2 Qualified personnel 授权操作人员

Operation of the equipment (module, device) described in this manual may only be performed by qualified personnel. Qualified personnel in this manual means person who are authorized to commission, start up, ground and label devices, systems and circuits according to safety and Regulatory standards. 本手册所描述的设备(模块、设备)的操作运行只能由合格人员进行操作。本手册中的合格人员指经授权人员，具有专业的教育背景，技术经验，熟知重要行为准则和条例，有能力判断自己的职责并能够清楚的提前认识到可能发生的危险。

8.3 Proper handling 正确处理

The equipment (device, module) may only be used for the application specified in the catalogue and the user manual, and only be connected with devices and components recommended and approved by SOCOMEC. MULTIS M-18只能应用于该用户手册及产品彩页规定的应用环境中，且是由SOCOMEC 推荐和认可的设备中使用。

♦ Use only insulating tools. 必须使用绝缘工具。

♦ Place the meter only in dry surroundings, do not mount the meter in an explosive area or expose the meter to dust, mildew and insects. 将仪表放置在干燥环境中。不要将仪表安装在易燃易爆区或者将仪表暴露在多尘，多霉，多虫环境中。

♦ Make sure the used wires are suitable for the maximum current of this meter. 确保使用的电线适合该仪表的最大电流负载。

♦ Make sure the AC wires are connected correctly before activating the current/voltage to the meter. 在上电使用前，确认电压、电流接线正确。

♦ Do not touch the meter connecting clamps directly with your bare hands, with metal, blank wire or other material as you may get an electrical shock. 不要直接用裸露的手去操作安装，触碰金属，电线或其他材料，避免触电。

♦ Make sure the protection cover is placed after installation. Installation, maintenance and reparation should only be done by qualified personnel. 确保安装后安装保护罩。安装、维修只能由合格人员操作完成。

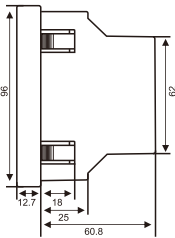
♦ Never break the seals and open the front cover as this might influence the functionality of the meter, and will avoid any warranty. 不要破坏铅封和拆开电表。如果擅自破坏铅封和拆开电表，该表将不再享受质保服务。

♦ Do not drop, or allow physical impact to the meter as there are high precision components inside that may break. 搬运、安装过程中谨慎细心，谨防跌落，抛掷，以免表内部器件因物理撞击受损。

Before proceeding with the implementing, mounting, commissioning, configuration, cleaning, decommissioning, dismantling, wiring or maintenance operations, the product and the installation must be powered off. However, specific instructions for a product may allow live intervention under certain conditions, means, qualifications and authorizations. The product is not to be repaired by the user.

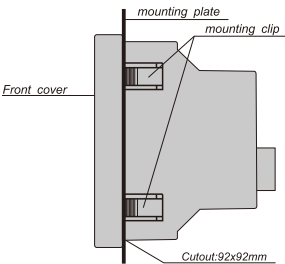
在进行实施、安装、调试、配置、清洗、拆卸、布线或维护操作之前，产品安装必须断电。对某种产品的特定说明可能允许在某些条件、手段、资格和授权下进行现场干预。本产品不允许用户擅自拆卸维修。

9. Dimensions 尺寸

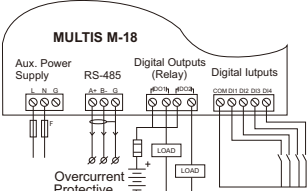


Cutout:92x92 Unit:mm

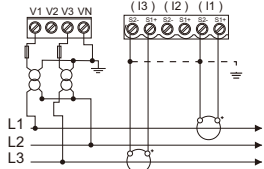
9.1 Mounting 安装



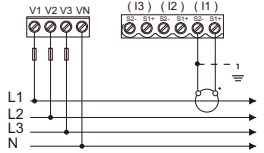
9.2 Wiring diagram 接线图



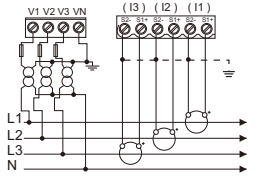
RS485/DI/DO



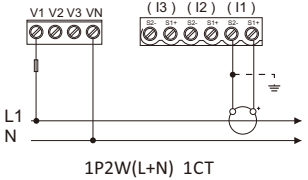
3P3W 2PTs 2CTs



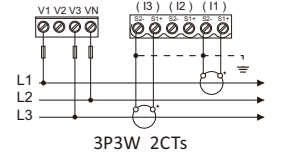
3P4W 1CT Balance load



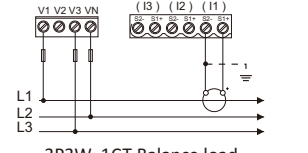
3P4W 3PTs 3CTs



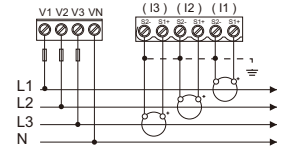
1P2W(L+N) 1CT



3P3W 2CTs



3P3W 1CT Balance load



3P4W 3CTs



Please scan the left QR code for detailed MODBUS Protocol. 扫一扫左边的二维码，获取MODBUS通讯协议。

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