

出口电能表产品技术需求表

订单号: W20181022Y01 (P18-019) 国别: 菲律宾 客户: PH01 版本号: V01.00

数量: 6 交货日期: 2018-11-30 产品类型: 整机 制单日期: 2018-10-22

产品基本参数

名称: 单相三线液晶圆表

客户型号:

内部型号:

线制: 1P3W

产品标准: ANSI

频率: 60Hz

电流: CL200

有功常数imp/kWh: 1000

有功精度: CA0.5

电压: 240V

无功常数imp/kvarh: 无

无功精度: 无

产品功能配置表

电能计量: ☒有功 ☐反向单计 ☐无功四象限 ☐分相计量 ☒计量方式可设 单相产品需量测量: ☒有功 需量计算方式: ☒可配置 ☐手动复位 ☒累计最大需量

瞬时量测量: P+U+I+PF+Hz

瞬时量测量备注:

月结算: 12个月

月结算备注: 结算日可设置

TOU: 4费率

☐周表☐公共假日☐副表

TOU备注:

RTC: 硬时钟

☐温补☐测试输出

RTC备注:

事件记录: 日志+1类+2类

事件记录备注: 日志+单独设计各20次

负荷曲线: 4通道

容量说明: 5分钟, 60天

负荷曲线备注:

通讯方式: TTL-UART+IR

通讯规约: IEC62056-21

通讯备注:

显示: 段码LCD

整数位数: 5

小数位数: 1

☐背光☐OBIS码☒停电显示☐按键显示

显示备注: 显示位数可设, 默认5位整, 下排默认功率

防窃电: 无

旁路启动电流: 无

☒开上盖☐开尾盖

防窃电备注:

预付费: 无

安全机制: 无

预付费备注:

产品其他相关要求

主电源: 变压器电源

后备电源: 柱状锂电池

整机功耗: IEC标准

继电器: 无

电流采样器件: 抗直流CT采样

接线方式: ANSI S

☒电池可更换☒IP54☒金属挂攀

表壳材料: PC

表壳尺寸要求:

上盖材料: PC全透明

☐可铅封编程按键

端钮盒材料: PC+FG

端子孔径: 美标圆表

电流线固定方式: 拔插式固定

电压连接钩: 无

端钮盖材料: 无

☐长尾盖☐接线槽

表壳密封方式: 美标圆表

☐铅封帽

电流螺钉材质+镀层要求:

铅封螺钉材质+镀层要求:

铭牌材质: 无铭牌

条码要求: 无要求

包装要求:

市场部备注信息


具体其他需求详见附件。

结构由于要有光口和需量清零按钮, 所以要用三相圆表新开的结构。

编制/日期: 周英文/2018-10-22

审核/日期: 沈学良/2018-10-22


批准/日期: 2018-10-22

	MERALCO METERING SERVICES ASSET MANAGEMENT		
Title	Technical Data Sheet		Doc. Code: TDS-1xxFA-R1
Subject	Meter, Single-Phase, FM2S, 3W Electronic w/ Demand		Date: April 3, 2018

Supplier:
Brand & Type:
Country of Origin:

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		616902 MERALCO REQUIREMENT	600407 MERALCO REQUIREMENT	VENDOR'S BID
I.	General			
1	Meter Form	ANSI Form 2S (3-wire L-L socket-mounted) 单相三线FORM2S	ANSI Form 2S (3-wire L-L socket-mounted)	
1.1	Type Approval	Meter shall have a Type Approval Certificate issued by Energy Regulatory Commission (ERC) and shall be submitted to MERALCO.	Meter shall have a Type Approval Certificate issued by Energy Regulatory Commission (ERC) and shall be submitted to MERALCO.	
2	Current Class (CL)	200 amps (CL200)	200 amps (CL200)	
3	Voltage			
3.1	Nominal System Voltage 标准系统电压	To be used in single-phase, 230 volts, Line-to-Line 单相240V 线对线电压	To be used in single-phase, 230 volts, Line-to-Line	
3.2	Rated Voltage 标称电压	240 volts Line-to-Line	240 volts Line-to-Line	
3.3	Maximum Voltage 最大电压	276 volts Line-to-Line or higher (please specify true max)	276 volts Line-to-Line or higher (please specify true max)	
3.4	Minimum Voltage 最小电压	196 volts Line-to-Line or lower (please specify true min)	196 volts Line-to-Line or lower (please specify true min)	
4	Frequency频率	60 Hz (±5%)	60 Hz (±5%)	
5	Test Ampere (TA)测试电流	30 amps (TA30)	30 amps (TA30)	
6	Accuracy			
6.1	Class Accuracy (CA) 精度	0.5% or below (CL0.5). Accuracy shall also be true to all Meralco defined test points.	0.5% or below (CL0.5). Accuracy shall also be true to all Meralco defined test points.	
6.2	Starting Current启动电流	50 mA or lower	50 mA or lower	
6.3	Current Sensor Response 电流互感器线性	Shall be linear from starting current up to its rated maximum current over randomly selected points.	Shall be linear from starting current up to its rated maximum current over randomly selected points.	
7	Application 应用	Outdoor 户外	Outdoor	
II.	Construction			
1	Display 显示			
1.1	Solid State Type Display 液晶显示	Shall be Industrial grade LCD, configured in 5-digit (leading zeroes) and direct reading (5x1). Minimum digit height of 11mm. With electronic load indicator. 工业级液晶，设置成5位整，前面的0需要显示。最小字高11mm，带电流方向指示	Shall be Industrial grade LCD, configured in 5-digit (leading zeroes) and direct reading (5x1). Minimum digit height of 11mm. With electronic load indicator.	
1.2	Viewing Requirements 可视角度要求	The display shall be readable at ±30 degrees vertical viewing angle from a distance of at least 5 meters length without the aid of external visual amplification devices. 在5m的距离垂直方向最少±30度	The display shall be readable at ±30 degrees vertical viewing angle from a distance of at least 5 meters length without the aid of external visual amplification devices.	

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1.3	Display Time of Measurable Quantities 显示时间	Shall be configurable to display kWh registration only without flashing the “all segment display”. The software and procedure to perform this requirement shall be provided to Meralco. 直接显示电量，不需要全屏轮显	Shall be configurable to display kWh registration only without flashing the “all segment display”. The software and procedure to perform this requirement shall be provided to Meralco.	
1.4	Status and Error Display 状态故障显示	Meter shall be capable of displaying status and error messages.表应该提供状态故障显示	Meter shall be capable of displaying status and error messages.	
1.5	Unit of Measurement 单位显示	Meter shall be able to indicate unit of measurement and the symbols for different TOU rates (if TOU is available). 电表应该能够指示显示量的单位，包括费率指示	Meter shall be able to indicate unit of measurement and the symbols for different TOU rates (if TOU is available).	
1.6	"Always-On" Display	N/A 掉电显示按照现有的产品	N/A	
1.7	Display Tilt	N/A 显示倾斜不需要	N/A	
2	Nameplate 铭牌			
2.1	Material	Shall be durable and will remain legible when exposed to sunlight. For sticker type nameplate, it shall use industrial grade adhesive that will not peel off on a typical field condition.	Shall be durable and will remain legible when exposed to sunlight. For sticker type nameplate, it shall use industrial grade adhesive that will not peel off on a typical field condition.	
2.2	Color	Regular black&white	Regular black&white	
2.3	Basic Information	Basic information shall also be printed in the nameplate: - Meter Form - Number of Wires - Current Class - Rated Voltage - Frequency - Test Amperes (TA) - Meter Internal Connection Diagram - Watthour Meter Constant (Kh) - Watthour Meter Test Constant (Kt) - Manufacturer's Name/Trademark - Manufacturer's Type	Basic information shall also be printed in the nameplate: - Meter Form - Number of Wires - Current Class - Rated Voltage - Frequency - Test Amperes (TA) - Meter Internal Connection Diagram - Watthour Meter Constant (Kh) - Watthour Meter Test Constant (Kt) - Manufacturer's Name/Trademark - Manufacturer's Type	
2.4	Manufacturer's Number	Printed and barcoded using code 39 or 128 without special characters e.g. asterisks.	Printed and barcoded using code 39 or 128 without special characters e.g. asterisks.	
2.5	Meralco Number	Printed and barcoded using code 39 or 128 without special characters e.g. asterisks. It shall also be printed sequentially with the Manufacturer's number. (Meralco number will be provided upon purchase order).	Printed and barcoded using code 39 or 128 without special characters e.g. asterisks. It shall also be printed sequentially with the Manufacturer's number. (Meralco number will be provided upon purchase order).	

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2.6	Meralco Logo	With Meralco logo or name printed on the nameplate (or other approved equivalent labelling or marking). Meter face or circuit board cover may be marked with Meralco logo as well.	With Meralco logo or name printed on the nameplate (or other approved equivalent labelling or marking). Meter face or circuit board cover may be marked with Meralco logo as well.	
3	Baseplate	Shall be made of thermoplastic or high engineering tough plastic with excellent dielectric properties. Shall be durable and shall not show signs of cracking overtime and/or when dropped at a height of 1 meter	Shall be made of thermoplastic or high engineering tough plastic with excellent dielectric properties. Shall be durable and shall not show signs of cracking overtime and/or when dropped at a height of 1 meter	
4	Meter Cover			
4.1	Material	SLX or other approved equivalent.	SLX or other approved equivalent. Shall conform to TDS-PMC-Rx.	
4.2	UV Protection	With UV protection that will not experience discoloration (yellowish) when exposed in outdoor installations within five (5) years	With UV protection that will not experience discoloration (yellowish) when exposed in outdoor installations within five (5) years	
4.3	Markings	Brand and date manufactured shall be marked on the rim of the meter cover.	Brand and date manufactured shall be marked on the rim of the meter cover.	
4.4	Spare Cover	Spare meter covers shall be provided, at least 5% of the total quantity to be purchased (or whatever quantity specified in the pre-bid document).	N/A	#N/A
5	Ports 通讯口			
5.1	Optical Port 光口通讯	ANSI Type 2 optical port. Optically isolated communication for calibration, programming and functionalities upgrade (ANSI C12.18 compliant). 符合ANSI标准的光口通讯	ANSI Type 2 optical port. Optically isolated communication for calibration, programming and functionalities upgrade (ANSI C12.18 compliant).	
5.2	RS-232	N/A	N/A	
6	Sealing Provision 铅封			
6.1	Meter Cover Seal 表盖铅封	With facilities for sealing the cover to the base.	With facilities for sealing the cover to the base.	
6.2	Demand Reset Lever Seal 需量铅封	With facilities for sealing the demand resetter lever.	N/A	New mold need to design demand reset button
6.3	Other Option 其他选项	N/A	N/A	
7	Operating Temperature 工作温度	Meter shall be designed for +85 degree centigrade operating temperature (under cover) and 95% relative humidity (non-condensing).	Meter shall be designed for +85 degree centigrade operating temperature (under cover) and 95% relative humidity (non-condensing).	
8	Mechanical Sturdiness 机械强度	Shall be able to withstand mechanical vibrations during shipment and transport (particularly the LCD module should not be affected).	Shall be able to withstand mechanical vibrations during shipment and transport (particularly the LCD module should not be affected).	

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9	Life Expectancy 预期寿命	Designed for 20+ years life (in consideration of meralco service area's external conditions)	Designed for 20+ years life (in consideration of meralco service area's external conditions)	
10	Failure Rate 故障率	Offered model shall have a failure rate of less than 0.75% (specifically required in the MER-GMS-Rx document), with reference to the latest performance data of the previous deliveries as reported on MSAM's Monthly Monitoring Report	Offered model shall have a failure rate of less than 0.75% (specifically required in the MER-GMS-Rx document), with reference to the latest performance data of the previous deliveries as reported on MSAM's Monthly Monitoring Report	
11	Power Indicator 功率指示	N/A	N/A	
III.	Electrical Parameters			
1	Current Coil 互感器	Shall use single piece current coil.	Shall use single piece current coil.	
2	Potential Test Link 电压连接钩	Without potential test link. 不需要电压连接钩	Without potential test link.	
3	Power Supply 供电	Shall not utilize series dropping capacitor that can be affected by transient surges. 要用变压器	Shall not utilize series dropping capacitor that can be affected by transient surges.	
3.1	Neutral Connection 零线连接	Meter shall remain energized even the when the neutral or ground connection is unstable or not present. 零线或者地线连接不稳定或者未连接时表正常工作	Meter shall remain energized even the when the neutral or ground connection is unstable or not present.	
4	Battery 电池	Shall use Lithium Thionyl Chloride for functionality requiring time and data maintenance especially during outages. Spare batteries shall also be provided, at least 10% of the total tendered quantity (or whatever quantity specified in the pre-bid document). 采用锂电池	N/A	Already have battery in our current design
5	Surge withstand capability 浪涌	10kV minimum	10kV minimum	
6	Effects of DC current 直流分量	Shall be protected against the effects of DC currents (based on IEC 61036 or equivalent). 按61036标准抗直流分量	Shall be protected against the effects of DC currents (based on IEC 61036 or equivalent).	
7	Harmonics 谐波	Shall operate reliably under electrical conditions with significant harmonics. 不受谐波干扰正常工作	Shall operate reliably under electrical conditions with significant harmonics.	
8	Effects of Radio Frequency 无线电干扰	Shall not be affected against radio frequency in the range of 800-870Mhz with at least 5 watts power. Meter shall not be affected (no unacceptable response) when radio is operated at close contact with it at repeated intervals. If RF shielding is an option, shielding shall be made of one-piece material and must be factory installed.	Shall not be affected against radio frequency in the range of 800-870Mhz with at least 5 watts power. Meter shall not be affected (no unacceptable response) when radio is operated at close contact with it at repeated intervals. If RF shielding is an option, shielding shall be made of one-piece material and must be factory installed.	

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9	Effects of ESD/EMI ESD/EMI干扰	Shall not be affected (e.g., displays error message, freezes display, loses display, or any other response that gives the impression that the meter is no longer reliable) over ESD/EMI influence 不受干扰	Shall not be affected (e.g., displays error message, freezes display, loses display, or any other response that gives the impression that the meter is no longer reliable) over ESD/EMI influence	
10	Total Burden, W 功耗	(please specify)	(please specify)	
IV.	Measurement & Data			
1	Memory 内存	Non-volatile and can accurately retain data even when the back-up battery is already consumed. Memory size shall be suitable to store at least 60 days worth of data. (please specify size of memory, MB). 非易失性存储器	Non-volatile and can accurately retain data for not less than six (6) months that the meter has no power.	
2	Metrology 计量	Shall use digital conversion and multiplication measurement. 用数字转换模式	Shall use digital conversion and multiplication measurement.	
3	Data Tables 数据表	ANSI C12.19 compliant. 符合ANSI C12.19	ANSI C12.19 compliant.	

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4	Measurable Quantities 计量值	Meter shall be capable of measuring, storing and displaying at least: - kWh, received and delivered 有功正反向单独计量 - kWh, received plus delivered 有功正+反（绝对值和） - kWh, received minus delivered (net) 有功正-反（代数和） - kWh, received only 有功正 - kWh, delivered only 有功反 - kW, received & delivered (block & rolling) 需量 - Cumulative kW, received & delivered	Meter shall be capable of measuring, storing and displaying at least: - kWh, received & delivered	Extra measuring quantities
5	Default Registration Configuration 默认设置	The factory pre-set configuration for kWh registration shall be DELIVERED+RECEIVED. 出厂默认设置电量为有功正+反（绝对值和）	The factory pre-set configuration for kWh registration shall be DELIVERED+RECEIVED.	
6	Meter Test Constant (Kh) 电表常数	Programmable 可配置	Programmable	
7	Meter Multiplier 倍数	N/A	N/A	
8	Pulse Output 脉冲输出	Preferably infrared and proportional to the programmed meter test constant (kh). LED脉冲灯	Preferably infrared and proportional to the programmed meter test constant (kh).	
9	Register Reset 电量清零	Meter shall have the capability to reset the billing registers, preferably through the optical port. 电表提供电量清零功能，最好是通过光口	Meter shall have the capability to reset the billing registers, preferably through the optical port.	
10	Time-of-Use 分时费率	Shall be TOU capable with at least 4 rate buckets + 1 total for all energy and power parameters including cumulative demand data. 最少提供1个总电量和4个分时电量以及需量 - Rate A: kWh received (wk. day peak) - Rate B: kWh received (wk. day off-peak) - Rate C: kWh received (wk. end peak) - Rate D: kWh received (wk. end off-peak)	N/A	4 tariffs
11	Load Profile 负荷曲线	Shall be capable of recording at least 4 channels of load profile data of 5 minute interval for a minimum if 60 days before enforcing FIFO process. 最少4通道负荷曲线，5分钟间隔，记录60天	N/A	Memory size 607.5K 1M Flash
12	Self-Read 结算	Programmable to store and display at least 4 self-reads or autoread of billing parameters on a user-selected time and day of the month, or daily, without resetting to zero the kW demand registered values without employing seasons change. 记录最少4个结算数据，可配置的结算日	N/A	
V.	Advance Requirements			
1	Software 软件	Latest version of Application Programming Interfaces (API) used for the meter shall be provided to Meralco free of charge. 免费提供配套软件	Latest version of Application Programming Interfaces (API) used for the meter shall be provided to Meralco free of charge.	
2	Watchdog Timer 看门狗	Meter shall have a watch dog timer. 电表具备软件看门狗	Meter shall have a watch dog timer.	
3	Meter Clock 时钟		N/A	
3.1	Clock Type 时钟类型	Shall utilize a time reference crystal oscillator component at ambient temperature range of 30-40 degrees centigrade at relative humidity of 50-100 non-condensing.硬时钟	N/A	Ok


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3.2	Time Drift 时钟漂移	Maximum allowable error drift is 20 ppm (not more than 60 seconds total drift per month). 20ppm 不超过每个月60s	N/A	ok
3.3	Time Synchronization 时钟同步	N/A	N/A	
4	Event Log 事件记录	Meter shall be capable of logging events in its history. Logs shall include but not limited to: 电表最少应记录以下事件 - power events 电力事件 - power quality events 电能质量事件 - alarms 告警事件	N/A	Extra Memory
4.1	Power Events 电力事件	(please specify if any) 上下电?	N/A	
4.2	Power Quality 电能质量事件			
	i.) Voltage Sag 电压跌落	(please specify range if available)	N/A	
	ii.) Voltage Swell 电压骤升	(please specify range if available)	N/A	
	iii.) Undervoltage 低电压	(please specify range if available)	N/A	
	iv.) Overvoltage 过电压	(please specify range if available)	N/A	
4.3	Tamper Detection 防窃电			
	i.) Meter Cover Removal 开盖	(please specify if available)	N/A	Design new mold
	ii.) Tilt 倾斜?	(please specify if available)	N/A	what's the meaning
	iii.) Magnetic Field Detection 磁场检测	(please specify if available)	N/A	Could be designed
	iv.) Loadside Voltage Detection 负荷侧电压检测	(please specify if available)	N/A	what's the meaning
5	Service Type Detection	N/A	N/A	
VI.	Communication			
1	Communication Module	N/A	N/A	
1.1	Type Approval			
2	Communication of Meter to AMI Device	N/A	N/A	
3	Meralco MDCS Integration	N/A	N/A	
4	Remote Firmware Upgrades & Configuration	N/A	N/A	
VII.	Service Disconnect/Reconnect			
1	Switch	N/A	N/A	
2	Switch Status Indicator	N/A	N/A	
3	Load Limiter	N/A	N/A	
4	Switching with Loadside Voltage Present	N/A	N/A	


REMARKS:

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REVISION HISTORY:

1	July 29, 2013	Creation of Technical Data Sheet. Successor of MER-1xxFA-R5. Resequenced requirements and reformatted template for uniformity with other TDS. Additional requirement for Polycarbonate Meter Cover, II - 4.3 to 4.4.	Birth of Technical Data Sheet. Successor of MER-1xxBA-R6. Resequenced requirements and reformatted template for uniformity with other TDS. Additional requirement for Polycarbonate Meter Cover, II - 4.3 to 4.4.
2	April 3, 2018	Added requirement 1.1, modified I-3, I-6.3, II-4.4, II-6.3, III-4, IV-1, IV-4, IV-10 to 12, V-1, and V-4.	Added requirement 1.1, modified I-3, I-6.3, II-4.4, II-6.3, V-1, and V-4.