DFUN



# DIN Rail Energy Meter

## IoT, DC, AC, Multi-Channel

DFUN (ZHUHAI) CO., LTD.



DFUN (ZHUHAI) CO., LTD was established in April 2013, located in Zhuhai. Regional office distributed in Beijing, Jiangxi, Nanjing, Guangzhou & Shenzhen. DFUN Technology inherits the concept of quality oriented & serviceprioritized, we provide comprehensive hardware & software solutions for Energy Meter, Multi-channel Meter, IoT Meter, BTS solution to our esteemed customers all over the world.

## OUR WORKSHOP








# DFUN TECH

With an international professional sales network, DFUN products have been widely used in international markets, such as Germany, Turkey, Russia, Thailand, Malaysia, Vietnam, India, Indonesia, Israel, Saudi Arabia, Mexico, Canada, Chile, Peru, Colombia, Brazil, Morocco, Africa…

To ensure the quality of products, services and environmental protection requirements, DFUN Technology implements the criteria of ISO9001, ISO14001, etc.

DFUN Technology will keep following with the new solutions & offer the best solutions for our customers. We listen carefully to our partners and strive to offer a diverse, comprehensive and effective solution.


ISO9001


ISO14001


CE


ROSH


TTL

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# DIN Rail Energy Meter

Chapter 1

DFPM90 Single Channle DC Energy Meter

DFPM902 Dual Channles DC  Energy Meter

DFPM91 Single Phase AC Energy Meter

DFPM93 Three Phase AC Energy Meter

# DFPM90 Single Channel DC Energy Meter

## Function



- Applied to DC power supply, EV charger, telecom site
- Real-time measure one circuit DC voltage, current, power, kWh
- High accuracy: Class 0.5S
- One LED indicate pulse output
- RS485 port, MODBUS-RTU or DL/T645 protocol (optional)
- 35mm DIN rail installing, standard DIN ED5002
- Shunt: 100A, 150A, 200A, 300A, 400A, 500A, 600A

## Technical Specification

| | |
|---|---|
| **Power supply** | 9 ~ 36VDC |
| **Rated voltage DC** | 2 ~ 1000VDC |
| **Rated current DC** | 100A, 150A, 200A, 300A, 400A, 500A, 600A, Max. 2000A |
| **Shunt** | Rated voltage: 75mV, accuracy: Class 0.2 |
| **Starting current** | 0.002Ib |
| **Pulse output** | 1 channel, pulse constant: 1000imp/kWh |
| **Power comsumption** | ≤1W |
| **Communication** | RS485 port<br>MODBUS-RTU or DL/T645-2007 (Settable) |
| | Address: 1 ~ 247 |
| | Baud rate: 2400, 4800, 9600, 19200bps |
| **IP index** | IP20 |

| | | |
|---|---|---|
| **Dimension (L*W*H)** | 100*36*65mm (2 moudule) | |
| **Power frequency withstand voltage** | 3000VAC | |
| **Insulation resistance** | ≥100MΩ | |
| **Impulse voltage** | 6000V | |
| **Environment** | Operating temperature: -20℃~ 55 ℃<br>Limit temperature: -25℃~ 70 ℃<br>Storage temperature: -30℃~ 80 ℃<br>Humidity: < 95% | |
| **EMC standard** | Electrostatic discharge immunity test | IEC61000-4, Level 4 |
| | RF electromagnetic field immunity test | IEC61000-3, Level 4 |
| | Electrical fast transient immunity test | IEC61000-4, Level 4 |
| | Surge immunity test | IEC61000-4, Level 4 |
| | Injected current immunity test | IEC61000-4, Level 4 |
| | Conducted emission | EN55022, Class B |
| | Radiated emission | EN55022, Class B |

| Parameter | Measurement range | Accuracy |
|---|---|---|
| **Voltage** | 2 ~ 1000VDC | 0.2% |
| **Current** | 1% ~ 120% of rated | 0.2% |
| **Power** | 2 ~ 400kW | 0.5% |
| **Energy** | 0 ~ 999999.999kWh | Class 0.5S |

## Order Information

**DFPM90**—P—①

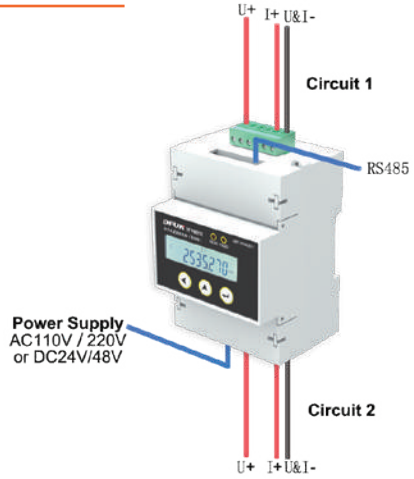
| | |
|---|---|
| **A1** | 100A Shunt |
| **A2** | 150A Shunt |
| **A3** | 200A Shunt |
| **A4** | 300A Shunt |
| **A5** | 400A Shunt |
| **A6** | 500A Shunt |
| **A7** | 600A Shunt |

**For example:** DFPM90-P-A1 indicates the device provides with basic function and pulse output,100A shunt, MODBUS-RTU communication protocol.

**Note:** Default pulse output function, MODBUS-RTU protocol, baudrate 9600bps, settable for DL/T645-2007 protocol.

# DFPM902 Dual Channels DC Energy Meter

## Function




- Applied to DC power supply, EV charger
- High accuracy measurement with Class 0.5
- Support active energy measurement, historical energy statistics, daily energy freeze, multi-tariff energy etc.
- Real-time measre 2 channels U, I, P, kWh (positive side & reverse side)
- Dual channals positive & reverse measurement of active energy
- 6+3 digits LCD display (999999.999)
- With 12 months energy data storage, latest 1 month daily energy freeze and latest 10 event records
- 2 electric pulse output and 1 light pulse output. Comply with DIN43864 standard
- One RS485, support MODBUS, DL/T645-2007 communication protocol

## Technical Specification

| | | | |
|---|---|---|---|
| **Measuring voltage** | 0 ~ 1000V | **Accuracy** | Class 0.5 |
| **Measuring current** | 100A/75mV、200A/75mV | **Pulse output** | 50imp/kWh, 100imp/kWh, 200imp/kWh (settable) |
| | 300A/75mV、400A/75mV | | |
| | 500A/75mV | **Indicator light** | LED |
| **Power supply** | 110VAC or 220V, 24VDC or 48VDC (optional) | **Display** | LCD display (999999.999) |
| **Power comsumption** | Measuring voltage circuit < 0.5VA<br>Measuring current circuit < 0.1VA | **Working condiction** | Working temperature: -25℃~ 55℃ |
| | | | Storage temperature: -40℃~ 70℃ |
| | Auxiliary power supply < 2W or < 2VA | | Humidity: 5%~95%, no condensation |
| **Insulation property** | | Power frequency AC voltage: 4.4kV, impluse voltage: 6kV | |
| **Electrostatic discharge immunit test** | | IEC61000-4-2, Level 4 | |
| **RF electromagnetic field immunity test** | | IEC61000-4-3, Level 3 | |
| **Electrical fast transient immunity test** | | IEC61000-4-4, Level 4 | |
| **Surge immunity test** | | IEC61000-4-5, Level 4 | |
| **Conducted emission** | | EN55022, Class B | |
| **Radiated emission** | | EN55022, Class B | |

## Order Information

**DFPM902**—①—②

| | | |
|---|---|---|
| **Measuring current** | **A1** | 100A/75mV |
| | **A2** | 200A/75mV |
| | **A3** | 300A/75mV |
| | **A4** | 400A/75mV |
| | **A5** | 500A/75mV |
| **Power supply** | **P1** | DC 24V / 48V |
| | **P2** | AC 110V / 220V |

**For example:** DFPM902-A3-P1 indicates 300A/75mV measurement current, 1000V measurement voltage, and 24VDC power source.

# DFPM91 Single Phase AC Energy Meter

## Function



- Applied to 110V, 120V, 220V, 230V, 240V AC low voltage system
- Measure U, I, P, Q, S, PF, kWh, kvarh, LCD display U, I, P, kWh
- 6+1 digits LCD display (999999.9 kWh)
- LED indicates pulse output
- Password protection
- One key for up/down page, one key for programming
- Small size:100*36*65mm
- RS485 port，MODBUS-RTU or DL/T645 protocol (selectable)
- 35mm DIN rail installation, standard DIN ED5002
- Standard: IEC62053-21

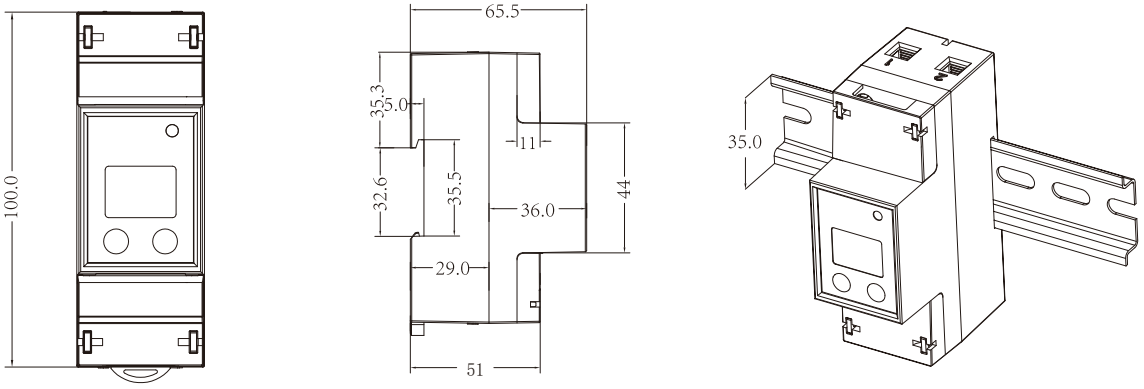
## Technical Specification

| | |
|---|---|
| **Display** | 6+1 digits LCD display (999999.9kWh) |
| **Accuracy** | kWh Class1.0 |
| **Rated voltage** | AC 230Vph-N or 110Vph-N (optional) |
| | Range: 0.8Un ~ 1.2Un |
| **Rated (Max.) current** | 5(63)A |
| **Starting current** | 0.4%Ib |
| **Power consumption** | < 2W |
| **Frequency** | 50Hz / 60Hz (optional) |
| **Measuring voltage** | 7mmx7mm (16mm²) |

| | |
|---|---|
| **Pulse output** | 1 channel |
| **Communication** | RS485 port, MODBUS-RTU or DL/T 645 communication protocol |
| | Address: 1 ~ 247 |
| | Baud rate: 2400, 4800, 9600bps (default) |
| **Creeping** | Anti-creeping logic design |
| **Dimension (L*W*H)** | 100*36*65mm (2 module) |
| **Weight** | 200g |
| **Environment** | Operating temperature: - 20℃~ 55℃<br>Storage temperature: -25℃~ 70℃<br>Humidity: 5% ~ 95%, non-condensing |

## Dimension

Unit: mm




## Order Information

**DFPM91**—①—②

| | |
|---|---|
| **V1**<br>**V2** | 220V (Direct) (Suit for 220, 230,240VAC ph-N)<br>110V (Direct) (Suit for 110,120VAC ph-N) |
| **50**<br>**60** | 50Hz<br>60Hz |

**For example:** DFPM91-V1-50, which indicates the device providing one RS485, one pulse output, rated input voltage 230Vac, frequency 50Hz, rated current 5(63)A.

# DFPM93 Three Phase AC Energy Meter

## Function




- Applied to 110V, 120V, 220V, 230V, 240V AC low voltage system
- 7+1 digits LCD display (9999999.9 kWh)
- Measure U, I, P, Q, S, PF, F, kWh, kvarh, Multi-tariff energy value
- Record freeze energy for per 15 min/day
- kWh accuracy: 5(6)A Class0.5S, 5(63)A Class1.0
- Support over-voltage timing, under-voltage timing, over-load timing function
- 2 LED indicates pulse (settable for kWh or kvarh)
- LCD display prompt for phase sequence error
- 3 keys for programming 35mm DIN rail installation, standard DIN ED5002
- One RS485 port, MODBUS or DL/T645 protocol (selectable)
- Standard: IEC62053-21/23
- Record historical energy for latest 31 days, latest 12 months

## Technical Specification

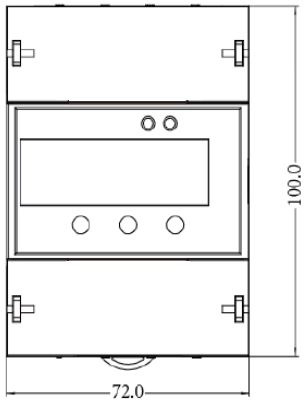
| | |
|---|---|
| **Rated current** | Direct: 5(63)A<br>Or 5(6)A via CT |
| **Rated voltage** | AC220Vph-N or 120V ph-N (optional) |
| **Frequency** | 50/60Hz (optional), range: 47 ~ 65Hz |
| **Power consumption** | < 2W |
| **Power supply** | Self supply (note: RS485 won't work, when connect 1 phase)<br>For 220VAC (L-N), range: 184 ~ 276VAC<br>For 120VAC(L-N), range: 96 ~ 144VAC |
| **Communication** | RS485 serial, MODBUS-RTU or DL/T645 protocol<br>Baud rate: 2400, 4800, 9600<br>Address: 1~247 |
| **Environment** | Operating temperature: -20℃~ 55℃<br>Storaget emperature: -40℃~ 70℃<br>Humidity: 5% ~ 95%, non-condensing |

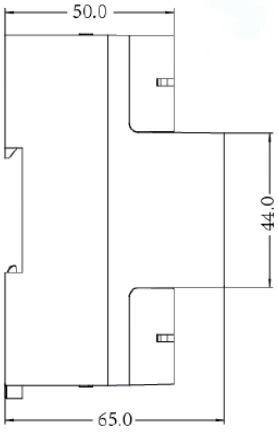
| | |
|---|---|
| **Connection mode** | 3P4W |
| **Pulse output** | 2 channels (settable for kWh or kvarh) |
| **Starting current** | 0.4%Ib (direct connect), 0.2%Ib (via CT) |
| **AC voltage tests** | 4kV |
| **Accuracy** | kWh accuracy: Class 0.5S or Class 1.0 |
| **Pulse constant** | 400imp/kWh for 5(63)A<br>6400imp/kWh for 5(6)A |
| **Dimension** | 72*100*65mm (4 module) |
| **Wire diameters** | 7mmx7mm (16mm²) |
| **Standard (EMC)** | Electrostatic discharge immunity test IEC61000-4-2, Level 4<br>Radiated immunity test IEC61000-4-3, Level 3<br>Electrical fast transient/burst immunity test IEC61000-4-4, Level 4<br>Surge immunity test (1, 2/50μs~8/20μs) IEC61000-4-5, Level4<br>Conducted emission EN55022, Class B<br>Radiated emission EN55022, Class B |

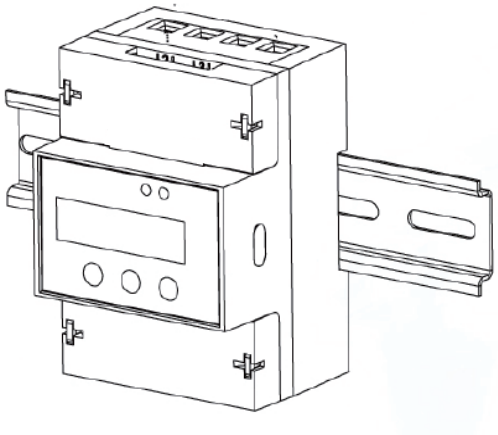
| | Parameter | Accuracy | Resolution | Meauring range |
|---|---|---|---|---|
| Display data, can also be read via MODBUS | Voltage | 0.5% | 0.01V | For 220VAC (L-N), range:184 ~ 276VAC<br>For 120VAC (L-N), range:96 ~ 144V |
| | Current | 0.5% | 0.001A | Direct: 5(63), via CT: 5(6)A |
| | Active power | 0.5% | 0.1W | 0 ~ 1MW |
| | Power factor | 0.5% | 0.001 | -1.000 ~ 1.000 |
| | Frequency | 0.01 | 0.01Hz | 47 ~ 65Hz |
| | Active energy | Class 1 for 5(63)A | 0.1kWh | 0 ~ 9999999.9kWh |
| | | Class 0.5s for 5(6)A | | |
| | Reactive energy | Class 2 | 0.1kvarh | 0 ~ 9999999.9 kvarh |
| Only can be read via MODBUS | Reactive power | 1.0% | 0.1var | 0 ~ 1Mvar |
| | Apparent power | 0.5% | 0.1VA | 0 ~ 1MVA |

## Dimension & Installation

Unit: mm



## Order Information

**DFPM93**—①—②—③

**Rated input current (Max.)**

**Rated input voltage**

**Frequency**

| | |
|---|---|
| **63**<br>**5** | 5(63)A direct (class 1.0)<br>5(6)A via CT (class 0.5s) |
| **V1**<br>**V2** | 220V/380V (Direct) (Suit for 220, 230,240VAC ph-N)<br>120V/207V (Direct) (Suit for 110,120VAC ph-N) |
| **50**<br>**60** | 50Hz<br>60Hz |

**For example:** DFPM93-63-V1-50 indicates the device providing basic function, accuracy class 1, rated current is 5(63)A, TOU (Multi-tariff) function and rated voltage input is 220/380V, 50Hz.




# IoT Power Meter

Chapter 2

DFPM971 IoT Multifunction Power Meter

# DFPM971 IoT Multifunction Power Meter

## Feature

**Combine measuring and electricity monitoring into one**

- Full parameter measuring and power quality monitoring
- Measure and alarm for residual current and cable temperature

**Reliable data transfer**

- 7 days data cache & retransmit
- 10 sec. keep working to posting POWER-OFF alarm
- 1 sec. real-time data upload

**Multiple communication protocol**

- 4G / LoRa / RS485

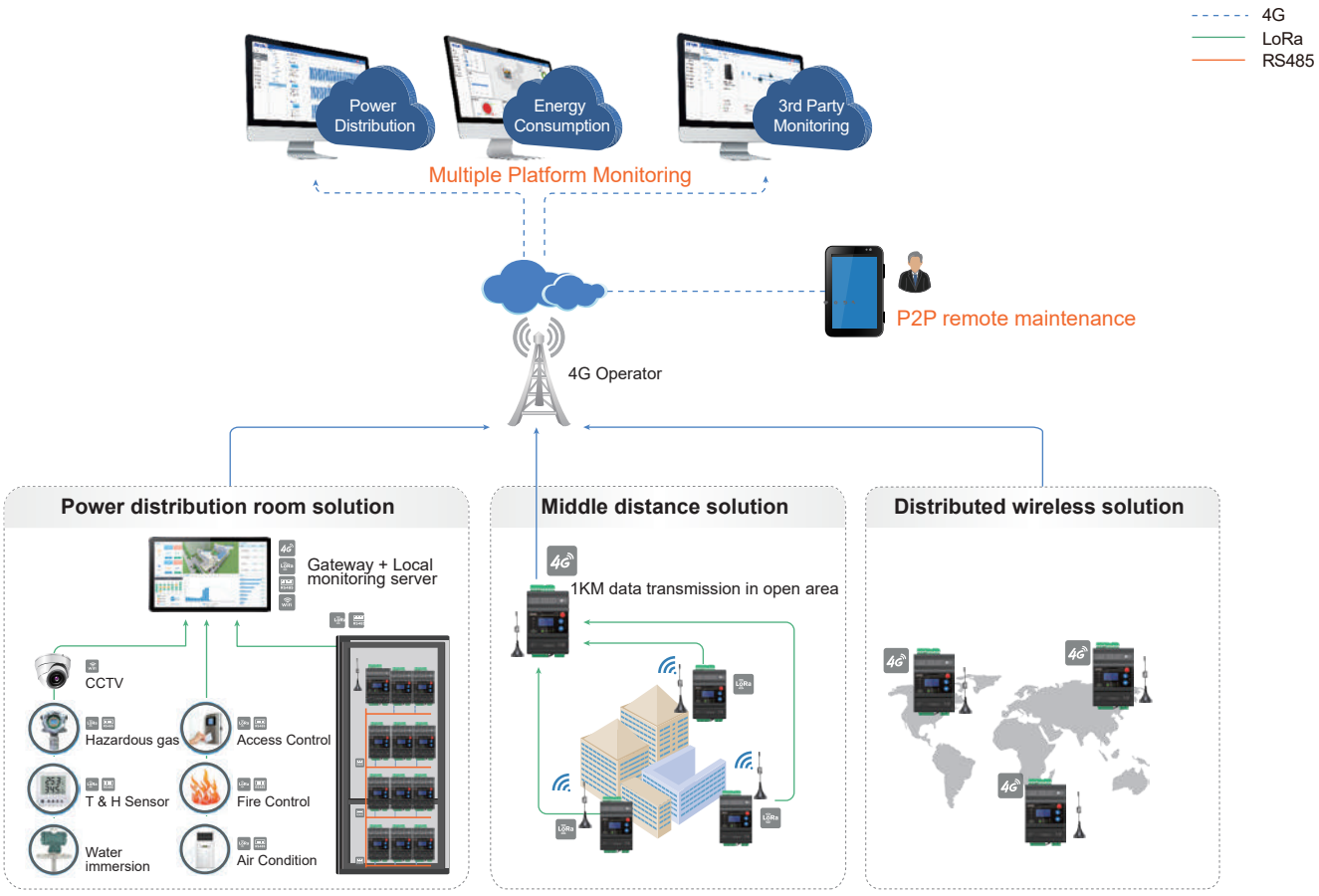
**Remote support and engineering simplification**

- P2P remote configuration & free maintenance
- Phase-sequence auto adjustment
- Split core CT for easy installtion




Meter + Gateway
ALL IN ONE

## System Structure



# DFPM971 IoT Multifunction Power Meter

## Function

### Measurememt

- voltage, current, active power, reactive power, apparent power, power factor, frequency, active energy, reactive energy, apparent energy, voltage and current phase angle, cable temperature, residual current, switch detection
- Latest 10 years, 12 months, 31 days historical energy

### Communication

- Standard 1 RS485 and 1 infrared communication
- 4G / LoRa optional, support Modbus, Http, Mqtt communication etc, support Modbus-RTU and Modbus-TCP, register is definable
- Support break-point transfer

### Power quality analysis

Three phase voltage/current, 63rd harmonic analysis, voltage/current unbalance

### Demand calculation

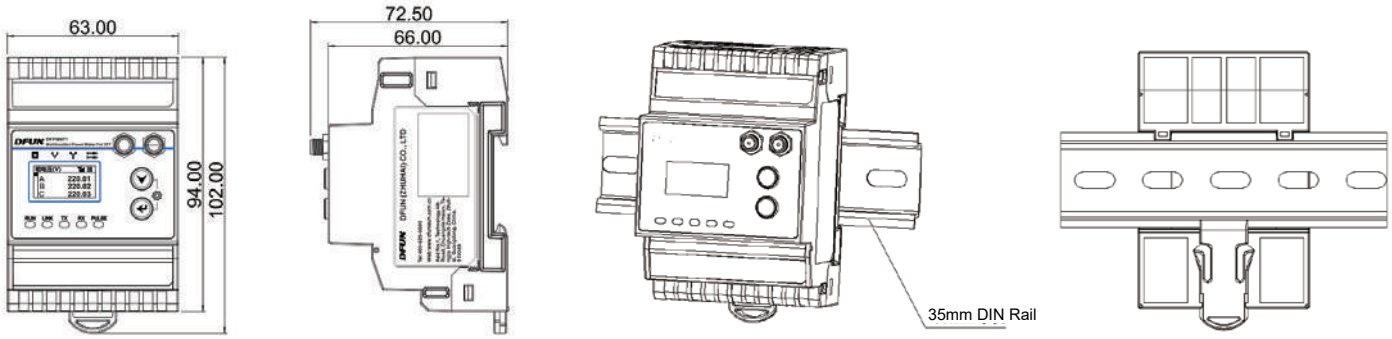
- Maximum and real-time demand of power and current
- Real-time demand, daily and monthly max. demand

### Setpoint alarm

Support alarming of over-voltage, under-voltage, over-current, under-current, lost phase, power over limit, over temperature, leakage current and power failure with SOE time record.

## Dimension & Installation

Unit: mm




## Technical Specification

| | |
|---|---|
| **Power supply** | 85 ~ 265VAC / 100 ~ 300VDC |
| **Rated current** | 5A (external split core CT), 100A (external split core CT), 1A / 5A (internal solid core CT) |
| **Rated voltage** | 3x57.7/100V, 3x220/380V |
| **Digital input** | Wet contact, external power supply: 220V, when＜60V, open, when＞140V, closed, Max. Input: 300V |
| **Connection mode** | 3 Phase 4 Wire |
| | 3 Phase 3 Wire |
| **LTE wireless communication** | LTE-FDD B1/B3/B5/B8 |
| | LTE-FDD B34/B38/B39/B40/B41 |

| | |
|---|---|
| **Residual current** | 1 x 0-8000mA |
| **Cable temperature** | 4 x 0-150℃ |
| **LoRa** | 470-510MHz, 1kM open area |
| **RS485** | 1200-57600bps |
| **Break-point transfer** | 7 days data cache (1 sampling point / 5min.) |
| **Break-point transfer** | Operation temperature: -25℃~ 55℃<br>Storage temperature: -40℃~ 70℃<br>Operation humidity: 5% ~ 95%, non-condensing |

| | | |
|---|---|---|
| **EMC standard** | Electrostatic discharge immunity test | IEC61000-4-2, Level 4 |
| | RF electromagnetic field immunity test | IEC61000-4-3, Level 3 |
| | Electrical fast transient immunity test | IEC61000-4-4, Level 4 |
| | Surge immunity test | IEC61000-4-5, Level 4 |
| | Injected current immunity test | IEC61000-4-6, Level 4 |
| | Electromagnetic emission limit | CISPR22: 2006 |
| | Voltage sag and short-time interruption Immunity test | Passed |

| Parameter | Measurement range | Accuracy |
|---|---|---|
| **Voltage** | Phase voltage: 10V ~ 400V<br>Line voltage: 10V ~ 500V | 0.2% |
| **Primary voltage** | Max. 1000kV | -- |
| **Current** | 15mA ~ 6.5A | 0.2% |
| **Primary current** | Max. 100000A | -- |
| **Frequency** | 40 ~ 65Hz | 0.1% |
| **Active energy** | 0 ~ 99999999.9 kWh | 0.5% |
| **Reactive energy** | 0 ~ 99999999.9 kvarh | 2% |
| **Active power** | Single phase: 0 ~ ±9999MW/Mvar<br>Total: 0 ~ ±9999MW/Mvar | 0.5% |
| **Reactive power** | | 1.0% |
| **Harmonic ratio** | 0% ~ 100% | B Level |

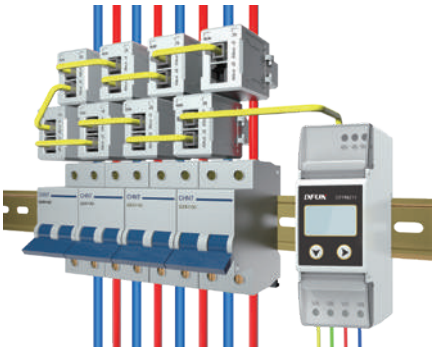
## Current Transformer

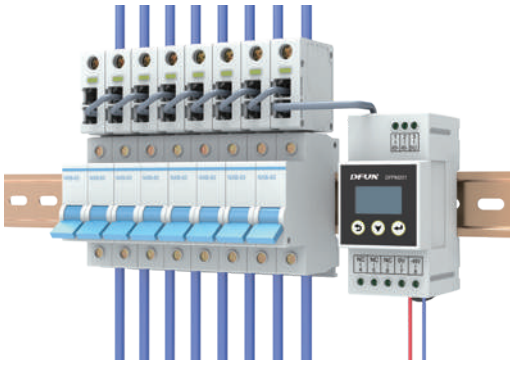
| Model | | Typical connecting scheme | Description |
|---|---|---|---|
| CTO |  |  | Mainbody + 3 unit 5A split core CT, the CTs will be hang on the exsited xxxA/5A cables for current signal collection. |
| CTO100A | |  | Mainbody + 3 unit 100A split core CT, the CTs will be hang on the load cables for current signal collection. |
| CTC | - |  | Applied to additional large CT of 5A access scheme, Internal solid core CT converter, suitable for xxxA/5A model CT connection. |

## Order Information

**DFPM971**—①—②—③

| | |
|---|---|
| **Extension** | T —— 4 channels cable temperature measurement |
| **CT** | CTO —— 3 unit 5A split core CT<br>CTO100A —— 3 unit 100A split core CT<br>CTC —— Internal solid core CT converter |
| **Communication** | RS485 —— 1 x RS485<br>LoRa —— LoRa, RS4845<br>4G —— LTE (4G), RS485<br>All —— LTE (4G), LoRa, RS485 |





# Multi-Channel Energy Meter

Chapter 3

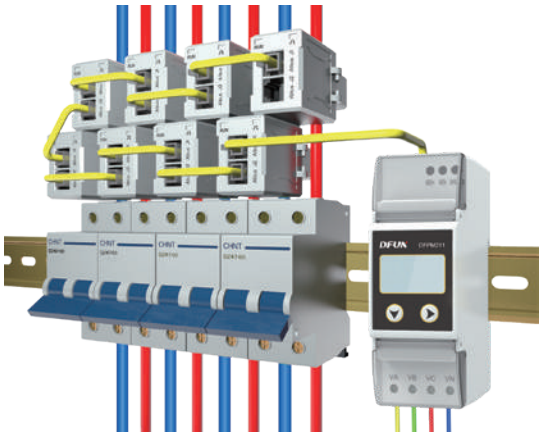
DFPM211 Multi-Channel AC Energy Meter

DFPM201 Multi-Channel DC Energy Meter

# DFPM211 Multi-Channel AC Energy Meter

## Feature

- **Application** - Telecoms site energy management, data center
- **Small size** - Can be installed at the closest point, integrate in existing space-constrained installations
- **Ultra-compact design** - Consists of control unit and current sensors (with RJ12 port, split core)
- **Wide measurement range** - Max. support 60A
- **Multi circuit** - Support 45 single phase circuit or 15 three phase circuit AC measuring
- **High accuracy** - Voltage & current class 0.5s, kWh class 1.0
- **Multi network type** - 1P2W or 3P4W



## Function

**Real-time measurement**

- Voltage, current, active power, reactive power, power factor, frequency

**Energy consumption**

- Active energy, reactive energy

**Alarm function**

- Overload, under load, over current, sensor fault

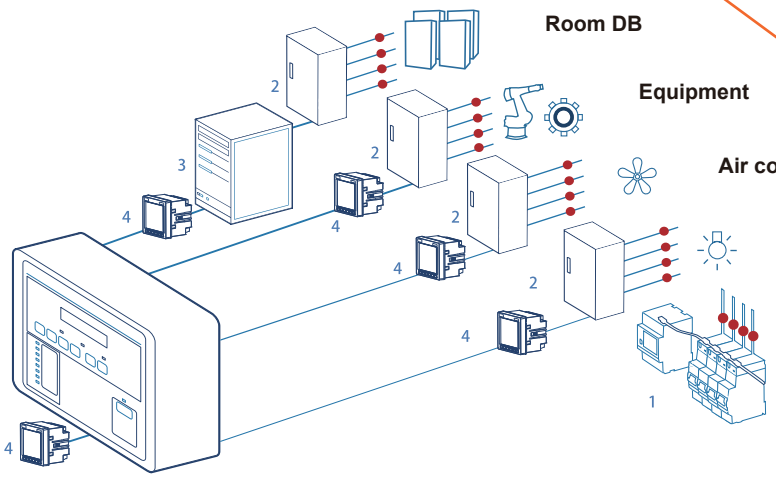
**Communication**

- 1RS485 port, MODBUS-RTU protocol

**Optional function**

- Temperature measur (4 channels)
- Leakage current measure (1 channel)

## Typical Connection




**Compare with traditional Din rail energy meter**

- Saving 50% installation space
- Saving 50% installation hour
- Saving 50% system debug time

**Description**

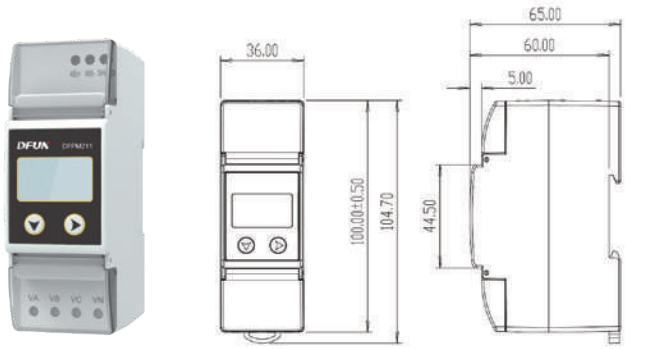
- DFPM211 (● measurement point)
- Branching cabinet
- UPS
- DFUN energy meter

## DFPM211 & Accessories

### DFPM211-M: Main Module

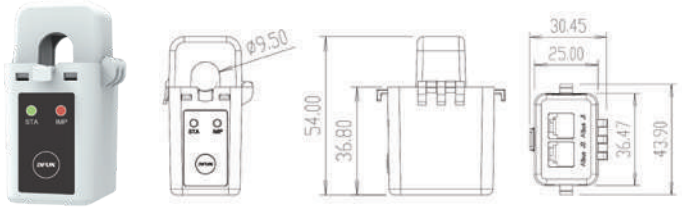
| | | |
|---|---|---|
| **Connection mode** | 1P2W or 3P4W | |
| **Power supply** | Self-supply, by A phase | |
| **Voltage input** | 1P2W | 220V<br>Range: 85%-120% |
| | 3P4W | 3x220/380V<br>Range: 85%-120% |
| **Frequency** | 45 ~ 65Hz | |
| **Power consumption** | ≤5W | |
| **Communication** | RS485 serial, support Modbus-RTU<br>Baud rate: 4800, 9600, 19200, 38400bps<br>Address: 1 ~ 247 | |

Unit: mm




### CTO: Split Core Sensor

| | |
|---|---|
| **Connection mode** | Bus connection (2 x RJ12 port) |
| **Rated current input** | 10(60)A |
| **Installtion** | Split core |
| **Open hole** | Φ 9.5mm |
| **Sampling rate** | 28k Hz |




| Parameter | Accuracy | Measuring range |
|---|---|---|
| **Voltage** | 0.5% | 85% ~ 120% |
| **Current** | 0.5% | 0-60A, 1% ~ 120% |
| **Power factor** | 1.0% | -1 ~ 1 |
| **Active power** | 0.5% | Single phase: 0 ~ ±16kW/kvar<br>Total:0 ~ ±48kW/kvar |
| **Reactive power** | 2.0% | |
| **Apparent power** | 2.0% | |
| **Active energy** | 1.0% | 0 ~ 9999999.9 kWh |
| **Reactive energy** | 2.0% | 0 ~ 9999999.9 kVarh |
| **Frequency** | 0.01 | 45 ~ 65Hz |

## Environment & Standard

| | |
|---|---|
| **Power frequency withstand voltage** | 2000VAC |
| **Insulation resistance** | ≥100MΩ |
| **Impulse withstand voltage** | 6kV(peak) |
| **IP index** | IP20 |

| | |
|---|---|
| **Environment** | Normal operating temperature: -25℃~ 55℃<br>Limit temperature: -25℃~ 70℃<br>Storage temperature: -30℃~ 80℃<br>Humidity: <95%, non-condensing |

| **Standard (EMC)** | |
|---|---|
| • Electrostatic discharge immunity test IEC61000-4-2, Level 4<br>• Radiated radio-frequency electromagnetic field immunity (RFEMS) IEC61000-4-3, Level4<br>• Electrical fast transient test IEC61000-4-4, Level4<br>• Surge immunity test (1,2/50μs ~ 8/20μ) IEC61000-4-5, Level4 | • Conduction disturbance rejection of radio frequency field induction IEC61000-4-6, Level3<br>• Electromagnetic emission limits CISPR22: 2006, Pass<br>• Voltage sag and short time interrup timmunity IEC61000-4-11, Pass<br>• Power frequency withstand voltage IEC 62052-11 2003 |

## Solution

**DFPM211 Measure Sensor**



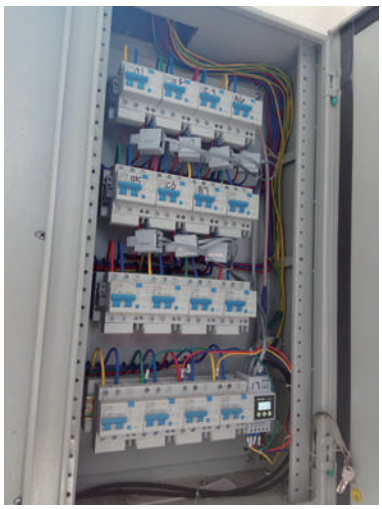
**CTO**
Split Core Sensor

+

**DFPM211 Controller**



**DFPM211-M**
Main Module



## Order Information

| Module | Order code | Description |
|---|---|---|
| **Main module** | **DFPM211- M** | Suitable for 1P/2W & 3P/4W |
| **Measure module** | **CTO** | Split core sensor: 10(60)A, Φ9.5mm, class 1.0 |
| **Optional module** | **T** | Temperature measur (4 channels) |
| | **LC** | Leakage current measure (1 channel) |

**For example:** DFPM211-M + 20pcs CTO indicates 1pcs DFPM211 main module and 20pcs CTO split core sensor.

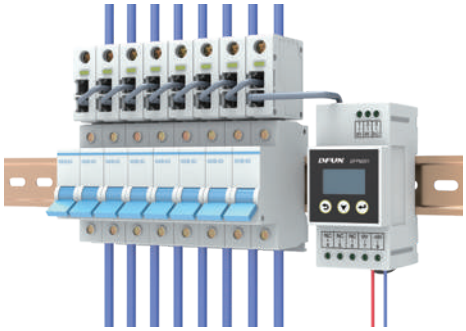
**Note:**

1. Standard 30cm RJ12 line (from main module to measure module) and 6cm RJ12 line (for connect each measure module), please mention for special requirement. Max. length from main module to the end measure module is 3m.

# DFPM201 Multi-Channel DC Energy Meter

## Feature

- **-48VDC application** - Telecom site billing system, DC load management
- **Small size** - Can be install at the closest point, integrate in existing space
- **Easy installation** - Consist of main module and measur module, connected by PLbus daisy chain bus topology and RJ12 port, measure module straight insert into the circuit breaker
- **High accuracy** - Voltage & current class 0.5s, kWh class 1.0
- **Wide measurement range** - Max. support 63A direct connection, no need for extra hall sensor or shunt
- **Multi circuit** - Support 12 single phase circuit



## Function

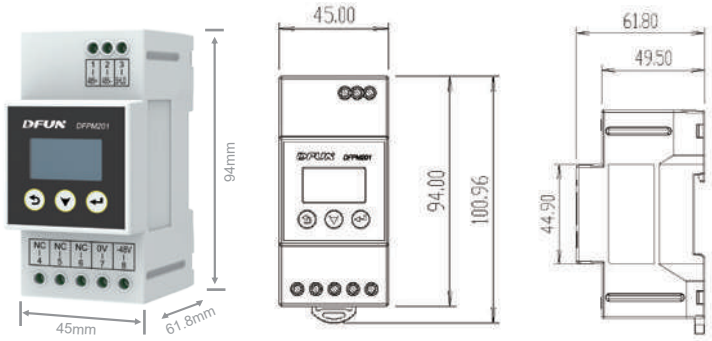
- **Measure** - Voltage, current, power, energy (input / output / total)
- **Alarm** - Voltage limit alarm (high limit / low limit), current limit alarm (high limit), communication failure alarm
- **Communication** - Modbus-RTU protocol, RS485 port

## Technical Specification

### DFPM201-M: Main Module

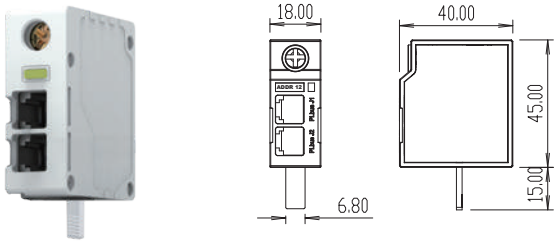
| | |
|---|---|
| **Connection mode** | 1P/2W |
| **Power supply** | -48VDC, range: 50%~125% |
| **Rated voltage input** | -48VDC, range: 50%~125% |
| **Power consumption** | ≤6W |
| **Communication** | RS485 port, Modbus-RTU protocol<br>Baud rate: 4800, 9600, 19200bps<br>Address: 1 ~ 247 |
| **Installtion** | 35mm DIN rail or back screw fixed |

Unit: mm




### DFPM201-S: Measure Module

| | |
|---|---|
| **Connection mode** | Daisy chain bus topology and RJ12 port |
| **Measuring current** | 10(63)A |
| **Parameter** | Voltage, current, power, energy |
| **Installtion** | Solid core |



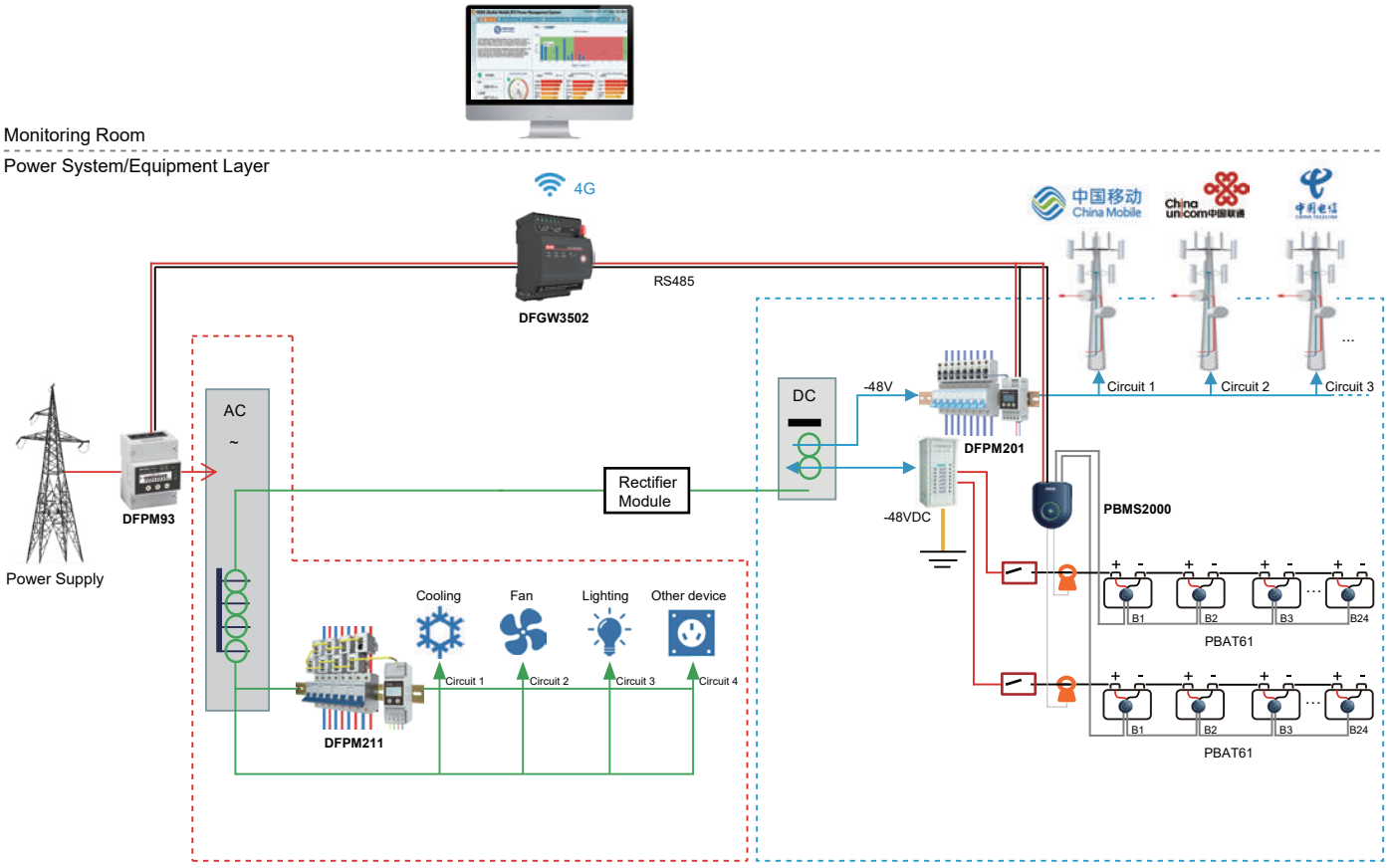

### Accuracy

| | Parameter | Range | Accuracy |
|---|---|---|---|
| **Parameter accuracy** | Voltage | -38V ~ -58V | 0.5% |
| | Current | 1 ~ 63A | 0.5% |
| | Power | Single phase: 0 ~ ±5kW | 1.0% |
| | Energy | 0 ~ 99999999.9 | 1.0% |

### Environment & Temperature

| | | | |
|---|---|---|---|
| **Environment & Temperature** | Working temperature | Normal | -20℃~60℃ |
| | | Limit | -25℃~75℃ |
| | Storage temperature | -30℃~80° C | |
| | Humidity | <95% | |
| | IP Degree | IP20 | |

## Typical Connection




## Order Information

| Module | Order code | Description |
|---|---|---|
| **Main module** | **DFPM201-M** | -48VDC power supply, DIN rail installation, Modbus-RTU protocol, RS485 port |
| **Measure module** | **DFPM201-S** | Depends on reguiremnt, optional from 1~12 circuit, solid core |

**For example:** 1pcs DFPM201-M + 12pcs DFPM201-S indicate 1pcs DFPM201 main module and 12pcs DFPM201-S solid core sensor for 12 DC circuit measuring, -48VDC power supply.

**Note:**

1. Measure module connect via RJ12 daisy chain bus topology.
2. Standard 30cm RJ12 line (from main module to measure module) and 6cm RJ12 line (for connect each measure module), please mention for special requirement. Max. length from main module to the end measure module is 3m.

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