

Multi-channels Power Meter

MCM series multi-channels power meter is special designed metering device for feeder loops. Multi-function design to provide electrical parameter measurement for three-phase or single phase branch circuits, it performs real-time metering, measures energy consumption and monitors power quality.

Advanced communications options including Modbus via RS485, optional Ethernet; Multiple digital input port can collect pulse signal from water meters and gas meters etc; Relay output port can remotely control field devices from host server system.

Measurement Parameter

Electrical parameter Basic	Voltage (U) , Current (I) @ 0.2%
	Power (P, Q, S) @ 0.5%
	Power factor (H) @ 0.1%
	Frequency (Hz) @ 0.1%
Active Energy	Consumed (Ep+) @ 0.5%
	Generated (Ep-) @ 0.5%
Reactive Energy	Consumed (Eq+) @ 2.0%
	Generated (Eq-) @ 2.0%

Reference standards

• Reference standard

Basic electricity: IEC 61557-12:2007
 Active energy: IEC 62053-22:2003
 Reactive energy: IEC 62053-23:2003

• LVD test standard

IEC/EN 61010-1:2017, CATIII-300V

• EMC Test

Electrostatic discharge immunity IEC-61000-4-2 level 4
 Electrical fast transient burst immunity: IEC61000-4-4 level 3
 Surge (Shock) immunity: IEC61000-4-5 level 4



Application

- Metering of distribution feeders, transformers, generators, capacitor banks and motors.
- Medium and low voltage systems.
- Remote data reading.
- Alarm station with voltage-free digital inputs.
- Commercial, industrial, utility.
- Power quality analysis.
- Harmonic measurement.

MCM2603

6 Channels Energy Meter Three phase Din-Rail mounting

Description

Used for 6 channels 3P4W/3P3W three phase branch circuit electrical parameter collection, standard din-rail install and 13M width size, with 1.6" dot matrix LCD interface, can easily display all parameters on screen.

0.5class high-precision performance, can instead of multiple digital energy meter. can reduce equipment investment in electrical metering projects, improve equipment reliability and reduce maintenance costs.

Features

- 6 channels three phase circuit metering
- Measurement accuracy class 0.5
- Current measuring .../5 or .../1 A
- 1.6" dot matrix LCD screen
- Universal series power supply (85-265VAC/DC)
- With RS-485 Modbus/RTU Communications
- Optional 6 channels Digital Input (DI) and 2 channels Digital Output (DO)
- Optional advanced electrical parameter*
- Optional record and read multi- tariffs ratio, Up to 3 months (TOU record)
- Optional max 99 lists SOE record
- Accept customization design

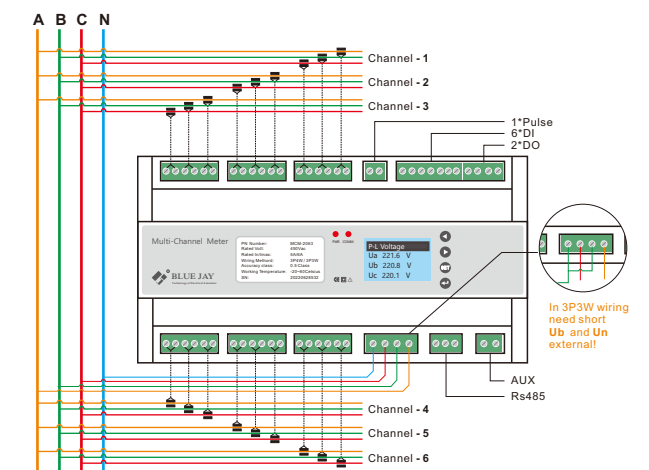
* Refer to products Ordering Information



Technical characteristics

Current measurement on inputs (TRMS)	
CT secondary rated	Standard 1A/5A
Measurement range	0 ... 9999A
Overload	1.2 times rated continuous; 5 seconds for 10 times the rated
Input consumption	<0.2 VA
Voltage measurement (TRMS)	
Direct measurement	18 ... 520 VAC L-L
PT secondary	100VAC / 400VAC
Frequency	45 ... 65 Hz
Overload	1 seconds for 2 times the rated
Input consumption	<0.2 VA
Auxiliary power supply	
AC voltage	DC/AC 85~265 ± 10 %, 50 / 60 Hz
Consumption	< 10 VA
I/O port (alarms / control)	
Number of relays	2 channel DO & 6 channel DI
Type	230 VAC 5 A, passive node
Communication	
Link	RS485 (2/3 wires half duplex)
Protocol	Modbus RTU mode
MODBUS speed	4800/9600/12800/19200bps

Typical Wiring



MCM2601

18 Channels Energy Meter Single phase Din-Rail mounting

Description

Used for 18 channels 1P2W single phase branch circuit electrical parameter collection, standard din-rail install and 13M width size, with 1.6" dot matrix LCD interface, can easily display all parameters on screen.

0.5class high-precision performance, can instead of multiple digital energy meter. can reduce equipment investment in electrical metering projects, improve equipment reliability and reduce maintenance costs.

Features

- 18 channels single phase circuit metering
- Measurement accuracy class 0.5
- Current measuring .../5 or .../1 A
- 1.6" dot matrix LCD screen
- Universal series power supply (85-265VAC/DC)
- With RS-485 Modbus/RTU Communications
- Optional 6 channels Digital Input (DI) and 2 channels Digital Output (DO)
- Optional advanced electrical parameter*
- Optional record and read multi- tariffs ratio, Up to 3 months (TOU record)
- Optional max 99 lists SOE record
- Accept customization design

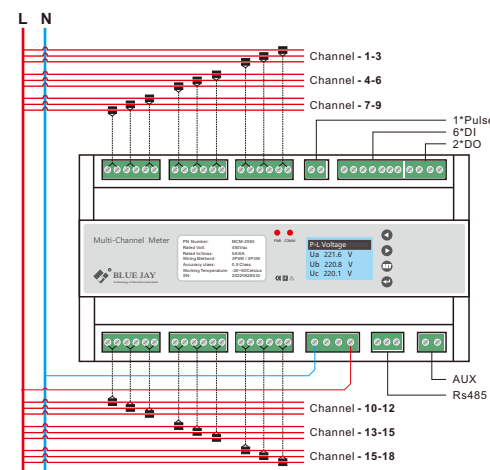
* Refer to products Ordering Information



Technical characteristics

Current measurement on inputs (TRMS)	
CT secondary rated	Standard 1A/5A
Measurement range	0 ... 9999A
Overload	1.2 times rated continuous; 5 seconds for 10 times the rated
Input consumption	<0.2 VA
Voltage measurement (TRMS)	
Direct measurement	18 ... 300 VAC L-N
PT secondary	100VAC
Frequency	45 ... 65 Hz
Overload	1 seconds for 2 times the rated
Input consumption	<0.2 VA
Auxiliary power supply	
AC voltage	DC/AC 85~265 ± 10 %, 50 / 60 Hz
Consumption	< 10 VA
I/O port (alarms / control)	
Number of relays	2 channel DO & 6 channel DI
Type	230 VAC 5 A, passive node
Communication	
Link	RS485 (2/3 wires half duplex)
Protocol	Modbus RTU mode
MODBUS speed	4800/9600/12800/19200bps

Typical Wiring



MCM2403

4 Channels Energy Meter Three phase Din-Rail mounting

Description

Used for 4 channels 3P3W/3P4W three phase branch circuit electrical parameter collection, standard din-rail install and 6M width size, with 1.6" dot matrix LCD interface, can easily display all parameters on screen.

0.5class high-precision performance, can instead of multiple digital energy meter. can reduce equipment investment in electrical metering projects, improve equipment reliability and reduce maintenance costs.

Features

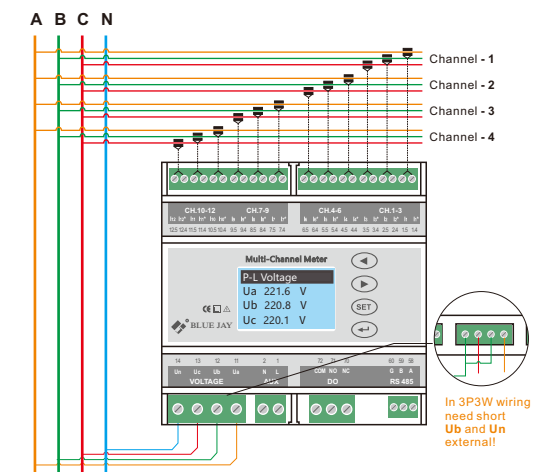
- 4 channels three phase circuit metering
- Measurement accuracy class 0.5
- Current measuring 100mA or 333mV
- 1.6" dot matrix LCD screen
- Universal series power supply (85-265VAC/DC)
- Provide 5 virtual alarm trigger
- With RS-485 Modbus/RTU Communications
- With harmonic analysis
- With SPDT relay output for alarm output
- Accept customization design



Technical characteristics

Current measurement on inputs (TRMS)	
CT secondary rated	100mA, 333mV optional
Measurement range	0 ... 9999A
Overload	1.2 times rated continuous; 5 seconds for 10 times the rated
Input consumption	<0.2 VA
Voltage measurement (TRMS)	
Direct measurement	18 ... 400 VAC L-L
PT secondary	100VAC / 400VAC
Frequency	45 ... 65 Hz
Overload	1 seconds for 2 times the rated
Input consumption	<0.2 VA
Auxiliary power supply	
AC voltage	DC/AC 85~265 ± 10 %, 50 / 60 Hz
Consumption	< 10 VA
I/O port (alarms / control)	
Number of relays	1 x SPDT relay
Type	230 VAC 5 A, passive node
Communication	
Link	RS485 (2/3 wires half duplex)
Protocol	Modbus RTU mode
MODBUS speed	4800/9600/12800/19200bps

Typical Wiring



MCM2401

12 Channels Energy Meter Single phase Din-Rail mounting

Description

Used for 12 channels 1P2W single phase branch circuit electrical parameter collection, standard din-rail install and 6M width size, with 1.6" dot matrix LCD interface, can easily display all parameters on screen.

0.5class high-precision performance, can instead of multiple digital energy meter. can reduce equipment investment in electrical metering projects, improve equipment reliability and reduce maintenance costs.

Features

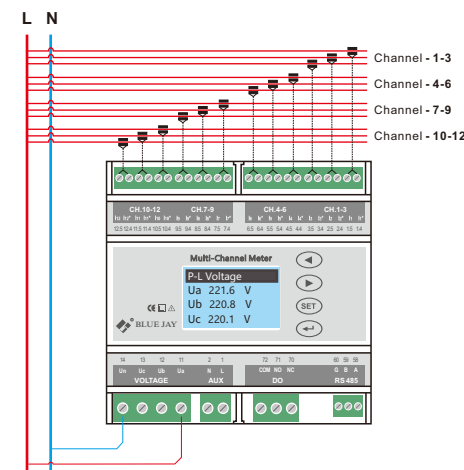
- 12 channels single phase circuit metering
- Measurement accuracy class 0.5
- Current measuring 100mA or 333mV
- 1.6" dot matrix LCD screen
- Universal series power supply (85-265VAC/DC)
- Provide 5 virtual alarm trigger
- With RS-485 Modbus/RTU Communications
- With harmonic analysis
- With SPDT relay output for alarm output
- Accept customization design



Technical characteristics

Current measurement on inputs (TRMS)	
CT secondary rated	100mA, 333mV optional
Measurement range	0 ... 9999A
Overload	1.2 times rated continuous; 5 seconds for 10 times the rated
Input consumption	<0.2 VA
Voltage measurement (TRMS)	
Direct measurement	18 ... 300 VAC L-N
PT secondary	100VAC / 400VAC
Frequency	45 ... 65 Hz
Overload	1 seconds for 2 times the rated
Input consumption	<0.2 VA
Auxiliary power supply	
AC voltage	DC/AC 85~265 ± 10 %, 50 / 60 Hz
Consumption	< 10 VA
I/O port (alarms / control)	
Number of relays	1 x SPDT relay
Type	230 VAC 5 A, passive node
Communication	
Link	RS485 (2/3 wires half duplex)
Protocol	Modbus RTU mode
MODBUS speed	4800/9600/12800/19200bps

Typical Wiring



MCM1000

6 Channels Energy Collector Din-Rail mounting

Description

MCM1000 series provides a compact and robust metering solution, enable reliable monitoring of building electrical loads with a low installation cost-per-point by combining sub-metering.

The unit performs real-time metering, measures energy consumption for max 18 channel circuits for single phase or 6 channel for three phase circuits.

Features

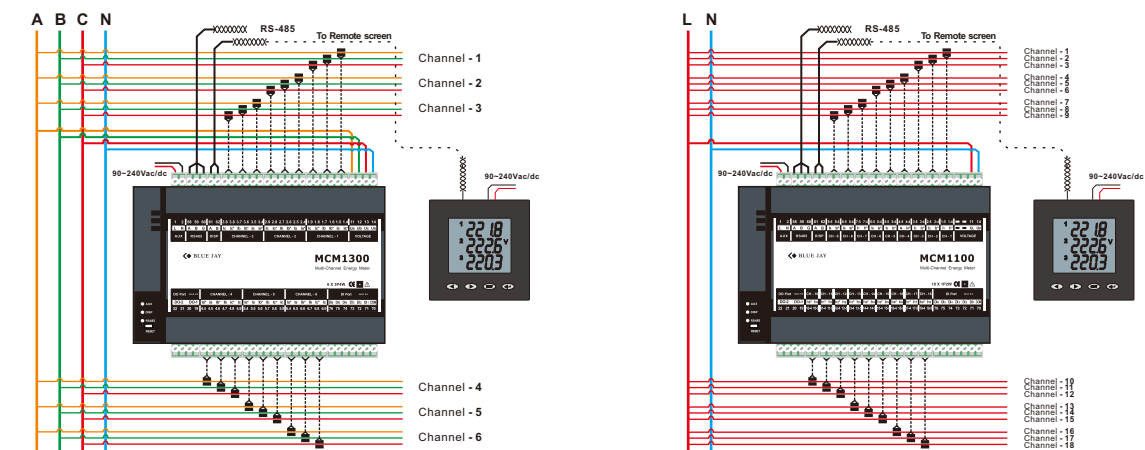
- 6 channels three phase circuit metering or 18 channels single phase circuit metering
- Measurement accuracy class 0.5
- Current measuring .../5 or .../1 A
- Universal series power supply (85-265VAC/DC)
- With RS-485 Modbus/RTU Communications
- Optional external 72*72mm display unit
- Optional 6 channels Digital Input (DI) and 2 channels Digital Output (DO)
- Accept customization design



Technical characteristics

Current measurement on inputs (TRMS)	
CT secondary rated	Standard 1A/5A
Measurement range	0 ... 9999A
Overload	1.2 times rated continuous; 5 seconds for 10 times the rated
Input consumption	<0.2 VA
Voltage measurement (TRMS)	
Direct measurement	18 ... 400 VAC L-L (18 ... 250VAC L-N)
PT secondary	100VAC / 400VAC
Frequency	45 ... 65 Hz
Overload	1 seconds for 2 times the rated
Input consumption	<0.2 VA
Auxiliary power supply	
AC voltage	DC/AC 85~265 ± 10 %, 50 / 60 Hz
Consumption	< 10 VA
I/O port (alarms / control)	
Number of relays	2 channel DO & 6 channel DI
Type	230 VAC 5 A, passive node
Communication	
Link	RS485 (2/3 wires half duplex)
Protocol	Modbus RTU mode
MODBUS speed	4800/9600/12800/19200bps

Typical Wiring



MCM400

Multi-Channels Energy Meter Din-Rail mounting

Description

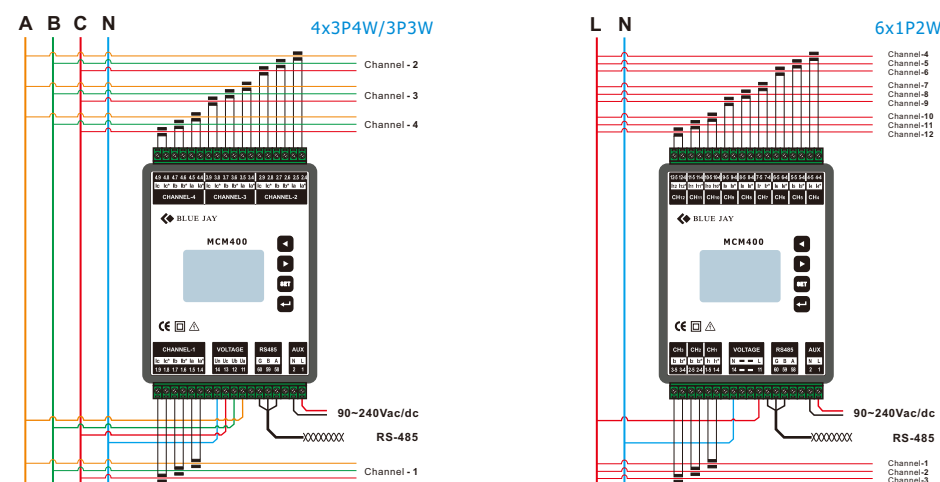
MCM400 series used for residential / commercial sub-metering, sampling the current signal through an external small open-loop transformer, compact size can easy install in metering box.

RS485 port easy to build monitor network, enable reliable monitoring of building electrical loads with a low installation cost-per-point.

Features

- 4 channels three phase or 12 channels single phase circuit metering
- Measurement accuracy class 0.5
- Current measuring 100mA or 333mV
- 1.6" dot matrix LCD screen
- Universal series power supply (85-265VAC/DC)
- Provide 5 virtual alarm trigger
- With RS-485 Modbus/RTU Communications
- Accept customization design

Typical Wiring



Note: In 3P3W wiring please short Ub and Un outside



Technical characteristics

Current measurement on inputs (TRMS)

CT secondary rated	100mA, 333mV optional
Measurement range	0 ... 9999A
Overload	1.2 times rated continuous; 5 seconds for 10 times the rated
Input consumption	<0.2 VA

Voltage measurement (TRMS)

Direct measurement	18 ... 400 VAC L-L (18 ... 250VAC L-N)
PT secondary	100VAC / 400VAC
Frequency	45 ... 65 Hz
Overload	1 seconds for 2 times the rated
Input consumption	<0.2 VA

Auxiliary power supply

AC voltage	DC/AC 85~265 ± 10 %, 50 / 60 Hz
Consumption	< 10 VA

Communication

Link	RS485 (2/3 wires half duplex)
Protocol	Modbus RTU mode
MODBUS speed	4800/9600/12800/19200bps

Characteristics Selection Table

	MCM2603	MCM2601	MCM2403	MCM2401	MCM1000	MCM400
METERING FEATURES						
Voltage (P-P, P-N)	●	●	●	●	●	●
Current (P-N)	●	●	●	●	●	●
Frequency	●	●	●	●	●	●
Total Power factor	●	●	●	●	●	●
Active power	●	●	●	●	●	●
Reactive power	●	●	●	●	●	●
Apparent power	●	●	●	●	●	●
Active energy consumed	●	●	●	●	●	●
Active energy generated	●	●	●	●	●	●
Reactive energy consumed	●	●	●	●	●	●
Reactive energy generated	●	●	●	●	●	●
Voltage harmonic distortion (THD)	○	○	●	●	-	●
Current harmonic distortion (THD)	○	○	●	●	-	●
Individual harmonic ⁽¹⁾	○	○	●	●	-	●
Time of Use (TOU)	○	○	-	-	-	-
Current / Voltage unbalance	○	○	○	○	-	○
Max Demand	○	○	○	○	-	○
Voltage deviation	○	○	○	○	-	○
Sequency of Event record (SOE)	○	○	-	-	-	-
MEASUREMENT SIGNAL ACCESS						
1A & 5A	●	○	-	-	●	-
100mA	○	●	●	●	-	●
333mV	○	○	○	○	-	○
L-L 480V, three phase	●	-	●	-	●	○
L-N 300V, single phase	-	●	-	●	○	○
4 metering channels (3P)	-	-	●	-	-	●
6 metering channels (3P)	●	-	-	-	●	-
12 metering channels (1P2W)	-	-	-	●	-	○
18 metering channels (1P2W)	-	●	-	-	○	-
HHMAN-MACHINE INTERFACE						
72*72 external display unit	-	-	-	-	●	-
On board 1.6" dot matrix LCD	●	●	●	●	-	●
COMMUNICATIONS AND I/O PORT						
RS-485	●	●	●	●	●	●
Ethernet 10/100MB	-	-	○	○	-	-
Modbus RTU	●	●	●	●	●	●
Profibus	○	○	○	○	○	○
6*Digital inputs	○	○	-	-	○	-
2*Digital outputs ⁽²⁾	○	○	●	●	○	-

● With this function

○ Optional function

-- Without this function

⁽¹⁾ MCM2603/2601 detect 2~31th, MCM2403/2401 detect 2~15th.

⁽²⁾ MCM2603/2601 and MCM1000 is signal logic alarm output, 2 relay independent of logic and hardware; MCM2403/2401 with 5 virtual alarm and SPDT relay.

Other notes:

Max Demand value default calculated by **15min Sliding window** method, if need Block Interval please tell us before order.

Choose Ethernet port protocol default use **MODBUS-TCP**.