Three phase Din-Rail meter

Thank you for choosing Blue Jay Technology Din-Rail energy meter. In order to use this instrument safely and correctly, please read this manual carefully and pay attention to the following points when using it:

- The meter must be installed and repaired by trained electrician operator;
- Must keep power line disconnect when wiring this meter;
- Please use a suitable detector to confirm no voltage leakage after wiring;

Following conditions can cause damage of device or working abnormal:

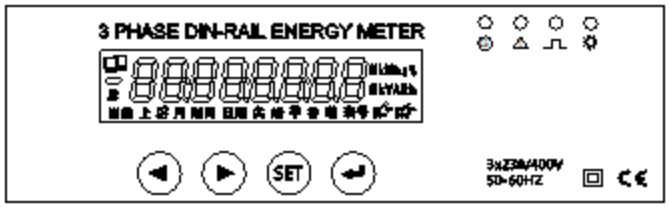
- Voltage, frequency over range;
- Reverse polarity of current or voltage input;
- Remove communication plug when meter powered;
- Terminals connect do not follow wiring guide;

Warning!!: Do not touch the terminals when the device is working!

1. Function introduction

The DEM-7M3D three-phase DIN-rail energy meter is an intelligent device for medium and low voltage systems (6-35KV and 0.4KV). It integrates data collection and control functions, provide LCD display show three-phase AC power measurement and calculation, consumption energy value. In addition, DEM also provide optional function, user can choose multi-tariff record, Maximum Demand record, relay alarm output(1 channel) for different site condition. RS485 port support MODBUS-RTU or DL/T645-2007 protocol (can be customized).

2. Panel & Screen introduction

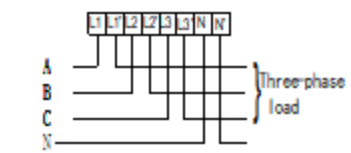


1.-Central display area: mainly displays measurement data.
Energy, current, voltage, power, power factor, frequency, timer (depends one different sub-model, display value may parts of above parameter).
2.-Four LED indicators: Show meter condition (accept customized).
3.-Four keys button: for user set operation.

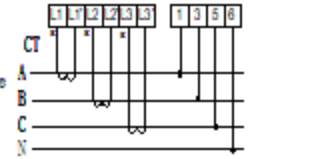
3. Install of meter

Dimensions (L x W x H)	Din-rail	Notes
126.5x89.5x74.5 (mm)	35mm	

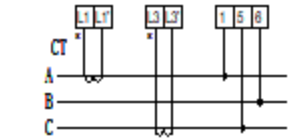
4. Wiring to grid



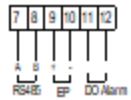
Three - phase four - wire direct access
Rated current: IS100A



Three - phase four - wire indirect access
Rated current: 1.5 (6) A、5 (20) A



Three - phase three - wire indirect access
Rated current: 1.5 (6) A、5 (20) A



Wiring Notes!!

-. Must choose suitable cable size to connection, please refer the meter measurement range and actual load condition.
-. The communication wire must use shielded twisted pair.
-. Communication line RS485+, RS485- cannot be reversed.
-. If need long distance communication to host, must parallel connect 100~120ohms resistor in both terminal of host to slave.
-. In 9600 baud rate, the cable length should less than 1200 meters.

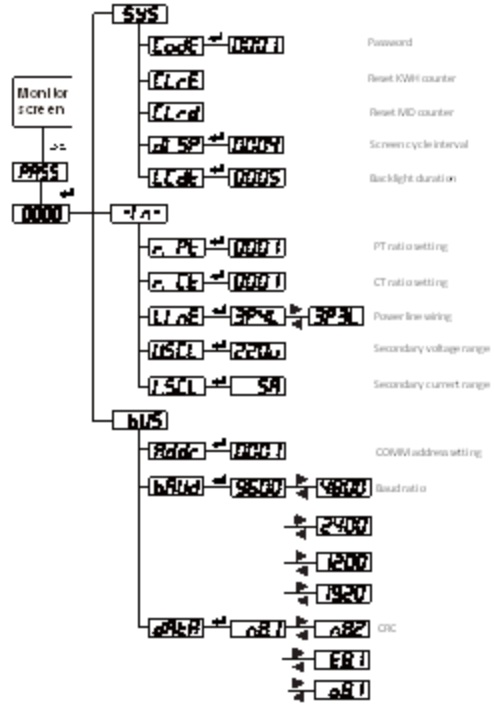
5. Operation menu description

◄ ► for switching show screen value, in operation menu can move cursor and set value.

After changing the parameters, press the ↵ key to confirm, and then press **SET** to exit the programming menu until screen show **SAVE** :

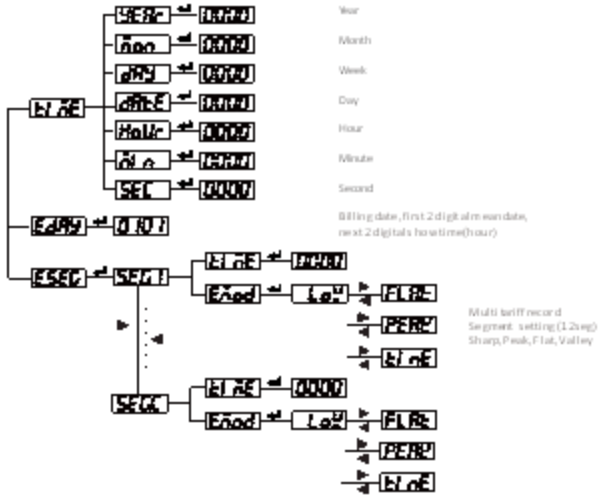
(1) Save and exit: Press ↵ to save the setting parameters then return to display screen exit;
(2) Exit without saving: press **SET** to directly return display screen

Main menu



Multi-tariff menu

(optional)



Digital output menu(optional)

MODBUS register map

Primary Side value				
Add.	**Data**	**Byte**		**Instruction**
0x00	Ua	float	2	Phase to Line Voltage, Unit: V
0x02	Ub	float	2	
0x04	Uc	float	2	
0x06	Uab	float	2	Phase to Phase Voltage, Unit: V
0x08	Ubc	float	2	
0x0a	Uca	float	2	
0x0c	Ia	float	2	Three phase Current, Unit: A
0x0e	Ib	float	2	
0x10	Ic	float	2	
0x12	Pa	float	2	Active power, Unit: kW
0x14	Pb	float	2	
0x16	Pc	float	2	
0x18	PΣ	float	2	
0x1a	Qa	float	2	Reactive power, Unit: kVar
0x1c	Qb	float	2	
0x1e	Qc	float	2	
0x20	QΣ	float	2	
0x22	Sa	float	2	Apparent power, Unit: kVA
0x24	Sb	float	2	
0x26	Sc	float	2	
0x28	SΣ	float	2	
0x2a	PFa	float	2	Power factor, 0~1.000
0x2c	PFb	float	2	
0x2e	PFc	float	2	
0x30	PFΣ	float	2	
0x32	FR	float	2	Frequency, Unit:0.01Hz
0x34	Ep+	float	2	Positive active energy, Unit: kWh
0x36	Ep-	float	2	Negative active energy, Unit: kWh
0x38	Eq+	float	2	Inductive reactive power, Unit: kVarh
0x3a	Eq-	float	2	Capacitive reactive power
Secondary Side value				
0x100	Ua	int	1	Phase to Line Voltage, Unit: 0.1V
0x101	Ub	int	1	
0x102	Uc	int	1	
0x103	Uab	int	1	Phase to Phase Voltage, Unit: 0.1V
0x104	Ubc	int	1	
0x105	Uca	int	1	
0x106	Ia	int	1	Three phase Current, Unit: 0.001A
0x107	Ib	int	1	
0x108	Ic	int	1	
0x109	Pa	int	1	Active power, Unit: W
0x10a	Pb	int	1	
0x10b	Pc	int	1	
0x10c	PΣ	int	1	
0x10d	Qa	int	1	Reactive power, Unit: Var
0x10e	Qb	int	1	
0x10f	Qc	int	1	
0x110	QΣ	int	1	
0x111	Sa	int	1	Apparent power, Unit: VA
0x112	Sb	int	1	
0x113	Sc	int	1	
0x114	SΣ	int	1	
0x115	PFa	int	1	Power factor, 0~1.000
0x116	PFb	int	1	
0x117	PFc	int	1	
0x118	PFΣ	int	1	
0x119	FR	int	1	Frequency, Unit:0.01Hz
0x11a	Ep+	int	2	Positive active energy, Unit: Wh
0x11c	Ep-	int	2	Negative active energy, Unit: Wh
0x11e	Eq+	int	2	Inductive reactive power, Unit:Varh
0x120	Eq-	int	2	Capacitive reactive power

Other data in RS485 register

Meter status				
Add.	**Data**	**Byte**		**Instruction**
0x200	DO	int	1	Digital output: Bit0~1 for channels 1~2
0x20A	TIME.year	int	1	Internal RTC real time clock: Year - Month - Day - Time - minutes - seconds
0x20B	TIME.month	int	1	
0x20C	TIME.date	int	1	
0x20D	TIME.hour	int	1	
0x20E	TIME.minute	int	1	
0x20F	TIME.second	int	1	
0x210	TIME.day	int	1	
Advanced electrical parameter				
0x300	Pde	float	2	Active power demand, Unit: W
0x302	Qde	float	2	Reactive power demand, Unit: var
0x304	Sde	float	2	Apparent power demand, Unit: var
0x306	Pdmax	float	2	active power demand in this month
0x308	Qdmax	float	2	reactive power demand in this month
0x30a	Sdmax	float	2	apparent power demand in this month
0x30c		float	2	active power demand in last month
0x30e		float	2	reactive power demand in last month
0x310		float	2	apparent power demand in last month
0x312		float	2	active power demand in month before last month
0x314		float	2	reactive power demand in month before last month
0x316		float	2	apparent power demand in month before last month

Multi- tariffs ratio data(secondary side)				
0x400	Cumulative_tol(Total)	long	2	The total energy
0x402	Cumulative_T1(Sharp)	long	2	The total sharp energy
0x404	Cumulative_T2(Peak)	long	2	The total peak energy
0x406	Cumulative_T3(Flat)	long	2	The total flat energy
0x408	Cumulative_T4(Vally)	long	2	The total valley energy
0x40a	Current_tol(Total)	long	2	Total energy of this month
0x40c	Current_T1(Sharp)	long	2	Sharp energy of this month
0x40e	Current_T2(Peak)	long	2	Peak energy of this month
0x410	Current_T3(Flat)	long	2	Flat energy of this month
0x412	Current_T4(Vally)	long	2	Valley energy of this month
0x414	Prior_tol(Total)	long	2	Total energy of last month
0x416	Prior_T1(Sharp)	long	2	Sharp energy of last month
0x418	Prior_T2(Peak)	long	2	Peak energy of last month
0x41a	Prior_T3(Flat)	long	2	Flat energy of last month
0x41c	Prior_T4(Vally)	long	2	Valley energy of last month
0x41e		long	2	Total energy of the month before last month
0x420		long	2	Sharp energy of the month before last month
0x422		long	2	Peak energy of the month before last month
0x424		long	2	Flat energy of the month before last month
0x426		long	2	Valley energy of the month before last month

DO relay setting

vALU Unit of Relay associated parameter	
Voltage parameter	Unit 0.1V
Current	Unit 0.01A
Active power	Unit 0.01kW
Reactive power	Unit 0.01kvar
Apparent power	Unit 0.01kVA
Power factor	Unit 0.001
Frequency	Unit 0.01Hz

Notes: Above parameters are secondary side values for CT access sub-model, and Primary side value for power line direct access sub-model.