User Manual
Revision 2.001
English

Digital panel meter

OB2750

Benefits and Main Features

DIN 96 96 Standard Formats

CI.1 Accuracy (EN50470)

Energy consumption LED

Current reverse LED

Phase L1/L2/L3 LED

Isolate pulse output and IR (DIN43864)

LCD display, 6 integer 1 decimal

Large clear backlit display

27 CT rate can be selected

Memory back-up (EEprom)

Communication

RS485port

Baud rate: 1200bps 9600bps
Modbus-RTU protocol

Index:

1. Safety Instruction

1.1 Information for Your Own Safety

This manual does not contain all of the safety measures for operation of this equipment (module, device) because special operating conditions, local code requirements or local regulations may necessitate further measures. However, it does contain information which must be adhered to for your own personal safety and to avoid damage to the equipment. This information is highlighted by a warning triangle with an exclamation mark or a lightning bolt depending on the severity of the warning.

Warning

Means that failure to observe the instruction can result in death, serious injury or considerable material damage.

Caution

Means hazard of electric shock and failure to take the necessary safety precautions will result in death, serious injury or considerable material damage.

1.2 Qualified personnel

Installation and operation of this equipment described in this manual may only be performed by qualified personnel.

Only people that are authorized to install, connect and use this equipment and have the proper knowledge about labeling and grounding electrical equipment and circuits and can do so according to safety and regulatory standards are considered qualified personnel in the manual.

1.3 Use for the intended purpose

The equipment (device, module) may only be used for the application cases specified in the catalog and the user manual and only in connection with devices and components recommended and approved by Finco Electric.

1.4 Proper handling

The prerequisites for perfect, reliable operation of the product are proper transport, storage, installation and connection, as well as proper operation and maintenance. When operating electrical equipment, certain parts of this equipment carry dangerous voltages. Improper handling can therefore result in serious injury or material damage.

- Ø Only use isolated tools suitable for the voltages the meter is used for.
- Ø Do not connect while circuit is live (hot).
- Ø Place the meter only in dry surroundings.
- Ø Do not mount the meter in an explosive area or exposed to dust, mildew and/or insects.
- Ø Make sure the used wires are suitable for the maximum current of this meter.
- Ø Make sure the AC wires are connected correctly before activating the current/voltage to the meter.
- Ø Do not touch the meter's connection clamps directly with your bare hands, with metal, blank wire or other conducting material as that will cause an electric shock and possibly cause injury.
- Ø Make sure the protection cover is placed after installation.

- Ø Installation, maintenance and repair should only be done by qualified personnel.
- Ø Never break the seals to open the front cover as this might influence the functionality or accuracy of the meter, and will void all warranty.
- Ø Do not drop, or allow physical impact to the meter as there are high precision components inside that may break and render the meter measurement inaccurate.

2. Technical description

2.1 Voltage Inputs

• 20-280 Volts Line To Neutral, 20-480 Volts Line to Line

• Universal Voltage Input

• Input Withstand Capability – Meets IEEE C37.90.1 (Surge Withstand Capability)

• Supports: 3 phase 4 wires, 400/230V, 110/63V,208/120V

• Input wire gauge max (AWG 12 / 2.5mm^2)

2.2 Current Inputs

• Class : (0 to) A, 5 Amp Nominal

• Fault Current Withstand: 100 Amps for 10 Seconds, 360 Amps for 3 Seconds, 600 Amps for 1 Second.

• Programmable Current to 27 CT Ratio

• Burden 0.005VA per phase Max at 11Amps

• 5mA Pickup Current

• Pass through wire gauge dimension: 0.177" / 4.5mm

• Continuous current withstand: 20 amps for screw terminated or pass through current connections

2.3 Isolation

All Inputs and Outputs are galvanic ally isolated to 4000 Volts AC.

2.4 Environmental Rating

Storage: (-25 to +70)° C

Operating: (-10 to +65)° C

Humidity: to 75% RH Non-Condensing

Faceplate Rating: NEMA12 (Water Resistant)

Environment : IP54 standard, IP65 optional
Mounting Gasket Included

2.5 Power Supply

• 161 to 300 Volts AC

2.6 Communication Format

• 1 Com Ports

• RS485 Port (Through Back Plate)

• Com Port Baud Rate: (1200 to 9600)

• Com Port Address: 0-247

• 8 Bit, Even parity

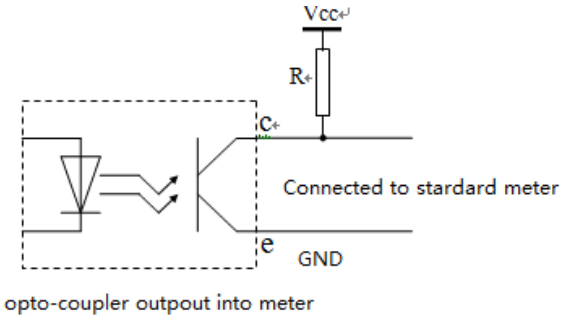
• Modbus RTU Protocols

2.7 Pulse output

• Pulse constant: 1600imp/kWh

• pulse width:80ms 20ms

• Test diagram

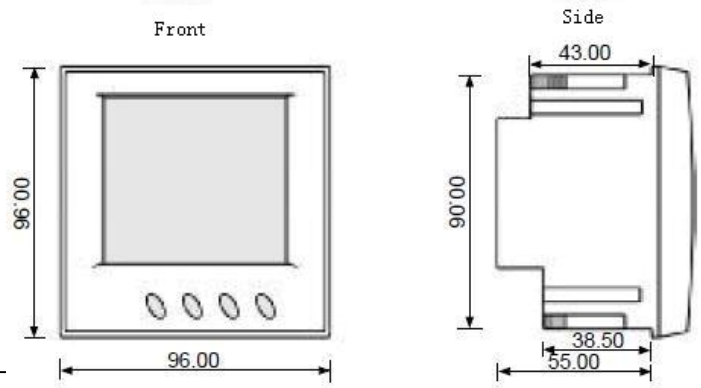


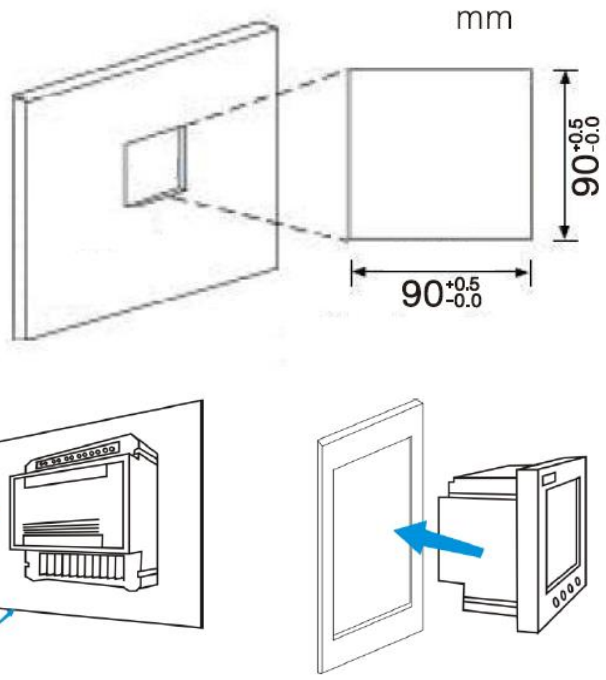
opto-coupler outpout into meter

VCC=5 27V

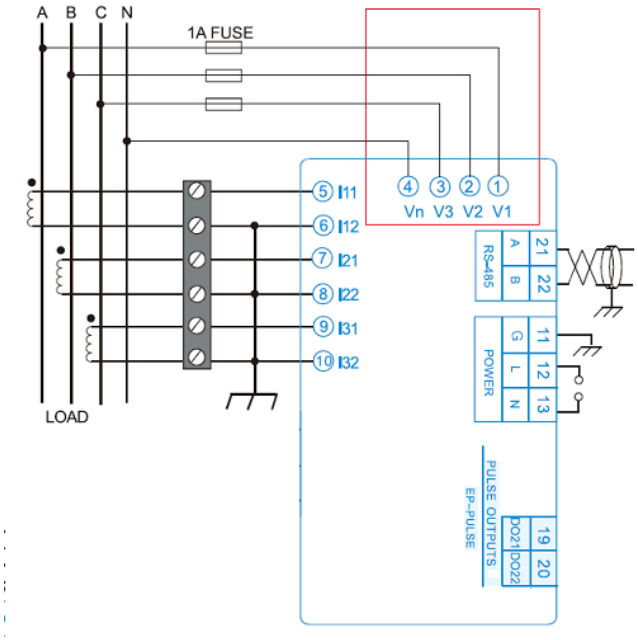
3. Dimensions

Panels should be 1mm to 4mm thick with a square cutout of 90mm(+0.5/0mm) Insert the meter from the front of the panel, slide the panel clips from the rear of the case and push firmly against the panel ensuring even pressure on each clip.

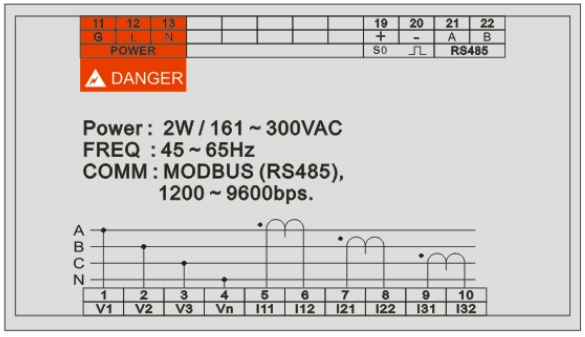




4. Wiring diagrams



Label in the back of the meter



5. Display parameter

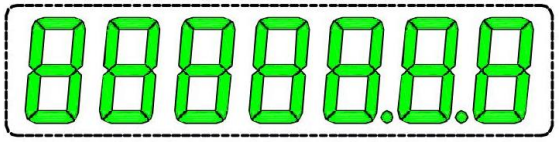
The digital panel meter is equipped with 6+1 LCD display, which is used as recording consumption and can't be reset to zero. The number system is based on units of 10. And unit is kWh.

Meters have four status: self-inspection status, cycle display status ,button press display and program status.

Self-inspection status meters will come into self-inspection status after connect with electricity. include: full screen software version number. every screen display time is 1 second.

Self-inspection status

Full screen display

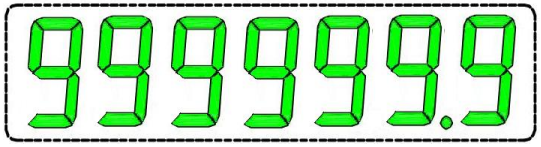


Meter version number

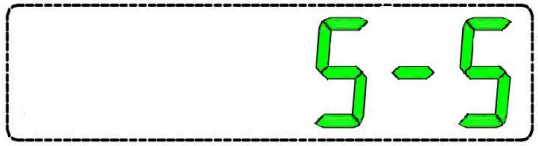
Cycle status

Meter display as follows:

active energy:



CT rate:

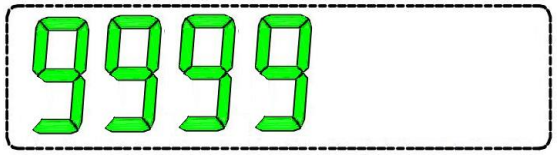


Button press display status:

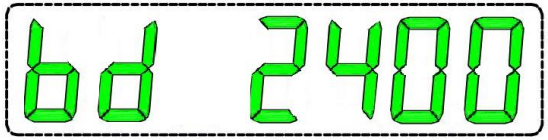
Id:

Serial number (high 4 bit):

Serial number (low 4 bit):

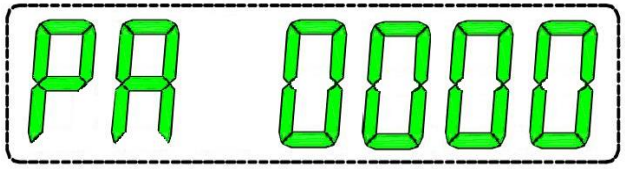


Baud rate:



6 Setting parameter

By holding the keys “SET” pressed for at last 3 sec., starts menu programming mode. LCD will show:



6.1 password verify

On the smart meter display will appear : PA followed by the currently memorized value . “PA” means Password”,”0000”means the 4 digits of the Password. we can press “Page Down” button to decrease the input value, and press “Page Up” to increase the input value ,press the “SET” button to switch the input Password digits, when the Password is correct, the meter will enter “program status” and display the “ID” program interface.

Remarks:

Please remember the Password, you can only reset the Password to default (8888) by opening the meter and short connect the “CLEAR” on PCB board.

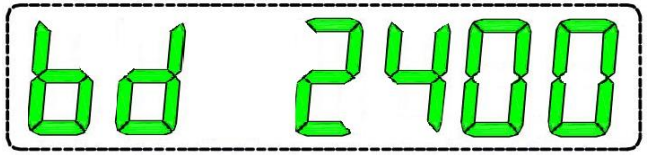
6.2 ID setting

After the Password authentication , the meter will display the “ID XX” setup interface. As the following picture ”Id 00” it means the current ID address is 00 (the ID

address is in hexadecimal code)

Press “Page Down” button to decrease the digits. press ”Page Up” to increase the digits press “SET” button to save the setup, the interface will switch to Baudrate setup interface automatically. Press “SET” button to enter next interface if you do not need to change the baudrate.

6.3 Baud rate setting

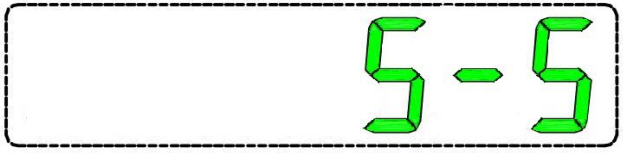


Press “Page down” and “page up” buttons to select the communication baud rate, press “SET” button to save the setup.the interface will enter CT setup.

Remars

default baudrate will be 9600bps

6.4 CT rate setting



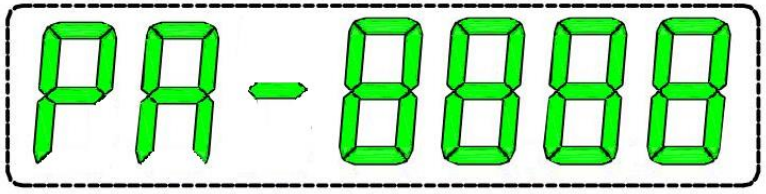
Press “Page down” and “page up” buttons to select the CT transformation ratio press “SET” button to save the setup. the interface will enter Password setup.

CT rate	5:5	5:50	5:60	5:75	5:100	5:125	5:150	5:**160**	**5 200**
	5:250	5:300	5:400	5:500	5:600	5:750	5:800	5:1000	5 1200
	5 1250	5 1500	5 2000	5 2400	5 2500	5:3000	5:4000	5:5000	5 6000
	5:7500								
Remark	**When CT ratio is lower than 200, there is 1digit decimals, when CT ratio is equal or higher 200, there is no decimal.**								

Remark

After the CT ratio setup, the energy consumption display will be reset to 0.

1 Password setting



The meter will display the current password after enter the password setup interface, press the “SET” to change the password. Use “page dow” and “page up” button to input password as you want. After 30 seconds the meter will save the password you changed.

Remarks:

1 Do not forget the password you setup.

2 Please press the buttons to check setup is correct after programing.