ES921 Series Three Phase Intelligent Power Meter Operation Manual

This series meters are widely applied to control system, SCADA system and energy management system, transformer substation automation, distributing net automation, residence community electrical power monitor, industrial automation, intelligent construction, intelligent switchboard, switch cabinet, etc. It is easy to install and maintain, simple connection, programmable setting parameters on meters or computer.

Features:
- Measuring items: Voltage/Current/Active Power/Reactive Power/Frequency/Power Factor
- Two DI and two DO, with remote communication and remote control function
- Output and input are completely isolated
- True-effective value measurement
- With RS485 interface/Modbus RTU communication protocol
- With two programmable alarm
- Remote control function

Model Indication

<table>
<thead>
<tr>
<th>Model</th>
<th>DI (digital input)</th>
<th>DO (digital output)</th>
<th>Communication</th>
<th>Function Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES921-P</td>
<td>2</td>
<td>2</td>
<td>One</td>
<td>Voltage, current, Power</td>
</tr>
<tr>
<td>ES921-3A</td>
<td>2</td>
<td>2</td>
<td>One</td>
<td>current</td>
</tr>
<tr>
<td>ES921-3V</td>
<td>2</td>
<td>2</td>
<td>One</td>
<td>voltage</td>
</tr>
</tbody>
</table>

Main Technical Parameters

- **Connection**:
  1. 3 Phase 3 Wires, 3 Phase 4 Wires

- **Voltage Range**
  - AC-10-480V (L-L)

- **Voltage Overload**: Continuous 1.2 times, Instantaneous 2 times/2S

- **Voltage Consumption**:
  - <0.5VA (each phase)

- **Voltage impedance**:
  - <300Ω

- **Voltage accuracy**: RMS measurement accuracy class 0.5

- **Current range**
  - AC 0.05 to 5A

- **Current Overload**: Continuous 1.2 times, Instantaneous 2 times/2S

- **Current Consumption**:
  - <0.5VA (each phase)

- **Current impedance**:
  - <20mΩ

- **Current accuracy**: RMS measurement accuracy class 0.5

- **Frequency**: 50/60Hz, accuracy:±0.05Hz

- **Power**
  - Active/Reactive/Apparent Power, Accuracy Class 0.5

- **Display**: LCD light display

- **Power Supply**: AC/DC 100 ~ 240V (85 ~ 265V)

- **Current Consumption**: 5VA

- **Switch Output**: RS485, Modbus RTU protocol

- **Alarm Output**: 2 DO, AC250V/3A or DC30V/5A

- **Working environment**
  - Temperature: -10 ~ 50 °C, Humidity: 5% ~ 95%RH. Non-corrosive Gas; altitude ≤2500m

- **Storage environment**: -40 ~ 70°C

**Dimension and Mounting Size**

<table>
<thead>
<tr>
<th>Width</th>
<th>Current VS 485 connection, DI connection ≤ DC 200V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolation</td>
<td>Input/Output, Power supply to meter cover ≤ 5MΩ</td>
</tr>
<tr>
<td>Size</td>
<td>96H×96W×61.5L (mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.9kg</td>
</tr>
</tbody>
</table>

**Connection Drawing**

Note: Please subject to the connection drawing on the meter if have any changes. Voltage input wire terminals with bracket indicate 3 phase 3 wire connection method.

![Connection Drawing](image)
1. In 3 phase 4 wire measure status, press “ ” or “ ” key to shift display of 3 phase voltage, 3 phase current, 3 phase active power, 3 phase reactive power, 3 phase apparent power, 3 phase power factor, total power, frequency, etc.

2. 01, 02 used as alarm output status indication in alarm mode; used as switch output status indication in remote control mode.

3. COM flashing means in communication status.

4. In 3 phase 3 wire measure status, it only display 3 phase line voltage, 3 phase current, total active power, total reactive power, total power factor, frequency.

Note: In 3 phase 3 wire measure status, it only display 3 phase line voltage, 3 phase current, total active power, total reactive power, total power factor, frequency.

Menu modification instructions

1. In 3 phase 4 wire status, press “ ” or “ ” key, it can shift display 3 phase voltage, 3 phase current, 3 phase active power, 3 phase reactive power, 3 phase apparent power, 3 phase power factor, total power, frequency.

2. Press SET key more than 5 seconds to enter the user menu, please refer to the menu structure for the operation process.

Note: Example of menu modification

1. Method of setting current ratio

2. Example of menu modification

3. Measurement Status

4. When value is 0, it is alarm mode, please refer to alarm parameter table.

5. Alarm value

6. Alarm value

7. Alarm value

8. Alarm value

9. Alarm value

10. Alarm value

11. Alarm value

12. Alarm value

13. Alarm value

14. Alarm value

15. Alarm value

16. Alarm value

17. Alarm value

18. Alarm value

19. Alarm value

20. Alarm value

21. Alarm value

22. Alarm value

23. Alarm value

24. Alarm value

25. Alarm value

26. Alarm value

27. Alarm value

28. Alarm value

29. Alarm value

30. Alarm value

31. Alarm value

32. Alarm value

33. Alarm value

34. Alarm value

35. Alarm value

36. Alarm value

37. Alarm value

38. Alarm value

39. Alarm value

40. Alarm value

41. Alarm value

42. Alarm value

43. Alarm value

44. Alarm value

45. Alarm value

46. Alarm value

47. Alarm value

48. Alarm value

49. Alarm value

50. Alarm value

The alarm codes in bracket are corresponding alarm parameters of 3 phase 3 wire. And in this status, not support single phase power parameters alarm output.