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# AMC16Z-D Multi-Channel Monitoring Device

Installation and operation instruction V1.0

ACREL CO.,LTD

# Declaration



The company reserves the right to modify the specifications described in this manual without prior notice.Before ordering,please consult your local agent for new specifications.

Content

## 1.Overview

The AMC16Z-D multi-channel monitoring device is a measuring device specifically designed for precision power distribution management in data centers. The device is compact in design and can centrally monitor the various electrical parameters and switch states of dozens of circuits including incoming and outgoing circuits, and at the same time, the miniature transformer of the outgoing circuit is built in.

## 2. Model Description

| Model | Function Description | Optional Function |
|---|---|---|
| AMC16Z-D | Measure the bus voltage, current, active power, reactive power, apparent power, power factor, active energy, reactive energy, zero-to-ground voltage, neutral current + 21 single-phase outgoing lines (7 three-phase ) Current + voltage, active power, reactive power, apparent power, power factor, active energy, and reactive energy of 21 single-phase outgoing lines (7 three-phase) + 4 passive switch inputs + 2 switches Output +1 RS485 communication | T-1 temperature detection L-1<br>leakage current detection<br>H-harmonic+<br>demand |

## 3. Technical Parameters

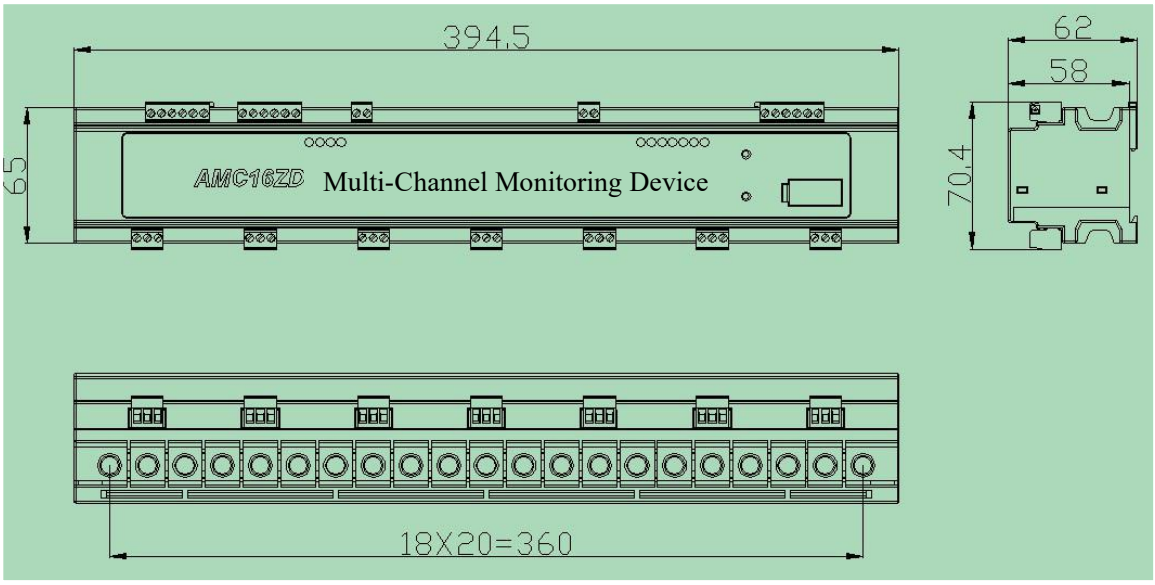
| | | | |
|---|---|---|---|
| Model | | | AMC16Z-D |
| Distribution System | | | Alternating |
| Measurement parameters | | | Bus voltage, current, active power, reactive power, power factor, active energy, reactive energy Incoming line voltage and current 2 to 15 harmonics and total harmonic content, outgoing current 2 to 15 harmonics and total harmonic content, current and power maximum demand, zero-to-ground voltage, neutral current, temperature, leakage |
| Busbar Voltage | Rated | | 220V AC |
| | Measuring range | | 40～400V AC |
| | overload | | Instantaneous voltage 2 times/30 seconds |
| Current Loop | Incoming Line | CT | Secondary 5A |
| | | Range | 0～5A |
| | Outgoing Line | CT | Secondary 60A |
| | | Range | Primary 5～60A |
| | Overload | | Continuous 1.2 times, instant 10 times/5 seconds |
| Input Frequency | | | 45～60Hz |
| Auxiliary Power | | | AC85～265V/DC100V～350V |
| Measurement Accuracy | Incoming line current and voltage | | 0.5 |
| | Incoming Power | | 1.0 |
| | Outgoing Purrent And Voltage | | 1.0 |
| | Outgoing Power | | 2.0 |
| Power Consumption | | | 5VA |
| Insulation Resistance | | | 100MΩ |
| Power Frequency with stand voltage | | | AC 2kV/1min 50Hz between power supply/input/output ports |
| Environment | Temperature | | Work: -15℃～+55℃ Storage: -25℃～+70℃ |
| | humidity | | Relative humidity≤93% |
| | altitude | | ≤2500m |

| | | |
|---|---|---|
| 2 switch output | 5A 250VAC/5A 30VDC | |
| Switch input | 4-channel passive dry node | |
| Zero sequence current | Secondary 0.5～5A | |
| Leakage current | 10mA～1A | |
| Zero-ground voltage | 0.2V～20V | |
| Temperature | -10℃～120℃ | |
| Communication | 2Modbus-RTU | |
| Installation Method | DIN35mm Rail installation | |
| Protection Level | IP20 | |
| Pollution Level | 2 | |
| Electromagnetic Compatibility | Anti-static interference | Level3 |
| | Anti-electric fast transient burst | Level3 |
| | Anti-surge interference | Level4 |
| | Resistance to radio frequency electromagnetic field radiation | Level3 |

## 4.Dimension

Unit：mm

4.1 Dimensions Of AMC16M



## 5.Terminals

| Terminal Number | Definition | Description | Remarks |
|---|---|---|---|
| 1 | L | Working power supply AC220V | |
| 2 | N | | |
| 4 | IA1* | Inlet 1 current phase A | |
| 5 | IA1 | | Directly grounded |
| 6 | IB1* | Incoming line 1 current phase B | |
| 7 | IB1 | | Directly grounded |
| 8 | IC1* | Incoming line 1 current phase C | |
| 9 | IC1 | | Directly grounded |
| 10 | UN | AC voltage neutral | |
| 11 | UA | AC voltage phase A | |
| 12 | UB | AC voltage phase B | |
| 13 | UC | AC voltage phase C | |
| 30 | A1 | RS485 Communication 1 | |
| 31 | B1 | | |
| 50 | Primary Switch Output | Two-way switch output | |
| 51 | | | |
| 52 | Secondary Switch Output | | |
| 53 | | | |
| 55~58 | Passive switch output | 4 passive switch inputs | Passive node |
| 59 | Public Terminal | | |
| 70 | Zero-ground voltage neutral line | Zero-ground voltage | |
| 71 | Zero-ground voltage ground wire | | |
| 72 | Leakage current incoming | Leakage current | |
| 73 | Leakage current outlet | | |
| 74 | Neutral current incoming line | Neutral current | |
| 75 | Neutral current outlet | | |
| 81 | 1 way temperature | Temperature sensor access | NTC temperature sensor is required |
| 80 | | | |
| 91-111 | 1 way temperature | 21-way outlet voltage input | |
| SET | 5-8 | Adress | For the setting method, please refer to 6 Parameter Setting |
| | 1-4 | Electric energy clearing and clearing demand | |

## 6.Parameter Setting

The communication address baud rate and other parameters are all set The communication address, baud rate and other parameters are all set by the dial switch. For the setting method, please refer to the device panel.

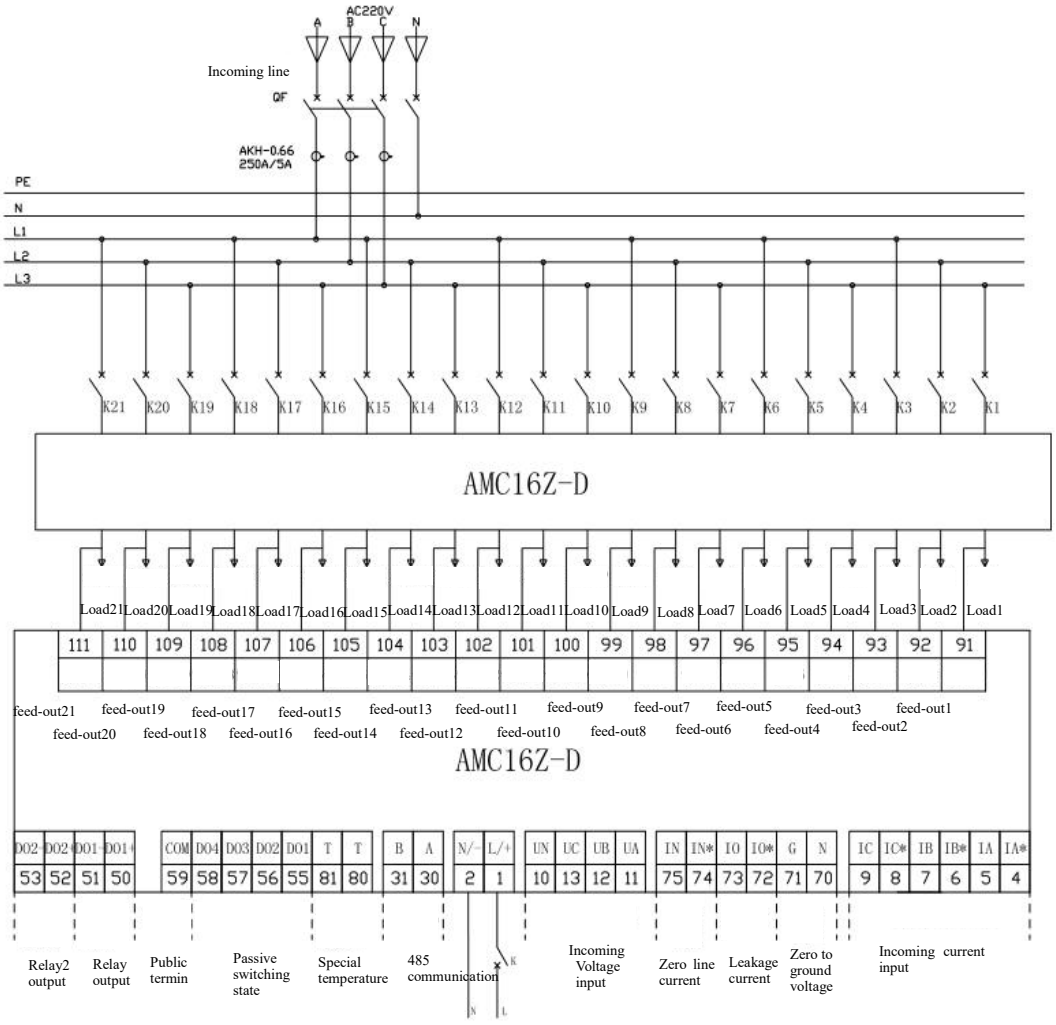
Energy clearing: If you need to clear the electrical energy, turn the 1 and 3 bits of the SET dial switch to the 1 position and Then power on the device again. After the electric energy is cleared, the 1 and 3 bits of the DIP switch SET must be set to 0 If the DIP switch does not recover after resetting, the reset operation will be performed every time the power is turned on. Note: DIP switch ON is state Wiring precautions:

1.The frequency of AMC16Z-D is calculated based on the V1 voltage, so ensure that the V1 voltage is connected, otherwise it may cause inaccurate measurement;

2. AMC16Z-D is used in a three-phase system, then 11, 12, and 13 are connected to voltages A, B, and C; AMC16Z-D is used in a single-phase system, and the voltages of 11, 12, and 13 are connected in parallel;

3. In the outgoing circuit of AMC16Z-D, there are both three-phase application and single-phase application, it needs to be wired according to AC three-phase system application, and each single-phase circuit needs to pay attention to its connected phase, otherwise the power of the single-phase circuit, etc. The parameters will be inaccurate.

## 7.Application Diagram



## 8.Matters needing attention

8.1 The value of the DIP switch must be set before the device communicates to make the device's communication address and baud rate meet the requirements.

8.2 The device should be installed in a dry, clean place away from heat sources and strong electromagnetic fields.

8.3 When wiring the device, pay attention to the phase sequence and polarity of the AC voltage and current, otherwise the measurement will be inaccurate.

8.4 CT must be used for current input, and the transformation ratio parameter of incoming line CT must be set through communication.

8.5 The accuracy of CT affects the measurement accuracy of this device. The angle difference of the CT will affect the measurement accuracy of the device's power and electrical energy.

8.6 A 2A fuse should be installed when applied to a direct access system without PT.

8.7 The CT ground terminal of the current input on the device should be led to the ground terminal separately. It is not recommended to connect the current input ground terminal in parallel on the device and then lead to the ground terminal.

8.8 The communication cable should use shielded twisted pair.

## 9.Common Faults And Cause Analysis

9.1 The measurement of the device is inaccurate.

*Check whether the wiring of voltage and current is correct, and whether the incoming and outgoing wires of current input are correct;

*Check whether the CT setting of the device corresponds to the actual CT used outside;

9.2 The voltage and current measurement is correct but the power measurement is inaccurate.

*Check whether the current input direction is correct;

*Check whether the phase corresponding to each current loop is correct;

9.3 Abnormal communication

*Check whether the communication cable is connected properly;

*Check whether the A and B terminals of the communication are staggered;

*Check whether the address of the device is set correctly, and whether the communication baud rate is set correctly;

*When the communication of multiple devices is abnormal, first try to see if the communication of the single device is normal;

9.4 The incoming line voltage, current, and power are available, but the electric energy has no value.

*Check the CT ratio setting of the incoming line

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